

EURODEFENSE  
Space Observatory

**Post Autumn Budget UK Spaceports Review**

With the release of the 2021 Autumn Budget and a year and half after the start of the disruptive COVID-19 Pandemic, it is time to take stock of the UK Spaceports initiative.

Indigenous attempts at a space programme peaked fifty years ago with the launch of the Black Arrow vehicle which lofted the Prospero satellite. While the satellite-building industry in the UK is healthy and punches far above its weight, launch capability has always been a sticking point. Even the UK's nuclear deterrent is built on US-purchased missile bodies.

The United States has led the way in unlocking private sector funding for space activities, and with this cash injection revitalised its space sector at a time when big-ticket space infrastructure was slowly taking on the appearance of a white elephant. The winding-up of the Shuttle programme gave the necessary impetus for change towards a leaner, more diversified, more diversely funded set of launch solutions for US space activities. Despite current questions about cost overruns in the latest NASA launcher programme this gave a fresh boost towards public engagement with space science. From being in the doldrums with plummeting public engagement, launches are entertainment again. Granted, they have SpaceX branded on the side – but the engineers behind the screens are still a product of the American education system.

Doubtless taking inspiration from what can be done with private money, the UK government laid out a strategy for long-term investment in its space sector in 2014, with legislation being passed in 2018, and the announcement of a new military Space Command under RAF control in 2020.

Seven sites were initially selected. A recent overview from April this year by the Aerospace Society is now out of date, but shows the intent of Government to capitalise on partnerships with private sector entities. The business case laid out in a report for government what was already known organically in industry – that the UK is a good place from which to launch sun-synchronous and polar orbit satellites, given the build volume already present.

The corporate plan by the UK Space Agency (anchored by the necessary commercial agreements) put things into perspective by setting milestone targets - government then backed this up with a raft of new spaceflight legislation designed to facilitate the 2030 goal of finally having a serious indigenous launch programme.

Of the remaining sites at the end of the start-up process, only the horizontal launch sites use existing infrastructure. Ground has yet to be broken at some other sites; the corporate plan makes clear that UKSA considers building back from COVID-19 a priority and so 2022/3 launches from all facilities are being aggressively pursued. The UKSA's National Space Strategy makes clear that government considers space to be one of the most important growth sectors for both the military and for business.

National concerns, Brexit, and COVID-19 pandemic notwithstanding, the £374 million co-operation with the ESA shows that there is a wider, European role for these new facilities to play. A map of global current

assets shows that Europe lacks launch sites – arguably a realpolitical hangover from centuries of shifting borders, hegemonies, wars, recessions, expansions, empire-building and so on. Yet in raw terms, the UK punches far above its weight in the private small satellite sector. The only piece of the puzzle missing is launch sites, and it is this that the NSS seeks to address. Taking advantage of the UK’s northern latitude and relatively isolated position at the edge of the European landmass for polar and solar-sync orbits is exactly the gap in the market that could unlock entirely new industries for a UK that is struggling with a long COVID hangover and a worsening post-Brexit picture.

But has the UK’s grasp exceeded its reach? Where, bluntly, is the money? 2021’s main Budget offers little in the way of clues, but the Autumn budget makes the Government’s priorities more clear. It explicitly commits to the following:

*“...provide funding for the UK to become the first country to launch a rocket into orbit from Europe in 2022, with the aim of becoming a leader in commercial small-satellite launch, as set out in the National Space Strategy”*

This is alongside funding for tangentially related bodies such as the National Aerospace Institute and the new DARPA-esque ARIA. Reading the UKSA Corporate plan (linked above) gives us the following figures:

	19/20 Outturn £000	20/21 Budget £000
<b>Departmental Expenditure Limit (DEL):</b>		
Admin DEL	4,741	4964
Programme DEL	181,270	240755
Capital DEL	194,812	222005
Cglobal Challenges Research Fund (GCRF)	25,654	30000
National Productivity Investment Fund (NPIF)	32,142	33443
<b>Total Departmental Expenditure Limit</b>	<b>438,619</b>	<b>531,167</b>
<b>EU Exit:</b>		
GNSS	26,846	18200
SBPP	-	11400
EU Exit:	1,953	1900
NSPOC	-	4000
PNT	-	500
<b>Total EU Exit</b>	<b>28,799</b>	<b>36,000</b>
<b>Total DEL</b>	<b>467,418</b>	<b>567,167</b>
<b>Annually Managed Expenditure (AME):</b>		
Non-Ring-fenced AME	2,033	763
Ring-fenced AME - forward contract revaluations	- 6,567	1570
<b>Total Annually Managed Expenditure</b>	<b>- 4,534</b>	<b>2,333</b>
<b>Total Agency</b>	<b>462,884</b>	<b>569,500</b>

With no word on which private corporate partners are paying for what, nor how much, it is difficult to ascertain whether the thick end of half a billion pounds is enough to get things off the ground. Piercing the corporate veil in this regard is almost impossible, so approximations will have to do.

The 2021 main Budget also lays out the UK government's "Leveling Up" agenda for its regions. A cynical reader of the geographical and political map will see that jobs and infrastructure are being sent to precisely those areas of the UK that are at risk of breaking away politically. Scotland is clamoring for a second independence referendum after Brexit, the idea of Welsh independence is seeing growing support, and Cornwall's anti-centrist tendencies, despite the economic realities that make it one of Europe's poorest regions, are (in)famously still around.

The loss of EU funding for the regions after Brexit also plays a role here. Despite Westminster's commitments to matching or exceeding lost EU funding in the next five years, the government has yet to deliver. Brexit realities have also started to bite hard, and halo infrastructure projects are slipping. Promised hospitals have been downgraded or axed, the flagship HS2 train line has run up more than three times its initial budgeted cost and its extent has been cut from a network interconnecting the Midlands to a single high speed line connection London and Birmingham for an arguably paltry saving in time. The NHS, short-staffed as a result of Brexit and COVID-19, is still barely coping with the pandemic even as winter pressures start to bite. The post-Brexit Galileo / OneWeb debacle, designed to give the UK an independent global positioning system after quitting Galileo, has evolved into nothing more than a proposal funding exercise for a future positioning system. In mitigation, the already-launched satellite internet part does work.

Austerity, an ideological decision dating from 2010, has left structural dents all over the public finances. Councils are barely funded, with several being placed into emergency measures over the last five years. Despite the "Build Back Better" rhetoric from central government, lower-level government finances are still badly stretched. Add to this a growing dissatisfaction with employment conditions, with inflationary pressures on the way, and suddenly the question must be asked – can the government deliver?

Space is the flashiest of halo projects, and so will be first in line for budget cuts if the axe has to fall. There will be no point in funding satellite launches if the supermarket shelves are empty. The public, at its worst, is a mob, and will vote with its stomach – and Johnson's government knows it, which is why it has chosen a limited risk model. It has planned and built the foundations of the playground and carried out the risk assessment – it is up to others to build the apparatus and go and play. Quantifying the public risk is not easy, but space is such an emotive subject that anything other than a perfectly smooth rollout may be seen as a waste of public funds, even if most of the risk is private.

Enter, therefore, the private backers, the consortia, the private space companies. For this to be a success publicly they need their names on the sides of rockets, on the air launch vehicles, on the fabric of the infrastructure itself. We have seen already that there is a market for small launch capability – it will be up to them to capitalise on what the government has offered.

Despite misgivings the UK *can* be at the forefront of a revitalised European space sector in terms of small-satellite launches. It has the academic and industrial talent to do so. Bringing back an indigenous space programme is a huge ask – but starting small, and partnering with private equity, is the right way to go at a time when public finances are still stretched and under the lash.

Laurent Rathborn, for ED Space Observatory, November 2021.