Wales Space Sector Study

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SPACE WALES

Ariennir gan Lywodraeth Cymru
Funded by Welsh Government

CATAPULT Satellite Applications

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Contractual Information

This final report was delivered to Space Wales by the Satellite Applications Catapult (the Catapult).

Report prepared by

Satellite Applications Catapult

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Executive Summary

This report examines the Welsh space sector to identify areas of strategic strength, development need, and practical opportunity. It is intended to support readers seeking to understand where Wales offers credible opportunities for collaboration, foreign direct investment, and export, and where targeted engagement could help accelerate the growth of the Welsh space economy.

As a standalone report, it forms part of the wider Welsh Government Agile Cymru-funded activity designed to raise the visibility of Welsh capability, strengthen international relationships, and support longer-term trade, investment, and cluster development.

The analysis shows that Wales has developed a credible and increasingly distinctive space ecosystem, despite the absence of a standalone devolved space programme. Its development has been shaped by the mobilisation of long-standing assets in aerospace, defence test and evaluation, engineering, semiconductors, and space science, and by a more recent strategic effort to organise these assets into a recognisable space cluster. Wales presents not as a large, self-contained space power, but as a focused and adaptable ecosystem with identifiable strengths in design and manufacture, testing and evaluation, mission planning and launch-enabling activity, resilient communications, and downstream applications linked to public-sector and cross-sector need.

The report also finds that Welsh strategy has become more coherent and outward-facing. Space Wales has translated broad cluster ambition into a more structured proposition built around upstream capability, downstream applications, sustainable space, and the use of space-enabled technologies to support wider Welsh priorities. In particular, the challenge-led framing around climate and environment, rural connectivity and inclusion, and infrastructure and energy resilience gives Wales a clearer basis for linking space capability to national need. This helps distinguish Wales not only by what it can build, but by the practical problems it is seeking to solve.

The central finding of the report is that Wales' main challenge is not the absence of capability, but the need to deepen, package, and commercialise it more effectively. Wales has visible assets and strong enabling capabilities, but these are not yet always translated into a fully investable, easily navigable, or internationally legible ecosystem proposition. Future advantage will therefore depend on how effectively Wales converts existing manufacturing,

engineering, test, and application strengths into a more complete market offer, supported by stronger supply-chain readiness, broader commercial traction, and clearer routes to inward investment and export.

For readers interested in practical engagement, the report points to several broad opportunity areas. These include advanced manufacturing and subsystem supply, test and evaluation, mission planning and launch-enabling services, resilient connectivity, public-sector and cross-sector applications, and sustainability-led challenge areas where Welsh capability can be linked to visible demand. Opportunities are strongest where partners, investors, and customers can help Wales move from credible capability to stronger market position, strengthen the surrounding ecosystem layers that support growth, or connect Welsh strengths to international programmes and supply chains.

Introduction

This report provides an overview of the Welsh space sector, its current strategic direction, and the principal areas in which it shows both strength and development need. Its purpose is to help identify areas where Wales presents meaningful opportunities for collaboration, foreign direct investment, and export. It is intended for readers seeking to understand where Welsh organisations, institutions, and cluster assets already offer credible capability, where Wales is seeking to strengthen its position, and where engagement with the Welsh ecosystem may provide practical value.

This standalone report sits within a wider programme of activity supported through Welsh Government's Agile Cymru funding. That project was designed to strengthen international links, increase Welsh visibility, support cluster development, and generate practical opportunities for trade, investment, and collaboration. Within that broader effort, the present report helps articulate the Welsh proposition more clearly by setting out how Wales' existing assets, strategic priorities, and identified gaps together create a platform for future engagement and economic activity.

The Welsh space sector is well suited to this kind of analysis because it is developing from a distinctive base. Rather than being defined by a single major institutional programme, it has emerged through the alignment of assets in aerospace, defence, engineering, semiconductors, and research, combined with more recent cluster-building activity led by Space Wales and its partners. This gives Wales a profile that is more focused and emergent than that of larger national ecosystems, but also more agile in the way it can organise around niche strengths and challenge-led opportunities.

