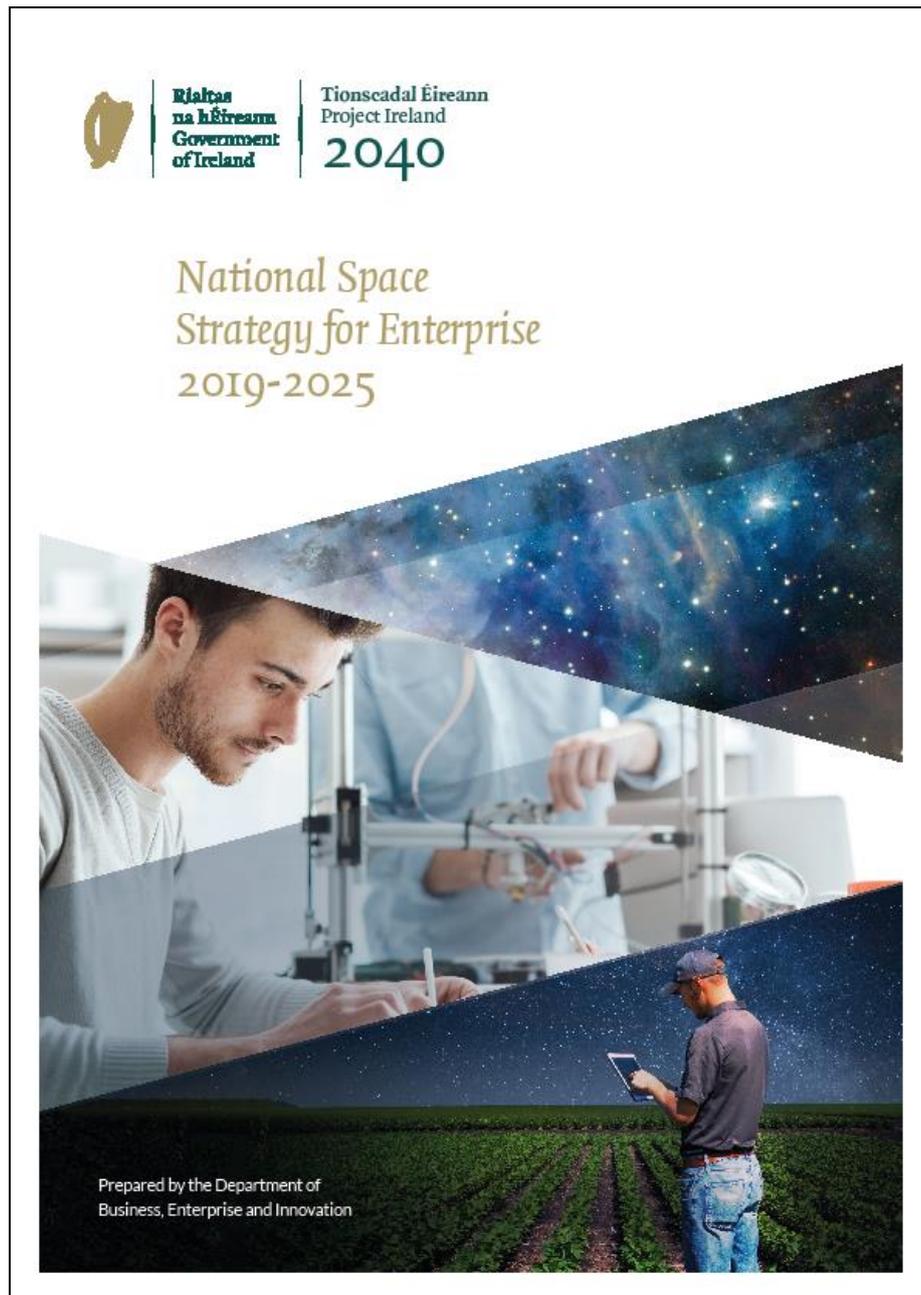


National Space Strategy for Enterprise 2019-2025

Second Progress Report (July 2021-June 2022)



Prepared by the Department of Enterprise, Trade and Employment
December 2022

National Space Strategy for Enterprise Progress Report

July 2021 – June 2022

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Executive Summary

During the period of July 2021 – June 2022 the space active industry in Ireland has demonstrated a strong level of growth, in both the number of companies securing European Space Agency (ESA) contracts as well as the value of contracts being placed with Irish based space enterprise by ESA. The launch of the James Webb telescope in 2021 which involved Irish researchers and industries is also another significant achievement.

