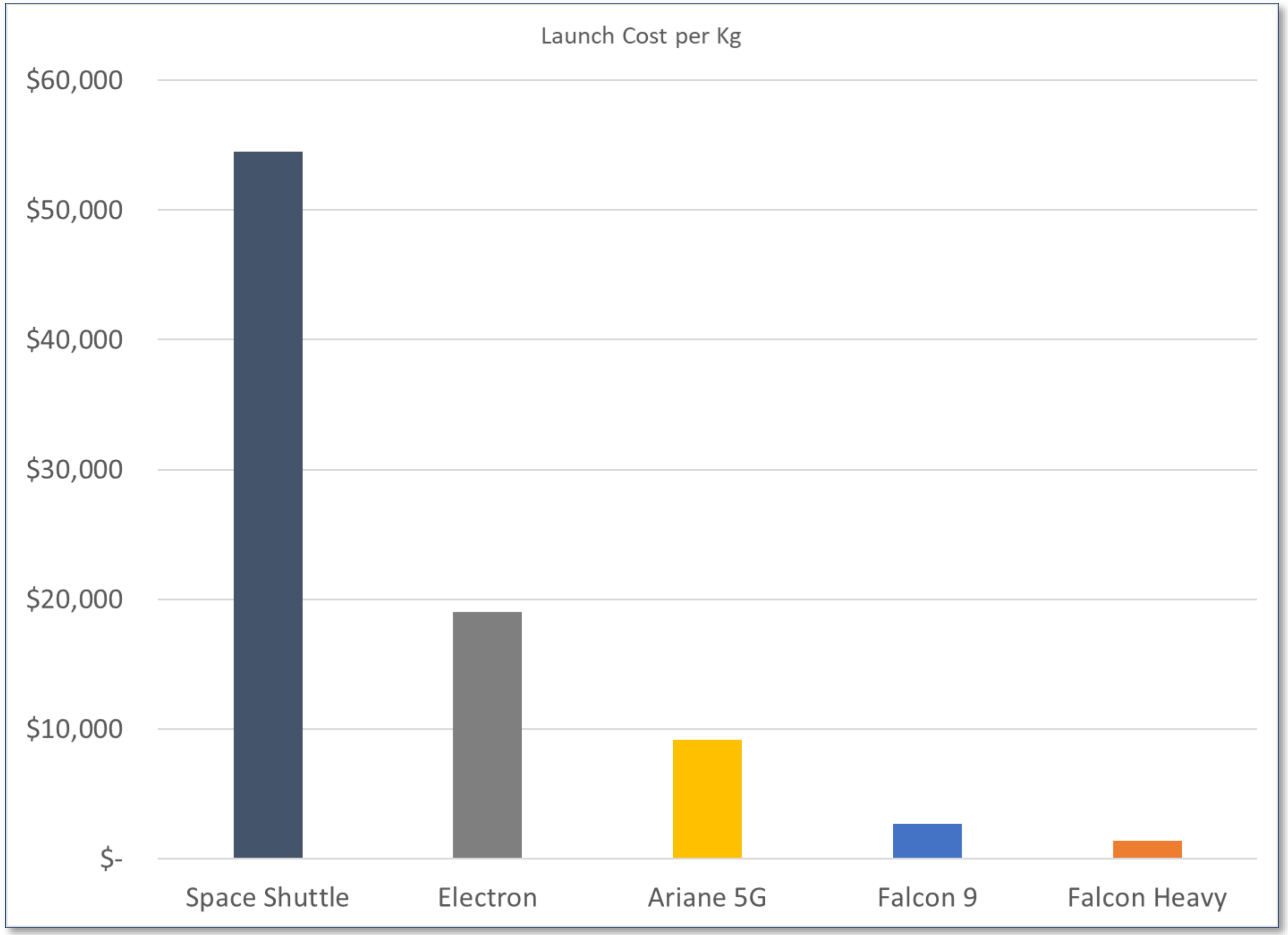
Opportunities for the Midlands in the UK Space industry

Frank McQuade

13th June 2023

Why Space and Why Now?



