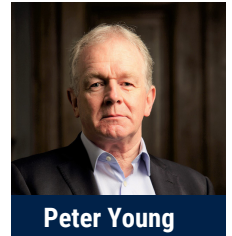


THE FUTURE OF THE SCOTTISH SPACE INDUSTRY

How Scotland can make the most of growing demand in the New Space sector

By Peter Young, CEO of GSI and co-founder of the Scottish Space Leadership Council



There's huge interest in the space sector, from academics doing research, to governments looking to foster its development, to investors looking for growth, to companies seeking more business opportunity. While Scotland is well positioned to take advantage of this interest, we can't rest on our laurels.

This article outlines the growth in the sector, why it's important to focus on the wider benefits it offers, and why the work of organisations like the Scottish Space Leadership Council will continue to be so vital in the years ahead.



To boldly grow...

Having worked in the space sector over the last 25 years, it is perhaps ironic that almost all of my career was spent outside of Scotland. Yet I had been aware of the growth of interest in Scotland as a potential hub for the space sector for some time before I returned. When I did come back to Scotland in 2017, part of my motivation was to see how I could help the Scottish sector to realise this potential.

It's really impressive just how far we've come in such a short time. When I helped set up the Scottish Space Leadership Council with the likes of Richard Tipper at Ecometrica, Craig Clark at Clydespace, Peter Platzner at Spire, and John Innes at Leonardo, there were only six or seven of us. My co-founders represented perhaps the biggest companies in the sector at the time, which was still relatively small. On top of that, all our contributions were pro bono and had to fit around our busy day jobs.

Fast forward to today, and the picture is very different. Membership of the SSLC has grown from half a dozen to over 60, with many more knocking on the door asking to join. There are also many more companies in the sector.

Just before Covid, the Scottish minister responsible for space – Ivan McKee – attended a meeting, and he has been at every quarterly meeting since. Space is one of the Scottish government's nominated sectors for economic growth. And we're on the cusp of Scottish spaceports becoming a reality in locations as far apart as Prestwick, Sutherland, the Shetland Isles, the Western Isles, and Machrihanish near Campbelltown.

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What makes Scotland such a great investment?

When the spaceports come online, we'll have all the elements needed for a complete end-to-end space supply chain. We have the likes of AAC Clyde Space and Spire who manufacture satellites. We have the academic backbone in the universities of Strathclyde, Edinburgh, Glasgow, and Heriot Watt, amongst others. We'll soon have that launch capability. And with companies such as GSI and Astrosat we have the downstream companies that can monetize the satellite data.

This combination is pretty much unique in any country outside of the US. From an investment point of view, it's great, since we'll be able to build the satellites, launch the satellites, gather the data, and analyse it – all in one closely-connected eco-system in a relatively small geographic location.



The SSLC has had a huge part to play in all of this. When we started, the whole idea was to showcase Scotland's potential to the rest of the world. We were aware back in 2016 that something very special was happening, but it was uncoordinated. The SSLC was a way to bring the industry together in one voice, to present Scotland's nascent sector to the world, and to harness the support of the Scottish and UK governments to support it.

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From the very beginning we had support from Scottish Enterprise and Scottish Development International – the trade and inward investment agency. We're very much looking to build on this relationship going forward, and help the SDI attract more and more of that inward investment.

Now the SSLC is getting a new chair, and the fulltime capability to help spot opportunities and really make the most of them in the new Scottish Space Group that's about to launch. This SSG will have a fulltime delivery arm and can work with us at the SSLC to coordinate our efforts, as well as those of the Scottish government.

This feels like the next step in terms of maturity, and it's happened at just the right time. The SSLC has written a Scottish space strategy. The Scottish government is drafting theirs. Soon we'll be able to put these strategies together and build a joint proposal for the future of Scottish space that will be fed by industry, academia, and government.

Why New Space offers the biggest opportunity for the Scottish space sector going forward?

It's important, when looking at the future, to focus on the biggest opportunity, as well as where Scotland can punch above its weight. This is why New Space is the key. This is the name given to the launch and operation of smaller satellites, and it's where the Scottish sector excels.

The reason is simple. The big operators like Airbus and Thales Alenia are building huge satellites for the likes of NASA and the European Space Agency. This takes a significant amount of resource, money, and time. It also doesn't allow for much flexibility. Any company involved in planning, manufacturing, or launch for one of these big headline-grabbing space launches knows that you're talking five – maybe even ten – years from concept to design through to launch.

By contrast, building and launching a small satellite into orbit can be turned around in less than a year – maybe even as little as six months in some cases. Within Scotland, we'll soon have the capability to cover every part of that supply chain for smaller launches.

Imagine being able to design, build and launch in Scotland. For any company, you'd have the agility and the proximity all in one relatively small area – and with a very supportive Scottish and UK government environment. The ability to coordinate all these various pieces of the value chain is Scotland's real opportunity to excel. It is what makes us such a good location for inward investment.

I picture Scottish Development International on a trade mission being able to say: "Come to Scotland, and we can introduce you to people



who can do all of that for you from beginning through to launch, into orbit, and then the downstream." That's the vision.

What is the purpose of the space sector?

One key message about the space sector is to keep in mind the reason for this spectacular growth, and the reason why this growth is set to continue. Although the space sector can bring a lot of high value jobs and inward investment to Scotland, this will only happen if the Scottish sector remembers the ultimate value of the sector.

The question we must always keep in mind is: what is the value of the space sector to citizens and to other industries? It's about the value the sector delivers – as well as the potential value it delivers in the future. After all, while launching satellites is exciting, and a great challenge for talented minds and innovative companies, we're not just launching satellites for the fun of it. Those satellites serve a purpose.

This is the where the downstream part of the industry comes in, including Global Surface Intelligence (GSI), the company I became the CEO of earlier this year.

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We are a space company in that we take satellite data, clean it up and apply machine learning and AI to it to sell to our clients, most of whom currently are in the forestry sector.

Effectively, we support commercial forestry operations in the US and Canada to monitor the trees within ranches covering hundreds of millions of acres. We analyse the tree species, their height, their density, and their circumference. This allows our clients to know the value of their forests. Without us, they would be forced to use a mixture of drones and boots on the ground to do it manually, methods which are much more time consuming and more expensive.

To some extent, it's quite remarkable that an SME like ours based in Scotland has won so much business in North America. In the end, this is down to the accuracy of the data we provide, which we've perfected to a level others can't match.

However, the raw satellite data we use is available for competitors. What sets us apart is our technology – our software engineers, coders, and data scientists. So whilst we are a space company, we are just as much a technology company. Given our current focus on forestry,

you could also classify us as a forestry company. We are a huge beneficiary of space assets and services. But, as a company based in Scotland using space assets, the main beneficiary of our work up to now is forestry clients based in North America.

The real benefit of space, in other words, comes from how we apply those assets to other industries. This will be key to Scotland's future success. What can space do for other industries and other sectors? What challenges can it solve? How can it help governments develop practical policies around decarbonisation? How can it help city planners improve our quality of life?

These are the important questions going forward. If we engage with citizens, businesses, and the public sector in terms of how space can help solve their challenges – not just in Scotland but all over the world – that's how the industry will really grow.

Tree species and metric maps



GSI's ForestNow Data Map