The outcomes set out under the six pillars of the strategy demonstrate the importance of the continued investment by Government in the ESA whilst also developing our national capacity. Our investment is continuing to provide opportunities to Irish enterprises to scale and grow, to sustain jobs and create new ones, whilst also developing their capabilities to enable the technology transfer and commercialisation of their products and services, in space and other complementary sectors. Key deliverables in the reporting period include:

- The participation of 13 companies and 28 trainees in space related courses organised by Space Industry Skillnet.
- The All-Island Space Industry event held in Maynooth University in May 2022 attended by over one hundred academia and Industry representatives.
- Obtaining Dáil approval for international space treaties in preparation for Ireland's first Satellite, Eirsat-1's launch in 2023.
- 14 new start-up companies securing ESA contracts.
- The establishment of the DTIF supported CAMEO consortium.

In the period ahead, the Strategy Implementation Group will continue to focus on progressing the outstanding actions outlined in the NSSE in order to achieve Ireland's goals for space enterprise by 2025. The Group will also continue to engage with appropriate representative bodies and experts to understand the evolving needs of industry to further advance Ireland's engagement on the use of space and space technology.

Overview

This is the second progress report on the implementation of the National Space Strategy for Enterprise 2019 – 2025 (NSSE), prepared by the Strategy Implementation Group and approved by the Space Enterprise Coordination Group. This document sets out the progress made in delivering on the 19 key implementing actions in the reporting period July 2021 to June 2022. 3 of the actions have now been completed, with 15 actions on schedule and 1 action is in progress.

Enterprise Development

The second progress report highlights excellent growth in Ireland's space sector overall. The number of Irish based companies engaged with the European Space Agency (ESA) has increased by 34% since the publication of the strategy and has grown from 87 in 2020 to 94 in 2021. Irish based companies engaging with ESA support programmes also increased in 2021, with 14 start-up companies securing ESA contracts; 6 of which have previously worked with the ESA Business Incubation Centres (BIC). Industry co-investment also increased during the reporting period from €3.3m in 2020 to €4.7m in 2021, an increase of 45% on the previous reporting period.

Another highlight in the reporting period was the Irish involvement in the historic launch on 25th December 2021 of the James Webb Space Telescope. 2 Irish based companies provided components for the Ariane 5 launch vehicle for the telescope, while researchers at the Dublin Institute for Advanced Studies were involved in providing key infrared technology for the telescope to enable scientists to see further into space.

Industry Engagement

The third All Ireland Space Industry event took place on the 25 May 2022 in Maynooth University. Minister English addressed over 100 attendees during the event which focused on promoting opportunities for industry, particularly SMEs in Ireland and Northern Ireland active in the downstream space market. During the event the Minister also announced the launch of Ireland's Copernicus Academy and Relay.

Legislation

The Space Policy Unit in DETE advanced a number of pieces of legislation in Q1 and Q2 of 2022, which included obtaining Dáil approval for the Terms of the Outer Space Treaty 1967 and the UN Convention on International Liability for Damage Caused by Space Objects 1972. This was to remedy an identified legal lacuna where Ireland had ratified the terms of the treaties but had not subjected them for approval by Dáil Eireann.

The work was undertaken as part of a larger project which will ultimately seek Government approval, for the launch of Ireland's first satellite, EIRSAT-1. The EIRSAT-1 project is led by UCD and the ESA, with a launch date scheduled for early 2023.

Strategic Actions

The National Space Strategy for Enterprise continues to deliver on developing a strong and economically sustainable space-active industry in Ireland.

The strategy is built on five pillars, representing key action areas to support the achievement of Ireland's vision and goals for Space Enterprise. Progress of the 19 key implementing actions identified to enable the delivery of the strategy's goals in the period July 2021 to June 2022 are reported under the following Pillar headings:



Pillar 1: Investment

Aim: We will strategically invest to support strong and sustainable space enterprise.