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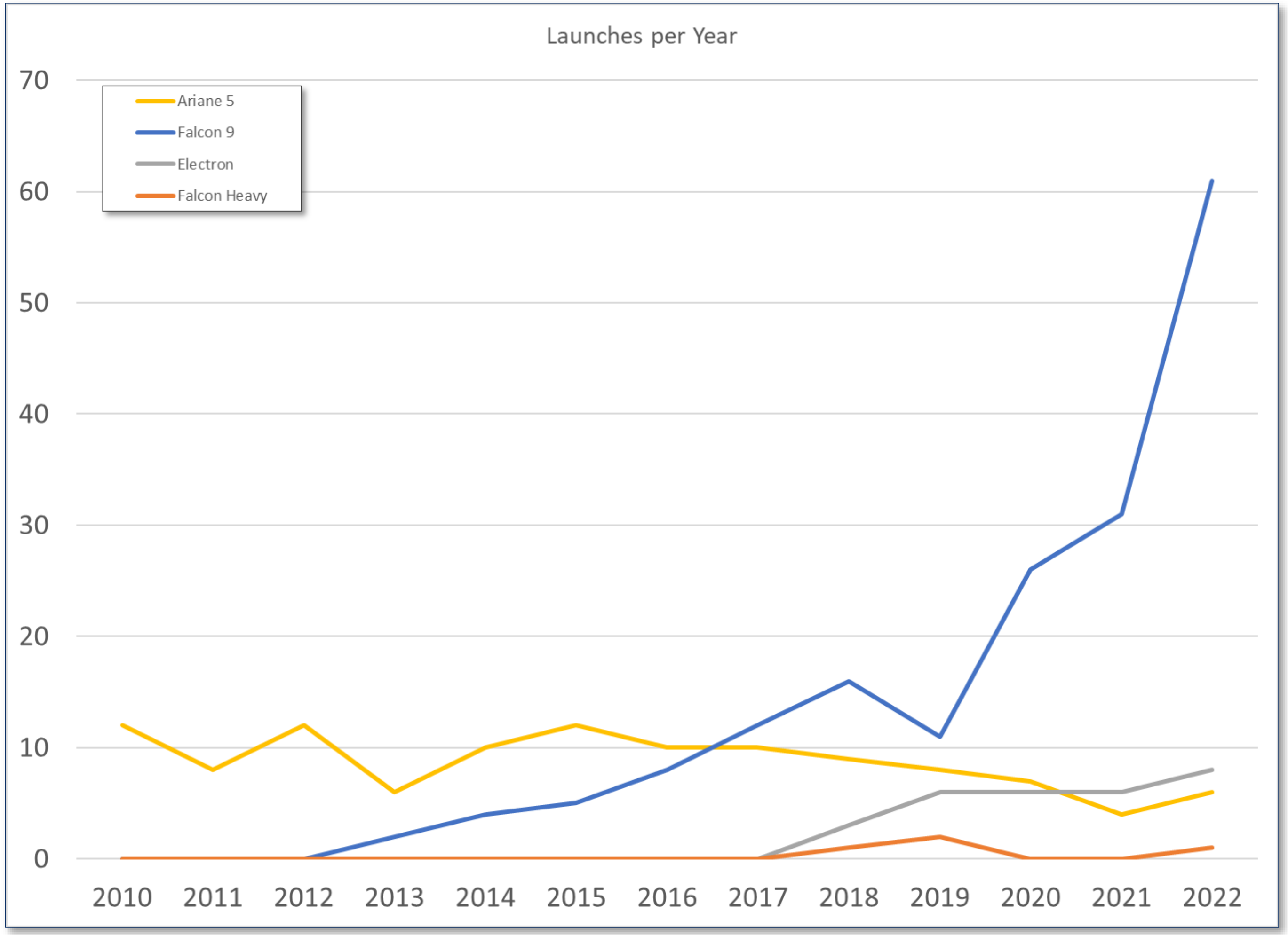

Why Space and Why Now?

