The RAeS Annual Brabazon Lecture
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Introduction to NATS

Distinguished guests, members of the Royal Aeronautical Society, ladies & Gentlemen

It's a privilege to be here this evening to present the annual Brabazon Lecture. I'm acutely conscious of the legends of our industry in whose footsteps I'm following – or should I say in whose vortex I am flying!

The focus of tonight's lecture – and I should say I'll try not to lecture you too much, but I do have quite strong views on this issue! - is the Single European Sky. Before I talk about this ambitious initiative though, I do want to talk a little more about NATS as, I think we in the UK have an air traffic management service that we can be proud of.

I also just want to talk briefly about the complexities of managing air traffic in the UK and how we go about doing that in a safe and efficient way before I go on to discuss the broader issue and complexities around the aim and realities of delivering a Single European Sky.

Managing the UK's airspace – the challenges

So, managing the UK's airspace – what does it involve? Well, airspace is the invisible pillar of our transport infrastructure. You can't touch it or see it, but airlines and airports, tour operators and military aircraft, simply can't operate without it.

Think back to the 2010 volcano (I won't try and pronounce it!), which erupted when I was just 2 weeks into my job! I learned pretty quickly just how important our airspace is, especially for an island economy like the UK, which depends on air travel so heavily. While we didn't close airspace – we were obliged to put on a "zero flow rate" which to all intents and purposes meant the same thing. British citizens were stranded all over the world and shops and factories started running out of imported goods.

If anyone ever doubted it, that proved how important our airspace is to the UK economy.

NATS handles over two million flights a year, carrying more than 220 million passengers. We handle approximately 7000 flights a day and around 500 flights are in the air above the UK at any one time. So we manage a lot of flights every day. To put it into a European context, there are 26,000 flights a day across Europe - NATS handles about a quarter of them.

We manage these flights from two main control centres – one at Swanwick in Hampshire, the other at Prestwick, near Glasgow. The Swanwick Centre handles around 5,500 flights per day and is the busiest centre in Europe while the Prestwick Centre has responsibility for the largest area of airspace in Europe; twice as large as the next biggest.

In addition, we should also mention our military customers, whose air traffic controllers are co-located with the NATS team at the Swanwick centre. We are proud of this joint-and-integrated approach which works particularly effectively as demonstrated during the Olympics last year, where three years of intense civil and military planning resulted in outstanding service delivery and security implementation.

However, we're not only managing a lot of flights but we're also managing a lot of flights in pretty complex airspace, especially in south-east England.

As many of you probably know, the airspace over and around London is one of the world's most complex. And within this airspace we have Heathrow – the world's busiest dual-runway airport, and Gatwick – the world's busiest single runway airport.

So we have a lot of traffic to manage in complex airspace and we do this very effectively.

In 2012, there was only 1.4 seconds average NATS attributable delay per flight, which compares very favourably when you look at other ANSPs, both within Europe and beyond; to give a flavour that's about 1/20th of the European average. And on the safety side, we have had no NATS attributable risk bearing (category A or B) airprox for over 5 years.

This is why I'm proud of NATS and why I think all of us, as aviation professionals and enthusiasts, should be proud of the way the UK manages its airspace. We are not perfect, and it's important that we do not stand still and that we continue to strive to grow and evolve – and I'll touch on this a bit more later.

I should also point out, before moving on, that we are also unique in how we are organised. Unlike all other European ANSPs which are government owned, we are the only one which is privatised. We are set up as a private company and run like a private company with shareholders comprising of a group of airlines who own 42% (although they are in the process of restructuring their shareholding), NATS staff who hold 5%, UK airport operator Heathrow Airport Holdings Limited with 4%, and the UK Government which owns 49%, and a golden share. This structure, and NATS' focus as a business rather than a public utility, does set us apart somewhat from our fellow ANSPs in Europe, both in our outlook and in our performance.

Overview of the Single European Sky

My main theme this evening is the Single European Sky, which is crucial to the future of our entire industry and to everyone who uses airspace anywhere in Europe. Its potential reach goes far beyond Europe, too, as we look at ways of harmonising our industry on a global scale in the year ahead.

So what exactly is the Single European Sky? And what exactly is Europe?

In essence, the Single European Sky is about modernising and rationalising the European Air Traffic Management (or ATM) system in order to cope with predicted future demand, and to manage this future demand in the safest and most cost-effective environment possible. There are various forecasts about future growth in air traffic within Europe and, while the predictions made 10 years ago turned out to be overly optimistic, significant growth in demand is still forecast in the coming decades.

In addition to the growth in traffic, there are also a number of sensible reasons that make the notion of a Single European Sky desirable for airspace users.

