

PARTNERSHIP IN SAFETY: THE NEXT STEPS

7 October 2010

Summary of Output from Interactive Exercises

Executive Summary

The interactive sessions afforded an excellent opportunity for the CAA and industry representatives to discuss the safety issues that really mattered. The level of engagement and quality of feedback received have provided a great starting point for the ongoing development of the next State Safety Programme. The key issues to have emerged were:

- Prioritisation of loss of control and runway excursion over the other Task Force subjects;
- Importance of a good organisational culture as a prerequisite for a good safety culture;
- Need for improvements in identifying, measuring and addressing the root causes of incidents, particularly the Human Factor contribution (and strong support for further research in the field of Human Factors);
- Agreement on the importance of identifying and measuring precursor and leading safety performance indicators, particularly where they cut across several risk areas; and
- The need to join-up SMS across all aviation disciplines.

Interactive Exercise 1: 'Significant Seven' and Key Desired Outcomes

Prioritisation of 'Significant Seven'

- Prioritisation of the 'Significant Seven' resulted in four distinct groups: loss of control and runway excursion at the top, followed by CFIT and runway incursion in the second group, airborne conflict and ground handling in the third group, and airborne and post crash fire decisively at the bottom.
- The overall priority order for the 'Significant Seven' was:
 - 1 Loss of Control
 - 2 Runway Overrun/Excursion
 - 3 CFIT
 - 4 Runway Incursion
 - 5 Airborne Conflict
 - 6 Ground Handling
 - 7 Airborne and Post Crash Fire
- Whilst there was general agreement that the most appropriate 'safety events' had been identified in the 'Significant Seven', several tables suggested additional, higher-level issues that affect all of these events. These issues included:
 - Human Factors
 - Organisational and Safety Culture
 - Integrated SMS
 - Operational and Commercial Pressure
 - Fatigue (operational)

Discussion of Key Desired Outcomes (KDOs)

- There was general agreement on the KDOs, although in some cases there was insufficient time to discuss the KDOs for every Task Force subject. Priority had been given to prioritising the 'Significant Seven'. Specific comments against each of the 'Significant Seven' are listed below.

Loss of Control

- It was suggested that the KDO should read: "Significant reduction in the number of loss of control *occurrences* and serious incidents in which inadequate or ineffective monitoring by the flight crew was a contributory or causal factor" ("occurrences" replacing "accidents").
- Other issues included the need for improved basic handling skills, too much reliance on/lack of understanding of aircraft automation and extension of the scope of ATQP.

Runway Overrun/Excursion

- In addition to the KDO relating to unstable approaches, there was widespread support for improved (and consistent) information on runway contamination and braking action, a reduction in deep landings and an increase in correctly flown go-arounds (particularly those flown from below 200 ft where an approach has become destabilised late on).

CFIT

- There was support for an increase in the uptake of RNP-type approaches. However, it was felt that the approval process needed to be simplified for this to happen.
- Some tables felt that the current KDO was too specific. The following alternative was suggested: "Reduction in significant incidents during non-precision approaches through enhancements in technology and training".

Runway Incursion

- There was general agreement with the current KDO. However, it was pointed out that the target for Category B runway incursions appeared disproportionate compared to those for the other categories.

Airborne Conflict

- There was general agreement with the current KDOs. Only one table suggested different issues, and these included: a common transition altitude, extension of ACAS equipage, deletion of step climbs and improved ATC response to ACAS RAs.

Ground Handling

- Although there was agreement with the current KDOs, a number of additional points were raised. These included: a need for a significant improvement in reporting culture, improved standards and oversight of ground handling organisations, a reduction in de-icing errors and a reduction in ground handling incidents caused by *any relevant source* (not just "vehicles").

Airborne and Post Crash Fire

- The KDO was not widely discussed. However, alternative suggestions included an improvement in the diagnosis of the cause of hidden fires and a reduction in the risk of *any potential* fire occurring (not just hidden area fires).

Interactive Exercise 2: Actions to Achieve KDO and Measures of Success/SPIs

Loss of Control (Tables 1, 13 and 15)

Actions to Achieve KDOs

- The proposed actions were supported with a note that monitoring skills and their training should be embedded within CRM, and that the skills of examiners should be investigated for their relevance. It was also suggested that other industries (e.g. nuclear and railway) should be consulted when identifying best practices for application to human flight deck monitoring.
- An additional action was proposed to ensure, via active encouragement, that handling skills are maintained through manual handling irrespective of an aircraft's automation fit.

Measures of Success/SPIs

Most Effective

- The proposed measures were deemed to be effective, albeit very technically focussed. However, it was felt that the proportion of manually flown approaches was not an appropriate leading indicator.

