

LAUNCH UK

A rocket launch against a starry night sky with a green aurora-like glow. The rocket is on the right side, ascending vertically, leaving a thick trail of white smoke. The sky transitions from a deep blue at the top to a vibrant green and yellow near the horizon, suggesting an aurora or a sunset/sunrise. The foreground shows a dark, silhouetted landscape with rolling hills.

Regulation & Legislation Workstream Plenary Event #4

Electron Building, Jupiter room

Harwell | 17th July 2019

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A rocket launch is depicted against a starry night sky. The rocket is a vertical column of white smoke and fire, ascending from a green, hilly landscape. The sky is a deep blue and purple, with a prominent green aurora visible in the center. The overall scene is a composite image used for a presentation.

Welcome and introductions
Nicola Higgins | UK Space Agency

About today

Aim: To continue our series of regular engagement events

- We will update you on the progress made on legislation and regulation since the last plenary
- We will provide an overview of the liabilities and security work
- We are happy to take Q and A throughout the day

The small print: No part of the discussions held (unless otherwise noted) should be taken as a reflection of developing or future government policy or legislation, and any decisions taken by any individual or organisation on the basis of any information they hear or see at these meetings are taken at their own risk

Agenda

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- 10.15 - 10:45** **Arrival and Registration**
- 10:45 – 11:00** **Welcome and introductions**
Nicola Higgins | UK Space Agency
- 11:00 - 11:15** **Update since the last plenary and progress on regulation and legislation**
Colin Macleod & Nicky Reynolds | UK Space Agency
- 11:15 – 12:15** **Security presentation**
Tyler Davies | Department for Transport
- 12:15 – 13:30** **Networking lunch**
- 13:30 – 14:30** **Liabilities**
Louise Smith | UK Space Agency
- 14:30 – 15:00** **Summary and closing remarks**
Nicola Higgins | UK Space Agency



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A rocket launch is depicted against a night sky filled with stars. A vibrant green aurora-like glow is visible in the background. The rocket's trail of white smoke and fire extends from the bottom right towards the top right of the frame.

Update since the last plenary and progress on legislation and regulation

Colin Macleod & Nicky Reynolds | UK Space Agency

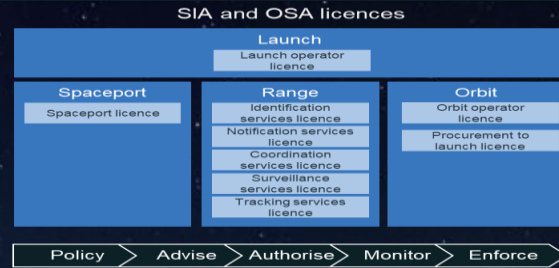
Components of the Target Operating Model



Strategic Model

Purpose:	We regulate UK space activity for safe, secure and sustainable use of space, and in doing so, support the UK's space strategy
Vision:	An internationally recognised and proven regulator of space activity
Values:	We are easy to engage – to get to the heart of the challenge We are open-minded – to enable the regulated community to find safe solutions to achieving missions We collaborate – to achieve the best regulatory solution We are responsive – to the emerging values of the space industry
Objectives:	<ul style="list-style-type: none"> Execute our regulatory responsibilities efficiently and effectively maintaining an adaptive regulatory regime while protecting the overall space operating environment and managing UK Government's long-term risks Enable businesses to build a safe and sustainable commercial market for small space craft launches and sub-orbital flight from UK Be a leader in the global coordination of regulating small space craft launches and operations
Priorities:	<ul style="list-style-type: none"> Focus on creating a minimum viable capability that allows industry participants to safely achieve their missions Thereafter grow our capability flexibly to match market developments, continually improving our effectiveness
Regulatory approach:	<ul style="list-style-type: none"> Outcome-based to empower operators to innovate and drive safety as a priority Developing guidance collaboratively to ensure regulatory relevance Open to self-assessment, with approval and inspection regimes that provide risk-based assurance at the right time Appropriate consideration of other jurisdictions' regulatory decisions to minimise duplication of effort Join up with other UK regulators to achieve efficient and effective processes Separation of the assessments of dynamic and static risk to avoid unnecessary burden

Regulatory model



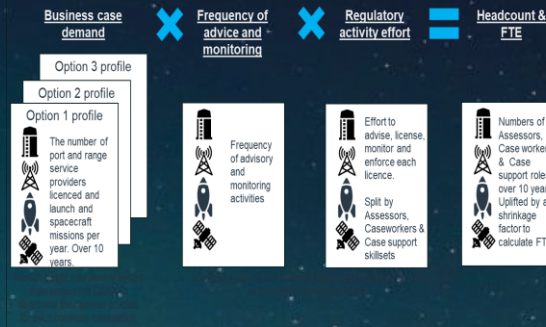
Capability model

Enable the regulator to predict, plan and prepare for future changes by setting the strategic direction and controlling the delivery of the functions							
Enable the regulator to engage with stakeholders at the right level, at the right time and through the right channel to consult to and potentially taking a lead on the development of safety standards and associated services							
Policy & Legal		Compliance		Enforcement		Assessment	
Enable the regulator to develop and maintain policy and guidance, manage appeals and legal proceedings, and stay aligned with UK and international law		Enable the regulator to engage and manage licence applications, processes, conditions and supporting data, and issue licences to service providers, launch operators and other operators		Enable the regulator to assess compliance with licences, licence conditions and the regulator of operators, launch operators and other operators through proactive and reactive monitoring		Enable the regulator to conduct enforcement activities through business continuity of their external operations	
Organisation		Technology		Operations		Support	
Enable the regulator to assess organisational viability		Enable the regulator to assess the physical assets required for the mission		Enable the regulator to assess whether a mission will be executed as planned and whether that demonstrates an appropriate and acceptable level of risk		Enable the regulator to conduct effective assessment activities	
HR	Comms & Systems	Payments & Finance	IT	Data & Analytics	Change Delivery	Risk Management	
Procurement	Facilities	Enable the regulator to securely procure energy, repair and replace equipment as well as supporting accounting processes	Provide the regulator with the IT and support required to deliver all services	Enable the regulator to collect, analyse and report data	Enable the regulator to manage and deliver change activities	Enable the regulator to effectively deliver the services	