The report is structured around that logic. It first outlines the Welsh space story and the broader conditions from which the sector has emerged; it then considers the strategic direction set by Space Wales and related Welsh policy priorities, including the effort to frame space as an enabling sector that supports resilience, sustainability, and wider economic development; finally, it assesses the current capability base through the gap analysis, identifying both the areas where Wales already has a credible offer and the areas where further development is needed if it is to secure stronger long-term advantage.

The report should be read as an opportunity-identification document rather than simply a cluster profile. For businesses, it can help indicate where Welsh capabilities may be relevant to customers, supply chains, and international partners. For investors, it can help identify areas where Wales has credible technical and industrial capability but would benefit from greater scale, packaging, and commercial acceleration. For policymakers and ecosystem organisations, it can help clarify where collaboration and inward investment may be most effective in reinforcing Wales' strategic ambitions and translating cluster growth into wider economic impact.

Caveats and Limitations

As with all studies, it is important to recognise and acknowledge limitations and highlight appropriate caveats.

The scale and complexity of the space ecosystem presents significant challenges to developing a complete and comprehensive mapping of all supply chain stakeholders, their capabilities, and their activities. It is important to recognise that this analysis, while insightful, may not capture every aspect of the space capability landscape. Mapping has been limited by the availability of data, particularly with respect to private sector infrastructure where providers may not always publicise the full extent of their capabilities for commercial or proprietary reasons. This report may therefore, in certain areas, be limited in its ability to evaluate and analyse all activities and capabilities available to support the realisation of capability goals.

These limitations underscore the importance of interpreting the findings with caution, particularly where generalisations or extrapolations are made. Future research would benefit from additional primary data collection and expanded stakeholder engagement to address these gaps.

For further insights into the organisations and stakeholders working across Wales, please visit the Catapult's *Space Capabilities Catalogue (SCC)*.

Wales

The Welsh Space Sector, Strategy, & Priorities

The Welsh Space Story

The story of Wales' space sector is a recent one, shaped less by a single national space programme and more by the gradual mobilisation of long-standing Welsh assets in defence test and evaluation, space science, and an aerospace-strong nation.

Wales' enabling foundations can be traced back to the Second World War, when a military testing range was established in Cardigan Bay, controlled from a site near Aberporth (MOD Aberporth). This created enduring range, tracking, and airspace infrastructure that would later become relevant to near-space activity and wider spaceflight-adjacent operations (QinetiQ, 2026)[1]. Complementing this, Llanbedr Airfield was opened in 1941 and became part of Wales' long-running test, flying and range-related lineage in North Wales (ABCT, 2025)[2]. Wales also established an early, visible milestone in space science with the opening of the *Spaceguard Centre* near Knighton in 2001, which operates as the UK's national near-Earth objects information capability and a working observatory.

Its subsequent journey towards space-enabled growth and a modern, coordinated Welsh space story started with early sector mapping work in 2006 carried out with support from the Aerospace Wales Forum alongside the then British National Space Centre. A more decisive phase began in 2014, when Welsh Government commenced sustained engagement with the UK Space Agency (UKSA), creating a stronger policy and funding interface between Wales and the UK space ecosystem. This was followed by the publication of the first Wales Space Strategy in 2015 and the Welsh Government's "Spaceport Snowdonia Wales" brochure in early 2017, signalling intent to anchor Welsh growth around both upstream capability and downstream applications (Meechan, 2015)[3].

[1] QinetiQ, 2026. About MOD Aberporth. [Online] Available at: https://www.qinetiq.com/en/aberporth/about [Accessed 20th January 2026].

[2] ABCT, 2025. Llanbedr. [Online] Available at: https://www.abct.org.uk/airfields/llanbedr/ [Accessed 20th January 2026].

[3] Meechan, B., 2015. Mission: Wales aims for £2bn a year from space industry. [Online] Available at: https://www.bbc.co.uk/news/uk-wales-33507590 [Accessed 20th January 2026].

By 2019, Wales' ambitions were increasingly visible on the UK stage. The UK Space Conference, hosted at the newly opened International Convention Centre in Newport, became a platform for announcements tied to sector investment in Wales. Among these was a £500k award to Snowdonia Aerospace Centre from UKSA's Horizontal Spaceport Development Fund to develop a Spaceport Snowdonia Development Plan.

