



Bryce Space and Technology Limited
C/o Allotts Chartered Accountants and Business Advisors,
Imperial House,
4th Floor, 15 Kingway,
London, United Kingdom,
WC2B 6UN

Tuesday 29th January 2019

Dear Sir/Madam,

Contract Title: Review of Non-European Spaceport Capabilities
Contract Reference: UK SBS CR18192

The Contract shall be subject to the UK Shared Business Services Ltd S1Terms and Conditions for the Purchase of Services and the following Schedules:

Schedule 1	Special Conditions
Schedule 2	Purchase Order Form
Schedule 3	The Services
Annex 1	Specification
Annex 2	Bryce Space and Technology Limited Response

Please note that this Contract is subject to signed Contract Acceptance

Yours Sincerely,



Research – Category Support
UK Shared Business Services Ltd
Research@uksbs.co.uk

S1 - PRECEDENT CONTRACT FOR THE

PURCHASE OF SERVICES

SECTION A

This Contract is dated: Tuesday 29th January 2019

Parties

- (1) **UK Space Agency - Polaris House, North Star Avenue, Swindon SN2 1FF (The Contracting Authority)**
- (2) **Bryce Space and Technology Limited – C/o Alliotts Chartered Accountants and Business Advisors, Imperial House, 4th Floor, 15 Kingsway, London, United Kingdom, WC2B 6UN (the Supplier)**

Background

The Contracting Authority wishes the Supplier to supply, and the Supplier wishes to supply, the Services (as defined below) in accordance with the terms of the Contract (as defined below).

A1 Interpretation

A1-1 Definitions. In the Contract (as defined below), the following definitions apply:

Agent: Where UK Shared Business Services is not the named Contracting Authority in Parties (1), UK SBS has been nominated as agent on behalf of the Contracting Authority and therefore all communications both written and verbal will be received as issued by the Contracting Authority.

Associated Bodies and Authorised Entities: Associated Bodies and Authorised Entities include but are not limited to The Science and Technology Facilities Council, The Medical Research Council, The Engineering and Physical Sciences Research Council, The Economic and Social Research Council, The Natural Environment Research Council, The Arts and Humanities Research Council, The Biotechnology and Biological Sciences Research Council, UK SBS Ltd, Central Government Departments and their Agencies, Non Departmental Public Bodies, NHS bodies, Local Authority's, Voluntary Sector Charities, and/or other private organisations acting as managing agents or procuring on behalf of these UK bodies. Further details of these organisations can be found at: <http://www.ukpbs.co.uk/services/procure/contracts/Pages/default.aspx>

Business Day: a day (other than a Saturday, Sunday or public holiday) when banks in London are open for business.

Charges: the charges payable by the Contracting Authority for the supply of the Services in accordance with clause B4.

Commencement: the date and any specified time that the Contract starts

Conditions: the terms and conditions set out in this document as amended from time to time in accordance with clause C7-11.

Confidential Information: any confidential information, knowhow and data (in any form or medium) which relates to UK SBS, the Contracting Authority or the Supplier, including information relating to the businesses of UK SBS, the Contracting Authority or the Supplier and information relating to their staff, finances, policies and procedures. This includes information identified as confidential in the Order or the Special Conditions (if any).

Contract: the contract between the Contracting Authority and the Supplier for the supply of the Services, in accordance with these Conditions, any Special Conditions and the Order only.

Contracting Authority: UK Space Agency, as specified at Section A (1) and any replacement or successor organisation.

Delivery Date (Services): the date or dates specified in the Order when the Services shall commence as set out in the Order and until the end date specified in the Order

Deliverables: all Documents, products and materials developed by the Supplier or its agents, contractors and employees as part of or in relation to the Services in any form, including computer programs, data, reports and specifications (including drafts).

Document: includes, in addition to any document in writing, any drawing, map, plan, diagram, design, picture or other image, tape, disk or other device or record embodying information in any form.

EIR: the Environmental Information Regulations 2004 together with any guidance and/or codes of practice issued by the Information Commissioner or relevant government department in relation to such regulations.

FOIA: the Freedom of Information Act 2000 and any subordinate legislation made under the Act from time to time, together with any guidance and/or codes of practice issued by the Information Commissioner or relevant government department in relation to such legislation.

Information: has the meaning given under section 84 of FOIA.

Intellectual Property Rights: all patents, rights to inventions, utility models, copyright and related rights, trademarks, service marks, trade, business and domain names, rights in trade dress or get-up, rights in goodwill or to sue for passing off, unfair competition rights, rights in designs, rights in computer software, database right, topography rights, rights in confidential information (including know-how and trade secrets) and any other intellectual property rights, in each case whether registered or unregistered and including all applications for and renewals or extensions of such rights, and all similar or equivalent rights or forms of protection in any part of the world.

Order: the Contracting Authority's order for the Services, as set out in the Contracting Authority's completed purchase order form (including any Specification) which is in the format of the pro forma order form attached at Schedule 2. For the avoidance of doubt, if the Contracting Authority's purchase order form is not in the format of the pro forma order form at Schedule 2, it will not constitute an Order.

Public Body: any part of the government of the United Kingdom including but not limited to the Northern Ireland Assembly and Executive Committee, the Scottish Executive and the National Assembly for Wales, local authorities, government ministers and government departments and government agencies.

Request for Information: a request for information or an apparent request under FOIA or EIR.

Scheme Effective Date: the date on which the United Kingdom Research and Innovation become a legal entity.

Services: the Services, including without limitation any Deliverables Deliverables and Supplies required to complete the Services, to be provided by the Supplier under the Contract as set out in the Order.

Special Conditions: the special conditions (if any) set out in Schedule 1.

Specification: any specification for the Services or Supplies, including any related plans and drawings that is supplied to the Supplier by the Contracting Authority, or produced by the Supplier and agreed in writing by the Contracting Authority.

Supplier or Suppliers: the parties to the contract as named in Section A (2).

Supplies: any such thing that the Supplier is required to Deliver, that does not require or include Services or Deliverables

Supplier's Associate: any individual or entity associated with the Supplier including, without limitation, the Supplier's subsidiary, affiliated or holding companies and any employees, agents or contractors of the Supplier and / or its subsidiary, affiliated or holding companies or any entity that provides Services for or on behalf of the Supplier.

TUPE: the Transfer of Undertakings (Protection of Employment) Regulations 2006 as amended or replaced from time to time.

UKRI: UK Research Council and Innovation, established as a body corporate in accordance with the Higher Education and Research Act 2017.

UK SBS: UK Shared Business Services Limited (a limited company registered in England and Wales with company number 06330639). Where UK SBS is not named as the Contracting Authority within section A (1), UK SBS will be acting as an agent on behalf of the Contracting Authority.

Working Day: any Business Day excluding 27, 28, 29, 30 and 31 December in any year.

A1-2 Construction. In the Contract, unless the context requires otherwise, the following rules apply:

A1-2-1 A person includes a natural person, corporate or unincorporated body (whether or not having separate legal personality).

A1-2-2 A reference to a party includes its personal representatives, successors or permitted assigns.

A1-2-3 A reference to a statute or statutory provision is a reference to such statute or provision as amended or re-enacted. A reference to a statute or statutory provision includes any subordinate legislation made under that statute or statutory provision, as amended or re-enacted.

A1-2-4 Any phrase introduced by the terms including, include, in particular or any similar expression shall be construed as illustrative and shall not limit the sense of the words preceding those terms.

A1-2-5 The headings in these Conditions are for ease of reference only and do not affect the interpretation or construction of the Contract.

A1-2-6 A reference to writing or written includes faxes and e-mails.

A2 Basis of contract

A2-1 Where UK SBS is not the Contracting Authority, UK SBS is the agent of the Contracting Authority for the purpose of procurement and is authorised to negotiate and enter into contracts for the supply of Services on behalf of the Contracting Authority. UK SBS will not itself be a party to, nor have any liability under, the Contract unless it is expressly specified as Contracting Authority in the Order.

- A2-2** The terms of this Contract, any Special Conditions and the Order apply to the Contract to the exclusion of all other terms and conditions, including any other terms that the Supplier seeks to impose or incorporate (whether in any quotation, confirmation of order, in correspondence or in any other context), or which are implied by trade, custom, practice or course of dealing.
- A2-3** If there is any conflict or inconsistency between the terms of this Contract, the Special Conditions (if any) and the Order (including any Specification), the terms of the Contract will prevail over the Special Conditions and the Special Conditions will prevail over the Order (including any Specification), in each case to the extent necessary to resolve that conflict or inconsistency.
- A2-4** The Order constitutes an offer by the Contracting Authority to purchase the Services in accordance with this Contract (and any Special Conditions). This offer shall remain valid for acceptance by the Supplier, in accordance with clause A2-5, for 28 days from the date of the Order. Notwithstanding that after 28 days the offer will have expired, the Contracting Authority may, at its discretion, nevertheless treat the offer as still valid and may elect to accept acceptance by the Supplier, in accordance with clause A2-5, as valid acceptance of the offer.
- A2-5** Subject to clause A2-4, the Order shall be deemed to be accepted on the date on which authorised representatives of both parties have signed a copy of this Contract, at which point the Contract shall come into existence. The Contract shall remain in force until all the parties' obligations have been performed in accordance with the Contract, at which point it shall expire, or until the Contract has been terminated in accordance with clause A3.

A3 Termination

- A3-1** The Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority may terminate the Contract in whole or in part at any time before the Services are provided with immediate effect by giving the Supplier written notice, whereupon the Supplier shall discontinue all work on the Contract. The Contracting Authority shall pay the Supplier fair and reasonable compensation for work-in-progress at the time of termination, but such compensation shall not include loss of anticipated profits or any consequential loss. The Supplier shall have a duty to mitigate its costs and shall on request provide proof of expenditure for any compensation claimed.
- A3-2** The Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority may terminate the Contract with immediate effect by giving written notice to the Supplier if:
- A3-2-1** the circumstances set out in clauses B2-1-1, C3 or C4-1 apply;
 - A3-2-2** the Supplier breaches any term of the Contract and (if such breach is remediable) fails to remedy that breach within 30 days of being notified in writing of the breach; or
 - A3-2-3** the Supplier suspends, or threatens to suspend, payment of its debts or is unable to pay its debts as they fall due or admits inability to pay its debts or (being a company) is deemed unable to pay its debts within the meaning of section 123 of the Insolvency Act 1986, or (being an individual) is deemed either unable to pay its debts or as having no reasonable prospect of so doing, in either case, within the meaning of section 268 of the Insolvency Act 1986, or (being a partnership) has any partner to whom any of the foregoing apply; or
 - A3-2-4** the Supplier commences negotiations with all or any class of its creditors with a view to rescheduling any of its debts, or makes a proposal for or

- enters into any compromise or arrangement with its creditors; or
- A3-2-5 (being a company) a petition is filed, a notice is given, a resolution is passed, or an order is made, for or in connection with the winding up of the Supplier; or
- A3-2-6 (being an Individual) the Supplier is the subject of a bankruptcy petition or order; or
- A3-2-7 a creditor or encumbrancer of the Supplier attaches or takes possession of, or a distress, execution, sequestration or other such process is levied or enforced on or sued against, the whole or any part of its assets and such attachment or process is not discharged within 14 days; or
- A3-2-8 (being a company) an application is made to court, or an order is made, for the appointment of an administrator or if a notice of intention to appoint an administrator is given or if an administrator is appointed over the Supplier; or
- A3-2-9 (being a company) a floating charge holder over the Supplier's assets has become entitled to appoint or has appointed an administrative receiver; or
- A3-2-10 a person becomes entitled to appoint a receiver over the Supplier's assets or a receiver is appointed over the Supplier's assets; or
- A3-2-11 any event occurs, or proceeding is taken, with respect to the Supplier in any jurisdiction to which it is subject that has an effect equivalent or similar to any of the events mentioned in clause A3-2-3 to clause A3-2-10 inclusive; or
- A3-2-12 there is a change of control of the Supplier (within the meaning of section 1124 of the Corporation Tax Act 2010); or
- A3-2-13 the Supplier suspends, or threatens to suspend, or ceases or threatens to cease to carry on, all or substantially the whole of its business; or
- A3-2-14 the Supplier's financial position deteriorates to such an extent that in the Contracting Authority's opinion the Supplier's capability to adequately fulfil its obligations under the Contract has been placed in jeopardy; or
- A3-3 Termination of the Contract, however arising, shall not affect any of the parties' rights and remedies that have accrued as at termination. Clauses which expressly or by implication survive termination or expiry of the Contract shall continue in full force and effect.
- A3-4 Without prejudice to clause A3-3, clauses B1, B2, B5, B6, **Error! Reference source not found.**, B7, B8, C1, C2, C3, C4, C6 and C7 shall survive the termination or expiry of the Contract and shall continue in full force and effect.
- A3-5 Upon termination or expiry of the Contract, the Supplier shall immediately:
- A3-5-1 cease all work on the Contract;
- A3-5-2 Deliver to the Contracting Authority all Deliverables and all work-in-progress whether or not then complete. If the Supplier fails to do so, then the Contracting Authority may enter the Supplier's premises and take possession of them. Until they have been returned or delivered, the Supplier shall be solely responsible for their safe keeping and will not use them for any purpose not connected with this Contract;
- A3-5-3 cease use of and return (or, at the Contracting Authority's or UK SBS's acting as an agent on behalf of the Contracting Authority's election, destroy) all of the Contracting Authority's Materials in the Supplier's possession or

control; and

A3-5-4 Cease all use of, and delete all copies of, UK SBS's or the Contracting Authority's or UK SBS's confidential information.

