Department for Transport

UK Civil Aviation Authority

Airspace modernisation: consultation on a UK Airspace Design Service

CAP 3029

Foreword by the Minister for Aviation and UK CAA Chief Executive

Modernisation of UK airspace is essential to ensure that it is fit for purpose in the future.

Modernising airspace will make it more efficient and flexible, reduce bottlenecks, help UK aviation to achieve net zero emissions by 2050, and better manage aviation's noise impact. Furthermore, it will increase the resilience of flights to disruption, giving consumers confidence in the network and reducing airline costs.

Aligned with the Airspace Modernisation Strategy, modernisation will be delivered by industry. It will generate increased airspace capacity, to accommodate:

- new flights and destinations, providing more choice and better value for passengers and shippers, and potentially wider benefits to the UK economy
- the integration of new types of airspace user, facilitating innovation
- the needs of the Military and General Aviation, including recreational flyers.

The current model for airspace change, where airports and air navigation service providers propose and fund new airspace designs, exacerbates the programme's complexity. Modernised designs must deliver benefits in capacity, environmental impacts and system resilience while staying compatible with changes made by their neighbours. In particular, the London 'cluster' within the airspace change masterplan has a dozen interdependent airports plus NATS, each under separate ownership, with their own commercial incentives.

As the masterplan has developed, it has become clear that today's airspace change model risks the delivery of much-needed modernisation. There is a consensus between the Department for Transport and Civil Aviation Authority (as co-sponsors of airspace modernisation) and the aviation industry that a new model is needed whereby a single entity is responsible for designing UK airspace – a **UK Airspace Design Service**.

During engagement with stakeholders, there were virtually no dissenting voices, although there are differing views on execution. As this is a once-in-a-lifetime change, and we want to avoid any delay to modernisation, it is crucial that our proposals are robust, workable, deliver the right outcomes to a realistic timescale, and are sustainable in the long term.

We are therefore using this consultation document and accompanying Regulatory Impact Assessment to seek your views on our proposals. We look forward to hearing from you.

Mike Kane MP   Rob Bishton
Minister for Aviation,   Chief Executive
Maritime and Security   UK Civil Aviation Authority

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PART 1: THE CASE FOR A UK AIRSPACE DESIGN SERVICE

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Chapter 1
Introduction

The purpose of this consultation

1.1   This is a joint consultation by the Department for Transport (DfT) and UK Civil Aviation Authority (CAA) as co-sponsors of airspace modernisation.[1] It concerns our proposal to introduce a single entity for modernising the design of UK airspace – which we are terming the **UK Airspace Design Service (UKADS)**. The consultation seeks views on what the UKADS could do and how we might set it up.

1.2   This chapter gives a broad outline of the proposals. At this stage no decisions have been made and these are proposals for consultation. More detail appears later in this document.

Outline of the proposal

1.3   Our proposal is to set up the UKADS in two phases:

- In the **first phase**, the initial operating model for the UKADS function (which we will refer to as UKADS1 for convenience) would be established as soon as possible and tasked to NATS (En Route) plc (NERL) through a change to its air traffic services licence.[2] The scope of UKADS1 would initially be to take forward airspace change proposals (ACPs)[3] to modernise the complex airspace around London. Subject to UKADS1's capability and capacity, the co-sponsors may expand this scope in the future.

- The **second phase**, running in parallel but necessarily on a longer timeframe, would be to establish the end-state operating model for the UKADS function (which we will refer to as UKADS2). UKADS2 would be responsible for sponsoring and progressing all ACPs in the UK. UKADS2 would be likely to require primary legislation to create new statutory arrangements to provide airspace design services for the whole of the UK. This second phase would

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[1]   Where we say 'we' and 'our' in this document, we mean both the DfT and the CAA.

[2]   In practice, we anticipate that implementation of UKADS1 would be achieved through creating a new obligation on NERL to provide an airspace design service under its existing ATS licence, facilitated by some changes in secondary legislation. As such all relevant delivery obligations would be on NERL as the licensee. However, for clarity we refer in this document just to UKADS1, rather than the airspace design service of NERL etc.

[3]   A proposal to change the design of UK airspace. See https://www.caa.co.uk/commercial-industry/airspace/airspace-change/airspace-change/

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be conditional on the outcome of a review of the first phase. That review would determine:

- the extent to which UKADS1 has succeeded in delivering its objectives, and

- what policy, process or legislation changes would address any unfulfilled objectives.

The detail of UKADS2, including its form and options for any new legislation, would be subject to further consultation in the future. We are not making proposals for UKADS2 in this consultation other than the broad concept.

A proposed new charge to fund UKADS1 and all other changes in airspace design

1.4   The current UK delivery model for airspace change is based on sponsors of individual ACPs, normally airports and air navigation service providers[4], being responsible for taking forward, and funding, proposed changes in airspace design. Those proposals must go through the CAA's CAP 1616 airspace change process, where the CAA makes a regulatory decision whether or not to approve the proposed change in airspace design. This dispersed model creates some challenges, as described in Chapter 2.

1.5   Alongside our phased proposals for the UKADS, we also propose to reform the funding of ACPs UK-wide by creating a new UK Airspace Design Charge.

1.6   This new charge would:

- meet the efficient costs of NERL to provide an airspace design service through UKADS1, and

- capitalise a new UK Airspace Design Support Fund to cover relevant costs of the sponsors of eligible UK airport ACPs that are outside the scope of UKADS1.

1.7   The new charge, to be met by airspace users, would be specified under the Chargeable Air Services provisions of the Transport Act 2000 and be aligned with the 'user-pays' principle.

1.8   More detail about the funding proposals is in Chapter 9.

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4   Although in theory, anyone can propose an airspace change. 'Airports' here includes the Ministry of Defence.

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How the proposal would affect ACP sponsorship

1.9   Our proposed introduction of the UKADS is to improve confidence in the delivery of beneficial changes to airspace design. That would include, in the future, UK-wide changes that in some cases may currently have no-one to progress or fund them. We are not planning to fundamentally change who manages the airspace nor who identifies the need for airspace change at the outset – that would remain with, for the most part, airports and air navigation service providers, who know their local stakeholders' interests best.

1.10   The need for a design change would be put to the UKADS by an airport, air navigation service provider or some other organisation that would 'partner' the UKADS on the change. From that point, the UKADS would take on all aspects of the ACP, except for the safety case, implementation and (depending on the circumstances) certain aspects of stakeholder consultation which the partner would undertake (more detailed information is in Chapter 6).

What is in scope of this consultation

1.11   This consultation is seeking your views on these proposals, including:

- the overall concept of the UKADS

- the scope of the UKADS's responsibilities (whether geographically or in terms of the types or process stages of ACPs)

- funding the UKADS and other UK airspace design changes

- suitable governance to ensure the UKADS delivers what is needed and on time

- a proposed two-phase approach of UKADS1 and UKADS2

- how to transition ACPs to UKADS1 from the current approach for making changes to airspace design

- modifications to the CAP 1616 airspace change process that may be needed to accommodate the activities of the UKADS

- the proposition for the end-state UKADS2, which could eventually become solely responsible for progressing changes in UK airspace design.

1.12   No final decisions have been made on any of the above.

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What is not in scope of this consultation (what we are not consulting on)

1.13   We are not seeking views on any of the following:

- the CAP 1616 airspace change process, other than where you believe modifications might be needed to support the UKADS proposals

- specific ACPs, past or present

- issues with specific volumes of airspace, other than examples of where you believe UKADS might address the issue

- aspects of government environmental policy, including the Air Navigation Guidance (the statutory guidance given to the CAA by the Secretary of State on how it should take environmental impacts into account).

1.14   Consequently, the DfT and CAA will only take into account elements of responses to this consultation that are within scope.

Who is this consultation for?

1.15   This consultation is for anyone who uses, manages and designs airspace. It will also be of interest to anyone otherwise affected by airspace or the aircraft that use it. We have tried to keep technical terminology to the minimum as we appreciate that we have a wide range of stakeholders who will have an interest in the proposals for the UKADS.

Engagement about the UKADS

1.16   We held two rounds of workshops with a range of stakeholders in September and December 2023. These have helped shape our proposals through understanding views about the challenges of airspace modernisation using the current model; sharing ideas for reform; and testing initial conclusions from our UKADS policy thinking to date. The stakeholders included airports, air navigation service providers, airlines, local communities, General Aviation (GA)[5], the military, new or rapidly developing users of airspace, and others with an interest in airspace design. A summary of views from these workshops is at Appendix A. We also raised the subject for information at other aviation meetings held on a regular basis.

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[5]   Although definitions vary, GA essentially means all civil flying other than commercial airline operations, which therefore encompasses a wide range of aviation activity from paragliders, microlights, gliders and balloons to corporate business jets, including aerial survey, flying training and all sport and leisure flying.

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1.17   If you have any questions about this consultation, we invite you to email us at airspace.modernisation@caa.co.uk. Subject to resources, we are also open to requests for a meeting.

1.18   Our intention is to hold a webinar while this consultation is in progress at which we can run through the proposals and take questions. Please see the CAA's consultation website https://consultations.caa.co.uk/policy-development/UKADS-consultation for the date and time of the webinar and how to let us know you are attending.

1.19   The DfT and CAA appreciate the stakeholder support so far and we look forward to continuing our open and constructive conversations to help drive this project forward.

How to respond to this consultation

1.20   We have sought to make this consultation as accessible as possible by presenting the key points on the CAA's dedicated consultation website mentioned above. The longer document you are reading is for stakeholders wanting more detail.

1.21   The consultation will close at 23.59 on 17 December 2024 (a consultation period of eight weeks). We cannot commit to taking into account comments received after this date.

1.22   Please let us have your comments by answering the questions on the CAA's consultation website https://consultations.caa.co.uk/policy-development/ukads-consultation. The questions include some multiple-choice answers and the opportunity to submit your comments by completing text boxes. Our strong preference is that you complete the online consultation. We understand that some stakeholders prefer not to be constrained by the questions alone and will want to send a self-contained response. While we will take account of these submissions, because we will not be able to analyse them in the same way that we analyse the online responses, we ask that you arrange the submission using the subject headings of the consultation document.

1.23   We will assume that all responses can be published on the CAA website. When you complete the online consultation there will be an option for you to hide your identity or refuse publication. (In any event, your email address will not be published.) In the interests of transparency, we hope you will not refuse publication. If you do send us a separate submission and it includes any material that you do not want us to publish, please also send us a redacted version that we can publish.

1.24   Please note that your response will be shared with the DfT, CAA and relevant employees of any consultancy firms that we contract to assist with the UKADS project.

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1.25   You should be aware that information sent to and therefore held by us is subject to legislation that may require us to disclose it, even if you have asked us not to (such as the Freedom of Information Act and Environmental Information Regulations). Therefore, if you do decide to send information to us but ask that this be withheld from publication via redacted material, please explain why, as this will help us to consider our obligations to disclose or withhold this information should the need arise. Please see General privacy notice | Civil Aviation Authority (caa.co.uk) and DfT Personal Information Charter for more information.

1.26   There are 21 consultation questions, which are listed on pages 7–8 for ease of reference. They also appear through the document, in the context of information that will help you to respond to them.

Structure of this document

1.27   This consultation document is in three parts:

- **Part 1: The case for the UKADS**. This begins with Chapter 2, the background to the proposal and the problem that we propose the UKADS would solve (the 'why'). Chapter 3 considers the scope of the UKADS in terms of geography and types of ACP (the 'what'). Chapter 4 explains the options we considered for achieving our aims, and why we propose to introduce UKADS in two phases (the 'how').

- **Part 2: Our proposed initial operating model (UKADS1 within NERL)**. This explains our proposal to task NERL as quickly as possible to provide airspace design services through UKADS1. Its initial focus would be to deliver the ACPs to modernise the complex airspace around London. We consider which aspects of the airspace change process would fall to UKADS1, transition arrangements, governance and funding.

- **Part 3: Our proposed end-state operating model (UKADS2).** This briefly outlines our long-term goal for UKADS2 that would be responsible for all UK airspace change, probably requiring new primary legislation.

1.28   There are four appendices comprising a summary of stakeholder engagement feedback, comparators with other countries, a background explanation of airspace modernisation and a glossary.

UKADS Regulatory Impact Assessment

1.29   Accompanying this consultation is a Regulatory Impact Assessment of the potential impacts of our proposals. We have published this separately as an annex.[6] It should ideally be read in conjunction with the consultation document.

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[6]   CAP3029A UK Airspace Design Service (UKADS) Impact Assessment

Next steps

1.30   Once the consultation has ended, we will publish a consultation response document summarising the responses we received and how we have taken these into account. Changes to the NERL air traffic services licence (paragraph 1.3 above) or new charges (paragraph 1.5 above) would require separate consultation and decisions in accordance with the statutory processes provided for in the Transport Act 2000.

1.31   In parallel we will work on developing a proposal for UKADS2. This will be subject to further consultation.

1.32   We recognise that there is already considerable modernisation work underway as part of the airspace change masterplan. While the UKADS proposal is being developed, it is crucial for timely implementation of airspace modernisation that sponsors continue to progress their ACPs to already agreed timelines. Our UKADS proposals aim, as far as possible, to avoid work already undertaken on ACPs having to be redone.

1.33   We expect UKADS1 to be operational in 2025 (Figure 1.1).

Figure 1.1 Proposed timeline
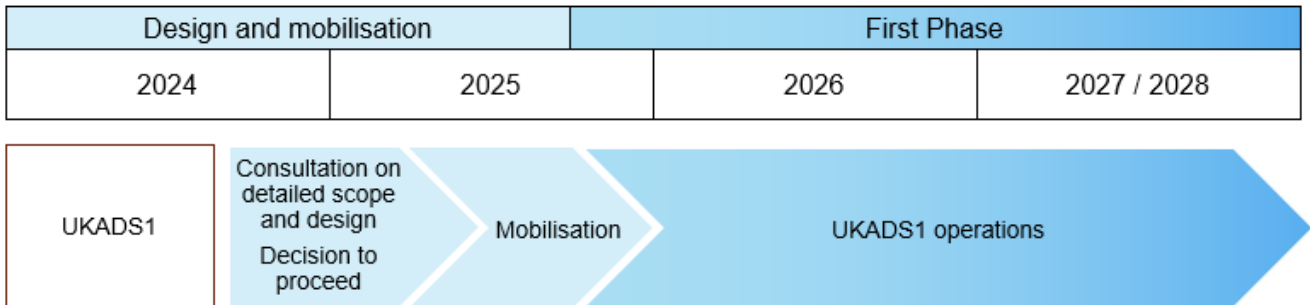
Note: All proposed timescales are approximate, indicative and subject to further work.

Chapter 2
Background to the proposals

Chapter summary:

- UK airspace is a single infrastructure system, and all its component parts need to work in a coordinated fashion.

- Airspace modernisation is long overdue, but given the scale of the reform needed, the need for system-wide solutions and the pace at which modernisation is required, there is an increasing need to strengthen confidence in timely delivery of those outcomes.

- Unlike other countries, including most of Western Europe, the US and Australia, in the UK no single organisation is responsible for creating a modern and coherent airspace design.

- The DfT and the CAA required NERL to set up and maintain an impartial unit known as the Airspace Change Organising Group (ACOG), separate from its other functions, to coordinate the airspace changes necessary to develop an airspace change masterplan. ACOG's function is to coordinate, but it cannot dictate the airspace design, nor does it have design capabilities itself.

- Challenges have surfaced with the current model for changing airspace design:

  - the complex nature of UK airspace, particularly in the London area

  - interdependent airspace designs sponsored by different airports, each with its own incentives

  - dispersed and scarce expertise in the industry sometimes leading to inconsistent standards and variable quality in ACP submissions

  - increasing demand from new types of airspace user to have routine access to an integrated airspace for all users, but no obvious sponsor to take forward or fund any changes to the airspace design needed to accommodate them.

- This led the co-sponsors to initiate a project in 2023 to identify how a new single entity responsible for airspace design could better achieve the level of ambition set by the UK Airspace Modernisation Strategy.

UK airspace

2.1   UK airspace is a state asset, an invisible but vital piece of our national infrastructure with multiple and increasingly diverse users, service providers and

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stakeholders. UK airspace is among the most complex in the world, yet it has not undergone significant change since the 1950s. The underpinning design, and associated procedures, of the airspace have remained largely unchanged, despite technological advances in ground and airborne systems.

2.2   The Airspace Modernisation Strategy (AMS)[7] vision is to deliver quicker, quieter and cleaner journeys and more capacity for the benefit of those who use and are affected by UK airspace. Airspace modernisation will facilitate more choice and value for consumers through greater system capacity, enhancing global connections that can help boost the UK economy, reducing flight delays, while continuing to improve safety standards and helping make journeys more environmentally friendly. Increased demand for access comes from airspace users such as commercial air transport, GA and the military. Coupled with the adoption of new technology by existing airspace users, modernisation will also help pave the way for increased safe access for new or rapidly developing airspace users such as remotely piloted aircraft systems (drones), eVTOL[8], high-altitude platform systems and space launch.

2.3   UK airspace is a single infrastructure system, and all its component parts need to work in a coordinated fashion. Some progress has been made in recent times, particularly with the implementation of certain significant airspace changes. However, given the scale of the reform needed, the need for system-wide solutions and the pace at which modernisation is required, there is an increasing need to strengthen confidence in timely delivery of those outcomes.

2.4   The main constraint on the volume of air traffic using UK airports is the operational or infrastructure capacity of airports. Subject to operational constraints (including safety), the design of airspace and the airspace change process do not specify, guarantee, or limit future increases in the volume of air traffic using a piece of airspace at any given point in time. However, the volume of air traffic using an airport may be limited by specific statutory planning caps or defined operating conditions, where relevant.

Airspace change masterplan

2.5   The airspace change masterplan is a strategic coordinated implementation plan for airspace changes in the UK to 2040 to upgrade the UK's airspace and deliver the objectives of airspace modernisation at a system level. The objectives of the masterplan are explained in Appendix C.[9] It is being produced in a series of iterations. The 20 airports involved in the masterplan are divided into four

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[7]   See also Appendix C and www.caa.co.uk/ams.

[8]   Electric vertical take-off and landing aircraft, also known as advanced air mobility and aerial taxis.

[9]   See also https://www.caa.co.uk/commercial-industry/airspace/airspace-modernisation/airspace-change-masterplan/.

geographical 'clusters', London, Scottish, Manchester and West. Each cluster also has at least one NATS ACP to connect the airports to the network.