Actions: 5.1.1 Investment to drive sustainability

5.1.2 New forms of investment

Key Action	5.1.1 Investment to drive sustainability a. Aim to increase public and private investment in ESA by 50% by 2025. b. Utilise the Space Technologies Programme to develop space focused initiatives, including funding mechanisms, delivered through DETE Agency Programmes.	
Status	a. On schedule	b. On schedule
Implementation Date	2019-2025	
Lead Responsibility	DETE, EI, IDA, Industry, SFI	
Progress Update	a. Annual investment in ESA increased from €19.8m in 2020 to €29.7m in 2021. The increase included once off funding of an additional €8m secured under supplementary estimates and €2.5m through Enterprise Ireland's Industrial RD&I fund. Industry co-investment increased by 45% from €3.3m in 2020 to €4.7m in 2021. b. Irish space active industry and researchers continue to benefit from publicly funded programmes including Enterprise Ireland's R&D fund as mentioned above and SFI's Frontiers for the Future Programme.	

Key Action	5.1.2 New forms of investment a. Collaborate with international partners including ESA, European Investment Bank (EIB) and the European Commission, to mobilise new forms of investment. b. Support and encourage the space active enterprise sector through the new Project Ireland 2040 Funds.	
Status	a. On schedule	b. On schedule
Implementation Date	2019-2025	
Lead Responsibility	DETE, EI, IDA	
Progress Update	a. SMEs and start-ups have continued to interact with investment funds with a number of Irish based companies engaging with the EIB and European Innovation Council. On the 25 th January 2022 Commissioner Breton, together with the European Investment Fund (EIF) launched the European Commission's CASSINI Facility to support innovative entrepreneurs, start-ups and SME's in the space industry, including New Space, during 2021-2027. The initiative is open to all areas of the EU Space Programme and covers both upstream (i.e. nanosats, launchers, etc.) and downstream	

	<p>(i.e. products/services enabled by space data, etc.). CASSINI activities includes a €1 billion EU seed and growth fund, as well as hackathons and mentoring, a business accelerator, partnering and matchmaking.</p> <p>b. A consortium of 7 Irish based SMEs and UCD have a proposal on payload development in optical communications for which they have submitted an application for funding under the Disruptive Technologies Innovation Fund (DTIF) Call 4.</p>
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Pillar 2: Strengths and opportunities

Aim: We will build on our strengths and actively pursue new opportunities to develop agile and sustainable space enterprise in Ireland.

Actions: 5.2 Building on our strengths and pursuing new opportunities

Key Actions	5.2 Building on our strengths and pursuing new opportunities		
	a. Establish a Space Data Hub to provide access to data from European and other 3rd party space missions.	b. Support industry in Ireland to develop advanced data analytic skills and deliver commercial services using the national Space Data Hub.	c. Help the space-active enterprise sector in Ireland to identify and access the most relevant research performing organisations to assist with their development needs.
Status	a. On schedule	b. On schedule	c. On schedule
Implementation Date	2019-2025		
Lead Responsibility	EI		
Progress Update	<p>a-b. The DTIF supported CAMEO consortium has been established to unlock the potential of Earth Observation (EO) data for non-specialist users with the aim of developing a sustainable internationally trading Earth Observation services sector in Ireland. The consortium will be engaging with members of the SECG in Q3 of 2022 with a view to identifying 3 potential test cases that could help solve specific Department’s policy issues.</p> <p>In May 2022 Minister English announced the launch of Ireland’s Copernicus Academy and Relay. Hosted by Maynooth University the Academy/Relay will be part of a European wide network designed to promote and educate the public, industry, and government of the benefits of developing EO capability.</p> <p>c. Enterprise Ireland continues to support Irish based companies to access ESA expertise in order to assist with their development needs on an ongoing basis. 2021 saw additional growth in the number of Irish companies engaging with ESA support programmes, with 14 new</p>		

	companies securing their first ESA contract; 6 of which having previously worked with the ESA Business Incubation Centres (BIC). Enterprise Ireland also continues to provide guidance and direction to support space active industry to engage with relevant EI and SFI technology centres.
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Pillar 3: Governance

