UKSEDS COMPETITIONS



IN-ORBIT SERVICING AND MANUFACTURING 2026-27

INTIAL PROPOSAL
Challenge 1



UKSEDS COMPETITIONS

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1 ACRONYMS & REFERENCE DOCUMENTS

1.1 Acronyms

Acronym	Description
ISAM	In-orbit Servicing, Assembly, and Manufacturing
PESTEL	Political, Economic, Social, Technological, Environmental and Legal
SWOT	Strength, Weakness, Opportunities and Threats

1.2 Reference Documents

1.2.1 Competition Documents

There are two other documents related to the competition to make a total of **three regulatory documents**. The three documents are as follows:

ID	Document	Description
ISAM-CH1	Challenge Document 1 (This Document)	Outlines the Initial Proposal and work to be completed during the initial stage of competition.
ISAM-CH2	Challenge Document 2 (Not Released)[1]	Outlines the Detailed Proposal and work to be completed in the later stage of competition.
ISAM-CH3	Challenge Document 3 (Not Released)	The final stage and submission of the competition - the presentation in front of industry professionals to pitch your proposal.
ISAM-SOW	Statement of Work	Outlines the main deliverables teams shall be expected to deliver - the competition project requirements.
ISAM-RB	Rulebook	Outlines the overall competition rules, funding, team structures and so on - the competition logistics.

[1] Challenge 2 document will be released once the initial proposal stage of the competition has been completed.

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1.2.2 Useful Reference Documents

No.	Document	Description
1	ECSS-M-ST-10C Rev. 1	**Space project management** - Project planning and implementation
2	ECSS-S-ST-00-01 C	**Glossary of Terms** - A list of commonly used terms in ECSS documents
3	UK Space Strategy	**Current UK space strategy** - Understand the current UK priorities for ISAM
4	ESA ISAM Strategic Initiative	**Current ESA ISAM Priorities** - Useful when considering the feasibility and viability of an ISAM concept
3	Space Industrial Plan	**Space Industrial Plan** - Policy document outlining the UK Space Agency's general strategy
4	Factories in Space	**Factories in Space** - This is a website to understand the ISAM ecosystem and market predictions
5	How commercial space dream is becoming a reality	This document provides a strategic and economic framework for new ideas to position In-Orbit Servicing and Maintenance as a key commercial opportunity within the evolving "Big Space" ecosystem.

1.2.3 Reference Links

1. An overview of IOSM classifications for better understanding for students.
2. A paper on Commercial opportunities in LEO with focus on IOSM **[Page 17]**. For students to gain a better understanding of the commercial landscape.
3. An overview of IOSM classification based on market sizing
4. A paper on "In-Space Economy trends and area of economical interest" will be useful for students to explore concepts from an economic perspective.
5. A video covering entire landscape of IOSM and other possibilities

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2 INTRODUCTION

2.1 Scope

This document details the work you are expected to produce for the Initial Proposal stage of the competition (**Challenge 1** from Figure SOW-1 in the Statement of Work). There is a strict page limit of 10 pages for your submission, including any references, images or diagrams. Any pages following the limit will not be counted to your final submission. The first page should be a title page, second a table of contents (neither is counted to your page count). Any additional workings or evidence can be referenced in an appendix. However, only the main body of the submission will be marked; the appendix may be consulted for supporting context but will not be directly assessed.

2.2 Submission Format

The following requirements **must be met** when submitting your Initial Proposal:

- The Initial Proposal must be submitted as a **single document** in **PDF format**.
- The final submission method is **TBC** and will be confirmed closer to the deadline. Submissions are currently expected to be made through the submission portal on the UKSEDS website.
- The first page must be a **title page** (Including the team name, team members, university, and contact email).
- When formatting your document, add each Deliverable as a section followed by your response to the respective deliverable.
- The document must have **page numbering**.

NOTE: *Late submission or non-compliance with the submission requirements will result in penalties, up to a 0% allocation to the Challenge.* ***Please refer to the Statement of Work for information on extensions.***

2.3 Feedback

Your submitted reports will be reviewed and marked by the **ISAM team**, and feedback will be provided. The mark given for this submission will account for **25% of your final mark,** for the overall competition.

2.4 Contact info

Please contact isam@ukseds.org for any questions/concerns.

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3 DELIVERABLES

3.1 Key ISAM Areas

Below is a list of some 'key areas' in ISAM. These are areas of interest, especially for start-ups. You may wish to choose items from this list to write about in your report. Additionally, it is recommended to choose a topic aligned with potential future applications. However, you are by no means limited to the topics listed below. You are free to choose (or even invent!) your own.

- In-Orbit servicing for/with focus on sustainability
- In-Orbit Manufacturing for Space
- In-Orbit Manufacturing for Earth
- Using Data from/for IOSM (for value creation)
- Lunar Activities
- In-Orbit Repairing or Maintenance
- In-Orbit Transportation
- In-Orbit Refuelling

3.2 Tasks

3.2.1 Task 1: Identity - Team Name and Vision

This task requires establishing the core identity of your venture. You must select a professional Team Name that either directly or conceptually aligns with your product or service's core offering. You must provide a concise justification explaining the rationale for the chosen name and how it captures your team's philosophy or your product's value proposition.

