Written Evidence Submitted by

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(C190059)

Executive Summary:

- The UK has funding and innovative projects using space-enabled applications, technologies, and services to respond to the COVID-19 pandemic.
- Continued investment in space-based infrastructure is crucial to successfully manage the broader response to COVID-19.
- The UK Space Agency (UKSA) is collaborating with the European Space Agency (ESA) to respond to the COVID-19 pandemic.
- UK-based businesses are tackling, through the use of joint UKSA and ESA funding, solutions in response to the COVID-19 pandemic.
- UKSA works on national and European levels to support citizens through the different stages of the global pandemic.

About Us:

- Northumbria Law School based within the University of Northumbria at Newcastle is one of the largest law schools in the UK, with a national and international reputation for excellence in legal education and research in areas of law and technology.
- The Centre for a Spacefaring Civilization is an independent think tank and research centre focused on space law and policy We take a holistic and multidisciplinary view of the field and promote the sustainable and equitable development of space. The Centre for a Spacefaring Civilization aims to be a credible and objective source of leadership and information on space law and policy topics. We take a global, long term, and multidisciplinary approach to these issues and seek to forge relations based on mutual respect, trust, and transparency.
- We have submitted this written evidence because we believe in the value of space-enabled applications, technologies, and services in order to promote the use of space as applied to global, regional, and national health. Furthermore, the space infrastructure is vital for socio-economic benefits including toward Sustainable Development Goal 3: Good Health and Well-Being.

Background:

- Space-enabled applications, technologies, and services refers to those that are supported by satellite communications, satellite navigations, and Earth observation satellites.
- The UK Government's COVID-19 Recovery Strategy includes space-enabled applications as part of the NHS and care capacity and operating model. "The

Government will seek innovative operating models for the UK's health and care settings, to strengthen them for the long term and make them safer for patients and staff in a world where COVID-19 continues to be a risk. For example, this might include using more tele-medicine and remote monitoring to give patients hospital-level care from the comfort and safety of their own homes."[1]

- Support for space-enabled applications and technologies to respond to COVID-19 is being encouraged by UK ministers. Science Minister Amanda Solloway states: "I'm proud of how our world-leading space sector is stepping up to provide innovative solutions to directly support our amazing NHS, as we continue our national effort to tackling coronavirus."[2] Transport Minister Rachel Maclean says: "Now more than ever, it's vital that we protect our NHS, which is why it's great to see our world-class space sector leading the way in providing solutions to protect the public and patients."[3]
- Government departments and institutions working on COVID-19 responses within the UK that incorporate space-enabled science and technologies are the UK Space Agency (UKSA), Catapult Satellite Applications, UK Research and Innovation (UKRI), and Innovate UK. Within Europe these institutions include the European Space Agency (ESA) and Eurisy; both of which work with UKSA.
- The UK is a Member State of ESA joining in 1978. As per November 2019, the UK decided to commit a record investment of £374 million per year. It is especially in Business Applications that the UK is one of the prime investors. In the frame of COVID-19 countermeasures adopted by both space agencies, ESA developed a new dashboard[4] that combines data from Earth Observation satellites to monitor the impact of COVID-19 and to assess its consequences. The dashboard is the result of an international effort that involves NASA (US) and JAXA (Japan) The platform, available online, integrates multiple data to monitor air and water quality, climate change and other economic activities. The dashboard, available at this time in demo format, showcases the importance of international collaboration and proves the importance of integrating satellite imagery in policy-making, especially for the case of disaster management, such as the COVID-19 pandemic.
- To strengthen the UK national response to COVID-19, last April the UKSA in collaboration with ESA created a fund of about £2.6 million to be invested to develop space-enabled technology and services for the healthcare sector.[5] The UK government called on the industry and academia to contribute in supporting the National Health System in the peak of the contagion. Besides, UKSA demonstrated its leadership in health and technology, as per the £5 million fund to develop new technologies to be utilised in the health sector.[6] This UK joint initiative aims to support space-enabled

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[1] UK Government, 'Our Plan to Rebuild: The UK Government's COVID-19 Recovery Strategy' [May 2020] < https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/884760/Our_plan_to_rebuild_The_UK_Government_s_COVID-19_recovery_strategy.pdf> accessed 16 July 2020, pg. 34

[2] UK Government, Press Release, 'Space Agency Backs Space-Enabled Drones to Deliver COVID-19 Test Kits', <https://www.gov.uk/government/news/space-agency-backs-space-enabled-drones-to-deliver-covid-19-testing-kits> accessed 13 July 2020

[3] UK Government, Press Release, 'Space Agency Backs Space-Enabled Drones to Deliver COVID-19 Test Kits', <https://www.gov.uk/government/news/space-agency-backs-space-enabled-drones-to-deliver-covid-19-testing-kits> accessed 13 July 2020

