Satellite Services – Feeding the Digital Twin
Who are we?

WE HELP ORGANISATIONS GROW THEIR BUSINESS
We help organisations to use satellite applications to grow their business in the UK and internationally.

WE ARE INDEPENDENT
We bring together industry, researchers, end-users and government to explore and develop new ideas.

WE ARE GOVERNMENT BACKED
We are partly-funded by the Government and work closely with Innovate UK, UK Space Agency, UK Science & Innovation Network, and other public bodies.

An innovation and technology company transforming the way the world uses satellite technology and data.
Encouraging Growth in UK Space Sector - Globally

Combining the benefits of three space services

- **Positioning Navigation Timing (GPS / Galileo)**
- **Hybrid global Communications**
- **Remote Sensing – Optical, Radar, Thermal & Weather**

New Space “Cubesats”

- Supporting business in the use of space services & applications
- Transfer innovation between Space and non-space organisations
- Help space sector engage with markets
STRATEGIC VISION – Focus Satellite Services on:

**INTELLIGENT TRANSPORT**
Communicating with vehicles
Positioning and location-based services
Ships, planes, cars, trains - Autonomy

**SUSTAINABLE LIVING**
Geospatial innovation and connectivity often in remote or underserved areas
Agriculture, Forestry, Mining, Future Cities

**BLUE ECONOMY**
Satellites “see” over the horizon and communicate around the planet.
Fisheries, Offshore Energy, Shipping, Ports, Coastal Monitoring

**GOVERNMENT SERVICES**
Early use cases for emergency services and health and geospatial systems across local government
Environment Agencies, Health, Security
Extensive use of Satellites underpins majority of business activities

Especially in remote locations
Examples of Earth Observation Satellite Data

Digital Optical and Radar data can be analysed using Artificial Intelligence

Radar – Change Detection

Analysis of Port Activity
High resolution Infrastructure Monitoring

Synthetic Aperture Radar Interferometry (InSAR)

Multiple images over time create a point cloud

Colour difference (red) indicate Vertical movement (<cm)

Used with Building Information Modelling (BIM) system

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Examples Of Layered Satellite Data To Monitoring Open Cast Mining

- 3D Modelling of major assets
- Geospatial DataCube
- Machine learning for EO and geospatial data (e.g. Identify buildings)
- Future satellites – Improved temporal and spatial resolution
- Infrastructure monitoring
Island Case Studies:

“Common Sensing project” – using shared EO data to support Civil Contingency Planning and Operations in Fiji, Vanuatu and the Solomon Islands

Fiji - Civil Contingency System

Monitoring and Measuring environmental parameters

Time Series Data

Data Cube

Analysis Ready Data For Decision Support
Island Case Studies:

“Scottish Islands Connected Health” – Cost effective Satellite Communications reduces need for patients to travel for specialist consultations

Colonoscopy using a swallowed camera

Data transmitted to specialists by satellite
New Generation of Satellites:

• Video from Space
• Low Cost Satellites
• Ubiquitous Communications

Data for Digital Twin –
• Regular Updates
• Legacy Information
Thank you