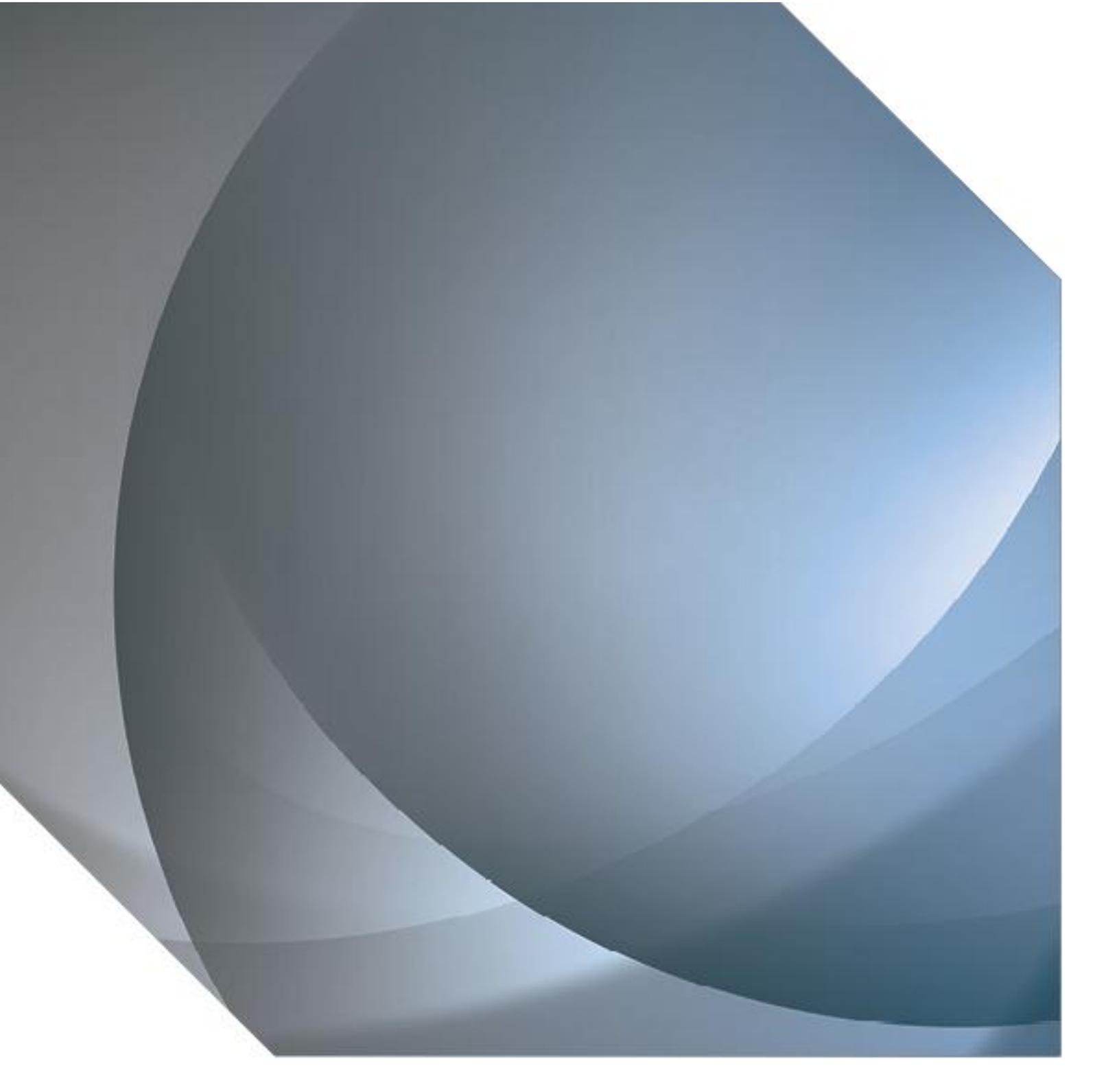


Human Factors: Action Plan

CAP 1209



Published by the Civil Aviation Authority, 2015

You can copy and use this text but please ensure you always use the most up to date version and use it in context so as not to be misleading, and credit the CAA.

