

Review of UK civil flying display and special event governance

For the Department for
Transport

Document information

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Summary

On the 22 August 2015, Hawker Hunter G-BXFI crashed on to the A27, Shoreham Bypass, while performing at the Shoreham Airshow, fatally injuring eleven road users and bystanders. A further 13 people, including the pilot, sustained other injuries.

The AAIB within their report on the accident recommended the Department for Transport commission an independent review of the governance of flying display activity in the United Kingdom, to determine the form of governance that achieves the level of safety it requires. In Spring 2018 Helios was appointed by the DfT to undertake and report on the review.

The scope of the review is limited to the governance model that supports civil flying display as the Ministry of Defence has its own governance model that encompasses military flying displays and flypasts. The DfT confirmed that this review was not to identify the “the required level of safety” for flying displays and special events as the DfT has a separate workstream that is reviewing the required safety levels within aviation.

The approach followed in conducting this review included:

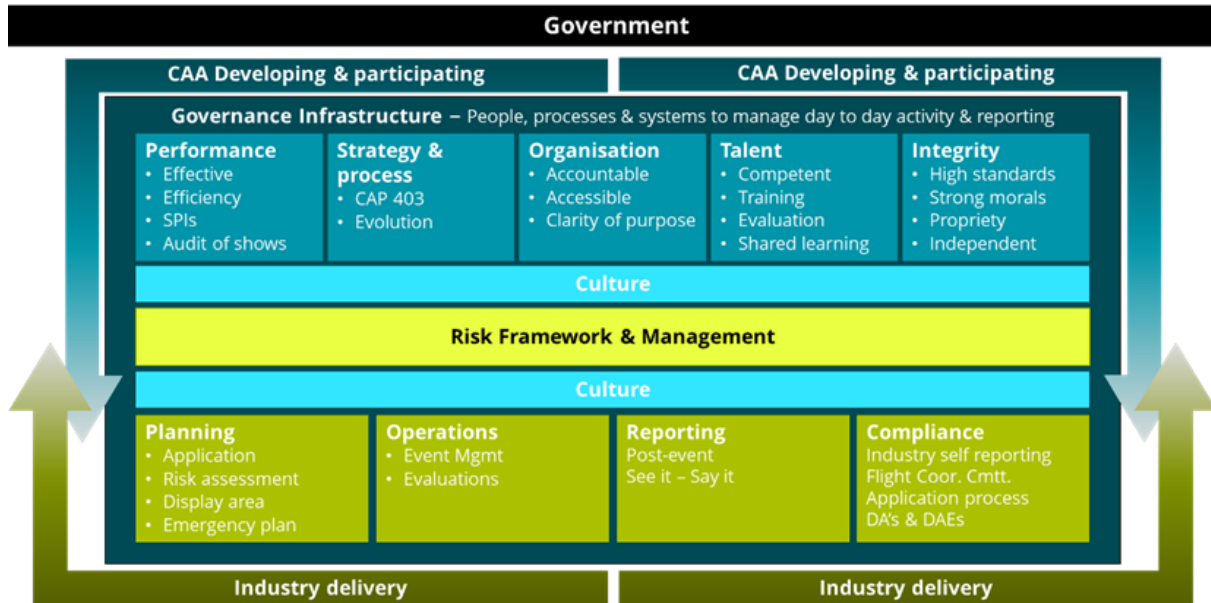
- Document reviews of air display regulations, covering the UK and 7 other nations
- Meetings with DfT, CAA and AAIB
- Formation of an Expert Panel

In defining governance, the review identified eight principles of effective governance, listed below, and developed an interpretation of the current governance framework for UK civil flying displays and special events.

- Independence
- Openness and transparency
- Accountability
- Integrity
- Clarity of purpose
- Effectiveness
- Competency
- Leadership and resourcing

The top half of the framework in Figure 2 depicts areas where the regulator’s / governing board’s responsibility is heightened. The lower half of the framework identifies those areas where the CAA’s responsibilities are more related to understanding the activities and providing oversight; whilst the display industry plans, delivers and reports in a compliant manner.

Figure 1 – Framework of existing UK civil flying display governance



We were able to compare the UK’s flying display governance framework against its equivalent in seven other countries across five of the governance principles; we have concluded:

The international comparison has not identified an alternative form of governance that Helios believes will lead to further improvements in safety within UK flying display activity.

The Expert Panel expressed an opinion that no organisation in the UK was in a position to undertake self-governance of flying display and it was unlikely any would want to. Additionally, there is a question about whether the UK public would consider self-governance an acceptable approach given the catastrophic consequences of the Shoreham accident. Helios therefore concludes:

That a transition towards greater self-governance by the display industry is not an appropriate course of action to take.

Within the review of the elements of the governance framework, we identified the following areas that could be enhanced: independence, openness & transparency, accountability and clarity of purpose.

The CAA maintains a strong **independence** from the industry although the industry has commented that there is too much distance between the CAA and the display community. In some cases, the display community would benefit if the CAA could provide greater advice and guidance to improve the understanding and compliance with CAP 403 whilst not compromising its regulatory functions. There is a balance here that needs constant monitoring, to maintain an appropriate level of independence whilst minimising regulatory capture, with the aim of maximising safety. Our recommendation in this area is:

The CAA should consider what additional feedback it can provide when assessing applications under CAP 403 and whether it can provide guidance or advice in its responses.

The CAA has increased in **openness and transparency** in recent years and should continue on this path. We also found that the display community has a challenge to become more open and transparent with the CAA. The industry has indicated that it is concerned, at times, of reporting incidents or occurrences to the CAA due to the perception of punitive action being taken; there is an

alternative reporting route, through CHIRP, that is independent of the CAA and confidential. We make two recommendations in this area:

The CAA should establish a working group with membership including the CAA, the flying display community and any other relevant parties to investigate whether representative(s) from the industry could be involved in CAA investigations of reported incidents or other problems. The aim would be to give industry representatives visibility of CAA internal processes and add the benefit of their experience, although confidentiality and independence must be maintained.

The display industry should develop a proposal of its own to put in place or promote the use of a reporting process that is acceptable to the CAA but governed in a way that display community members are prepared to report all safety-related incidents and occurrences. This should be used to enhance safety across the industry. The process should allow the benefits of a Safety Management System to be available to all air display participants.

The AAIB accident report¹ identified confusion between stakeholders as to who owned the flying display risks. The expert panel expressed the collective view that the **accountability** principles of CAP 403 are appropriate, but there is still evidence of misunderstanding by some in the display community. We therefore recommend that:

The CAA should review CAP 403 to clarify the risk responsibilities of the CAA (particularly regarding risk assessments) and for each participant. Additionally, to ensure there is total clarity, it should be emphasised that compliance with CAP 403 does not provide indemnity to any stakeholder in the case of an incident.

Following review and the expert panel discussion, we concluded that **clarity of purpose** could be improved within CAP 403. Specifically, to clarify the requirements, guidance, best practice and acceptable means of compliance. This would allow the air display industry professionals to be clear where they can, for example, use alternative acceptable means of compliance. In addition, it was suggested by the expert panel that CAP 403 would be clearer if it was separated into the different roles associated with air displays. We therefore recommend:

The CAA should review CAP 403 to see if it would be beneficial to re-structure it into mandatory requirements, best practice/acceptable means of compliance and guidance material. The CAA should also consider whether it would be clearer if divided into several different documents focussing on the different activities (eg obtaining approval for flying displays, gaining accreditation as a FDD, obtaining a DA and being accredited as a DAE).

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Acronyms

AAIB	Air Accident Investigation Branch
ACE	Aerobatic Competency Evaluation
ADD	Assistant Display Director
ANO	Air Navigation Order
ASSA	Air Show South Africa
AU	Australia
BADA	British Air Display Association
CA	Canada
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CAR	Canadian Aviation Regulation
CASA	Civil Aviation Safety Authority
CHIRP	Confidential Human Factors Incident Reporting Programme
CZ	Czech Republic
DAE	Display Authorisation Evaluator
DD	Display Director (equivalent to an FDD or Air Boss)
DfT	Department for Transport
EAA	Experimental Aircraft Association
EO	Event Organiser
FAA	Federal Aviation Authority
FAIR	Flowchart Analysis of Investigation Results
FCC	Flight Coordination Committee
FDD	Flight Display Director (equivalent to a DD or Air Boss)
FDSO	Flight Display Safety Officer
GA	General Aviation
GAU	General Aviation Unit (within the UK CAA)
ICAO	International Civil Aviation Organisation
ICAS	International Council of Air Shows
LA	Local Authority
MAA	Military Aviation Authority
NZ	New Zealand
NZASA	New Zealand Airshow Association
OECD	Organisation for Economic Co-operation and Development
PBO	Performance Based Oversight
RAASA	Recreational Aviation Authority of South Africa
SA	South Africa
SAE MOP	Special Air Event – Manual of Procedures
SK	Slovakia
SRG	Safety Regulation Group
TA	Transport Authority

TC	Transport Canada
UK	United Kingdom
US	United States of America

1 Introduction

1.1 General

The United Kingdom (UK) Air Accident Investigation Branch (AAIB) within their "Report on the accident to Hawker Hunter T7, G-BXFI near Shoreham Airport on 22 August 2015"¹, recommended

...that the Department for Transport commission, and report the findings of, an independent review of the governance of flying display activity in the United Kingdom, to determine the form of governance that achieves the level of safety it requires.²

The Department for Transport (DfT) accepted this recommendation and believes that such a review could provide an additional level of assurance to the Department that the current governance of flying display activity is fit for purpose or indicate areas for further improvement. The Aviation Safety Team, that works in the Aviation Directorate at the DfT, contracted Helios to undertake the review recommended by the AAIB and this report presents that review along with our observations and conclusions.