SECTION B

B1 Supply of Services

- B1-1** The Supplier shall from the date set out in the Contract and until the end date specified in the Contract provide the Services to the Contracting Authority in accordance with the terms of the Contract.
- B1-2** The Supplier shall meet any performance dates for the Services (including the delivery of Deliverables) specified in the Order (including any Special Conditions and any applicable Specification) or notified to the Supplier by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority.
- B1-3** In providing the Services, the Supplier shall:
- B1-3-1** co-operate with the Contracting Authority in all matters relating to the Services, and comply with all instructions of the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority;
 - B1-3-2** perform the Services with reasonable skill and care and in accordance with all generally recognised commercial standards and practices for services of the nature of the Services.
 - B1-3-3** use personnel who are suitably skilled and experienced to perform tasks assigned to them, and in sufficient number to ensure that the Supplier's obligations are fulfilled in accordance with this Contract;
 - B1-3-4** ensure that the Services and Deliverables will conform with all descriptions and specifications set out in the Contract (including any Special Conditions and any applicable Specification), and that the Deliverables shall be fit for any purpose expressly or impliedly made known to the Supplier by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority;
 - B1-3-5** provide all equipment, tools and vehicles and such other items as are required to provide the Services;
 - B1-3-6** use the best quality Supplies, materials, standards and techniques, and ensure that the Deliverables, and all Supplies and materials supplied and used in the Services or transferred to the Contracting Authority, will be free from defects in workmanship, installation and design;
 - B1-3-7** obtain and at all times maintain all necessary licences and consents, and comply with all applicable laws and regulations;
 - B1-3-8** observe all health and safety rules and regulations and any other security requirements that apply at any of the Contracting Authority's premises; and
 - B1-3-9** Not do or omit to do anything which may cause the Contracting Authority to lose any licence, authority, consent or permission on which it relies for the purposes of conducting its business, and the Supplier acknowledges that the Contracting Authority may rely or act on the Services.
- B1-4** The Contracting Authority's rights under the Contract are without prejudice to and in addition to the statutory terms implied in favour of the Contracting Authority under the Supply of Goods and Services Act 1982 and any other applicable legislation.

- B1-5** Without prejudice to the Contracting Authority's statutory rights, the Contracting Authority will not be deemed to have accepted any Deliverables until the Contracting Authority has had at least 14 Working Days after delivery to inspect them and the Contracting Authority also has the right to reject any Deliverables as though they had not been accepted for 14 Working Days after any latent defect in the Deliverables has become apparent.
- B1-6** If, in connection with the supply of the Services, the Contracting Authority permits any employees or representatives of the Supplier to have access to any of the Contracting Authority's premises, the Supplier will ensure that, whilst on the Contracting Authority's premises, the Supplier's employees and representatives comply with:
- B1-6-1** all applicable health and safety, security, environmental and other legislation which may be in force from time to time; and
- B1-6-2** any Contracting Authority policy, regulation, code of practice or instruction relating to health and safety, security, the environment or access to and use of any Contracting Authority laboratory, facility or equipment which is brought to their attention or given to them whilst they are on Contracting Authority's premises by any employee or representative of the Contracting Authority's.
- B1-7** The Supplier warrants that the provision of Services shall not give rise to a transfer of any employees of the Supplier or any third party to the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority pursuant to TUPE.

B2 Contracting Authority Remedies

- B2-1** If the Supplier fails to perform the Services by the applicable dates, the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority shall, without limiting its other rights or remedies, have one or more of the following rights:
- B2-1-1** to terminate the Contract with immediate effect by giving written notice to the Supplier;
- B2-1-2** to refuse to accept any subsequent performance of the Services (including delivery of Deliverables) which the Supplier attempts to make;
- B2-1-3** to recover from the Supplier any costs incurred by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority in obtaining substitute Services from a third party;
- B2-1-4** where the Contracting Authority has paid in advance for Services that have not been provided by the Supplier, to have such sums refunded by the Supplier; or
- B2-1-5** To claim damages for any additional costs, loss or expenses incurred by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority which are in any way attributable to the Supplier's failure to meet such dates.
- B2-2** These Conditions shall extend to any substituted or remedial Services provided by the Supplier.
- B2-3** The Contracting Authority's rights under this Contract are in addition to its rights and remedies implied by statute and common law.

B3 Contracting Authority Obligations**B3-1 The Contracting Authority shall:**

B3-1-1 provide the Supplier with reasonable access at reasonable times to the Contracting Authority's premises for the purpose of providing the Services; and

B3-1-2 Provide such information to the Supplier as the Supplier may reasonably request and the Contracting Authority considers reasonably necessary for the purpose of providing the Services.

B4 Charges and Payment

B4-1 The Charges for the Services shall be set out in the Order, and shall be the full and exclusive remuneration of the Supplier in respect of the performance of the Services. Unless otherwise agreed in writing by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority, the Charges shall include every cost and expense of the Supplier directly or indirectly incurred in connection with the performance of the Services.

B4-2 Where the Order states that the Services are to be provided on a time and materials basis, the Charges for those Services will be calculated as follows:

B4-2-1 the charges payable for the Services will be calculated in accordance with the Supplier's standard daily fee rates (as at the date of the Order), subject to any discount specified in the Order;

B4-2-2 the Supplier's standard daily fee rates for each individual person will be calculated on the basis of an eight-hour day worked between such hours and on such days as are agreed by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority and the Supplier;

B4-2-3 the Supplier will not be entitled to charge pro-rata for part days without the prior written consent of the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority;

B4-2-4 the Supplier will ensure that every individual whom it engages to perform the Services completes time sheets recording time spent on the Services and the Supplier will use such time sheets to calculate the charges covered by each invoice and will provide copies of such time sheets to the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority upon request; and

B4-2-5 the Supplier will invoice the Contracting Authority monthly in arrears for its charges for time, as well as any previously agreed expenses and materials for the month concerned calculated as provided in this clause B4-2 and clause B4-3

B4-3 The Contracting Authority will reimburse the Supplier at cost for all reasonable travel, subsistence and other expenses incurred by individuals engaged by the Supplier in providing the Services to the Contracting Authority provided that the Contracting Authority's prior written approval is obtained before incurring any such expenses, that all invoices for such expenses are accompanied by valid receipts and provided that the Supplier complies at all times with Contracting Authority's expenses policy from time to time in force.

B4-4 The Supplier shall invoice the Contracting Authority on completion of the Services. Each invoice shall include such supporting information required by the Contracting Authority to verify the accuracy of the invoice, including but not limited to the

relevant purchase order number.

- B4-5** In consideration of the supply of the Services by the Supplier, the Contracting Authority shall pay the invoiced amounts within 30 days of the date of a correctly rendered invoice. Payment shall be made to the bank account nominated in writing by the Supplier unless the Contracting Authority agrees in writing to another payment method.
- B4-6** All amounts payable by the Contracting Authority under the Contract are exclusive of amounts in respect of value added tax chargeable for the time being (VAT). Where any taxable supply for VAT purposes is made under the Contract by the Supplier to the Contracting Authority, the Contracting Authority shall, on receipt of a valid VAT invoice from the Supplier, pay to the Supplier such additional amounts in respect of VAT as are chargeable on the supply of the Services at the same time as payment is due for the supply of the Services.
- B4-7** The Supplier shall maintain complete and accurate records of the time spent and materials used by the Supplier in providing the Services, and shall allow the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority to inspect such records at all reasonable times on request.
- B4-8** The Supplier shall not be entitled to assert any credit, set-off or counterclaim against the Contracting Authority in order to justify withholding payment of any such amount in whole or in part. The Contracting Authority may, without limiting any other rights or remedies it may have, set off any amount owed to it by the Supplier against any amounts payable by it to the Supplier under the Contract.
- B4-9** The Supplier acknowledges and agrees that it will pay correctly rendered invoices from any of its suppliers or other sub-contractors within 30 days of receipt of the invoice.

B5 Contracting Authority Property

- B5-1** The Supplier acknowledges that all information (including confidential information), equipment and tools, drawings, specifications, data, software and any other materials supplied by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority to the Supplier (**Contracting Authority's Materials**) and all rights in the Contracting Authority's Materials are and shall remain at all times the exclusive property of the Contracting Authority and UK SBS (as appropriate). The Supplier shall keep the Contracting Authority's Materials in safe custody at its own risk, maintain them in good condition until returned to the Contracting Authority or UK SBS, and not dispose or use the same other than for the sole purpose of performing the Supplier's obligations under the Contract and in accordance with written instructions or authorisation from the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority.

B6 Intellectual Property Rights

- B6-1** In respect of any Supplies that are transferred to the Contracting Authority under this Contract, including without limitation the Deliverables or any part of them, the Supplier warrants that it has full clear and unencumbered title to all such items, and that at the date of delivery of such items to the Contracting Authority, it will have full and unrestricted rights to transfer all such items to the Contracting Authority.
- B6-2** Save as otherwise provided in the Special Conditions, the Supplier assigns to the Contracting Authority, with full title guarantee and free from all third party rights, all Intellectual Property Rights in the products of the Services, including for the avoidance of doubt the Deliverables. Where those products or Deliverables incorporate any Intellectual Property Rights owned by or licensed to the Supplier which are not assigned under this clause, the Supplier grants to the Contracting

Authority a worldwide, irrevocable, royalty-free, transferable licence, with the right to grant sub-licences, under those Intellectual Property Rights to maintain, repair, adapt, copy and use those products and Deliverables for any purpose.

- B6-3** The Supplier shall obtain waivers of all moral rights in the products, including for the avoidance of doubt the Deliverables, of the Services to which any individual is now or may be at any future time entitled under Chapter IV of Part I of the Copyright Designs and Patents Act 1988 or any similar provisions of law in any jurisdiction.
- B6-4** The Supplier shall, promptly at the request of the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority, do (or procure to be done) all such further acts and things and the execution of all such other documents as the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority may from time to time require for the purpose of securing for the Contracting Authority the full benefit of the Contract, including all right, title and interest in and to the Intellectual Property Rights assigned to the Contracting Authority in accordance with clause B6-2.

B7 Insurance

B8-1 During the term of the Contract and for a period of 3 years thereafter, the Supplier shall maintain in force the following insurance policies with reputable insurance companies:

B8-1-1 professional indemnity insurance for not less than £2 million per claim;

B8-1-2 public liability insurance for not less than £5 million per claim (unlimited claims); and

B8-1-3 employer liability insurance for not less than £5 million per claim (unlimited claims); and

B8-1-4 product liability insurance for not less than £5 million for claims arising from any single event and not less than £1 million in aggregate for all claims arising in a year.

The Supplier shall ensure that the Contracting Authority's interest is noted on each insurance policy, or that a generic interest clause has been included.

B8-2 On request from the Contracting Authority's or UK SBS acting as an agent on behalf of the Contracting Authority, the Supplier shall provide the Contracting Authority or UK SBS with copies of the insurance policy certificates and details of the cover provided.

B8-3 The Supplier shall ensure that any subcontractors also maintain adequate insurance having regard to the obligations under the Contract which they are contracted to fulfil.

B8-4 The Supplier shall:

B8-4-1 do nothing to invalidate any insurance policy or to prejudice the Contracting Authority's entitlement under it; and

B8-4-2 notify the Contracting Authority if any policy is (or will be) cancelled or its terms are (or will be) subject to any material change.

B8-5 If the Supplier fails or is unable to maintain insurance in accordance with clause 0,

the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority may, so far as it is able, purchase such alternative insurance cover as it deems to be reasonably necessary and shall be entitled to recover all reasonable costs and expenses it incurs in doing so from the Supplier.