As strategic intent translated into delivery, Wales began strengthening the networks needed to turn capability into a coherent ecosystem. Over the five years leading into 2021, Welsh Government and the Aerospace Wales Forum worked to grow the national space sector network and raise its profile:

- Wales a Sustainable Space Nation was published in February 2022 (Welsh Government, 2022)[4];
- Space Wales established to drive the sector forward and to support engagement with space disruptors and entrepreneurial start-ups whose culture and business models differed from mainstream aerospace (Space Wales, 2026)[5];
- The Wales Academic Space Partnership (WASP) was established to strengthen university to industry cooperation, while Aerospace Wales formed a dedicated Space Group.

Alongside convening, Wales' space story has become increasingly defined by practical activity and enabling infrastructure. Snowdonia Aerospace Centre continued to expand its client base for future flight and space-related operations, boosted by £820,000 in funding from the UK Space Agency under the Space Clusters Infrastructure Fund (SCIF) to support the development of a new Space Technology Centre at the former Llanbedr Airfield (UKSA, 2023)[6], while near-space operations commenced through flights such as B2Space's stratospheric balloon and the Astigan HAPS, leveraging the established MoD / QinetiQ tracking range in Cardigan Bay.

Wales' trajectory is also tied to upstream manufacturing ambition and a growing commercial base. Space Forge's work on a returnable in-space manufacturing platform intendeds to enable materials manufacturing that is not feasible on Earth. In parallel, Wales also has downstream strengths, particularly in Earth observation (EO) and data-enabled services. Capability includes Environment Systems' Satellite Data Services (launched in 2017) and Aberystwyth University's Living Wales project, a world-first concept intended to capture landscape dynamics using EO data integrated with ground measurements and models, with longer-term potential to evolve beyond research into a national observatory concept.

This evolution is framed against a clear economic rationale. Wales has a strong position in aerospace (c.10% of the UK aerospace workforce) compared with a much smaller share of the UK space workforce (c.3%). Within that context, there is an ambition to achieve a space economy worth £2bn per year by 2030.

[4] Welsh Government, 2022. Wales: a Sustainable Space Nation. [Online] Available at: https://www.gov.wales/wales-sustainable-space-nation-html [Accessed 12th March 2026].

[5] Space Wales, 2026. About Us. [Online] Available at: https://spacewales.co.uk/about-us/ [Accessed 20th January 2026].

[6] UK Space Agency, 2023. £47 million investment to supercharge space infrastructure across the UK [Online]. Available at: https://www.gov.uk/government/news/47-million-investment-to-supercharge-space-infrastructure-across-the-uk [Accessed 23rd February 2026]

Wales' space story is presented as one of structured growth. The UKSA cluster development programme enabled the establishment of a Space Wales brand, Leadership Council, and network intended to develop and maintain a thriving space sector in Wales. At the same time, Wales has articulated a distinctive long-term identity: an ambition to become the world's first "sustainable space nation" by 2040, "leading the way to a greener space", with sustainable upstream practices and demand-led downstream innovation positioned as core drivers of future competitiveness.

Figure 1. Overview of Space Wales strategy development

Strategies & Priorities

Wales: a Sustainable Space Nation

The Wales: a Sustainable Space Nation strategy sets out a pathway for growing the Welsh space cluster by building on existing aerospace strengths and developing a coordinated ecosystem spanning upstream capability and downstream applications. It frames the Space Wales cluster and Leadership Group as mechanisms to maintain momentum, review progress against an action plan, and adapt priorities as circumstances change.

A distinctive feature of the strategy is its explicit positioning of sustainability as both a differentiator and a delivery principle: it links space activity to Wales' long-term well-being and sustainability drivers, while also recognising that space missions can have negative ecological impacts and that Wales should help drive cleaner approaches across manufacturing, launch, and operations.