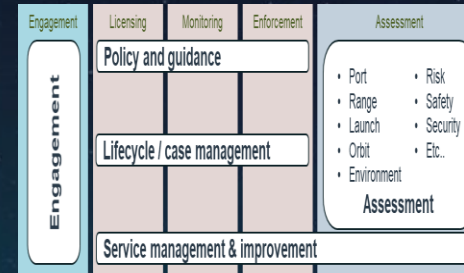
Technology model



Demand model



People model

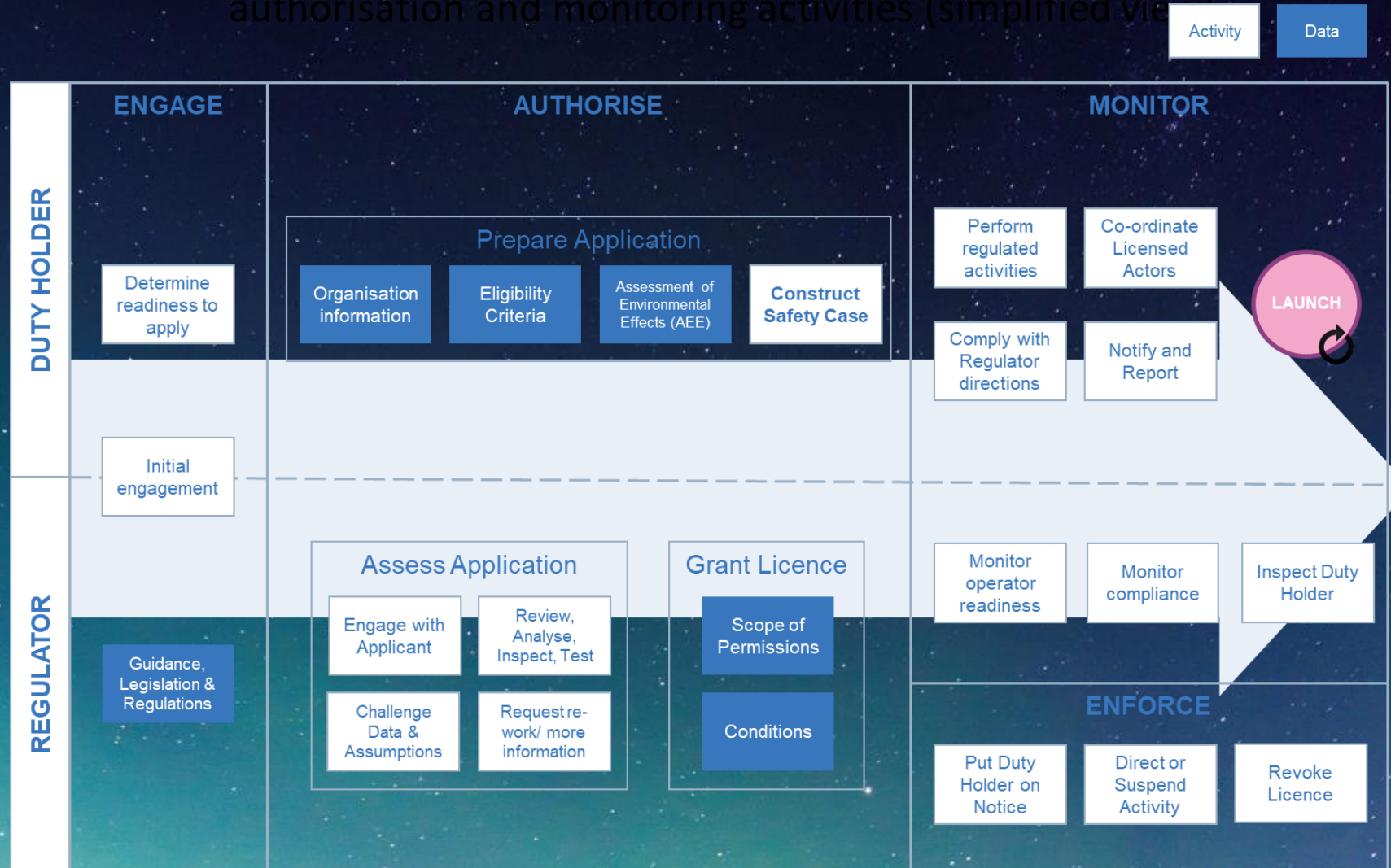


Delivery model

What are the Transition States?	T51: Assess feasibility Produce "Traffic light" feasibility assessment available to all potential participants (integrated in orbit & new)	T52: pre-licensing support Minimum capability to provide pre-application support to potential applicants	T53: Spaceport and range Minimum capability to authorise, monitor and enforce (review, analyse, inspect, test) single licence types	T54: Launch & Orbit Minimum capability to authorise, monitor and enforce launch licence	T55: Chargeable advice Provide chargeable advice to industry, supported by legislation and guidance
What can applicants do?	Applicants can apply for pre-licensing support to assess feasibility of their launch or orbit activities	Applicants can apply for pre-licensing support to assess feasibility of their launch or orbit activities	Applicants can apply for pre-licensing support to assess feasibility of their launch or orbit activities	Applicants can apply for pre-licensing support to assess feasibility of their launch or orbit activities	Applicants can apply for pre-licensing support to assess feasibility of their launch or orbit activities
What can the Regulator do?	We've expanded our "Traffic light" approach to work with applicants to assess feasibility of their launch or orbit activities	Our assessment and support to applicants through T52 is available to all potential participants	Our people feel confident and supported in supporting applicants through T53	Our people feel confident and supported in supporting applicants through T54	We provide an advice service to industry, supported by legislation and guidance
Indicative Timelines	2019	2020	2021	2022	2023



Regulatory model for Launch – demonstrates the anticipated split between authorisation and monitoring activities (simplified view)



Opportunities to engage with us

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13 August

- Plenary Session, Glasgow
- Topics covered: environmental assessment

September

- LaunchUK Industry Group and Plenary session, London (final details TBC)

October

- Plenary Session (final details TBC)