B8 Liability

B8-1 In this clause B8, a reference to the Contracting Authority or UK SBS's liability for something is a reference to any liability whatsoever which the Contracting Authority or UK SBS might have for it, its consequences, and any direct, indirect or consequential loss, damage, costs or expenses resulting from it or its consequences, whether the liability arises under the Contract, in tort or otherwise, and even if it results from the Contracting Authority's or UK SBS's negligence or from negligence for which the Contracting Authority's or UK SBS would otherwise be liable.

B8-2 The Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority is not in breach of the Contract, and neither the Contracting Authority nor UK SBS has any liability for anything, to the extent that the apparent breach or liability is attributable to the Supplier's breach of the Contract.

B8-3 Subject to clause B8-6, neither the Contracting Authority nor UK SBS acting as agent on behalf of the Contracting Authority shall have any liability for:

B8-3-1 any indirect or consequential loss or damage;

B8-3-2 any loss of business, rent, profit or anticipated savings;

B8-3-3 any damage to goodwill or reputation;

B8-3-4 loss, theft, damage or destruction to any equipment, tools, machinery, vehicles or other equipment brought onto the Contracting Authority's premises by or on behalf of the Supplier; or

B8-3-5 Any loss, damage, costs or expenses suffered or incurred by any third party.

B8-4 Subject to clause B8-6, the Contracting Authority and UK SBS's total liability shall be limited to the Charges.

B8-5 [Subject to clause B8-6, the Supplier's total liability in connection with the Contract shall be limited to £1,000,000.

B8-6 Nothing in the Contract restricts either the Contracting Authority, UK SBS or the Supplier's liability for:

B8-6-1 death or personal injury resulting from its negligence; or

B8-6-2 its fraud (including fraudulent misrepresentation); or

B8-6-3 Breach of any obligations as to title implied by Section 12 of the Sale of Goods Act 1979 or Section 2 of the Supply of Goods and Services Act 1982.

SECTION C

C1 Confidential Information

- C1-1 A party who receives Confidential Information shall keep in strict confidence (both during the term of the Contract and after its expiry or termination) all Confidential Information which is disclosed to it. That party shall only disclose such Confidential Information to those of its employees, agents or subcontractors who need to know the same for the purpose of discharging that party's obligations under the Contract; and shall ensure that such employees, agents or subcontractors shall keep all such Information confidential in accordance with this clause C1. Neither party shall, without the prior written consent of the other party, disclose to any third party any Confidential Information, unless the information:
- C1-1-1 was public knowledge or already known to that party at the time of disclosure; or
 - C1-1-2 subsequently becomes public knowledge other than by breach of the Contract; or
 - C1-1-3 subsequently comes lawfully into the possession of that party from a third party; or
 - C1-1-4 is agreed by the parties not to be confidential or to be disclosable.
- C1-2 To the extent necessary to implement the provisions of the Contract (but not further or otherwise), either party may disclose the Confidential Information to any relevant governmental or other authority or regulatory body, provided that before any such disclosure that party shall make those persons aware of its obligations of confidentiality under the Contract and shall use reasonable endeavours to obtain a binding undertaking as to confidentiality from all such persons.
- C1-3 All documents and other records (in whatever form) containing Confidential Information supplied to or acquired by a party from the other party shall be returned promptly to the other party (or, at the election of the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority, destroyed) on expiry or termination of the Contract, and no copies shall be kept.

C2 Transparency

- C2-1 The Supplier acknowledges that the United Kingdom Government's transparency agenda requires that contracts, such as the Contract, and any sourcing document, such as the Invitation to sourcing, are published on a designated, publicly searchable website.
- C2-2 The Supplier acknowledges that, except for any information which is exempt from disclosure in accordance with the provisions of FOIA, the content of the Contract is not Confidential Information. The Contracting Authority and or UK SBS acting as an agent on behalf of the Contracting Authority shall be responsible for determining in their absolute discretion whether any of the content of the Contract is exempt from disclosure in accordance with the provisions of FOIA.
- C2-3 Notwithstanding any other term of the Contract, the Supplier hereby consents to the Contracting Authority and or UK SBS acting as an agent on behalf of the Contracting Authority publishing the Contract in its entirety, (but with any information which is exempt from disclosure in accordance with the provisions of

FOIA redacted) including from time to time agreed changes to the Contract, to the general public.

If any of the situations in **Error! Reference source not found.,Error! Reference source not found.,Error! Reference source not found.** apply the Supplier consents to the Contract or sourcing documents being redacted by UK SBS to the extent necessary to remove or obscure the relevant material and being published on the designated website subject to those redactions

In this entire clause the expression "sourcing documents" means the advertisement issued by UK SBS seeking expressions of interest, any pre-qualification questionnaire stage and the invitation to tender.

C3 Force Majeure

C3-1 If any event or circumstance that is beyond the reasonable control of the Supplier, and which by its nature could not have been foreseen by the Supplier or, if it could have been foreseen, was unavoidable, (provided that the Supplier shall use all reasonable endeavours to cure any such events or circumstances and resume performance under the Contract) prevent the Supplier from carrying out its obligations under the Contract for a continuous period of more than 10 Business Days, the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority may terminate this Contract immediately by giving written notice to the Supplier

C4 Corruption

C4-1 The Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority shall be entitled to terminate the Contract immediately and to recover from the Supplier the amount of any loss resulting from such termination if the Supplier or a Supplier's Associate:

C4-1-1 offers or agrees to give any person working for or engaged by the Contracting Authority, UK SBS or any Public Body any favour, gift or other consideration, which could act as an inducement or a reward for any act or failure to act connected to the Contract, or any other agreement between the Supplier and Contracting Authority, or UK SBS or any Public Body, including its award to the Supplier or a Supplier's Associate and any of the rights and obligations contained within it;

C4-1-2 has entered into the Contract if it has knowledge that, in connection with it, any money has been, or will be, paid to any person working for or engaged by the Contracting Authority, or UK SBS or any Public Body by or for the Supplier, or that an agreement has been reached to that effect, unless details of any such arrangement have been disclosed in writing to the Contracting Authority, or UK SBS before the Contract is entered into;

C4-1-3 breaches the provisions of the Prevention of Corruption Acts 1889 to 1916, or the Bribery Act 2010; or

C4-1-4 Gives any fee or reward the receipt of which is an offence under Section 117(2) of the Local Government Act 1972.

C4-2 For the purposes of clause C4-1, "loss" shall include, but shall not be limited to:

C4-2-1 The Contracting Authority's or UK SBS's costs in finding a replacement supplier;

C4-2-2 direct, indirect and consequential losses; and

C4-2-3 Any loss suffered by the Contracting Authority or UK SBS as a result of a delay in its receipt of the Services.

C5 Data Protection

C5-1 The Supplier shall comply at all times with all data protection legislation applicable in the UK from time to time.

C6 Freedom of Information

C6-1 The Supplier acknowledges that the Contracting Authority and or UK SBS may be subject to the requirements of FOIA and EIR and shall assist and co-operate with the Contracting Authority and or UK SBS to enable them to comply with its obligations under FOIA and EIR.

C6-2 The Supplier shall and shall procure that its employees, agents, sub-contractors and any other representatives shall provide all necessary assistance as reasonably requested by the Contracting Authority or UK SBS to enable the Contracting Authority or UK SBS to respond to a Request for Information within the time for compliance set out in section 10 of FOIA or regulation 5 of EIR.

C6-3 The Contracting Authority and or UK SBS acting as an agent on behalf of the Contracting Authority shall be responsible for determining (in its absolute discretion) whether any information:

C6-3-1 is exempt from disclosure in accordance with the provisions of FOIA or EIR;

C6-3-2 is to be disclosed in response to a Request for Information.

And in no event shall the Supplier respond directly to a Request for Information unless expressly authorised to do so in writing by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority.

C6-4 The Supplier acknowledges that the Contracting Authority and or UK SBS may be obliged under the FOIA or EIR to disclose information, in some cases even where that information is commercially sensitive:

C6-4-1 without consulting with the Supplier, or

C6-4-2 following consultation with the Supplier and having taken its views into account.

C6-5 Where clause C6-4-2 applies the Contracting Authority and or UK SBS shall, in accordance with any recommendations issued under any code of practice issued under section 45 of FOIA, take reasonable steps, where appropriate, to give the Supplier advanced notice, or failing that, to draw the disclosure to the Supplier's attention as soon as practicable after any such disclosure.

C6-6 Where the Supplier organisation is subject to the requirements of the FOIA and EIR, C6-7 will supersede C6-2 – C6-5. Where the Supplier organisation is not subject to the requirements of the FOIA and EIR, C6-7 will not apply.

C6-7 The Contracting Authority and UK SBS acknowledge that the Supplier may be subject to the requirements of the FOIA and EIR and shall assist and co-operate with the Supplier to enable them to comply with its obligations under the FOIA and EIR.

C7 General**C7-1 Entire Agreement**

C7-1-1 The Contract constitutes the entire agreement between the Contracting Authority and the Supplier in relation to the supply of the Services and the Contract supersedes any earlier agreements, arrangements and understandings relating to that subject matter.

C7-2 Liability

C7-2-1 Where the Contracting Authority is more than one person, the liability of each such person for their respective obligations and liabilities under the Contract shall be several and shall extend only to any loss or damage arising out of each such person's own breaches.

C7-2-2 Where the Contracting Authority is more than one person and more than one of such persons is liable for the same obligation or liability, liability for the total sum recoverable will be attributed to the relevant persons in proportion to the price payable by each of them under the Contract.

C7-3 Assignment and Subcontracting

C7-3-1 The Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority may at any time assign, transfer, charge, subcontract or deal in any other manner with any or all of its rights or obligations under the Contract.

C7-3-2 The Supplier may not assign, transfer, charge, subcontract or deal in any other manner with any or all of its rights or obligations under the Contract without prior written consent from the Contracting Authority's or UK SBS acting as an agent on behalf of the Contracting Authority.

C7-4 Further Assurance

C7-4-1 The Supplier will promptly at the request of the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority do (or procure to be done) all such further acts and things, including the execution of all such other documents, as either the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority may from time to time require for the purpose of securing for the Contracting Authority the full benefit of the Contract, including ensuring that all title in the Supplies is transferred absolutely to the Contracting Authority.

C7-5 Publicity

C7-5-1 The Supplier shall not make any press announcements or publicise this Contract in any way without prior written consent from the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority.

C7-5-2 The Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority shall be entitled to publicise this Contract in accordance with any legal obligation upon Contracting Authority or UK SBS, including any examination of this Contract by the National Audit Office pursuant to the National Audit Act 1983 or otherwise.

C7-5-3 The Supplier shall not do anything or cause anything to be done, which may damage the reputation of the Contracting Authority or UK SBS or bring the Contracting Authority or UK SBS into disrepute.

C7-6 Notices

C7-6-1 Any notice or other communication given to a party under or in connection with the Contract shall be in writing, addressed to:

C7-6-1-a In the case of the Contracting Authority: [REDACTED];
Address: **Polaris House, North Star Avenue, Swindon, Wiltshire SN2 1FF**; Email: [REDACTED] (and a copy of such notice or communication shall be sent to: **Research Category, Polaris House, North Star Avenue, Swindon, Wiltshire SN2 1FF**; Email: **Research@uksbs.co.uk** and the Chief Procurement Officer, Polaris House, North Star Avenue, Swindon, Wiltshire SN2 1FF;

C7-6-1-b in the case of the Supplier: the address, fax number and email address set out in the Order, or any other address, fax number or email address which that party may have specified to the other party in writing in accordance with this clause C7-6, and shall be delivered personally, or sent by pre-paid first-class post, recorded delivery, commercial courier, fax or e-mail.

C7-6-2 A notice or other communication shall be deemed to have been received: if delivered personally, when left at the address referred to in clause C7-6-1; if sent by pre-paid first-class post or recorded delivery, at 9.00 am on the second Working Day after posting; if delivered by commercial courier, on the date and at the time that the courier's delivery receipt is signed; or, if sent by fax or e-mail between the hours of 9.00am and 5.00pm on a Working Day, upon successful transmission (provided that the sender holds written confirmation automatically produced by the sender's fax machine of error free and complete transmission of that fax to the other party's fax number), or if sent by fax or e-mail outside the hours of 9.00am and 5.00pm on a Working Day, at 9.00am on the next Working Day following successful transmission (provided that the sender holds written confirmation automatically produced by the sender's fax machine of error free and complete transmission of that fax to the other party's fax number).

C7-6-3 This clause C7-6-3 shall only apply where UK SBS is not the Contracting Authority. In such cases, UK SBS may give or receive any notice under the Contract on behalf of the Contracting Authority and any notice given or received by UK SBS will be deemed to have been given or received by the Contracting Authority.