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UK SPACE AGENCY

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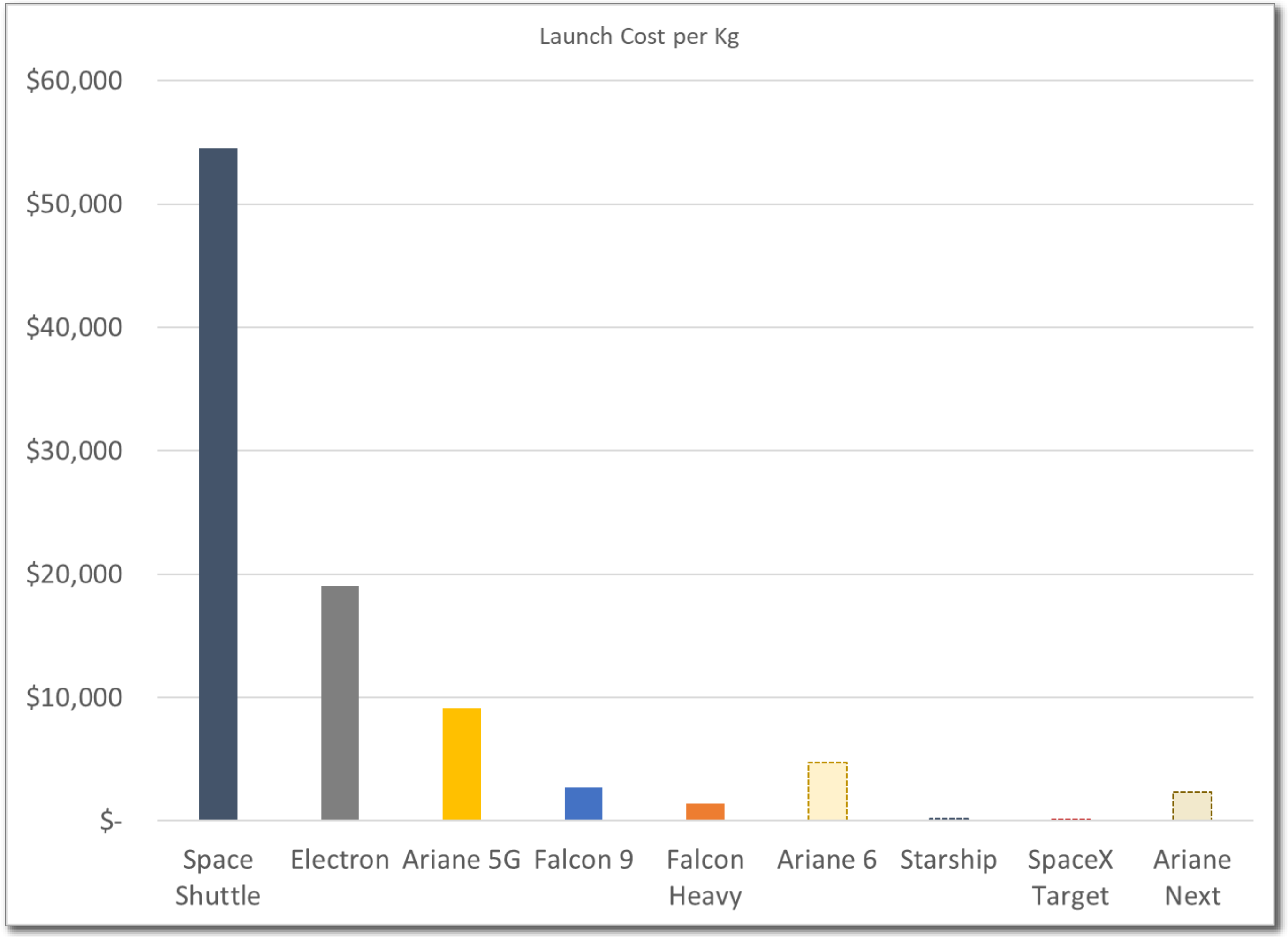

Why Space and Why Now?

