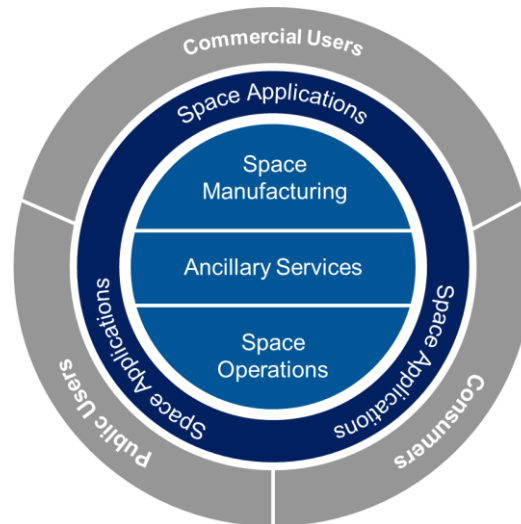


Commercial Space Activity

Overview of Commercial Space Ecosystem



Space Manufacturing

Design and/or manufacture of space equipment and subsystems

- Launch vehicles and subsystems
- Satellite/payloads/spacecraft and subsystems
- Ground segment systems and equipment (control centres and telemetry)
- Suppliers of materials and components
- Scientific and engineering support
- Fundamental and applied research

Space Operations

Launch and/or operation of satellites and/or spacecraft

- Launch services
- Launch brokerage services
- Proprietary satellite operations (including sale/lease off capacity)
- Third-party ground segment operations
- Ground station networks

Space Applications

Application of satellite signals and data

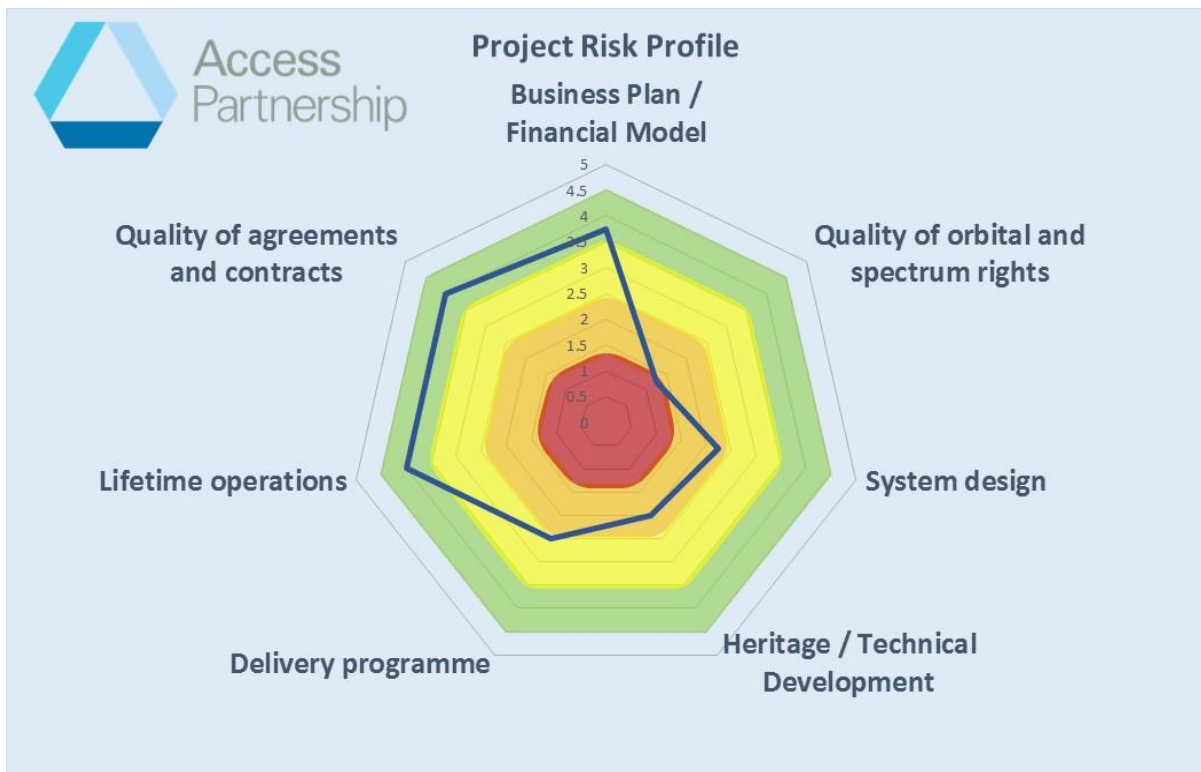
- DTH broadcasting
- Fixed and mobile communications
- Location-based signal and connectivity services, user devices and equipment
- Processing of satellite data (EESS, mapping) applications relying on embedded satellite signals (such as GPS devices) and /or data (such as meteorology, commercial CIS software, and geospatial products)

