Regulatory Policy Committee

Space Industry Regulations 2021

Lead department	Department for Transport
Summary of proposal	The commercial spaceflight programme aims for the UK to be the first country in Europe to achieve commercial small satellite launch from Europe. The proposed secondary legislation under the Space Industry Act is designed to enable UK launches by the early 2020s and promote growth, innovation and sustainability whilst protecting public safety, security and international relations.
Submission type	Impact assessment (IA) – 29/01/2021
Legislation type	Secondary legislation
Implementation date	May 2021
Policy stage	Final
RPC reference	RPC-DfT-4457(2)
Opinion type	Formal
Date of issue	03 March 2021

RPC opinion

Rating[1]	RPC opinion
Fit for purpose	The IA provides a good level of detail on the impacts of the measure. It describes the analysis used to estimate costs and benefits and gives a thorough assessment of the wider impacts. The evidence and analysis supporting both the EANDCB and the SaMBA are good. The IA could have further emphasised the high degree of uncertainty surrounding the costs and benefits.

Business impact target assessment

	Department assessment	RPC validated
Classification	Qualifying regulatory provision	Qualifying regulatory provision
Equivalent annual net direct cost to business (EANDCB)	£10 million (initial estimate) £12.4 million (final estimate)	£12.4 million *(2019 prices, 2020 pv)*
Business impact target (BIT) score	£62 million	£62 million
Business net present value	£86 million	
Overall net present value	£55 million	

[1] The RPC opinion rating is based only on the robustness of the EANDCB and quality of the SaMBA, as set out in the Better Regulation Framework. The RPC rating is fit for purpose or not fit for purpose.

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RPC summary

Category	Quality	RPC comments
EANDCB	**Green**	The EANDCB is robust, and captures all the anticipated monetised costs to businesses. It monetises the familiarisation, engagement and compliance costs that businesses will incur (in regard to spaceports, range control providers, launch operators and orbital operators) as well as correctly classifying the direct and indirect impacts.
Small and micro business assessment (SaMBA)	**Green**	The IA includes a good SaMBA. The IA states that it would not be appropriate to provide exemptions to small and micro businesses (SMBs) from this legislation, due to the need to mitigate the safety, security, environment, airspace, legal and international relations risks outlined. However, to reduce the impact on business, the minimum requirements are being mandated to reduce unnecessary burden on industry whilst ensuring risks are mitigated. The IA would benefit from discussing what these requirements are.
Rationale and options	**Good**	The IA provides a clear rationale for intervention, by enabling UK launch there can be gains for a new UK launch industry by capturing global market share and growing the market. The options considered include a do-nothing (counterfactual), a minimum viable regulation (preferred) and alternatives to proposed regulations.
Cost-benefit analysis	**Good**	The IA shows a step-by-step approach in the cost-benefit analysis, applying sensitivity analysis. The benefits are described in terms of leveraged effects: enabling spaceflight markets, upstream and downstream supply chain benefits, growth effects and tourism benefits. However, there is some optimism bias that does not take into account shocks or gaps in development.
Wider impacts	**Good**	The IA has taken wider impacts into account, namely impacts on environmental, airspace, innovation, competition, and international trade as well as other impacts such as justice and local impacts.
Monitoring and evaluation plan	**Satisfactory**	The IA states that a post implementation review (PIR) will begin after the final package of secondary legislation has been implemented. It states that it will continually monitor and evaluate progress. The department could have been more specific on how the success of the proposal will be assessed.

Summary of proposal

There is a large potential market and significant risks associated with enabling commercial spaceflight launches from the UK. However, there is currently too much uncertainty about how these risks will be managed, mitigated and distributed among stakeholders under current legislation. The Space Industry Act 2018 (SIA) provides broad powers to enable launches from the UK. However, proposed secondary legislation under the SIA is required to reduce the uncertainty about how these risks will be managed in order to enable the opportunities associated with UK launch.

The Government's current ambition is to grow the UK's share of the global space economy from 5.1% to 10% by 2030. As part of this ambition, the Commercial Spaceflight Programme aims for the UK to be the first country in Europe to achieve commercial small satellite launch from Europe. The proposed secondary legislation under the SIA is designed to enable UK launches by the early 2020s and promote growth, innovation and sustainability whilst protecting public safety, security and international relations.

EANDCB

The RPC has given the EANDCB a **green** rating.

There was originally an error in the calculation of the EANDCB in the IA, which the Department has now corrected as a result of engagement with the RPC, updating the EANDCB figure from £10 million to £12.4 million.

