

LAUNCH UK

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 slide.

UK Spaceflight Regulator Plenary
Virtual meeting | 16 March 2021

LAUNCH UK

A rocket launch scene with a green aurora in the background. The rocket is launching from a green landscape, leaving a thick trail of white smoke and fire. The sky is dark blue with many stars, and a green aurora is visible in the background.

Welcome and introduction
Atika Thomson | UK Space Agency

Agenda

LAUNCH
UK

10:00

Welcome and Introduction

Atika Thomson | UK Space Agency

10:05

Legislative Update

Paul Cremin | Department for Transport

10:20

UK Space Regulator

Colin Macleod | Civil Aviation Authority

10:50

Update on structure, Guidance and a High-Level overview of the licensing process

Garry Lathey and Kerstin Mcewan | Civil Aviation Authority & UK Space Agency

11:20

Q & A

11:30

Close

Aims of the plenary

- Provide an update on the development of the space regulator.
- Provide an update on the legislative timeline for secondary legislation.

The small print: No part of the discussions held (unless otherwise noted) should be taken as a reflection of developing our 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

Housekeeping

- Please type your question into the meeting chat. We will go through these at the end and try to address as many as possible.
- Please mute your microphones and turn off your video during the session. We may ask you to turn these on during your questions if you wish to follow up.
- We are recording this session and by continuing to participate in this session your agreement is inferred.
- The slides will be made available after the plenary.

LAUNCH UK

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 plume of white smoke and fire extends from the ground to the top of the frame.

Legislative update

Paul Cremin | Department for Transport

Government response

- Two consultations took place in 2020 (summer and autumn) on the draft regulations, guidance and other material to enable commercial space launches to take place from the UK.
- The Government response to both of these was published on 5 March 2021 - <https://www.gov.uk/government/consultations/spaceport-and-spaceflight-activities-regulations-and-guidance>
- This summarises the feedback received, the changes to regulations and guidance made in response, and the next steps we will take ahead of this new legislation coming into force, which is anticipated later this year

Next steps

- Work is underway to bring the draft regulations to Parliament.
- Plenary sessions to continue.
- A review will be carried out to investigate the Government's proposed approach to insurance.
- A committee will be established involving industry and the spaceflight regulator to keep the regulations under review, ensuring that they remain current, relevant, and effective

Key changes to the draft Space Industry Regulations as a result of the consultation

- a spaceport licence applicant will no longer be required to appoint a training manager in a specified role or capacity
- to align the safety requirements more closely for spaceport and launch operator licensees, including a single approach to safety management systems for both licence types
- to set out the requirements for a safety case more clearly and what might trigger a safety case review
- a specific provision for a range service provider to have a safety management system in place
- changes to the training regulations around the medical fitness requirements
- definitions have been adjusted in places, for example: “flight envelope”, “flight”, “technical requirements” and a new additional definition describing a “stable orbit.” “Significant” change has also been modified to “material” change
- for informed consent, human occupants will now have information provided to them a minimum of 24-hrs before the consent form is signed instead of 12-hrs
- some offences and penalties have been adjusted to better align with the legal systems of the devolved administrations
- adjustments to regulations to enable regulation of launch from UK territorial waters and UK flag vessels.