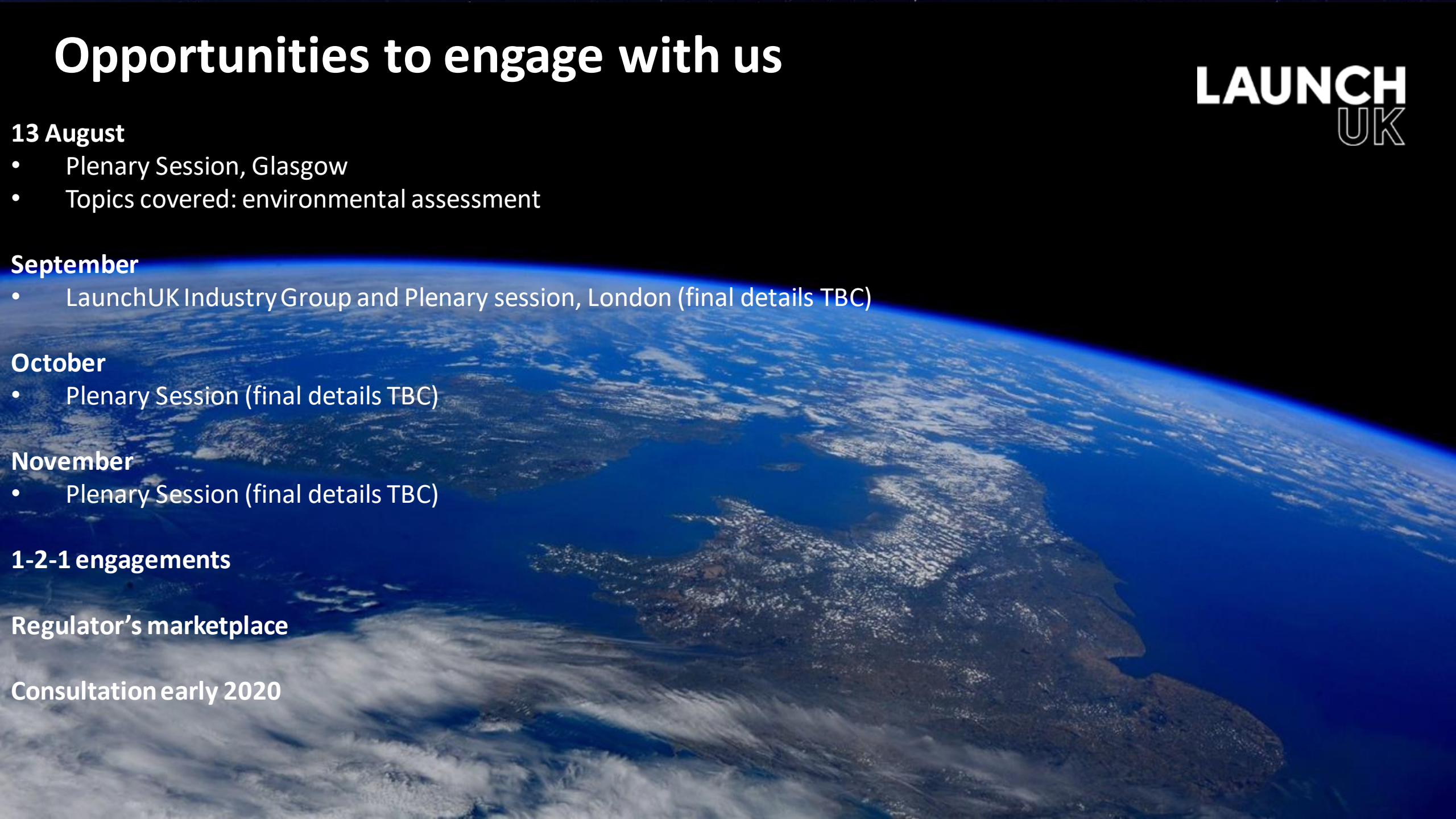
November

- Plenary Session (final details TBC)