1.2 Background

On the 22 August 2015, Hawker Hunter G-BXFI crashed on to the A27, Shoreham Bypass, while performing at the Shoreham Airshow, fatally injuring eleven road users and bystanders. A further 13 people, including the pilot, sustained other injuries.

Flying displays have been, and continue to be, popular since the early days of manned flight with large numbers of spectators and participants. Flying displays and aerial special events form a significant part of the UK leisure industry. According to the British Air Display Association (BADA) approximately 5 million people attend UK flying displays annually making them the third highest attended outdoor activity. The Government recognizes the importance of flying displays to the UK and its economy as well as the many charities that benefit from their income. Flying displays are important in promoting science, technology, engineering and mathematics activities, education and careers whilst providing benefits to many local and national charities.

Risk is a constant element of our lives that cannot be eliminated. As a society we expect those who are accountable and responsible to minimise the third-party risk we are exposed to; whilst as individual we make choices, both conscious and sub-conscious, about the risks we expose ourselves to. To minimise the risks and to conduct a safe flying display relies on *inter alia*; the training and experience of organisers and participants; the airworthiness of the aircraft; and, the planning and risk management of the event. Regulations, guidance and oversight provide the governance structure to ensure these requirements are effective.

The Civil Aviation Act 1982 empowers the Civil Aviation Authority (CAA) to regulate civil flying displays and special events within the UK in accordance with the requirements of the Air Navigation Order (ANO 2016, formerly 2009). Within the ANO there are specific requirements for flying displays in the UK. These place legal responsibilities on both the organiser of a flying display - the Flying Display Director (FDD) – and each participating

¹ Aircraft Accident Report 1/2017

² Safety Recommendation 2017-011

pilot. Before putting on a flying display the FDD must obtain permission in writing from the CAA, and all civil display pilots must hold a display authorisation. The CAA publication "Flying Displays and Special Events: Safety and Administrative Requirements and Guidance" (CAP 403, Edition 15, March 2018) sets out the procedures to be followed by organisers and participants of civil flying displays and events.

The safety of any flying display is the responsibility of a number of different individuals and organisations. As well as the FDD, a flying display event may involve an Event Organiser (EO), the Local Authority (LA), the emergency services and the Health and Safety Executive (HSE). Each will operate within their own regulatory and governance framework whilst co-ordinating with each other.

Military flying displays, and flypasts are conducted under the regulation of the Military Aviation Authority (MAA) and in accordance with MAA Regulatory Article 2335 Issue 8.

During the investigation the AAIB made 31 recommendations to the CAA and 1 to the DfT. The CAA has accepted all the recommendations made by the AAIB (or the AAIB recommendations have been superseded by actions the CAA initiated as part of its own review).

Immediately after the accident the CAA conducted a review into the safety regulation of flying displays. As a result, the CAA introduced a range of enhanced measures to increase the safety standards of UK civil flying displays. These have included issuing new guidance on enhanced risk assessments for displays, strengthening provisions in areas such as training and checks for those overseeing displays; and the experience, skill and health of pilots.

1.3 Review objectives

The main objective for this review is to critically assess the current governance arrangements for flying display safety in line with the AAIB's recommendation and provide a full report that can be published. The review should identify, if appropriate, potential measures that could be used to help deliver a more efficient and proportionate system, with an emphasis on those that can be implemented most effectively at a UK level with supporting analysis and evidence.

1.4 Scope of review

The review only considers the governance model that supports civil flying display as the Ministry of Defence has its own governance model that encompasses military flying displays and flypasts.

The DfT confirmed that this study was not to identify the "the required level of safety" for flying displays and special events as the DfT has a separate workstream that is reviewing the required safety levels within aviation.

Also, out of scope are the governance of general aviation, pilot licensing, aerodrome safety, airspace operation and management, and airworthiness assurance.

1.5 Approach followed

The approach followed in conducting this review included:

- 1) Document reviews, covering the UK and 7 other nations
- 2) Meetings with DfT, CAA and AAIB
- 3) Formation of an Expert Panel

Document reviews

The initial stage in this review was to undertake a desk-based document review, which encompassed the following documents:

- 1) AAIB Accident Report 1/2017
- 2) Flying Display and Special Events: Safety and Administrative Requirements and Guidance, CAP 403, Edition 15, March 2018
- 3) UK civil air display review: final report, CAP 1400, Version 1.2, 26 May 2016
- 4) Independent review of the Civil Aviation Authority's air display enhanced measures, 1st Edition, 3 May 2017
- 5) Safety Performance Indicators for civil flying displays, 11th December 2017, P2528D001
- 6) Regulatory and guidance documents related to the safe delivery of flying displays in the United States of America (US), Canada, New Zealand, Australia, South Africa, Slovakia and Czech Republic.

The objectives of the document review were:

- 1) To familiarise ourselves with the circumstances of the Shoreham accident and the recommendations made by the AAIB.
- 2) Be aware of the major elements of the journey that all stakeholders have made since Shoreham and the reactions to the changes made by the CAA.
- 3) To ensure a comprehensive awareness of the latest flying display and special event requirement and guidance materials published by the CAA.
- 4) To understand the inter-relationship of the various documents.

Meetings

At the start, and at regular intervals, this review met with Head of Aviation Safety Policy and Strategy at the DfT, to discuss the approach and findings of the study.

As background research a meeting was held with a Principal Inspector at AAIB, to better understand and discuss the recommendation made by the AAIB.

To gain a better understanding as to the development and application of the CAA's duty in respect to civil flying displays and special events, as well as exploring any views they had on alternative governance structures, Helios met with the representatives of the CAA³.

³ Air Display Regulation Manager, Flying Display Programme Lead, and Legal Advisor

Expert Panel

To bring in-depth and practical experience to this review Helios established an Expert Panel. The panel comprised expertise in governance, risk management, civil and military flying display organisation, display flying, human factors and military regulation. The MAA have no direct accountability within the civil governance of flying displays and their presence at the workshop was primarily to allow a comparison of how civil and military approaches differ, more importantly to understand why there are differences and potentially to allow good practice to be shared.

The members of the Panel are listed in Table 1.

Table 1 – Expert panel members

<p>Geoffrey Podger</p> <p>Geoffrey has held four British and international Chief Executive posts in the public health and regulatory sectors, namely as Chief Executive of the UK's Health and Safety Executive, the European Food Safety Agency, the UK's Food Standards Agency and most recently as Acting Chief Executive of WorkSafe New Zealand. Geoffrey chaired the CAA Challenge Panel.</p> <p>He is currently Senior Visiting Research Fellow, Kings College Centre for Risk Management, a lay Council Member of the Royal College of Radiologists, a member of the Standards Board of the Association of Chartered Certified Accountants and in addition holds various honorary health and safety positions.</p>	
<p>John Turner</p> <p>FDD – Farnborough International Airshow and ex-chairman of BADA</p>	<p>Rick Peacock-Edwards</p> <p>Chairman, General Aviation Safety Council, Display pilot, FDD and FCC member</p>
<p>Roger (Dodge) Bailey</p> <p>Chief Pilot – Shuttleworth Collection</p> <p>Display pilot</p>	<p>Air Commodore Stephen Lushington</p> <p>Head of Operating Assurance within the MAA</p>
<p>Squadron Leader Jeremy Case</p> <p>Regulations Subject Matter Expert, MAA</p>	<p>Stewart Luck</p> <p>Ex-FDD, Display pilot, Board member of BADA and founder member of the original air display association AADOP and became its first chairman.</p>
<p>Barry Neal</p> <p>Chair of BADA, FDD and FCC member</p>	<p>Lauren Wilson</p> <p>Display pilot, Board member of BADA</p>
<p>Bill Dean</p> <p>Chief Pilot (Defence Aerospace) – Rolls Royce, Spitfire Display Pilot</p>	

On the 25th July 2018 the Panel met for an all-day workshop to review the research and thinking prepared by Helios, as part of this study, before going on to debate more widely the strengths and weakness of the current flying display Governance framework.