Above all, the SES initiative seeks a future European ATM system that works on the basis of operational efficiency rather than national boundaries. Because of course airspace is sovereign.

Currently, each country within Europe's airspace has its own ANSP, providing its own service to airlines flying through its airspace. The invisible borders that exist in the sky, therefore, are very real in terms of ATM service provision. The problem with this, is that it adds complexity, adds costs to airspace users and makes it harder to optimise routes within Europe.

The European Commission, who first started thinking about SES in the '90s and launched SES for real in 2004, has tried to tackle this through a combination of legislation and regulation, with performance targets in all major fields of ATM - safety, environment, capacity and cost efficiency.

They have attempted to remove some of the "borders in the sky" and defragment Europe's airspace by legislating to ensure neighbouring ANSPs collaborate by requiring us to establish a series of Functional Airspace Blocks (or FABs). There are nine FABs in Europe now – the UK/Ireland FAB was the first to be created in 2008 and in its first four years enabled around €70m of savings to airlines, including more than 70,000 tonnes of fuel. The UK-Ireland FAB is Europe's North Atlantic gateway with around 80% of North Atlantic traffic passing through Irish or UK airspace.

However, despite the Commission's best efforts, it is generally considered that progress to date in meeting the objectives of the Single European Sky has not been made as quickly as it should. I will come onto my views as to why I think this is in due course.

However, let me just briefly tackle a few of the misconceptions about what the Single European Sky means, and also some of the assertions that are made in relation to it.

Challenging some misconceptions about the SES
Firstly, the issue of sovereignty. The potential threat to a country's sovereignty, at least of their airspace, is raised regularly in relation to SES, with the argument made that defragmenting Europe's airspace as per the SES challenges the sovereignty of those countries. However, I'm not aware that harmonising airspace requires us to concede sovereignty of it. NATS for example has a licence to provide air navigation services in UK sovereign airspace and at some Spanish airports – we have no sovereignty over either of those airspaces, we simply provide the service! [Nor does the Maastricht Upper Airspace Centre make any sovereignty claims over the area for which it provides a service.]

One of the other main misconceptions in relation to SES is the comparison between Europe's Air Traffic Management System and that of the United States. Debates about the need for reform of the European air traffic management (ATM) system in Europe often cite the fact that the cost of ATM in the US works out at roughly half of that in Europe.

However, this misses the point that, while the cost may be half, the service provision also falls far short of Europe's. In the US last year, there were 4,400 air traffic safety incidents and 92 million minutes of delay which are estimated to have resulted in $7.2 billion in direct additional costs to airlines – not something I suspect our customers in European airspace would like us to mirror.

Delay costs airlines dearly – and they have to consider how they want to cut their cloth. There is always a balance to be achieved between service quality and what customers are prepared to pay for it. It is estimated for example that an additional one second delay per flight in Europe over the course of a year costs airlines around Euro 80 million in additional fuel costs and operational inefficiencies.

I understand our customers want to see lower prices and I understand there are things that we can and will do to lower our costs to airspace users. I'm pleased to report that since privatisation we have reduced our operating costs by 1/3 and by 2020 we will have reduced them by 45%, whilst seeing significant growth in traffic and significantly improving service and safety performance.

Another oft-cited figure in relation to Europe is that airlines currently fly 42 km per-flight more in Europe than they need, as a result of the fragmented nature of Europe's ATM. While I will concede that more collaboration would undoubtedly improve this, it ignores the significantly denser and more complex traffic patterns typical in Europe. For example, we have major hub airports in London, Paris, Frankfurt and Amsterdam – all within a c400 mile radius. In the UK that figure would include aircraft holding at Heathrow, which has nothing to do with air traffic control and everything to do with lack of tarmac and an over-scheduled airport; problems the SES programme cannot address.

So while the principles of the Single European Sky are sound - and I am right behind the notion of aligning our resources to provide a more efficient service at the same time as improving safety, reducing costs for airspace users and minimising the impact on our environment - it's important we recognise what can be tackled through SES and what can't. Doing so will help to ensure that we focus our efforts on the areas that can truly drive change and deliver the greatest benefits.

But progress has been frustratingly slow. Before I go on to discuss why I think that might be, I just want to talk about the progress that has been made and what we're doing to help deliver the objectives of the Single European Sky.

What are we doing to deliver in support of SES?
The area where greatest focus has been placed and greatest progress made in reforming Europe's ATM industry is technology. As part of the SES programme, the Single European Sky ATM Research Project – or SESAR – was established to focus efforts on developing a suitable air traffic control infrastructure that could be integrated across Europe and meet the expected future demands I talked about earlier.

