IET response to Aviation 2050

Build a global and connected Britain (p45)
No response

Ensure aviation can grow sustainably (p83)
No response

Support regional growth and connectivity (p106)

1. How could the policy proposals be improved to maximise their impact and effectiveness in addressing the issues that have been identified?

We agree that airports should be engaging with local government, Highways England and other local and national transport providers. We believe that by 2050 air travel will form part of a Mobility as a Service (MaaS) offering. In our recent report we defined MaaS as the provision of an end-to-end customer experience that delivers multimodal transport choices through a seamless and integrated planning, payment and ticketing interface (https://www.theiet.org/impact-society/factfiles/transport/could-mobility-as-a-service-solve-our-transport-problems/). With this in mind, it is not just the airports that should be engaging but also the airlines who are actually selling the tickets.

MaaS providers are likely to operate on a multinational level in many different countries, therefore airports and airlines also need to be engaging with transport/MaaS providers on an international level.

We welcome the continued use of Airport Transport Forums, however MaaS providers should also be invited to participate.

It should be noted that consumers are becoming increasingly aware of their carbon footprint and the high carbon footprint associated with national air travel and may be better served by rail or bus in terms of environmental impact.

2. How should the proposals described be prioritised, based on their importance and urgency?

No response

3. Are you aware of any relevant additional evidence that should be taken into account?

No response

4. What implementation issues need to be considered and how should these be approached?

In regard to MaaS and the role of the airport as a transport hub, where MaaS is being implemented on a local level we are seeing a reluctance for transport providers to share their data with the MaaS platform providers as they are worried about losing their direct connections to the consumers. Airlines are likely to also share this reluctance.

5. What burdens, both financial and regulatory, are likely to need to be managed and how might those be addressed?
6. Are there any options or policy approaches that have not been included in this chapter that should be considered for inclusion in the Aviation Strategy?

No response

7. Looking ahead to 2050, are there any other long term challenges which need to be addressed?

No response

8. To what extent do these proposals provide the right approach to support the complex and varied role that airports play in their regions?

No response

9. To what extent are the proposals on skills the right approach to ensuring the aviation sector is able to train and retain the next generation of aviation professionals?

The IET supports the approach suggested. We would also encourage utilisation of the ready-pool of emerging talent in RAF Air Cadets that should be encouraged to join the aviation profession. We are dedicated to inspiring the next generation of engineers. One of the tools we use to do this is Engineering Open House Day. Now in its fifth year, Engineering Open House Day encourages organisations to open their doors for one day only to give young people and their families the chance to experience the world of engineering and technology first-hand and to get an insight into the reality of the exciting and diverse careers on offer in this field. Previous Engineering Open House Days have included events at the BBC, ITN, Google, Tower Bridge, BT, National Theatre, TFL, Royal Mail and the Museum of Science and Industry. Last year’s Engineering Open House Day featured over 50 separate events across the UK and saw more than 5,000 parents and children attend. We would welcome aviation companies and airports getting involved in this scheme and any support from DfT. Our next open day is taking place on Friday 26 July 2019.

Support general aviation (p163)

1. How could the policy proposals be improved to maximise their impact and effectiveness in addressing the issues that have been identified?

No response

2. How should the proposals described be prioritised, based on their importance and urgency?

No response

3. Are you aware of any relevant additional evidence that should be taken into account?

The workstreams should ensure input from the All-Party Parliamentary Group (APPG) for General Aviation (http://www.generalaviationappg.uk/working-groups) which has the support of 178 Parliamentary Members.

4. What implementation issues need to be considered and how should these be approached?
No response

5. What burdens, both financial and regulatory, are likely to need to be managed and how might those be addressed?

As per the APPG work on General Aviation, there is a need to preserve the viability of existing airfields and relax legislative pressure on the creation of new airfields in the UK airfield network. Recognition of the need to consider General Aviation and the UK community transport and recreation needs in the National Planning Policy Framework is a positive step. Planning controls on rural land as airfields and the actions of aggressive speculative development companies are squeezing the UK's aircraft owners and operators to park at an ever-dwindling-supply of airfields. The resulting increase in cost pressures are driving experienced pilots and aircraft owners to leave flying. Recognition of the value of General Aviation as a significant 'feeder activity' in the creation and development of STEM jobs, and a training resource for Aerospace operatives, can underpin policy decisions on land-use.

6. Are there any options or policy approaches that have not been included in this chapter that should be considered for inclusion in the Aviation Strategy?

The workstreams should ensure input from the APPG for General Aviation (http://www.generalaviationappg.uk/working-groups).

7. Looking ahead to 2050, are there any other long term challenges which need to be addressed?

With increasing drones usage, control of operations, photography and matters related to privacy will need addressing; capability to track down operators and originators of digital assets (watermarking) and the ability to trace ownership needs to be addressed. The drone incident at Gatwick in December 2018 has shown that un-cooperative airborne vehicles are a major disruptor.

8. To what extent do these proposals strike the right balance between the needs of General Aviation and the rest of the aviation sector?

As our skies become busier, and increasingly shared with unmanned craft, the willingness to cooperate will become even more important. Electronic conspicuity (the ability to transmit the position of an aircraft to other airspace users) will become an ever-more important safety feature with appropriate resource to enforce compliance.

Encourage innovation and new technology (p178)

1. How could the policy proposals be improved to maximise their impact and effectiveness in addressing the issues that have been identified?