The objective of the workshop and the scope were aligned with those defined in Sections 1.3 and 1.4 of this report. Whilst the detail of CAP 403 was out of scope, it was difficult at times not to discuss detailed requirements and guidance from CAP 403; however, this report has endeavoured to extract the salient observations, included within Section 4, of the point being made by the workshop attendees.

1.6 Overview

This report sets out our assessment of the current UK governance structure for flying displays and special events. The structure of the report is as follows:

- Section 2 – Introduces the term governance, looking at the core principles of effective governance and how these are developed into a cohesive governance framework.
- Section 3 – Provides a comparison between the UK's flying display governance framework and those operating in seven other nations. The review looks to identify if the overall form of governance in other nations or aspects of it would lead to improved display safety within the UK.
- Section 4 – Collates the information gathered through both document reviews and through discussions with a panel of experts in the form of observations on the current UK display governance framework and makes recommendations as to where improvements could be made.
- Section 5 – Provides a summary of the key observations and all recommendations.

2 Governance

Governance can take many forms and can range from structured to informal. Overall, governance is the systems and processes concerned with ensuring the overall direction, effectiveness, supervision and accountability of an organisation or group of individuals with a common objective. In practice good governance should:

- Provide a set of processes and procedures such that those performing governance are informed to be able to deliver clear, open, honest, transparent and effective direction and oversight whilst the participants can undertake their roles in a way that is compliant and achieves the overall objectives.
- Distil down to specific, roles, accountabilities and communications to allow the day-to-day operation of activities within the boundaries set by a governance framework.
- Help answer questions such as, “Is this ok?”, “Who makes the decision?”, “Who do I need to tell?”, “How is this checked?”
- Provide a feedback loop that can identify trends and respond to changing circumstances, challenges and regulatory needs.

2.1 Governance framework

Governance is typically delivered through a governance framework. A governance framework provides an organisation or a group of individuals with common objectives, and reflects the interrelated relationships, factors and other influences upon them. Different organisations with different objectives and priorities develop different governance frameworks but they tend to have a number of principles in common. The British and Irish Ombudsman Association defines six principles:

- | | |
|----------------------------|--|
| 1) Independence | Freedom from interference in decision making |
| 2) Openness & transparency | To earn confidence of stakeholders in decision making and management of the process |
| 3) Accountability | Ensuring that all members / stakeholders are responsible and accountable for their decisions |
| 4) Integrity | Honesty, selflessness & objectivity, high morals principles and standards of behaviour |
| 5) Clarity of purpose | Why does the governance exist? What it does and what to expect from it |
| 6) Effectiveness | Ensuring the delivery of quality outcomes, efficiently and effectively to deliver value for money. |

The Organisation for Economic Co-operation and Development (OECD) published a paper on “The characteristics of an Effective Nuclear Regulator” which contributes two further principles:

- 7) Competency Technical competency should be at the core, with other competencies built upon this fundamental and essential requirement.

- 8) Leadership & resources Ensuring strong leadership, with robust management systems and adequate resources

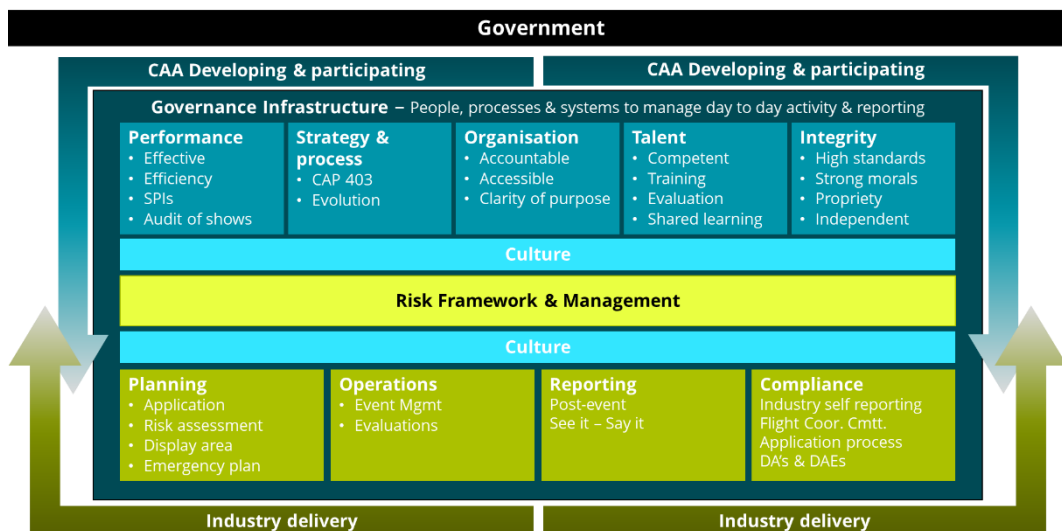
These additional principles are supportive of “Effectiveness” and “Openness and Transparency” from the six principles identified above.

The Department for Business Innovations & Skills, Better Regulation Delivery Office, Regulators’ Code, April 2014, also states that regulators should “base regulatory activities on risk”. This is consistent with the CAA’s implementation of performance-based regulation. Building regulatory or governance activities on a risk-based approach is consistent with ensuring the governance is efficient and provides value for money, and therefore included in the Effectiveness principle defined above.

2.2 A governance framework for UK civil flying display activity

The following figure, developed during this review, is based on the research undertaken, meetings held and was presented to and accepted by the Expert Panel. The figure displays an interpretation of the current UK governance framework that surrounds flying displays and special events.

Figure 2 – Framework of existing UK civil flying display governance



The Government, via the Civil Aviation Act 1982, sets the primary legislative framework that empowers the CAA to regulate flying displays and the Air Navigation Order 2016 provides the legal requirements. Hence the Government is shown at the top of Figure 2.

The CAA’s role in governing flying display activity ranges from setting the framework, defining the governance operating model, participating in some activities whilst overseeing others. The top half of the framework, in Figure 2, depicts areas where the regulator’s / governing board’s responsibility is heightened. In these governance activities it would not

be considered adequate by the majority of society for the CAA only to “understand and monitor” the flying display’s community’s activities; hence, the CAA has primary responsibility for defining, developing and participating within these activities. These areas include Performance, Strategy and process, Organisation, Talent, Integrity and the Risk framework.

The lower half of the framework, in Figure 2, identifies those areas where the CAA’s responsibilities are more related to understanding the activities and providing oversight; whilst the display industry plans, delivers and reports in a compliant manner. The importance for the CAA here is to be able to monitor that the activities are undertaken in line with requirements and identify any issues or potential issues. For governance of flying display these areas include, Planning, Operations, Reporting and Compliance.

The governance infrastructure, that envelopes the framework, is the collection of people, processes and systems that are in place to direct the day-to-day activities. The following table maps the core areas of the governance framework to the principles of good governance and to the key flying display governance activities.

Table 2 – Governance framework, principles and flying display activities

Framework area	Principle	Activity	Accountable party
Performance	Effectiveness	Monitoring of safety performance indicators	CAA
	Openness & transparency	Analysis of post-event reports	CAA
		Flying display audits	CAA
Strategy & process	Clarity of purpose	Reflections on post-event reports	CAA
		Review & update of CAP403	CAA
Organisation	Independence	Structure, leadership and resourcing of CAA	CAA
	Accountability	Definition of EO, FDD, FCC, DAEs roles & responsibilities	CAA
	Effectiveness	Accreditation of FDD	CAA
	Leadership & resources	Briefing of display pilots	FDD
	Clarity of purpose		

Framework area	Principle	Activity	Accountable party
Talent	Effectiveness Technical competency	Development of CAA staff skills & capabilities	CAA
		Training of FDD's	CAA & MAA
		Evaluation of competency – FDD's	CAA
		Evaluation of competency – DA's	DAE
		Display pilot mentoring	DAE
		Shadowing of FDDs	FDD
		Pre/Post Season symposium	CAA – organisation and delivery Industry stakeholders – attendance & learning
Integrity	Integrity	<p>Integrity is the morals and principles portrayed in our words and actions and not by completing a specific activity.</p> <ul style="list-style-type: none"> - Being open & honest - Being fair - Setting high standards <p>CAA assess Integrity through their Behavioural and Attitudinal Fitness form⁴.</p>	CAA & all industry stakeholders

⁴ Form SRG1308B Application for fitness assessment for a flying display role

Framework area	Principle	Activity	Accountable party
Planning	Accountability	Display planning	FDD & EO
		Display approval	CAA
		Preparation of a risk assessment	FDD & EO
		Developing emergency plan	FDD & EO
		Defining the display area	FDD
		Presentations to pre/post season symposiums	CAA
Operations	Effectiveness	Incident & near-miss reporting	Industry stakeholders
		Review & update of CAP 403	CAA
		Managing cost of Article 86 approvals	CAA
		Management of flying displays	FDD
		Ensuring consistency of decisions	CAA
		Evaluations of competency	CAA & DAE

