Government to explore new ways of delivering ‘sat nav’ for the UK

- Government to look at wider range of options for a UK satellite navigation and timing capability, critical for energy networks and communications to maritime, aviation and defence
- the government will explore cutting-edge ways to deliver vital ‘sat nav’ services to the UK – including use of satellites at different orbits
- this will boost the UK’s thriving space industry and expertise, paving the way for greater independence from foreign systems

New options for a UK satellite navigation and timing capability programme to support the nation’s critical infrastructure will be explored by the government, it was announced today (Thursday 24 September).

The Space-Based Positioning Navigation and Timing Programme (SBPP) will explore new and alternative ways that could be used to deliver vital satellite navigation services to the United Kingdom which are critical for the functioning of transport systems, energy networks, mobile communications and national security and defence, whilst boosting the British space industry and developing the UK’s own capabilities in these services.

This will follow the work of the UK’s Global Navigation Satellite System (UK GNSS) programme, which is due to conclude at the end of the month.

UK GNSS is an exploration programme which has developed outline plans for a conventional satellite system as an alternative to American GPS or the EU’s Galileo. The programme will now be reset as the SBPP to build on this work to consider newer, more innovative ideas of delivering global ‘sat nav’ and secure satellite services to meet public, government and industry needs.

Satellite navigation is a sophisticated technology that works by beaming signals from space that devices such as smartphones can use to determine their location and time – otherwise known as position, navigation and timing (PNT).

This could include technology that supports people’s everyday lives, such as emergency services to locate incidents, financial services companies to regulate exchanges on the UK stock market, or energy networks to ensure households receive power. Satellite navigation systems are also necessary to unlocking future technologies such as driverless cars, smart cities and artificial intelligence – transforming the way people live, work and travel.

Capitalising on the ingenuity of British businesses and academics, the programme will explore the use of different kinds of satellites at various levels of orbit by exploiting technologies offered by companies at the cutting-edge of innovation such as OneWeb, Inmarsat and Airbus.

Business Secretary Alok Sharma said:

> Satellites underpin so many of the services that we all use every single day, from precise train timetables on our phones and satnavs in our cars.
>
> Through our Space-Based Positioning Navigation and Timing Programme, we will draw on the strengths of the UK's already thriving space industry to understand our requirements for a robust and secure satellite navigation system. This includes considering low orbiting satellites that could deliver considerable benefits to people and businesses right across the UK, while potentially reducing our dependency on foreign satellite systems.

A Cabinet Office Study examining the need for a UK space-based system for secure positioning, navigation and timing concluded that any solution would need to examine more options and further work is needed to determine what form a potential system takes so it provides value for money.

In order to meet UK industry and government needs for resilient global navigation and timing while also providing value for money to the public, the new SBPP will consider collaboration with international allies to share satellite navigation services, costs and technology.

Graham Turnock, CEO UK Space Agency said:

> Our work to date has developed cutting-edge UK expertise in satellite navigation spacecraft, antenna design and control systems, while supporting high-skilled jobs.
>
> Now is the time to drive this work further to look into wider, more innovative ways of delivering this important national capability – to help protect our critical infrastructure and put the UK at the forefront of the development of new space technologies.

Currently, the UK is entirely dependent on foreign systems for these critical navigation services. SBPP will enable to the UK to build on its thriving space industry, home to global players such as Inmarsat, Airbus, Surrey Satellites (SSTL) and others, to become a global leader in space navigation technologies, developing new opportunities for businesses in the UK and overseas and creating new highly skilled jobs.

The government has made clear its ambitions for the UK to become a globally competitive space power and is taking action through the newly established National Space Council, emerging National Space Strategy and the Integrated Review of Security, Defence, Development and Foreign Policy, to create the conditions for a strong, secure and innovative space sector that delivers for the British people.

A government-backed study from London Economics estimated that sustained disruption to existing satellite navigation capabilities would likely cost the UK economy £1 billion per day. Investment in space technology and

services will enable the UK to build back better, unleashing the country’s global competitiveness and underpinning growth and high-skilled jobs.

- In 2018, the government announced an 18-month programme led by the UK Space Agency to develop a conventional Global Navigation Satellite System, which could meet UK security requirements and support the UK’s sovereign space and cryptography sectors
- the UK GNSS Programme in its current form will conclude on 30 September 2020
- work completed by the UK GNSS Programme so far has developed cutting edge British expertise in areas such as spacecraft and antenna design, satellite and ground control systems, systems engineering and simulation, which have wider applications across the space sector, in addition to supporting specialist UK jobs and industrial GNSS capability