C7-6-4 Except for clause C7-6-5, The provisions of this clause C7-6 shall not apply to the service of any proceedings or other documents in any legal action.

C7-6-5 The Supplier irrevocably appoints and authorises Carlissa Christensen of Bryce Space and Technology Limited, c/o Alliot's Chartered Accountants and Business Advisors, Imperial House, 4th Floor, 15 Kingsway, London WC2B 6UN (or such other person, being a firm of solicitors resident in England, as the Supplier may by notice substitute) to accept service on behalf of the Supplier of all legal process, and service on Bryce Space and Technology Limited (or any such substitute) shall be deemed to be service on the Supplier.

C7-7 Severance

C7-7-1 If any court or competent authority finds that any provision of the Contract (or part of any provision) is invalid, illegal or unenforceable, that provision or part-provision shall, to the extent required, be deemed to be deleted, and the validity and enforceability of the other provisions of the Contract shall not be affected.

C7-7-2 If any invalid, unenforceable or illegal provision of the Contract would be valid, enforceable and legal if some part of it were deleted, the provision shall apply with the minimum modification necessary to make it legal, valid and enforceable.

C7-8 Waiver: A waiver of any right or remedy under the Contract is only effective if given in writing and shall not be deemed a waiver of any subsequent breach or default. No failure or delay by a party to exercise any right or remedy provided under the Contract or by law shall constitute a waiver of that or any other right or remedy, nor shall it preclude or restrict the further exercise of that or any other right or remedy. No single or partial exercise of such right or remedy shall preclude or restrict the further exercise of that or any other right or remedy.

C7-9 No Partnership, Employment or Agency. Nothing in the Contract creates any partnership or joint venture, nor any relationship of employment, between the Supplier and either the Contracting Authority or UK SBS. Nothing in the Contract creates any agency between the Supplier and either the Contracting Authority or UK SBS.

C7-10 Third Party Rights. A person who is not a party to this Contract shall not have any rights under or in connection with it, except that UK SBS and any member of the UK SBS, Associated Bodies or Authorised Entities that derives benefit under this Contract may directly enforce or rely on any terms of this Contract.

C7-11 Variation. Any variation to the Contract, including any changes to the Services, these Conditions, the Special Conditions or the Order, including the introduction of any additional terms and conditions, shall only be binding when agreed in writing by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority and the Supplier.

C7-12 Governing Law and Jurisdiction.

C7-12-1 Subject to clause C7-12-2, the Contract, and any dispute or claim arising out of or in connection with it or its subject matter or formation (including non-contractual disputes or claims), shall be governed by, and construed in accordance with, English law, and the parties irrevocably submit to the exclusive jurisdiction of the courts of England and Wales.

C7-12-2 The Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority shall be free to enforce its intellectual property rights in any jurisdiction.

C7-13 Modern Slavery Act 2015

C7-13-1 During the Term or any extension of the Contract, the Contracting Authority is committed to ensuring that its supply chain complies with the above Act.

C7-13-2 The Supplier shall provide a report covering the following but not limited to areas as relevant and proportionate to the Contract evidencing the actions taken, relevant to the Supplier and their supply chain associated with the Contract.

C7-13-2-a Impact assessments undertaken

C7-13-2-b Steps taken to address risk/actual instances of modern slavery and how actions have been prioritised

C7-13-2-c Evidence of stakeholder engagement

C7-13-2-d Evidence of ongoing awareness training

C7-13-2-e Business-level grievance mechanisms in place to address modern slavery

C7-13-2-f Actions taken to embed respect for human rights and zero tolerance of modern slavery throughout the organisation

C7-13-3 The Contracting Authority or UK SBS when acting as an agent on behalf of the Contracting Authority reserves the sole right to audit any and all reports submitted by the Supplier to an extent as deemed necessary and the Supplier shall unreservedly assist the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority in doing so.

Note: the Contracting Authority also reserves the right to amend or increase the frequency of reporting, as it deems necessary to secure assurance in order to comply with the MSA.

The Contracting Authority requires such interim assurances to ensure that the Supplier is compliant and is monitoring its supply chain, so as to meet the requirements of the above Act.

The Supplier agrees that any financial burden associated with the completion and submission of this report and associated assistance at any time, shall be at the suppliers cost to do so and will not be reimbursable.

C7-14 Changes In Costs Resulting from Changes to Government Legislation, Levies or Statutory Payments

The Contracting Authority will reimburse during any term or extension (or, where such costs, awards or damages arise following termination/expiry) of this Agreement, any increases in the Supplier's cost of providing the Services by reason of any modification or alteration to the Government legislation duties or levies or other statutory payments (including but not limited to National Insurance and/or VAT and/or introduction of or amendment to working time minimum wages). Subject always to open book access to the Supplier's records and always after a period of due diligence carried out by the Contracting Authority, relevant and proportionate to the value concerned.

C7-15 Taxation Obligations of the Supplier

C7-15-1 The relationship between the Contracting Authority, UK SBS and the Supplier will be that of "independent contractor" which means that the Supplier is not an employee, worker, agent or partner of the Contracting Authority or UK SBS and the Supplier will not give the impression that they are.

(1.) The Supplier in respect of consideration shall at all times comply with the income tax Earnings and Pensions Act 2003 (ITEPA) and all other statutes and regulations relating to income tax in respect of that consideration.

(2.) Where Supplier is liable to National Insurance Contributions (NICs) in respect of consideration received under this contract, it shall at all times comply with the Social Security Contributions and Benefits Act 1992 (SSCBA) and all other statutes and regulations relating to NICs in respect of that consideration.

(3.) The Contracting Authority may, at any time during the term, completion extension or post termination of this contract, request (Supplier) to provide information which demonstrates how Supplier complies with its obligations under tax and National Insurance Clauses (1) and (2) above or why those clauses do not apply to it.

C7-15-2 As this is not an employment Contract the Supplier will be fully responsible for all their own tax including any national insurance contributions arising from carrying out the Services.

C7-15-3 A request under Clause (3) above may specify the information which Supplier shall provide and the period within which that information must be provided.

C7-15-4 In the case of a request mentioned in Clause (3) above, the provision of inadequate information or a failure to provide the information within the requested period, during any term or extension, may result in the Contracting Authority terminating the contract.

C7-15-5 Any obligation by Supplier to comply with Clause (1) and (2) shall survive any extension, completion or termination and Supplier obligations to indemnify the Contracting Authority shall survive without limitation and until such time as any of these obligations are complied with.

C7-15-6 The Contracting Authority may supply any information, including which it receives under clause (3) to the commissioners of Her Majesty's Revenue and Customs for the purpose of the collection and management of revenue for which they are responsible.

C7-15-7 If the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority has to pay any such tax under clauses (1) and (2) then the Supplier will pay back to the Contracting Authority or UK SBS in full, any money that the Contracting Authority or UK SBS has to pay, and they will also pay back the Contracting Authority or UK SBS for any fine or other punishment imposed on the Contracting Authority or UK SBS because the tax or national insurance was not paid by the Supplier.

C7-16 Cyber Essentials Questionnaire

The Supplier agrees that during any term or extension it shall complete and return the attached questionnaire as advised below, within 14 days from notice and shall send this information as directed by the Contracting Authority or UK SBS acting as an agent on behalf of the Contracting Authority. The Contracting Authority and UK SBS acting as an agent on behalf of the Contracting Authority is required to provide such assurances to comply with Government advice and guidance.

Note: the Contracting Authority also reserves the right to amend or increase the frequency of the questionnaire submission due dates, as it deems necessary. The Contracting Authority requires such interim assurances to ensure that the Supplier is still compliant with the security needs of this Contract.

The Supplier agrees that any financial burden associated with the completion and submission of this questionnaire and associated assistance at any time, shall be

at the suppliers cost to do so and will not be reimbursable.



**Copy of Statement
of Assurance Questionnaire**

Schedule 1 Special Conditions

Not applicable

Schedule 2 Pro forma purchase order form

The format of the Proforma Purchase Order will be as follows. Please note that the Purchase Order form will be submitted directly to your chosen email address on completion of the receipt of the signed contract and will contain the confirmed value of goods and services as well as the Purchase Order number that must be used for invoicing purposes

Purchase Order #

(Contracting Authority Logo)

Order	
Order Date	
Revision	0
Revision Date	
Payment Terms	As per terms and conditions

Supplier:

PLEASE QUOTE THE PURCHASE ORDER NUMBER ON ALL CORRESPONDENCE. ERRORED NOT QUOTING THE PO NUMBER WILL BE RECORDED UNPAID

Tel:

For all purchase order queries, please contact:

Fax:

PO Writing POwriting@ukhsa.gov.uk
 For all Invoicing queries, please contact Invoicing@ukhsa.gov.uk

Ship to: Contracting authority ship to address

Invoice to: Contracting Authority Invoice Address

Line	Part Number/Description	Delivery Date	Quantity	UOM	Unit Price (GBP)	Tax	Net Amount (GBP)
1							

Total

Grand Total

Whenever a UK SBS Contract number is cited within the narrative description of the Purchase Order that Purchase Order is subject to the Terms and Conditions relating to that Contract. Otherwise, the Purchase Order is subject to the Terms and Conditions incorporated herein by this reference. For a copy of the Terms and Conditions please see <http://www.ukhsa.gov.uk/procurement/procurement/contracts/SC-Orders.pdf>

Commercial In Confidence

	VAT Registration Number GB 618 387 828
	(Contracting Authority) . Polaris House, North Star Avenue Swindon, United Kingdom SN2 1EU

Schedule 3 The Service

D1 SCOPE OF SERVICES TO BE PROVIDED

D1-1 To carry out CR18192 – Review of Non-European Spaceport Capabilities, as outlined in Annex A – Specification and Annex B – Bid Response.

D2 COMMENCEMENT AND DURATION

D2-1 This Contract shall commence on Thursday 31st January 2019 and subject to any provisions for earlier termination contained in the Standard Terms shall end no later than Sunday 31st March 2019.

Milestones have been amended and agreed: Contract Initiation (29 January), Kick-off Meeting (6 February), Mid-Point Presentation (scheduled for March 7). The remainder of the milestone dates will stay the same.

D3 MANAGEMENT AND COMMUNICATIONS

D3-1 The Customer appoints: [REDACTED], Policy Lead, UK Research and Innovation, Polaris House, North Star Avenue, Swindon, SN2 1FF, Tel: [REDACTED], Email: [REDACTED], (or such other person as is notified by the Customer to the Supplier in writing) to be the Customer's Contract Manager.

D3-2 The Supplier appoints [REDACTED], Bryce Spcae and Technology Limited, C/o Alliotts Chartered Accountants and Business Advisors, Imperial House, London WC2B 6UN Tel: [REDACTED], Email: [REDACTED], (or such other person as is notified by the Supplier to the Customer in writing) to be the Supplier's Contract Manager.

D3-3 UK Shared Business Services appoints: [REDACTED], Category Support, Research Team, Polaris House, North Star Avenue, Swindon, Wiltshire SN2 1ET; Email: Research@uksbs.co.uk.

D4 – Contract Price

D4-1 Total Contract price shall not exceed £24,360.00 excluding VAT in accordance with the Contract price and breakdown submitted for this contract detailed below:

For and on behalf of
(The Supplier)

Signed

Name

Position

Date



For and on behalf of
(The Contracting Authority)

Signed

Name

Position

Date



THIS IS THE LAST PAGE OF THESE TERMS & CONDITIONS

- Annex A - Specification**1. Background****UK Space Agency (UKSA)**

The UK Space Agency (UKSA) is an agency of the Department for Business, Energy and Industrial Strategy (BEIS). The Agency is responsible for all strategic decisions on the UK civil space programme and we provide a clear, single voice for UK space ambitions. The UK Space Agency is at the heart of UK efforts to explore and benefit from space. The UK's thriving space sector contributes £9.1 billion a year to the UK economy and directly employs 28,900 with an average growth rate of almost 7.5%.

UKSA Spaceflight Programme

Our Spaceflight programme will develop the skills, capabilities and supply chains to grow the UK share of the global commercial launch market. This will create high skilled jobs, local opportunities around UK spaceports and allow our thriving space industry to compete in all areas of the space economy. It will also ensure that UK small satellite launch and sub-orbital spaceflight services are safe, sustainable and in compliance with all international regulations and treaties.

This is a key strategic priority for the UK Space Agency, which will help us to deliver our ambition for the UK to achieve 10% of the global space market by 2030. The Agency is working across government to establish the legal framework that will enable these services to be offered safely using a range of technologies – including traditional vertical launchers, air-launched spaceplanes and launchers, and high-altitude balloons.