Framework area	Principle	Activity	Accountable party
Reporting	Openness & transparency Accountability Technical competency	Preparation & submission of Post event reports	FDD
		Feedback pre/post season symposium	CAA
		Reporting by any display community member	Industry stakeholders
Compliance	Effectiveness	Preparation & submission of Post-event reports	FDD
		Understanding & implementation of CAP 403	EO, FDD, FCC Members, DA holders, DAEs
		Evaluation of display pilots	DAE
		Reporting poor performance & concerns	Industry stakeholders
Risk framework & management	Effectiveness	Setting of a risk matrix	EO & FDD
		Application of risk assessment process	EO & FDD
		Delivery and monitoring of mitigations	EO & FDD
		Audit of flying displays	CAA
		Ownership of risk	EO & FDD
		Adoption of a “just culture”	CAA & Industry stakeholders

3 Comparison of governance frameworks

Within this study we have compared the UK flying display governance with that implemented in 7 other countries; United States of America, Canada, Australia, New Zealand, South Africa, Slovakia and Czech Republic. We initially set out to only look at the five English speaking nations in this list as through previous studies we had some understanding of flying display practices and / or safety records and / or relationships with the national aviation authorities. The two Eastern European nations were included as Helios have an office in Slovakia with local staff that understand the Slovak and Czech regulations.

Different organisations within the same industry, such as the financial industry, take different approaches to the design and implementation of governance although they are all working to the same regulatory or legislative requirements. Aviation is no different with each nation taking different approaches to aviation legislation, regulation, and governance whilst all are aiming to deliver a safe, secure, economically sustainable and environmentally responsible industry that is aligned with the standards and best practices agreed through International Civil Aviation Organisation (ICAO). The fact that different organisations and different aviation authorities have adopted different governance frameworks and governance operating models does not mean that one or other is not necessarily safe. They need to be compared carefully because each will have its own processes, mitigations and safeguards reflecting its local environment

3.1 Principles to compare

In the previous section of this report 8 principles of good governance were identified:

- 1) Independence
- 2) Openness & transparency
- 3) Accountability
- 4) Integrity
- 5) Clarity of purpose
- 6) Effectiveness
- 7) Competency
- 8) Leadership and resources

Some of these principles are easier than others to compare, particularly when the review is primarily being based on document reviews and remote communications with governance bodies; for example, integrity is a personal attribute and largely based on morals, this is not something that can be compared within this review. In reviewing the different governance frameworks and operating models we have therefore compared the aspects related to:

Governance principle	Aspects to compare
Independence	Removal or management of actual or perceived conflict of interest
Openness & transparency	Defined process & reporting
Clarity of purpose	Focus on safety & minimising risk
Accountability	Defined roles, responsibilities, authority, and boundaries
Competency	Training, assessment, evaluation Shared learning

The following sections each address different aspects of the governance principles and compares how each nation addresses it.

3.2 International comparisons

All 7 nations we have compared the UK to have a formal governance framework and operating model documented and published to oversee the running of flying displays (airshows, aviation special events, air races, hot-air balloon festivals, competitions, etc).

3.2.1 Which body and what is the operating nature of the body that approves applications for and audits compliance at flying displays?

In researching the above question, we were not just interested in determining the organisation(s) but also understanding if it was a national body accountable to the Government such as a national aviation authority, or if the Government or national aviation authority had delegated the approval and / or audit responsibilities to an industry association or private body.

Nation	Question response
United Kingdom (UK)	Civil Aviation Authority – receives, reviews and approves applications and audits a sample of displays each year across the UK.
United States of America (US)	Federal Aviation Authority (FAA) – the policy is set centrally but the FAA involvement in display events is devolved to regional branches. The branches appoint an “Inspector In Charge” for every event to review applications for waivers from national aviation standards, undertake a site inspection and attend almost all events.

Nation	Question response
Canada (CA)	Transport Canada (TC) – Similar to the US the policy is set centrally but its implementation is devolved to regional offices. TC Receives, reviews and approves applications and audits a sample of display events.
Australia (AU)	Civil Aviation Safety Authority (CASA) – Set the policy centrally but devolves the implementation to the regional offices. CASA receives, reviews and approves applications and audits a sample of display events.
New Zealand (NZ)	Civil Aviation Authority or an approved Part 149 Certificated body – Currently there are two such bodies, the NZ Warbirds Association and Gliders of NZ; the latter is only authorised to handle gliding events. Applications can be made to anyone of these three organisations and the organisation is then also responsible for an inspection / audit of the event. The CAA periodically audits the Part 149 Certificated bodies.
South Africa (SA)	The South African Civil Aviation Authority has delegated all its responsibilities in relation to flying display events to the Recreational Aviation Administration – South Africa (RAASA). The RAASA board comprises members from both the CAA and the Aero Club of South Africa, so RAASA is a hybrid of the two approaches seen so far. All applications are made to RAASA and they audit every event prior to the event, RAASA provides oversight at 100% of approved events.
Slovakia (SK)	Transport Authority (TA) of Slovakia – Receives, reviews and approves applications and audits a sample of display events.
Czech Republic (CZ)	Civil Aviation Authority – Receives, reviews and approves applications and audits display events

3.2.1.1 Conclusion

All the nations reviewed require an application for a flying display event to be made to an appointed body and it is often that appointed body that later reviews and audits the actual special aviation event. The nature of the appointed body can vary between being industry or regulator led but overall this review has not seen evidence that suggests either approach has greater merit than the other. Therefore, this review concludes that in this regard the UK approach is appropriate.

3.2.2

Is a formal risk assessment prepared and submitted as part of the application and approval process?

Nation	Yes / No	Question response
UK	Yes	The Event Organiser (EO) and the FDD are accountable for the production and submission of a full risk assessment that covers all aspects of the flying display. Primarily the FDD is accountable for aviation related risks and the EO for non-aviation risks.
US	N/K	Not known
CA	No	CAR 603/623 defines specific requirements that the Special Flight Operation Certificate holder must meet, along with information on how they can be achieved. There is no requirement to develop or submit a formal risk assessment.
AU	Partial	CASA requires the display organiser to conduct and compile a risk assessment, but it is not submitted as part of the special aviation event application process. Section 3.4 of CASA's Air Display Administration and Procedure Manual, V3.0 states that the risk assessment is to identify and mitigate against all known or anticipated hazards and threats associated with the display to provide as safe an environment as possible for the public and uninvolved third-party persons not directly associated with the display.
NZ	Yes	Advisory Circular 91-1 Aviation Events advises that the display director must formulate an event risk assessment and produce an emergency plan. The document also advises that should there be an accident or incident the risk assessment might be challenged. Confirmation that the risk assessment is submitted to the approval body was received from the NZ CAA.
SA	Yes	The FDD / Flight Display Safety Officer (FDSO) must undertake a physical inspection and audit of the site prior to preparing an aviation risk assessment. The risk assessment includes all aspects where aviation activities present a risk, including to 3 rd parties not attending the event. The audit and risk assessment are submitted to the RAASA. The Public Safety Officer and Emergency Responder are required to perform their own hazard & risk assessment in cooperation with the organiser, FDD and FDSO.
SK	No	There is no formal requirement to conduct or produce a risk assessment.
CZ	N/K	Not known.

3.2.2.1 Conclusions

There is inconsistency in the approach taken between nations and of the countries reviewed only the UK, New Zealand and South Africa require formal risk assessments to be submitted to the event approval body. In comparison the US, Canada, Slovakia and Czech Republic do not require a risk assessment to be prepared. Helios believe it is appropriate and proportional to expect a risk assessment to be prepared and that the risk assessment should have followed a robust development process. The submission of the risk assessment to the CAA, even though they do not formally approve the risk assessment, is considered fair and proportionate.