2.6   The DfT and CAA commissioned NERL[10] to set up and maintain an impartial unit, separate from its other functions, known as the Airspace Change Organising Group (ACOG)[11], to coordinate the airspace changes necessary to develop the masterplan. But ACOG does **not** have the airspace design capabilities to produce a single, coherent design, nor the powers to produce one or to dictate to airports how and when to produce their designs.

Challenges with the current model for changing airspace design

Multiple sponsors of interdependent airspace changes

2.7   No single organisation in the UK is responsible for creating a modern and coherent airspace design, unlike in other countries, including most of Western Europe, the United States and Australia. As examples, the case studies in Appendix B summarise the centralised approach to airspace design in three other European countries.

2.8   The current UK delivery model for airspace change is based on sponsors of individual ACPs, normally airports and air navigation service providers, being responsible for taking forward, and funding, proposed changes in airspace design. Those proposals must go through the CAA's CAP 1616 airspace change process, where the CAA makes a regulatory decision whether or not to approve the proposed change in airspace design.[12]

2.9   Those changes are driven by differing competencies, incentives, targets and timelines, and generally relate to the geographical area in which the sponsor operates. Consequently, there are multiple sponsors producing their own

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[10]   NATS (En route) plc (NERL), a subsidiary of NATS Holdings, is the regulated monopoly air traffic services provider for 'en route' and some terminal approach airspace. 'En route' means that part of the flight from the end of the take-off and initial climb phase to the commencement of the approach and landing phase. NERL plays a significant role in the development and deployment of airspace modernisation. Under the Transport Act 2000, the Secretary of State issued a licence to NERL to provide en route air traffic and other monopoly services in the UK, and the licence is the formal means through which NERL is subject to economic regulation by the CAA. More information is at https://www.caa.co.uk/commercial-industry/airspace/air-traffic-management-and-air-navigational-services/air-navigation-services/nats-en-route-plc-nerl-licence/.

[11]   Although an impartial unit, legally ACOG is a function of NERL and any licence obligations fall on NERL itself. For clarity we refer in this document just to ACOG, rather than the ACOG function of NERL etc.

[12]   More information is at https://www.caa.co.uk/commercial-industry/airspace/airspace-change/ including links to CAP 1616 itself. See also Chapter 7 where we discuss how CAP 1616 requirements might need to be amended or supplemented to accommodate the UKADS.

airspace designs in isolation, locally focused but often in close geographical proximity to their competitors and thus interdependent, and potentially to different timelines.

2.10   There is evidence that this fragmented approach adds complexity and inefficiency, and is at risk of becoming unworkable. A number of masterplan ACPs have already experienced difficulty at relatively early stages in the CAP 1616 process. The existing approach does not easily support the level of coordination and cooperation needed to develop an effective, holistic, modernised design for UK airspace. Our engagement with stakeholders in 2023 about scoping an alternative approach to airspace design has only reinforced those concerns.

2.11   The government provided £9.2m of funding for airspace modernisation as an exceptional measure during Covid-19. Airports have since resumed responsibility for funding their airspace changes. Aviation has seen a strong recovery in traffic volumes, and in 2023 most bigger UK airports' annual passenger traffic had achieved 90% or more of 2019 levels.[13] However, post-Covid, some airports have not seen such a strong recovery and are still struggling to justify the investment financially. Some airports have had to prioritise their spending and pause their airspace modernisation as a result, which can also delay modernisation at airports which share airspace interdependencies.

Inconsistency in technical approach

2.12   Most airports do not have the necessary technical expertise or resources in-house to make the significant and integrated system-wide airspace design changes needed for the modernisation programme. The airports own their relationships with local stakeholders, but it is usual for them to contract out the technical work to specialist consultancy firms and approved procedure design organisations.

2.13   This airspace design capability is dispersed across many organisations and not of sufficient size to undertake the scale of change envisaged by the AMS. There is a shortage of suitably trained expertise. In the CAA's experience, there are inconsistencies in some ACP submissions and the quality can also be variable. Not surprisingly in what can be a complex process, and in the context of differing drivers for airspace change, the outputs may be based on differing working assumptions, interpretations and standards. Submissions sometimes have to be reworked, creating knock-on effects to interdependent airports (the cluster proceeds at the pace of the slowest). This causes delays in the modernisation programme. Because the specialist consultancy firms are in competition and

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[13]   CAA airport statistics. https://www.caa.co.uk/data-and-analysis/uk-aviation-market/

expertise is dispersed among them, it is difficult to share best practice and lessons learned, or to establish a more common approach.

Accommodating new types of airspace user

2.14   New and rapidly developing types of airspace user such as remotely piloted aircraft systems (drones), eVTOL, high-altitude platform systems and space launch require access to a modernised and integrated airspace.

2.15   These new and rapidly developing users must be accommodated safely alongside existing airspace users (including GA and the military) who can already operate within an integrated environment. The CAA sets out in the AMS how it envisages this being achieved.

2.16   However, in the current devolved airspace change model, it is not obvious who would sponsor such airspace changes, nor who would have the technical knowledge or financial capacity to undertake an airspace change of the necessary scale. There is no single party that can credibly propose, design, implement and fund the scalable changes needed to enable repeatable operations.

Single Design Entity project

2.17   In light of the above, in 2023 the DfT and the CAA set up a joint project to identify how a 'Single Design Entity' could deliver a modernised airspace design to achieve the level of ambition set by the CAA's AMS, published in January 2023.

2.18   The project initially focused on delivery of the complex airspace in the London TMA region, but also considered what the ultimate scope of the entity should be. It considered the role, scope and funding model, whether the role should sit within a new or existing body, the regulatory, legislative and consultation requirements, and many other considerations. We put in place proportionate governance for the project itself and drew up plans for regular stakeholder engagement.

2.19   The project has focused on airspace design and has not sought to fundamentally change who manages the airspace or initiates airspace changes – that would for the most part remain with airports and air navigation service providers, who know their local stakeholders' interests best.

2.20   We have since renamed the Single Design Entity as the UKADS provider, or UKADS.

Consultation question 1: In general terms, do you agree that a single airspace design entity in the form of a UK Airspace Design Service (UKADS) provider, properly scoped, funded and implemented, would address the challenges identified and improve delivery confidence in airspace modernisation?

☐ yes

☐ maybe

☐ no

☐ don't know

Chapter 3
Scope and priorities

Chapter summary:

▪ This chapter explains our proposed scope for the UKADS in terms of geography and type of ACP. Given that the UKADS could not take on everything at once, we also consider which ACPs would need to be prioritised.

▪ We propose that the UKADS's **end-state** scope would need to encompass **all** UK ACPs in order to deliver a consistent, holistic approach to modernising UK airspace, as envisaged by the AMS.

▪ Until the end-state scope can be achieved, we propose that:

  ▪ the **short-term** priority would be those ACPs forming the London TMA region, given that this would deliver the greatest modernisation benefits

  ▪ beyond that, the **medium-term** priority should, in addition to the above, be consistent with delivery plans relating to Part 2 (Delivery elements) of the AMS and the prioritisation principles set out in CAP 2541, including:

    ▪ any other masterplan cluster at risk using the current approach

    ▪ complying with any performance-based navigation mandates in law

    ▪ any UK-wide changes to fulfil the aspirations of the AMS unlikely to be progressed on their own, such as
      – aligning UK Flight Information Services with ICAO
      – further developing beyond-visual-line-of-sight drone operations

  ▪ other airspace changes that would facilitate priority government policy objectives, for example safety and national security proposals, taking into account CAA and MoD strategic needs, where these are more easily progressed by the UKADS than individual sponsors.

Introduction

3.1   The previous chapter set out the reasons why we are proposing to create the UKADS (the 'why'). This chapter outlines proposals for the scope and priorities of the UKADS in terms of geography and type of ACP (the 'what'). This allows us to consider in the next chapter the means of achieving this (the 'how), where we propose a two-phase approach.

3.2   We begin by considering the ultimate aim of the UKADS. Given that a newly formed UKADS would not be able to take on everything at once, we then

consider what its priorities should be in the short and medium term to deliver the most pressing aspects of airspace modernisation and the greatest benefits.

End-state scope of the UKADS

3.3   Through our initial engagement with stakeholders in 2023, there was strong feedback that:

- there was a long-term need for a UKADS and a wider range of areas in which it could deliver significant benefits

- while it was appropriate to set initial priorities for the UKADS, it should be seen as a long-term change.

3.4   Chapter 2 explained that evidence shows that the current, fragmented market-based approach to airspace change is not working as intended. It is reducing confidence that some important aspects of the AMS will be delivered. There are instances where this approach is already showing signs of failing. The stakeholder engagement largely confirmed these concerns.

3.5   In our view, a more holistic approach is needed to airspace change in the UK. Only then are we likely to improve delivery confidence in the modernisation initiatives in the AMS, and realise the benefits.

3.6   Therefore, we propose that the UKADS's end-state scope should encompass all UK ACPs. This includes changes as part of the masterplan, changes in support of other aspects of the AMS, and all types of ACP, as explained in Chapter 6 (paragraph 6.4).

Short term

3.7   The UKADS's priority in the short term should be to progress the ACPs that deliver the greatest benefits from modernisation and that the current approach is unlikely to be able to deliver.

3.8   The most significant of these relate to the complex London cluster of the airspace change masterplan, involving 12 airports in south-east England and NERL. It is currently sub-divided into separate deployments. It is likely that design integration for this cluster could start some time in 2025, subject to all the relevant ACPs progressing through the Stage 2 Gateway of the CAP 1616 airspace change process.

3.9   As well as those 12 airports, the scope of UKADS would need to cover the many smaller airports in the London area as well (for example, Lydd or Brighton City) to ensure a holistic approach to the airspace design. Therefore we would define

the UKADS scope[14] by reference to the London Terminal Control Area[15] (generally abbreviated to London TMA), <u>plus</u> adjoining airspace serving neighbouring airports (for example, Bournemouth and Southampton) that is outside the London TMA but has interdependencies with the London TMA. Using this definition of UKADS scope, this area would wholly encompass the London cluster of the airspace change masterplan. Henceforth we refer to this area as the **"London TMA region"**.

3.10   We tested the proposition that UKADS should prioritise modernisation of the complex London TMA region in our initial stakeholder engagement. There was general support, although there were some differing views. There were some suggestions that the UKADS could be overwhelmed by starting operations with ACPs in the London TMA region and would be better cutting its teeth on ACPs in a less complex area of airspace.

3.11   We have considered this in terms of where the greatest risk lies of airspace modernisation not being delivered. We believe that the less complex masterplan clusters (Scotland, Manchester and West) can continue using the current approach. Therefore, we propose that the London TMA region has to be the short-term priority of the UKADS.

3.12   This stakeholder feedback supports our view that for the UKADS concept, a phased approach to taking on ACPs would be more appropriate than the UKADS taking on everything at once.

Medium term

3.13   After taking on the immediate priority of the London TMA region, we would expect to require the UKADS in the medium term to build its capability over time and to broaden its scope to other ACPs.

3.14   How the UKADS would prioritise ACPs within that medium-term scope would depend on several factors, including the UKADS's own capacity and capabilities, what the AMS requires and which aspects of modernisation are at greatest risk of not being delivered.

3.15   We therefore propose that the medium-term priorities should be consistent with:

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[14]   The definition would be as published in the latest UK Aeronautical Information Publication https://nats-uk.ead-it.com/cms-nats/opencms/en/Publications/AIP/

[15]   A terminal control area is a control area normally established at the confluence of air traffic services routes in the vicinity of one or more major aerodromes.

- the AMS Part 2 (Delivery elements)[16] and related airspace modernisation delivery plans

- CAP 2541 Principles for the prioritisation of ACPs.[17]

3.16   These documents suggest that the UKADS's medium-term scope should be:

- any other masterplan cluster where delivery would be at risk using the current approach

- complying with any performance-based navigation mandates in law[18]

- any UK-wide changes to fulfil the aspirations of the AMS unlikely to be progressed on their own, such as:

  - facilitating the alignment of UK Flight Information Services with ICAO. Because close coordination is needed to ensure that UK Flight Information Services and design deployment are aligned safely, this is unlikely to be a success without a UKADS.

  - integration of 'beyond visual line of sight' drone operations, to the extent that ACPs are required.[19] Technical expertise from the UKADS may be required to develop trials in complex, live airspace environments, and eventually widespread integration. So far trials progressed by commercial operators have been confined to segregated airspace.

- other airspace changes that would facilitate priority government policy objectives, for example safety and national security proposals, where these are more easily progressed by UKADS than individual sponsors.

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[16]   www.caa.co.uk/cap1711a

[17]   www.caa.co.uk/cap2541

[18]   Whether future or current. Currently, other than some airports in the London cluster, there is a performance-based navigation mandate for Manchester airport.

[19]   It is difficult to predict accurately what ACPs may be needed in the future – particularly for new entrants and airports – when some policy or regulations have yet to be drafted. For example, if new entrants can demonstrate, through trials, effective solutions that enable integration without changing the airspace design using, say, a transponder mandatory zone, an ACP may not be needed.

Consultation question 2: What are your views on our proposal that the end-state UKADS scope encompasses all ACPs in UK airspace?

☐ agree

☐ agree, subject to additional considerations

☐ disagree

☐ don't know

Please explain your answer including the additional considerations, where relevant.

Consultation question 3: What are your views on our proposal that the short-term UKADS scope should be the London TMA region?

☐ agree

☐ agree, subject to additional considerations

☐ disagree

☐ don't know

Please explain your answer including the additional considerations, where relevant, and also whether we have defined 'London TMA region' adequately.

Consultation question 4: What are your views on our proposals for the UKADS scope in the medium term?

Our proposed medium-term scope includes other ACPs deemed a priority, such as masterplan clusters at risk, changes mandated by law, and specific state-wide changes supporting the Airspace Modernisation Strategy. Please note that the CAA has already published prioritisation principles for airspace change and a delivery plan for the Airspace Modernisation Strategy.

☐ agree

☐ agree, subject to additional considerations

☐ disagree

☐ don't know

Please explain your answer including the additional considerations, where relevant.

Chapter 4
A phased approach to delivering the UKADS

Chapter summary:

- This chapter explains why, following consideration of a number of different models, we consider a two-phase approach is needed:

    - In the **first phase**, the initial operating model, which we refer to as '**UKADS1**', would be established as soon as possible. We would require NATS (En Route) plc (NERL) to provide airspace design services through UKADS1, initially prioritising the complex London TMA region.

    - In the **second phase**, being developed in parallel but necessarily on a longer timeframe, the end-state operating model or '**UKADS2**' would eventually take over responsibility for all airspace change in the UK. This would be subject to reviewing:
        - the success of UKADS1 in meeting its objectives, and
        - what policy, process or legislation changes would address any unfulfilled objectives.

        The detail, including options for new legislation, would be subject to further consultation in the future.

- Over time, we propose that UKADS1 could build its capability and scope (in terms of geography and type of ACP) beyond the London TMA region.

Assessing models for the UKADS

4.1   As explained in Chapter 2, the current model for making changes to UK airspace design is complex and inefficient, with no single body responsible. While ACOG coordinates airspace change sponsors through the masterplan, it does not control the airspace design. There remains a risk that the designs of adjacent airspace being developed by different entities, possibly with different priorities, are incompatible with each other. This approach can also result in designs of varying quality.

4.2   We considered a shortlist of potential models for the UKADS to address these challenges. In particular, the models were assessed against criteria for:

- achieving the timescales for modernisation, in particular the priority of the London TMA region

  ▪ addressing quality issues with the current model

  ▪ coordination across multiple stakeholders

  ▪ accommodating increased demand for airspace, including from new and
    rapidly developing users

  ▪ funding for setting up and running UKADS, taking into account the user-pays
    principle (see Chapter 9)

  ▪ whether the model could be achieved within the current legal framework or
    would require new legislation.

Rationale for a phased approach

4.3   As explained in Chapter 3, the proposed scope for the UKADS in the short term
        is to prioritise modernisation of the London TMA region and eventually to extend
        the scope to all UK airspace in the longer term. There is a need to achieve the
        short-term goal as quickly as possible, but it could take some years to achieve
        the end-state, full-scope UKADS. Some sort of phasing would be needed,
        whatever the chosen approach.

4.4   We assessed various potential models against the criteria above. The option that
        appeared to give the best outcome for achieving the long-term ambition for the
        UKADS to become responsible for all UK ACPs was to create a bespoke entity.
        This would represent a fundamental shift for how changes to the design of UK
        airspace are made. It would be most likely to deliver the long-term vision of the
        AMS in the form of a holistic and integrated airspace design for the UK and the
        associated benefits.[20] This end-state UKADS would be likely to require new
        primary legislation. The legislation would create the new entity and include the
        necessary supporting powers and enforcement and charging mechanisms.

4.5   However, it would necessarily take some time to set up this bespoke, end-state
        UKADS. In particular, the primary legislation required would need to follow the
        parliamentary process before it became law.[21] The government would need to
        include the bill as part of the legislative programme of a future parliamentary
        session. The timescales for this would **not** meet the criterion that the UKADS
        should deliver modernisation of the London TMA region as soon as possible.

4.6   The need for a short-term solution to take on the more pressing aspects of
        airspace modernisation, in particular the London TMA region, has therefore led
        us to look at a two-phase approach.

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[20]   For more information about the benefits, see CAP 1711 Airspace Modernisation Strategy Part 1,
        Chapter 2: The benefits and impacts of airspace modernisation www.caa.co.uk/cap1711.

[21]   https://www.gov.uk/guidance/legislative-process-taking-a-bill-through-parliament

4.7   We considered whether, in parallel with setting up the bespoke, end-state, full-scope UKADS over the longer term, there was a short- and medium-term model using the existing legislative framework and existing entities that would allow work to begin in the quickest timeframe.

4.8   We have assessed the various options for this model. Our favoured option is to create a new obligation on NERL to provide an airspace design service under its existing air traffic services licence. This would be the first phase. We are referring to this as '**UKADS1**'.

4.9   The second phase would be to set up the end-state, full-scope UKADS, which is likely to require primary legislation. We are referring to this as '**UKADS2**'.

First phase: UKADS1 operating model

4.10   Our proposed first phase would involve a third-party entity being given the UKADS1 role. This option required us to explore different legal mechanisms to achieve this – for example the CAA delegating the function to a third party, or the CAA contracting a third party to assist in developing the UKADS function.

4.11   We are proposing that NERL delivers the UKADS1 task. NERL has the blend of skills, capabilities, expertise and access to the relevant structures and systems to deliver integrated airspace design. NERL has indicated that it could undertake this role, subject to the outcome of this consultation and further work to determine UKADS1 operations and mobilisation.