Available to Collect

- The proposed measures were all felt to be available to collect (provided that an operator had a functioning FDM system).
- An additional, available to collect, measure was inappropriate autopilot mode for a given stage of flight.
- It was suggested that use of eye-tracker technology could generate useful data.

Difficult to Collect

- It was suggested that a measure of a pilot's level of alertness would be useful, albeit difficult to collect.
 - Pilot response time was suggested as a potential leading indicator.
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Runway Overrun/Excursion (Tables 4 and 12)

Actions to Achieve KDOs

- The proposed actions were supported with the addition of "de-stabilised approach" to the requirements of the first action.
- Additional actions were proposed to improve information available to flight crew on runway condition/state, and to consider the use of distance to go markers and aircraft-based technologies such as Airbus's Runway Overrun Warning and Prevention.

Measures of Success/SPIs

Most Effective

- The most effective measures were deemed to be an increase in the number of touch-downs in the runway Touch-Down Zone at the correct speed, an increase in the number of correctly flown go-arounds and a reduction in the number of deep landings.
- It was felt that the proportion of non-precision approaches flown by UK aircraft was not a relevant leading indicator.

Available to Collect

- Data on the causes of go-arounds, trends in the location of events and deep landings were felt to be available to collect.

Difficult to Collect

- Data on the mindset of flight crew and inappropriate use of retardation devices were felt to be difficult to collect.
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CFIT (Tables 3 and 6)

Actions to Achieve KDOs

- There was no disagreement with the proposed actions. The need for improved education and training in current and future approach operations was emphasised. An RNAV approach data collection survey was also suggested.

Measures of Success/SPIs

Most Effective

- Specific measures were not described. However, improved training through better knowledge of Human Factors and use of ATQP was stated.

Available to Collect

- Again, specific measures were not described but it was stated that data from FDM and MOR/air safety reports were available to collect.

Difficult to Collect

- Human Factors related data were felt to be difficult to collect.
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Runway Incursion (Tables 2 and 8)

Actions to Achieve KDOs

- The first action was supported with collaboration being key. However, it was suggested that CAA's role might be more facilitator than leader.
- It was suggested that aerodrome operators should self-regulate to ensure that their Local Runway Safety Team was effective.
- It was suggested that areas for standardisation and clarity across aerodromes could be identified through a working group of relevant specialists. It was felt that language difficulties and callsign confusion was largely caused by ambiguity and this needed to be reduced as much as possible. Publication of aerodrome hotspots was supported (e.g. through the AIP and/or DVDs for specific aerodromes).

Measures of Success/SPIs

Most Effective

- A reduction in runway incursions, of all categories, normalised per aircraft movement was felt to be the most effective measure. The proposed leading indicators were supported.
- It was questioned whether there was a relationship between Category A/B and Category C/D runway incursions.

- It was also questioned whether random snapshots of RT could be used to highlight language difficulties.

Available to Collect

- Specific measures were not described, but it was stated that data on incidents at UK aerodromes were available to collect.

Difficult to Collect

- Data on incidents at foreign aerodromes and incidents involving foreign operators at UK aerodromes were felt to be difficult to collect.
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Airborne Conflict (Tables 10 and 11)

Actions to Achieve KDOs

- The proposed actions were supported with suggestions to consider ETOPS procedures in actions 1(ii) and (iii), and Computer Based Training in action 2(ii).
- Other suggested actions included: mandating the carriage of ACAS/transponders in certain airspace, use of graphic display of NOTAMs and automatic altitude setting.

Measures of Success/SPIs

Most Effective

- Loss of separation, broken down by aircraft size and airspace type, was felt to be the most effective measure.

Available to Collect

- Data on losses of separation in UK airspace, UK AIRPROX, altimeter setting errors, flight crew switching-off transponders and aircraft dispatching with unserviceable ACAS were available to collect.

Difficult to Collect

- Data on incidents outside of UK airspace and incorrect response to ACAS were felt to be difficult to collect.
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Ground Handling (Tables 5 and 14)

Actions to Achieve KDOs

- One table suggested the licensing of ground handling organisations based around performance (organisational culture, training, etc.). The other suggested the adoption of standardised procedures accompanied by increased regulatory oversight (as opposed to increased regulation). The latter also felt the need for a reasonable degree of flexibility to step outside of 'standardised procedures' but this should be controlled by a formal mechanism (e.g. requiring approval from the regulator).
- Other suggested actions included: possible mandating (by aerodrome operators) of confidential reporting systems for ground handling personnel, a study to better understand the Human Factors/behavioural issues associated with ground handling related occurrences, promotion of Just Culture and mandating of SMS for ground handling organisations.