3.2.3 Is a risk-based approach adopted by the governing body in relation to which events are inspected?

Nation	Yes / No	Question response
UK	Yes	<p>There is a policy to inspect a sample of events, which in recent years has been 15 to 20% of all events. What the right percentage of events to inspect is difficult to determine precisely. As the breadth and depth of the safety performance indicator data gathered by the CAA increases it should become easier to identify if the scale of inspections needs to increase or decrease. This is in line with the CAA's Performance Based Regulation approach.</p> <p>The CAA Performance Based Oversight (PBO) policy for flying displays and events includes a matrix to evaluate if a display warrants inspection. The matrix defines 8 attributes which are scored against 3 categories. Based on the overall score shows either get classified for "No inspection", "Inspection may be required" or "Inspection required".</p> <p>If the number of shows to audit exceeds the available staff resources, then the inspections are prioritised based on the flying display PBO matrix.</p> <p>The CAA Evaluation Oversight Officer, responsible for the oversight of the Display Authorisations (DA) and Display Authorisation Evaluators (DAEs), also applies a performance-based approach in the delivery of their duties.</p>
US	N/K	Not known
CA	Yes	<p>TC have had to introduce a risk-based approach to the inspection of flying displays as they do not have sufficient staff to inspect all displays.</p> <p>TC have confirmed that there is currently a desire and momentum to increase the number of displays inspected.</p>
AU	N/K	Not known

Nation	Yes / No	Question response
NZ	No	NZCAA Flight Operation Inspectors are on site to officially monitor large flying display events. NZCAA confirmed that they generally have some staff at all event.
SA	No	RAASA have stated that they conduct pre-event audits of all display events. RAASA does not interfere with the execution of the display whilst in progress, and should any matters of concern arise, RAASA will bring this to the attention of the appointed FDD for their immediate remedial actions. RAASA performs oversight at every approved flying display i.e. 100% each year.
SK	No	Not as a specific policy although Transport Authority staff attend every major display and a selection of the smaller displays.
CZ	N/K	No details

3.2.3.1 Conclusion

It is not clear from the review undertaken if every nation even has a formal audit and inspection policy for special aviation events and those that do differ in whether they audit all or a sample of displays. It appears to Helios that auditing a sample of events is pragmatic and to audit all is disproportionate if effective governance is in place. Where a sample of events are inspected, by nations other than the UK, Helios has the impression that the number of inspections is more influenced by the availability of resources and finances than by a robust risk-based approach; although some performance-based criteria are applied once the number of shows that can be audited has been identified. The UK evaluate the risk of each application, against a pre-determined matrix, to determine if an inspection is appropriate.

3.2.4 Is there a well-defined and documented process, that is clear and easy to follow?

Nation	Yes / No	Question response
UK	Yes	UK CAA publish a document titled: Flying displays & special events: Safety and administrative requirements and guidance (CAP 403). CAP 403 provides a clear view as to; <ul style="list-style-type: none"> - the over-riding needs to prioritise safety of all; - the roles and accountabilities of each person involved in organising and delivering events; - the process to be followed.

Nation	Yes / No	Question response
US	Partial	<p>As someone unfamiliar with the US flying display governance framework the appearance of the documentation reviewed within this study is one of fragmentation. Some of the information is in the Flight Standard manuals, (FAA 8900.1 Volume 3 & 5), whilst some is in an Advisory Circular (which was published in 1990).</p> <p>Separate to the information published by the FAA further information is published by the International Council of Air Shows (ICAS).</p>
CA	Partial	<p>TC within CAR 603/623 clearly outlines the requirements that need to be achieved if a flying display is to be granted approval. The CAR also provides supplementary information to assist and guide those involved in the planning and delivery of a display. The CAR however does not provide a clear process to follow, although it does direct readers to ICAS for additional guidance.</p>
AU	Yes	<p>CASA publishes a document titled: “Air Display Administration and Procedure Manual”. The document is similar to the UK CAP 403 and provides a clear view as to;</p> <ul style="list-style-type: none"> - the over-riding need to prioritise safety of all; - the roles and accountabilities of each person involved in organising and delivering events; - the process to be followed.
NZ	Yes	<p>The NZ CAA publication Advisory Circular 91-1 Aviation Events. The circular is similar to the UK CAP 403 and provides a clear view as to;</p> <ul style="list-style-type: none"> - the over-riding need to prioritise safety of all; - the roles and accountabilities of each person involved in organising and delivering events; - the process to be followed.
SA	Yes	<p>Special Air Events – Manual of Procedures, this is a comprehensive document with detailed requirements and remit.</p>
SK	Partial	<p>The Transport Authority publishes a document, written by the former Aircraft Authority, titled: Requirements of the Aircraft Authority of the Slovak Republic for the Organization of Public Aviation Events.</p> <p>The document focuses more on the regulatory requirements than it does in defining a clear process.</p>
CZ	Yes	<p>Terms and Conditions for the Organisation of public Air Shows</p>

3.2.4.1 Conclusion

The content of the various documents varies from define the core requirements to setting out the requirements, process, guidance and best practice. It is our view that the UK CAP 403 is as clear and comprehensive as any of the documentation reviewed for other nations.

3.2.5

Is there a requirement to provide post-event reporting and feedback on the management, delivery and safety of the show? If so are the lessons learned shared formally with the industry?

Nation	Yes / No	Question response
UK	Yes	<p>The UK CAA & Military Aviation Authority (MAA) require post-display feedback to be submitted on a specific form⁵ within 7 days of the flying display concluding. The report contains details of the display items that performed on each day of the display, what went well, any lapses and breaches from the required standards, any warning, terminate or stop calls made and any lessons learned.</p> <p>The lessons learned and any subsequent changes to the requirements or guidance for organising and running a flying display is shared and communicated to the industry. One avenue for doing this is the pre / post display season symposium.</p>
US	Partial	<p>The FAA Inspector In Charge has to make an entry within the FAA's Program Tracking & Reporting System. The FAA have an active programme to enhance surveillance at displays and the quality of the reporting.</p> <p>From our communications with the FAA the reporting by the Inspector In Charge is related to the waivers issued for a display and does not cover the management and delivery of the event in the way that the UK CAA feedback does.</p> <p>Trends in relation to waivers and compliance is fed back to the industry via ICAS conferences.</p>
CA	Partial	<p>In a similar manner to the US a TC inspector must produce a display report for internal use within TC. The Inspector may write to the Air Boss advising of areas of performance improvement required at future events.</p> <p>There does not appear to be a formal process by which Transport Canada uses the reports provided by Inspectors to generate lessons learned and revise guidance for display organisers and Air Bosses. They indicated that updates on safety are provided by ICAS through their Ops Bulletin and annual conferences.</p>
AU	Yes	<p>CASA's requirements are very similar to the UK's post display reporting, with a minor difference that the Display Organiser has 14 days to deliver the report rather than 7 days.</p> <p>The requirement to provide this feedback is still recent but CASA has indicated that it is their intention to share it industry wide.</p>

⁵ "Flying Display Director Post Display Feedback Form" SRG1305

Nation	Yes / No	Question response
NZ	Yes	<p>It is not clear if the CAA of NZ requirement is mandatory or only recommended. A post-event report on the conduct of the flying display can be of value to the organiser for planning future events, as well as to the CAA. The report should include recommendations that identify what improvements could be made to the event, the civil aviation rules, or the Advisory Circular to enhance safety</p> <p>The NZ Airshow Association (NZASA) requires all DDs and ADDs to attend a biennial NZASA DD course or conference. Each year the NZASA DD course/conference will review “lessons learned” from NZ and international flying displays.</p>
SA	Yes	<p>South Africa differs to other nations in that they require a report from both the FDD and FDSO. The FDD, FDSO and FCC as well as other display officials shall perform a debrief within 7 days after the event. This may be conducted in person, by telephone or by e-mail with all participants and the organizing committee. Once the debrief is completed the FDD and FDSO shall each compile a post event report and submit this directly to RAASA no later than seven days after completion of the event.</p> <p>Additionally, all incidents, accidents, safety or regulatory occurrences or violations must be reported within 24hrs. Most other nations have similar requirements to these although not all require regulatory violations to be reported so urgently.</p> <p>The information flowing from the reports is reviewed and discussed by RAASA, Airshow South Africa (ASSA) and the Display Authorisation Committee following each flying display. These matters are further tabled at ASSA board meetings. When required recommendations are sent to members and/or amendments made to the SAE MOP.</p>
SK	Partial	<p>Slovakia has a set form that has to be completed by the display Director and submitted within 15 days to the Transport Authority, although the feedback is focused on where the rules have been broken not on the management or delivery of the show in terms of what went well, what could be done better, or lessons learned.</p> <p>There is no prescribed process for feeding back lessons learned from the post-event reporting to the industry.</p>
CZ	Partial	<p>Flight Directors or organisers are required to share their opinions, experience or remarks that could increase safety of these displays with the CAA. There is no set template for this reporting and the focus being on what could improve safety.</p> <p>There is no designated process for feeding back lessons learned from the post-display reporting to the industry other than when the Transport Authority deems them significant enough to update the policy / guidance.</p>

3.2.5.1 Conclusion

There appears to be a trend to gathering feedback and to share the salient points of the feedback with relevant stakeholders; although in a few cases the focus is on using the feedback to identify changes in the regulations and requirements only. No other nation would appear to have an approach that delivers any additional benefits to those achieved within the UK system.

3.2.6 Is some of the accountability for governance devolved to non-governmental / non-state accountable organisations, such as an industry body?