September 2015

The latest version of this document is available in electronic format at www.caa.co.uk

Enquiries regarding the content of this publication should be addressed to:

Civil Aviation Authority, Aviation House, Gatwick Airport South, West Sussex, RH6 0YR

Contents

| | |
|--|----------|
| Human Factors: Action Plan | 2 |
| Overview | 3 |
| Strategy Action Items | 3 |
| Policy | 3 |
| Regulation | 3 |
| Implementation | 3 |
| Standards | 4 |
| Training | 4 |
| Assurance | 4 |
| Data, analysis and research | 4 |
| Communication and promotion | 4 |
| Current Projects | 5 |
| Safety Reporting | 5 |
| Human Factors in Safety Management Systems | 5 |
| HF Day to Day | 5 |
| Automation | 5 |
| Pilot Performance | 6 |
| Engineer Performance | 6 |
| Fatigue | 6 |
| Training | 7 |
| Completed Projects | 8 |
| ECCAIRS Taxonomy | 8 |
| CAP 737 | 8 |
| Strategy Actions | 9 |

Human Factors: Action Plan

September 2015

This document is intended to supplement [CAP 1159](#), our Strategy for Human Factors in Civil Aviation.

Overview

This action plan has been produced to provide an overview of projects related to the CAA strategy for Human Factors in Civil Aviation. The August 2015 version of the document has been updated to give an account of the progress and outcomes of the 2014 HF Strategy.

The next section contains a summary of the action items followed by a brief summary of some specific projects. As the projects are completed more information will become available through our normal publications and the website.

A quick reference summary of the action plan is attached in appendix one which shows how the projects fulfil the action items from the strategy.

Strategy Action Items

Policy

- Produce practical tools and guidance
- Create focused HF programmes based on identified risks
- Use SMS to provide evidence of HF considerations and culture
- Ensure CAA staff are trained in HF and able to assess and provide best practice guidance

Regulation

- Encourage EASA to give consideration to HF when developing AMC and GM, develop further standards documents where required
- Collect and share evidence of best practice across communities
- Continue to work with European and international bodies to promote best practice throughout aviation

Implementation

- Regularly update the action plan and website
- Train CAA focal points within each domain
- Integrate HF standards within SMS
- Develop a network of external HF contacts

Standards

- *New strategy item* - Develop standards with regards to HF risk assessment processes and further the understanding and development of workload assessment
- Promote standards made to be consistent with best practice
- Continue to work with EASA to see standards developed that reflect the different communities within aviation
- Review internal competency frameworks and promote viable options to industry for use in their own evaluation processes

Training

- Develop a common language and framework for training
- Emphasise practical relevance in refresher training
- Integrate HF training with other communities
- Develop further specific guidance to be made available on the CAA website
- Assessment of identified safety risks to ensure that outcomes are aligned with a performance based approach
- Assess impact of automation and technology in HF training and development

Assurance

- Develop performance-based assessment of HF programmes
- Develop means to observe HF in safety critical tasks during normal operations
- Develop a method of seeking evidence of an integrated approach to HF during SMS oversight

Data, analysis and research

- Publish bow-tie analysis for HF and supporting material
- Support research into understanding trends in safety reporting
- Update ECCAIRS taxonomy to provide better causal HF information across all communities

Communication and promotion

- Produce and share practical tools and guidance
- Combine and promote HF within SMS
- Seek evidence of effective promotion methods and encourage their use

Current Projects

There are a number of projects within the CAA that are currently ongoing to fulfil commitments made in the Strategy. This is an outline of projects that are currently underway.