4.12   This can be achieved through an amendment to the Air Navigation Directions to the CAA[22], a new statutory instrument and by making a proposal to amend NERL's existing air traffic services licence, which would be subject to the statutory processes provided for in the Transport Act 2000, including a separate consultation.

4.13   Beyond the London TMA region, we envisage that UKADS1 could build its capability and resources over time, increasing the ACPs in scope along the lines of the priorities described in Chapter 3, creating less of a step change to UKADS2.

Second phase: UKADS2 operating model

4.14   Our proposed second phase would create a bespoke body to take on the UKADS2 function. This would be likely to require new primary legislation. This second phase would be conditional on the outcome of a review of the first phase. That review would determine:

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[22] https://www.caa.co.uk/media/lzrl3drs/caa-air-navigation-directions-2023.pdf

- the extent to which UKADS1 has succeeded in delivering its objectives, and

- what policy, process or legislation changes would address any unfulfilled objectives.

4.15   We are not making any proposals in this consultation for UKADS2 other than the broad concept.

4.16   Any new legislation would set out UKADS2's functions and services, and specify how UKADS2 is held accountable, how decisions are enforced, the charging mechanism (encompassing charges for all types of airspace change) and any other powers needed specific to UKADS2.

4.17   This second phase would take time to deliver, including completing the legislative processes, and establishing and mobilising the organisation. Our planning assumption, subject to parliamentary processes, is that the soonest UKADS2 might be established is 2027/28, but this could be later.

4.18   The detail, including the form of UKADS2 and options for any new legislation, would be subject to further consultation in the future.

Other models considered but rejected

4.19   We considered various models for the UKADS against the criteria set out at the beginning of the chapter. A key criterion was the need to establish the UKADS1 in time to support the delivery of airspace modernisation in the London TMA region.

4.20   Under the current legislative framework, it is not possible to implement or fund many of these models without changes to primary legislation.

Model 1: Create the UKADS as a new directorate of the CAA

4.21   The Secretary of State uses the Air Navigation Directions to direct the CAA to perform 'airspace change sponsor and design services'.

- Sub-option 1a: the CAA carries out the UKADS function like any other (consulting on an ACP as it would for any other policy proposal)

- Sub-option 1b: the CAA separates the UKADS function from its airspace decision-making function.

4.22   This model met the test of speed of implementation. However, it was clear from our stakeholder engagement that this model would not have much support, because even with functional separation, the CAA would have a role both as airspace designer and decision-maker. Some stakeholders would be likely to call into question whether the CAA was acting fairly.

4.23   Also, because airspace design capabilities and skills are in short supply, the CAA would need the means and flexibility to recruit and retain skilled airspace

designers consistent with the market to deliver the UKADS function in the required timeframe.

Model 2: Create the UKADS as a CAA subsidiary

4.24   The Secretary of State uses the Air Navigation Directions to direct the CAA to establish a subsidiary.[23]

- Sub-option 2a: CAA delegates design services function to a CAA subsidiary.

- Sub-option 2b: CAA contracts the CAA subsidiary to assist in design services.

4.25   This model had similar pros and cons as Model 1. While being a subsidiary might give the UKADS more independence from the CAA and mitigate some of the perceived conflicts of interest, it would be unlikely to remove those perceptions altogether. Also, under the Transport Act 2000, the CAA cannot delegate its air navigation functions to a subsidiary.

Model 3: CAA takes on UKADS function and delegates it to a third party

4.26   Under the Transport Act 2000, the CAA cannot delegate its air navigation functions.

Model 4: CAA takes on UKADS function and contracts it to a third party

4.27   The CAA cannot contract out of its air navigation functions. The CAA may be able to enter into a contract with a third party following a competitive tender to assist in aspects of design services (as long as such assistance did not amount to delegation), but this was deemed an incomplete solution that did not achieve the policy objectives.

Model 5: The Secretary of State directs NERL to carry out the UKADS function

4.28   The Secretary of State has direction-making powers under section 39 of the Transport Act 2000, however, these are related to the environment only. It would not be possible to implement this model without changes to primary legislation.

Model 6: Establish UKADS as a company of which the Secretary of State is sole shareholder

4.29   The Secretary of State establishes a private company, appointing a director and giving it an order to carry out the UKADS function. It would not be possible to implement this model without changes to primary legislation.

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23   As a potential model, the CAA already has a wholly owned not-for-profit subsidiary, Air Safety Support International, although created with powers that could not be used for the UKADS.

4.30   A variation was for the CAA to take on the UKADS function and then delegate it to that company, but the CAA cannot delegate its air navigation functions.

Consultation question 5: Do you have any views on our proposed two-phase approach?

☐ about right

☐ minor modifications needed

☐ major modifications needed

☐ don't know

Please give reasons for your answer.

Consultation question 6: Do you have any views on the models that have been considered?

☐ about right

☐ minor modifications needed

☐ major modifications needed

☐ don't know

Please give reasons for your answer.

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CAP 3029   PART 2 – OUR PROPOSED INITIAL OPERATING MODEL (UKADS1 WITHIN NERL)

PART 2 – OUR PROPOSED INITIAL OPERATING MODEL (UKADS1 WITHIN NERL)

Chapter 5

Our proposed initial operating model (UKADS1 within NERL)

Chapter summary:

- This chapter sets out how we envisage that NERL would be tasked to provide airspace design services through UKADS1, including the potential risks of this proposal and how to mitigate them.

- We are interested in views on the capabilities that NERL would need for this, and any concerns on how NERL and the co-sponsors ensure that UKADS1 maintains impartiality.

- UKADS1 would be the ACP sponsor and would 'hold the pen' on airspace design changes, which would mean resolving design conflicts through trade-offs.

- ACOG would continue coordinating ACPs, except in respect of the London cluster.

- The NERL air traffic services licence would be amended such that UKADS1's scope could be expanded to incorporate ACPs other than the London TMA region without a further specific licence amendment. UKADS1 would need a plan to prioritise them.

- UKADS1 could also in due course take on ACPs initiated by the MoD proposing changes to the civil Aeronautical Information Publication.

- Where UKADS1 cannot prioritise an ACP that is in its scope because, for example, it is not urgent and of local rather than strategic benefit, any organisation should be able to sponsor that ACP.

Introduction

5.1   Chapter 4 explained that we are proposing that for UKADS1, the initial operating model, the most appropriate entity to undertake the function is NERL. We could achieve this by proposing a modification to NERL's existing air traffic services licence, which would be subject to the statutory processes provided for in the Transport Act 2000, including a separate consultation.

5.2   This chapter addresses some of the key considerations when proposing to task NERL with providing airspace design services through UKADS1.

NERL capability to deliver airspace modernisation in the London TMA region

5.3   In our engagement, stakeholders broadly recognised that NERL was most likely to be the only entity with the ability to deliver modernisation for the London TMA region in the timeframe envisaged. NERL has the blend of skills, capabilities, expertise and access to the relevant structures and systems to deliver integrated airspace design. However, requiring NERL to deliver both the short- and medium-term priorities outlined in Chapter 3 may add to any wider challenges NERL is facing across its business. This would require strong leadership from NERL and an enforceable commitment to achieve the aims for UKADS1.

Impartiality

5.4   Tasking NERL with providing airspace design services through UKADS1 was supported by many, though not all, stakeholders during our workshops as part of our initial engagement. Some stakeholders expressed concerns about NERL's perceived impartiality.

5.5   NATS Holdings Ltd is a public-private partnership between the Airline Group[24], which holds 42%, NATS staff who hold 5%, UK airport operator LHR Airports Ltd with 4%, and the government which holds 49% (including a 'golden share'). Competing in the commercial marketplace, NATS subsidiary NATS Services Ltd provides air traffic control and related services at 15 UK airports (including the tower services at the five main London airports), some military airfields and some airports outside the UK. Other customers include the UK MoD, governments, airlines, windfarms and other airspace users.

5.6   We are interested in views regarding the ability of NERL – the part of NATS that is subject to economic regulation – to provide airspace design services through UKADS1 in an impartial manner. Also, where any concerns are raised, how these could be mitigated, whether through the UKADS1 governance structure or some other means. In Chapter 8 we set out a proposal for robust UKADS1 governance by the DfT and CAA, as co-sponsors of airspace modernisation.

Design conflicts

5.7   Airspace design involves assessing options and making choices based on assessments of the relative merits of those options. This gives rise to the term 'trade-offs': the choice or decision to resolve a conflict, which could be between two or more sponsors of separate ACPs, or between two or more objectives

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24   The Airline Group AG is a consortium of British Airways plc, Deutsche Lufthansa AG, easyJet Airline Company Ltd, the Pension Protection Fund, TUI Airways Ltd, Virgin Atlantic Airways Ltd and USS Sherwood Ltd. NATS Holdings Ltd Annual Report and Accounts 2024

(such as achieving noise reduction and achieving fuel efficiency). In the context of multiple interdependencies between airports that are under different ownership, each with its own commercial priorities, those choices would need to take into account not just the ACPs individually but also what is best for the overall network. This may mean that UKADS1's design proposal needs to weigh up one airport's favoured airspace design proposal against another's.

5.8   One issue with developing the masterplan using the current approach is that ACOG has no ability to make such choices. Its remit is to coordinate and facilitate agreement between different airspace change sponsors (and NERL), not to undertake or select specific designs. As noted in Chapter 2, even with just two airports and NERL in the Scottish cluster, this has given rise to some challenges.

5.9   For airspace as complex as that in the London TMA region, it is essential that UKADS1 'holds the pen' on the airspace design proposal. It must bring the airports and NERL along with it, but it must ultimately be responsible for shortlisting and selecting the designs that make up the ultimate design proposal, taking into account relevant law and government policy.

5.10   Nevertheless, UKADS1 must take into account the views of airports, NERL and other stakeholders that are consulted or engaged with as part of the process. In taking into account the interests of the network overall and local circumstances, UKADS1 must otherwise act impartially. The governance of UKADS1 described in Chapter 8 would be designed to oversee and assure that impartiality, through the requirements in NERL's licence in relation to discrimination against parties in the provision of its licensed activities. Governance would include an Advisory Board comprising independent members, subject matter experts from airports, airlines and other key stakeholders including consumer representation, to provide oversight and scrutiny of UKADS1's work.

The role of ACOG

London cluster

5.11   ACOG's current role in respect of the masterplan is described in Appendix C. UKADS1's prime focus initially would be on the London TMA region. We envisage that UKADS1 would take over ACOG's role of producing the masterplan in respect of the London cluster and coordinating any related ACPs. Perpetuating ACOG's role for the London cluster would complicate, rather than simplify, the existing approach. UKADS1 would need to work closely with airports and NERL as part of the technical airspace design work and coordinate them through its own strategic plan.

5.12   The current process whereby iterations of each cluster of the masterplan are accepted by the CAA into the AMS would need to be reviewed.

Other masterplan clusters

5.13   UKADS1 would not, in the short term, have the capacity, or mandate, to take on ACPs making up the other masterplan clusters outside the London TMA region. To maintain the momentum of modernisation it is crucial that sponsors continue to progress those airspace changes to already established timelines.

5.14   Therefore, in respect of the non-London clusters we envisage ACOG's role to continue as now for the time being, that is, to develop the masterplan and coordinate the related ACPs and their sponsors. It would continue to operate as a unit within NERL. ACOG's activities are overseen by a Steering Committee comprising an independent Chair and senior experts drawn from across the aviation sector. The Steering Committee's role would be unchanged in respect of the residual ACOG activities, but would be entirely separate from, and play no part in, the activities of UKADS1.

ACPs outside the London TMA region

Short term

5.15   Initially UKADS1's scope would be the London TMA region only. Therefore, the approach for sponsors progressing other ACPs outside the London cluster should not change in the short term.

Medium term

5.16   As explained in Chapter 3, we envisage that the co-sponsors could over time widen UKADS1's medium-term scope to incorporate ACPs outside the London TMA region. The NERL air traffic services licence would be amended such that UKADS1's scope could be expanded to achieve this without a further specific licence amendment. UKADS1 would need to prioritise the ACPs according to an implementation plan, overseen through the NERL licence.

5.17   Even as UKADS1 widens its scope and capability for the medium term, it would not automatically take on other ACPs. UKADS1 is unlikely to prioritise an ACP that is not urgent and of only local benefit to a particular airport or organisation (rather than having a wider strategic or network benefit). That may be, for example, an ACP at an airport with no interdependencies with other airports. Where UKADS1 is operating and a new ACP is proposed, in order not to delay ACPs unnecessarily, our view is that that the proposer of the ACP should engage with UKADS1 about whether the proposer can progress the ACP itself, rather than wait for UKADS1 to progress it.[25]

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[25]   The extent of ACPs that are in scope of UKADS1 at any point in time would be determined by the DfT and CAA as co-sponsors, and should be transparent from UKADS1's published workplan. As proposed in

5.18   There could be different options for this hybrid approach, on which we would welcome views:

- the organisation concerned sponsors its own ACP outright

- the organisation sponsors its own ACP but is required to consult UKADS1 at key points, to ensure a more joined-up approach to UK airspace change

- the organisation sponsors its own ACP but could choose to use some services from UKADS1, such as design.

Ministry of Defence ACPs

5.19   There is no single sponsor of Ministry of Defence (MoD) ACPs. Instead, MoD has a team that provides advice and guidance to individual units that need to sponsor an ACP. Other than very straightforward changes, MoD ACPs are generally contracted out to civil aviation consultants.

5.20   RAF Northolt is already one of the aerodromes forming part of the London TMA region and therefore will be included within the scope of UKADS1. Subject to agreement with the MoD, UKADS1 could take on other MoD ACPs proposing changes to the civil Aeronautical Information Publication, prioritising urgent national security ACPs as per the prioritisation principles in CAP 2541 (see below).[26] The timing of this would be driven by UKADS1's capability and capacity.

5.21   It would be essential for the MoD to have a route to input into UKADS1 to satisfy and if necessary, prioritise other strategic military requirements.

UKADS1 priorities

5.22   As noted above, in the medium term, UKADS1's scope could expand over time. We need to consider how that expansion could be managed and prioritised, what would initiate the different stages of expansion, and how much of this work is for UKADS1 itself to help define.

Prioritisation principles

5.23   A significant number of ACPs, with varying levels of complexity, are required to support the delivery of the AMS, including the airspace change masterplan being developed by ACOG. Accordingly, in managing the regulatory process for ACPs the CAA must have flexibility as to how those proposals are prioritised.

Chapter 4, long term, all ACPs would be sponsored by UKADS2, in order to maintain the consistency across UK airspace that is one of the fundamentals of the UKADS approach.

[26]   Again, in the long term, UKADS2 could be responsible for these ACPs.

5.24   As well as requiring the CAA to produce the AMS, Direction 4(4) of the Air Navigation Directions requires the CAA to publish a prioritisation principles document setting out its approach to the consideration of ACPs, including how it would prioritise those submitted to it for decision. That document must take into account the AMS and any associated implementation plan, the priority needed to be given to urgent safety and national security proposals, and any other policy objective notified to the CAA by the Secretary of State. The CAA's prioritisation principles are set out in CAP 2541.[27]

5.25   The delivery plans relating to AMS Part 2 (Delivery elements)[28] determine what steps are required to modernise UK airspace in order to deliver the objectives of the AMS. (The masterplan is one of those delivery plans.) Some shorter-term deliverables have a well-defined project plan with associated rulemaking activities that will drive the need for ACPs. Medium and longer-term outcomes are subject to policy decisions, enabling technology and operational concepts. Therefore, the delivery plans do not go as far as defining specific, geographical airspace changes. They are constantly evolving and so will be regularly updated to reflect the latest position.

UKADS1 strategic plan

5.26   Initial feedback from stakeholders has indicated that UKADS1 needs to be both empowered to shortlist and select airspace designs[29], but also impartial, assured by effective governance. We envisage that the co-sponsors would set strategic priorities for UKADS1, including in due course for evolving its scope beyond its short-term priorities, taking into account recommendations from UKADS1 as appropriate. UKADS1 would create a detailed plan based on those priorities, which like other licensed activities would be overseen through the NERL licence. This approach should reduce the potential for conflicts of interest and any negative perceptions of UKADS1's impartiality.

5.27   UKADS1's strategic plan should be consistent with both the AMS and the principles set out in CAP 2541. The plan would become an AMS deliverable. The plan would need to take into account other constraints such as resourcing, controller training requirements, the AIRAC (aeronautical information) cycle, and so on. Flexibility to adjust priorities would be needed to take account of government or emerging priorities. The prioritisation of ACPs would therefore be kept under periodic review, overseen through the NERL licence.

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[27]   CAP 2541 Principles for the prioritisation of airspace change proposals www.caa.co.uk/cap2541

[28]   www.caa.co.uk/cap1711a

[29]   Subject, of course, to the CAA regulatory decision on the actual ACP(s).

Risks and mitigations

5.28   **Sponsors of ACPs outside the initial UKADS1 scope cease work:** There is a risk that current airspace change sponsors may delay progressing their own ACPs if they expect UKADS1 to assume responsibility in the future, in order to lessen their own costs. **Mitigations:**

- airports stand to benefit from the modernisation of their airspace and are thus incentivised to ensure it is achieved as soon as possible

- new funding arrangements for all UK airspace design change (see Chapter 9)

- the Secretary of State has powers under the Air Traffic Management and Unmanned Aircraft Act 2021 to direct airports to progress their ACPs, which the CAA can enforce as required (including the power to impose financial penalties for non-compliance).

5.29   **Skills shortage**: There is currently a skills shortage in technical airspace design. UKADS1 may have difficulty recruiting and retaining sufficient numbers of suitably qualified airspace designers to deliver the UKADS function in the required timeframe. **Mitigations:**

- choosing NERL, which is already resourced to some extent with the necessary skills, tools etc

- UKADS1 can potentially contract existing aviation consultants for some work (subject to UKADS1 oversight, so as not to perpetuate existing consistency and quality issues in some ACP submissions)

- some consultancy work contracted by airports would diminish as UKADS1 builds its activities, thus releasing expertise that UKADS1 could potentially recruit

- UKADS1 may be able to recruit and/or use aviation consultants from outside the UK

- UKADS1 would need the means and flexibility to recruit and retain skilled airspace designers consistent with the market.

5.30   **Single point of failure**: UKADS1 would become the sole sponsor for ACPs in the London TMA region, creating a risk of a single point of failure. **Mitigations:**

- proposing an obligation on an existing organisation, with experience in airspace design and the CAP 1616 process to perform the UKADS1 role, rather than standing up a new body

- appropriate governance by the co-sponsors (see Chapter 8) to ensure that issues, challenges and risks are identified early and mitigations implemented wherever possible.

