STONEHAVEN



MARCH 2025

LICENCE TO LAUNCH

STONEHAVEN POLICY BRIEFING

INTRODUCTION

As of March 2025, there are nearly 12,000 active satellites across Earth's orbits.[1] Despite owning and operating over 700 of the satellites currently in orbit,[2] and manufacturing more than any country in Europe, the United Kingdom has launched zero of them. The issue is not a lack of launch infrastructure: the UK has seven spaceports in development or operation. Nor is it stagnation in the UK space industry—in 2021/2022, this industry created nearly £19bn for the UK economy, supporting a direct and indirect workforce of 126,000 jobs.[3]

Rather, the issue is a complex regulatory environment that disincentivises both British and international companies from launching here. Given the current Government's growth agenda and geopolitical uncertainty, being a top-tier space nation is vital. However, as the Director of Launch for the UK Space Agency has noted, 'there is no credible path to being a top-tier space nation without a launch capability.'[4] Despite previous calls and recommendations for improvement from multiple sources including the House of Commons Science, Innovation and Technology Committee, no real progress has been made. This paper therefore sets out the case for tackling some of the administrative barriers to a commercially-attractive launch capability in the UK and recommends some low-cost measures including a simplification of the regulatory environment in order to achieve it.

RECOMMENDATIONS

1. The CAA needs to reduce timelines for launch licensing by streamlining the application process through its online portal and acting as a centralised regulator, ensuring all necessary information is delivered to meet the requirements of other involved departments.
2. The UK (led by the CAA) should examine processes and required documentation in allied nations and work towards high alignment of UK processes or grant "equivalency" to sufficiently similar foreign documents – easing the burden of UK application and incentivising UK launch for foreign companies.



THE LAUNCH LICENSING PROCESS IN THE UNITED KINGDOM

Acquiring a licence for orbital launch is, to an extent, a necessarily rigorous process. It must consider people and infrastructure involved with the launch, people in the surrounding areas, the environment, and the increasingly crowded space ecosystem. Given how new the UK's launch capabilities are, there is an understandable hesitance to enact any major change in regulations until the capability is more established and the CAA has a better understanding of what needs done. However, other countries achieve much quicker launch licensing despite also needing to examine each of these factors. Additionally, the CAA may trap the country in a vicious cycle if it refuses to reform regulation before significant capability is established, in that the regulatory burden is the key factor preventing the development of that very capability. There is much to be learned already through international comparison, and from the failed Virgin Orbit launch from Cornwall in 2023.

The launch application process is conducted through an online portal. Not including the time for pre-application, the CAA estimates that the minimum timeline for an orbital launch license is 6 to 12 months. This timeline includes an initial screen, assessment for compliance with several legislative tests conducted by various agencies, statutory consultation and SoS consent. [5] At any point in time, the CAA might 'stop the clock' while waiting for more information from an applicant. Every application is assigned a case manager to be their primary point of contact and provide regular status updates. For comparison, the United States Federal Aviation Administration (FAA), the CAA's American counterpart, has a maximum of 180 days to respond to licensing applications.

The UK's licensing process appears at first to be relatively straightforward, but Government investigations into Virgin Orbit's failed vertical launch in early 2023 revealed key inefficiencies surrounding timelines, regulation and streamlining. Though it was a dislodged fuel filter that caused the launch failure, postmortem discussions have largely focused on whether overall inefficiencies in the process from proposal to launch negatively impacted the mission's chances for success. After the launch, the House of Commons Science, Innovation and Technology Committee gathered written and oral evidence from representatives from across the industry as well as those involved with the launch: Virgin Orbit, Spaceport Cornwall, Space Forge Ltd (who lost a satellite in the launch), UKSA, and the CAA.

Several witnesses in the committee's evidence gathering sessions noted that the process was slow overall, particularly at the beginning. Some said that this eventually progressed into a productive working relationship with the CAA, but others complained that this sluggishness was representative of the entire experience.[6] Josh Western, CEO of Space Forge, told the committee that there were 'gaps' in communication with the CAA's engineering teams. Though it is largely carried out through the CAA's online portal, some questions had to be answered by email, which took significantly longer.[7]

The delays caused by these administrative issues are compounded by a lack of streamlining in the process. Dan Hart, CEO of Virgin Orbit, noted that one of the driving issues was the number of organisations that Virgin Orbit had to get approval from. Those featured in Figure 1, courtesy of the CAA website, are only some of the organisations Hart noted he and Virgin Orbit had to liaise with throughout the process – there were more than 15 others noted on top of these 9.[8]