Measures of Success/SPIs

Most Effective

- A short-term increase in reporting of all ground handling related occurrences was felt to be the most effective measure. A longer-term reduction in reported high-risk incidents was also deemed to be an effective measure.
- It was suggested that the 'collisions, near-collisions and conflicts' SPI could be expanded to include ground infrastructure/equipment (in addition to vehicles and taxiing aircraft).
- It was also suggested that SPIs could be broken down by reporter (e.g. those reported by airlines vs those reported by ground handling organisations).

Available to Collect

- Data on collision related occurrences involving aircraft were largely available.

Difficult to Collect

- Data on 'near miss' type events (e.g. loading errors caught before doors closed) were felt to be difficult to collect and would require a significant improvement in reporting culture amongst the ground handling community. Similarly, data on vehicle-to-vehicle incidents.

Airborne and Post Crash Fire (Tables 7 and 9)

Actions to Achieve KDOs

- One table felt unable to assess the effectiveness of the proposed actions, as the rationale behind their generation was not available. However, the following actions were proposed:
 - Develop a standard set of descriptors for fire related incidents that would assist industry in sharing data.
 - Improve fire awareness of design and maintenance staff to encourage practices that would reduce the likelihood of fires occurring.
 - Encourage compliance with procedures by cabin crew.
 - Review operator procedures for cleaning and collecting rubbish from aircraft cabins.
- The other table highlighted five key areas: early detection of fires, effectiveness of response to fires, process to prevent causes of oven fires, cost-benefit study to identify differing smells and goods carried in luggage (dangerous goods).

Measures of Success/SPIs

Most Effective

- The proposed SPIs were supported.

Available to Collect

- Data on fire, smoke and fume related incidents were largely available through the MOR Scheme. However, greater knowledge of the root causes of incidents was required.

Difficult to Collect

- Hidden/undeclared dangerous goods were felt to be a significant fire risk for freighter aircraft but associated data were likely to be limited.

Interactive Exercise 3: What can CAA do to provide long-term safety value and what can CAA do to improve on the value added?

- Actions that provide long-term safety value were often also identified as areas in which the CAA could improve, so responses to the two questions have been combined and grouped under the following high-level categories.

Policy

- Clearly state the role of the CAA (and those of related organisations such as the DfT)
- Maintain current high standards in UK aviation
- CAA should define its own Just Culture
- “Do the right thing” – even if the outcome can’t be directly measured

Regulation/Regulatory Approach

- Regulations should be future proof as far as practicable
- Regulations and regulatory oversight should be risk-based, proportionate and holistic
- Inspections should be more hands-on rather than paperwork (‘tick-box’) exercises
- Regulatory oversight should focus more on performance rather than compliance
- Ensure that the pace of regulatory change is proportionate to the risk that the change is intended to address
- Ensure that “industry’s cowboys” are appropriately treated
- Introduce regulation and/or increase regulatory oversight of ground handling operations and provision of associated guidance material
- Set standards for management of Human Factors
- Carry-out audits of organisational culture
- Be more accepting of new technologies
- Become more “business savvy” (e.g. cost/benefit for safety, reduced costs to industry through improved efficiency)
- Consider outsourcing of roles to industry where appropriate
- Need for better assessment of suitability of nominated post holder and accountable manager roles

International Influence

- Improve effectiveness of influence on EASA, Commission, ICAO, etc.
- Collaborate more effectively with non-EU aviation regulators
- Influence to ensure a “level playing field” in Europe

Communication and Partnership with Industry

- Continue with improvements in consultative approach and two-way engagement with industry
- Make better use of industry expertise
- Improve communication with the more diverse operators
- Get out and about more to promote awareness, grow relationships and continue the partnership theme with industry

- CAA should facilitate the promotion and sharing of industry good practice across all disciplines
- Improve quality of IT, particularly the CAA website
- Keep industry updated on progress with Task Force work

Safety Data Reporting and Analysis

- Provide industry with better feedback of trends identified in MORs and other sources of safety data
- Improve effectiveness of data/intelligence sharing with industry and international colleagues
- Improve identification of the root causes of incidents, particularly the Human Factors contribution
- Learn more from incidents/accidents where things were done well
- Protect and enhance (particularly for ground handling) the UK's good reporting culture
- Improve understanding of statistical relevance

SMS

- Need for joining-up of SMS across all aviation disciplines
- Need for improved guidance – “What does best practice look like?”
- Quality assurance of SMS