We are also working to support industry to develop capabilities and are considering options to provide funding to help to build spaceport facilities and launch technology such as satellite launch systems (rockets), horizontal launch systems (rockets and carrier aircraft), and manned sub-orbital spaceplanes.

Further Background

- UKSA have previously commissioned a similar study to this on European spaceports and launch capability, which was delivered in early 2018. This will be provided to the successful applicant as a template as much of the specification outlined here draws on this report.
- Recent years have seen a significant uptick in growth of commercial spaceflight operations, particularly in Europe but increasingly beyond this into the Americas and Asia. There are now a significant number of countries pursuing small launch capability and developing domestic spaceports to support this. Industry forecasts also predict a major demand for small scale satellite launch over the next decade, served by small launch vehicles that can fly as and when a customer needs. Many

countries are now moving to capture this growth.

- The UK is amongst the first to actively move on this trend (commonly known as "New Space") and intends to build its first spaceport in Scotland by the early 2020s. Since announcing this in Summer 2018, several other nations worldwide have announced similar plans. We would like to now understand each of these proposals in more detail.
- The primary business areas related to this tender are the UKSA's Spaceflight Programme and key projects on international engagement and intel gathering on global competitors, towards developing the first commercial spaceport in the UK. This supports wider UKSA business areas in UK space industry development, technology and science (in terms of new opportunities for launching from the UK) and drafting regulation.
- The primary recipient of this work will be the Spaceflight Programme's International Team, whose function is to manage relationships with our neighbours, gather intel on competitor spaceports, engage with ESA and other global organisations on launch and develop policy to ensure launch can operate successfully from the UK.
- The lead for this piece of work will be [REDACTED] and [REDACTED] (UKSA).

2. Aims and Objectives of the Project

Aims

The UK Space Agency's Spaceflight Programme has an ambition to be the first-mover on developing small scale, commercial spaceflight from the UK, and become a leader in Europe offering such capability. To achieve this the UK needs to understand its global competitors and the status of their own national spaceflight and small launch plans, including spaceport capability. Intel gathering and analysing competition helps inform our discussions with international competitors and policy. Therefore, the main aims of the tender are:

1. To understand operational and planned national spaceport and small launch capabilities globally – excluding Europe – including vertical and horizontal to orbit, sub-orbital and novel other launch types.
2. To assess the comparative advantages and disadvantages for each spaceport and national small launch capability in the context of UK spaceflight plans.
3. To develop UK intel on global competitors, particularly of key Rest of World (RoW) countries and use this to inform policy and market development.
4. Exam question can be considered as: "What is the current and planned global (excluding Europe) spaceport capability and how feasible are these plans?"

Objectives

- To produce a single report covering key RoW countries that the UK has identified as potential competitors to its national spaceflight ambitions. Specific outputs should include:
 - Analysis of each national spaceport and associated small launch capability, against a set of agreed criteria and either scored or traffic lighted;
 - A clear summary table or graphic with the score/traffic light against each;
 - Images and supporting diagrams or plans – recommend a large map (or

- similar) summarising the overall review of each country for the executive summary;
 - o An independent view on feasibility of these plans for comparison to a UK context;
 - o Recommendations for further work and target countries for deep-dives.
- To provide a comprehensive overview of spaceport sites and spaceflight capability at a national scale, against a set of chosen criteria (see Scope below) that will allow the UK and UK Space Agency to assess its competitors.
- To develop the UK's existing evidence base on global spaceport and [small] launch activity and be sufficiently detailed to inform policy decisions and international engagement, while still remaining clear, concise and easily updateable.
- To create a standard methodology for monitoring of ongoing spaceport and launch capability analysis, which the UKSA can manage in future. Include any assumptions made.
- Expectation that this will be used across UK Government and internationally. The Executive Summary may be published and should be written in a releasable form.

Scope

In scope

- National spaceports capable of, but not limited to, launching small scale launch vehicles
- Launch capability and launchers – only launch vehicles capable of lifting <500kg into orbit (commonly known as "small" or sometimes "micro" launchers).
- Commercial, public and public-private programmes/organisations
- Existing, under construction/development and proposed spaceports and launchers
- The following target Rest of World countries/regions:
 - o Africa (primarily Kenya)
 - o Australia
 - o Brazil
 - o Canada
 - o China
 - o India
 - o Japan
 - o Middle East (primarily UAE and Israel)
 - o New Zealand
 - o Russia
 - o Southeast Asia (primarily Malaysia/Indonesia and South Korea)
 - o USA
- Launch types – vertical (single or multi-staged), horizontal (spaceplanes), sub-orbital, balloon, sea-launch, other
- The following assessment criteria (many taken from the report to be provided to the successful applicant). Prioritisation and addition/removal of these to fit time and budget can be discussed with the successful applicant:
 - o Spaceport and launch vehicle project status including operating model and market served (e.g. suborbital, orbital, horizontal)
 - o Launch frequency
 - o Payload capabilities and properties
 - o Available orbits from spaceport e.g. polar, sun-synchronous, geostationary
 - o Degree of Government and/or private backing including regulation, licensing, incentive schemes etc
 - o The country's launch and space programme heritage
 - o Plans to 2030 (and further if available) and feasibility of timelines

- Domestic market and supply chain strength (can it be supported?)
- Markets the spaceport/launchers could access and customer expectations e.g. national, regional, global
- Existing operations including national space agencies, infrastructure, size and health of national space sector and reputation in launch
- Local spaceport infrastructure e.g. transport links, safety zones, security, range, nearby populations, workforce etc
- Weather conditions and other key geographical features
- Level of operator interest and launch vehicles proposed/under development
- Range services on site and their owners (public/private/spaceport entity)
- Estimated price to launch (both for the launch vehicle and to use the spaceport) and other incentives/costs for spaceport customers
- Local environmental designations e.g. MPAs, national parks
- Financial support including business case development and/or funding structures e.g. grant-funding, R&D
- Agreements with neighbouring states e.g. Technology Safeguards Agreement
- Any export control or Missile Technology Control Regime (MTCR) issues
- High profile community opposition or NGO interest

Out of scope

- European countries and spaceports (including the UK) and any others globally that are not 'in scope'
- Launch vehicles commonly known as "medium" to "large" launchers (>500kg payloads) e.g. Ariane/Vega, SpaceX, Soyuz, Long March
- Regional large spaceports that have no small launch capability or plans
- European organisations such as ESA, EUMETSAT

We believe this study is best undertaken using desk research, but are open to creative proposals.

The work will primarily require a literature review (company publications, government documents, spaceport planning applications etc), analysis of available public and in-house databases, news and media and discussion with experts where available and appropriate. Further sources can be used if available to the applicant.

There could also be some quantitative assessment if appropriate and within scope (e.g. available orbits, launch costs, payload capabilities) supported by consultation with experts in relevant fields.

Any required data from UKSA including the previous European spaceport report will be

provided to the successful applicant on request.

Please note that no additional funding will be available for travel.

Please list the total hours of desk research, or other methods; you will use to complete this study.

4. Deliverables

- Full report identifying global spaceports and small launch capability and assessing their feasibility, as per aims and objectives
- Executive summary providing an overview of the outputs of the study (approx. 2 pages plus map/infographic in publishable format)
- A score/traffic light system for every country and spaceport assessed, presented in a clear manner e.g. concluding table and supporting infographic/map
- Final presentation on findings to UKSA (e.g. PowerPoint)
- Any supporting notes or appendices relevant to the study

Full payment will need to be made by **31st March 2019**.

We should seek regular updates throughout, including:

- Kick-off meeting at UKSA
- Initial list of countries, spaceports, launchers to be assessed in report
- Mid-term review
 - First draft report delivered for UKSA review
 - Early view on competitors discussed
 - Identify challenges or likely gaps in evidence
- Final review
 - Final draft report delivered for UKSA review
 - Infographic/map and summary table presented

- **Annex B - Bryce Space and Technology Limited**

PROJ1.1: Approach

Methodological Challenges

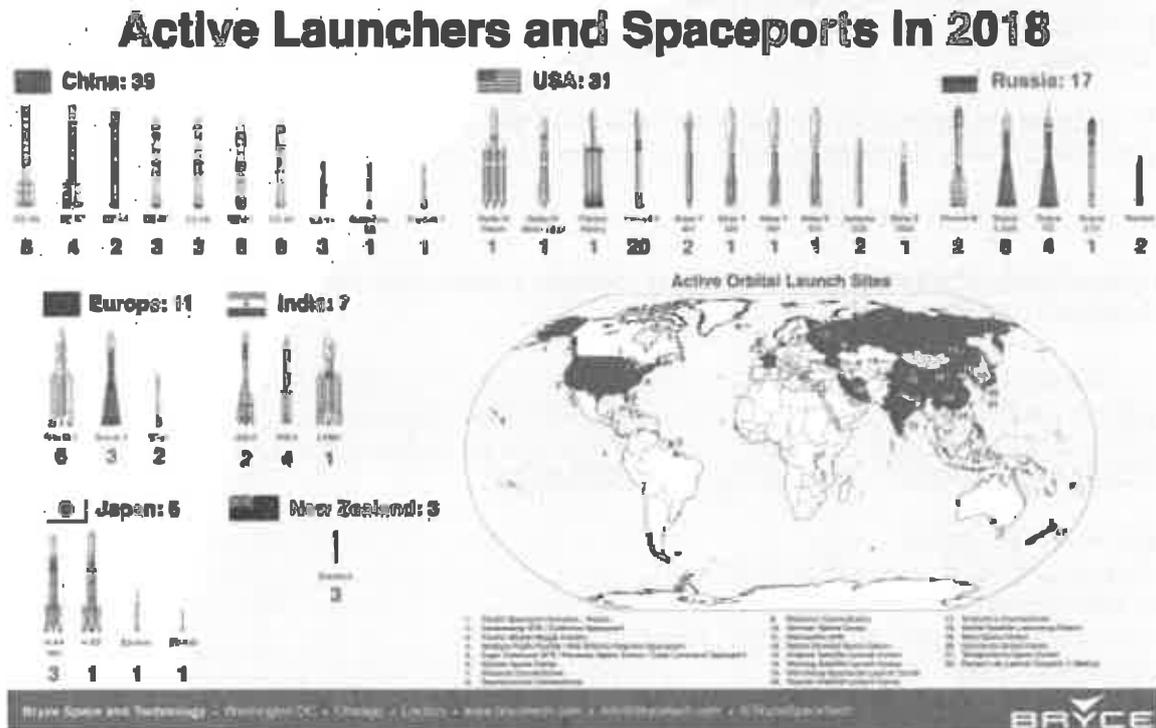
Bryce's overall approach will deliver high yield results for UKSA's investment in this project.

Methods to Be Used

We will leverage a substantial body of existing primary research, data sets, and analysis directly related to the project objectives, augmented by additional desk research and targeted interviews. Bryce's in-house data and existing interview findings from on-going research (detailed in section 4, Project Team and Capability To Deliver) will save UKSA time and money, and allow us to use project resources to target more specific questions and offer nextlevel insights. UKSA does not have to incur the cost of bringing our team up a learning curve or building a baseline understanding of the topic.

We will conduct highly targeted interviews, where relevant, to fully address specific topics. We will conduct up to 5 interviews, which will augment dozens of directly-related interviews we previously conducted in 2018 on launch, launch demand, and launch facilities. We will use interviews to answer questions that cannot be addressed from published literature or our previous research and proprietary data.

Desk research and proprietary data. Bryce will carry out a thorough literature review of existing data from company publications, government documents, spaceport planning applications, among other sources. Furthermore, Bryce will analyse available public and Bryce proprietary databases, as well as news, media and other sources, where appropriate. Bryce will draw its own on previous research and related studies. We expect a significant portion of data related to this project to be derived from desk research and proprietary Bryce data. The graphic below is illustrative of Bryce's existing resources and data.



Bryce staff originated many of the existing, authoritative data sets that characterize the space industry today. Our proprietary satellite and launch forecast models set the industry standard for enterprise clients globally, predicting market share through simulation algorithms and years of data on decision-maker behavior. Bryce maintains dozens of unique

technology datasets, including orbital and suborbital launch and satellite activities. We synthesize many data sources including hundreds of interviews with investors, engineers, entrepreneurs, executives, and government managers to characterize industry activities and track technological developments.

In particular, Bryce maintains a detailed database, BLAST, of all launch events, launch vehicles, spacecraft, and spaceports (current and planned) worldwide that is continuously updated. Bryce analyses demand for launch services, including a recent survey of suborbital customers; forecasts future satellites; and assesses business cases of proposed satellite systems. Bryce tracks commercial space investments in its annual *Start-Up Space* report. We will use these resources to support this project.