A lot of work has been put into this – in essence, the research efforts of the European ANSPs have been pooled into one overarching programme in order to explore innovative concepts and technologies that will allow us to meet Europe's future capacity demands in a safe and cost effective way. This isn't about a single system for the whole of Europe,

but about ensuring that the various systems we use are interoperable and operating to consistent standards.

NATS has taken a leading role in SESAR - we are involved in over 70 SESAR projects. We lead the work package focusing on Terminal Operations and are also heavily involved in a number of others. And SESAR will have a real impact on us and the way we manage the UK's airspace.

I don't want to go in to too many details this evening, but its worth mentioning some of the key step changes in air traffic operations that SESAR will deliver.

As part of the infrastructure development for SESAR, we have just embarked on a major consultation – some of you may have heard about this already – which is looking at redesigning the airspace supporting Gatwick London City, Southend and Biggin Hill.

This is the first stage in a wider programme of airspace change across the whole of the south-east and is the UK's means of deploying SESAR, through the CAA's Future Airspace Strategy.

This is not an easy task given the volume and complexity of traffic we deal with in the south! However, it means we will be able to introduce some of these modern technologies into our ATM system. And this airspace re-design and shift to a PBN environment will bring a number of benefits to residents around airports, as well as airspace users – namely, less noise as aircraft will climb higher, more quickly on departure and stay higher for longer on arrival; consequently burning less fuel.

The importance of Partnerships & Alliances
Partnership, of course, is central to achieving economies of scale and integrated operations. Quite simply we have to work together if we are to achieve harmonisation and integration across Europe – and in due course, I would like to think that our ambition might stretch outside European airspace.

I've already mentioned the concept of FABs and the work we are involved in with Ireland. But I think we're very clear that we can make more progress when we can drive initiatives forward in partnerships that don't require EC or State intervention.

The problem is that politics inevitably slows down any process and that is because Governments by their very nature focus on short term priorities and push the big, difficult projects aside. Yet aviation requires big, bold, long-term strategic decisions. The two are fundamentally incompatible – and you only have to look at the current airport capacity debate in the UK for a classic example.

The SESAR Joint Undertaking was established to ensure that the whole industry is working together to deliver SESAR and we have set up an A6 Alliance of ANSPs represented in the JU. The A6 together has members in seven of the existing nine FABs and, between us, we account for 70% of Europe's traffic and are working closely together to agree and drive forward the projects we know can deliver the biggest benefits.

We've also formed other commercially-based alliances with other ANSPs to explore ways to collaborate and work together in order to reduce costs. So, for example, we have

created The Borealis Alliance of nine ANSPs in Northern Europe, to look at ways we can provide Aeronautical Data Quality (ADQ) services between us – driving down cost at the same time as improving interoperability.

So there are positive developments, particularly in terms of technology and partnership, which will help deliver some of the benefits of the Single European Sky. But technology will only take us so far.

Why SES hasn't delivered progress as quickly as hoped
So what is stopping us from making quicker progress in delivering the benefits of a Single European Sky? This is the question that both the European Commission and airlines across Europe are asking.

Well, in my view it's because we're focusing our efforts in the wrong place.

If we want to speed progress up then we need to be a bit braver and a lot bolder; we need to tackle some of the more complex issues. I don't think that we will deliver the change required without radically changing the ATM industry.

In short, we need to tackle the political, social and regulatory factors that I believe are the real inhibitors to change in the ATM environment. Now these are not easy things to tackle and they require political will, however, without this, it is hard to see how the required change will come about and where the incentives will come from for ANSPs to do things differently.

The Single European Sky Performance Scheme is currently the main mechanism for encouraging change – setting regulated targets in the areas of safety, capacity, cost-efficiency and the environment. And while I completely understand the need for some form of regulation, this type of prescriptive regulation can only go so far in driving delivery of the objectives of the Single European Sky while we still structure ATS provision in the way we do today.

What I believe we need to do differently to realise the vision of a Single European Sky
So, what can we do? In short, we need the willingness to take on the political, social and regulatory factors that are inhibiting real change across the ATM industry. What do I mean by this?

First, we need to address the notion that one State necessarily equals one ANSP. And I want to reassert a point I made earlier that to challenge this does not involve any challenge to the airspace sovereignty. But reassessing the structure of ATM provision would give us the chance to make "passing the baton" of each aircraft between each other's airspace so much more simple. And simpler means more cost effective.