30% IMPROVEMENT IN SPACECRAFT DEVELOPMENT TIME BY 2023

30%

30% improvement in spacecraft development time by 2023 by developing technologies that digitalise workflows, advancing technologies for increased flexibility, scalability and adaptability and developing processes that quickly introduce terrestrial technology into missions.

10X IMPROVEMENT IN COST EFFICIENCY

10X

A one order of magnitude improvement in cost efficiency with each new generation by reducing the cost per useful bit transmitted by telecommunications satellites, providing 100% service availability of positioning, navigation and timing services and making systems resilient to spoofing attacks, improving the resolution, accuracy revisit time and product delivery time of remote sensing missions and enabling transformational science and increased science performance.

2030 TARGET FOR INVERTING EUROPE'S CONTRIBUTION TO SPACE DEBRIS

2030

Inverting Europe's contribution to space debris by 2030 by ensuring that all ESA missions are environmentally neutral by 2020, developing the technologies necessary for the successful active removal of space debris by 2024 and enabling all ESA missions to be risk neutral by 2030.

30% FASTER DEVELOPMENT

30%

30% faster development and adoption of innovative technology by focusing on technologies that enable new space-based capabilities and services investing in joint lab facilities with industry and research centres for faster spin-in from terrestrial sectors to space and increasing opportunities for technology demonstration and verification payloads.

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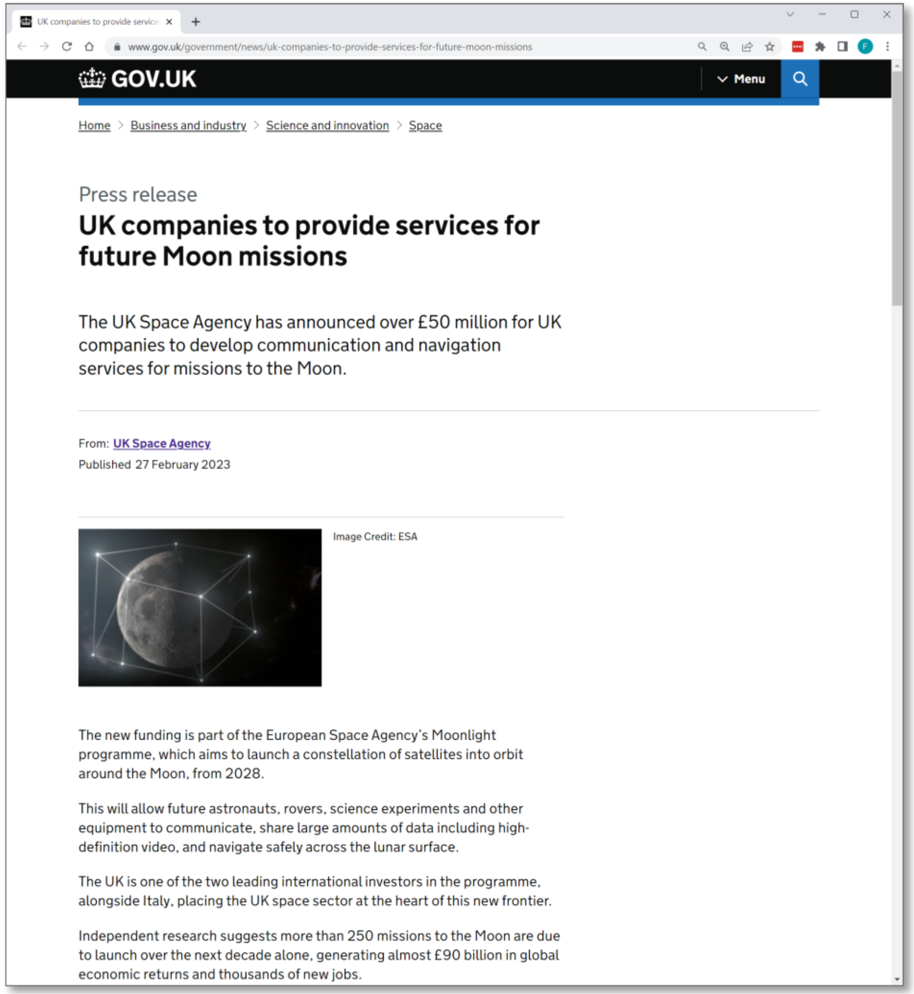
www.gov.uk/government/news/uk-companies-to-provide-services-for-future-moon-missions