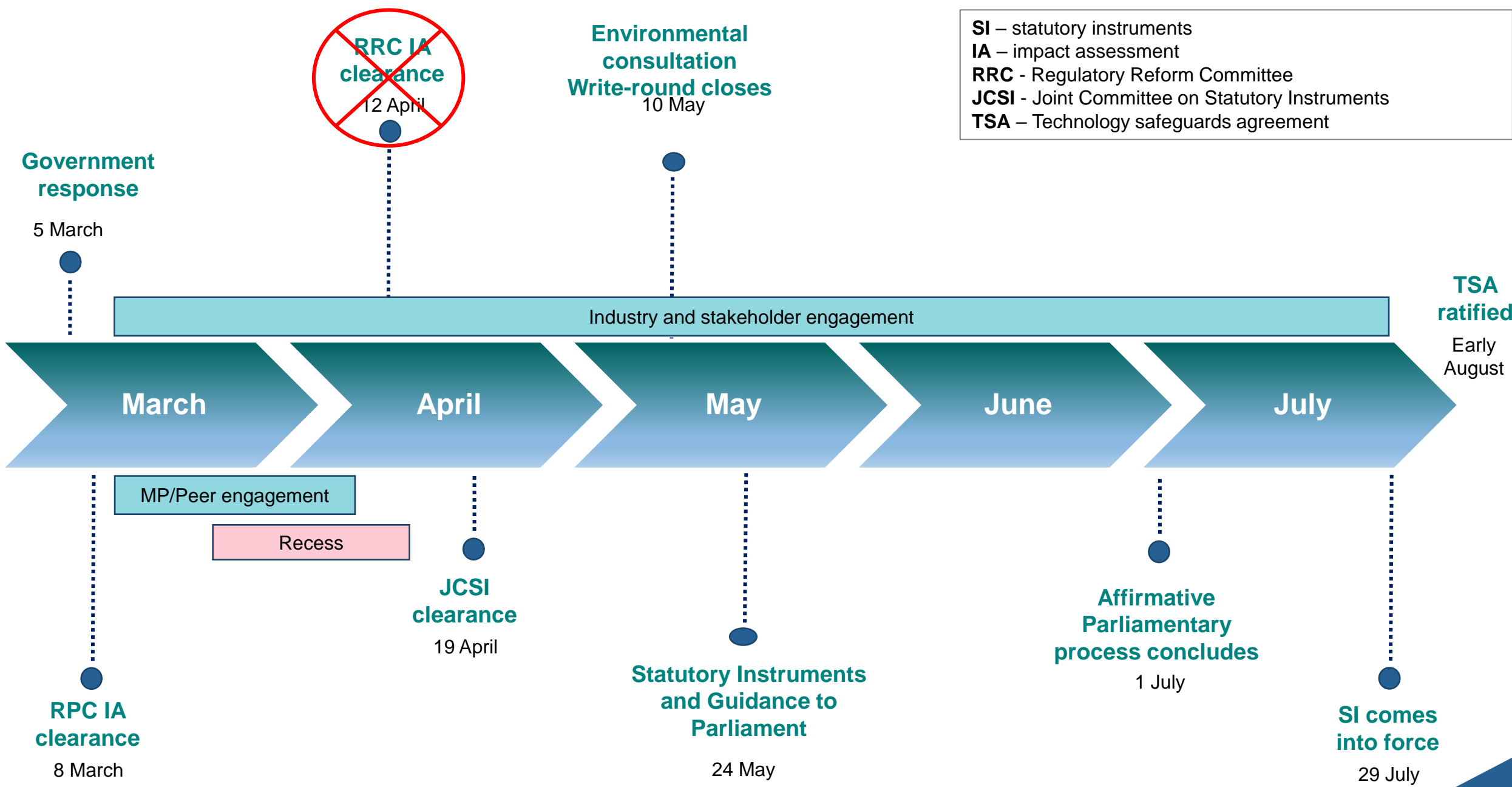
Cosmic Radiation

- Section added to the draft Space Industry Regulations to include the provisions relating to space crew of the Air Navigation (Cosmic Radiation: Protection of Air Crew and Space Crew and Consequential Amendments) Order 2019 (“the 2019 ANO”).
- Lays down basic standards for protection of aircraft and spacecraft crew against the dangers arising from exposure to ionising radiation. Includes some general provisions about exposure and monitoring, as well as how experts should be instructed in these matters.
- These regulations are derived directly from the 2019 ANO with small adjustments.
- This is included the government response, and guidance will be provided

Sea Launch

- Launch from a ship is within the scope of a 'spaceflight activity' as defined in the SIA. A ship carrying a launch vehicle to sea to launch is not.
- The spaceflight activity is deemed to commence at the launch of the launch vehicle, rather than when the ship carrying the vehicle leaves the port.
- A review of the terminology used in the Space Industry Regulations has been carried out to ensure that these Regulations apply in scenarios where sea launch and related activities are licensed under the SIA.
- In general, where launch is from a British flagged ship, or from any ship in UK territorial waters, the SIA will apply.
- However, launch from a ship is subject to many variables that will be considered in such a situation. For example, laws of other countries are also likely to be relevant depending on factors such as the location of the ship, flag of the ship and nationality of the operator. In addition, other UK statutes may also apply to launch and other spaceflight activities from the sea, including the Aviation and Maritime Security Act 1990. It is the responsibility of potential applicants to familiarise themselves with any such statutes and to find out whether laws of other countries are relevant.