Familiarisation, engagement and compliance costs:

The IA monetises the familiarisation costs that businesses will face. This includes direct costs to potential/actual license applicants, before deciding whether or not to enter the launch market in the UK i.e. spaceports, range control service providers, launch operations and orbital operators. Familiarisation costs include internal labour costs (reading, disseminating and training) and external costs e.g. legal advice. The analysis has been updated using July and Autumn 2020 consultation responses.

The IA's engagement costs consist of direct costs to license applicants and holders of engaging with the regulators during the license application process and monitoring regime respectively. This includes each of the four license types (spaceports, range control service providers, launch operators and orbital operators). The time taken in working days, associated regulator licensing and monitoring activities underpins the estimates for costs to the business.

The IA also explains that compliance costs include purchasing and maintaining equipment, hiring people to carry out prescribed roles (taking into account recruitment and training costs per FTE), and implementing operations as required by regulations. These are both transitional compliance costs (costs that are incurred before being granted a license during the license application stage) and ongoing compliance costs (costs incurred once a license has been granted).

Finally, the IA clearly explains how the opportunity cost of time taken is factored in into the cost calculations.

Direct and indirect impact(s)
The IA correctly classifies the impacts between direct and indirect. The IA states that some of the indirect costs include familiarisation costs of businesses that have no intention of holding a license but are interested in understanding the proposed secondary legislation. Other identified indirect costs are costs that 'occur outside safe and compliant launch activities', which the IA states it includes cost of accidents as a result of unsafe or non-compliant activities. Other indirect impacts on the space industry supply-chain and wider economy are captured through a gross value added (GVA) approach to monetising benefits in the IA.

Counterfactual/baseline
The do-nothing (counterfactual) represents a continuation of the status quo. This assumes there will be no additional regulations to enable commercial spaceflight launches from the UK, that the launch industry will not develop further, and that the UK will receive no additional benefits and incur no additional costs related to launches from the UK. The counterfactual also assumes that a market for launch from the UK does not exist under current regulations. It does not include proprietary satellite ('space objects') operation activities, which are already licensed and regulated by the provisions of the Outer Space Act.

The counterfactual provides a baseline from which to measure additional costs and benefits of the proposed regulations. In legislative terms, the baseline is the primary legislation in the SIA, but also includes the Outer Space Act 1986 (OSA), along with other safety and environment-related legislation.

SaMBA

The RPC has given the SaMBA a **green** rating.

Scope
The IA cites the 'Size and health of UK space industry' (2018) report to estimate the scope of SMBs affected. These SMBs are split across 4 segments (spaceports, range control, launch operators and orbital operators). The report states that 13 organisations account for 83% of total space-related income, which indicates that the sector is likely dominated by a few large businesses. In terms of staff number by region, the average number of employees per businesses range from 6 to 57, indicating that most regional or sub regional business will likely be categorised as either small or micro businesses.

Mitigation
The IA states that it would not be appropriate to exclude SMBs from the regulations because SMBs are likely to benefit from the legislation, as it enables commercial spaceflight launch activities. Without the secondary legislation, it is unlikely that the SMBs would be able to enter the launch market.

Rationale and options

The RPC has rated the discussion of the rationale and options as **good.**

Rationale
The IA clearly states the problem under consideration; the global commercial space industry is growing and this presents business and economic opportunities for the UK. It states that the UK does not have a sufficient legal basis to license and regulate launch to orbit or sub-orbital spaceflight activities from the UK to capitalise on these opportunities.

The IA provides a clear rationale for government intervention; by enabling UK based launch new UK launch industry can capture global market share and grow the market, creating benefits for the wider UK space sector and economy, and social benefits for a range of UK and global citizens.

Options
The options considered include (alongside a do-nothing option) a minimum viable regulation and alternatives to proposed regulations. The RPC commends the consideration of a range of options.

The preferred option is the minimum viable regulation, which is to enable commercial spaceflight launches from the UK. This option sets out a package of regulations, guidance and RLRs that aims to provide a framework for licensing and monitoring spaceflight launches from the UK.

The alternative to the proposed regulations is to regulate the market through existing legislation, guidance and engagement and/or public provision. Under the option, the SIA, OSA and other existing legislation would be used to regulate the UK launch market and/or publicly provide more aspects of the market. However, this option is expected to result in lower net benefits than the preferred option, with greater risks and uncertainty of outcomes.

Cost-benefit analysis

The RPC has rated the cost-benefit analysis as **good**.

The IA provides a thorough cost-benefit analysis and makes use of sensitivity analysis. The benefits are described in terms of leveraged effects such as direct, indirect and induced GVA. These benefits include enabling spaceflight markets, which mean there will be supply chain benefits, (upstream and downstream), growth effects and tourism benefits.

