Focus on Value
Introducing the Focus on Value Presenters

Steve Hawkes, IOGP
Andrea Cicero, Babcock
Dan Rosenthal, Milestone
Tim Rolfe, Bristow Group Inc.
Dave Balevic, CHC Helicopter
Gretchen Haskins, HeliOffshore
Focus on Value

Steve Hawkes, IOGP
A Safety Perspective

- Current industry environment requires a business behavior biased towards economic survival.
- Safety improvements usually evolve as a by-product in a reactive environment.
- Industry will recover and afford a more strategic view of safety, which can be a key ingredient to a future industry that is safer, more efficient and more profitable.
- Today we must react, but as industry leaders we can envision, align and plan for tomorrow.
IOGP – What Now?

- IOGP initiative to reduce number of incidents leading to fatalities amongst its membership.

- IOGP Aviation Sub Committee drafting a list of highest value safety initiatives for IOGP Management Committee review and endorsement.

- HTAWS implementation letter of support under review for Management Committee endorsement.
What does the data say? Consider the improvement staircase (2010-2015)

This is where we would be as an industry
The Aviation Safety Staircase (2006-2016)

- Total fatalities: 120
- If there were no gearbox or rotor failures: 80
- If there were no obstacle collisions: 60
- If there had been no loss of control: 40
- If crew had been able to respond correctly to a warning system: 20
- If there were no Maintenance Errors: 10
- If there were no Birdstrikes: 5
- If helicopters had always floated: 0

Fatalities
A Future State Through Strategic Safety

• How do we create the environment with fertile soil for all these great safety initiatives to thrive?

• Technology, improved maintenance or operational procedures alone can not solve the problem.

• The entire landscape of our industry must be redesigned towards a new way of doing business, assuring the full potential of safety and operational effectiveness to survive.

• Safety and Profitability will go hand-in-hand in a strategic well-planned future environment.

SAFETY IS AN INVESTMENT NOT AN EXPENSE
What are the levers that will create a proactive safety environment?

- Incentives
- Business Cases
- Efficiencies
- Requirements
- Data Driven Decisions
- Standardisation
- Collaboration
- Targets and measures
- Volume

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Return on Investment

Andrea Cicero, Managing Director,
Babcock Mission Critical Services
Return on Investment (ROI)

- In financial terms: $\text{ROI} = \frac{\text{Payback} - \text{Investment}}{\text{Investment}}$
- Demonstration of ROI – historically challenging – often requires comprehensive safety and financial data.
- Investment may be needed over extended period of time and/or across a number of departments/functions, e.g. aircraft modifications by engineering department, flight crew training programmes, etc.
- Payback (= reduced costs) may be “realised” by otherwise unrelated departments, e.g. finance paying reduced insurance premiums, maintenance having a lower overtime bill.
Industry cost of a catastrophic Accident

- Wave 1 Fatalities/Asset Loss
- Wave 2 Fleet Residual Value risk
- Wave 3 Industry implications
- Wave 4 Loss of contract/service

Accident total wave effects could be up to £2-3 billion
Our “gold medals” safety initiatives