3.2.2 Task 2: Structure - Organizational Diagram and Roles

The objective here is to clearly define the internal organisational and functional roles of your team. You must present a Visual Organizational Structure Diagram (e.g., a simple hierarchy or functional chart) that illustrates the reporting lines and different roles and responsibilities between team members.

For each position defined in the diagram, you must provide a brief, high-level description outlining 3 to 5 specific, functional responsibilities critical to the competition and product development. Focus must be placed on practical functions (e.g., "Market Analysis Lead", "Operational Architecture Lead", etc.) rather than generic titles.

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3.2.3 Task 3: Outline – Product Sketch and Market Analysis

This task defines the product and explores its market viability. It is divided into two sections.

1. **Section A: Market Analysis and Gap Identification**

   The success of your proposal hinges on identifying a market need. First, precisely define your Target Market (e.g. a specific industry, demographic, or geographical area). Next, briefly describe the Current Market Landscape by outlining existing solutions or primary competitors. The most critical component is the Market Gap/Opportunity: you must explicitly identify a specific failure, inefficiency, or unaddressed need within the current market. Your product or service must then be presented as a definitive, researched solution that fills this identified gap (e.g lower cost, superior speed, reliability etc.).

2. **Section B: Product/Service Specification**

   Begin with a clear Concept Definition of your product or service, stating its primary function and the problem it solves. Follow this with a description of its key responsibilities within its active service. The inclusion of a simple, annotated Visual Sketch or Render of the system, interface, or hardware is suggested to provide clarity.

   Conclude this section by assessing the values of your concept - List what the product/service's functions are, and why and how it needs to carry out its respective function.

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3.2.4 Task 4: Mission Statement and Value Propositions

Develop a clear, concise mission statement for your problem of choice and articulate its unique value proposition.

The Mission Statement shall include:

1. **Core purpose** - The fundamental reason your company exists.
    1.1. *Aim of your business* - The specific problem you are addressing and why you are developing your product or service.
    1.2. *Main Objectives* - The key steps you will take to achieve your aim.
    1.3. *Unique Approach* - How your solution differs from others in the market (your innovation or competitive advantage)
2. **Identified Stakeholders**[2]
    2.1. The Target Market (Your customer): The main customer group your project will serve.
    - *Commercial Clients* – Satellite operators, launch providers, manufacturers, and other industry partners.
    - *Space Organisations* – ESA, UK Space Agency, NASA, and other government or institutional bodies (How will your concept contribute to the current UK/European space priorities).

    2.2. Broader Impact (Identify other people influenced by your project, other than your customers)
    - *Regulators and Policymakers* – Benefit from improved sustainability and compliance solutions.
    - *General Public and Scientific Community* – Gain from enhanced access to data, services, or research opportunities.

3.2.5 Task 5: Make a Mission Patch

Create a mission patch that represents your project, its purpose and identity. Use your Mission Statement and Value Proposition to inspire the design, incorporating symbols, imagery, colours or even a short motto.

[2] For a better understanding of different types of stakeholders to consider, read Toshiba Stakeholders website.

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3.2.6 Task 6: Identify Strengths and Weaknesses

Create a **SWOT** (Strengths, Weaknesses, Opportunities, and Threats) analysis to evaluate your project's position. Typically done in a 2 x 2 grid format.

- *Strengths*: Internal advantages your startup holds (e.g., technical expertise, innovative design, cost efficiency).
- *Weaknesses*: Limitations or challenges within your control (e.g., funding gaps, reliance on unproven technology).
- *Opportunities*: External factors that could benefit your project (e.g., emerging markets, favourable regulations, strategic partnerships).
- *Threats*: External risks or challenges (e.g., competition, policy changes, technological uncertainty).

3.2.7 Task 7: Predict Your Project's Impact

Create a **PESTEL** (Political Economical Social Technological Legal Environmental) analysis to assess the broader influence of your project.

- *Political*: Government support, space policies, and international cooperation.
- *Economic*: Market demand, funding opportunities, potential ROI, and industry growth.
- *Social*: Public interest in space, societal needs your project addresses, workforce implications.
- *Technological*: Required innovations, technology readiness levels, R&D trends.
- *Legal*: Space law, licensing requirements, and regulatory compliance.
- *Environmental*: Contributions to sustainability, debris mitigation, and environmental impacts in space and on Earth.

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4 SCORING

Table CH1-1 provides the percentage allocation for Initial Proposal forming a total of 100%.

Table CH1-1 Score scheme for Initial Proposal (Challenge 1)

No.	Criteria	Percentage
1	TASK 1: Start-Up Introduction	5%
2	TASK 2: Team Roles Distribution	10%
3	TASK 3: Sketch your Project	30%
4	TASK 4: Mission Statement and Value Propositions	15%
5	TASK 5: Make a Mission Patch	5 %
6	TASK 6: Identify Strengths and Weaknesses	15%
7	TASK 7: Predict Your Projects Impact	15%
8	Document Format (including references in IEEE format)	5%

END OF DOCUMENT

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