Interviews: Bryce will conduct interviews with spaceport operators and launch providers to augment published information, particularly relating to competitiveness and feasibility for the most important spaceports from a UK perspective. These interviews will build on previous interviews; Bryce has previously interviewed national spaceport operators, launch companies of all major types (such as vertical, horizontal, sub-orbital, balloon), including on small launchers capable of lifting <500kg into orbit. Other interviewees have included commercial, public and public-private programmes/organisations (e.g. satellite manufacturers who often have a significant impact on launch vehicle selection), existing, under construction/development and proposed spaceports and launchers, commercial space advocates, economists, and others.

Bryce's interview process has been proven effective over many client projects. At each interview, there will be two Bryce team members present, an interviewer and a note taker. The interviews will follow a fixed format and duration. The interview questionnaire developed by the research team to guide the interviews will consist of both structured and open-ended questions. Bryce typically allows but does not offer non-attribution, in order to maximize the usefulness of the interview. Bryce will conduct these interviews in person, where doing so does not add significant cost or cause delays; otherwise we anticipate conducting phone interviews.

We will analyse findings to provide actionable insights, using experienced, space-expert, senior staff. Our analysis process for each project objective is described below.

Meeting Project Objectives

Bryce will fully address each of the specific elements desired by the UK Space Agency in the Invitation To Quote.

To understand operational and planned national spaceport and small launch capabilities globally – excluding Europe – including vertical and horizontal to orbit, sub-orbital and novel other launch types, Bryce will characterize global (excluding European, including UK) spaceports and launch capabilities as described below.

Spaceports by nation

- Status (potential, planned, operational)
- Location (nation, region, city/town)
- Description of region and location (airport? coastal?)
- Operator, Owner
 - Type of site (commercial, government, hybrid)
- Shared use or dedicated? Currently available for commercial operations?
- Launches supported (orbital/suborbital; horizontal, vertical/air launch, balloon)
- Regulator
- Minimum turnaround between launches
- Weather and air traffic

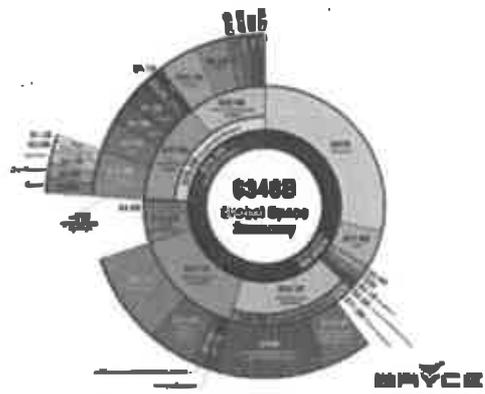
- Facilities (communication assets; launch pads and runways; vehicle processing facilities (vertical/horizontal integration); payload processing facilities; radar; tracking and telemetry (including optical tracking); fuel/pressurant storage)
- Contracts/partnerships with launch providers (announced, anticipated, potential)
- Government/NGO funding/support
- Commercial Investment
- Other financial resources (loan guarantees, export credit)
- Use fees and fee structure (often not published)

Bryce will provide this information, in a spreadsheet database, for the spaceports listed in Table 1 and any additional spaceports identified. (Not all information will be available for all spaceports, depending on the stage of development.)

Launch capabilities by nation

- Vehicle
- Provider
- Provider established
- Country
- Total investment to date (commercial, government/NGO)
- Type (orbital, suborbital, balloon)
- Capacity class
- Capacity (kg to LEO, SSO, GEO, GTO 1,500 m/s) other assumption about orbit)
- Horizontal/vertical integration
- Volume/fairing
- Status (planned-unlikely/planned/likely/active/under development)
- Price per launch
- Price per kilogram (LEO)
- Reliability

The 2017 Global Space Economy at a Glance



Bryce will provide this information, in a spreadsheet database, for the launch vehicles listed in Table 2. (Not all information will be available for all vehicles, depending on the stage of development.) Bryce's database includes about 25 additional vehicles whose status is unclear. Many appear to be on hiatus or to have been, effectively, canceled; most are from the US and Russia. Bryce will review their status and add to the active list if appropriate.

Table 1. Launch Sites	
Active	
Alcântara Launch Centre, Brazil	Pacific Missile Range Facility, US
Andøya Space Centre, Norway	Pacific Spaceport Complex - Alaska, US
Anhueng Missile Range, South Korea	Palmachim Air Force Base, Israel
Baikonur Cosmodrome, Russia	Plesetsk Cosmodrome, Russia
Barreira do Inferno Launch Centre, Brazil	Poker Flat Research Range, US
Broglio Space Centre, Kenya (inactive for launch)	Punta Indio Test Site, Argentina
Blue Origin West Texas Facility, US	Qom Space Centre, Iran
California Spaceport, US	Rocket Lab Launch Complex 1, New Zealand
Cape Canaveral Air Force Station, US	Ronald Reagan Test Site, US
Cecil Field Spaceport, US	Ryori Site, Japan
Chilca Range, Peru	Salto di Quirra Missile Test Site, Italy
Colorado Air and Space Port, US	Sary Shagan Missile Range, Kazakhstan

Edwards Air Force Base, US	Satish Dhawan Space Centre, India
Elliington Airport, US	Semnan Space Centre, Iran
Emamshahr Space Centre, Iran	Sohae Satellite Launching Station, DPRK
Esrangle Space Centre, Sweden	Sonmiani Satellite Launch Centre, Pakistan
Florida Spaceport, US	Spaceport America, US
Gan Island Missile Range, Pakistan	SpaceX McGregor Test Facility, US
Gulana Space Centre, French Gulana	Stasiun Peluncuran Roket, Indonesia
Haiqian Site, China (Taiwan)	Svalbard Rocket Range, Sweden
Integrated Test Range Launch Complex IV, India	Taiki Aerospace Research Field, Japan
Jabal Hamzah Site, Egypt	Talyuan Satellite Launch Centre, China
Jiuquan Satellite Launch Centre, China	Tanegashima Space Centre, Japan
Kapustin Yar, Russia	Tilla Satellite Launch Centre, Pakistan
Kennedy Space Centre, US	Tonghae Satellite Launching Ground, DPRK
Korla Missile Test Complex, China	Uchinoura Space Centre, Japan
Mid-Atlantic Regional Spaceport, US	Vandenberg Air Force Base, US
Midland International Air and Space Port, US	Vikram Sarabhai Space Centre, India
Mojave Air and Space Port, US	Vostochny Cosmodrome, Russia
Naro Space Centre, South Korea	Wallops Flight Facility, US
Negev, Israel	Wenchang Spacecraft Launch Centre, China
Nevada Test and Training Range, US	White Sands Missile Range, US
Ny-Aalesund, Norway	Woomera Range Complex, Australia
Obachi Site, Japan	Xichang Satellite Launch Centre, China
Oklahoma Spaceport, US	Yasny Cosmodrome, Russia
	Planned
Canso Spaceport, Canada	SpaceX South Texas Site (Brownsville), US
Spaceport Camden, US	Sutherland Spaceport, UK
	Proposed
Biak Launch Site, Indonesia	North Uist Spaceport, UK
Bute Spaceport, UK	Prestwick Spaceport, UK
Campbeltown Spaceport, UK	Shetland Spaceport, UK
Enggano Launch Site, Indonesia	South Uist Spaceport, UK
Kulasekarapattinam Space Centre, India	Spaceport Singapore (Changi), Singapore
Llanbedr Spaceport, UK	Spaceport Sweden (Esrangle/Kiruna), Sweden
Morotai Launch Site, Indonesia	Unst Spaceport, UK
Newquay Spaceport, UK	

Table 2. Small Launch Vehicles

Electron (Rocket Lab), New Zealand	Pegasus XL (Northrop Grumman), US
Kaitouze 2 (CASTC), China	Safir-2 (ISA), Iran
Kualzhou 1A (Expace Technology Co.), China	Shavit (IDF), Israel
Long March 11 (CGWIC/PLA), China	Simorgh (ISA), Iran
Minotaur I (Northrop Grumman), US	SS-520-5 (JAXA), Japan
Minotaur V (Northrop Grumman), US	Unha 3 (DPRK), North Korea
	Active

<u>BOREAS-HERMES (Stofiel Aerospace), US</u>	<u>NEPTUNE 5 (InterOrbital Systems), US</u>
<u>Cab-3A (CubeCab), US</u>	<u>NewLine 1 (LinkSpace), China</u>
<u>Ceres 1 (Xinghe Power), China</u>	<u>OS M1 (OneSpace), China</u>
<u>Erls-400 (Gilmour Space), Australia</u>	<u>PSLV Lite (ISRO/Antrix), India</u>
<u>Hyperbola 1 (iSpace Technology), China</u>	<u>Tronador II (CONAE), Argentina</u>
<u>Jaguar (EXOS), US</u>	<u>Vector H (Vector), US</u>
<u>Jie Long 1 (Chinarocket Co. Ltd.), China</u>	<u>Vector R (Vector), US</u>
<u>LauncherOne (Virgin Orbit), US</u>	<u>VLM 1 (INPE/DLR), Brazil/Germany</u>
<u>NEPTUNE 1 (InterOrbital Systems), US</u>	<u>Zhuque 1 (LandSpace Technology),</u>
<u>NEPTUNE 3 (InterOrbital Systems), US</u>	

**Under
Development**

Planned

<u>Airship to Orbit (JP Aerospace), US</u>	<u>Orbital 500R (Orbital Access), UK</u>
<u>Astra (Astra Space), US</u>	<u>Prometheus 1 (SpaceLS), UK</u>
<u>Athena (Vanguard Advanced Systems), UK</u>	<u>Rockoon (LEO Aerospace), US</u>
<u>Austral Launch Vehicle (Hellaq Advanced Engineering), Australia</u>	<u>Rocky 1 (Space Ops), Australia</u>
<u>Cloud IX (Cloud IX), US</u>	<u>Skyrora (Skyrora), UK</u>
<u>CloudOne Plus (Cloud Aerospace), US</u>	<u>Spyder (UP Aerospace), US</u>
<u>Colibri (B2Space), UK</u>	<u>TBD (TiSpace), Taiwan</u>
<u>Crossbow (Zero Point Frontiers Corp.), US</u>	<u>TBD (KB Yuzhnoye), Ukraine</u>
<u>Devon 2 (Tranquility Aerospace), UK</u>	<u>TBD (bluShift Aerospace), US</u>
<u>DNLV (Independence-X Aerospace), Malaysia</u>	<u>TBD (Lockheed Martin), US</u>
<u>GOLauncher 2 (Generation Orbit), US</u>	<u>TBD (New Ascent), US</u>
<u>Helios (Aphellon Orbitals), US</u>	<u>TBD (Newton launch Systems), UK</u>
<u>Hera II (Aerojet Rocketdyne), US</u>	<u>TBD (Odyne Space), US</u>
<u>Light Satellite Launch Vehicle (New Rocket Technologies), Russia</u>	<u>TBD (Pipeline2Space), US</u>
<u>New Shepard+ (Blue Origin), US</u>	<u>TBD (SpinLaunch), US</u>
<u>NFR 1 (FORE Dynamics), US</u>	<u>Thor (Thor Launch Systems), US</u>
<u>Ravn (Aevum), US</u>	<u>Zero (Interstellar Technologies), Japan</u>
<u>Orbex (Orbex), UK</u>	

To assess the comparative advantages and disadvantages for each spaceport and national small launch capability in the context of UK spaceflight plans. Bryce will characterise the listed spaceports and launchers in terms of key competitive differentiators and compare them to potential UK offerings.

In the current ecosystem of emerging spaceports and small launch providers that significantly exceed likely demand, a key consideration for spaceports is the future viability of launch providers they may partner with, and for launch providers is the future viability of spaceports they will rely on.

Spaceports

Spaceports seek to attract launch providers, typically establishing a long-term relationship and allocating specific facilities to the use of a particular provider.

Competitive differentiators for spaceports in attracting launch providers are:

Match of capabilities. Can the spaceport location, facilities, and other factors support the launch provider's operational requirements?

Cost of use. The cost of use of a spaceport consists of fees for services, transportation and logistics costs, and costs for developing unique infrastructure needed by a launch provider. In addition, cost considerations include a risk calculation – the potential need to underwrite a facility or pay a disproportionate share of its costs if government support evaporates or other users don't materialize. This is likely to be an area where interviews are important, as fees are often not published. There are, however, key factors indicating that fees may be lower or higher that are generally public, such as the use of existing infrastructure and government financial support, often from regional government economic development authorities.