Nation	Yes / No	Question response
UK	Yes	<p>Private individuals, once appointed by the CAA as a DAE, are authorised to mentor and evaluate pilots as part of the process for a pilot to obtain or renew their Display Authorisation.</p> <p>Within CAP403 the CAA provides guidance as to the requirements and process for the successful conduct of a display pilot evaluation.</p> <p>The final DA is issued by the CAA once the DAE has undertaken the evaluation and made a recommendation to the CAA.</p>
US	Yes	<p>The FAA has devolved the evaluation of display pilot evaluation to two organisations ICAS and the Experimental Aircraft Association Warbirds of America. These organisations have developed programmes, encompassing the criteria and processes, for how pilots and display authorisation evaluators are assessed; these programmes are approved and monitored by the FAA.</p> <p>Once ICAS / EAA make a recommendation to issue a Letter of Authority to a display pilot, the FAA undertake background checks on the pilot's flying history and if appropriate issue the letter. The letter is issued by the FAA such that ICAS and EAA do not hold the liability.</p>
CA	Yes	Transport Canada adopts the same approach as the US.
AU	Yes	The only element CASA has delegated is the evaluation and approval of applications for flying displays involving "Limited Category" aircraft (ex-military aircraft / warbirds) only; although at the time of this review the Australian Warbirds Association Ltd. had suspended assessing any displays as they are re-evaluating if they wish to hold the accountability for doing so following several recent changes.

Nation	Yes / No	Question response
NZ	Yes	<p>In NZ aviation recreational organisations can be approved as a “Part 149 certificated organisation” by the NZ CAA. Once an organisation has demonstrated the necessary requirements to be certified and subject to specific endorsements they can:</p> <ul style="list-style-type: none"> - Train and evaluate display pilots - Organise, assess applications for, approval applications, run, and audit flying displays events. <p>In affect a Part 149 organisation can keep all approval and delivery and oversight activities “in-house” related to flying displays within NZ.</p> <p>Additionally, the NZ Airshow Association (NZ ASA) has developed an approved Display Director and Assistant Display Director training program and it is now being accepted that no display shall be run in NZ without a NZASA approved Director.</p>
SA	Yes	<p>The Recreational Aviation Administration – South Africa (RAASA) has accredited Airshow South Africa to be able to train, mentor and accredit Flight Display Directors and Flight Display Safety Officers. Some of the training undertaken as part of ASSA’s accredited program is delivered by accredited Air Training Organisations, particularly on topics such as safety management systems and regulatory requirements.</p> <p>Pilot aerobatic competence evaluations can be undertaken by either an approved Aviation Training Organisation if their aerobatic syllabus has been accepted by RAASA or a national Air Force, alternatively an aerobatic rating can be gained through evaluation by the Sports Aerobatic Club. Ultimately it is RAASA that issues the display authorisation.</p>
SK	No	
CZ	No	

3.2.6.1 Conclusion

Several nations devolve elements of the flying display governance process, the extent of devolved governance and the specific aspects varies. It is common for nations to devolve the evaluation of display pilots as it is not practical for a single body to retain the necessary breadth and depth of experience to cover all types of aircraft and types of display flying. Even in a country with a large population, such as the US, they struggle to find evaluators that are totally independent from the pilot being evaluated as the display community is still relatively small. So, the UK is in keeping with normal practice in delegating the evaluation of pilots.

3.2.7 Is there a recognised training program for and evaluation of FDD / Air Boss capability and experience?

Nation	Yes / No	Question response
UK	Yes	There is a single FDD training course with an exam run jointly by the CAA and MAA. Additional to the training course an application for an FDD accreditation at one of the three tiers must be supported by appropriate evidence that has been gained within a specified period.
US	Yes	ICAS has developed an Air Boss Recognition Program which has been approved by the FAA. The program allows ICAS to train, mentor and evaluate an Air Boss and make a recommendation to the FAA who then issue a Letter of Authority. There are different levels of authorisation and there are a few different approaches that candidates can take to achieve and demonstrate the necessary experience. By 2020 all flying displays in the US must have an ICAS approved Air Boss.
CA	No	Currently there is no recognised training and evaluation program in Canada; although it is likely that they will follow the approach taken by ICAS and the FAA.
AU	No	
NZ	Yes	The NZASA have developed their own Display Director training course, which follows the ICAS Air Boss syllabus, and experience requirements. To be a Display Director or Assistant Display Director in NZ you must have successfully completed the NZASA program. As an approved Display Director or Assistant Display Director you must attend either the training course or the NZASA conference at least on a biennial basis.
SA	Yes	As covered in the previous question (3.2.6) the Airshow South Africa is a recognised body for the training, mentoring and evaluation of FDDs and FDSOs.
SK	No	
CZ	No	

3.2.7.1 Conclusion

The UK is aligned with US, New Zealand, and South Africa with having defined FDD training and evaluation, the other four countries have no formal structure. The UK can therefore be considered to be delivering industry best practice. The content of the courses, the evaluation criteria or the quality of any training were not evaluated.

3.2.8 Who evaluates pilots display competency?

Nation	Question response
UK	Display Authorisation Evaluator – who must be a display pilot and be appointed by the CAA
US	ICAS Aerobatic Competency Evaluation (ACE) Programme EAA Warbirds of America – aligned with ICAS ACE Programme
CA	ICAS ACE Programme EAA Warbirds of America – aligned with ICAS ACE Programme
AU	Self-administrating organisations e.g. Australian Warbirds, Recreational Aviation of Australia.
NZ	Pilot's appropriate national authority that is a Part 149 certified organisation
SA	DAE – a display pilot recommended by Display Authorisation Committee and appointed by RAASA
SK	Industry association
CZ	Guarantee of competency by fellow display industry person

3.2.8.1 Conclusion

All 8 nations rely on industry members or aviation organisations to train and evaluate pilots; therefore, the UK approach is aligned with normal practice.

3.2.9 Summary

Based on the document review carried out there are some different approaches adopted by other nations. Within the governance principles compared we have not identified any recommendations that would enhance the governance of flying displays in the UK and we do not believe that there is alternative form of governance that would deliver improved safety. We have therefore concluded:

The international comparison has not identified an alternative form of governance that Helios believes will lead to further improvements in safety within UK flying display activity.

4 Observations & recommendations

4.1 Introduction

This section provides the observations we have with the current governance of UK civil flying displays. The observations are grouped by the principles of governance that were identified and discussed in Section 2:

- Independence
- Openness & transparency
- Accountability
- Integrity
- Clarity of purpose
- Effectiveness
- Competency
- Leadership & resources

4.2 Independence

This review has not identified insufficient independence within the governance framework. The CAA maintains significant independence from the industry. Evidence of independence are:

- CAA staff are not allowed to be active members of the flying display community.
- CAP 403 is written by the CAA and not the industry.
- The CAA have consulted on the more recent updates to CAP 403 but have not accepted all the suggestions made by the industry.

There were also comments from some members in our expert panel that the CAA has too much distance between itself and the flying display community. Clearly there is a balance whereby the regulator needs to be close enough to the industry to understand the impact of its regulations and actions but not too close to suffer regulatory capture or a transfer of risk ownership. Additionally, the CAA must balance the use of staff to support the industry with the fees charged, as CAA costs are meant to be met by those it regulates.

There were two specific observations made in the panel:

- 1) The lack of hands on experience and “front line” flying & flying display understanding within the CAA GA Unit.
- 2) That the flying display community could benefit if the CAA was more approachable and could be a “friend” of the industry providing greater advice, guidance and mentoring to improve the understanding and compliance with CAP 403; rather than the community being fearful about approaching and admitting they may need advice.

The first of the comments above can also be classified under the Governance principle of Technical Competency, whilst the second also aligns with Openness and Transparency as well as Effectiveness.

The CAA have stated that their General Aviation Unit staff, which encompasses those staff providing oversight of flying displays and special events, have the following experience:

- 3200 hours Tornado, Hawk and 15 months Red Arrows experience as the Senior Operator
- 10000+ Hours on over 200 types and former professional display pilot
- 5200 hours flight engineer of which 50 hours are on the Lancaster as part of the BBMF
- 4500 hours on 49 different types including display flying in the B17 and Bae 146
- Event organiser experience over a number of different airshows ranging from RAF Waddington to Portrush

It cannot be concluded that the CAA do not have “front line” flying and flying display experience based on the above statements from the CAA. It is harder to define whether the above is sufficient or not, but it certainly shows a good breadth of experience different aspects that are directly related to the safety of aviation events.

The following recommendations are made in regard to the CAA providing greater guidance to the industry:

The CAA should consider what additional feedback it can provide when assessing applications under CAP 403 and whether it can provide guidance or advice in its responses.

The flying display community should consider if they can develop a forum, possibly through an organisation such as BADA, to provide advice, guidance and mentoring to members who feel they need it; either where the CAA is not or cannot provide it or the flying display community member is fearful about approaching the CAA.

There was discussion at the expert panel about the closeness of the relationship between the MAA and the CAA, particularly in relation to the delivery and evaluation of the FDD training, although overall the greater alignment between flying display requirements set by these organisations was felt to be a positive direction of travel.