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Home > Business and industry > Science and innovation > Space

Press release

UK companies to provide services for future Moon missions

The UK Space Agency has announced over £50 million for UK companies to develop communication and navigation services for missions to the Moon.

From: UK Space Agency
Published 27 February 2023

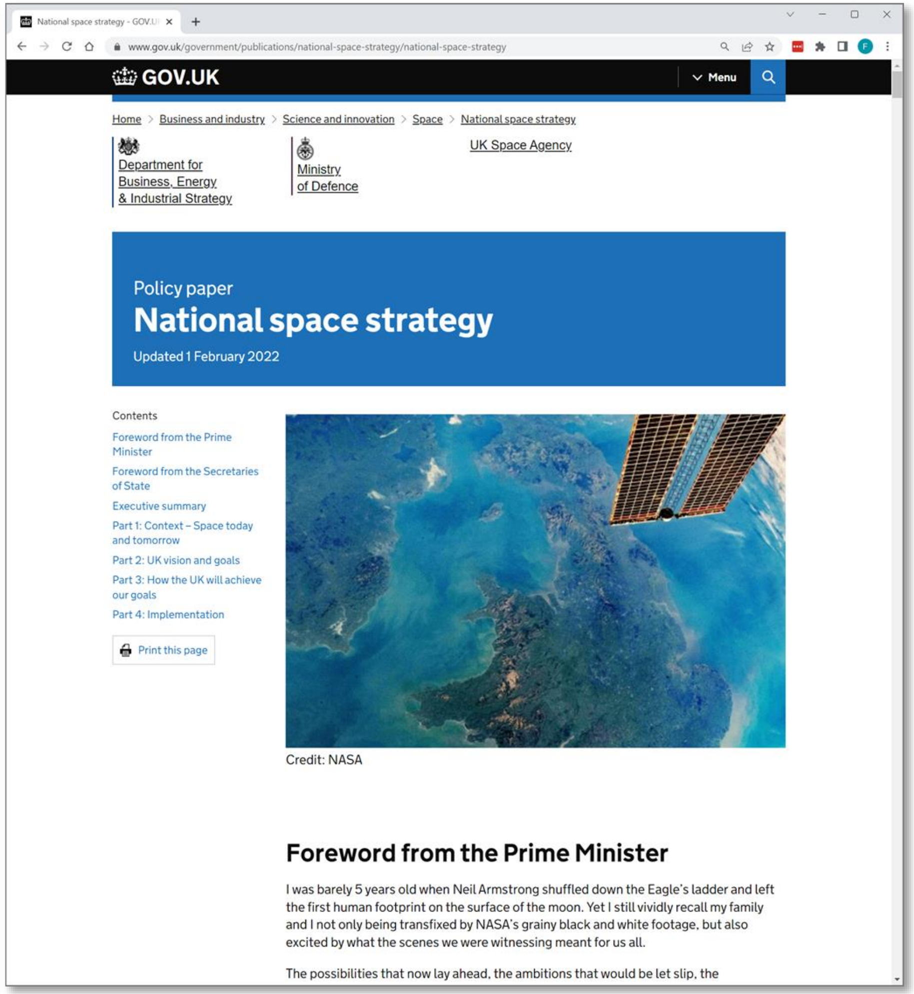
Image Credit: ESA

The new funding is part of the European Space Agency's Moonlight programme, which aims to launch a constellation of satellites into orbit around the Moon, from 2028.

