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NORTHERN IRELAND SPACE STRATEGY

Supporting the growth of the UK Space Sector

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SpaceBus NEO, platform for NEOSAT programme © Thales Alenia Space

Northern Ireland Space Strategy

The Space Sector is a significant emerging market encompassing industry, academia and government. It is an enabler of communication, entertainment and drives innovation and academic research. It inspires young people, scientists and engineers.

Space will have a critical role in addressing the key challenges facing the human race over the next number of decades. The UK Space Agency projects the global space related market to be worth £400bn by 2030 and has set an ambitious target for the UK to achieve 10% of this market by 2030.

The objective of this strategy is to create a firm and realistic foundation from which to grow the space sector in Northern Ireland and enhance the region's standing in the space community. The strategy will support the UK Space Innovation and Growth Strategy and provide opportunities for Northern Ireland stakeholders to engage with the space community as a pro-active and leading member of the developing UK supply chain. The strategy also aligns with the Northern Ireland Partnering for Growth Strategy for the Aerospace, Defence, Security and Space sector and should be viewed as the next phase for development within Northern Ireland to become recognised as an innovative space region globally.

Mission

Northern Ireland's Space Sector will be a strategic asset to the Northern Ireland economy. It will support the growth of the UK Space Sector by exploiting key upstream resources and developing world class space downstream capabilities.

Vision

To develop Northern Ireland as a globally recognised region for space sector innovation and creativity.

“The UK Space Agency warmly welcomes the commitment to develop the Northern Ireland Space Strategy as a local reflection of the UK's aspirations to develop a strong, vibrant space economy. Northern Ireland has already recognised how space builds upon its strong technical heritage and is well positioned to capitalise upon the new opportunities across the wider UK and global economies that space can enable.”

Catherine Mealing-Jones, Director of Growth, UK Space Agency

Growing the Northern Ireland Space Cluster

Northern Ireland has a proud heritage of engineering excellence. The regional aerospace cluster contributes around £1.3bn to the UK aerospace industry. Northern Ireland is Europe's 8th largest aerospace region in revenue terms. The region's innovative and skilled companies are involved in every major aircraft programme globally.

The Northern Ireland Space Special Interest Group (NISSIG), hosted by ADS (NI), was created to initially provide a voice for regional engineering and research stakeholders to promote their respective capabilities and identify opportunities for business and research growth and development within the space sector.

The following strategic recommendations form a foundation for the development of the space cluster in the region. Working collectively innovating, identifying and pursuing opportunities whilst looking outwards in the spirit of partnership and collaboration with the developing UK and international space communities.

“Northern Ireland possesses the high precision engineering expertise, research competence and innovative thinking that is necessary to meet the demands of tomorrow’s European and International Space Programmes and their application. Clearly identifying the opportunities where we can use these skills is the key to growth”

Dr Michael McKay, Head of Strategy and Coordination Office, Directorate of Operations, European Space Agency

Strategic Objectives

- Establish a Northern Ireland space task group comprised of key stakeholders from NI industry, academia and government to identify capabilities, competencies and map these to future strategic space requirements
- Appoint a Northern Ireland Space Co-ordinator to actively champion the NI space community
- Collaborate with the UK Space Agency, Satellite Applications Catapult, InnovateUK and other relevant national stakeholders to identify future commercial opportunities in the space sector
- Work with the international commercial space community

- Capture regional university and research capabilities and encourage further research/industry collaboration for space sector development utilising regional and national programmes
- Further develop the Northern Ireland Space Special Interest Group (NISSIG)
- Engage with the 'NewSpace' community, identifying Northern Ireland capabilities and relevant technology development opportunities
- Actively participate in national space forums and working groups to ensure Northern Ireland contribution is recognised and valued within the UK space ecosystem



Envisat Image – NI & Scotland from Space © European Space Agency

Develop the Application of Space and Satellite Enabled Technologies

Northern Ireland has developed world-class capability in areas such as advanced sensors, predictive analytics and cyber security.

The region has deep experience in the storage and analysis of large volumes of data, including financial, telemetry and genomic data, with a strong capability in machine learning and artificial intelligence in health, financial services, and cyber security. Both Queen's University and Ulster University have world leading expertise in these fields.

Exploiting these capabilities leaves the region well placed to be a leader in the development of products and services that build on high quality data and deliver innovative solutions to government, civic and private organisations. Furthermore, strengths in security and data storage (25% of all computer read/write heads are made by Seagate Technology in Northern Ireland) means that Northern Ireland is well placed to develop and operate satellite data platforms.

It is essential that the promotion of satellite applications to regional government, local authorities and potential end users in a variety of strategic sectors is enacted.