5.31   **Set-up delays**: It could take time to set up the UKADS from scratch, and any set-up delays could impact timescales for delivery of airspace modernisation. That must be compared with the counterfactual 'do nothing' scenario of whether modernisation of airspace in the London TMA region is actually deliverable using the current model. Introducing the UKADS would improve confidence in delivery of modernisation. **Mitigations:**

- UKADS1 should be set up quickly enough to take on complex ACPs in the London TMA region before the designs become mature

- placing UKADS1 in an existing organisation that already has the resources, expertise and tools and can effect a smooth transition

- sponsors must continue to progress ongoing work on their ACPs while UKADS1 is being established

- UKADS1 must aim, as far as possible, to avoid work already undertaken by sponsors of ACP having to be redone, subject to UKADS1 undertaking the necessary validation of those proposals to ensure interdependent proposals work together.

5.32   **UKADS1 potential conflicts of interest:** See paragraph 5.26 above. **Mitigations:**

- position UKADS1 in an organisation in such a way that conflicts of interest can be minimised

- effective oversight and governance through the NERL licence, including appropriate transparency and an Advisory Board, to give the co-sponsors and stakeholders the ability to hold NERL/UKADS1 to account.

5.33   **Displacement of specialist airspace design consultancies:** Many airspace change sponsors currently rely on the services of specialist consultancies. It seems possible that the role of those consultancies could change in the medium term, should UKADS1 take on, over a period of years, a wider range of ACPs. This could risk it becoming harder for consultancies to retain key staff. **Mitigations:** The co-sponsors should make clear in communications that:

- airports outside the London TMA region would continue with their ACPs until UKADS1 had developed sufficient capability to take on ACPs outside London

- as UKADS1 builds capability and expertise, should it be insufficiently resourced to progress an ACP, it may well contract specialist consultancies for some work while still acting as a coordinator

- there is currently a shortage of skilled airspace designers, so it is likely that continuing opportunities would arise to work with UKADS1 as it builds capability and expertise.

5.34   **An airport (or other partner[30]) does not accept UKADS1's airspace design**: UKADS1 would need to work closely with partners when developing ACPs. The outcome may not give every partner their first choice. Also, we are proposing that the partner would be responsible for the safety case, implementation and aspects of stakeholder consultation. Frictions may arise between UKADS1 and the partner in these interactions. **Mitigations:**

- UKADS1 must 'hold the pen' on the proposed airspace design

- the CAA would ensure this through the airspace change process; where an ACP was in scope of UKADS1, the CAA would not accept an ACP from another organisation unless the CAA had previously agreed this

- UKADS1 must closely manage its relationships with partners; its performance would be monitored through the NERL licence

- the Advisory Board would provide a forum for addressing differences of view

- the Secretary of State has powers under the Air Traffic Management and Unmanned Aircraft Act 2021 to direct an airport (or other partner) to cooperate with UKADS1 in preparing or taking steps to prepare an ACP.

Using the NERL air traffic services licence to task NERL with the UKADS1 function

5.35   This is discussed in Chapter 8. It is also subject to a separate consultation on the specifics of the actual licence modifications.[31]

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[30]   As explained in Chapter 6, because UKADS would be the sponsor of an ACP, an airport, air navigation service provider or other organisation initiating the ACP would be known as a partner.

[31]   A link to the consultation, when published, will be placed on the CAA consultation website https://consultations.caa.co.uk/policy-development/ukads-consultation.

Consultation question 7: Do you have any views on our proposal that NERL takes on the initial task of providing airspace design services through UKADS1?

☐ agree

☐ agree, but subject to additional considerations

☐ disagree

☐ don't know

Please give a reason for your answer, including if relevant any additional considerations.

Consultation question 8: Do you consider that in progressing a particular cluster of the masterplan, UKADS1 should take over ACOG's current coordination or masterplanning role for that cluster?

☐ agree

☐ agree, but subject to additional considerations

☐ disagree

☐ don't know

Please give reasons for your answer, including if relevant any additional considerations.

Consultation question 9: Do you agree that organisations should be able to continue sponsoring ACPs that are in scope of UKADS1 if UKADS1 is not able to prioritise them?

☐ agree

☐ agree, but subject to additional considerations

☐ disagree

☐ don't know

Please give a reason for your answer, and indicate whether such organisations should be required to consult UKADS1 or have the option of using some UKADS1 services.

Chapter 6
Remit for the initial operating model (UKADS1 within NERL)

Chapter summary:

- This chapter explains UKADS1's remit in progressing any given ACP through the seven-stage CAP 1616 airspace change process.

- UKADS1 would be the sponsor of an ACP in its scope. The airport, air navigation service provider or other organisation initiating an ACP would be a 'partner', with whom UKADS1 would work closely. The CAA, through the CAP 1616 process, could decline to accept an ACP from another sponsor where it fell within the scope of UKADS1.

- UKADS1, acting collaboratively, would take on all aspects of delivering an ACP other than the safety case, implementation of the change, and elements of consultation.

- This should reduce complexity and create efficiencies, reducing timescales, cost and inconsistencies in ACP submissions.

- UKADS1 would need appropriate resource and expertise to lead or collaborate on a range of airspace change activities.

- Where they choose, airports would continue to be responsible for the actual preparation and running of the ACP consultation and engagement. UKADS1 would need overall accountability, coordinating consultation and engagement across airports as needed, and ensuring consistency of messaging, formats and common elements. UKADS1 would agree with each airport or other organisation partnering the ACP who has responsibility for which consultation tasks, depending on the scenario.

Sponsorship of ACPs

6.1   Today, sponsors (generally airports and air navigation service providers) of an ACP are accountable for taking the proposal through the CAP 1616 process and for submitting detail of the proposed change to the CAA for a decision on whether it can be implemented. The sponsor may contract airspace design consultants to complete some of the work on its behalf.

6.2   Where an ACP is in scope of UKADS1, UKADS1 would be the sponsor. However, it is important that the airport, air navigation service provider or other

organisation initiating the ACP continues to have a formal role in the process, which we would define as 'partner'. We envisage that this partner role would be underpinned by working arrangements between UKADS1 and its partners. There may be more than one partner for a given ACP. UKADS1 would work closely with the partner throughout, and the partner would undertake certain aspects of the process as explained below.

6.3   The CAA, through the CAP 1616 process, could decline to accept an ACP from another sponsor where it fell within the scope of UKADS1.

Aspects of the airspace change process within UKADS1's remit

6.4   As explained in Chapter 3, once it has built its capability, UKADS1 could potentially need the resource and expertise to sponsor all types of ACPs, including:

- Level 1, 2 and 3 permanent changes to airspace

- Temporary airspace changes

- Airspace trials

- Planned and permanent redistribution (PPR) of air traffic (these arise from changes to ANSP procedures rather than airspace design, but can have similar impacts).

6.5   We have considered which aspects of the airspace change process should form part of UKADS1's remit. For example, whether UKADS1's remit should be limited purely to airspace design aspects of an ACP.

6.6   The airspace change process requires the sponsor to submit an initial statement of need, develop design principles and options for the design, appraise those options, assess the impacts and implications, consult on one or more chosen options, adjust the design as appropriate, progress the change to a formal submission of the final design proposal, implement the change if approved and review it post-implementation.

6.7   Our proposal is that UKADS1's remit must go wider than just airspace design. Limiting UKADS1 to airspace design would not address all the issues with the current approach, such as inconsistencies in options appraisal, and a significant proportion of ACPs not passing CAP 1616 process gateways. A UKADS1 that is accountable for all aspects of an ACP would be the most difficult to set up and deliver, but it would probably resolve the most challenges across the modernisation programme.

Stages of the airspace change process undertaken by UKADS1

6.8	UKADS1 would need a range of expertise to cover airspace change activities. Once fully established, we propose that UKADS1 would undertake the sponsorship of ACPs, including:

- airspace design and instrument flight procedure design

- programme management

- economic assessment

- environmental assessment

- aeronautical information

- post-implementation review.

6.9	UKADS1 would have a significant coordination role (see Chapter 5) in respect of ACPs forming part of the airspace change masterplan, and potentially transitioning an existing cluster or deployment of ACPs into a single ACP (see Chapter 7).

Stages of the airspace change process which the airport (or other airspace change partner) may undertake

6.10	Although UKADS1 would remain accountable for airspace change activities overall, there are some aspects of the airspace change process that we propose UKADS1 would not take on even when it is fully functional. UKADS1 would instead work collaboratively with airports or other airspace change partners. These aspects are discussed below:

- **Safety case**: Local operational knowledge for the airspace in question is essential in order to develop the safety case. Once an ACP is implemented, the designated airspace controlling authority (i.e. the service provider, for example an airport's air traffic control) would own the safety component. It must therefore be the designated airspace controlling authority that develops the operational procedures and safety case through its safety management system, with UKADS1 assistance where required. To support its design work and the necessary safety case, UKADS1 would need to work closely with and obtain information from the controlling authority about the utilisation of the airspace concerned. UKADS1 would undertake 'holistic' safety assessments but would not manage the airspace, and therefore cannot 'own' the safety case.

- **Implementation of the design change**: the actual ACP implementation, including an operational unit transition plan that specifies timings and dependencies, training etc, must be done by the designated airspace controlling authority responsible for the airspace in question.

- **Consultation and engagement**: elements of stakeholder consultation and engagement about the ACP may be undertaken by the airport (or other partner) as they choose. This is explored further below.

Expertise

6.11   UKADS1 would require airspace and instrument flight procedure design expertise. There is a finite amount of such expertise available in the UK. Although UKADS1 would not take over ownership of safety responsibilities from the partner or controlling authority, it would still require safety expertise and should ensure that safety requirements are being met. In time, UKADS1 could make use of a large part of the expertise, at least in the UK market.

6.12   UKADS1 presents an opportunity to develop long-term, centralised expertise and capability in this area, to be best in class. The current airspace change model has revealed inconsistencies and variable quality in the ACPs submitted. Initial stakeholder feedback queried whether and how UKADS1 could acquire the necessary expertise in the required timeframe. We are confident that it could build this, but in the interim it would need to contract out some work to consultants.

Consultation and engagement

6.13   One clear message from our initial stakeholder engagement was that some airports wanted to run their own consultations and engagement. We accept the rationale for this, as their existing stakeholder relationships, including with local communities, have been built up over many years, and can be sensitive. However, consultation and engagement must be done in a coordinated way where there are multiple airports consulting. Collaboration with UKADS1 is essential in order to maintain a consistent approach.

6.14   We propose that UKADS1 would agree with each airport (or other organisation) partnering the ACP who has responsibility for which consultation tasks, depending on the scenario. The agreement would state whether the airport (or other partner) is responsible, consulted or informed by developing a responsibility assignment ('RACI') matrix for the various tasks. The choice would depend on a number of factors such as the type of ACP (how it impacts stakeholders), the airport's (or other partner's) own resource availability and expertise, and the airport's (or other partner's) appetite to be responsible in terms of level of interest or the level of control it wishes to retain with stakeholders.

6.15   UKADS1 would be responsible for taking consultation responses into account in refining the final design.

6.16   **Scenario A – for example, a large airport:**

- an airport (or other partner to the ACP) would be **responsible** for (i.e. run[32]) its own consultation and engagement if it chooses to do so, even where an ACP is sponsored by UKADS1

- the airport (or other partner) would be **responsible** (or jointly responsible with another airport/partner) for certain aspects of consultation, such as staffing, public events, consultation material and analysing responses

- UKADS1 would ultimately be **accountable** for the consultation and engagement stage in its role as sponsor of all ACPs; this should improve the likelihood of successful engagement

- UKADS1 would produce templates and guidance to which consultation materials should adhere

- consultations by neighbouring airports in the same deployment of the London cluster are likely to form part of the same ACP and therefore require coordinated or joint consultations. This is why UKADS1 would still need accountability for a coordination role, building on that currently undertaken by ACOG, even if the consultation is led by the airport. UKADS1 may direct a joint approach because of independencies and cumulative impacts, depending on complexity. UKADS1 would coordinate consultation and engagement, acting as a single point of contact where appropriate. In doing so, UKADS1 would work closely with airports, air navigation service providers and others, ensuring consistency of messaging, timing, formats, common elements and so on, based on appropriate templates, and avoiding consultees suffering from 'consultation fatigue'

- UKADS1, being accountable, would ensure consultation material and feedback collection was fit for purpose, but UKADS1 would not have the resource to run the consultation. We envisage that costs of the consultation activity and materials would largely be borne by the airport (or other partner), but we would welcome your views.

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[32]   In this section, running the consultation would include analysis of responses and producing the consultation response document.

6.17   **Scenario B – for example, a smaller airport:**

- a smaller airport (or other partner) may have less experience or resource available to take responsibility for consultation activities. However, given the high number of stakeholders affected, the airport would want to be consulted about, and provide input to, UKADS1's consultation strategy and materials to ensure its interests are represented

- UKADS1 would be **responsible** for (i.e. run) the consultation and engagement where the airport (or other partner) had no appetite to do so. We envisage that costs of the consultation activity and materials would largely be borne by the airport, but we would welcome your views.

- the airport (or other partner) would be **consulted** about the consultation and engagement plans by UKADS1

6.18   **Scenario C – for example, a drone operator or windfarm:**

- with limited resources and expertise it may be that the airspace change partner has no appetite to run the consultation nor a need to be consulted about it, but wishes to be kept informed

- UKADS1 would then be **responsible** for (i.e. run) the consultation and engagement. We envisage that costs of the consultation activity and materials would largely be borne by the airspace change partner, but we would welcome your views.

- the airspace change partner would be **informed** about the consultation and engagement plans by UKADS1.

6.19   We welcome views on other options, for example:

- the consultation is undertaken by UKADS1, irrespective of the wishes of the airport (or other partner), or

- the consultation is undertaken by the airport (or other partner), irrespective of the wishes of the airport (or other partner)

- UKADS1 drafts and provides the consultation materials for the airport (or other partner) even if the airport (or other partner) runs the consultation.

Consultation question 10: Do you agree with the proposals for UKADS1's remit?

☐ about right

☐ minor modifications needed

☐ major modifications needed

☐ don't know

Please give reasons for your answer, in particular whether anything should be excluded in, or is missing from, the proposed remit.

Consultation question 11: Do you agree with the approach we propose for consultation and engagement on ACPs, including who pays for these activities?

☐ about right

☐ minor modifications needed

☐ major modifications needed

☐ don't know

Please give reasons for your answer, including any views on the other options suggested.

Chapter 7

Transition arrangements for the initial operating model (UKADS1 within NERL)

Chapter summary:

- This chapter sets out our proposed approach for ACPs making up the London cluster of the masterplan in the London TMA region to transfer to UKADS1 on 'day one' of its operations. (The process could also apply to other ACPs UKADS1 takes on in the medium term.)

- A formal transfer process overseen by the CAA would govern the transfer of an ACP from the existing sponsor to UKADS1.

- These ACPs would ideally transfer to UKADS1 at a formative stage of the CAP 1616 airspace change process, after stage 2 but before the stage 3 consultation. Some flexibility may be needed where timelines do not align.

- UKADS1 would review the ACPs in a cluster and refine them as needed for consistency.

- Where appropriate, UKADS1 could amalgamate those ACPs into a single overarching ACP, which UKADS1 would then sponsor through the remaining stages of the airspace change process. Although that single ACP would be complex, it would enable UKADS1 to coordinate and manage the design options and impacts across the whole system.

- To facilitate UKADS1 in delivering its functions, the CAA would expect to introduce some changes to CAP 1616 to amend or supplement existing requirements. These changes would accommodate the activities of the UKADS which do not fit within the existing CAP 1616 process.

Date for UKADS1 to commence operations

7.1   We envisage that, subject to agreement with the co-sponsors and the outcome of this consultation, NERL would plan a realistic date for when UKADS1 would become operational in 2025. This chapter considers how existing ACPs are transferred on 'day one'.

Point of transfer of an ACP from the existing sponsor to UKADS1

7.2   The sponsor is responsible for taking the ACP through the CAP 1616 airspace change process and ultimately delivering the change. CAP 1616 sets out the requirements change sponsors must comply with when progressing an ACP. The process comprises seven stages:

- Stage 1 Define

- Stage 2 Develop and assess

- Stage 3 Consult/Engage

- Stage 4 Update and submit

- Stage 5 Decide

- Stage 6 Implement

- Stage 7 Post-implementation review.

7.3   Sponsors of changes forming part of the airspace change masterplan progress through the process in step with those in their regional 'cluster'.

7.4   Given the urgency associated with progressing airspace modernisation, we do not consider it desirable or necessary for UKADS1 to initiate these ACPs from scratch (stage 1). Instead, UKADS1 should take over those changes already underway at a common point in the process.

7.5   Stages 1 and 2 set out the foundation for the ACP. Stage 2 is where the change sponsor develops design options for the ACP that address the statement of need and align with the design principles from Stage 1. The change sponsor then carries out an initial options appraisal of the different design options, which the change sponsor would later refine. Stage 3 is where the change sponsor prepares and then (once it has passed a process 'gateway') launches a consultation on its ACP.

7.6   We expect that the majority of proposals forming the London cluster are likely to have progressed through stage 2 by the time UKADS1 is operational.

7.7   There are clear advantages to the transfer taking place in the more formative stage of the process, prior to the sponsor formally consulting at stage 3 on its design(s). Not least, that a coherent design across the individual ACPs would be easier to achieve. This may require UKADS1 to carry out some refinement of stage 2 designs to develop options that support a system-wide design, but the aim would be not to redo work that has already been done (or, at the very least, to minimise the amount of rework). A process to manage that transition would need to be developed.

7.8   Transferring the ACPs prior to stage 3 also avoids the risk that the outcome of individual consultations compromises the scope of the final design or leads to stakeholder fatigue should consultation need to be revisited.

7.9   We therefore propose that, ideally, the London cluster ACPs should transfer to UKADS1 after completion of stage 2 (Develop and Assess) of the CAP 1616 process, but prior to stage 3 (Consult/Engage) being commenced.

7.10   Some flexibility would be needed. Where an ACP has not progressed beyond stage 2 in time to meet the proposed UKADS1 transition timeframe, UKADS1 might consider transferring it prior to stage 2 to better align interdependent ACPs in the same cluster and avoid the whole cluster being held up. Similarly, if UKADS1 is not operational by the time interdependent ACPs in the London cluster are ready to progress to stage 3, it may be that the transfer is made slightly later, but still prior to the stage 3 gateway, in other words before formal consultation on the airspace design.