Safety Reporting

In our efforts to foster a Just Culture, the CAA and BALPA are working collaboratively with the London School of Economics to look at the reporting culture of pilots to the MOR scheme. The study aims to educate our approach in order to inform future work with regard to safety reporting and the reasons and extent of unreported safety occurrences. Future work will broaden in scope to include all users of the MOR scheme.

Human Factors in Safety Management Systems

The HF in SMS project goal is to improve how HF elements are integrated into SMS by providing better guidance and feedback to organisations. The guidance is designed to be relevant to a wide variety of organisations and proportionate to their size.

Input was gathered from a wide group of industry stakeholders at a CAA hosted workshop at the end of 2014 and we are continuing to work with industry to validate the concepts. The development of industry guidance will continue through to Q4 2015.

HF Day to Day

HF Day to Day is a safety survey programme which has been ongoing in NATS for a number of years, and has found good success in identifying and improving operational safety issues. The CAA and NATS have been trialling the programme in a UK airline in order to gauge its effectiveness and develop the methodology in the flight deck.

The current project is focused on validating the principal and methodology within a specific organisation as well as providing guidance to our inspectors. Our longer term aim will be to adapt and publish a more generalised methodology and distribute guidance that would allow other organisations to adopt the process.

Automation

In February last year the CAA and NATS hosted a successful international workshop on automation within the aviation industry. As a result of this two industry working groups have been formed to further explore the topics raised at last year's event. These groups are focused on automation in Helicopters and in Air Traffic Management (ATM). Their work over the next 6 months aims to produce sets of automation principals as guidance to steer the philosophy, development and integration of automated systems.

Work on automation is also underway in many of the CAA's capability areas which are not included in this action plan.

Pilot Performance

Pilot training has been the subject of a number of recent incidents both within the UK and internationally. This has resulted in a number of studies and reports discussing the practical improvements available to initial and recurrent flight crew training. To this end we have begun a review of training within the UK, looking at the current activities and potential improvements that could be made to training and exploring ways to take any improvements forward. Input from industry is being gathered through interviews and further consultation will be sought at a workshop in Q4 this year.

Engineer Performance

We are working to reduce the impact of Maintenance Human Factors errors through a collaborative approach with industry. We are seeking to develop more effective safety interventions, improved personal competencies, develop safety culture and improve maintenance standards.

Airworthiness Action Group

Data gathered from MOR and Industry indicate a significant number of maintenance HF events are still occurring. While there are initiatives carried out within individual organisations, a different approach to encourage further safety improvements has been developed within Airworthiness consisting of action groups which targeting specific areas. The initial focus is in the following areas;

- Repeat HF errors
- Planning
- Procedures
- Competency and Training

UKMEMS/CAA Maintenance HF Occurrence Review

A Joint occurrences review is being carried out by the CAA and CHIRP. This continues a series of regular reviews which look at the causal and contributory factors in events. This work is used to identify focus areas and measure long term trends.

Fatigue

Research commissioned by the CAA and conducted by the Dutch National Aerospace Laboratory (NLR) and Netherlands Institute for Neuroscience (NIN) aims to better understand the feasibility of non-invasive methods of monitoring trends of fatigue in pilots and the resulting impact on human performance. The results of this work are expected in Q3 2015 and will be made available as a research document.

Our long term ambition is to develop a robust and simple fatigue self-assessment tool, this would allow organisations to better understand and manage fatigue risks across their safety critical workforce on the ground and in the air. The extent of this future work is of course dependent on the findings and engagement from the aviation community.

Training

Staff training is always an ongoing process and we are continuing to develop HF competencies and course content for our internal training programme. Externally, we will also continue to work towards our goal of having appropriate and consistent HF knowledge better embedded within training, supported where appropriate by competency frameworks.

Ground Service Providers (GSP) Performance

Occurrence data and intelligence gathered from industry, indicates that a significant proportion of ground operations incidents have contributing human performance factors, typically; organisational culture, operational pressures and influences. However, there are few HF considerations given to those who work in and around the airside environment. This sector of the industry, which is mainly unregulated, must be developed in parallel with other initiatives, to ensure that there is full appreciation of how human factors affect the safety critical tasks undertaken by ground service personnel.