SI – statutory instruments
IA – impact assessment
RRC - Regulatory Reform Committee
JCSI - Joint Committee on Statutory Instruments
TSA – Technology safeguards agreement



Commercial Spaceflight Legislation

- Regulations will be kept under review post implementation
- The DfT will establish a Committee in the Autumn with representation from the CAA, UKSA and Industry to review and monitor regulations to ensure they remain current.
- Space Industry Regulations and supporting guidance material to be updated on an annual basis
- Space Industry Act will be reviewed between 5 -10 years

UK Space Regulator

Colin Macleod – Head of UK Space Regulation, CAA

Regulation and Promotion

The UK Government's secondary legislation and guidance consultation said:

“Successive governments have followed a policy of separating safety regulation from sector promotion to ensure regulation is impartial. On these principles it is our intention that the Civil Aviation Authority will undertake all Space Industry Act 2018 regulatory functions in addition to regulating in-orbit activities under the Outer Space Act 1986. With regard to the Space Industry Act 2018, the functions are conferred on the Civil Aviation Authority by draft regulations contained in this consultation made under section 16 of the Space Industry Act 2018. It is our intention to produce further regulations delegating certain functions of the Secretary of State under the Outer Space Act 1986 to the Civil Aviation Authority.”

UK Space Regulator – Mission and Objectives

Objective

The UK Space Regulator's objective is to issue and regulate Licences through the process of Engagement, Applications, Monitoring and Enforcement

Mission

Safe, Secure, Sustainable.

Protection of People and Property.

Enabling a growing and active space industry through regulation.

Embedded within the wider CAA ecosystem, drawing on, and contributing to, wider experience and expertise across the organisation.

Never stop learning – growing our space regulatory knowledge and capability

Long term focus on establishing industry standards and affordable regulations

Best practice regulation which does not constrain industry

Regulated Spaceflight Activities: 5 licence/permission types and key considerations for each licence type



Spaceport Licence



Launch Licence



Range Licence



In-Orbit Licence



Rocket Operator Permission

- > Regulation: SIA
- > Non expiring with conditions
- Safety Case – As Low as Reasonably Practical (ALARP)
- Safety Clear Zone
- Siting assessment
- SMS
- Hazardous materials
- Environmental Assessment
- Security

- > Regulation: SIA
- > Non expiring with conditions
- 3rd Party Risk
- Flight & ground safety analysis
- Safety Case – ALARP
- SMS
- Environmental Security
- Training, qualifications, medical fitness
- Informed Consent

- > Regulation: SIA
- > Non expiring with conditions
- Identification of designated range – Hazard Area
- Monitoring
- Agreements with relevant Authorities
- Notifications
- SMS

- > Regulation: SIA/OSA
- > Non expiring with conditions
- Assessment Principles – Safety, Security, Sustainability, Responsibility
- Regulator Reporting

- > Regulation: ANO
- > One off permission
- Sub 50km altitude (stratosphere)
- Safety Case - ALARP

Plus for all licence types an assessment of: Licence conditions, Eligibility criteria, Prescribed roles, Liability and Insurance, Enforcement, International obligations, National security

Regulated Spaceflight Activities: 5 licence/permission types and key considerations for e



Spaceport Licence



Launch Licence

ALL TEXT IN RED INDICATES WHERE REGULATOR TEAM WILL BE WORKING ACROSS CAA AND ALSO OTHER PARTNERS



In-Orbit Licence



Rocket Operator Permission

- > Regulation: SIA
- > Non expiring with conditions
- Safety Case – As Low as Reasonably Practical (ALARP)
- **Safety Clear Zone**
- **Siting assessment**
- SMS
- Hazardous materials
- **Environmental Assessment**
- **Security**

- > Regulation: SIA
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Plus for all licence types an assessment of: **Licence conditions, Eligibility criteria, Prescribed roles, Liability and Insurance, Enforcement, International obligations, National security**