Transition options for the London cluster ACPs

7.11   We considered three options for transitioning London cluster ACPs in the London TMA region to UKADS1 on 'day one'. Option 3 is our favoured option, as explained below, but we welcome comments on this.

Option 1: The existing sponsor continues to progress the ACP but with UKADS1 providing a consultation or coordination role

7.12   This option gives airports the greatest level of control and is similar to what happens today. However, this approach is finding limited success, particularly where multiple interdependent proposals have been developed by different sponsors. It would not address the issues that have led us to propose the creation of UKADS1. Therefore, this is not our preferred option.

Option 2: UKADS1 takes over sponsorship of the individual ACPs

7.13   This option means that each ACP would retain its existing scope, so there would be multiple ACPs spanning the London area, one for each airport. The existing sponsors would each become a partner to UKADS1.

7.14   While this option transfers responsibility for the delivery of the individual ACPs to UKADS1, it seems less likely to provide a mechanism for delivering the necessary trade-offs and optimised network design. Each ACP would have a separate, albeit coordinated, stage 3 consultation. Such an approach would probably be more time-consuming and potentially confusing for stakeholders. This would therefore not be our preferred option, although it would give a better outcome than today.

Option 3: UKADS1 takes over sponsorship of the individual ACPs and merges them where appropriate

7.15   UKADS1 would take over sponsorship of the existing ACPs, but would merge them into a single overarching ACP for the London cluster or deployment, where it is appropriate to do so. The existing sponsors would become partners to a new single UKADS1-sponsored ACP.

7.16   This option requires UKADS1 to coordinate and manage the design options and impacts across the whole system. We envisage that:

- the existing ACPs would be consolidated as annexes to the single London cluster/deployment ACP. Each annex would contain the design principles and design options from the existing proposal, but with system-wide design principles and design options reflected in the overarching ACP.

- individual airports (and NATS) would become partners to the single ACP

- individual airports would undertake local-level engagement and consultation, coordinated by UKADS1, unless they preferred UKADS1 to do this (see Chapter 6).

7.17   UKADS1, working in collaboration with identified partners, would be better placed to coordinate and manage the design options and impacts across the whole system, as well as considering trade-offs and specific local circumstances.

7.18   Through a single ACP, UKADS1 would also coordinate to ensure consistent and informed messaging and programme plan activities. Airports would retain control over their stakeholder relationships, but stakeholders would be less likely to suffer from 'consultation fatigue'.

Favoured option: Option 3

7.19   Option 3 is our favoured option, but the resulting single ACP for the London cluster or deployment would be complex, and we welcome comments on this.

7.20   Our proposal would be to amend NERL's licence to require UKADS1 to combine ACPs such that the outcome is a single design that prioritises maintaining a high standard of safety, and secures system-wide benefits and overall network optimisation. Consistent with the AMS, the single London TMA design would need to result in the most efficient and resilient airspace network possible, while giving due consideration to local circumstances and environmental impacts.

7.21   We would need to manage any regulatory risks arising from this option because:

- a merged ACP would be subject to one regulatory decision as opposed to each constituent ACP being decided on separately

■ if an individual airport wanted to pause or withdraw its ACP then it may be more challenging for UKADS1 to remove that design from a merged ACP.

Transition process

7.22 The CAA would develop a formal process for the transition. This could form an annex to CAP 1616, because that would be the means by which the CAA would enforce any requirement for the sponsorship to transfer to UKADS1. We envisage a two-step process:

■ UKADS1 **reviews** progress with the ACP and identifies any gaps

■ the existing sponsor **transfers** that proposal to UKADS1.

Review

7.23 UKADS1 would review the sponsor's work and approach to date. UKADS1 would consider the design principles specific to the ACP that might introduce local constraints on the airspace design, and any other challenges that area has in terms of design. UKADS1 would then assess how a system-wide design might take those considerations into account, adopting a more standardised approach and assessing how the changes would ultimately be deployed.

7.24 As part of this review, UKADS1 would identify any variations in approach by the sponsor[33] (for example in respect of environmental assessment or options appraisal) that might be problematic from a system-wide perspective. UKADS1 would agree an onboarding plan with the sponsor and its partner role with UKADS1 as part of the wider London cluster. The onboarding plan would include details of the review completed by UKADS1 and any work required as part of the transfer. UKADS1 would publish this onboarding plan.

Transfer

7.25 The formal transfer of the ACP to UKADS1 would require the following steps:

■ review of the ACP has been completed and the above onboarding plan (including partnering with UKADS1) has been agreed by the existing sponsor

■ UKADS1 publishes the onboarding plan as part of a communications strategy to inform stakeholders of the transfer

■ UKADS1 submits the onboarding plan, partnership agreement and communications strategy to the CAA for review and approval

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[33] That approach might be work by a consultancy under contract to the sponsor.

- subject to the CAA approving the transfer, UKADS1 would implement the onboarding plan and communications strategy, and the existing sponsor would withdraw the existing ACP and adopt its partner role under the single UKADS-sponsored ACP for that cluster/deployment.

7.26　　　UKADS1 would then sponsor the single ACP through the remaining stages of the airspace change process.

ACPs outside the London TMA region

7.27　　　The approach described in this chapter could be adapted and replicated for other clusters and ACPs should UKADS1's scope widen in the medium term.

Modifying the CAP 1616 airspace change process

7.28　　　The CAA has primary responsibility for deciding whether to approve an ACP to change the notified airspace design over the UK. The CAA makes these decisions in accordance with a legal framework which requires it to consider certain factors including safety, the environment, the needs of users of airspace and government policy, including the AMS.

7.29　　　The CAA has developed an airspace change process, published as CAP 1616[34], that meets modern standards for regulatory decision-making and is fair, transparent, consistent and proportionate. The airspace change process must be impartial and evidence-based and must take account of the needs and interests of all affected stakeholders.

7.30　　　UKADS1 would sponsor ACPs through the CAP 1616 process. As explained earlier in this chapter, we envisage UKADS1 merging existing ACPs into a single design, where it is appropriate to do so.

7.31　　　To facilitate UKADS1 in delivering its functions, the CAA would expect to introduce changes to CAP 1616 to amend or supplement existing requirements. These changes would be made where necessary to accommodate the activities of UKADS1 which do not fit within the existing CAP 1616 process.

7.32　　　We expect to consult separately on these changes to CAP 1616.

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[34]　　https://www.caa.co.uk/commercial-industry/airspace/airspace-change/airspace-change/

Consultation question 12: What are your views on our transition proposals?

☐ about right

☐ minor modifications needed

☐ major modifications needed

☐ don't know

Please give reasons for your answer.

Consultation question 13: What are your views on our proposal that, where appropriate, UKADS1 should merge the existing ACPs into a single ACP for the cluster or deployment?

☐ agree

☐ agree, with additional considerations

☐ another approach

☐ don't know

Please give reasons for your answer.

Consultation question 14: What are your views on our proposal that the CAA approves each transition plan?

☐ agree

☐ agree, with additional considerations

☐ disagree

☐ don't know

Please give reasons for your answer.

Consultation question 15: What changes would you propose to amend and/or supplement CAP 1616 in order to accommodate the UKADS?

Chapter 8

Governance for the initial operating model (UKADS1 within NERL)

Chapter summary:

- This chapter explains our proposed governance arrangements for UKADS1. These need to be sufficiently robust to provide the necessary visibility and oversight for the co-sponsors to hold the NATS Board to account for UKADS1's performance.

- UKADS1 would need to be (and be seen as) transparent, fair, impartial and effective in progressing its strategic plan without the potential for conflicts of interest.

- Before NERL could commence providing airspace design services through UKADS1, an amendment to the Air Navigation Directions, a new statutory instrument and modifications to NERL's air traffic services licence to add airspace design services as a specified service would be needed.

- UKADS1's activities would be overseen by the CAA through NERL's air traffic services licence and existing AMS governance arrangements, include regular, transparent progress reporting.

- An Advisory Board, within the current AMS governance structure, made up of independent members, subject matter experts from airports, airlines and other key stakeholders including consumer representation, would provide oversight and scrutiny of UKADS1's work.

Introduction

8.1   Our proposal is that UKADS1 forms part of (or more specifically, is a task discharged by) NERL, which is itself a subsidiary of NATS Holdings Ltd. This means holding the NATS Board to account for timely delivery of the tasks that the co-sponsors assign to it, and for the way UKADS1 achieves that. There must be a robust legal basis for that accountability, and transparency around performance metrics and the consequences of non-delivery to provide visibility and oversight for the co-sponsors of airspace modernisation (the DfT and CAA) to have confidence in UKADS1's delivery of airspace modernisation.

8.2   Our aim is not to delay progress with delivery of modernisation of airspace in the London TMA region; however, it is important that the right structure, oversight and governance is in place to enable the modernisation programme to succeed. Without this, we risk facing significant delays at later stages of the programme.

8.3   We envisage a balance between the need for the co-sponsors to have input at a strategic level into UKADS1's objectives and priorities, with the need for UKADS1 to maintain an impartial approach to day-to-day decision making without interference from the co-sponsors.

8.4   Overseen through NERL's air traffic services licence and AMS governance arrangements, the governance needs to ensure that:

- UKADS1 develops a strategic plan for the timely delivery of airspace modernisation

- UKADS1 demonstrates transparent, fair, impartial and effective decision-making

- there are clear lines of communication between UKADS1 and the proposer of any given ACP (which in most cases would be an airport or air navigation service provider)

- UKADS1 operates in the best interests of the UK network and without unreasonably favouring particular stakeholders (including NERL), and is seen to do so

- stakeholders have confidence in UKADS1's strategic delivery plan, and can influence its delivery through a formal Advisory Board and effective engagement with UKADS1 and the co-sponsors

- UKADS1 delivers that plan, on time

- there is sufficient oversight, reporting and assurance of UKADS1's progress with the plan.

Proposed governance arrangements

8.5   We propose that the obligations for UKADS1 governance, reporting and oversight be placed in the NERL air traffic services licence and overseen through existing mechanisms, including AMS governance.

8.6   There would need to be a clear understanding of the roles and responsibilities of each party. This governance arrangement would also need to fit within the broader relationship and accountability between the CAA and NATS. If NERL does not comply with a condition of its licence, the CAA may consider enforcement action under the Transport Act 2000, subject to its overarching prioritisation principles and regulatory enforcement policy.[35]

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[35]   www.caa.co.uk/cap1326

8.7   Amendments to the licence would include provisions such that the geographical scope of UKADS1 could be widened or amended over time without the need for subsequent amendments to the licence.

8.8   In addition, governance arrangements would need to include a robust mechanism governing UKADS1's relationship with stakeholders, which we propose should be through an Advisory Board forming part of AMS governance, as described later in this chapter.

Relationship between UKADS1 and the co-sponsors

8.9   Notwithstanding the impartial nature of UKADS1, the co-sponsors would, through the NERL air traffic service licence and AMS governance arrangements, set strategic objectives for UKADS1 that would allow it to draw up a strategic delivery plan for airspace change. Where appropriate, the co-sponsors would also provide guidance, for example in the event of a new policy or a change in government priorities that could affect UKADS1's work.

8.10   The co-sponsors expect to support UKADS1 and its set-up through dedicated resource. Through the AMS governance, we expect to have a regular, ongoing dialogue with NERL/UKADS1 to ensure that any risks or issues can be escalated quickly, and that stakeholders are kept up to date with progress.

8.11   The airspace modernisation programme is already managed through a regular Airspace Modernisation Programme Board attended by the co-sponsors and the MoD. This would be a suitable decision-making forum for the co-sponsors to manage the oversight of and reporting by UKADS1, notwithstanding the role and responsibilities of Ministers and the CAA Board. The Programme Board would also consider any areas where UKADS1 itself sought guidance from the co-sponsors.

8.12   The co-sponsors' involvement would generally be confined to strategic oversight. The co-sponsors would not be directly involved in UKADS1's day-to-day activities in progressing ACPs through the CAP 1616 airspace change process, because both the CAA and potentially Secretary of State have a statutory decision-making role on ACPs. Functional separation within the CAA and the DfT would mitigate any risk of perceived bias or conflict of interest.

NERL air traffic services licence modifications

8.13   Before NERL could commence providing airspace design services through UKADS1, the following steps would need to be taken:

- the Secretary of State would amend the CAA's air navigation functions in the Air Navigation Directions 2023[36] [37]

- the Secretary of State would introduce a new statutory instrument amending the definition of 'air traffic services' in section 98(1) of the Transport Act 2000, using the statutory processes in the Transport Act 2000

- the CAA would modify NERL's air traffic services licence to create an obligation for NERL to provide airspace design services, using the statutory processes in the Transport Act 2000.

8.14   Modifying NERL's air traffic services licence requires a separate consultation[38] in accordance with the Transport Act 2000. That consultation would set out any proposed licence obligations on NERL in relation to delivering UKADS, and any subsequent changes would be subject to the statutory process provided for in the Transport Act 2000.

Overview of proposed governance

8.15   The proposed approach is summarised in Figure 8.1 below.

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[36]   In this case the Secretary of State for Transport and the Secretary of State for Defence.

[37]   https://www.caa.co.uk/media/lzrl3drs/caa-air-navigation-directions-2023.pdf

[38]   A link to the consultation, when published, will be placed on the CAA consultation website https://consultations.caa.co.uk/policy-development/ukads-consultation.

Figure 8.1 Proposed governance arrangements for UKADS1 (short-term scope confined to London TMA region)
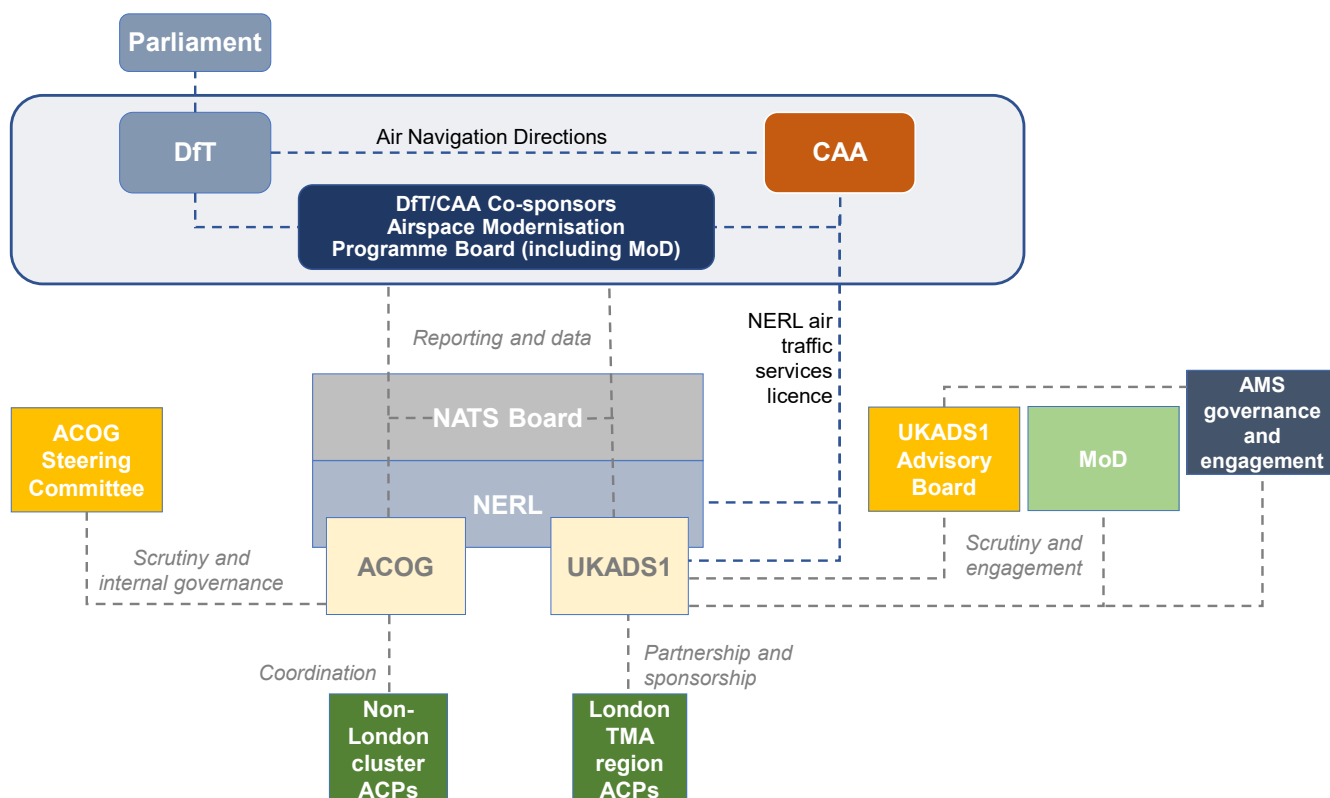
UKADS1 impartiality

8.16   UKADS1 must be impartial, making decisions independently, based on evidence and transparent processes, and in line with relevant guidance. Any potential or perceived conflicts of interest need to be mitigated to ensure it is credible and trusted to deliver.

8.17   Therefore, UKADS1 established as an airspace design service of NERL must have an appropriate degree of separation and impartiality of decision-making from the rest of the NERL organisation while at the same time being able to benefit from being able to draw on NERL's resources and expertise. NERL's licence currently contains requirements in relation to discrimination against parties in the provision of its licensed activities – these would be applicable to (and potentially strengthened for) its airspace design services activities through UKADS1.

8.18   To mitigate the risk of perceived conflicts of interest arising from NERL's wider role in air traffic services, UKADS1 should have an appropriate leadership and governance structure with a transparent mechanism to manage any conflicts of interest, accountable to the NATS Board.

8.19   UKADS1 would need to work closely with the rest of NERL and other air navigation service providers in some respects (such as access to simulators, testing ahead of implementation, and so on) as well as sharing resources for efficiency (such as technical experts working for both NERL and UKADS1). Ethical walls and appropriate separation of functions would need to be put in place by all parties to ensure that information is shared appropriately so it cannot be used to the advantage of one party over another. That would include maintaining commercial confidentiality where needed.

Transparency and reporting

8.20   UKADS1's perceived impartiality would rely in part on transparency of information relating to its various activities. This includes regular engagement through an Advisory Board.

