

**Response by the Scottish Space Network in response to the “Consultation on criteria to determine the location of a UK spaceport”.**

This response deals principally with the space related issues identified as points 2.14 a and b. Namely, the role of the spaceport in:

- *advancement of science and innovation*
- *growth of the space or the aerospace sector including stimulating jobs in the wider supply chain or supporting existing space sector clusters.*

Criteria, 2.14 d, the creation of high level skills is responded to in the context of these two points.

Responses relating to these criteria are given with respect to Question 6:  
*What weight should be attached to the criteria given in the report?*

A recommendation is also given with respect to Question 5:  
*Do you think there are any other criteria that should be taken into consideration? If so, please explain why.*

Question 6: Advancement of Science and Innovation

We in the Scottish Space Network believe that Science and Innovation are central to the value proposition of a spaceport. In that:

- A leading spaceport will be a major driver for successful science and innovation.

Areas that will advance on the back of a successful spaceport will include research of the upper atmosphere, space medicine, microgravity research, high performance composites, space-plane aerodynamics, flexible RF payloads and spaceborne antennas, ground segment terminals, avionics for launch vehicles, technologies for constellation deployment and satellite miniaturisation.

- Leading science and innovation will be major drivers for a successful spaceport.

The establishment of a technologically innovative environment is central to the attraction of innovative companies and personnel to work at the spaceport and the region around it. The spaceport should have an innovation plan that is globally competitive.

The development of the spaceport must go hand-in-hand with activities to encourage and take advantage of science and innovation. **The existence of a quality science and innovation plan should be an important criteria with a high weighting factor** in the selection of the site for the UK spaceport.

Note: a science and innovation plan is additionally important in that it should also address elements relating to criteria 2.14 d promotion of high level skills.

Question 6: Supporting and stimulating existing space clusters / aerospace supply chain

It is worth recalling the thoughts of Michael Porter, who contributed ground breaking ideas on the competitiveness of regions. He concluded that the capacity of a region to make productive use of continual innovation is more important than any natural geographical endowment of a region.

As such the Scottish Space Network feels that **the innovative capacity in space and aerospace of a region should be an important criteria with a high weighting factor** for the selection of the site for the UK spaceport.

Determination of the innovative capacity of a region should take into account:

- the presence of innovative providers of advanced aviation technology
- the presence of space technology providers for small satellites which may be launched from the spaceport
- the presence of leading universities involved in space activity
- activity to enhance the coordination and capability of a region in its space development
- links that a region has to other space clusters
- the presence of governmental support structures to enhance technological led business competitiveness

Question 5: Another criteria for the identification of the location of the UK spaceport

The principal goal of the spaceport is as a facility for sub-orbital flights. That said, the opportunity for the spaceport to also be a horizontal take-off facility for orbital entry is great.

The use of a plane as a platform for a rocket opens up the number of sites that can be used beyond those that can be used as a vertical launch facility. That said, there are still considerations and calculations to be made with regard to orbital flights that must be made in the selection of a spaceport. Namely:

- which orbits are important for a UK spaceport to address
- the trajectory of rockets and all drop zones for rocket stages
- the areas that may be used as launch zones for the orbital rockets
- the fuel load to be carried to take a spaceplane, rocket plus payload from the spaceport to a launch zone.

In summary, a spaceport should be analysed with regard to its efficiency and effectiveness as a site for orbital as well as sub-orbital flight.

Information about this response.

The Space Network was established in 2014 as a result of a report which identified that there is significant leading edge space activity in Scotland, that there is the technological capacity for a marked increase in space activity, and that there is the potential for greatly increased use of space data services.

Over 100 participants in the Scottish Space Network were invited to contribute to this response. All responses were collated and are presented here.

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