Ancillary Services

Specialised support services

- Launch and in-orbit insurance services
- Financial and legal services
- Software and IT services
- Market research and consultancy services
- Business incubation and development
- Policy making
- Regulation
- Oversight

Commercial Considerations for Space Activities



Market Access Requirements for Space Activities

Satellite Construction, Launch, and Operation

Satellite Network Authorisation	Launch and Operations
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- UN Treaties
- ITU-R Radio Regulations
- National Regulatory Framework

Teleport Operations and Associated Frequency Use

Teleport (Country A)	Teleport (Country B)
TT&C (Country A)	TT&C (Country C)

- ITU-R Radio Regulations
- National Regulatory Framework

Communication Services and Radio Frequencies in Markets of Interest

Market A	Market B
Market C	Market D
Market E	Market (n)

Outer Space Act Licence (UK Space Agency)

Obligations on Licences

- UK nationals and UK companies intending to launch or procure the launch of a space object, operate a space object, or permit reasonable access to documents and inspection and testing of equipment and facilities by UKSA or their advisors
- Inform UKSA of any planned change to their licensed activity and seek their approval prior to the change being made
- Prevent contamination of outer space and adverse changes in the environment of the Earth

- Avoid interference in the space activities of others
- Avoid jeopardising public health or safety of persons or property
- Avoid any breach of the UK's international obligations
- Preserve the national security of the UK
- Indemnify the UK government for any claims for third-party damage brought against the government which arise from each licensed space activity
- In most cases, operators must insure themselves against third-party liabilities arising from each licensed activity, with the UK government named as an additional insured; insurance should be for the launch and in-orbit phases of the mission
- Dispose of the licensed space object appropriately at the end of the licensed activity and inform the UKSA of the disposal and termination activity

OUTER SPACE ACT: ANNUAL STANDARD MISSION SATELLITE HEALTH REPORT					Date:
SPACECRAFT NAME:		COSPAR IDENTIFIER:		SSN UNIQUE ID:	
SPACECRAFT FUNCTION (COMMS/PNT/EO/Other):		Comments:			
INJECTION ALTITUDE, km (Apogee/Perigee)		ORBIT INCLINATION (or Longitude if GEO)			
CURRENT ALTITUDE, km (Apogee/Perigee)		CURRENT INCLINATION (or Longitude if GEO)			
PLATFORM STATUS: (ACTIVE/SPARE/DISPOSED)		Comments:			
Commissioning Epoch	Qn/20NN	Decommissioning Epoch	Qn/20NN	Nominal Lifetime (years)	
SUBSYSTEM STATUS:	NOMINAL OPERATION	MINOR ANOMALY: NO MISSION IMPACT	MODERATE ANOMALY: DEGRADED MISSION	MAJOR ANOMALY: MISSION CRITICAL	LOSS OF CONTROL/ MISSION FAILURE
ATTITUDE CONTROL	Mode (1/2/3/Spin)	Sensor 1	Sensor 2	Actuator 1	Actuator 2
Status →					
Description (if non-nominal)					
PROPULSION	Fuel available (kg/years)	Valves/Lines	Pressurant(s)	Propellant(s)	Thrusters
Status →					
Description (if non-nominal)					
ELECTRICAL POWER	Power available (W)	Conditioning/Distribution	Solar Array/Drive	Battery	Other
Status →					
Description (if non-nominal)					
TELEMETRY AND CONTROL	Receivers	Transmitters	Antennas	Spectrum/Bands	Encryption
Status →					
Description (if non-nominal)					
PAYLOAD(S)					
Status →					
Description (if non-nominal)					
REPORT PROVIDED BY:	NAME	POSITION/AFFILIATION			

Table 1: Annual Mandatory Regulatory Report

Satellite Network Filing (ITU, Ofcom)

ITU

ITU-R Resolution 49 requires national administrations to make submissions to the ITU in respect of the construction and launch (including timings) of its satellite networks. ITU-R relies on the confirmation provided by administrations under RR No 11.47 that a frequency assignment has been brought into use, to assess the compliance with the regulatory time period set out in RR No 11.44.

Ofcom

Ofcom aims to ensure that applications submitted to the ITU are consistent with the provisions of the ITU Constitution, Convention and Radio Regulations. Ofcom also requires that applicants demonstrate that they either have the technical capability or that they have a legally binding contractual commitment by which transmissions to and from space stations can be modified or ceased upon the request of Ofcom.

UK Digital Economy Act 2017 amends Section 28A of the Communications Act (2003) *International recognition of satellite frequency assignments: power to charge fees*. This amendment allows Ofcom to charge for services related to management of satellite filings

- Submitting new filings
- Managing filings through the ITU process
- Notifying filings
- Maintaining notified filings
- Dealing with ad hoc requests (for filings going through ITU process), and
- Undertaking project work related to performing our satellite filing work

The change does not apply to any satellite filing work that Ofcom received the request for before the change comes into force (expected by year end 2018).

If you have any questions, please contact:

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