UK Space Regulator – Core Activities

Space Licencing and Oversight

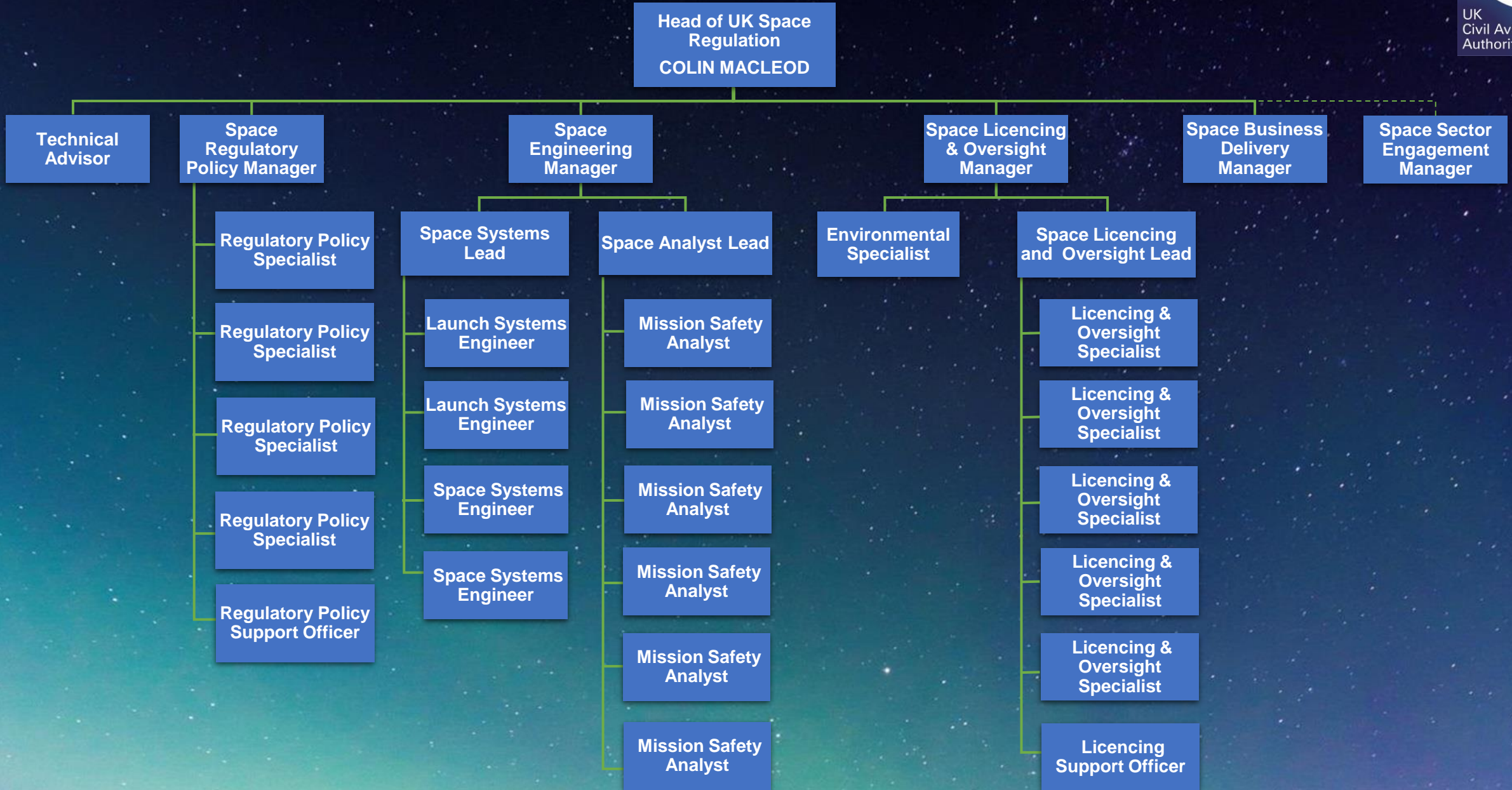
- Engage and manage Licence process
- Assess sustainability
- Environmental and Physical assets
- Identify risks
- Assess compliance with licenses
- Conduct Enforcement activities

Space Regulatory Policy

- Develop Regulatory Policy
- Implement Regulatory Policy
- Advise on Regulatory policy
- Research and Best Practice

Space Engineering

- Qualitative Assessment
- Quantitative Analysis
- Monitoring
- Research into Space Sustainability and Safety