4.3 Openness and transparency

The requirements and guidance provided within CAP 403 have been updated substantially since 2015 and the industry has expressed concern that the initial changes were introduced without consultation. The CAA has subsequently undertaken consultation for more recent amendments and here the industry appreciated the openness and transparency in being consulted yet it also expressed concerns with the lack of explanation as to why many comments were not adopted. In future the CAA could provide more feedback on the reasons for not accepting industry comments and suggestions.

The fact that the CAA is prepared to commission independent reviews of their decisions, as they did in relation to the impact and effectiveness of changes made in the aftermath of the accident at Shoreham, demonstrates its openness and transparency. In a similar manner the CAA is in the process of commissioning an independent review of the quality of risk assessments received as part of applications in 2018.

The openness and transparency within governance must exist between all stakeholders for a “just culture” to be established and flourish. A “just-culture” requires the flying display community to be open, honest and make known to the regulator / governing body all aspects that could affect safety; likewise, the regulator / governing body must be prepared to receive, listen, discuss and be fair in its judgement. A “just culture” requires understanding and judgement to achieve the right balance, as a “just culture” certainly

does not imply total immunity from punitive action if a reckless or intentional mistake has been made.

At the expert panel, some industry members stated they were concerned that reporting certain events to the CAA could result in punitive actions such as their accreditations being suspended or removed. However, there was no reported evidence of this happening. If anyone at any point feels that they are unable to report an incident to the CAA then CHIRP⁶, the UK confidential and reporting programme for aviation and maritime, provides a totally independent and confidential reporting mechanism and has a specific reporting stream for flying displays.

Within CAP 403 the CAA, in Appendix H, provide:

- A Flowchart Analysis of Investigation Results (FAIR) to provide clarity about the non-judgemental and judgemental elements of an investigation.
- An overview of “just culture” behaviour types.
- An accountability framework.

This provides evidence of the CAA’s commitment to achieving a “just culture”. Based on feedback at the expert panel it is our view that there is still insufficient trust of the CAA by some industry members to deliver the open and honest reporting that is vital to improving safety.

Overall, we conclude that the CAA has moved some way to adopting a more open and transparent approach in recent years, for example through stronger engagement at the industry’s pre- and post-season symposiums. The CAA should continue to use these events and other mechanisms to provide explanation of its decisions to those affected by them. We also conclude that the display community also must change to become more open and transparent with the CAA.

Helios recommends:

The CAA should establish a working group with membership including the CAA, the flying display community and any other relevant parties to investigate whether representative(s) from the industry could be involved in CAA investigations of reported incidents or other problems. The aim would be to give industry representatives visibility of CAA internal processes and add the benefit of their experience, although confidentiality and independence must be maintained.

The display industry should develop a proposal of its own to put in place or promote the use of a reporting process that is acceptable to the CAA but governed in a way that display community members are prepared to report all safety-related incidents and occurrences. This should be used to enhance safety across the industry. The process should allow the benefits of a Safety Management System to be available to all air display participants.

⁶ CHIRP – Confidential Human Factors Incident Reporting Programme, www.chirp.co.uk

4.4 Accountability

The AIB report identified confusion between stakeholders as to who owned the flying display risks. Our review has found that the different accountabilities in flying display governance are included within CAP 403 but they could be more clearly stated. There is a summary of the responsibilities for FDD's included (within Section 8.64) however there is no similar summary for EOs which would be a beneficial addition.

The panel also raised an example where they believed accountabilities were unclear. The CAA will assess submitted documents "to assess whether or not the planned Flying Display follows CAA guidance and that risk management plans reflect the hazards that are present." (CAP 403, para A47). We understand it is the CAA's intention to have no responsibility for the risk assessment, but the above statement suggests the CAA will assess that hazards present at a display and confirm these are in the risk management plan. Based on this extract we can understand why the industry could have some confusion as to the role of the CAA in this area.

Some felt that it was not generally understood that compliance with CAP 403 does not provide indemnity in case of an incident. We therefore recommend that:

The CAA should review CAP 403 to clarify risk responsibilities of the CAA, particularly in the area of the risk assessment, and for each participant. Additionally, to ensure there is total clarity, it should be emphasised that compliance with CAP 403 does not provide indemnity to any stakeholder in the case of an incident.

The CAA review and update CAP 403 on an annual basis and the display community is welcome at any stage to identify elements of CAP 403 that they feel could be more explicit or to suggest textual amendments.

This review heard that since the Shoreham accident the CAA has increased the level of prescription within CAP 403, their assessment of applications and the monitoring and audit of flying display. FDD's have expressed that at times safety could be increased if there is greater flexibility and judgement allowed within their actions. In particular, the panel expressed concerns of their judgement of whether to give or not give and when to give a warning, terminate or Stop call. CAP 403 in paragraph 8.53 states:

FDDs should consider the safest and most appropriate time to make a warning, terminate or STOP call and to not jeopardise safety by causing an unnecessary distraction for the pilot at a critical point during their display.

This study concludes that if the FDD is accredited and therefore deemed competent by the CAA and the FDD owns the risk of the flying display then the FDD should be able to exercise greater judgement in the delivery of their duties. In the case of the example discussed at the expert panel the FDD should have the remit to decide on whether a call is needed and when is the safest time to make the call. In return the FDD must be prepared, as part of their post event feedback, to detail where they have deviated from the requirements or guidance provided in CAP 403 and how their approach or action was at least as safe.

There still appears to be a misunderstanding more on the side of industry than the CAA as to the accountabilities. The CAA could help by being more explicit as to the accountabilities within CAP 403. The CAA should become less prescriptive and allow the FDD to use their judgement within the delivery of their accountabilities; as long as the

FDD accepts the risks associated with their judgements and are prepared to report and explain them.

4.5 Integrity

Integrity is delivered through having strong morals and principles which are displayed by an individual or an organisation through their words and actions. The work undertaken within this review has not been able to measure or assess the integrity of individuals or organisations involved in flying displays. We have no reason to doubt the integrity of any actors involved.

Integrity is closely aligned with trust and as identified in the above section on “Openness and transparency” when discussing a “just culture” the review heard that there is a lack of trust between the industry and the CAA; hence why (some) members of the industry are reluctant to provide open and transparent reporting for fear of punitive action by the CAA. This lack of trust does not mean that the CAA does not have integrity and it does not mean these fears are founded, it is only evidence that the perception held by the industry is different to what the CAA are trying to portray and achieve.

CAP 403 requires DA holders, FDDs and DAEs to complete a behavioural and attitudinal fitness assessment⁷ on an annual basis. The form is completed by the applicant and the CAA use it to determine evidence of attitude, integrity, credibility, honesty, openness, diligence, soundness of judgement, to be law abiding, and likelihood to be risk generating. This form certainly whilst useful to the CAA can judge the integrity within the governance structure and all actors within it.

4.6 Clarity of purpose

Clarity of purpose within governance is about understanding “why” and “what” needs to be done, ensuring that there is a clear, easily understood set of requirements and guidance that can be interpreted and applied consistently. The over-riding purpose of flying display governance, that is accepted by all, is ensuring that every display is as safe as reasonably practical; however, it is in some of the detail that questions are raised.

The expert panel expressed the collective view that the principles of CAP 403 are fine, its weakness is in its interpretation by all parties and the variability in consistency of the interpretation. The variability of interpretation can be taken as evidence that the clarity could be improved. As discussed in Section 4.4 – Accountability, there is some misunderstanding within the industry on aspects of accountability which again indicates that there are improvements to be made in the clarity of the governance framework and process.

In undertaking the review of UK and other nations flying display documentation it was not always clear as to what is a mandatory requirement, what is recommended best practice and / or an acceptable means of compliance and what is purely guidance. Our own experience of CAP 403 is that it contains a wealth of information, but its overall structure could be improved along with the clear demarcation between requirements and guidance. Helios therefore recommends the following:

⁷ Form SRG1308B Application for fitness assessment for a flying display role

The CAA should review CAP 403 to see if it would be beneficial to re-structure it into mandatory requirements, best practice / acceptable means of compliance and guidance material. The CAA should also consider whether it would be clearer if divided into several different documents focussing on the different activities (eg obtaining approval for flying displays, gaining accreditation as a FDD, obtaining a DA and being accredited as a DAE).

4.7 Effectiveness

Effectiveness is the degree to which something delivers the desired results – in this case it relates to achieving safe flying displays, by having a robust, proportionate and cost-effective process.

As already identified there are elements within the governance framework (aspects of independence, accountability, openness and transparency and clarity of purpose) that could be enhanced and therefore effectiveness improved:

- Independence: a less distant and more approachable CAA should lead to greater understanding, consistency and improved performance as stakeholders should be more prepared to ask for guidance and support.
- Openness & transparency: improvements here should foster greater trust with the desire being to increase the willingness of the industry to report incidents and near misses to drive shared learning and improvements in safety.
- Accountability: greater awareness of the responsibilities within a role will provide greater clarity and understanding which should drive improved focus and performance.
- Clarity: understanding and consistent interpretation should deliver greater alignment of planning, management and decision making and generate greater shared learning.