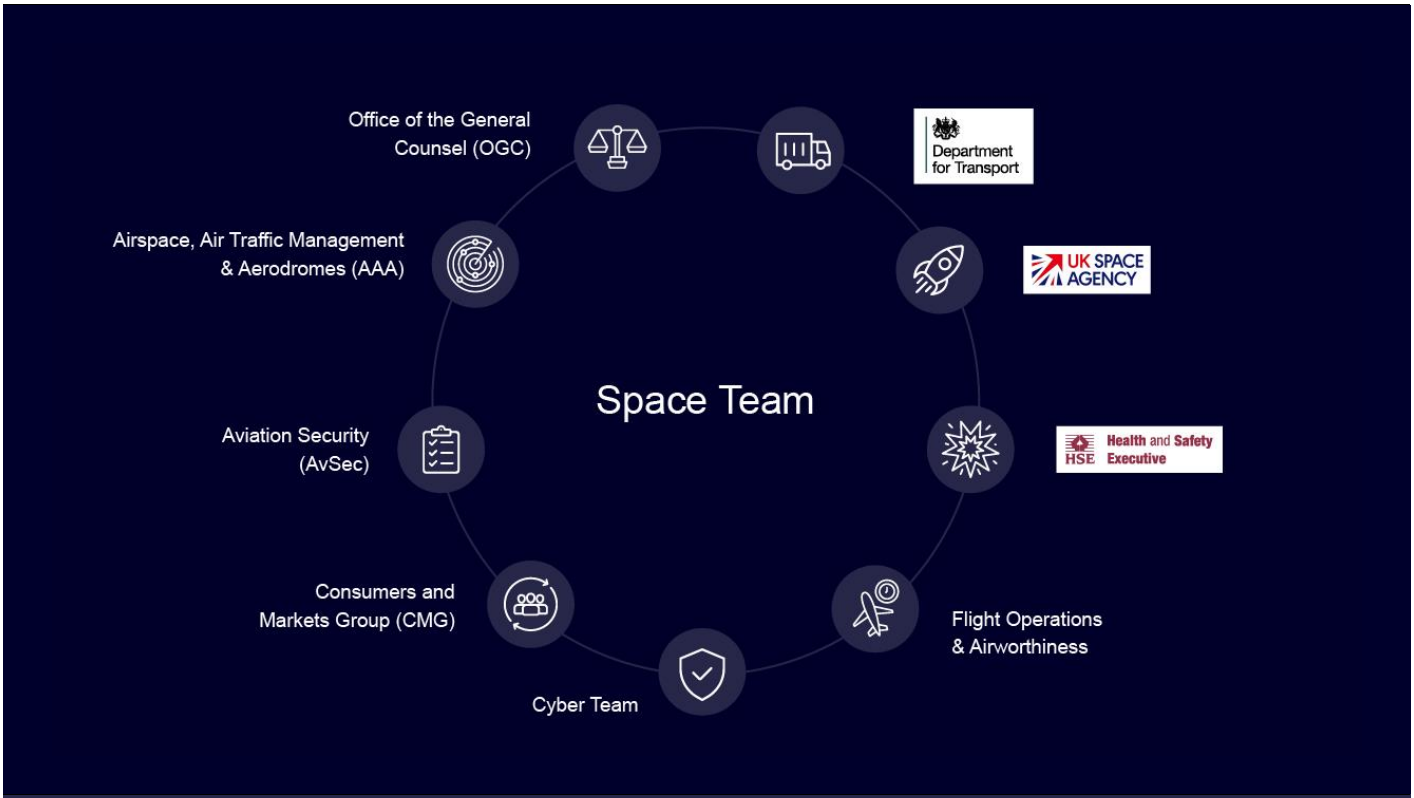


Figure 1: UK agencies and departments typically involved with the spaceflight licensing process
Source: Civil Aviation Authority

Though the CAA is responsible for administering licences, some statutory requirements and legislative tests involve input from other UK agencies. National security concerns, for example, are assessed by the UKSA with input from the MoD and other relevant agencies across Government.[9] While it is necessary to ensure that UK launches meet all security requirements, Hart indicated that the Virgin Orbit team had to repeat the same information several times over to different agencies. There was no disagreement that these various checks are necessary, but Hart and other representatives suggested that the process could and should be streamlined through a central body. Sir Stephen Hiller and Rob Bishton, Chair and Chief Executive of the CAA, agreed that establishing a centralised coordination role would be beneficial. Though there is some concern within the CAA about changing the regulatory process this early in the development of the UK's launch capabilities, this risk aversion itself is hindering the UK from establishing a successful launch capability and being a leader in the 'new space race.' This report therefore recommends:

The CAA needs to reduce timelines for launch licensing by streamlining the application process through its online portal and acting as a centralised regulator, ensuring all necessary information is delivered to meet the requirements of other involved departments.