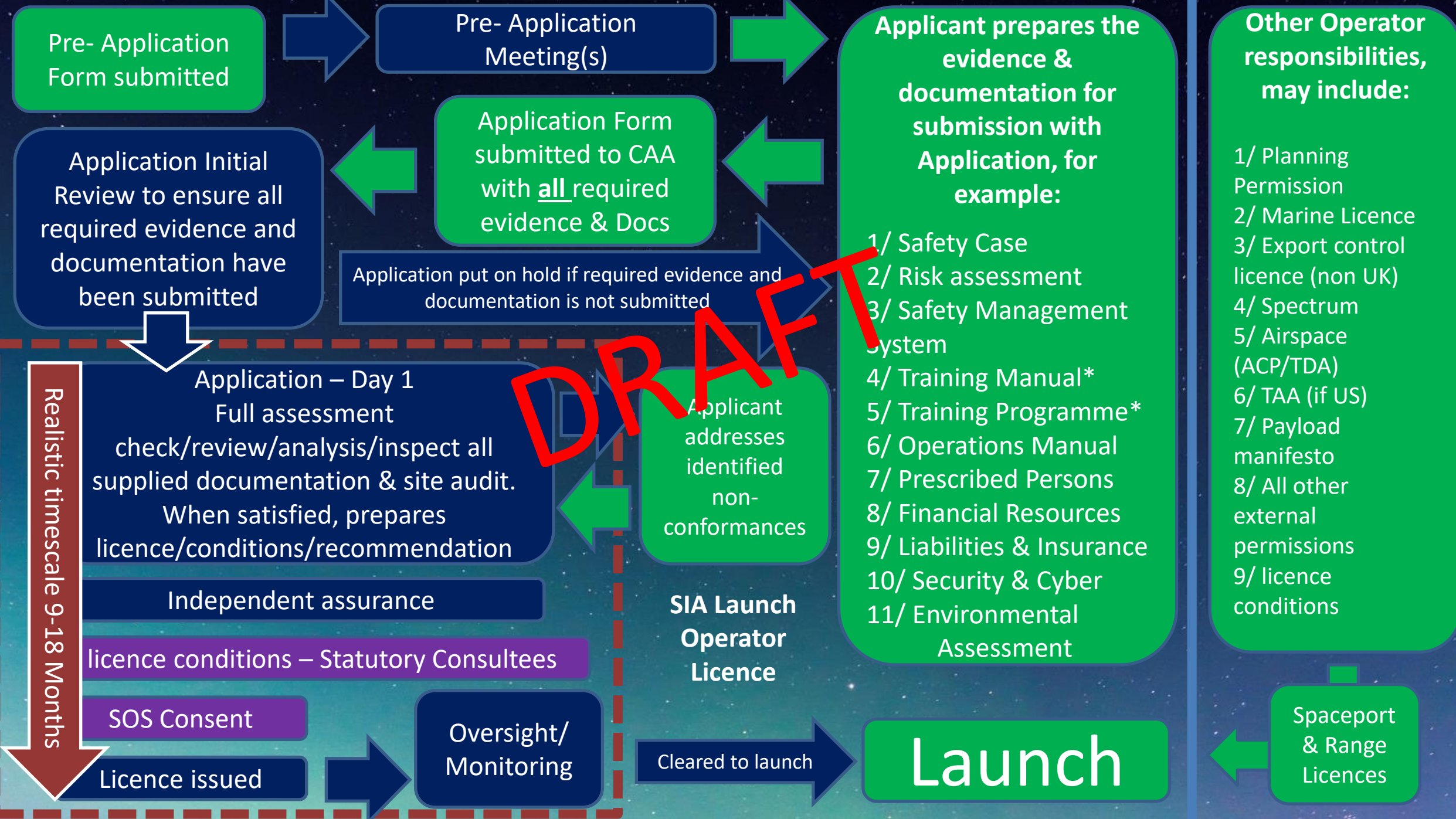
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A rocket launch is depicted against a night sky filled with stars. A vibrant green aurora-like glow is visible in the background. The rocket's plume of white smoke and fire extends from the bottom right towards the top right of the frame.

Structure, Guidance and High-Level Overview of Licensing Process

Garry Lathey | Civil Aviation Authority

Kerstin Mcewan | UK Space Agency



Interaction between licence types

- Broadly, Spaceport, Launch and Range operator licences may be applied for concurrently or separately.
- Some information (e.g. environmental assessments) may be useful to more than one application type, so it may be sensible for associated operators to coordinate.
- Where related operators (e.g. the range service providers) or other key information cannot be identified at application, this will be managed through oversight/monitoring prior to launch activities.
- Mission-specific reporting will likely be required prior to each launch, however the expectation is not for operators to re-apply for a new licence for each subsequent launch. Successive launches will be managed through monitoring requirements set out by the Regulator.

Pre- Application Form submitted

Pre- Application Meeting(s)

Application Form submitted to CAA with all required evidence & Docs

Application Initial Review to ensure all required evidence and documentation have been submitted

Application put on hold if required evidence and documentation is not submitted

Applicant prepares the evidence & documentation for submission with Application, for example:

1/ Safety Case, including; Identified Hazards and mitigation, Safety management System, Operational procedures, ERP, Training.