At the moment, most States have their own ANSP that does everything. That involves a lot of duplication and creates little or no incentive to look beyond their own borders to see if anyone else can offer ideas on doing it better. We could create the incentive for ANSPs to collaborate and innovate and provide the opportunity to optimise and coordinate resources and services.

Second, the social dimension and this, I know, is always difficult. However, the reality is that new technologies WILL change the way we provide ATM, just as it has changed many other walks of life. Over time, it is likely to mean we need fewer people.

Employees account for nearly half of the average ANSP cost base. Rationalisation of centres and resourcing – made possible through the technology breakthroughs - is something we need to address. And it is vital we have constructive conversations now with our Trades Unions so that we work together to achieve this.

I mentioned the business plan we have just submitted to our Regulator. That involves continuing to reduce our costs – already down by over 30% since we were privatised in 2001 – and we knew when we were working on it that the European Commission would set tough cost targets. So we are ahead of the game and working with our unions, we have run a Voluntary Severance scheme through this summer which is going achieve the headcount reductions we need, on a purely voluntary basis, to help us meet our five-year cost targets. So yes it's difficult – but it's not impossible.

Third, the regulatory environment in which we operate. In Europe we currently have over 40 different regulatory agencies, all imposing different standards on their local service delivery model at a time when we are living and breathing the need for harmonisation.

What do I mean? Well, as an example, training requirements and standards are specified at a European level but then subsequently re-interpreted and "enhanced" at a State level requiring a greater or different level of compliance evidence, meaning the standards set by one country are not automatically compliant with the regulations of another, thereby driving up costs. And all of this at a time when harmonisation across Europe has never been more urgent.

There is also a risk of overly-prescriptive regulation too, which I touched on earlier, which again doesn't leave much room for innovation and can end up driving ANSPs to focus more on process and compliance rather than on performance and customer value. It is essential that we have a regulatory environment that stimulates, rather than stifles, change and which provides the incentives for ANSPs to drive down costs, whilst maintaining or improving safety and improving service levels. We need to put in place a framework that allows, indeed encourages, ANSPs to operate as businesses.

None of the issues I've talked about are easy and that's probably why they haven't been tackled. But I believe doing things differently is a necessity if we're going to deliver the benefits that were the reason for initiating the Single European Sky project in the first place.

So, what I'm suggesting is that we move to a model which puts *customers* at the heart of what we do, rather than politics; that encourages innovation and performance improvements; and which incentivises ANSPs to find new ways of doing things that will improve the service they offer. But to do this, we have to tackle the political, social and regulatory barriers that are stopping us from doing this.

We need to think in a radically different way about the provision of ATM services and to alter our concept of what an ANSP should look like. And, I believe, we need to de-

regulate and legislate to drive this change and encourage a market-based approach to the provision of ATS.

What will the future look like if we have a Single European Sky?
So what might the future look like if we make these changes? Well, it depends on the exact route taken (no pun intended!), but in general, I think we would see:

- States retaining sovereignty of their airspace and retaining responsibility for designating the service provider within its airspace through a Commissioning Authority
- Regional bodies setting regulatory frameworks with national regulators focusing on ensuring compliance
- Each Member State having a Commissioning Authority responsible for tendering for the provision of different parts of the ATM service and collecting revenues – acting more as an Air Navigation Service *Manager* than an Air Navigation Service *Provider*
- Highly systemised ATM services located at fewer, larger centres and cross-border in scope
- ATM would be technology intensive, rather than labour intensive, with a focus on strategic intervention rather than tactical intervention
- Controller validation would be tool-based rather than geographic, enabling greater cross-border flexibility and more opportunities

And how would this deliver the vision of a Single European Sky? Well...

- It would drive a shift in our way of thinking towards managing Europe's airspace as more of a common resource, while respecting national sovereignty
- It would shift us towards performance-driven cooperation between ANSPs and competition
- It would separate service provision from regulation, a logical move, which we've already done in the UK but isn't that common elsewhere; and
- It would drive efficiencies with harmonised standards

I hope I've set out a compelling vision for what SES is trying to achieve, and the many challenges that confront the industry if we're to achieve it.

In summary, technology is just the starting point – and it's the easy bit. We urgently need regulatory reform, competition and common standards to stimulate contestable markets and accelerate progress across Europe.

We don't need yet more regulation and legislation which, to date, have not delivered the progress we need and which, at the end of the day, require political breakthrough across Europe, which is – frankly – unlikely. We need to take the burden off our Governments and get on with it ourselves. I like to think that with the Future Airspace Strategy making SES a reality at least for the UK, we are a true pathfinder, keeping customers at the heart of future efficiency.

Ours is a richly innovative industry full of great people, and with the right incentives we can certainly deliver the vision.