1-2-1 engagements

Regulator's marketplace

Consultation early 2020





Department
for Transport



Plenary Session Security

17th July 2019

Tyler Davies | Department for Transport

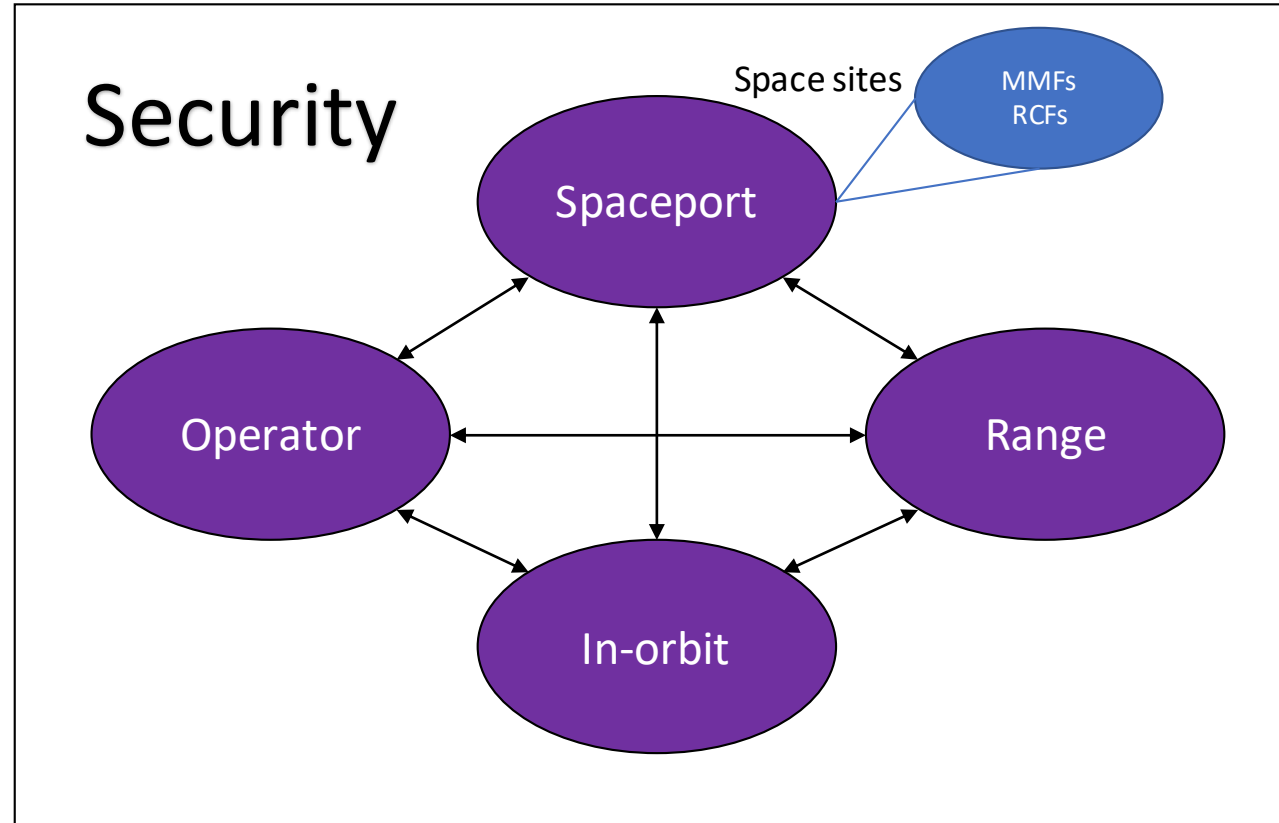


Powers

- Section 23 – Security regulations
- Schedule 5 – Security regulations: further provision
- Section 8 – Grant of licences: general
- Section 10 – Grant of a spaceport licence
- Section 13 – Conditions of licences
- Section 26 – Monitoring and enforcement by regulator
- International Agreements



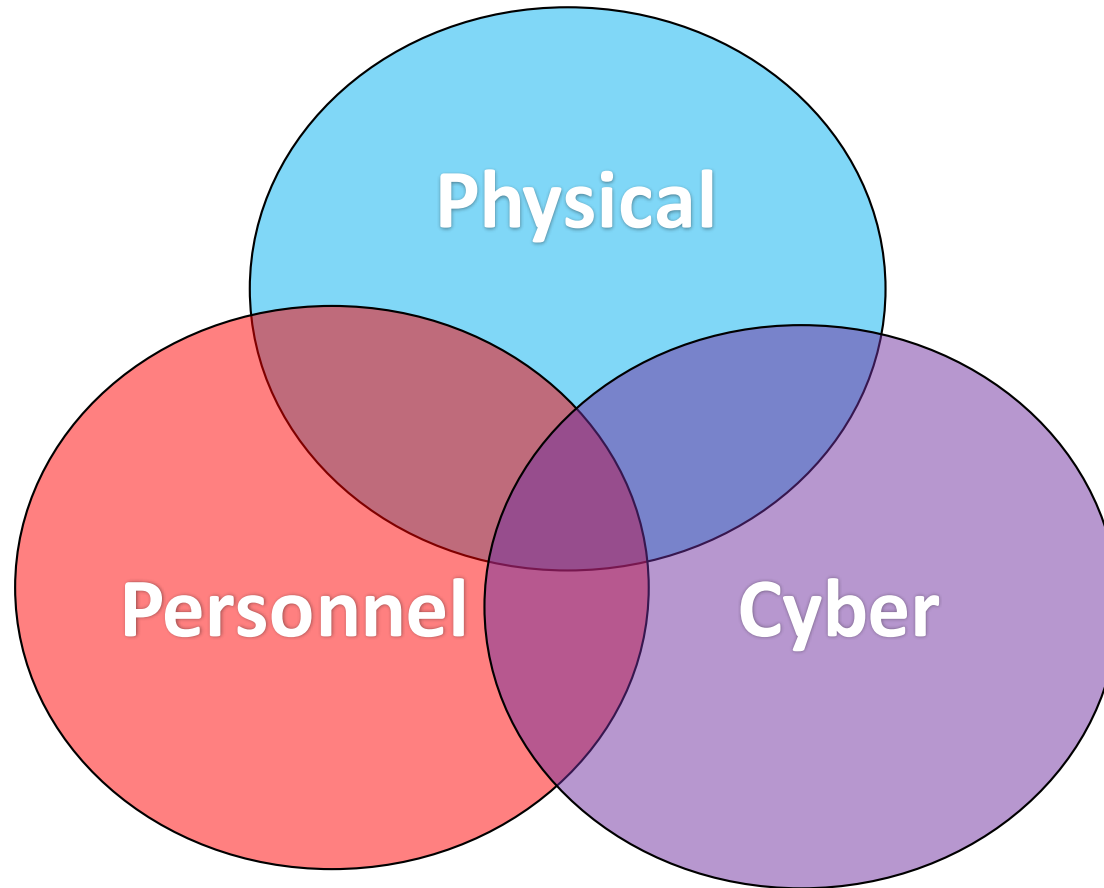
Licensees



Regulations will apply to all licensees, although not every regulation will apply to all licensees

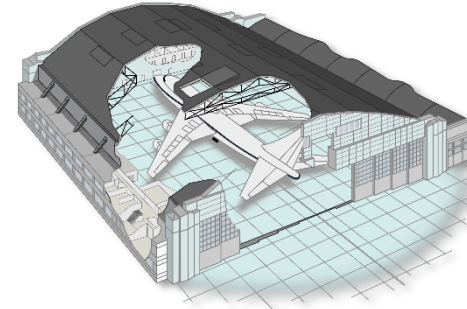
Security should be treated as holistically as possible between licensees