Within that framing, the strategy articulates its priorities through a set of opportunity areas that span the full value chain and are intended to be advanced through practical actions, working groups, and key programmes. In summary, the priorities can be expressed as:

1. **Spaceflight, training, and experience:** The strategy positions spaceflight-adjacent activity, centred on the development of Llanbedr airfield / Spaceport Snowdonia, as a cornerstone priority, with actions covering site development planning, flood defence work, regulatory steps (including licensing), and the practical requirements to operate in restricted airspace (including engagement with MOD / QinetiQ regarding access and costs). It also links this to community engagement and an end-to-end demonstrator programme to evidence operational capability.
2. **In-space manufacturing and recovery of space vehicles:** The strategy identifies in-space manufacturing and recovery as a priority growth area and frames it as part of Wales' emerging upstream proposition, sitting alongside launch and test capability and linked to the wider aim of building sovereign and commercially attractive capabilities suited to Wales' geography and industrial base.
3. **Test and evaluation ecosystem:** A central enabling priority is the strengthening and marketing of Wales' test and evaluation capability as the UK launch market grows, including addressing gaps and bottlenecks, improving the collective visibility and accessibility of facilities, and tackling the regulatory challenges that can slow testing, qualification, and flight-adjacent activity. The strategy explicitly connects this to the need to develop and market Welsh test facilities and to resolve practical barriers such as charging regimes, access arrangements, and the wider approvals environment needed to support operational use.
4. Advanced manufacturing capability and emerging clusters: The strategy treats advanced manufacturing as a strategic upstream lever, building relationships with primes and OEMs, strengthening supply-chain readiness, and using coordinated sector engagement (events, supplier days, cluster-to-cluster collaboration) to convert Wales' wider industrial strengths into space-relevant opportunity and inward investment.
5. **Earth Observation (EO) and data-enabled services:** On the downstream side, the strategy highlights Wales' EO ecosystem, referencing university sensor capability, commercial analytics and applications, and institutional adoption (including public bodies using EO data). It proposes formalising this through an Earth Observation Group and explicitly links this to the potential establishment of a National Wales Space Observatory concept.
6. **Research and teaching facilities:** The strategy recognises skills, research capacity, and university–industry linkages as a priority, including the role of the Wales Academic Space Partnership (WASP) and actions to strengthen connectivity between academic capability audits and the wider Space Wales network.

Across these priorities, the strategy also sets out several cross-cutting "how" mechanisms, most notably: (i) leadership in sustainability via a proposed Sustainable Space Accelerator; (ii) alternative launch and recovery strategies; (iii) an attraction strategy to bring in "magnet businesses"; and (iv) governance / funding arrangements intended to keep investment decisions close to commercial exploitation while maintaining alignment with UK Government and UKSA.

2024 Space Wales Governance Workshop

In 2024, the cluster's strategic direction was reviewed to better reflect the Welsh space sector's value proposition and distinctive capabilities, and to define the approach needed to realise Wales's ambition to become the world's first sustainable space nation by 2040. The Leadership Council led the review and identified three key themes: alignment with UKSA objectives and wider national strategies; skills demand; and supply chain development. The cluster model and its support offer were also examined to ensure the cluster and partner organisations respond effectively to local stakeholder needs.

As part of this process, the Catapult was invited to deliver a Governance and Strategy Workshop in July 2024 to review the structure of the existing strategy, identify priority areas and required updates, and shape an approach that is clearer to communicate and easier to implement (including roles / responsibilities, commercialisation, and community-facing messaging).

Rather than replacing the Sustainable Space Nation priorities, the workshop refines how Wales articulates them. It proposes a more visual, value-chain representation that is accessible to non-experts and can be reused across the strategy (including to frame sustainability), underpinned by economic growth, cluster activities, and support mechanisms. The refined framing includes:

- **Design & Manufacture:** advanced space materials; optics and photonics; space software & AI; research and development.
- **Mission Planning & Launch:** energy and propulsion systems; nuclear testing; launch systems and support; ground and space-based operations.
- **In-space Operations & Services:** microgravity R&D and manufacturing; space-based solar power; in-space communications and data centres.
- **Downstream Applications:** resilient communications and connectivity; cross-sector collaboration; space data for public sector; monitoring, security, and cyber.