“The Satellite Applications Catapult has been developing a strong and fruitful relationship with the space community in Northern Ireland over many years. In particular, I have been greatly impressed by local actions to grow the downstream space capabilities in Northern Ireland through innovation and knowledge exchange; through technical collaboration with other organisations around the UK; and in skills development. I look forward to working closely with NI colleagues to align our regional engagement activities and to implement a fully integrated regional industrial strategy for Space”

Stuart Martin, CEO Satellite Applications Catapult

Strategic Objectives

- Develop a Northern Ireland Downstream Space Centre/Growth Hub in partnership with Invest NI, regional industry, academia and government
- Collaborate with the UK Space Agency, Satellite Applications Catapult and InnovateUK to align regional strategy with the UK Space Innovation and Growth policy
- Identify key competencies and match these to market opportunities with support from the UK Space Agency and European Space Agency
- Work with Digital Catapult NI, Catalyst Inc, Invest NI and key *non-space* sector bodies to promote satellite applications to current non-space communities
- Generate regional satellite applications competitions to catalyse SME engagement in the space downstream sector
- Create sector specific 'Access to Space' workshops for SMEs and potential end users, highlighting regional success stories and case studies in utilisation of space assets
- Engage with relevant downstream national and international initiatives including the Space for Smarter Government and accessing Northern Ireland's membership of Eurisy



ECIT planar 1.5m near-field scanner
QUB - Institute of Electronics, Communications & Information Technology

Developing Skills and Competencies for the Space Sector in Northern Ireland

Northern Ireland has the skills and capabilities to develop and deliver innovative engineering solutions to the space community and create new products and services using satellite technology and information.

There is a need for Northern Ireland to develop a better understanding of the future space market. Mapping this knowledge to existing manufacturing, engineering and research strengths will help to catalyse space sector engagement. Identifying areas where upskilling of existing talent could lead to new opportunities and creating potential academic research pathways for graduates will support space development in the region. As stated in the UK Space Innovation and Growth Strategy, ‘sustainable growth in the space industry will only be achieved by ensuring that there is a ready supply of appropriately skilled graduates and apprentices and that they are attracted to the space industry.’

Providing the Northern Ireland digital community with the tools and knowledge on how to access space generated and derived data and linking this with regional government ‘needs’ is key to developing the space downstream sector in the region.

If Northern Ireland is to prosper as a region of scientific and engineering excellence, whilst cultivating a culture of innovation and entrepreneurship, it is essential that the next generation is encouraged to engage with science, technology, engineering and maths (STEM) subjects.

Space related themes can be used as a context to enhance and support the teaching and learning of STEM in schools and colleges. Space can be used to inspire our next generation to explore the world around them and engage with STEM activities.

Developed in conjunction with regional industry and skills authorities, Northern Ireland is the only region in Europe to have a vocational Space STEM qualification for 14 to 16 year old students. The qualification titled ‘Space Science Technology’ has been created by the Council for Curriculum, Examinations and Assessment (CCEA) NI. It is a fascinating and innovative course which explores how space science technologies are impacting our daily lives while enabling us to explore beyond planet earth. Two of the principal aims of the qualification are to:

- develop learners’ STEM skills in the context of space science technology;
- provide an understanding of the role played by space science technologies in industry

By nurturing and inspiring curiosity in our students, with an understanding of regional industry and research future skills requirements, we can use the context of space to encourage and motivate students to consider STEM pathways and careers.



Schools competing at Northern Ireland Rocket Challenge at RLC

Strategic Objectives

- Identify skills gaps vs future space sector opportunities and work with national and regional authorities to provide relevant training and upskilling
- Highlight regional success stories and achievements through annual STEM related events such as the Northern Ireland Science Festival and World Space Week
- Support the ongoing development of the unique CCEA Space Science Technology level 2 qualification through industry engagement, careers fairs and school visits
- Develop a Level 3 qualification for student progression, reflecting the future needs of regional industry and research

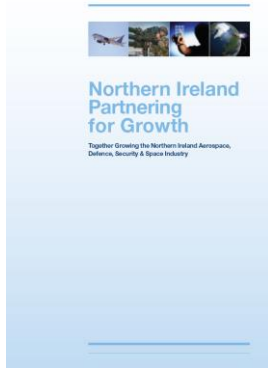


“One of the main aims of education is to prepare young people for employment and the workplace. Demand for a workforce equipped with a high level of STEM skills is increasing. Northern Ireland has a highly technological and fast growing space industry which offers exciting and rewarding careers. We need to start with the young and through our education system, inspire, motivate and encourage uptake of STEM subjects in schools and colleges. Space can provide fun and engaging contexts that will make STEM education enjoyable, while raising young people’s awareness of potential future careers.”

ESA Astronaut Tim Peake CMG

Documents and references

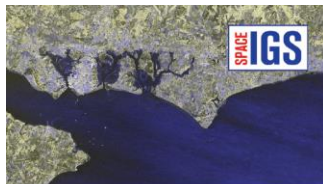
Northern Ireland Partnering for Growth Together Growing the Northern Ireland Aerospace, Defence, Security and Space Industry



Northern Ireland Space Brochure



UK Space Innovation and Growth Strategy



**UK SPACE INNOVATION
AND GROWTH STRATEGY:**
2015 Update Report





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