<table>
<thead>
<tr>
<th>Accident Events</th>
<th>Accident Prevention Goals</th>
<th>Accident Survival Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Failure</td>
<td>Early Diagnosis of Potential Failures</td>
<td>Impact Survival</td>
</tr>
<tr>
<td></td>
<td>Safety Equipment Operating</td>
<td>Floatation</td>
</tr>
<tr>
<td>Aircraft Upset</td>
<td>Effective Use of Automation</td>
<td>Underwater Escape</td>
</tr>
<tr>
<td>Surface/Obstacle Conflict</td>
<td>Enhanced Space/Reduce Obstacles</td>
<td>Sea Survival</td>
</tr>
<tr>
<td>Heliport/Helideck</td>
<td>Detect/Avoid Obstacles</td>
<td>Land/General Survival</td>
</tr>
<tr>
<td>Weather</td>
<td>Night/IFR Flight Mitigations</td>
<td>Alerting</td>
</tr>
<tr>
<td>Collision in Air</td>
<td>RADALT Procedures/Use</td>
<td>SAR/Emergency Response</td>
</tr>
<tr>
<td>Ground Collision/Handling</td>
<td>Vessel Pitch, Roll, Height Limits</td>
<td>Post-Accident</td>
</tr>
<tr>
<td>Fuel Exhaustion/Contamination</td>
<td>(Hot) Refuelling Procedures</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enablers</th>
<th>Safety Leadership/Culture</th>
<th>Effective SMS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Info Sharing</td>
<td>Competency</td>
</tr>
<tr>
<td></td>
<td>Multi-crew Operations</td>
<td>Personnel Readiness</td>
</tr>
<tr>
<td></td>
<td>Modern/Proven Technology</td>
<td>Standards &amp; Oversight</td>
</tr>
</tbody>
</table>

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Business reasons to invest in life cycle reliability analysis programmes

**Biggest Cost versus Safety benefits**

- Maximising airworthiness and safety by identify risks in all phases of an aircraft’s life cycle
- Monitoring effectiveness of aircraft/component maintenance programmes
- Monitoring the effect that different environments have on aircraft and their components
A moment for thought

How many accidents over the last 10 years might have been prevented if there had been more robust reliability/life cycle analysis programmes running with the OEM’s and operators working in harmony together?

How many could we prevent over the next 10 years?
An example of what is needed in the business environment to deliver life saving safety improvements:

Helicopter Terrain Awareness Warning System (HTAWS)
# H-TAWS Accidents and Incidents

## 6 Accidents

<table>
<thead>
<tr>
<th>Location</th>
<th>Registration</th>
<th>Aircraft Type</th>
<th>Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scilly Isles</td>
<td>G-BEON</td>
<td>S61</td>
<td>20 dead</td>
</tr>
<tr>
<td>Cormorant Alpha</td>
<td>G-TIGH</td>
<td>Super Puma L</td>
<td>11 dead</td>
</tr>
<tr>
<td>Morecambe Bay</td>
<td>G-BLUN</td>
<td>Dauphin</td>
<td>7 dead</td>
</tr>
<tr>
<td>ETAP</td>
<td>G-REDU</td>
<td>EC225</td>
<td></td>
</tr>
<tr>
<td>Sumburgh</td>
<td>G-WNSB</td>
<td>Super Puma L2</td>
<td>4 dead</td>
</tr>
</tbody>
</table>

**Total 42 deaths**

## 4 Incidents

<table>
<thead>
<tr>
<th>Location</th>
<th>Registration</th>
<th>Aircraft Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clipper</td>
<td>OY- HJJ</td>
<td>EC155</td>
</tr>
<tr>
<td>Newfoundland</td>
<td>C-GQCH</td>
<td>S92</td>
</tr>
<tr>
<td>GOM</td>
<td></td>
<td>S92</td>
</tr>
<tr>
<td>Sussex</td>
<td>G-WIWI</td>
<td>S76</td>
</tr>
</tbody>
</table>

**Total 42 deaths**
### Warning times radically improved

### Implementation WILL save lives

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Current Equipment</th>
<th>Modified Equipment</th>
<th>Improvement (Best to Best)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AVAD (set to 160ft)</td>
<td>HTAWS (excl. AVAD = Mode 6A)</td>
<td></td>
</tr>
<tr>
<td>Scilly Isles, 1983</td>
<td>24.0</td>
<td>4.0</td>
<td>24.0</td>
</tr>
<tr>
<td>Cormorant ‘A’, 1992</td>
<td>6.0</td>
<td>1.5</td>
<td>6.0</td>
</tr>
<tr>
<td>Morecambe Bay, 2006</td>
<td>7.0</td>
<td>7.5</td>
<td>8.0</td>
</tr>
<tr>
<td>ETAP, 2009</td>
<td>7.0</td>
<td>1.5</td>
<td>15.0</td>
</tr>
<tr>
<td>Sumburgh, 2013</td>
<td>5.0</td>
<td>7.0</td>
<td>8.0</td>
</tr>
<tr>
<td>Clipper, 2013</td>
<td>0.0</td>
<td>5.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Sea Rose, 2011</td>
<td>12.5</td>
<td>18.0</td>
<td>31.0</td>
</tr>
<tr>
<td>‘920194’</td>
<td>1.0</td>
<td>6.8</td>
<td>11.4</td>
</tr>
</tbody>
</table>