Key Principles - 1



Key Principles - 2

Protection



Vetting



Training



Cyber



Spaceflight Activity - 1

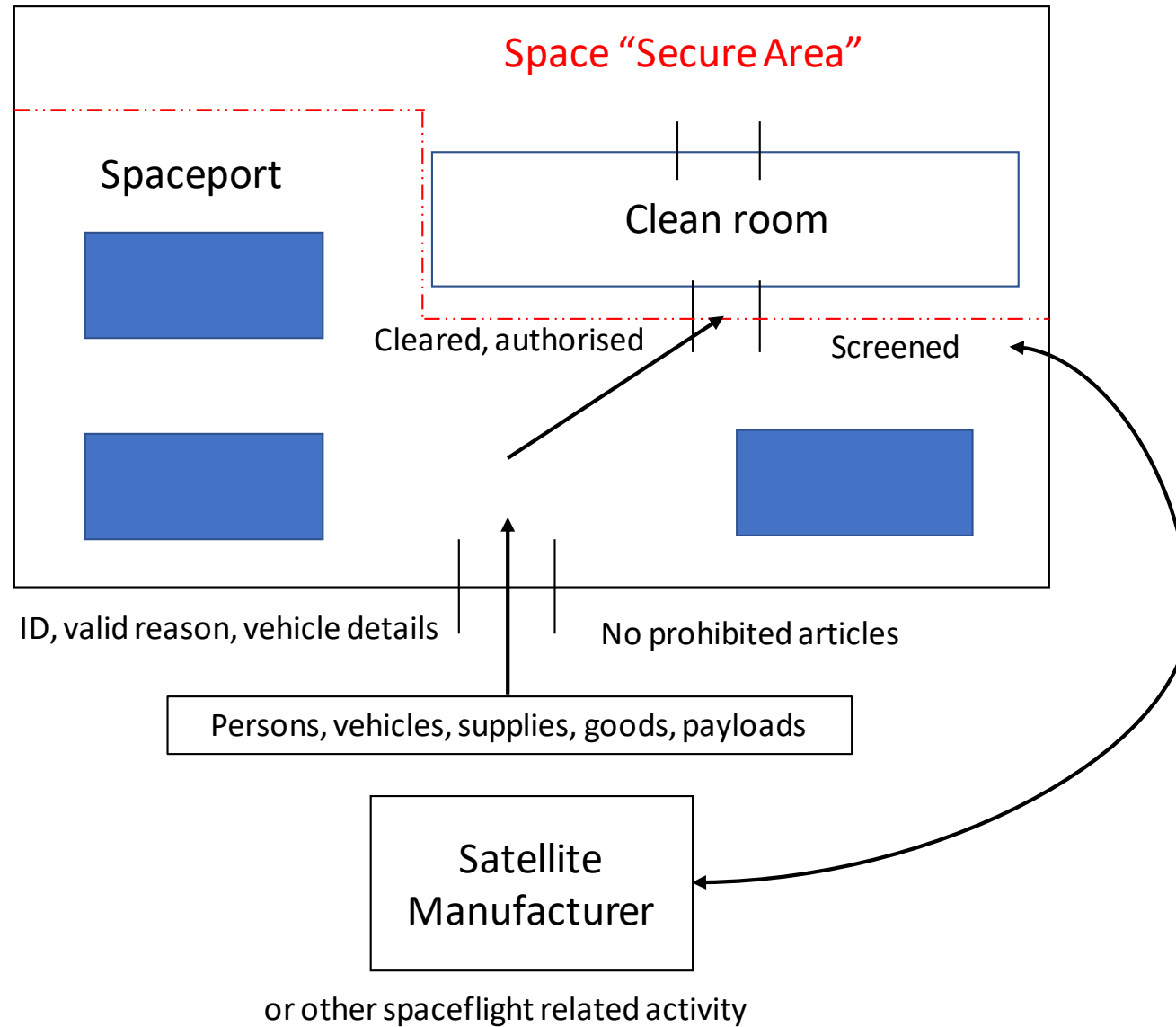
Requirements – nothing is definite (yet)!

Consultation

Measures to be taken should be **appropriate** and **proportionate** for the site or activity. Our proposals are:

- Security Manager
- Security Programme – sets out how the regulations will be addressed
- National Aviation Security Programme rules will apply at spaceports co-located with an aerodrome – there will be some guidance on this
- Vertical spaceports – similar requirements
- Spaceflight activities will need to be secured from unauthorised access
 - Perimeter protection and “secure area”
 - Access control – persons, vehicles, supplies, equipment & payloads
 - Prohibited articles
 - Surveillance
 - Protection of vehicles used for spaceflight activities
 - Protection of hazardous materials

Access Control



Spaceflight Activity - 2

Requirements – nothing is definite (yet)!

Consultation

Measures to be taken should be **appropriate** and **proportionate** for the site or activity. Our proposals are:

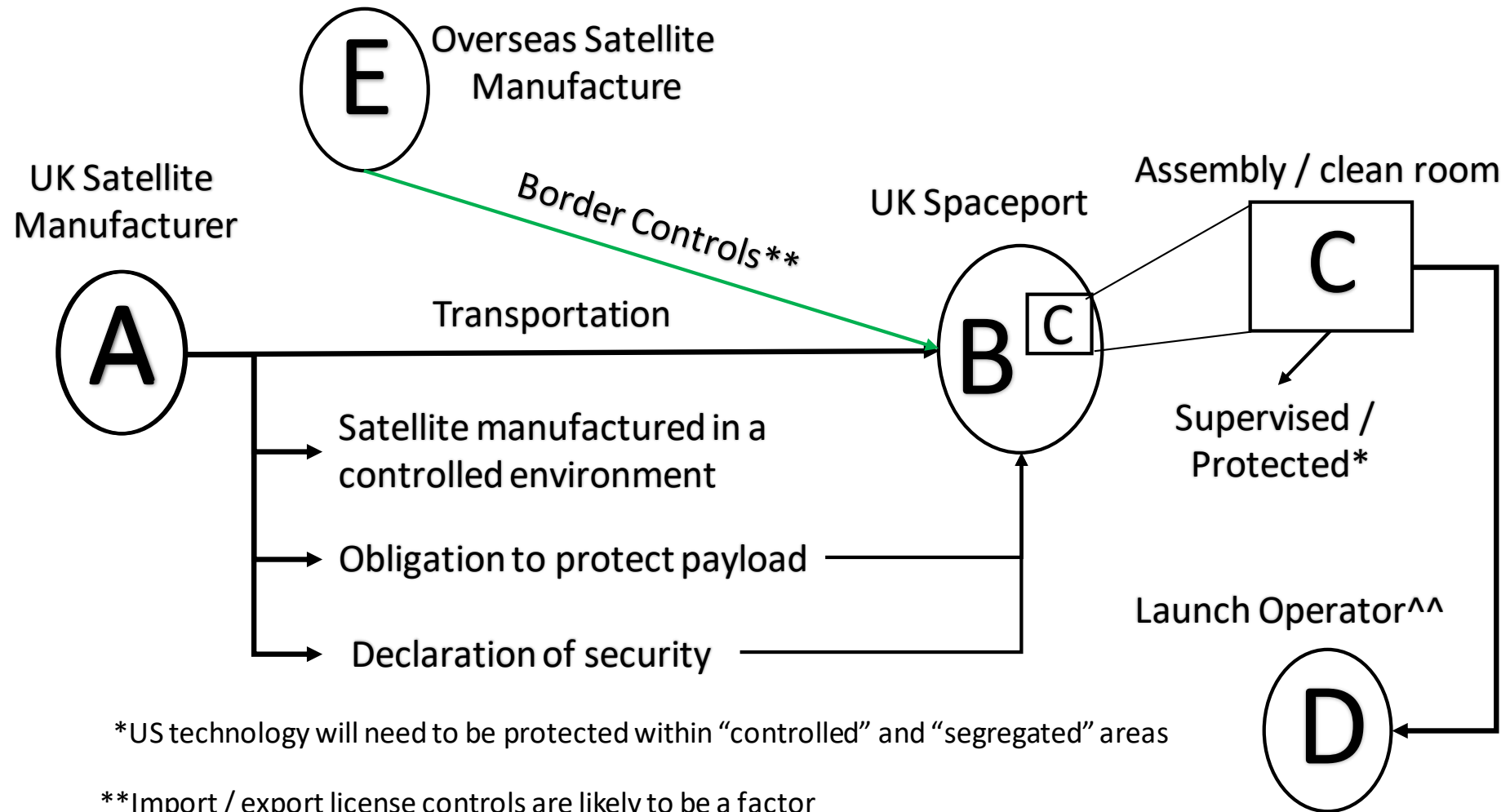
- Cyber security – light touch approach
 - Cyber security strategy
 - Notifiable incidents
 - Space cyber Risk Audit Matrix (proposed)
- Flight Safety Systems
 - Physical and cyber security of such systems
- National vetting & clearance
- Training & qualifications
 - Regulators will need to set out security training requirements, working with industry
 - Persons carrying out security functions
- **Critical National Infrastructure & Operators of Essential Services**