8.21   A transparent reporting process between UKADS1, co-sponsors and stakeholders would also be key to demonstrating impartiality. As part of the formal accountability described above, the governance arrangements would include clear consultation and reporting requirements for UKADS1, including regular reporting to co-sponsors. This would be used:

- to hold NERL to account for UKADS1's performance and delivery

- to understand progress in delivering ACPs – initially in the London TMA region – against the priorities and key milestones in the strategic plan, and have early visibility of any emerging challenges or issues including whether UKADS1 has sufficient resources and capabilities to deliver the plan

- to build evidence on progress with delivering airspace modernisation to inform future policy development, for example:

  - to assess the effectiveness of the UKADS as a new policy concept compared with the previous airspace change model

  - to capture any lessons which could inform the development of the end-state UKADS2, or

  - to support regulatory intervention including using the powers in the Air Traffic Management and Unmanned Aircraft Act 2021

- to fulfil any requirements or conditions set out in the NERL licence in relation to funding

- to support effective and informed engagement between the co-sponsors and UKADS1 or other stakeholders to help UKADS1 fulfil its objectives

- to fulfil any statutory or parliamentary reporting requirements, including for example select committee inquiries, parliamentary questions, and the CAA's annual AMS progress report to the Secretary of State.

8.22   We envisage that these reporting requirements would use data that NERL (as the proposed option for the UKADS1 function) is already collecting and using for its own purposes.

8.23   In addition, the co-sponsors could commission reviews or other information to provide them with assurance in relation to UKADS1's work.

8.24   Oversight by the co-sponsors would regularly assess UKADS1's methodology in developing and implementing its strategic plan, based on regular information updates provided by UKADS1. As part of its wider reporting on progress with delivery of the AMS, the CAA would regularly report on UKADS1 progress to the DfT.

Advisory Board

8.25   The UKADS1 Advisory Board could be part of AMS governance, and could be developed from the existing AMS Industry Modernisation Steering Group that is currently dormant.[39] The Advisory Board would act as a mechanism for key stakeholders to engage with UKADS1 and the co-sponsors at a strategic level. The Advisory Board would have no decision-making role.

8.26   As part of establishing UKADS1, we envisage NERL setting out a proposed structure and membership for the Advisory Board, bringing together independent members, subject matter experts from airports, airlines and other key stakeholders including consumer representation, to provide oversight and scrutiny of UKADS1's work.

8.27   Meeting regularly, the Advisory Board would:

- inform UKADS1's approach to delivering its strategic plan and other objectives through feedback from stakeholders

- provide transparency for stakeholders on UKADS1's activities and thus external assurance and scrutiny of UKADS1's performance

- provide a common understanding of progress and issues, allowing stakeholders to raise matters of concern or seek more information (including differences of view from, or disputes with, UKADS1) and a means for UKADS1 to respond

- allow UKADS1's strategic plans to be socialised and discussed

- demonstrate how UKADS1 is taking an impartial and fair approach.

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[39]   Part of the existing AMS governance structure. https://www.caa.co.uk/media/nuwlyxja/overall-airspace-modernisation-governance-structure.pdf

ACOG

8.28   As explained in Chapter 5, ACOG could continue to coordinate masterplan ACPs that are outside the scope of UKADS1. Other than that, its governance arrangements would not be changed by our proposal to task NERL with providing airspace design services through UKADS1. ACOG's activities are overseen by a Steering Committee comprising an independent Chair and senior experts drawn from across the aviation sector. The Steering Committee's role would be unchanged in respect of the residual ACOG activities, but would be entirely separate from, and play no part in, the activities of UKADS1.

Consultation question 16: What are your views on our proposals for UKADS1 governance?

☐ about right

☐ minor modifications needed

☐ major modifications needed

☐ don't know

Please give reasons for your answer, including whether the proposed arrangements would be sufficiently proportionate, transparent and robust, and how you see this working in practice.

Consultation question 17: Would these proposals give sufficient reassurance that potential conflicts of interest arising from NERL providing airspace design services through UKADS1 are mitigated?

☐ yes

☐ partly

☐ no

☐ insufficient detail / don't know

Please give reasons for your answer, including any comments or suggestions about the proposed Advisory Board.

Chapter 9

Funding UKADS and other airspace change

Chapter summary:

- UKADS1 would require a new funding mechanism. We propose that this encompasses all airspace design change for airports whether sponsored by UKADS1 or not. A mechanism that only addresses funding for ACPs in the London TMA region is not sufficient because of the wider implications this has for ACPs sponsored by other airports.

- Any new funding approach must be fair and transparent and adhere to the 'user pays' principle.

- We propose to use the Transport Act 2000 to introduce a new UK Airspace Design Charge on airspace users. This new charge would:

  o meet the efficient costs of NERL to provide an airspace design service in the form of UKADS1, and

  o capitalise a new UK Airspace Design Support Fund, administered by NERL through UKADS1, to cover relevant costs of the sponsors of eligible UK airport ACPs that are outside the scope of UKADS1.

- The statutory processes for this would include further detailed consultation with those potentially affected by the new charge, including on the level of the charge.

- In the future (as and when the remit of UKADS1 evolves), the UK Airspace Design Support Fund could pay towards ACPs needed to support Future of Flight and GA-related operations.

Introduction

9.1　　The creation of UKADS1 would require a means to fund its activities. However, the implications go wider than UKADS1's activities. At the outset, UKADS1 would be effectively providing funding towards the delivery of London cluster ACPs, so it is important that the arrangements be as equitable as possible for non-London ACPs (whether or not they are part of the masterplan). There is also the opportunity to consider how UK-wide airspace modernisation work should be paid for in the future, such as where design changes are needed to facilitate routine access for new users.

9.2　　We propose a more fundamental review encompassing the funding of **all** UK airspace change through the introduction of a new **UK Airspace Design**

Charge. This chapter therefore begins with some first principles and explores what is required to address these funding questions in addition to funding UKADS1 itself.

'User pays' principle

9.3   Although airspace is a state asset, there are numerous beneficiaries from modernising it.[40] Government policy is that airspace modernisation must follow the 'user pays' principle, with the beneficiaries of airspace change responsible for funding it rather than the taxpayer.[41]

9.4   The 'user pays' principle means that costs should, as far as possible, align with the benefits. At present, the costs of airspace redesign are largely met by:

- airports, for terminal airspace, through their sponsorship of ACPs, with costs recovered by airports from airport users, and

- NERL, for en route and some London cluster ACPs, with costs met through the UK en route and London Approach charge revenues, paid mainly by airlines.[42] [43]

9.5   The challenges facing the industry in recent years have led to some stops and starts in the modernisation programme.

9.6   Airlines are significant beneficiaries of airspace change, through more efficient flightpaths, fewer delays and greater resilience to disruption. The benefits for airports are less marked, but bigger airports may benefit where capacity is

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[40]   See Chapter 2 in this document, and CAP 1711 Airspace Modernisation Strategy Part 1, Chapter 2: The benefits and impacts of airspace modernisation. www.caa.co.uk/cap1711

[41]   As an exceptional measure during the Covid-19 pandemic, the government provided £9.2m of funding to support airports as part of a commitment to both supporting recovery in the aviation sector post-pandemic and net zero decarbonisation aims.

[42]   The UK is signatory to the EUROCONTROL multilateral agreement relating to route charges. The UK has agreed to adopt the EUROCONTROL common policy in respect of charging for en route services, which is set out in the EUROCONTROL principles for establishing the cost base for en route charges and the calculation of the unit rates. (En route means that part of the flight from the end of the take-off and initial climb phase to the commencement of the approach and landing phase.)

[43]   NERL is the regulated monopoly air traffic services provider for en route and certain approach services. NERL recovers its costs for the provision of en route services to aircraft flying en route in UK airspace and the eastern part of the North Atlantic as well as for providing the combined approach function (London Approach) for five London airports (Heathrow, Gatwick, London City, Luton and Stansted). As economic regulator for air traffic services, the CAA conducts periodic reviews and sets price controls for a five-year period, covering operating and capital allowances, incentives and service quality targets for NERL's regulated activities. Consistent with the Transport Act 2000, the CAA price control decisions set the maximum charges that NERL can recover for its regulated services. The current price control, NR23, covers the period to December 2027. https://www.caa.co.uk/commercial-industry/airspace/air-traffic-management-and-air-navigational-services/air-navigation-services/nats-en-route-plc-nerl-licence/

currently constrained (noting that capacity gains are subject to any limits imposed by the land-use planning system). Modernised airspace can also give airports a small competitive advantage to the extent that more efficient routes are attractive to airlines, all other things being equal. Therefore, there is a case for the costs of airspace modernisation to be shared between airspace users, passengers and cargo shippers and airports.

Funding principles for airspace design change

9.7   The outcome that we want to achieve is a mechanism that:

- is transparent, equitable and accountable

- supports the early mobilisation to begin work on the London TMA region

- ensures the relevant airspace change costs of UKADS1 and other airport sponsors are met

- can be future-proofed for funding of other ACPs as and when the scope of UKADS1 evolves, and

- in the long term can fund airspace change for the whole of the UK.

9.8   We consider that the 'user pays' principle would make it appropriate that the costs of airspace design change should be met by airspace users.[44]

9.9   Nevertheless, we propose that some aspects of airspace design change (safety case, implementation, and elements of consultation) would continue to be owned and funded by airports, as described in Chapter 6 (paragraph 6.10). We would need to consider further the precise arrangements for that, and how UKADS1 could oversee the necessary standardisation and quality across ACPs to maintain the holistic approach.

A proposed new charge to fund UKADS1 and all other changes in airspace design

9.10   Currently, ACPs are funded by the ACP sponsor, a model which creates some challenges, as described in Chapter 2. Alongside our proposals for the UKADS, we propose to reform the funding of ACPs by creating a new UK Airspace Design Charge, which would:

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[44]   Mainly airlines, but also other users of the relevant controlled airspace, noting that military aircraft do not pay the en route charge.

- meet the efficient costs of NERL to provide an airspace design service through UKADS1, and

- capitalise a new UK Airspace Design Support Fund, administered by NERL through UKADS1, to cover relevant costs of the sponsors of eligible UK airport ACPs that are outside the scope of UKADS1, thus potentially including:

  - ACPs forming part of other clusters of the masterplan that are sponsored by airports or NERL

  - ACPs not part of the masterplan, sponsored by any airport

  all of which would be subject to an appropriate governance process. The new charge would therefore meet the costs of NATS ACPs that are currently funded through the existing en route and London Approach charges.

9.11 The new Airspace Design Charge, to be met by airspace users in line with the 'user-pays' principle, would be specified under the Chargeable Air Services provisions of the Transport Act 2000. Stakeholders have emphasised that it is important that UKADS1 is mobilised quickly. We therefore propose to consider and consult on the design of the new charge as soon as practicable. This would include the required level of efficient costs to be recovered, along with the scope, level, interactions with existing charging arrangements, and any adjustment mechanisms.

9.12 The UK Airspace Design Support Fund would require appropriate and transparent governance. We envisage that a policy document would set out how the fund would function, which might for example include:

- how relevant parties (airport sponsors of ACPs outside the scope of UKADS1) could apply for funding support to recover their eligible ACP costs, and under what conditions

- how the fund would be administered by NERL through UKADS1

- any requirement for a proportion of the eligible costs to be met by the airport ACP sponsor

- an escalation process in the event of a dispute.

9.13 We would need to develop the details of the fund further, taking into account feedback from this consultation.

9.14 We welcome views on the proposed new charge, including on which aviation sectors should contribute, and on the proposed Airspace Design Support Fund, including on what costs should be eligible.

Alternative funding option

9.15   We have described above our preferred funding option. An alternative funding option would be a hybrid comprising a combination of:

- a new UK Airspace Design Charge (as described above)

- additions to the existing en route charge and London approach charge that airspace users currently pay to EUROCONTROL.

9.16   As with our favoured proposal described above, these funding streams would combine to:

- meet the efficient costs of NERL to provide an airspace design service through UKADS1, and

- capitalise the new UK Airspace Design Support Fund described above.

9.17   This model would be more complicated to set up than a single UK Airspace Design Charge. It is therefore not our preferred option. Statutory processes under the Transport Act 2000, including a separate consultation, would be required to make changes to the UK en route and London Approach charges.

Estimated costs

9.18   Efficient costs for providing airspace design services through UKADS1 and for the Airspace Design Support Fund are likely to form a small proportion of UK en route costs paid by airlines overall.[45] For example, the DfT and CAA estimate annual costs for UKADS1 at around £10m to £20m, subject to further work. This covers set-up costs, mobilisation, accommodation, staffing and associated technical costs to deliver ACPs forming the London cluster from Stage 3 of the CAP 1616 process onwards.

9.19   We welcome any further data to support these estimates, and comments on the Regulatory Impact Assessment accompanying this consultation document.

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[45]   For context, the 2024 'determined cost' for airlines was around £890m in nominal terms.

Consultation question 18: What are your views on our proposed new Airspace Design Charge to meet the efficient costs of NERL in providing an airspace design service through UKADS1 and to create a UK Airspace Design Support Fund for other eligible UK airport ACPs?

☐ agree

☐ agree, but with qualifications

☐ use another method

☐ don't know

Please give reasons for your answer, including, if relevant, what other method you propose, such as our alternative hybrid option.

Consultation question 19: Which elements of expenditure on an ACP do you think should be eligible under the UK Airspace Design Support Fund?

PART 3 – OUR PROPOSED END-STATE OPERATING MODEL (UKADS2)

Chapter 10

Our ambition and expectations for the proposed end-state operating model (UKADS2)

Chapter summary:

- This chapter explains more about our vision for the end-state UKADS2 which could sponsor **all** ACPs in the UK.

- Using UKADS2 to progress an ACP could become mandatory. This would be most likely to achieve a consistent, holistic approach to modernising UK airspace using the best tools and skills to create high-quality ACPs that are optimised from a system perspective.

- This second phase would be conditional on the outcome of a review of the first phase to determine the extent to which UKADS1 has succeeded in delivering its objectives.

- We are not making proposals for UKADS2 in this consultation other than outlining the broad concept. No decisions have been made on the form of UKADS2, including whether it would be a new or existing body.

- Primary legislation would be likely to be required to deliver UKADS2.

- The detail, including the form of UKADS2 and options for any new legislation, would be subject to further consultation in the future.

Introduction

10.1   In Chapter 4 we explained our envisioned two-phase approach to introducing the UKADS. Most of this consultation has been about our proposal to set up UKADS1 as part of NERL. While details of the second phase to create a new UKADS2 have yet to be developed, we want to provide an outline of our thinking on UKADS2 to provide the context necessary to help you comment on UKADS1.

10.2   This second phase, running in parallel with the first phase but necessarily on a longer timeframe, would be to establish the end-state operating model whereby UKADS2 is responsible for sponsoring and progressing **all** ACPs in the UK. This would represent a truly fundamental shift in the model for how changes to the design of UK airspace are made.

10.3   This second phase would be conditional on the outcome of a review of the first phase. That review would determine:

- the extent to which UKADS1 has succeeded in delivering its objectives, and

- what policy, process or legislation changes would address any unfulfilled objectives.

10.4   We are not making proposals for UKADS2 in this consultation other than outlining the broad concept. No decisions have been made on the form of UKADS2, including whether it would be a new or existing body.

10.5   We would nevertheless welcome any views on this second phase.

Scope and remit of UKADS2

10.6   Given the significant lead-in time for developing the UKADS2 model, proposals for its form, scope and remit would follow more detailed development by the DfT and CAA. The detail, including the form of UKADS2 and options for any new legislation, would be subject to further consultation in the future.

10.7   In terms of scope, we envisage that UKADS2 could be responsible for all airspace change in the UK (other than certain changes by the MoD[46]). This would be most likely to achieve a consistent, holistic approach to modernising UK airspace using the best tools and skills to create good quality ACPs that are optimised from a system perspective. Using UKADS2 to progress an ACP could therefore become mandatory.

10.8   In terms of stages of the airspace change process, we envisage a similar approach to that we are proposing earlier in this document for UKADS1.[47]

The need for new primary legislation

10.9   UKADS2 would be likely to require primary legislation to create new statutory arrangements to provide airspace design services for the whole of the UK. Primary legislation would help to ensure that UKADS2 has the necessary governance, powers and funding to undertake the role successfully.

10.10   Once proposals have been developed and consulted we will need to progress primary legislation when parliamentary time allows. Given timeframes for UKADS1 it is unlikely we would be in a position to pursue primary legislation until at least the second half of this Parliament, but it may be later.

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[46]   We envisage that the MoD would continue be responsible for changes to the military Aeronautical Information Publication and for any administrative changes MoD wished to propose to the civil Aeronautical Information Publication.

[47]   We proposed that UKADS1 would lead all stages except for the safety case, implementation and (depending on the circumstances) certain aspects of stakeholder consultation where the partner would take the lead.

10.11   The new legislation might set out:

- UKADS2 functions and services

- how it is governed and held accountable

- how its decisions are enforced

- the charging mechanism (encompassing charges for all types of airspace change)

- any other powers needed specific to UKADS2.

Funding

10.12   It is likely that we would consider UKADS2 funding and charging arrangements as part of primary legislation, or that we would consider the scope for using existing provisions in current legislation.

Transition arrangements from first to second phase

10.13   It would be premature for us to specify proposals for transition arrangements. Should UKADS1 go ahead, and subject to a post-implementation review of its effectiveness, the parallel second phase work would develop proposals that would form part of the consultation on UKADS2.

Consultation question 20: Do you have any views on our proposed concept for UKADS2?

☐ about right

☐ minor modifications needed

☐ major modifications needed

☐ insufficient information / don't know

Please give reasons for your answer.

* * * * *

Consultation question 21: Do you have any other comments about the proposals in this consultation document or about the accompanying Regulatory Impact Assessment? Is there anything we have missed?

APPENDIX A

Summary of stakeholder engagement feedback

A1   In summary, the views expressed at stakeholder engagement workshops about UKADS[48] included:

- Positive and supportive of the UKADS as a concept. 'Do nothing' is not a credible option.

- While not a panacea for every challenge, if the UKADS is developed and introduced properly it could improve delivery confidence and provide opportunities to be smarter with airspace design.

- The UKADS needs to be suitably empowered to drive modernisation forward. It would also require the necessary resources, expertise, tools and data. Suitably empowered governance structures are required to provide accountability and transparent, evidenced decisions.

- To get maximum benefit and minimise the risk of losing momentum, the UKADS must be operational as soon as possible to support the London TMA region airspace changes and deployments. Other less complex ACPs can probably progress under current arrangements. It is critical that progress does not stop while the UKADS is developed and implemented.

- Supportive of the London TMA region being the initial priority for the UKADS, but also that the UKADS's scope could expand to potentially all ACPs over time to create the most effective and holistic UK airspace. Some stakeholders were concerned by the size of the task, even for just the London TMA.

- In the short term, NERL could be the organisation best placed to deliver progress at pace, though concerns around transparency and conflicts of interest must be addressed. Other options might also be considered for the longer term, though some require primary legislation which would take time.