**Best warning time (current)**

**Best warning time (new)**
What was/is needed?

- Research - less than £150K ✔
- Data for business case and specification ✔
- Regulator support ✔
- Project Manager ✔
- Critical Path Schedule ✔
- Agreed funding – IOGP letter of intent ✔
- Supplier development for research and in service ✔
- OEM integration ☐
- A group effort! ✔

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Current Strategy and Safety Projects
Safety Projects

3 = System Reliability & Resilience near-term
10 = Enhance Obstacle Avoidance through HTAWS
11 = Evidence Based Training

<table>
<thead>
<tr>
<th></th>
<th>LOW</th>
<th>MEDIUM</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAFETY BENEFIT</td>
<td>16</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>1, 6, 8, 12, 13, 14, 15, 19, 20, 22</td>
<td>4, 17, 21, 23</td>
<td>2, 18</td>
<td></td>
</tr>
<tr>
<td>10, 11</td>
<td>9</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
Case Studies:

- Evidence Based Training
- Reliability and Resilience
Focus on Value: EBT Case Study

Tim Rolfe, Bristow
What is Evidence-Based Training (EBT)?

- Significant shift in approach to simulator pilot training
- Defined by analysis of multiple sources of risk
- Competency-based assessment programme
- EASA Rule-making ongoing: 2015 – 2021
- Voluntary adoption of regulation allowed
What is needed to develop helicopter EBT?

- Build the evidence case – Helicopter Data Report
- Adopt principles of EBT ahead of regulation
- Ensure adequate simulator provision
- Train instructors to EBT standards
How do we create the environment for EBT to be successful?

• Building and sustaining the ‘evidence’:
  • Making LOSA the ‘norm’ in helicopter operations
  • Developing comparative Flight Data Monitoring datasets

• Ensuring adequate simulator provision:
  • by fleet
  • by region

• Adopting EBT principles in advance by:
  • Introducing competency-based assessment to current training programmes
  • Working with regulators outside Europe
Making EBT a success....
1. What are the important things we need to get right for this EBT opportunity to be successfully and effectively implemented?

2. What specific requests, promises and offers are you willing to make to make this happen?

*Capture output on Post-It notes on your tables, noting which of the 9 areas you are addressing.*
Focus on Value: Reliability and Resilience
Case Study
Dave Balevic, CHC Helicopter
System Reliability and Resilience

• 30% of fatal accidents associated with technical failure
• Save lives, enhance availability, reduce life cycle operating cost, enhance maintenance decision making
• Reduce non-value added maintenance activities
• Gather more intelligence from the aircraft operating systems
System Reliability and Resilience

Action priorities by fleet

• **Return to Base**: gather RTB event data from Operators
  • Set top 5 priorities for both equipment and human performance
  • Communicate broadly to all through Data Sharing

• **Improve** how system capability can enhance human performance

• **Develop** a culture which facilitates information sharing
  • Deliver a collaborative list of priorities to Operator’s and OEM’s
1. What are the important things we need to get right for this Improved System Reliability opportunity to be successfully and effectively implemented?

2. What specific requests, promises and offers are you willing to make to make this happen?

*Capture output on Post-It notes on your tables, noting which of the 9 areas you are addressing*
Focus on Value: Reflections

Steve Hawkes, IOGP