Payloads and Supplies - 1

- For the purposes of the SI, “payload” likely means “satellite”
 - Unlikely to be screened at point of entry to the spaceport
- Accountability will lie with the operator licensee under the SIA, however, both the spaceport operator and launch operator will need to be involved
 - A licence application to launch will be assessed by the regulator
 - Payloads will need to be screened at entry into the “*secure area*” or be shown to have been protected at place of manufacture
 - A declaration of security will be the likely method
- For the purposes of the SI, “supplies” means items for the spaceport
 - Supplies will need to be screened at entry into the “*secure area*” or be shown to have been protected at place of manufacture



Payloads and Supplies - 2



*US technology will need to be protected within “controlled” and “segreated” areas

**Import / export license controls are likely to be a factor

^^Once mated to the launch vehicle, security of the payload becomes the responsibility of the launch operator

US Technology Based Systems

For activities involving US technology, there is likely to be a requirement for:

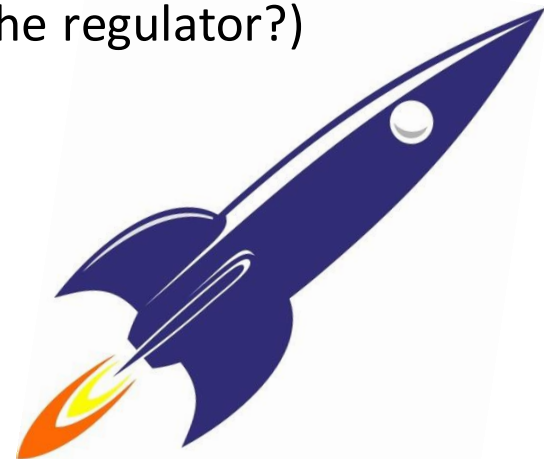
- Controlled Areas: areas where access is only permitted to persons authorised by HMG the US Government
- Segregated areas: areas where access is only permitted to persons authorised by the US Government

This is subject to ongoing discussion with the US Government. We are negotiating a Technology Safeguards Agreement which will allow the maximum possible flexibility while respecting important commitments concerning transfer of technology.

Summary



- Are you an aerodrome?
- Are you a vertical spaceport?
- Are you using US technology?
- Proportionality (is it acceptable to the regulator?)
 - Appropriateness (is it acceptable to the regulator?)
 - Compliance with regulations
- Guidance



Questions



Networking lunch



Liabilities and Insurance for Launch - Space Industry Act 2018

Louise Smith
Legislation Manager – Insurance and
Liabilities

Industry Plenary Event – Harwell 17 July 2019



What we will be covering

- Liability Provisions in the Space Industry Act 2018
 - Work Done to Date
 - Next Steps

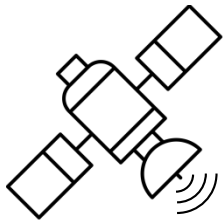
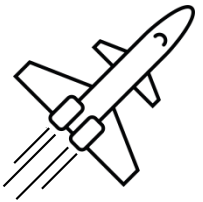
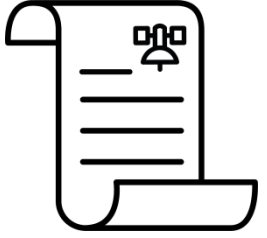
- Insurance Provisions in the Space Industry Act 2018
 - Call for Evidence Responses
 - Work Done to Date
 - Next Steps

- Provisions to Limit Liabilities in the Space Industry Act 2018
 - Call for Evidence Responses
 - Work Done to Date
 - Next Steps

- Q&A session



Where do the liabilities come from?

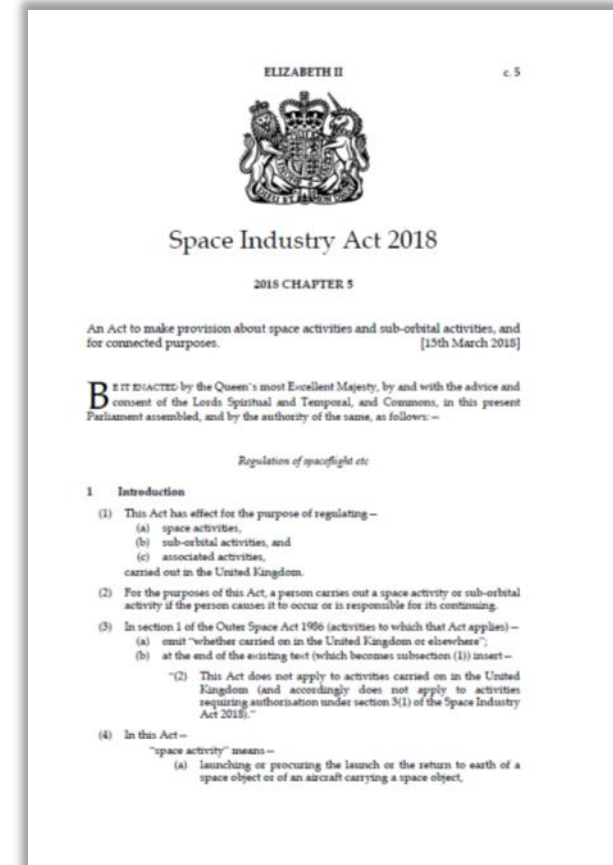


- The UN Convention on International Liability for Damage Caused by Space Objects, the “Liability Convention” makes the UK Government ultimately liable for the space activities of its nationals.
- Foreign nationals suffering damage or loss can bring a claim (via their Governments) against the UK Government.
- Liability for damage on the ground and to aircraft in flight is absolute – no fault needs to be established (strict liability).
- In space, liability is fault based.