This will allow future astronauts, rovers, science experiments and other equipment to communicate, share large amounts of data including high-definition video, and navigate safely across the lunar surface.

The UK is one of the two leading international investors in the programme, alongside Italy, placing the UK space sector at the heart of this new frontier.

Independent research suggests more than 250 missions to the Moon are due to launch over the next decade alone, generating almost £90 billion in global economic returns and thousands of new jobs.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GOV.UK Menu

Home > Business and industry > Science and innovation > Space > National space strategy

Department for Business, Energy & Industrial Strategy
Ministry of Defence
UK Space Agency

Policy paper

National space strategy

Updated 1 February 2022

Contents

Foreword from the Prime Minister
Foreword from the Secretaries of State
Executive summary
Part 1: Context – Space today and tomorrow
Part 2: UK vision and goals
Part 3: How the UK will achieve our goals
Part 4: Implementation

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Credit: NASA

Foreword from the Prime Minister

I was barely 5 years old when Neil Armstrong shuffled down the Eagle's ladder and left the first human footprint on the surface of the moon. Yet I still vividly recall my family and I not only being transfixed by NASA's grainy black and white footage, but also excited by what the scenes we were witnessing meant for us all.

The possibilities that now lay ahead, the ambitions that would be let slip, the

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National Space Strategy 10 point plan	Approximate spend per 10 point plan element*	UKSA Priorities
Capture the European market in commercial small satellite launch	£108M	Launch
Fight climate change with space technology	£261M	Earth observation
Improve public services with space technology	£49M**	LEO assets
Lead the global effort to make space more sustainable	£98M	Sustainability
Unleash innovation across the space sector	£457M	Innovation
Expand our horizons with space science and exploration	£633M	Discovery
Develop our world-class space clusters	£76M	Levelling-up
Upskill and inspire our future workforce	£40M	Inspiration
Deliver the UK Defence space portfolio		MoD lead†
Use space to modernise and transform our transport system		DfT lead

* *Figures shown here represent direct costs excluding Agency operating costs and are indicative, as many of UKSA's programmes cut across multiple aspects of the 10 point plan.*

** *£49M includes Earth observation and Inspiration figures.*

† *Working with the Ministry of Defence (MoD) and Space Command, we are looking to establish dual-use capabilities across a range of sectors including EO and Space Domain Awareness.*

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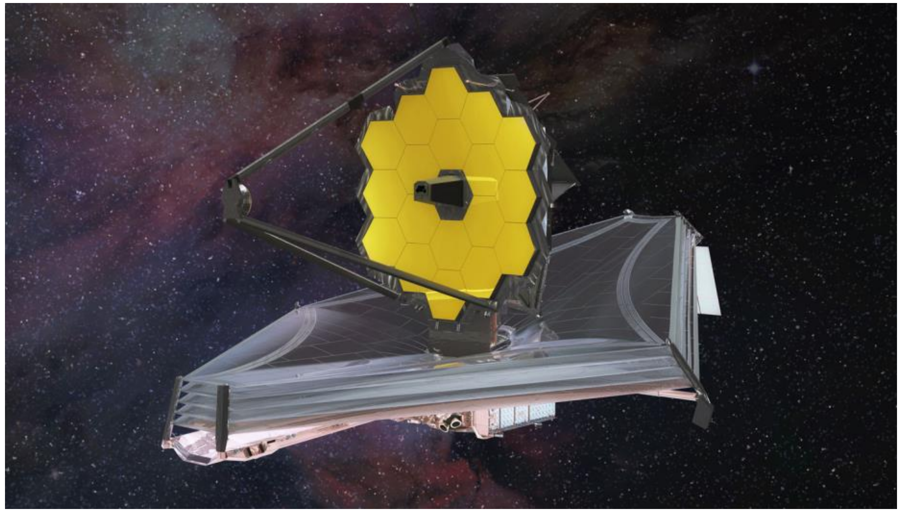
Market Segmentation - Traditional



