



The cover features a background image of a bright sun rising over a sea of clouds. A large, stylized 'X' shape is overlaid on the left side, composed of two overlapping triangles in shades of blue and teal. A dark blue horizontal band is positioned across the middle of the cover, containing the title text.

Aviation Futures Two-year progress Report

Introduction

The early 21st century is a challenging time for government and for regulatory **bodies**. The emergence and rapid development of new, disruptive technologies and business models poses tough questions for regulators like the CAA: As novel, complex spheres of activity expand and become more common, how can we hope to understand and influence them – ensuring they are safe, secure, fair and conducive to the public good?

In these circumstances, it has never been more important for regulators to be able to think and act flexibly in the face of unexpected regulatory challenges – and, where necessary, to question old assumptions and ways of working.

The founding of Aviation Futures, the CAA's in-house think tank, is a critical part of this effort. By bringing a cross section of CAA staff together with a diverse panel of external experts, Aviation Futures enables us to look at difficult policy problems from a fresh perspective, bringing insight, knowledge and different ways of thinking to bear on our work.

Since its first meeting in June 2017, the Aviation Futures panel has informed CAA thinking on a variety of issues, from changing public attitudes towards noise, to flying taxis and delivery drones to the consequences of big data for commercial aviation consumers.

Aviation Futures is just one piece in a suite of initiatives intended to help the CAA respond to the changing face of aviation and regulation. The CAA has also established a horizon scanning programme to enhance our awareness of emerging trends, phenomena and technologies that might impact on the industry or our ability to regulate it. In addition to this, the CAA is in the process of establishing an Innovation Hub, which will enable the CAA to regulate new aviation technologies and business models in a far more pro-active manner than before. To be as effective as possible, these three projects need to be closely coordinated, enabling them to usefully build on one another's work and to avoid duplication of effort.

Following a successful first two years, Aviation Futures is therefore entering a new phase. To ensure harmonisation of the CAA's futures facing initiatives, the think tank will be moving from the CAA's policy development team, where it was founded, to the CAA's new Innovation Hub. The benefits of such a move will be considerable, with the support of the innovation team improving Aviation Futures discussions' relevance to CAA work, and its ability to inform and influence CAA thinking.

With the launch of the new CAA Innovation Hub, now is a natural time for the CAA to make its work on future regulation more visible to the wider policy world. For Aviation Futures, this is a chance to share its thinking more widely – opening up a dialogue with other policymakers and stakeholders on areas of common interest. At this exciting juncture for what is still a relatively new initiative, this report takes stock of what has been accomplished so far, as well as looking forward to what we hope to achieve in the coming months and years.

The thinking behind Aviation Futures

Aviation Futures is a panel that meets four times a year to explore questions relevant to CAA policy, strategy and organisational thinking.

This panel consists of sixteen people: eight external experts from outside of the CAA and eight members of CAA staff, drawn from across the organisation. The chair of Aviation Futures is a member of the external panel and the deputy chair a senior CAA colleague.

For the meetings discussed in this report, the topics were developed jointly between the chair, the deputy chair and the think tank's broader membership.

Aviation Futures meetings typically lasted half a day and consisted of facilitated discussion around a clearly defined exam question. Panellists were provided with briefing materials in advance where necessary, but this was kept to a minimum to enable participants to come to the question in hand with an open mind as possible. Where possible, a person with expertise in the topic (either from the panel or from elsewhere) was invited to give a presentation at the start of the session.

Following each meeting, the key points from the discussions were captured, with the most important learnings, observations and suggestions brought to the fore. As well as being used to inform the CAA board, the outputs of Aviation Futures discussions served as useful launchpads for further exploration of a given topic, and often guided further internal policy development and research. In many cases, topics explored at a higher level were examined in more depth in subsequent Aviation Futures meetings.

Direct benefits – enhanced policy development

Aviation Futures meetings typically aim to contribute to CAA policymaking in one of the following ways.

To enhance CAA awareness and understanding of emerging trends and technologies (and their implications) and to help the CAA interrogate specific questions raised in these areas

When considering how emerging trends and technologies might affect one industry or sector, it is particularly useful to consider analogous experiences, as well as thinking and assumptions, from other areas. As such, the diversity of the Aviation Futures panel, with external panellists bringing experience of a variety of industries and disciplines, enhances the CAA's ability to engage productively with questions of this nature.

The thinking behind Aviation Futures

To bring new perspectives and considerations to bear on pre-existing policy questions

While the CAA has a high level of expertise across its areas of regulatory responsibility, the relatively narrow focus of individual teams is not always conducive to innovative or novel approaches to policy problems – and can lead to the development of ‘group think’. The policy development process therefore benefits from exposure to the broader array of expertise and experience brought by the external panel – as well as a diverse internal panel. Moreover, the discursive format of the meetings, along with the different backgrounds of panellists, lends itself well to first-principles thinking, and to the development of creative questions and solutions.

Indirect benefits – organisational culture change

While Aviation Futures was primarily founded to provide a forum for discussion of difficult existing and future policy questions, it was also hoped that it would bring broader, more indirect benefits to the organisation.

Specifically, Aviation Futures is intended to contribute to a broader cultural shift across the CAA. The Aviation Futures panel interacts with representatives from a range of CAA departments, exposing colleagues (either directly or through further communications) to innovative new ideas and ways of working.

Aviation Futures also helps make the CAA more intellectually ‘porous’. The presence of the external panel, along with the practice of bringing in external speakers for specific meetings, creates frequent opportunities for the exchange of ideas and intelligence between the CAA and other entities.

What we have achieved

There have been seven Aviation Futures meetings since June 2017. The following section captures the most important points to have emerged from these discussions, arranging them thematically.

Aviation futures – meetings to date

Scenario mapping

June 2017 | The CAA's regulatory stance on noise

October 2017 | Future disruptions to aviation

Challenges and opportunities presented by emerging technologies

January 2018 | Automation

April 2018 | Consumer interaction with data

September 2018 | Urban air mobility (flying taxis)

Futureproofing the CAA

December 2018 | The CAA's Innovation Hub (operating model and culture)

February 2019 | The CAA's Innovation Hub (funding options)

Scenario mapping

The first two sessions involved broad scenario mapping exercises, in which panellists considered different possible futures and phenomena, and explored their possible consequences for the CAA and the aviation industry. In the first session, the panel used this technique to explore how alternative regulatory stances regarding aviation noise might play out in different circumstances. The topic for the second session was broader, looking at trends and large, one-off events that might occur between 10 to 35 years in the future and that would significantly disrupt the aviation industry and/or the CAA's ability to regulate it. This session concluded with a discussion about how other successful organisations think about and prepare for an uncertain future.

KEY MESSAGES

Where there is government policy justifying such a direction, the CAA may want to consider leading beyond its authority on noise issues.

- The CAA needs to be able to deal with unexpected regulatory challenges in a more agile manner.
- The integrated, systematic nature of aviation is both a strength and a vulnerability. For example, if one disruption occurs at one airport or airline, it will have a subsequent impact on the entire network.