No response

2. How should the proposals described be prioritised, based on their importance and urgency?

The IET supports the proposal to improve the quality and openness of data and create an Aviation Data Action Plan which sends a clear signal to industry to modernise. Incentives must include the ability to change operating and charging models to reward good behaviours in schedule planning and efficiency over those that game the system. This provides an opportunity to work more collaboratively
with stakeholders to ensure that the passenger is put at the centre of the journey. The principle of open data will probably be rejected since there is a perception that the global aviation operations playing field is not level. Therefore, a principle of transparency of process could be a better focus than the openness of raw data.

3. Are you aware of any relevant additional evidence that should be taken into account?

The Civil Aviation Authority’s (CAA) CAP1515 report: [https://publicapps.caa.co.uk/docs/33/CAP1515%20Operating%20Resilience%20and%20the%20consumer%20interest%20v2.5_final_clean_FINAL.pdf](https://publicapps.caa.co.uk/docs/33/CAP1515%20Operating%20Resilience%20and%20the%20consumer%20interest%20v2.5_final_clean_FINAL.pdf) details the issues at stake and suggests exploration of technology options to solve some of the perceived capacity challenges using technology. The conventional wisdom suggests that the airspace is full, however without modelling and simulation to develop credible alternatives, we do not understand how much capacity could be unlocked by transforming the data exchange architecture. The Industry Resilience Group (IRG) consisting of the UK’s major South East airports, Air traffic control (NATS), British Airways, Virgin, Ryanair, easyJet, Met Office, Department for Transport, CAA, and schedule co-ordinator (ACL) are a group ready and willing to explore technology options to transform for the benefit of the passenger.

There is a ready-pool of emerging talent in RAF Air Cadets that can join the workforce through careful career guidance at school-leaving age to enter Science Technology Engineering and Maths (STEM) led aviation and aerospace businesses. The IET seeks to inspire the next generation, including young women, to join the engineering workforce in careers that have been traditionally male dominated.

The IET, Institute of Mechanical Engineers (IMechE) and Royal Aeronautical Society (RAeS) have formed a joint working forum, The Aerospace Partnership, to provide independent advice to Government on technology matters relating to aviation and aerospace. This can be a useful resource as a “critical friend” to support and challenge future strategy and direction.

4. What implementation issues need to be considered and how should these be approached?

Clean data that is accessible to trusted parties is essential, removing legacy silos is imperative to lower barriers to entry. Many of the legacy systems and software running the world’s long-established airlines, air traffic management and airports are coded in obsolete languages no longer taught in the higher and further education system. There is a need to bring together the establishing unmanned/autonomous traffic management systems with the existing infrastructure, with a platform that is capable of supporting both. We must remove the barriers created by the paper-based concepts of operations that were automated by early computers in the 60s and 70s, which built on the navigation techniques that were the state-of-the-art at the time (pre-satellite navigation) and back-office paper timetables.

The IET recognises the challenges of increasing autonomy and the critical role that the engineer contributes to the non-negotiable safety case and the ethical challenges with safety of life system decision making.

As aircraft evolve with engines fully integrated, the entire system will require a combined approach to propulsion and aerodynamics certification.

Hybridisation will bring significant benefits in fossil fuel burn reduction – further research into electrification and/or hydrogen propulsion enabled through sustainable electrical hydrolysis is required to unlock potential environmental savings.

Providing grid power densities in airport settings would require substantial infrastructure upgrades in the locality, as well as airport’s electrical power provision at the aircraft parking position. The IET
would be well placed through its Energy Sector to facilitate discussions and provide advice on the measured introduction of support infrastructure and can act as a “critical friend” as demonstrated to the HS2 project, where the IET ran a series of joint events aimed are providing technology feedback and seeking engagement from the Engineering community.

Battery technology R&D is the highest priority for electrification of flight, with due regard to the supply chain of rare-earth minerals.

Human fatigue or intoxication is a more common cause of accident or incident than airframe fatigue and the distinction between the two ought to be made in Section 8.5 (automation); automation is the opportunity to remove the risk factors, but implies an increased reliance on engineers to consider all possible failure modes and mitigations. The elimination of all human input in the loop of flight, including cabin crew should not be a goal but should consider what role these airline staff play in future operations when unusual circumstances arise.

Government policy must be flexible to allow proactive adoption of new technologies as they emerge. Positive disruption should be encouraged through access to new services or as a result of reducing costs enabled by responsive regulation that is goal-based and not overly prescriptive.

5. What burdens, both financial and regulatory, are likely to need to be managed and how might those be addressed?

In light of Brexit, new alliances and collaborating funding streams from both UK taxpayers and other nation states investing in Research and Development should be forged to ensure the continuing competitive advantage of UK Plc, while respecting rules on state-aid and asymmetry that will result from tariffs.

The failure to act fast enough to integrate Drones into a regulatory framework has resulted in fragmentation and lack of cohesion in responding to opportunities and threats. The CAA’s regulatory sandbox must take a more proactive stance to not only maintaining the safety status-quo, but also actions which lead to safety improvement initiatives for the public benefit.

6. Are there any options or policy approaches that have not been included in this chapter that should be considered for inclusion in the Aviation Strategy?

No response

7. Looking ahead to 2050, are there any other long term challenges which need to be addressed?

No response

8. To what extent are the government’s proposals for supporting innovation in the aviation sector the right approach for capturing the potential benefits for the industry and consumers?

No response

9. Do the proposals in this chapter sufficiently address the barriers to innovation?

No response
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