[4] To use the Earth Observation Dashboard visit: https://eodashboard.org/

[5] ESA Business Incubation Centre, 'Space for UK COVID-19' <https://business.esa.int/space-for-uk-covid-19 > accessed 13 July 2020

science and technology services which can aid in the response to the coronavirus. To date, three projects have received a total of £1.1 million. UKSA and ESA are still looking to fund more projects and the call remains open until 30 September 2020.[7]

- The UKSA and the ESA have three projects that "find and support space-enabled technologies and services that can support the NHS response to coronavirus"[8]. One of these projects, the Space-Enabled Delivery Drones for the COVID Response (SEDDCR), utilises space-enabled drones to deliver COVID-19 test kits to islands in Scotland through NHS Highland and the space company Skyports[9]. Stay, an app developed by Landmrk Limited, encourages young people to active positively, such as following social distancing, with badges linked to rewards. Stevenson Astrosat is developing Isolation+ using "advanced space data analytics combined with relevant ground information, to identify "hidden" vulnerable communities"[10] targeting those impacted by COVID-19 because of poverty and age.[11]
- Lanterne, a UK-based business, has developed through the ESA Business Incubation Centre UK (ESA BIC) and other funders, their Crowdless app to support individuals who want to avoid crowds and are concerned with social distancing.[12]
- As part of UK international relations and promotion of satellite-based technology, the UKSA is a member of Eurisy. Eurisy is an association of space agencies and other governmental offices in charge of space affairs in Europe. The mission of Eurisy is to raise awareness on satellite applications in many sectors of application, among which health, risk management and emergencies are key. Eurisy aims at supporting potential end-users by leveraging its network. Such a different perspective allows Eurisy to provide feedback to decision makers on possible measures to overcome obstacles to the inclusion of space-enabled applications, technologies, and services. Over the past months Eurisy published articles on the importance of satellite-based data as a response to COVID-19.[13]

Recommendations:

- Continue to utilise space-enabled applications through UKSA and joint UKSA-ESA funded projects in order to support UK citizens and their health and well-being.

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[6] UK Government, 'UK Space Technologies to Boost NHS Coronavirus Response' <https://www.gov.uk/government/news/uk-space-technologies-to-boost-nhs-coronavirus-response> accessed 13 July 2020

[7] UK Government, Press Release, 'Space Agency Backs Space-Enabled Drones to Deliver COVID-19 Test Kits', <https://www.gov.uk/government/news/space-agency-backs-space-enabled-drones-to-deliver-covid-19-testing-kits> accessed 13 July 2020

[8] UK Government, Press Release, 'Space Agency Backs Space-Enabled Drones to Deliver COVID-19 Test Kits', <https://www.gov.uk/government/news/space-agency-backs-space-enabled-drones-to-deliver-covid-19-testing-kits> accessed 13 July 2020

[9] For more information: https://skyports.net/nhs-trials/

[10] UK Government, Press Release, 'Space Agency Backs Space-Enabled Drones to Deliver COVID-19 Test Kits', <https://www.gov.uk/government/news/space-agency-backs-space-enabled-drones-to-deliver-covid-19-testing-kits> accessed 13 July 2020

[11] For more information: https://www.astrosat.space/virus-action

[12] To learn more about Crowdless visit: https://crowdlessapp.co/

[13] To learn more about Eurisy and the UKSA as a member visit: https://www.eurisy.org/

- Encourage and support synergy, communication, and collaboration across sectors, which should include the space sector and the UKSA, because COVID-19 affects all industries and space-enabled tools or solutions could provide support for positive outcomes.
- Continue communication and collaboration between the NHS and the UK space sector in order to further enhance positive solutions in response to COVID-19 and other healthcare issues.
- Continue to support and build the multinational ESA Dashboard initiative in order to match and map existent technologies, needs and expertise available in the space industry and the non-space fields, such as healthcare.
- Further promote UK space technology products around Europe by leveraging on existent networks, such as ESA and Eurisy.
- Ensure that the Space for Smarter Government[14] initiative is continuously embedded and utilised across government making use of Earth Observation in order to support government pandemic challenges
- Encourage departments to showcase space-enabled spin-offs and information about the use of space for COVID-19 to the general public in order to raise awareness of the importance of space-enabled data for socio-economic benefits, including health, in the UK.
- More broadly, the ubiquity of space-based applications should be discussed within the range of political responses in order to justify continued and increased expenditure on space manufacturing and operations as part of the broader UK Industrial Strategy.

(July 2020)

[14] For more information: https://spaceforsmartergovernment.uk/