

# We can see Scotland's rising role in space economy from America

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However, after two decades of increasing consumer demands, the industry is fast expanding worldwide. With ambitious plans under way in the Scottish Highlands, Europe (<https://www.thenational.scot/news/europe>) will soon have its first and only vertical space launch capability.

First Minister Nicola Sturgeon (<https://www.thenational.scot/politics/nicola-sturgeon/>) has rightly made economic investment in this growing sector a key objective for her government. Scotland already produces more small satellites than anywhere else in Europe, with globally known companies such as Spire, but its geography also allows efficient access to unique Earth orbits from northern latitudes.

The timing of Scotland's spaceport development could not be better. The Information Age has arrived and the lives of every person, no matter where they reside, are dependent on space. From simple communications and navigation to farming and pharmacology, the issue is not solely about what occurs above our atmosphere but how space effects life down here.

For example, the challenges confronting climate observation would be piecemeal without the massive availability of multispectral imagery collected in low-Earth orbit. Commercial satellites 400km upwards have even become an essential tool to thwart illegal fishing, over-mining, and capturing the horrors of war crimes in remote Ukranian villages.

Despite this shared dependency among all nations, the space domain remains loosely governed and leadership is necessary to ensure its use for future generations. Sadly, after only 65 years of spaceflight, pollution is rampant in Earth's orbit with a half-a-million fragments of old rockets and satellites circling our planet that are larger than one centimetre in size. These bits of debris can cause critical damage and anything larger than 10 centimetres could be catastrophic upon impact.

Moreover, every collision creates more fragments which further exacerbate the environmental degradation of space. The sheer volume of existing debris coupled with the surge in satellite deployments make urgent the need for new approaches. The growing risks of collisions in low-Earth orbit will soon exceed the mitigation procedures currently in place. Beyond the physical risk of collisions, the increasing number of objects in orbit can disable a functional spacecraft by causing radio frequency interference triggering dangerous lack of communication, positional awareness, and telemetry loss.

Co-operation among nations is imperative to improve safety of operations and allow for sustained economic use of the space domain.

FOR its part, the US government has a plan to transfer its role of space object tracking to a civilian agency to better integrate with commercial companies and other countries. But even when fully under way, the US programme will be modest in capability and potentially inadequate to support the anticipated growth of the space sector.

While commercial systems currently provide precision situational tracking of orbital objects, without a standard common operational picture and set of norms the utility of such data is limited.

Co-ordination is key to mitigate risks for all users, and only a governmentally endorsed approach for co-ordination can accomplish that. As Earth's orbit is a shared environmental domain, every country has similar interest in space stewardship. Thus, an internationally structured framework for space situational awareness is necessary.

Collective effort is needed to avoid over pollution and to increase safety of space operations. Emerging space nations such as Scotland can lead the way in ensuring proper and sustainable use of the domain.

At the core of any proposed solutions, information sharing is essential. Most importantly, transparency is foundational for the space economy (<https://www.thenational.scot/news/scottish-economy/>) to grow and mature for the benefit of all – citizens, countries, and companies alike.

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