Aim: We will create an appropriate environment for business

- Actions:**
- 5.3.1 The Space Enterprise Coordination Group and Strategy Implementation Group**
 - 5.3.2 The Space Enterprise Website**

Description	5.3.1 The Space Enterprise Coordination Group and Strategy Implementation Group a. Establish a Space Enterprise Coordination Group (SECG). b. Establish a Strategy Implementation Group.	
Status	a. Completed	b. Completed
Implementation Date	2019	
Lead Responsibility	DETE	
Progress Update	<p>a. The Space Enterprise Coordination Group (SECG) has met on 3 occasions since the publication of the strategy with its 3rd meeting held on the 5th May 2022 focusing on how space data and applications can be used to enhance delivery of public services.</p> <p>b. The Strategy Implementation Group (SIG) has continued to engage with Members of the SECG. Of particular note is their input into negotiations on the European Commission proposal on Secure Connectivity, being led by the Department of Environment, Climate and Communications and the negotiations on the UNGA Resolution 75/36 on “Reducing space threats through norms, rules and principles of responsible behaviours”, being led by Department of Foreign Affairs.</p> <p>The SIG advanced a number of pieces of legislation in Q1 and Q2 of 2022, which included obtaining Dáil approval for the Terms of the Outer Space Treaty 1967 and the UN Convention on International Liability for Damage Caused by Space Objects 1972. This was to remedy an identified legal lacuna where although Ireland had ratified the terms of the treaties, they had not been subjected to approval by Dáil Eireann.</p>	

	The SIG will also be arranging additional bilateral meetings with SECG members in Q3 of 2022 to establish if/how Space Data could be used to help achieve their policy goals.
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Description	5.3.2 The Space Enterprise Website Establish a dedicated space enterprise website
Status	b. In progress
Implementation Date	2019
Lead Responsibility	EI, SFI, IDA, BCO, ISIG
Progress Update	The format and content of the Space Enterprise Website is being finalised and will be incorporated into the new EI website platform in Q2 of 2023.

Pillar 4: Attract and develop talent

Aim: We will foster a pipeline of capable graduates and postgraduates and enable upskilling within space enterprises

**Actions: 5.4.1 Education
5.4.2 Industry Upskilling**

Description	5.4.1 Education a. Build awareness of national space education resources such as the European Space Education Resource Office (ESERO) Ireland and Ireland’s recent memberships of the Low Frequency Array (LOFAR) and the European Southern Observatory (ESO). b. Drive awareness and engagement with space through promotion of National Space Week activities. c. Grow the enterprise capabilities of the space research community with appropriate funding for ESA’s science and technology PRODEX programme, and national research programmes.		
Status	a. On schedule	b. On schedule	c. On schedule
Implementation Date	2019-2025		
Lead Responsibility	SFI, DETE, EI, BCO, IRC		
Progress Update	a-b. In 2021 Space Week was run virtually from the 4 th to the 10 th of October with approximately 88,500 participants from schools all over Ireland and over 8,000 public participants. ESERO events during Space Week included: the Space Careers Roadshow, the Space goes to School Programme, and the Space Education Confluence which focussed on the Solar Orbiter Mission.		