- Building adequate capability to deliver modernisation of the London TMA region, and the complexity of taking on the range of ACPs already in progress within this region, were noted as particular risks.

- Broad consensus to follow the 'user pays' principle.

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[48]   Held in September and December 2024, as mentioned in Chapter 1. At the time, we were referring to UKADS as the Single Design Entity (SDE) for airspace.

APPENDIX B

Comparators in other countries

B1   This appendix summarises case studies of how airspace change is managed and implemented in three example European countries (France, Netherlands and Norway) to illustrate their centralised airspace design approach.

France

B2   France's Regional Airspace Management Committees (CRGs) are independent bodies responsible for coordinating and managing airspace in specific regions of France. When it comes to airspace design, they facilitate coordination among stakeholders to ensure the harmonious use of airspace and make recommendations to governing bodies for implementation.

B3   CRGs' functions are laid out in national law. Airspace management in France is a joint responsibility of the transport and defence ministries. High level officials from both sit on an airspace 'directorate'. CRGs operate 'below' the directorate as independent entities, responsible for civil and military stakeholder engagement.

B4   Each CRG is composed of permanent civil and military aviation representatives, and occasional representatives from affected organisations and ad-hoc experts. CRGs do not have ultimate decision-making powers, but rather submit final recommendations to the airspace directorate on airspace design and strategy following consultation.

B5   The directorate can then instruct the air navigation service provider to develop the design proposal and implement it once the design is validated. CRGs and consultation boards are staffed by public bodies (air navigation service provider, Directorate General for Civil Aviation (DGAC), military representatives).

B6   CRGs and consultation boards are financed by public funds. The airspace change consultation/proposal process is free for GA users, new entrants (such as drones) and for flight-testing purposes. Commercial airlines seeking to propose changes must do so at their own expense.

Netherlands

B7   In the Netherlands, the Ministry of Infrastructure (MoI) and Ministry of Defence (MoD) jointly assess ACPs against relevant regulations and policy. The MoI oversees the ACP process, working hand in hand with the MoD. Any airspace change necessitates a ministerial decision before publication in the AIP.

B8   This process is overseen by the ATM Policy unit (joint MoI/MoD team), consisting of both civil and military ministerial personnel. The Dutch CAA is an observer in the process, offering support for initiatives while allowing initiators to generate their own ideas.

B9   The five-step ACP process includes consultation (step 2) and design submission (step 3). If an ACP does not align with national policy objectives, it is ruled out in the first step of the process.

B10   Although there is no centralised design entity, all submissions must be prepared by EASA-accredited designers. The ATM Policy unit ensures there is an ongoing informal feedback loop with sponsors throughout the process to allow them to adjust proposals and avoid rejection.

B11   The work carried out by the ATM Policy unit is covered within the Ministry budget. For changes in the context of national airspace redesign programmes, government funding covers most of the costs. For local changes, design submissions are prepared by certified parties at a cost to the sponsor.

Norway

B12   Avinor, as the state-owned air navigation service provider, is responsible for handling airspace design matters at a national level. While many organisations can propose an ACP, Avinor is the typical initiator and is responsible for implementing the change.

B13   ACPs follow a high-level process set out and overseen by the Norwegian CAA. Avinor is responsible for the design and implementation phases, acting as a centralised design entity.

B14   Large-scale changes require a consultation process with airlines, GA communities, Avinor air navigation services and sustainability and noise teams, MoD and neighbouring states.

B15   A larger-scale, complex ACP process typically spans a one-year period from initiation to implementation. Avinor airspace designers are involved in the ACP process right from the outset to ensure understanding of the local conditions. Less significant changes follow a lighter process.

B16   The Norwegian CAA bears the ultimate responsibility for approving a proposal or change request, and also handles military requests.

B17   Airspace design is funded from Avinor's budget, revenue for which primarily stems from airport and route charges. Private airports need to cover the costs related to any ACP they might initiate themselves. GA federations do not incur costs when initiating a change.

APPENDIX C

Background to airspace modernisation

What is airspace?

C1   In its simplest terms, airspace is the portion of the atmosphere controlled by a State above its territory and areas over the sea within which a State is committed by international treaty to provide air navigation services (which includes air traffic control). It is an invisible national asset.

C2   For air traffic control purposes, airspace can be divided into two main categories, controlled and uncontrolled. Controlled airspace is where air traffic control needs to have positive control over aircraft flying in that airspace to maintain safe separation between them. Uncontrolled airspace is airspace where aircraft are able to fly freely without being constrained by instructions in routeing or by air traffic control, although they may request information or a service.

C3   Controlled airspace contains a network of corridors, or airways. They link the busy areas of airspace above major airports. At a lower level, control zones are established around each airport. These portions are therefore nearer the ground and closer to population centres. The CAA has a policy of keeping the volume of controlled airspace to the minimum necessary to meet the needs of UK airspace users and to comply with its international obligations.

C4   The defined blocks of controlled airspace, and flight procedures and routes within them such as standard departure and arrival routes, are together part of the overall airspace design. This airspace design is published in the UK Aeronautical Information Publication (AIP). Overlaying the airspace design are air traffic control operational procedures – written instructions forming a framework within which air traffic controllers make decision as to how to control individual aircraft.

Legal framework

C5   The CAA's statutory duties in respect of air navigation are contained in Chapter III of Part 1 of the Transport Act 2000[49] and the Air Navigation Directions.[50] Section 70(2)(d) of the Transport Act 2000 requires the CAA to take account of

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[49]   https://www.legislation.gov.uk/ukpga/2000/38/

[50]   https://www.caa.co.uk/media/lzrl3drs/caa-air-navigation-directions-2023.pdf

the Air Navigation Guidance 2017[51] when carrying out its air navigation functions. This is subject to the CAA's primary duty of maintaining a high level of safety.

C6   For more detail about the legal framework see Appendix B of the AMS.

Airspace Modernisation Strategy

C7   The basic design of UK airspace has remained the same for decades, despite technological advances and an increase in demand from airspace users. Modernisation is long overdue and is critical to ensure that UK airspace is fit for purpose in the future.

C8   Working together as 'co-sponsors', the DfT and the CAA have developed a shared vision for the modernisation of UK airspace. That vision is to deliver quicker, quieter and cleaner journeys and more capacity for the benefit of those who use and are affected by UK airspace.

C9   In 2017, the Secretary of State tasked the CAA with preparing and maintaining a coordinated strategy and plan for the use of UK airspace up to 2040, including modernisation. The CAA's AMS[52] is based on four strategic objectives: Safety, Integration, Simplification and Environment.

C10   The AMS sets out the 'ends, ways and means' of modernising airspace through a series of 'delivery elements' that will modernise the design, technology and operations of airspace.

C11   Alongside commercial air transport, other airspace users – including the military, recreational flyers, business aviation, drones, aerial taxis and spacecraft operators – all want greater access to this infrastructure. Airspace modernisation is one of the improvements in system efficiencies that will help UK aviation to achieve net zero greenhouse-gas emissions by 2050. Communities around airports would also like better mitigation of adverse noise impacts.[53]

C12   The CAA published the first AMS in 2018 and refreshed it in 2023 to bring it up to date and widen its scope, in particular:

- to extend the strategy's focus out to 2040

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[51]   Air Navigation Guidance 2017: Guidance to the CAA on its environmental objectives when carrying out its air navigation functions, and to the CAA and wider industry on airspace and noise management, Department for Transport October 2017. https://www.gov.uk/government/publications/uk-air-navigation-guidance-2017

[52]   www.caa.co.uk/cap1711

[53]   More information about the benefits of airspace modernisation is available at https://www.caa.co.uk/commercial-industry/airspace/airspace-modernisation/airspace-modernisation-strategy/what-are-the-benefits-of-airspace-modernisation/.

- to maintain and, where possible, improve the UK's high levels of aviation safety

- to take account of the latest developments in innovation and technology, placing integration of all airspace users at the core of the strategy, including accommodating new types of vehicle, such as drones, aerial taxis and spacecraft

- to aim for simpler airspace design and supporting regulations

- to introduce environmental sustainability as an overarching principle to be applied through all modernisation activities, taking account of the latest government policy and environmental guidance

- to meet the UK's international obligations, aligning delivery of the strategy with the International Civil Aviation Organization's Global Air Navigation Plan and ensuring interoperability of the UK network with our neighbours

- to provide a clear strategic path for regulatory policy and requirements now that the UK has left the EU and the EU Aviation Safety Agency: the AMS is now the single roadmap to guide the CAA's approach to its policy development on airspace modernisation.

C13   The AMS vision and strategic objectives give a direction of travel that guides airspace modernisation. But there remains significant work to do to inform how we achieve that vision and use UK airspace most effectively. The DfT and CAA cannot deliver airspace modernisation alone. We will continue to work working collaboratively with a range of aviation organisations, such as air navigation service providers, airports, airlines, manufacturers, representative organisations and, where appropriate, bespoke delivery bodies to ensure that it is delivered in a coherent and consistent way. A wider range of other stakeholders, including communities, will be engaged throughout this delivery.

AMS governance

C14   The AMS has a governance structure[54] designed to oversee delivery of the AMS delivery elements.[55] It sets out which organisations make decisions, what they are responsible for, and the stakeholders they will engage with. The governance structure has evolved over time and will continue to evolve.

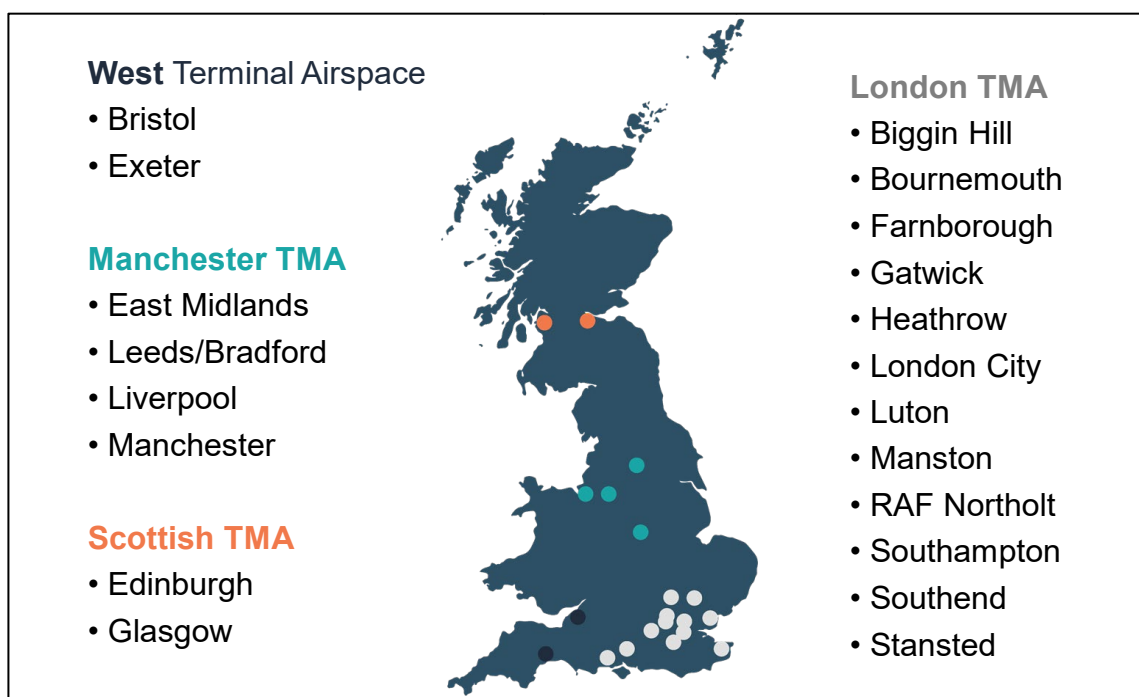[54]   https://www.caa.co.uk/commercial-industry/airspace/airspace-modernisation/airspace-modernisation-strategy/ams-governance-and-progress-reports/

[55]   https://www.caa.co.uk/commercial-industry/airspace/airspace-modernisation/airspace-modernisation-strategy/delivery-elements/

Airspace change masterplan

C15   The AMS does not itself propose specific airspace changes, but a key deliverable is a masterplan of airspace changes that will be necessary for modernisation. The masterplan is a strategic coordinated implementation plan for airspace changes in the UK up to 2040.

C16   Given the large number of parties involved in the development of the masterplan, including many airports and NERL itself, the co-sponsors required NERL to set up a separate and impartial body to coordinate the airspace changes necessary to deliver airspace modernisation and deliver the masterplan. This body is known as the Airspace Change Organising Group (ACOG).

C17   The masterplan is being produced by ACOG in stages. More detail is added with each iteration. Across all iterations, the masterplan will:

- identify where and when ACPs are needed, with proposed timelines for implementation

- describe how these proposals relate to each other, and highlight potential conflicts between their designs

- explain how trade-off decisions to resolve those conflicts have been made

- demonstrate the anticipated cumulative impact of all the ACPs.

C18   In Iteration 2 (2022), ACOG proposed organising the participants into four geographical 'clusters', as shown in Figure C1 below.

Figure C1: Clusters of the airspace change masterplan

West Terminal Airspace
- Bristol
- Exeter

Manchester TMA
- East Midlands
- Leeds/Bradford
- Liverpool
- Manchester

Scottish TMA
- Edinburgh
- Glasgow

London TMA
- Biggin Hill
- Bournemouth
- Farnborough
- Gatwick
- Heathrow
- London City
- Luton
- Manston
- RAF Northolt
- Southampton
- Southend
- Stansted

C19   There are currently 20 airports across the four clusters, of which 12 make up the very complex airspace around London. ACPs in one cluster can thus progress at their own speed without delaying those in other parts of the UK. Each cluster also has at least one NATS ACP to connect the airports to the network. The London cluster is expected to be implemented in phases, which are referred to as 'deployments'. Northern Ireland is not currently in scope of the masterplan.

C20   The DfT and CAA assess each submission of the masterplan. We check the masterplan against relevant criteria to ensure it covers the right material. The CAA then decides whether to accept it into the AMS.

C21   Part of the regulatory framework involves the co-sponsors assessing ACOG's progress to confirm that the masterplan is consistent with the masterplan commission, government policy and the CAA's own statutory airspace functions. Based on that assessment, and before the masterplan can be implemented, the CAA must decide to formally 'accept' the masterplan into the AMS, having consulted the Secretary of State. Each iteration must be accepted separately, except Iteration 1, which has already been assessed and published. ACOG envisages a minimum of four iterations of the masterplan.

C22   The CAA has published the criteria for accepting the masterplan into the AMS and the related assessment framework.[56] Once the masterplan is accepted into the AMS, the masterplan, together with the CAA's general duties in section 70 of the Transport Act 2000, will form the basis against which individual airspace change decisions are made by the CAA. This means that the CAA's decisions on ACPs must not be inconsistent with the masterplan.

C23   Acceptance of the masterplan forms part of the delivery plans in the AMS Part 3.[57] Progress with assessing individual iterations of the masterplan can be tracked on the CAA's airspace change masterplan webpages.[58]

Airspace change process

C24   Any change to the airspace design, whether developed in response to the AMS or for any other reason, must follow the CAA's seven-stage airspace change process[59], which includes consultation with affected stakeholders, including

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[56]   CAP 2156a Airspace change masterplan – CAA acceptance criteria www.caa.co.uk/cap2156a and CAP 2156b Airspace change masterplan – assessment framework www.caa.co.uk/cap2156b.

[57]   The plans in question were previously known as Initiatives 4 and 5 of the original 2018 AMS: FASI-S, terminal airspace redesign in southern England; and FASI-N, terminal airspace redesign in northern England and Scotland. FASI-S and FASI-N mean Future Airspace Strategy Implementation–South and – North respectively. Replaced by the AMS, FAS was a collaborative initiative between a range of stakeholders for modernising the UK's airspace.

[58]   https://www.caa.co.uk/commercial-industry/airspace/airspace-modernisation/airspace-change-masterplan/

[59]   https://www.caa.co.uk/commercial-industry/airspace/airspace-change/airspace-change/

those potentially overflown. CAA guidance on the regulatory process is set out in CAP 1616.[60]

C25   Changes to the design of UK airspace are proposed by an airspace change 'sponsor', usually an airport or a provider of air navigation services (including air traffic control). ACPs vary greatly in terms of size, scale of impact and complexity. Some may have little noticeable operational or environmental impact. Others may require a complex restructuring of airspace with consequences both for airspace users and the environment, including people on the ground impacted by noise. Some approaches by sponsors do not go beyond initial outline conversations and never progress to a proposal. Some proposals can last several years between the first conversation and the final decision.

C26   Because controlled airspace carries requirements that affect the aircraft and pilots that fly in it, a change to airspace design can impact airspace users in different ways. Similarly, a revision to air traffic control procedures may not involve a change to the design of UK airspace, but it may still have consequences for other airspace users, the environment and people on the ground. The more impactful of such operational procedure changes, known as Planned and Permanent Redistribution of Air Traffic (PPR), are therefore also subject to a CAA approval process as part of CAP 1616.

C27   Subject to operational constraints (including safety), the design of airspace, and the airspace change process, do not specify, or limit future increases in, the volume of air traffic using a piece of airspace at any given point in time. The volume of air traffic using an airport may however be addressed by land-use planning conditions, where relevant.

Procedure for the CAA to review the classification of airspace

C28   The CAA's airspace classification functions under the Air Navigation Directions include that of regularly considering whether airspace classifications should be reviewed, carrying out such reviews and considering and making changes to airspace classification as the CAA considers appropriate.[61]

C29   The procedure to review the classification of airspace, CAP 1991[62], is functionally separate from the CAP 1616 airspace change process but plans for change under CAP 1991 are shared with those reviewing plans for change under CAP 1616. This ensures that there is coherence with the broader programme to modernise UK airspace. Part of the regulatory framework involves a procedure where we undertake a review of UK airspace to draw up a plan that lists airspace

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[60]   www.caa.co.uk/cap1616

[61]   https://www.caa.co.uk/Commercial-industry/Airspace/Airspace-change/Airspace-classification/

[62]   CAP 1991 Procedure for the CAA to review the classification of airspace. www.caa.co.uk/cap1991

volumes where a case could be made for a proposed amendment to the classification, and a proposed schedule for when we will address them, including stakeholder consultation and engagement.

Aviation decarbonisation strategy

C30   The government has committed to delivering greener transport, including through Sustainable Aviation Fuel (SAF) and airspace modernisation. Increasing the use of SAF, which significantly reduces emissions of greenhouse gases, is a key means by which to support this goal. This will help meet the UK's net zero climate targets and supports the government's mission to make Britain a clean energy superpower.