Currently, the IATA Airport Handling Manual AHM 611 (6.1.2.4) recommends “Human Factors” Training for all employees and as such many GSP’s have a HF training program. However, the value of its application is uncertain, due to the lack of human performance based research around ground handling functions.

GHOST and ECAST

This topic has been previously initiated with both the Ground Handling Operations Safety Team (GHOST) and the European Commercial Aviation Safety Team (ECAST) but it is acknowledged further development is required. Therefore, the initial focus is in the following areas;

- Develop a task analysis of the aviation ground handling sector to determine the requirements for HF training
- Construct a training matrix and tailored training framework applicable to all GSPs
- Produce a safety investigation guide that embeds HF considerations
- Generate revised content for the Code of Conduct ([CAP 642](#)) to include HF best practice based on what is learnt
- Conduct a safety awareness campaign

This work will be conducted by the CAA’s Ground Handling inspectorate in collaboration with industry groups with input from the HF programme.

Completed Projects

ECCAIRS Taxonomy

After providing input to the development of an updated version of the ECCAIRS taxonomy the revisions are being managed within EASA. Through internal testing and with the support of a UK airline the feedback received so far has been positive. It is hoped that improvements to the way HF aspects of safety occurrences are categorised and grouped can benefit CAA and those in industry who require a taxonomy.

CAP 737

The Flight Crew Human Factors Handbook, CAP 737, is a practical resource around the subject of CRM training and guidance. It was published in October 2014 with supporting CRM training videos, the details of which are available on [our website](#).

An updated version of [Standards Document 29](#) was published in June 2015, providing guidance on requirements for flightcrew training and testing of human factors under EASA Part ORO and FCL.

Appendix A

Strategy Actions

| | Projects | | | | | | | | | | | | |
|--|------------------|-----------|---------------|------------|-------------------|----------------------|--------------------|-------------------|----------------------|--------------------|---------------------|-------|--|
| | Safety Reporting | HF in SMS | HF Day to Day | Automation | Pilot Performance | Engineer Performance | Fatigue Monitoring | Internal Training | Competency Framework | HF Risk Assessment | Workload Assessment | Other | |
| Produce tools | | | | | | | ● | | ● | ● | | | |
| Develop Specific guidance | ● | ● | ● | ● | ● | ● | | | | ● | ● | | |
| SMS to include HF considerations | | ● | | | | | | | | ● | | | |
| Train CAA staff | | | | | | | | ● | ● | | | | |
| Influence EASA development of AMC and GM | | | | ● | | | | | | | ● | ● | |
| Collect, share and promote best practices | ● | ● | ● | ● | ● | ● | ● | | | ● | ● | | |
| Develop network of external HF contacts | | ● | | ● | | | | | | | | ● | |
| Influence development of performance based standards | | | | ● | | | ● | | | ● | ● | | |
| Develop competency frameworks | | | | | | | | | ● | | | | |
| Develop common framework for training | | | | | | | | ● | ● | | | | |
| Emphasise practical, relevant training | | | | | | | | | | | | ● | |
| Integrate HF training with other communities | | | | | | | | | ● | | | ● | |
| Assess impact of automation in HF | | | | ● | | | | | | ● | ● | | |
| Develop performance assessment of HF programmes | | | | | | | | | | | | ● | |
| Develop observation of HF in safety critical tasks | | | ● | | | | | | | ● | | | |
| Seek evidence of HF integration during SMS | | ● | | | | | | | | ● | | | |
| Research trends in safety reporting | ● | | | | | | | | | | | | |
| Seek evidence of effective promotion methods | ● | | | | | | | | | | | ● | |
| Embed BowTies in HF strategy | Ongoing | | | | | | | | | | | | |