	<p>c. Several Irish teams contributed to the historic launch on 25th December 2021 of the James Webb Space Telescope via the Government's investment in the ESA PRODEX programme. Irish start-up Réaltra designed and manufactured the video system mounted on the Ariane 5 launch vehicle for the telescope. Nammo Ireland provided structural supports for the Vulcain engine that powered the telescope's launch vehicle, Ariane 5. As well as these companies, researchers at the Dublin Institute for Advanced Studies were involved in providing key infrared technology for the telescope to enable scientists to see further into space.</p> <p>Dáil approval was obtained for the Terms of the Outer Space Treaty 1967 and the UN Convention on International Liability for Damage Caused by Space Objects 1972. The work was undertaken as part of a larger project which will seek Government approval, for the launch of Ireland's first satellite, EIRSAT-1. The project is led by UCD with support from PRODEX and ESA's Fly Your Satellite! programme, with a launch date scheduled for early 2023.</p>
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Description	5.4.2 Industry Upskilling		
	<ul style="list-style-type: none"> a. The Strategy Implementation Group to consult with industry to agree skills shortages and develop a Detailed Description of Needs (DDN) to support the development of space focused programmes/courses by relevant training and education providers. b. Space Industry Skillnet to develop and coordinate the delivery of suitable courses supported by HEIs and other relevant training providers. c. Promote awareness of international programmes available to space-active industry to support knowledge development. 		
Status	a. On schedule	b. On schedule	c. On schedule
Implementation Date	2019-2025		
Lead Responsibility	DETE, Space Industry Skillnet, HEIs, EI, SFI, IRC		
Progress Update	<p>a. Enterprise Ireland are currently engaging with Skillnet to discuss the development of educational programmes to address the skills shortage identified in the Tecnovas Baseline Report presented to the SECG during its 2nd meeting in May 2021, in particular in areas such as EO, data analytics and organisational management including costing, sales and budgeting.</p> <p>b. A total of 13 companies and 28 trainees participated in 3 courses organised by Skillnet during the reporting period. The course topics included "Doing Business with ESA" & "Writing ESA Proposals", "EO</p>		

	<p>Copernicus Sentinel 1 & 2 Training” and “Quality Assurance for Space Projects”.</p> <p>5 new courses are currently being developed by Skillnet are scheduled to take place in the second half of 2022.</p> <p>c. Enterprise Ireland continue to provide guidance to Irish based companies and researchers to access ESA expertise while also supporting their engagement with the EU’s programme for research and innovation - Horizon Europe, The EU Space Programme, and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT).</p>
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Pillar 5: International Engagement

Aim: We will promote international awareness of Ireland’s space enterprise capabilities.

Actions: 5.5 International Awareness

Description	5.5 International Awareness		
	<ul style="list-style-type: none"> a. Support 80 Irish companies to participate at international trade events focusing on integration in global space supply chains. b. Develop the online directory to promote Ireland’s space industry capabilities to the global space market. c. Develop Ireland-global collaborations through bilateral agreements, with space industry development organisations including NASA. 		
Status	a. On schedule	b. Completed	c. On schedule
Implementation Date	2019-2025		
Lead Responsibility	EI, SFI		
Progress Update	<p>a. During the reporting period, a number of Irish based companies participated in trade events, including:</p> <ul style="list-style-type: none"> • 35 Irish based companies attended the 3rd All Island Space Industry Day hosted in Maynooth College in May 2022 which focused on promoting opportunities for industry, particularly SMEs in Ireland and Northern Ireland active in the downstream space market. • 7 Irish based companies attended the Farnborough International Air show in the UK, a 4 day event which focused on building collaborations and supply chain relationships in the Aerospace sector. <p>b. The space industry online directory at www.space-ireland.com was completed in 2020 and will be integrated into a new Space Enterprise website due to be completed in Q2 of 2023.</p>		

	<p>c. Steady progress continued on developing Ireland’s global collaborations including preliminary discussions between EI and the Italian Space Agency ASI exploring the development of a memorandum of understanding between Ireland and ASI on potential EO projects.</p> <p>The Department of Transport provided Irish representation at the newly formed EUSPA Administration Board in 2021. EUSPA’s core mission is to implement the EU Space Programme and to provide reliable, safe and secure space-related services for European society and businesses. The Board meets at least twice a year to take various decisions (budget, work programme, etc.) to ensure that the Agency performs its entrusted tasks as outlined in the EU Space Programme.</p>
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Annex 1: Glossary

BCO	Blackrock Castle Observatory
CAMEO	Creating an Architecture for Manipulating Earth Observation data
DETE	Department of Enterprise, Trade and Employment
DOT	Department of Transport
DTIF	Disruptive Technology Innovation Fund
EI	Enterprise Ireland
EIB	European Investment Bank
ESA	European Space Agency
ESERO	European Space Education Resource Office
ESO	European Southern Observatory
EU	European Union
EUSPA	European Union Space Programmes Agency
HEI	Higher Education Institution
IRC	Irish Research Council
MOU	Memorandum of Understanding
SME	Small to Medium-Sized Enterprise
SFI	Science Foundation Ireland
UNGA	United Nations General Assembly
EIF	European Investment Fund

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