Other Operator responsibilities, may include

- 1/ Marine Licence
- 2/ Export control licence (non UK)
- 3/ Spectrum
- 4/ Airspace (ACP/TDA)
- 5/ All other external permissions (site use)
- 6/ Permission conditions

Realistic timescale 6-18 Months

Application – Day 1
Full assessment
check/review/analysis/inspect all supplied documentation & site audit.
When satisfied, prepares
Permission/Conditions/Recommendation

Applicant addresses identified non-conformances

Independent assurance

Single launch
Permission Issued

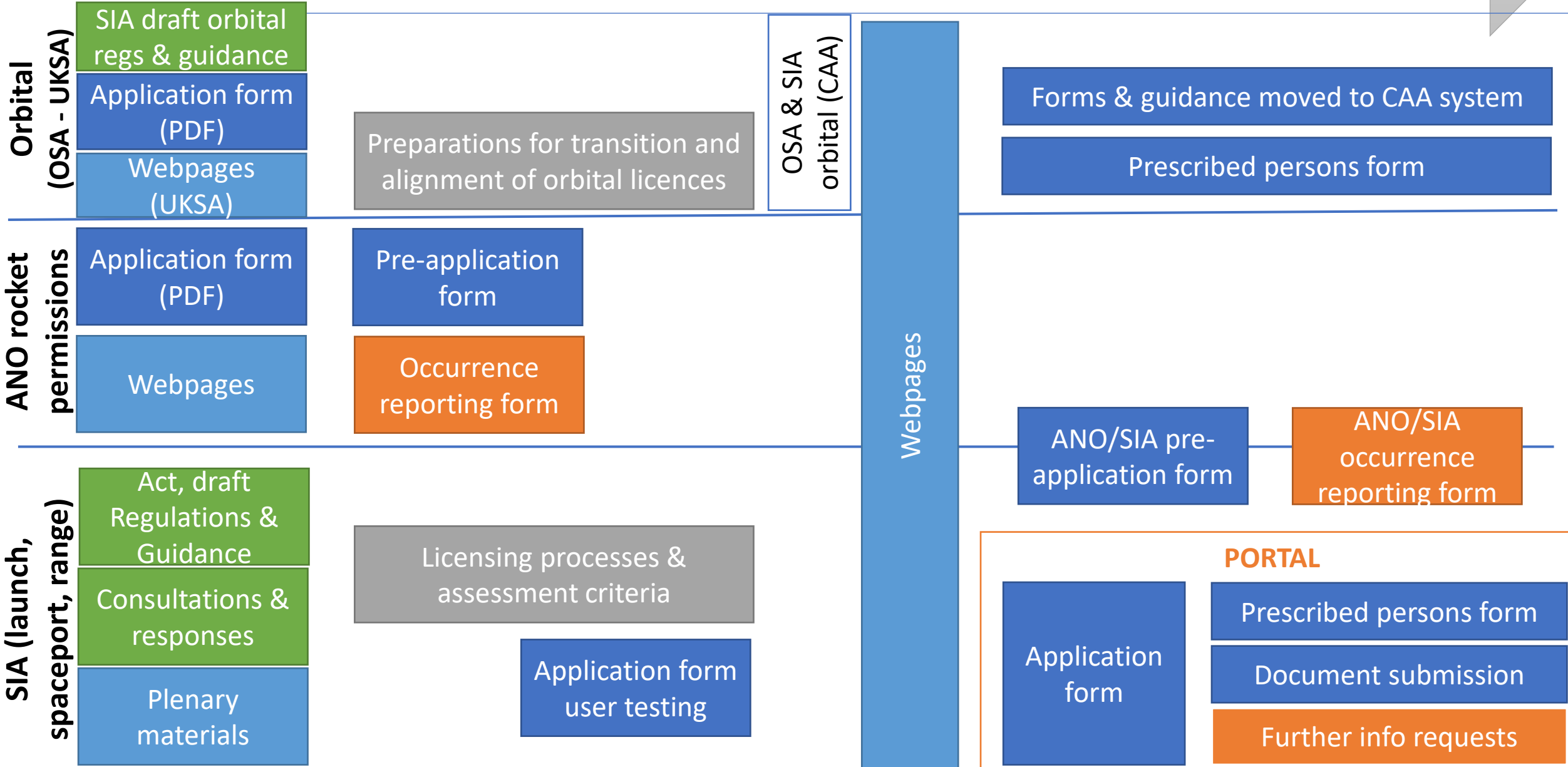
Oversight/
Monitoring

Cleared to launch

Launch

DRAFT

CURRENT PUBLICATIONS **DEVELOPMENT PRE-REGULATOR OPENING** **PUBLICATIONS BY REGULATOR OPENING**



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Questions?