At the expert panel, there was a discussion about whether greater self-governance by the industry would be more effective than the current arrangement. One reason for this was an apparent lack of trust in the relationship between the UK display community and the CAA. This lack of trust appears worse 'post Shoreham' and was certainly exacerbated by the stresses resulting from that time and subsequent changes made. Our view is that the CAA has taken steps to improve the relationship in recent years.

Regarding the possibility of greater self-governance, the expert panel expressed the view that no UK industry body was in a position to do this and doubted any would want to.

There is also a social aspect to consider:

What would public opinion be if an accident such as Shoreham happened, and the public learnt that the display industry was self-governing?

Helios therefore concludes:

That a transition towards greater self-governance by the display industry is not an appropriate course of action to take.

4.8 Competency

Some display industry members of the expert panel described a lack of hands-on flying display experience within the CAA's GAU team (which undertakes the CAA's activities in relation to flying displays). The general comments were that "CAA staff had little or no experience of the planning and management of flying displays or display flying". A summary of the CAA's GAU team's display experience is included within Section 4.2 of this report.

There would appear to be a mis-match between the display communities perceived lack of relevant experience within the CAA and the evidence presented provided by the CAA. It cannot be concluded that the CAA do not have "front line" flying and flying display experience based on the above statements from the CAA. It is harder to define whether the above is sufficient or not, whether it covers all necessary aspects or not, but it certainly shows a breadth of experience across aspects that are directly related to the safety of flying display events.

The CAA does not permit staff to participate in activities, outside of their normal CAA job, where the CAA is the regulator; this prevents CAA staff from being active members of the flying display community. Over time the CAA will need to continue to recruit people with flying display experience, either military or civil, to retain relevant experience within their team.

The CAA acknowledged the need to maintain a balance between practical experience and the necessary independence required to enact regulatory, oversight and governance in an independent manner. The CAA told us that the level of interaction with those involved in displays provides and maintains an understanding of the current mood, challenges and opportunities for the industry. The CAA also outlined how it provides specific training, to its staff, on aspects such as risk assessment and auditing.

The CAA's concern with a close relationship is the loss of independence between the regulator and regulated; as identified in the section above on independence. Additionally, there are likely to be few people that are both experienced former industry professionals and seeking employment in the CAA.

Our conclusion is that by;

- improving trust;
- ensuring clarity over accountabilities; and,
- the CAA being more approachable and supportive towards the display community;

there will be a greater understanding and improved relationship which will diminish the concern about a lack of technical competency. We have proposed a recommendation that could allow current industry members to become involved in some CAA activities.

4.9 Leadership and resources

Since Shoreham the CAA have:

- Undertaken a detailed review of the arrangements for civil flying displays and as part of the review the CAA appointed an independent Challenge Panel.
- Made major updates to CAP 403 and consulted on updates for the first time.
- Invited independent reviews of their work.

- Introduced a new initiative to collect and share safety performance indicators.
- Increased the fees associated with flying displays; as well as listening to the industry and reducing fees for the smaller displays⁸.
- Introduced a new role of Evaluation Oversight Officer to provide support, consistency and cross industry moderation of display pilot evaluations.
- Introduced and is seeking to promote a “just culture”.

These actions are examples of the CAA showing leadership within regulation and governance of flying displays and special events. The CAA’s continuing organisation and leadership of the pre- and post-season symposiums is also an example of ongoing leadership.

As part of this review we have not undertaken a review of the demand and supply of resources within the CAA or parts of the display community to deliver effective regulation. The CAA needs to balance the need to minimise costs on industry, whilst having sufficient resources to deliver effective regulation. Additional resources would increase costs which would result in higher fees for flying displays, which is something the industry has indicated it wishes to avoid. We are aware that the CAA has recently introduced performance indicators that it will use to monitor its own performance (eg time to process display applications), and this is the most appropriate way to monitor its own resources.

The expert panel highlighted that the flying display industry has seen a reduction in the number of active members, particularly FDD’s and DAE’s since Shoreham. They expressed the view that the primary cause of this was the additional burden and costs put on the industry since then. The areas where the impact is being felt are in the ability to continue to mentor future FDD’s and display pilots, evaluate display pilots, organise flying displays and generally maintain a strong flying display industry within the UK.

⁸ The UK Government requires the CAA to cover its cost from the activities and parties it regulates. In respect to flying display and special events the fees levied by the CAA do not fully recover their costs.

5 Conclusions and recommendations

5.1 Overview

This section presents the conclusions and recommendations of the review. The review was based around eight principles of effective governance:

- Independence
- Openness and transparency
- Accountability
- Integrity
- Clarity of purpose
- Effectiveness
- Competency
- Leadership and resourcing

5.2 Comparison with other countries

We compared the UK's flying display governance framework against its equivalent in seven other countries across five of the governance principles. The international comparison did not identify an alternative form of governance that we believe will lead to further improvements in safety within UK flying display activity. We have therefore concluded:

The international comparison has not identified an alternative form of governance that Helios believes will lead to further improvements in safety within UK flying display activity.

5.3 Conclusions and recommendations

This review has not identified insufficient **independence** within the governance framework. The CAA maintains strong independence from the industry. Some members in the expert panel felt that the CAA has too much distance between itself and the flying display community. Clearly there is a balance whereby the regulator needs to be close enough to the industry to understand the impact of its regulations and actions but not too close to suffer regulatory capture.

Industry members on the expert panel suggested that one practical step would be for the CAA to provide more feedback on the display applications to give guidance on any areas where they fall short.

Our recommendation in this regard is:

The CAA should consider what additional feedback it can provide when assessing applications under CAP 403 and whether it can provide guidance or advice in its responses.

We felt that there was good evidence of improving **openness & transparency**, and particularly improvements since 2015. For example, there is now greater engagement at the industry's pre- and post-season symposiums. The CAA should continue to use these events and other mechanisms to provide explanation of its decisions to those affected by

them. We also conclude that the display community has to change to become more open and transparent with the CAA.

However, there is more that could be done by the CAA and by the display industry to improve openness and transparency. We therefore recommend:

The CAA should establish a working group with membership including the CAA, the flying display community and any other relevant parties to investigate whether representative(s) from the industry could be involved in CAA investigations of reported incidents or other problems. The aim would be to give industry representatives visibility of CAA internal processes and add the benefit of their experience, although confidentiality and independence must be maintained.

The display industry should develop a proposal of its own to put in place or promote the use of a reporting process that is acceptable to the CAA but governed in a way that display community members are prepared to report all safety-related incidents and occurrences. This should be used to enhance safety across the industry. The process should allow the benefits of a Safety Management System to be available to all air display participants.

The AIB report¹ identified confusion between stakeholders as to **accountability** of flying display risks. Our review has found that the different accountabilities in flying display governance are included within CAP 403 but they could be more explicit. We therefore recommend that:

The CAA should review CAP 403 to clarify risk responsibilities of the CAA, particularly in the area of the risk assessment, and also for each participant. Additionally, to ensure there is total clarity, it should be emphasised that compliance with CAP 403 does not provide indemnity to any stakeholder in the case of an incident.

Integrity is delivered through having strong morals and principles which are displayed by an individual or an organisation through their words and actions. The work undertaken within this review has not been able to measure or assess the integrity of individuals or organisations involved in flying displays. We have no reason to doubt the integrity of any actors involved.

Regarding **clarity of purpose**, the expert panel expressed the collective view that the principles of CAP 403 are fine, its weakness is in its interpretation by all parties and the variability in consistency of the interpretation. The variability of interpretation can be taken as evidence that the clarity could be improved as discussed above under accountability.

Our own experience of CAP 403 is that it contains a wealth of information, but its overall structure could be improved along with the clear demarcation between requirements and guidance. Helios therefore recommends the following:

The CAA should review CAP 403 to see if it would be beneficial to re-structure it into mandatory requirements, best practice / acceptable means of compliance and guidance material. The CAA should also consider whether it would be clearer if divided into several different documents focussing on the different activities (eg obtaining approval for flying displays, gaining accreditation as a FDD, obtaining a DA and being accredited as a DAE).

Effectiveness is addressed through recommendations in the other principles. At the expert panel, there was a discussion about whether greater self-governance by the industry would be more effective than the current arrangement. This view was rejected at the meeting and Helios concludes:

That a transition towards greater self-governance by the display industry is not an appropriate course of action to take.

Some display industry members of the expert panel claimed the CAA lack **competency** because it has a lack of hands-on flying display experience. We did not generally agree with this view but have made one recommendation (see the openness principle) that would allow current industry members to become involved in some CAA activities.

The CAA shows **leadership** within its regulation and governance of flying displays and special events and there are many examples here. We did not assess the CAA's resources specifically but recognise that its newly-introduced performance indicators will allow it to monitor the sufficiency of its resources.