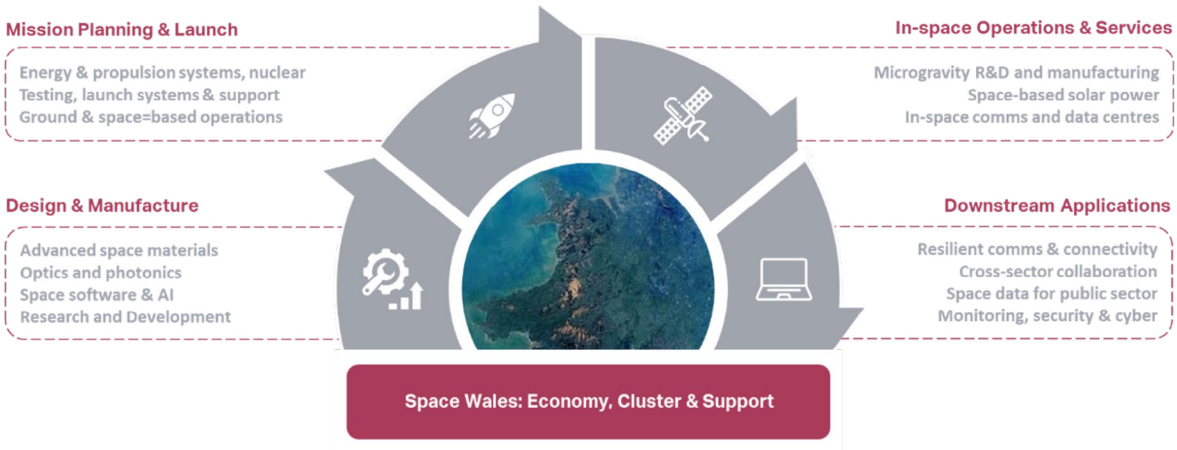

Figure 2. Space Wales supply chain visualisation

This refinement usefully bridges the original priority areas into a structure that is (i) more intuitive to external audiences, and (ii) readily mapped to both upstream capability development and downstream outcome themes.

Space Wales set out in its Strategy the ambition to establish a Sustainable Space Accelerator as a mechanism to stimulate collaboration, grow capability and embed space-enabled solutions into priority sectors across Wales. With support from the UK Space Agency, this ambition has been operationalised through the Space Wales Catalyst Fund (Space Wales, 2025)[7], an intervention designed to turn strategic intent into funded collaborative projects. Rather than focusing solely on early-stage R&D, the Catalyst Fund has leveraged the Welsh space community to address clearly defined priorities, encouraging partnerships between space companies, non-space sectors and public bodies, and accelerating the development of market-ready, sustainability-aligned solutions.

The Fund demonstrates how the Sustainable Space Accelerator concept can move from strategy to delivery: mobilising the cluster, directing resource towards areas of national relevance, and strengthening Wales' position as a sustainable space nation. The Catalyst Fund has created a practical pathway for translating community capability into funded projects that support environmental resilience, economic growth and cross-sector innovation.

Resilient Wales

Building on the Strategy Review, Space Wales has sought to position space as an enabling sector within Wales, one that supports growth and resilience across priority industries rather than operating in isolation. This framing aligns the Space Wales agenda with Welsh policy and legislative drivers, including the Well-being of Future Generations (Wales) Act and the Welsh Government's International Strategy 2020 – 2025, which identifies Germany as a priority market for Wales and emphasises values that resonate strongly with space-enabled capability, including the ambition for a "Resilient Wales" (Welsh Government, 2020, p. 36)[8].

Against this backdrop, Space Wales commissioned the Satellite Applications Catapult in 2025 to examine how satellite connectivity and EO can support national resilience outcomes within the Welsh ecosystem. That work identified three interlinked challenge areas where space-enabled technologies can make a material contribution to Welsh priorities:

- **Climate & Environment:** improving monitoring, early warning and decision-support for flood risk, wildfire exposure, land degradation, biodiversity loss, and coal tip stability under increasing climate pressure.
- **Rural Connectivity & Inclusion:** reducing digital not-spots that constrain access to healthcare and telecare, education, productivity tools, logistics, and emergency communications in hard-to-reach areas.
- **Infrastructure & Energy Resilience:** strengthening situational awareness and continuity for ageing and dispersed assets, coastal infrastructure at risk, renewable expansion, and grid monitoring across exposed geographies.

These three themes provide a challenge-led umbrella for the Welsh space proposition and are reflected throughout the gap analysis that follows.