The costs involve: regulator costs (licensing, monitoring); familiarisation costs; engagement costs (licensing, monitoring) and compliance costs (prescribed roles), with all of these costs fully or partially impacting businesses and being part of the EANDCB. Other monetised costs include: justice impacts; accident investigation; liabilities and insurance and environmental costs, which are all quantified (although not part of business net present value).

The IA explains that the longer 15-year appraisal period from 2020 to 2034 is used to take into account high initial licensing and infrastructure costs, as well as long-lived benefits associated with commercial spaceflight from the UK. This approach is in line with analysis of the wider spaceflight programme's costs and benefits by London Economics Ltd on behalf of UK Space Agency.

Numerous assumptions (including UK launch market forecasts) have been tested through consultation and updated in the final stage IA.

The RPC commends the detail and the step-by-step explanation provided on the cost-benefit analysis.

Uncertainty, risks and assumptions
The IA explains that there is a large amount of uncertainty about how the commercial spaceflight market might develop in the UK. The IA thus presents low, central and high scenarios based on market forecasts, commercial operations, regulatory functions and unit costs and benefits.

The summary of the IA would benefit from additional emphasis on the degrees of uncertainty arising from enabling regulation which is described subsequently in the detail of the analysis. For example, there is some optimism bias, and sensitivity analysis may not always capture shocks or gaps in development that could interrupt assumed arrival at a perfect market.

Wider impacts

The RPC has rated the analysis of wider impacts as **good**.

Environmental impact
The department considers environmental impacts associated with enabling spaceflight launches from the UK. All spaceport and launch operator licensees will need to complete and submit an Assessment of Environmental Effects (AEE) as stipulated by Section 11 of the SIA. The purpose of this is to ensure that applicants for either a spaceport or launch operator license have considered potential environmental effects of their intended activities, and if necessary, taken or identified proportionate steps to mitigate the risks and their potential impact.

The RPC considers the assessment of the environmental impact to be proportionate, taking into account scope and scale of impact, as it provides a clear description and monetisation of impacts (taking into account greenhouse gases, air pollution and noise).

Airspace impact
The IA takes into account the initial temporary closure of airspace currently used by/available to existing air traffic. However, it states that it is not possible to quantify the impact because it will depend on the location, nature and frequency of spaceflight operations.

Innovation
The IA considers the impact of innovation, as the emerging nature of the UK launch market means that it is inherently innovative for the UK, with the proposed secondary

legislation designed to “regulate the market into existence”. The legislation aims to not stifle innovation and innovative changes to organisational methods and processes.

The IA draws on evidence from London Economics Ltd’s ‘Spillovers in the Space Sector’ report to assess possible impact on innovation as a result of the secondary legislation. It anticipates that there will be benefits from knowledge spillovers and expenditure/investment regardless of the success of the UK launch industry. Also, more entrants to the industry (under the preferred option) may result in a more diverse industry that can produce greater spillover and encourage more investment.

Local effects

The IA considers the implications for the locality surrounding possible launch sites including local public bodies and security and refers to the possible benefits for tourism.

Competition

The IA provides a competition assessment. It states that the legislation may act as a barrier to entry, as businesses will only enter the market if they think it commercially viable given the cost the legislation imposes. It concludes that the regulations are unlikely to have a negative impact on the level of competition in the UK market, as the regulations take an ‘outcomes’ based approach (which prescribes what government and the regulator expect the outcomes to be rather than how to achieve them).

International trade

The IA considers international trade impacts, which include leveraged effects (direct and indirect impacts on UK imports, exports and foreign direct investment (FDI)). The IA assumes that if the UK launch market were to exist it would capture a portion of the international launch market, through increase in UK imports of satellites to be launched in the UK, increased exports of launch services, and attract additional inward FDI to the UK. It also uses evidence to show that some the impacts will not be as large in comparison to total UK good imports/exports.

The IA also mentions growth effects, anticipate that additional growth will be stimulated in the UK downstream space segment as a result of launch activity taking place in the UK.

Monitoring and evaluation plan

The RPC has rated the monitoring and evaluation plan as **satisfactory**.

PIR plan

The IA states that a PIR will begin after the final package of secondary legislation has been implemented to monitor and evaluate its impact. It states that it will continually monitor and evaluate the progress of the sector.

It could have included more detail on how the success of the proposal will be assessed.

Data/evidence collection
The IA states that information will be collected on a few indicators, including the number of license applicants and outcomes, regulatory activities, impact on business, the number and type of launches and missions, and wider impacts and unintended consequences (environmental, airspace, competition, innovation and trade impacts).

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For further information, please contact regulatoryenquiries@rpc.gov.uk. Follow us on Twitter @RPC_Gov_UK, LinkedIn or consult our website www.gov.uk/rpc.