It is important that the CAA drive this reform forward and that they act as the convening body for the other organisations involved in licensing. Assigning an independent regulator would add an additional level of bureaucracy that risks slowing the process down further. Given that the CAA is the regulator, it should be the responsibility of the CAA to ensure that all relevant information is delivered to respective licensing bodies. When this responsibility falls on the applicant, it slows the process and disincentivises SMEs from launching in the UK. Western noted that extended timelines caused by the inefficiency of the licensing process cost Space Forge more than the launch itself, and that their company would be using Space X in the US for future launches instead.[10]

For the UK to compete with the US's extensive launch capabilities, which the country has been building up since their first launch in 1958, it must make UK launch an attractive investment opportunity. While the UK is unlikely to be able to overtake

the US, further steps to create an internationally streamlined process can make the UK a viable choice by lowering the burden for international firms looking to launch here.

Getting to space has always been a fundamentally cooperative effort. In the midst of the Cold War, there was a (relatively) free movement of data across ideological divides all over the world that eventually led to the USSR's launch of Sputnik 1—the first satellite ever launched into orbit. Since 1998, NASA, Roscosmos, ESA, JAXA and CSA have co-funded and operated the International Space Station. As private space launches significantly outpace launches by state-funded space agencies, countries with launch capabilities need to be as attractive as possible to private companies.

The UK already has geographical advantages for launch. Its far-northern location makes it easier to launch satellites into polar and Sun-synchronous orbits, which are ideal for telecommunications satellites. Its long coastline and numerous islands have also provided prime locations for the UK's seven spaceports.[11] However, leading the charge to establish a coordinated launch licensing process with trusted partners and allies would further solidify the UK's role as a leader in the global space economy. This report therefore also recommends:

The UK (led by the CAA) should examine processes and required documentation in allied nations and work towards high alignment of UK processes or grant "equivalency" to sufficiently similar foreign documents – easing the burden of UK application and incentivising UK launch for foreign companies.

When considering the regulatory inefficiencies in the UK's licensing processes, Hart noted that he was surprised Virgin Orbit would not be able to use the documentation and analysis they had previously provided to the American FAA.[12] Though there will of course be distinctions in different countries' licensing requirements, there is a great deal of information that will remain the same, particularly regarding international obligations. The UK can take the first steps itself to evaluate where in its own process it can create equivalency with foreign processes without losing access to needed information, but as a more permanent solution the UK should work with trusted allies, such as the AUKUS group, to establish international guidelines for space licensing. This would build on the history of international collaboration in the space sector, but it will also make the UK's space sector immediately more attractive to companies who have already launched in the US and could instead have a wider range of choice, benefitting both from competition and from the UK's geographical advantages and satellite technology. Whilst much of the advanced capabilities collaboration work in AUKUS Pillar II remains conceptual, this would be an example of the commercial environment alignment that trade associations in the three AUKUS nations have said will be necessary to ultimately move Pillar II from concept to delivery.



ECONOMIC BENEFITS OF A MORE EFFICIENT DOMESTIC LAUNCH CAPABILITY

National

Given the UK's position as a world leader in satellite manufacturing, it is no surprise that this makes up a large portion of the UK space industry's income. In 2021/2022, the UK space sector created £18.9bn for the UK economy, with a direct workforce of 48,000 and 78,000 indirect jobs down the supply chain.[13] Of this nearly £19bn, £8,792mn came from Direct-to-Home (DTH) broadcasting from satellites alone. Manufacturing satellites/payloads/spacecraft and subsystems created another £641mn in revenue, in addition to other services.[14] The Scotland Space Cluster is responsible for a significant amount of this added value. It is home to companies like Spire, which has manufactured over 175 satellites in Glasgow, contributing to their world-leading satellite constellation.[15]

Investing in domestic launch capabilities will mean that companies like Spire, which primarily launches its satellites from California despite manufacturing most of them in Glasgow, will be able to launch from the UK instead. The Government has already made some positive progress on this front as part of its 'Plan for Change.' In January of this year, Technology Secretary Peter Kyle announced a £20mn investment in Series D funding to spaceflight company Orbex to develop orbital launch capability.[16] Kyle said that this investment represents the Government's commitment to leadership in today's space race:

"Britain's impressive toolkit of scientific talent, world class facilities, and unique geography means we stand ready to lead the charge and to work together with our international partners as a key part of the new space revolution in Europe.

"By investing £20 million in this rocket launch, we are not only helping the country to become a leading destination for small satellite launches in Europe but bringing highly skilled jobs and investment to communities and organisations across the UK, as part of our Plan for Change.