Ease of use. Ease of use of a spaceport includes physical access (from the ability to bring employees to the launch site to participate in payload integration and other launch activities, to the ease of transportation for satellite, launch vehicle, and spare parts, to the quality of accommodations for VIPs at a launch); administrative and regulatory requirements (with particular concern associated with the need to establish completely new regulatory regimes for space activities); likelihood of weather and air traffic delays; potential competition with preferred users, and especially government customers; and range of available services.

Operational stability and other factors. Operational stability reflects the current and future financial viability of the site, government support/regulation, potential disruption from competing interests (for example, air traffic control authorities may seek to limit launches; or, in Japan, fishing interests limited launch activity) or community objections; and commitment of the owner/operator. Viability may be enhanced by an existing domestic market and supply chain and existing national space operations. Other factors may include geopolitical relationships (for example, the Russian Soyuz at Gulana Space Centre).

Bryce will score spaceports against these attributes, 1. showing which launch providers appear to be compatible with a given spaceport's capabilities, 2. rating spaceports on a red/yellow/green scale on cost of use, ease of use, and operational stability, weighting cost of use, ease of use, and operational stability/other factors roughly equally, though considering the factors in order where differentiation is needed.

This will result in a one-page spaceports competitiveness scorecard.

Launch capabilities

Launch providers seek to acquire launch contracts with spacecraft owners, typically satellite operators. Suborbital spaceflight providers seek to sell tickets to passengers, and also to establish contracts, typically for research, with payload owners.

Competitive differentiators for small launch providers are:

Performance. Can the launch vehicle meet the needs of a significant portion of the addressable market, in terms of capacity to orbit, reliability, launch sites, launch mode, and fairing/volume.

Price. Is the vehicle's price competitive, on both a per launch and per kilogram basis, compared to industry leaders.

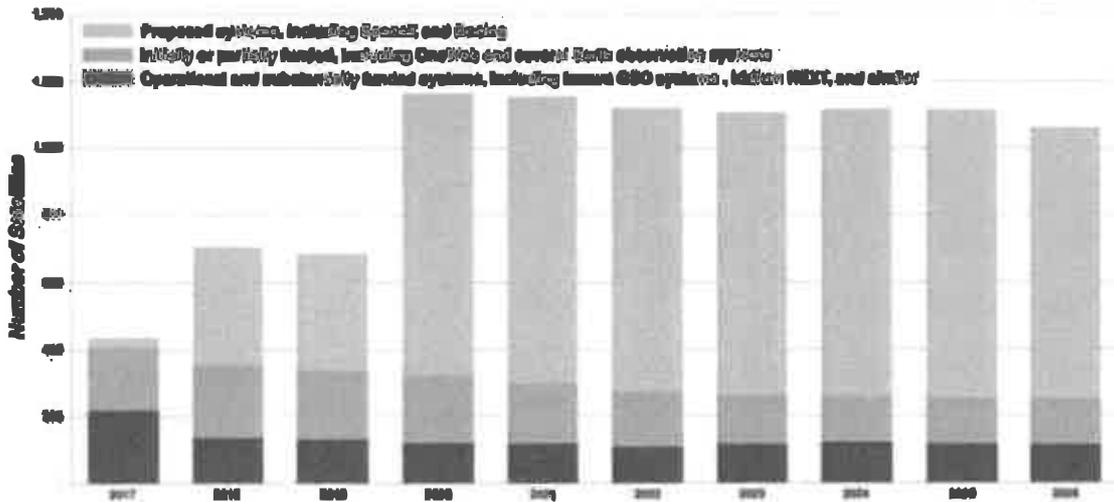
Affinities. What benefits (or disbenefits) does the provider see from its national affiliation and associated geopolitical relationships? (For example, some Middle East satellite operators do not select US launch vehicles.) What effect will customer desire to maintain access to multiple launch providers have on a given provider?

Viability. Do customers believe the provider is sufficiently viable? If they have concerns, they may not be willing to make the investment required to integrate with a particular provider and/or to accept the risks of needing to switch providers in the future, when desired launch

slots may no longer be available from other providers

Bryce will score launch capabilities against these attributes, rating providers on a red/yellow/green scale on performance, price, affinities, and viability roughly equally, though considering the factors in order where differentiation is needed.

This will result in a one-page launch capabilities competitiveness scorecard.



To answer "What is the current and planned global (excluding Europe) spaceport capability and how feasible are these plans", Bryce will provide an overall feasibility assessment, summarizing use the data and analysis described above. The feasibility assessment will evaluate feasibility based on the ability of each spaceport to achieve financial viability and to meet regulatory and other government requirements. For purposes of this analysis, to be considered able to achieve financial viability, a spaceport must generate sufficient user revenues, driven by its competitive advantages/disadvantages (as assessed above) and by the size of the addressable market.

The size of the addressable market is a critical consideration in evaluating the competitiveness of national small launch capability. Demand for small launchers will grow, but the likely magnitude of that growth is generally overstated, often due to a lack of recognition that announced or planned satellite systems may not come to fruition due to lack of funding or other issues Bryce has developed 10-year forecasts for smallsat and suborbital human spaceflight launch, based on primary source data (including user surveys) and structured econometric models. The reality of potential demand for small launchers – that it is limited and subject to competition with large launchers – results in a situation where government launches can be the determining factor in the viability of a small launch provider. Bryce’s analysis of feasibility will take the full range of demand for small launchers into account, in assessing the realistic size of the addressable market for spaceports.

Bryce will rank each spaceport as feasible, potentially feasible, likely not feasible

Bryce has forecast demand for suborbital human spaceflight, including a published forecast for the FAA, and a recent Bryce-proprietary survey of high net worth individuals.

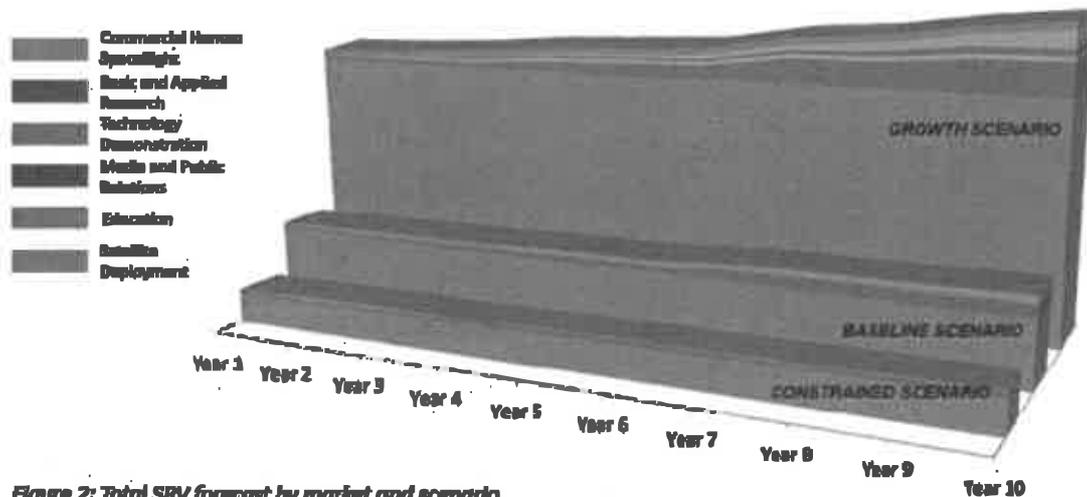


Figure 2: Total SRV forecast by market and scenario

Sample Size and Composition

Bryce anticipates that its data set will reflect the entire population of spaceports and small launchers. Bryce does not anticipate using a subset of this data as a sample for analysis; its analysis will reflect the entire population. Some spaceports and launch vehicles will be determined to be unrateable, typically if they are at a very early stage or are not likely to be developed, or if insufficient data is available.

Dissemination

Strategy Recommendations

Bryce will provide strategy recommendations in its report and in an interactive discussion with UKSA. The meeting will include CEO [REDACTED] and SVP [REDACTED] (former NASA Chief of Staff, at no additional cost to UKSA); as well as key members of the project team.

Recommendations will address:

- Government engagement with UK spaceports and small launch providers
- Government engagement to develop and enhance UK markets
- Potential partnerships/relationships with non-UK spaceports and small launch providers
- Future competitive intelligence requirements, including recommended deep dives.

Reporting

Bryce will deliver a report, augmented by a spreadsheet database and supported by briefings. The report will consist of:

- Narrative, 5 pages, summarizing spaceports and launch vehicles and highlighting recommendations
- Competitiveness scorecards for spaceports and launch vehicles
- Global map/spaceport fact sheet that includes each launch facility and shows its feasibility rating (In addition to summary report). Foldout, double A4. This will be a centerpiece deliverable and provide a high-impact visual overview of global spaceport competition. The infographic on the first page, Active Launchers and Spaceports in 2018, is illustrative of this type of Bryce product.

Bryce will also deliver a spreadsheet database of spaceports and launch vehicles, a briefing

PROJ1.2: Project Team and Capability To Deliver

Selected Bryce Data Sets and Analytic Models	Relevance to Project
	y .
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market expertise, deep familiarity through hands-on project experience with satellite operators and launch providers, knowledge of satellite and launch technology, and advanced education and career-long policy analysis expertise. Each senior team member has many years of direct space and satellite experience. (See table.) The team will be supported by a research assistant, [REDACTED], with a B.S. in Commercial Space Operations from Embry-Riddle Aeronautical University and a Master's degree in Space Policy in progress.

Name	Experience Highlights
<p>[REDACTED] Project Manager</p>	<p>Extensive experience in the commercial space sector (including managerial role at Inmarsat) and depth of understanding of commercial small sat and launch markets. Managed profitability and analyses of multi-billion-dollar portfolio of assets and supported cross-sector business development activities, business case analysis for dozens of multi-million-dollar projects. International consulting for top investment banks, including Goldman Sachs, and strategic and technical advisory for several space start-up companies including those working with Satellite Applications Catapult.</p>
<p>[REDACTED] Aerospace Analyst</p>	<p>Highly experienced at fundamental economic and capital markets research and analysis. Long track record of successfully identifying, developing, executing and managing complex investment strategies, operating models, business lines, and technologies for international banks, and both private and institutional funds. Recent projects include: Business case and investment analysis; revenue forecasts, and market analysis for LEO markets on behalf of a major US space systems manufacturer. Analysis of space markets across all 41 global economic sectors, including support for Satellite Applications Catapult. Investment banking and asset management in cross-industry multi-asset trading, structuring and management roles.</p>
<p>[REDACTED] Executive Subject Matter Expert</p>	<p>Globally recognised expert on commercial space with decades of experience specifically in growing space businesses. Featured in <i>Financial Times</i> documentary on commercial space. Recent talks at <i>Economist</i> space event. Advisor on space ecosystem and technology forecasting to business, government leaders, including Morgan Stanley, and Goldman Sachs. Led / oversaw hundreds of projects for dozens of clients, including NASA, UKSA, Fortune 100 companies, and industry associations. Co-founded 3 start-ups, participated in raising investment capital, successful exits, and LP in Silicon Valley fund.</p>
<p>[REDACTED] Subject Matter Expert</p>	<p>Launch expert and space artist. Conducted rapid turn-around analysis and analytical products related to complex defence, policy, and aerospace matters. Analysed the space access industry, including historical analysis of orbital and suborbital launch activity, demand- and supply-based market analysis, and analysis of emerging markets including potential impact of aerospace craft and public space transportation. Investigated and characterized the telecommunications industry, specifically satellite telecommunications as component of the global telecommunications infrastructure. Contributed to detailed demand-based market forecasting for government entities and companies in this industry.</p>

Research
Assistant

Has produced briefs on commercial space policy including regulations and funding with focus on launch & satellite markets.
Drafted regulatory reform recommendations for the FAA, policy white papers on export control reform, & CFIUS background guide.
Tracked space start-ups to approach for membership, drafted business intelligence reports on global space industry.

In section AW5.2 Price Schedule, we have identified one objective area (as allowed by the format) for each of the individuals above. Please note that each staff member will support multiple objective areas.