Liabilities Provisions in the Space Industry Act 2018

Two types of liability covered

- **Section 34** places a strict liability for injury or damage caused on land or water in the UK by a craft or space object of an operator carrying on spaceflight activities in the UK. The uninvolved **general public** suffering injury or damage can bring a claim against the operator without having to prove fault.
- **Section 36** places a liability on an operator carrying on spaceflight activities to **indemnify the UK Government** or listed person or body for **any claims brought against them** for loss or damage caused by those activities.
- Therefore UK nationals have the same easy recourse to compensation and protections as foreign nationals



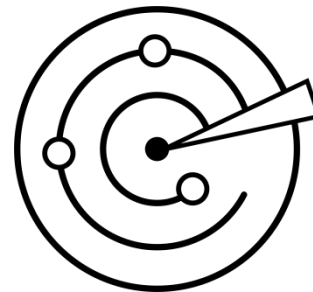
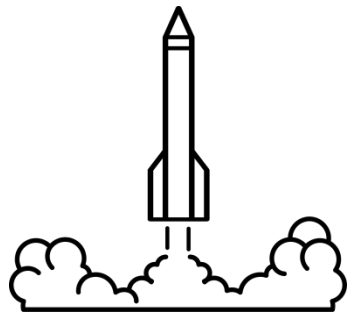
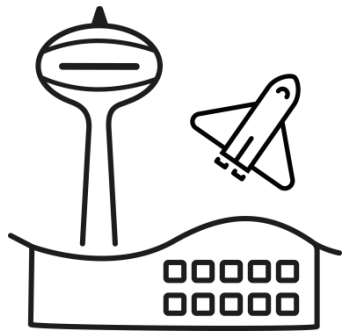
Work completed to date

Liabilities

- Policy is being formulated on those individuals who would not benefit from a strict liability right of claim under section 34.
- Policy is being formulated on licence conditions for cross waivers and indemnities.

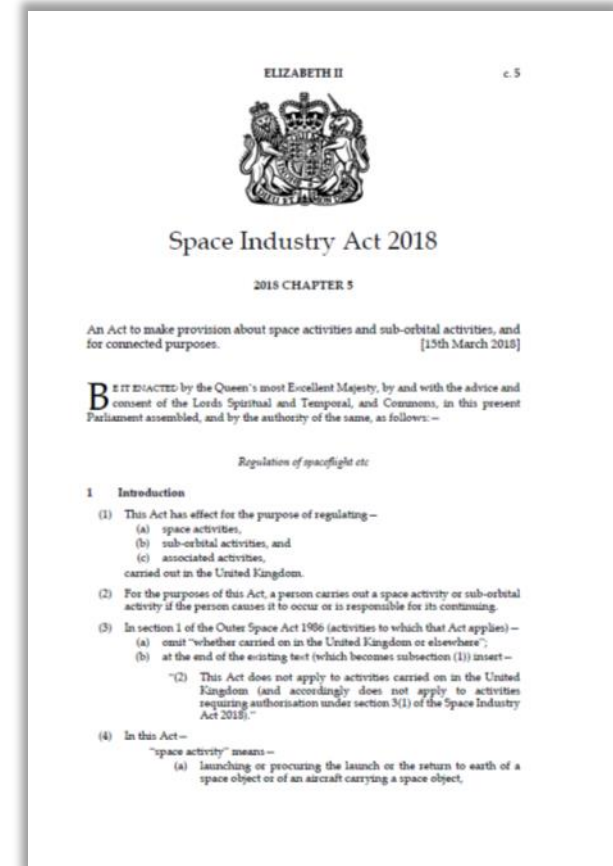
Next Steps

- Formal Consultation to begin in Quarter 4 2019/20 FY



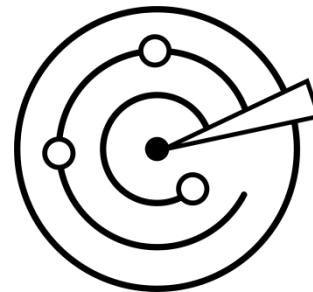
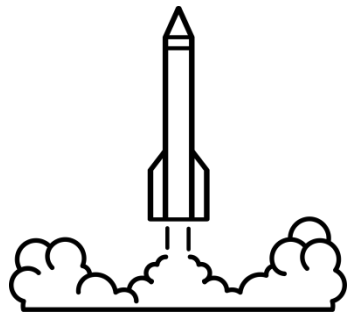
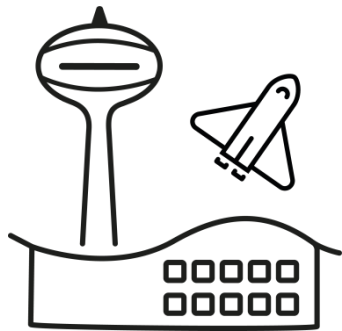
Insurance provisions in the Space Industry Act 2018

- **Section 38** provides a power to make regulations to require holders of licences and others engaged in spaceflight activities **to be insured**.
- This applies to **all activities regulated** under the Act – including operation of a spaceport, provision of range control services, launch from the UK and in orbit operations.