"Supporting Orbex's launch will also turbocharge the country's position in the space sector and inspire our next generation of space professionals, who will be able to design, test, build and launch British rockets, carrying British satellites, from British soil."[17]

However, the long-term value of this Government investment will depend on the commercial viability of the launch capability without further Government support, and therefore interests should be aligned on simplification of launch licensing so that there will be a future business pipeline for businesses like Orbex.

Local

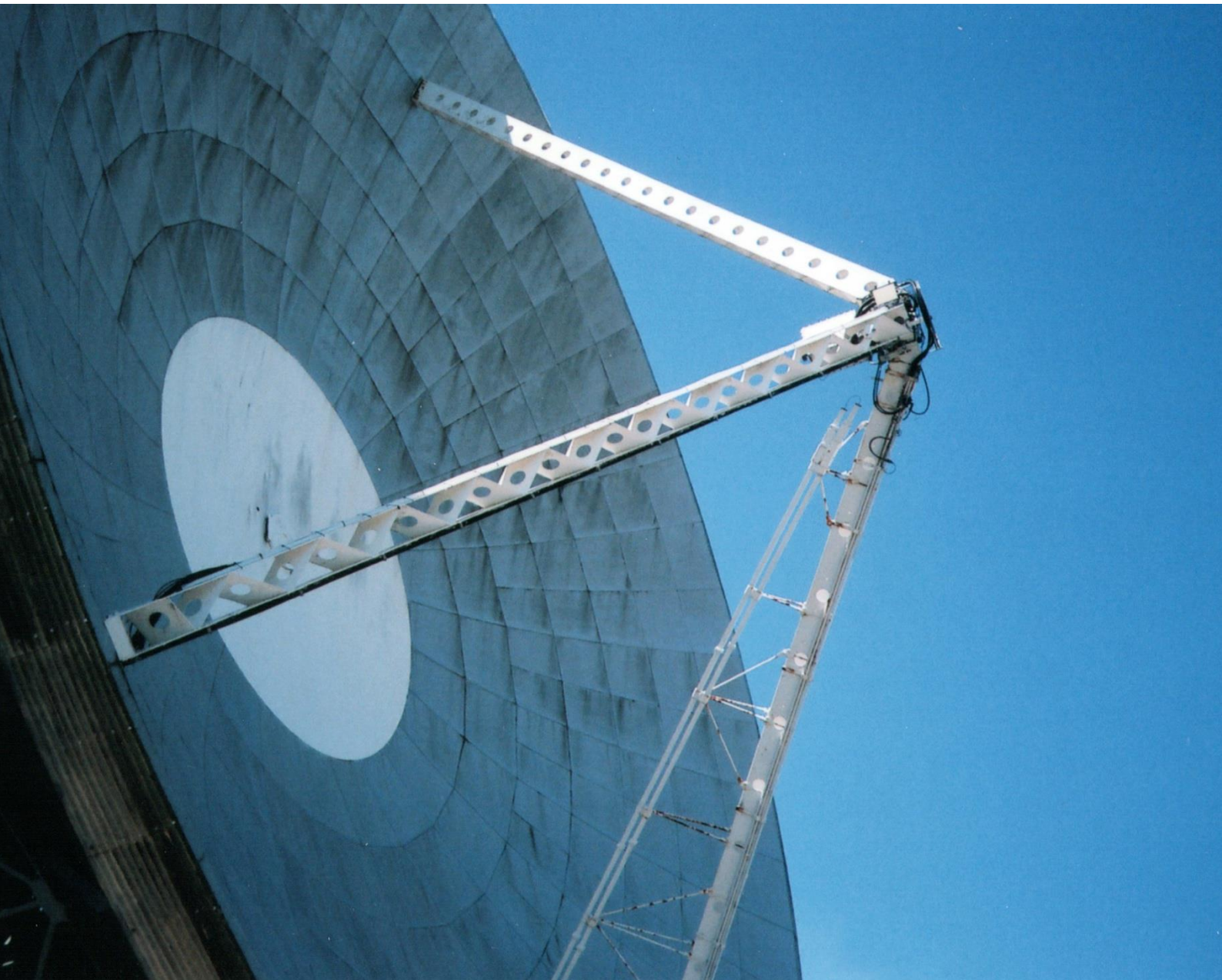
The enormous national economic impact of domestic launch is matched by its local impact—particularly for the communities that host spaceports. It has been predicted that by the end of 2025, Spaceport Cornwall will directly create 150 well-paid local jobs and another 240 jobs in the supply chain. Its operations will also have added £200mn to the local economy.[18]