C31   Following the King's Speech on 17 July 2024, the Government will be laying legislation to introduce a revenue certainty mechanism. This Bill will support SAF production in the UK by providing revenue certainty to encourage investment in the construction of SAF plants across the UK. The Government has also confirmed that it will introduce a sustainable aviation fuel (SAF) mandate from 1 January 2025, requiring at least 10% of the UK aviation fuel mix to be SAF from 2030 and 22% by 2040.

CAA environmental sustainability strategy

C32   In 2022, the CAA published its environmental sustainability strategy.[63] The strategy has been developed to provide clarity on the CAA's roles, remit and ambition as it works to improve environmental performance in the aviation and aerospace systems for the benefit of consumers, users and the wider community.

C33   Airspace modernisation is a core component of the strategy. There are several environmental improvements that airspace modernisation will bring, such as reduced fuel burn and emissions per flight through more efficient flightpaths and more frequent continuous ascent and descent, as well as less need for holding due to better management of arrival times through optimised routes and speeds. Modernisation could also enable aircraft to climb more quickly, descend more quietly, and to navigate more accurately around population centres of other noise-sensitive areas.

C34   For more information see Appendix B of the AMS.

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[63]   CAA's environmental sustainability strategy www.caa.co.uk/cap2360 and related areas of work www.caa.co.uk/cap2361.

Key stakeholders

C35   Summarised below are key stakeholders in the delivery of airspace modernisation:

- **Parliament** sets the CAA's statutory duties and functions in relation to airspace change through the Transport Act 2000.

- **Secretary of State for Transport** gives the CAA a duty to approve changes to the design of airspace through the Air Navigation Directions.

- **Department for Transport (DfT)**:

  - Co-sponsor of airspace modernisation and therefore responsible for delivering the vision and strategic objectives of the AMS.

  - Develops and owns the policy framework, including the strategic case for airspace modernisation and the objectives it must deliver.

- **UK Civil Aviation Authority (CAA)**:

  - Co-sponsor of airspace modernisation with the Department for Transport

  - Independent regulator as well as technical adviser to the government.

  - Develops and maintains the AMS

  - Decides whether the airspace change masterplan can be accepted into the AMS.

  - Focuses on the technical policy framework required to enable airspace changes and to identify and propose new rulemaking activities.

  - Various regulatory responsibilities including overseeing and decision-making on proposals for changes to airspace design through the CAP 1616 airspace change process.

- **International Civil Aviation Organization (ICAO):** A specialist agency of the United Nations which acts as a global forum of States for international civil aviation. As a contracting state, the UK has agreed operational objectives regarding airspace modernisation under the ICAO Global Air Navigation Plan (GANP). Before the UK left the EU, the UK's obligations under the GANP were delivered through the Single European Sky and associated European ATM (air traffic management) Masterplan, which was used to produce the necessary regulations regarding airspace modernisation that had direct legal effect in the UK. While some of this legislation has been retained as UK domestic law, the UK's modernisation programme and the legislation underpinning it will need to be updated as developments occur to ensure that obligations under the GANP are met, while at the same time adopting a national approach, making best use of global learning and delivering globally interoperable capabilities.

- **NATS (En route) plc (NERL):** a subsidiary of NATS Holdings, is the regulated monopoly air traffic services provider for 'en route' and some terminal approach airspace. ('En route' means that part of the flight from the end of the take-off and initial climb phase to the commencement of the approach and landing phase.) NERL plays a significant role in the development and deployment of airspace modernisation. Under the Transport Act 2000, the Secretary of State issues a licence to NERL to provide en route air traffic services in the UK, and the licence is the formal means through which NERL is subject to economic regulation by the CAA.[64]

- **Airspace Change Organising Group (ACOG):** Develops the airspace change masterplan across the UK. See airspace change masterplan above.

- **Airport operators (current position)**: Develop ACPs in accordance with the CAA airspace change process, with tasks including airspace design, safety assessment, environmental assessment, economic assessment, engagement and consultation, implementation of the final design, post-implementation review. In terms of the resulting benefits, enhanced technology combined with updated airspace design enables safe, expeditious and efficient management of increased traffic. Sharing digital information about the inbound and outbound traffic flows using the airspace is expected to improve runway throughput and operational resilience to disruption through greater traffic predictability. Additional airspace capacity will give airports more scope to develop their operations, subject to planning considerations.

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64   https://www.caa.co.uk/commercial-industry/airspace/air-traffic-management-and-air-navigational-services/air-navigation-services/nats-en-route-plc-nerl-licence/

- **Air navigation service providers (current position)**: Develop ACPs in accordance with the CAA airspace change process, as above. More capacity and more efficient use of modernised airspace will help to alleviate the significant demands placed upon air traffic control that can occur at times of peak traffic, during bad weather or other forms of disruption. Modernisation will facilitate the need for interoperability of the UK network with neighbouring transatlantic and European air traffic management areas, given the need to manage air traffic effectively end to end. The greater use of new technology, improving aircraft capability and cooperative aircraft-derived position information changes the task of the air traffic controller, who becomes more reliant on supporting tools to manage the airspace volume and interactions between different operating platforms.

- **Specialist airspace design consultancies:** Assist airspace change sponsors in meeting the requirements of the CAP 1616 process, including procedure design, environmental assessment, consultation, etc.

- **Future of Flight**: Collaboration with new aviation technologies in creating and delivering a Future of Flight programme. This will provide a balanced approach to the growth of the future of flight industry so that it benefits the UK economy, society and environment while maintaining high standards for aviation safety and security.

- **Airspace users**: Modernised UK airspace will more readily and more safely accommodate additional demand from airspace users, including:

  - Commercial airlines providing a key element of the UK's transport infrastructure, supporting connectivity, better choice and value for consumers and UK economic growth. They are responsible for funding a significant portion of UK airspace upgrades through the en route charge (see Chapter 9). More direct and efficient flightpaths will lower airline costs through fuel savings and better aircraft utilisation.

  - The GA sector, including recreational flyers, by providing greater access to the controlled airspace predominantly used by commercial air transport flights, greater integration of different types of airspace user, or more flexible use of airspace.

  - MoD. Timely access to appropriate airspace is essential for the maintenance of military capability. Modernisation of airspace structures, systems and processes helps to secure the most efficient use of airspace consistent with ever-changing safety, defence and security objectives. It creates greater opportunities and options for the integrated operation of air traffic services provided by or on behalf of the MoD, while also allowing non-military traffic to access more effectively what might otherwise remain segregated areas when they are not in use.

- New technologies currently being deployed that are introducing or rapidly developing new types of aircraft and changing how they operate. These include remotely piloted aircraft systems, advanced air mobility (eVTOL), space launch and high-altitude platform systems. Rather than having to segregate these operations from other types of airspace user, and therefore potentially restrict those users' access to that segregated airspace, these new users – with the exception of space-launch activities – would gain better access through more integrated airspace.

- **Communities[65] impacted by aircraft noise**: Engaged by the airspace change sponsors to help establish the design principles underlying the airspace change and to feed back on the design options through engagement and formal consultation, as part of the CAP 1616 process. The AMS explains the environmental improvements that airspace modernisation can offer to communities impacted by aircraft noise as a result of designing airspace to use more advanced technology and better aircraft performance. That said, not every community will benefit. The government's Air Navigation Guidance to the CAA and industry sets out how the decisions they make can best give effect to the government's key environmental objectives, including managing the impacts of aircraft noise.

- **UK economy and society**: The capacity to add routes, accommodate new flights, make existing operations more efficient and encourage new technology and associated infrastructure will enhance the UK's global connections, give better value and more choice for businesses and individual travellers, helping to stimulate UK economic growth benefiting the UK population. New types of aerial vehicle have the potential to bring economic benefits not just to aerospace but to the wider economy including the transport network and businesses at the local level. They could also bring societal and environmental benefits through their provision of new or more effective services, replacing more polluting traffic, and enhancing State activities such as medical flights, search and rescue or law enforcement. Under the Climate Change Committee's "Balanced Net Zero Pathway" for Carbon Budget Six, it was estimated that efficiency improvements (including through aircraft and airspace) in the existing aviation system could result in 8MtCO2e savings per year by 2050.

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[65] When referring to 'communities' the AMS generally means those on the ground affected by aviation's environmental impacts in the vicinity of an airport, usually by noise but also sometimes local air quality (where there is an impact on the distribution or volume of emissions below 1,000 feet). Communities may in turn be represented in different ways: by local authorities and elected representatives in national or local government; community leaders or representative groups/forums, airport consultative committees, and bodies with a specific interest in aviation's environmental impacts or directly impacted, for example, those responsible for public open spaces.

- **Passengers and shippers:** Modernisation will add capacity to the system, addressing 'hotspots' of congestion within the current system that may otherwise give rise to delays, such as 'stacking' in holding patterns by flights inbound to an airport. Modernisation will generally improve resilience of the system to bad weather or other forms of disruption, including disruption in neighbouring airspace outside the UK's area of responsibility. Passengers and shippers (including companies in the supply chain that rely on air transport to conduct their business) will therefore experience fewer flight delays and service disruptions at short notice, saving them time through shorter journeys with a more reliable service. Coupled with the improvement in the passenger experience, increased capacity may allow more choice of connections to more destinations.

APPENDIX D

Glossary

D1   We have included below an explanation of some common terms and abbreviations that relate to airspace modernisation, in the interests of the non-technical reader. These explanations will not necessarily be the formal ICAO/CAA/Standardised Rules of the Air definition, which can be found in CAP 1430 UK Air Traffic Management Vocabulary www.caa.co.uk/cap1430.

Advanced air mobility (AAM)

A new concept of sustainable air transportation designed to transport people and goods (also known as e-VTOL and urban air mobility where intended for use in built-up areas).

Aeronautical Information Publication (AIP)

Long-term information essential to air navigation, including the detailed structure of UK airspace and flight procedures, which forms part of the UK Integrated Aeronautical Information Package. Sometimes informally known as the Air Pilot. Publication is the responsibility of the UK CAA, but is carried out under licence by NATS. www.ais.org.uk

Aeronautical Information Regulation and Control (AIRAC)

For operationally significant changes, the AIRAC cycle defines a series of common dates and an associated standard aeronautical information publication procedure to ensure that pilots, air traffic controllers, air traffic flow managers, flight management systems on board aircraft and aviation charts all work from the same aeronautical information base. Revisions are produced every 56 days (double AIRAC cycle) or 28 days (single AIRAC cycle).

Air Navigation Directions

The Civil Aviation Authority (Air Navigation) Directions 2023. In these Directions the Secretary of State gives the UK CAA its functions in relation to air navigation. https://www.caa.co.uk/media/lzrl3drs/caa-air-navigation-directions-2023.pdf

Air Navigation Guidance

Guidance to the UK CAA on its environmental objectives when carrying out its air navigation functions, and to the CAA and wider industry on airspace and noise management. Air Navigation Guidance 2017

Air navigation service provider (ANSP)

An organisation which operates the technical system, infrastructure, procedures and rules of an air navigation service system, which may include air traffic control.

Air traffic management (ATM)

The combined processes of air traffic control, air traffic flow management, and aeronautical information services.

Air Traffic Management and Unmanned Aircraft Act 2021

Among other things, the Act gives the Government powers to compel industry to make or cooperate in an airspace change proposal.

Air traffic service (ATS)

Generic term that covers flight information services, alerting services, air traffic advisory services, air traffic control services (area control service, approach control service or aerodrome control service) and aerodrome flight information services.

Airspace change masterplan

A strategic coordinated implementation plan for airspace changes in the UK to cover the period to 2040 to upgrade the UK's airspace and deliver the objectives of airspace modernisation at a system level.

Airspace Change Organising Group (ACOG)

The Department for Transport and UK CAA, as co-sponsors of airspace modernisation in the UK required NERL to set up ACOG as a separate and impartial body to coordinate the airspace changes necessary to deliver airspace modernisation in the form of a masterplan. Airspace Change Organising Group (ACOG)

Airspace change process (CAP 1616)

The staged process an airspace change sponsor follows to submit a proposed change in airspace design to the UK CAA for a decision. www.caa.co.uk/cap1616

Airspace change proposal (ACP)

A proposal (usually from an airport or air navigation service provider) to change the design of UK airspace.

Airspace design

Together, the airspace structure and flight procedures.

Airspace Modernisation Strategy (AMS)

The UK CAA's coordinated strategy and plan for the use of UK airspace up to 2040, including modernisation. It is based on four strategic objectives: Safety, Integration, Simplification and Environment.

CAP 2541

The UK CAA's principles for the prioritisation of airspace change proposals
www.caa.co.uk/cap2541.

Civil Aviation Authority (UK CAA)

The UK's aviation regulator. Technical adviser to government and co-sponsor of airspace modernisation. Develops and maintains the AMS and the technical policy framework.

Control area

Area of **controlled airspace** extending upwards from a specified limit above the surface to a specified upper limit.

Controlled airspace

Airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification.

Department for Transport (DfT)

Co-sponsor of airspace modernisation with the UK CAA. Owns the overarching policy framework including the strategic case and objectives for airspace modernisation.

En route

That part of the flight from the end of the take-off and initial climb phase to the commencement of the approach and landing phase.

En route charges

NERL is permitted to recover its efficient costs in relation to the provision of services to aircraft flying en route in UK airspace. These costs are periodically reviewed and regulated by the UK CAA, which specifies the charge paid by airlines for en route services. The UK en route charge also includes costs relating to the CAA's air navigation regulatory functions, the UK's contribution to the costs of EUROCONTROL and the Met Office's aviation services.

EUROCONTROL

An intergovernmental organisation with 41 European member states, plus Israel and Morocco, acting as the central organisation for coordination and planning of air traffic control across those member states.

European Union Aviation Safety Agency (EASA)

The European Union authority for aviation safety.

Electric Vertical Take-Off and Landing aircraft (eVTOL)

Also known as advanced air mobility or aerial taxis. Still in development, eVTOL aircraft are powered by electricity and take off and land vertically, allowing more efficient and sustainable ways to travel, particularly in an urban environment.

Future Airspace Strategy (FAS)

Replaced by the AMS, FAS was a collaborative initiative between a range of stakeholders for modernising the UK's airspace.

Future Airspace Strategy implementation (FASI, FASI-N, FASI-S)

Implementation of the Future Airspace Strategy separated by geographical location. FASI-N refers to terminal airspace redesign in northern England and Scotland. FASI-S refers to terminal airspace redesign in southern England.

General Aviation (GA)

Essentially all civil flying other than commercial airline operations, which therefore encompasses a wide range of aviation activity from paragliders, microlights, gliders and balloons to corporate business jets, including aerial survey, flying training and all sport and leisure flying.

Industry Coordination for the Airspace Modernisation Strategy (ICAMS)

ICAMS supports the implementation of the airspace modernisation initiatives set out in the AMS by sharing information between a broad mix of relevant UK aviation industry organisations. It is chaired jointly by NATS and British Airways.

International Civil Aviation Organization (ICAO)

The agency of the United Nations responsible for international standards for civil aviation which the UK has agreed by international treaty to implement. https://www.icao.int/about-icao/Pages/default.aspx

London Approach charge

NERL is permitted to recover its efficient costs in relation to the provision of services to aircraft using its London Approach service. These costs are periodically reviewed and regulated by the UK CAA, which specifies the charge paid by airlines for London Approach services. The following airports fall within its scope: Heathrow, Gatwick, London City, Luton and Stansted.

London 'cluster'

The London cluster of the airspace change masterplan currently involves NERL and 12 airports in the south east of England: Biggin Hill, Bournemouth, Farnborough, Gatwick, Heathrow, London City, Luton, Manston, RAF Northolt, Southampton, Southend, Stansted.

London Terminal Control Area (London TMA or LTMA)

See **Terminal Control Area**.

Ministry of Defence (MoD)

The Ministry of Defence protects the security, independence and interests of the UK at home and abroad. Its aim is to ensure that the armed forces have the training, equipment and support necessary for their work, and that they keep within budget.

National Air Traffic Management Advisory Committee (NATMAC)

An advisory body chaired by the UK CAA with representation across the UK aviation community. NATMAC assists the CAA in the development of airspace policies, configurations, and procedures in order that due attention is given to the diverse requirements of all users of UK airspace, civil and military.

NATS

The biggest air navigation service provider in the UK, formerly National Air Traffic Services. Parent company of NERL (NATS (En Route) plc) and NSL (NATS Services Limited). nats.aero

NATS (En Route) plc (NERL)

Subsidiary of NATS Holdings Ltd and the sole provider of air traffic control services for aircraft flying en route in UK airspace. NERL also provides some air traffic control services in the eastern part of the North Atlantic, as well as providing a combined approach function (London Approach) for five London airports.

NR23 price controls

UK CAA price control decisions set the maximum charges that NERL can recover from airlines for its services. The current price control, NR23, covers the period January 2023 to December 2027.

Partner (of an airspace change proposal)

Under the arrangements proposed in this consultation, where UKADS is sponsoring an airspace change proposal, the initiator of that proposal would be termed a partner.

Planned and permanent redistribution (PPR)

Air traffic control operational procedure changes that give rise to a planned and permanent redistribution of air traffic.

Remotely Piloted Aircraft System (RPAS)

Also commonly known as a drone, an aircraft system without a pilot on board which is controlled and operated from a remote location.

Single Design Entity (SDE)

The term originally used for UKADS during initial stakeholder engagement.

Sponsor (or change sponsor)

An organisation that proposes, or sponsors, a change to the airspace design in accordance with the UK CAA's CAP 1616 airspace change process.

Terminal Control Area (sometimes referred to as Terminal manoeuvring area) (TMA)

A control area normally established at the confluence of air traffic services routes in the vicinity of one or more major aerodromes. For example, the **London TMA** (LTMA).

Transport Act 2000

The legislative framework under which NERL has a licence to provide en route air traffic services in the UK, subject to economic regulation by the UK CAA. The use of statutory processes under the Transport Act 2000 is required to modify NERL's licence, make changes to the UK en route and London Approach charges, and to develop a new airspace charge.

UK Airspace Design Service (UKADS, UKADS1, UKADS2)

A proposed single entity to propose, design and deliver a holistic and modernised UK airspace. In its initial form (UKADS1) we propose that NERL would be required through a licence condition to provide airspace design services, focusing on the successful delivery of modernisation within the London cluster of the airspace change masterplan. We propose that the long-term form (UKADS2) would ultimately become the only body responsible for changes to the design of UK airspace, subject to further consultation.