Call for Evidence Responses - Insurance

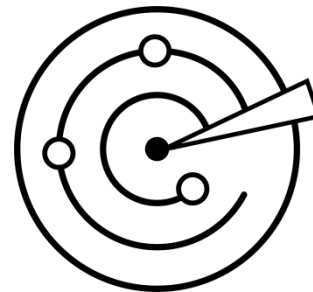
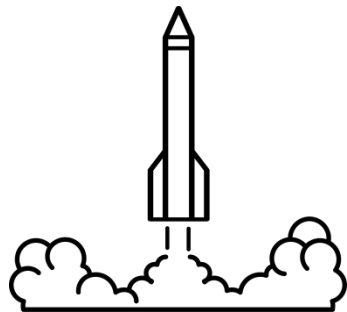
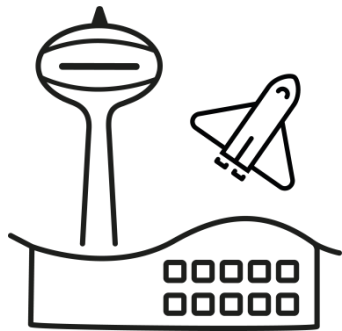
- Generally TPL insurance is available but not to cover an unlimited liability.
- Mixed responses on using MPL - some respondents preferred an MPL approach but others were concerned about the costs of modelling.
- Little appetite for making use of alternatives to insurance.



Work Done to Date

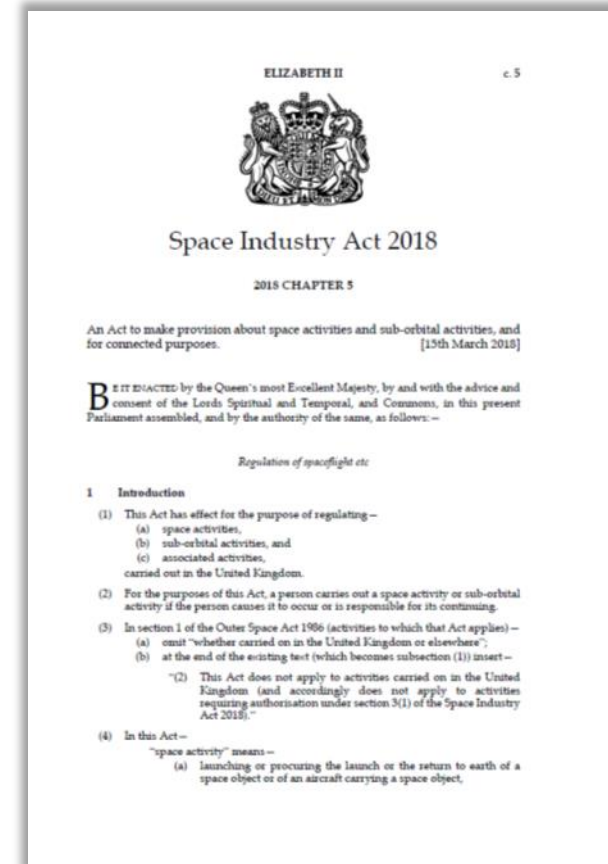
Insurance requirements for launch

- Policy is still being formulated.
- Looking to follow current practice under the Outer Space Act 1986 and mandate third party liability insurance for launch.
- Still anticipate using MPL style calculation to determine minimum insurance amounts for launch but taking into account the views expressed in the call for evidence.
- The “Modelled Insurance Requirement” (MIR) is the amount of potential third party liability claims that an operator could incur in a realistically possible scenario.
- Reflects UK approach to calculating damages arising from death, injury and property damage.
- Worked with the Government Actuaries Department (GAD) to come up with proposed financial values for death, injury and property damage.



Powers to limit operator liability

- In **section 12(2)** there is a power to specify a limit on an operator's liability to indemnify the UK Government under section 36.
- In **section 34(5)** there is a power to make regulations to limit the amount of liability of an operator for injury or damage to third parties.
- Where these liabilities are limited **Section 35** provides a power to the Secretary of State to **indemnify an operator** for claims against it that exceed their insurance cover.
- There is also a **duty on Government** to indemnify a claimant where injury or damage exceeds an operator's limited liability.



Call for evidence

- Liability limits were key issues in Parliament so Government committed to issuing a call for evidence
- 14 responses received
- Government response issued 28 May 2019
- On liabilities:
 - Most respondents wanted to see a limit on liabilities for launch activities from the UK
 - Most respondents thought that by not having a limit on liabilities, the UK would be at a disadvantage when competing internationally
 - Most respondents generally preferred to see some sort of variation in any liability limits applied to reflect risks associated with different types of launch but there were a range of different approaches suggested as to how such limits could be set

Next Steps

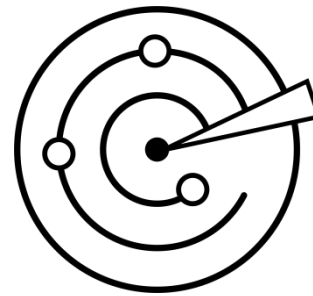
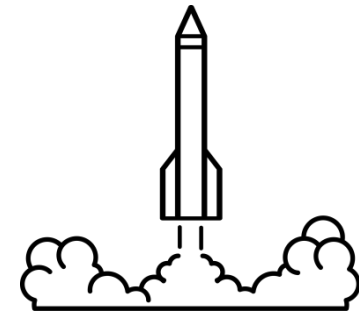
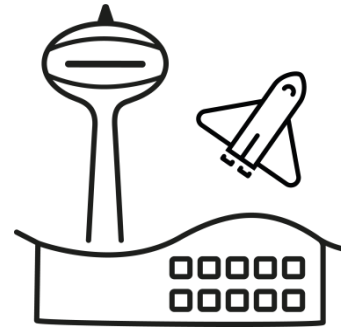
- We acknowledge the clear concerns raised.
- We have commissioned a report to inform a decision as to whether liability limits for launch activities from the UK can be justified. This is expected within a few months.
- If a limit is justified, we need to assess any financial, state aid and other legal implications before deciding whether to make regulations providing for a limit to be set in a licence.
- If a limit is considered appropriate, we will then consider the level at which this should be set.
- To determine the limit, we will take into account the ongoing work on setting minimum third party liability insurance requirements.

Next steps

- Review results of the report on liability limits. Further information will be provided once this is complete.
- Progress of MPL calculation for both in orbit and launch.
- More informal sessions prior to formal consultation.



Questions?



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A rocket is shown launching vertically from a green, hilly landscape. The rocket leaves a thick, white plume of smoke and fire that extends high into the sky. The background is a dark blue night sky filled with stars and a vibrant green aurora borealis. The overall scene is dramatic and futuristic.

Closing remarks

Nicola Higgins | UK Space Agency

Thank You

<https://www.gov.uk/guidance/how-we-are-promoting-and-regulating-spaceflight-from-the-uk>