In Shetland, SaxaVord Spaceport is predicted to create 210 jobs throughout Scotland with an annual contribution of nearly £5mn to the local economy (though this may increase as launch operators establish bases in the area). Shetland is a particularly pertinent example of the economic importance of this forward-looking industry because the economy currently relies on North Sea oil and gas. The decline of this industry threatens the livelihood of the local community, and SaxaVord Spaceport is a lifeline. They have hired more than half of their supply chain from Shetland and have spent nearly all of their revenue in the UK, which will drive local business growth.[19]

CONCLUSION

The UK is on its way to developing a domestic launch capability that should unlock growth and position the UK as a leader in the 'new space race.' However, this progress will be held back without reform to launch licensing. The Select Committee investigation in 2023 appeared to agree that streamlining, centralising, and parallel-processing (rather than sequential processing) would be helpful measures, and recommended convening UK regulators around these changes. Though the Space Regulatory Review 2024 convened by the Department for Science, Innovation and Technology should have been a first step, it appears so far to have just been a more detailed set of recommendations rather than actual implementation of improvements.

Thus, not enough has been done in the two years since Virgin Orbit's failed launch. This is time that cannot afford to be wasted in a sector where companies are already making critical decisions about where to innovate and invest. The sector therefore needs to recruit its own champions in Westminster and Whitehall, and take a more front-footed campaigning posture to drive home the political salience and time-sensitivity of the needed changes. The country has built spaceports up and down its coasts, and has invested a significant amount of money across several Governments, but this will be for naught if launch companies are deterred by an overcomplicated and inefficient licensing process. Through the potential reforms this paper recommends, the CAA can streamline the process, preventing more companies from choosing to launch in the US out of necessity, as Space Forge has felt forced to do. Without reform, the UK risks lagging behind and missing its window to help lead 'the new space revolution in Europe.'



1 https://nanoavionics.com/blog/how-many-satellites-are-in-space/

2 https://nanoavionics.com/blog/how-many-satellites-are-in-space/

3 https://saxavord.com/wp-content/uploads/2024/11/SaxaVord-Spaceport-The-Place-for-Space-Nov.24-Brochure.3-compressed.pdf

4 The Clock is Ticking: UK Launch Sector is Ready to Lift Off | June 2024

5 https://www.caa.co.uk/media/kbfjgbx0/space-licensing-in-the-uk.pdf 5

6 *UK space strategy and UK satellite infrastructure 9

7 *UK space strategy and UK satellite infrastructure 8

8 In writing to the Science, Technology and Innovation Committee, Hart also listed the following organisations they had to liaise with: UK organisations: Maritime & Coastguard Agency, Marine Management Organization, UK Hydrographic Office, His Majesty's Coast Guard, Maritime Rescue Coordination Centre, Ministry of Defence, National Air Traffic Services, Cornwall Police Department, Airport Fire Department, MI-5. Non-UK organisations: Eurocontrol, ACC Shannon – Ireland's aviation authority, ENAIRE – Spain's aviation authority, NAV Portugal, Irish Coast Guard, Irish Aviation Authority, US Federal Aviation Authority.

9 https://www.caa.co.uk/media/kbfjgbx0/space-licensing-in-the-uk.pdf

10 *UK space strategy and UK satellite infrastructure

11 https://www.gov.uk/government/case-studies/first-launch-from-the-uk#:~:text=Why%20launch%20from%20the%20UK,away%20from%20settlements%20and%20people.

12 *UK space strategy and UK satellite infrastructure 9

13 https://saxavord.com/wp-content/uploads/2024/11/SaxaVord-Spaceport-The-Place-for-Space-Nov.24-Brochure.3-compressed.pdf

14 https://www.gov.uk/government/publications/the-size-and-health-of-the-uk-space-industry-2023/size-and-health-of-the-uk-space-industry-2023#:~:text=The%20industry%20is%20concentrated%20and,headquarter%20of%20a%20space%20organisation

15 https://www.scotlandis.com/blog/west-of-scotland-launches-its-own-space-cluster-as-sector-prepares-for-international-conference-in-glasgow/

16 Orbital Launch Services for Small Satellites | Micro-launch Vehicle | Orbex

17 https://orbex.space/news/uk-government-invests-in-uk-orbital-launch-capability-for-first-time

18 https://spaceportcornwall.com/wp-content/uploads/2022/07/spaceport-impact-highlights.pdf

[19] https://saxavord.com/wp-content/uploads/2024/11/SaxaVord-Spaceport-The-Place-for-Space-Nov.24-Brochure.3-compressed.pdf

ABOUT THE AUTHOR

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