European Space Agency funded

- Large, highly capable missions
- Budget 1.5 – 10 Billion Euros
- Flight heritage is essential
- ECSS a key requirement
  - https://ecss.nl/standards/
- Opportunities do exist
  - Typically, a 10-year journey from engagement to first flight
  - Profit margins can be fixed

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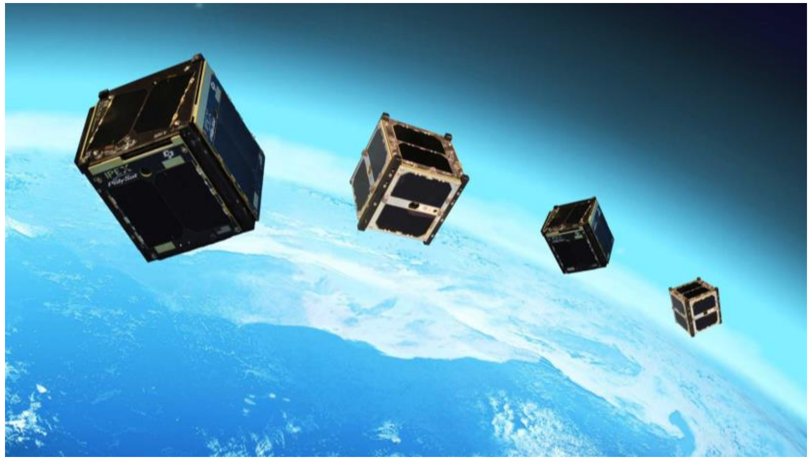
Market Segmentation – New Space

- Commercially and academically funded
- Small satellites
  - Ranging from 100 grams – 2 tonnes
  - Generally Low Earth Orbit - shorter lifespans
  - Generally launched with other payloads
- Very competitive market
  - Low margins
  - Constellations can result in high volume
- Useful for building flight heritage
- Standards and processes more relaxed
  - Still subject to flight safety procedures



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Putting the Midlands in the shop window

Midlands Space Cluster

Support new and existing space capability

- Creating an advocate for Midlands Space
- Looking at regional investment, start-up incubation, supply-chain mapping and skills & recruitment

Pivot into Space

Support new entrants with existing capability

- Connecting companies to R&D Assets, Space OEMs and Tier-Ones
- Supporting grants available in multiple phases, first calls in August

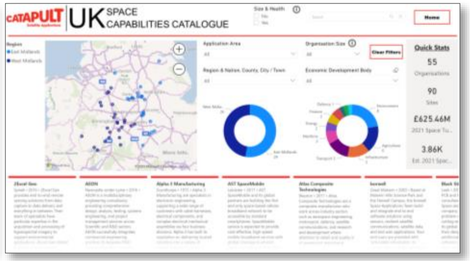
Engaging the business

Bottom-Up Approach

- Capability Assessment
- Catalogue your capabilities
- Add to the UK Space Capabilities Catalogue
- Highlight capabilities to the primes and tier ones

Top-Down Approach

- Customer Engagement
- Establish prime requirements
- Launch a competition
  - Sponsored by the prime
  - ~£35k available per project
  - Up to 12 months in duration
- 10 projects available



Key Points

- Space is a rapidly evolving market
  - Building the space economy
- It is viewed as a UK strategic endeavour
- The Midlands needs to get organised to drive success
  - The opportunities are real
- The **Midlands Space Cluster** will support new and existing capability
- The **Pivot into Space** project will support new entrants

thank you

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