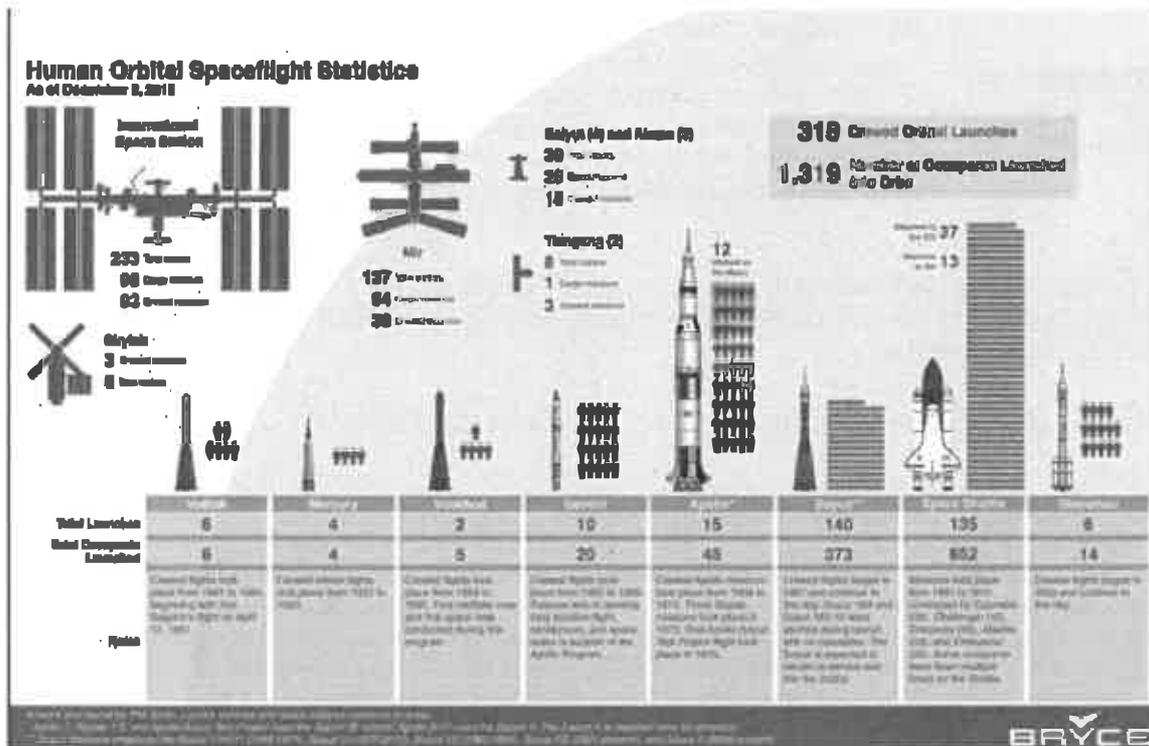
PROJ1.3: Understanding the Project Environment

Interpretation of Project and What Is Required

The UK has long possessed sophisticated space industrial and operational capabilities, in the past mostly serving military purposes. The Space Innovation and Growth Strategy (IGS), a government-commissioned report released in 2010, identified space as an important engine of economic growth and recommended that the government take steps to increase its share of the global space economy from 6% in 2007 to 10% by 2030.

The UK committed to space as a driver of economic growth, implementing programs and policies including significant support of commercial satellite applications. One outcome of the IGS report was the creation of the Satellite Applications Catapult, a not-for-profit company that promotes the development and advancement of commercial space applications. Specific services offered by the Catapult include assistance with raising private capital and grant funding, technical support, access to facilities and information exchange.

UK space industry capabilities include manufacturing of most classes of satellites and components, as well as ground systems and downstream products. New investment primarily targets satellite communications and Earth observation, areas the IGS report identified as having strong commercial potential. In addition, the UK has invested in engine tech, building on existing national capability.



In addition, small satellite launch and sub-orbital spaceflight are viewed as having a role in driving growth of the UK space economy. The LaunchUK Prospectus describes plans to capture a launch market by delivering targeted market stimulation and developing a competitive and sustainable regulatory environment.

The UK does not currently have its own launch capabilities and primarily accesses space via European launch provider Arianespace. In July 2018 the UK Space Agency announced plans for the development of the UK's own vertical and horizontal spaceports as part of the £50 million UK Spaceflight Programme. These spaceports could serve as hubs for sub-orbital spaceflight and small satellites launches. Legislation being developed in the UK will allow potential sites to apply for license. Potential benefits to having a small launch capability in the UK are that it fills in a gap in European launch capability, currently dominated by Arianespace, and that small launch capability will also encourage UK satellite entrepreneurs to manufacture, launch, and operate in the UK.

In addition, the UK has a strong connection to sub-orbital spaceflight through Sir Richard Branson and Virgin Galactic. Though Virgin Galactic is a US company, its roots are in the UK. British entrepreneur [redacted] space companies, Virgin Galactic and Virgin Orbit (small satellite launch), have been conducting groundbreaking work in sub-orbital tourism and small satellite launch. Recently, Virgin Galactic achieved a significant test flight milestone. As Virgin Galactic continues to progress towards hosting its first paying customers, the company has stated that it could launch from the UK in the future.

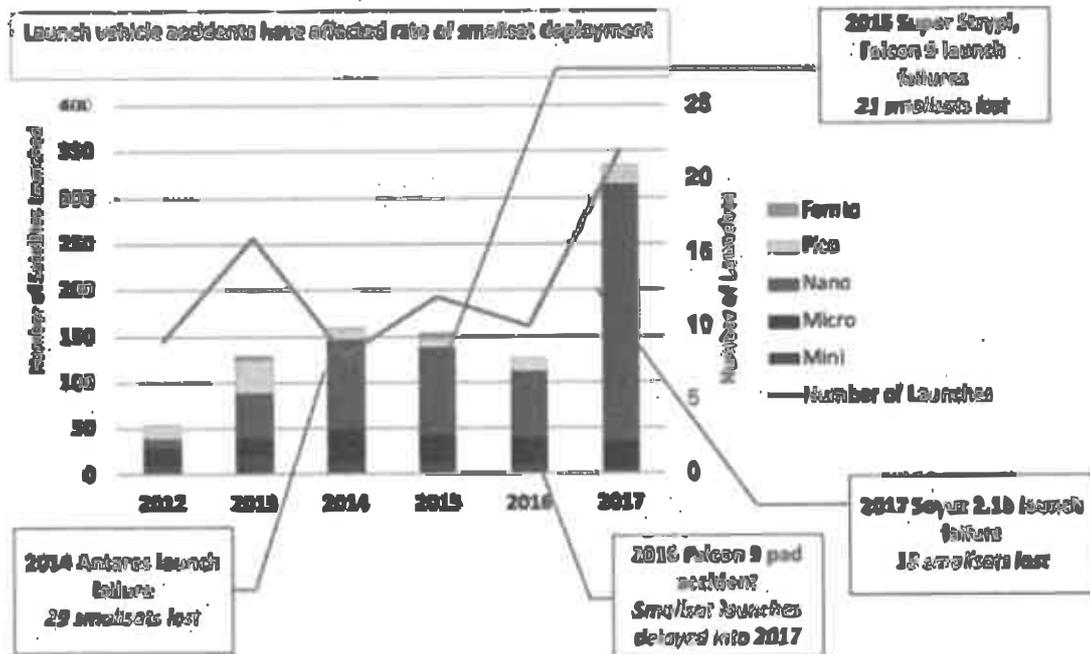
In this context, the purpose of this project is to help the UK Space Agency understand the global landscape of operational and planned national spaceport and small launch capabilities.

The value of this understanding to the UKSA and the UK overall is in developing strategy and tactics for

- Government engagement with UK spaceports and small launch providers
- Government engagement to develop and enhance UK markets
- Potential partnerships/relationships with non-UK spaceports and small launch providers

The Big Picture of Smallsats

Smallsats Launched, 2012 – 2017



Bryce will ensure successful delivery through:

- An experienced team, as described in section PROJ1.2 Project Team and Capability To Deliver
- Use of extensive existing Bryce data and resources directly relating to the data to be collected; the majority of spaceport and launch vehicle data is currently contained in BLAST, the Bryce launch, satellite, and technology database
- Application of our proven capabilities to develop engaging infographics on launch and spaceport-related subjects, as shown in the examples in this proposal
- A clear and specific analytic approach. For each specific research element desired by the UK Space Agency in the Invitation To Quote, we describe how we will ensure the successful delivery of this project below and describe our analytic approach in Section 1, Approach

As specified in the ITT, Bryce will deliver a single report covering key RoW countries that the UK has identified as potential competitors to its national spaceflight ambitions. Bryce's report will include a summary narrative of spaceports and small launch vehicle findings and recommendations, augmented by key infographics:

- A competitiveness scorecard for spaceports and a competitiveness scorecard for launch vehicles, comparing all relevant spaceports and launch vehicles in a one-page format
- A global map/spaceport fact sheet that includes each spaceport and shows its feasibility rating

In addition, Bryce will deliver a comprehensive spreadsheet database on the identified spaceports and launch vehicles, a final briefing and an additional meeting to discuss strategy recommendations in further depth.

We have included, below, an example of the type of infographic Bryce produces.

To ensure disciplined, credible and defensible analysis, Bryce has specified the criteria to be used in evaluating competitiveness and feasibility, including the weighting of these criteria to determine an overall rating.

Bryce is known for its objectivity, achieved through a commitment to analytic rigour combined with data and insights from its on-going research and analysis. Bryce will ensure that UKSA is provided with an evidence-based, independent view by 1. drawing on validated Bryce data sets on launch and spaceports, 2. providing transparency into its methodology and data, including delivering the underlying data set to UKSA and 3. incorporating its analysis of underlying demand driving the addressable market for small launch.

In particular, the size of the addressable market is a critical consideration in evaluating the competitiveness of national small launch capability, and, by extension, the likelihood that a spaceport can attract sufficient launch customers to achieve viability. Demand for small launchers will grow in response to the increase in small satellites. However, that growth is often overstated. Small launchers are significantly more expensive on a per kilogram basis than large launchers, and large launchers will capture a significant number of those satellites as a result (despite their disadvantages with regard to schedule flexibility compared to small launchers). Moreover, the number of small satellites launched in the future is sometimes projected at much higher than likely levels, as a result of considering all announced/planned/licensed satellites, without adjusting for the fact that some are paper satellites that do not represent real plans for deployment, some firms will not raise sufficient funding to deploy full systems and some firms will fail prior to second-generation deployment.

The reality of potential demand for small launchers – that it is limited and subject to competition with large launchers – results in a situation where government launches can be the determining factor in the viability of a small launch provider.

Bryce has forecast demand for suborbital human spaceflight, including a published forecast for the FAA and a recent Bryce-proprietary survey of high net worth individuals.

In assessing the realistic size of the addressable market for spaceports, Bryce's analysis will take the full range of demand for small launchers into account. This will contribute significantly to the independence and credibility sought by UKSA.

feasibility rankings.

Database. Bryce will deliver a spreadsheet database of the specified data on launch vehicles and spaceports.

Briefings. Bryce will provide a final briefing as well as a separate meeting, if desired by UKSA, to specifically discuss recommendations.

Milestones

The contract start date will be January 18th, 2019 and Bryce will deliver all products by March 31st, 2019, as specified in the Invitation To Quote.

Milestones	Dates
Contract Initiation	January 18 th , 2019
Kick-off Meeting	January 16 th , 2019
Mid-Point Presentation	February 22 nd , 2019
Final Report, Database, Scorecards, Infographic	March 29 th , 2019
Findings Briefing	March 29 th , 2019
Meeting Re Strategy Recommendations	March 29 th , 2019 or as desired by UKSA

Timescales

Below we provided information about the estimated time required for each objective area and the activities to be completed during that time.

Objective Area	Description of Activity	# Days
Project management	Manage project resources. Coordinate team activities.	3
Analysis	Data analysis, including compiling results of research. Determining important trends and key findings. Developing interview questions as needed.	4
Data Collection/Compilation	Compilation of internal Bryce data as well as new data identified in research. Compiling database. Producing competitiveness scorecards (one for spaceports, one for launch vehicles).	8
Drafting	Writing/editing narrative of report. Designing and producing spaceport feasibility infographic. Final presentation. Strategy discussion.	5.5
Research	Comprehensive literature review drawing on existing Bryce data sets, models, analysis, and previous interview findings as well as published sources. Interviews as needed.	5

Risk Management

In general, Bryce has identified no critical risks for this project. There are three potential risk areas, for which Bryce has proposed mitigations:

1. Desired data may not be available in published form. To mitigate this, Bryce will conduct targeted interview to augment published information. In addition, Bryce is able to augment published information using its internal data resources drawn from previous interviews.

2. Targeted interviews may not be schedulable within project timeframe, posing a schedule risk. To mitigate this, we will start scheduling immediately, using existing contacts to expedite interviews. We will further mitigate this risk by having multiple team members available for interviews, and will conduct phone interviews, where necessary.

3. Targeted interviewees may not agree to be interviewed, posing a quality risk. Our mitigation is to draw on the longstanding professional relationships between members of our team and our targeted interviewees, with many of whom our staff members have worked and jointly participated in advisory groups, industry committees, conferences, and foundation boards.