[7] Space Wales, 2025. Space Wales Announces Successful Projects to be Funded by Wales Space Cluster Catalyst Fund. [Online] Available at: https://spacewales.co.uk/space-wales-announces-successful-projects-to-be-funded-by-wales-space-cluster-catalyst-fund/ [Accessed 23rd February 2026].

[8] Welsh Government, 2020. International Strategy, Cardiff, Wales: Welsh Government

Wales Space Sector Gap Analysis

Using ecosystem data presented in the Satellite Applications Catapult's Space Capabilities Catalogue as of February 2026, this section identifies where Wales has existing strengths in the priority areas set out in their space strategy. The following segment shall seek to outline, in brief, where Wales already excels and where it needs to develop to meet the objectives set out in in its Strategy. Each segment will outline a strategic priority, existing strengths, and areas for development.

Upstream

Design & Manufacture

Expertise

Wales shows a credible upstream base in design and manufacture, anchored by organisations providing Space Engineering, Space Hardware, Space Materials, and associated enabling services. The Welsh supply chain includes established aerospace and high-value engineering manufacturers (e.g., Magellan Aerospace, Electroimpact, Cottam & Brookes Engineering, GJM Engineering), advanced materials and manufacturing capability (e.g., Ensinger Precision Engineering, BlociCarbon, Formagrind), and electronics / components supply (e.g., Charcroft Electronics, Teledyne Labtech). Wales also a strong semiconductors and advanced materials ecosystem relevant to space hardware and sensing supply chains (e.g., IQE, the Compound Semiconductor Applications Catapult, CSconnected, and the Centre for Integrative Semiconductor Materials (CISM)). Together, these strengthen Wales' relevance to space hardware, sensing, photonics, and next-generation electronics supply chains, alongside a wider set of "spin-in" and enabling engineering firms that can be mobilised into space-relevant manufacture.

Opportunity Area

Wales' opportunity is to increase the space-readiness and market accessibility of its upstream capability, so that "manufacturing strength" reliably converts into space contracts and inward investment:

- **Space-grade manufacturing readiness (quality, traceability, and assurance** Wales has strong engineering and manufacturing capability, but the gap is often the assurance layer that primes and integrators expect: rigorous quality systems, configuration control, verification planning, and documented processes that reduce perceived risk. This aligns with UK-wide evidence of persistent skills gaps, including in critical and emerging areas that support delivery confidence. Closing this gap increases Wales' eligibility for higher-value work packages, shortens supplier onboarding cycles, and improves conversion from capability to contracted programmes.
- **Packaging "manufacture, test, and integration" into an investable cluster offer:** Rather than presenting capability as isolated suppliers, Wales can create bundled, prime-facing propositions (supplier development, test access, and demonstrators) that explicitly show how Welsh firms can deliver end-to-end sub-systems, not only components. Done well, this makes Wales easier to "buy from", supports inward investment decisions, and creates a clearer pathway from SME capability to prime-tier supply chain roles.

Test & Evaluation

Expertise

Wales has an identifiable (though relatively small) testing and engineering cohort, aligned to the strategy priority to strengthen and market a Welsh test and evaluation ecosystem. In addition, Wales' test and range heritage (including the MoD / QinetiQ range infrastructure and the evolution of the Snowdonia Space Centre / Llanbedr site) provides a credible enabling foundation for spaceflight-adjacent and space-hardware qualification activity, particularly where testing, assurance, and operational readiness are central to buyer confidence.

Opportunity Area

The opportunity is to make Welsh test and evaluation more visible, more accessible, and more directly connected to pathways from prototype to operational deployment, including Assembly, Integration, and Test (AIT) as a stepping-stone towards longer-term launch ambitions:

- **Visible, accessible qualification testing pathways (and clearer facility propositions):** The UK facilities evidence base highlights the centrality of environmental testing (e.g., thermal-vacuum, vibration, shock, EMC) to qualifying space hardware. Wales can use its existing testing capability as a foundation, but the opportunity is to make facilities and services easier to find, procure, and use, reducing friction for SMEs and external customers. This directly accelerates time-to-qualification for Welsh hardware, attracts external test demand, and strengthens Wales' credibility as a launch- and manufacturing-centre. It also matters in a wider competitive context: other UK and Ireland locations, such as Resonate Testing in Newry, are already positioning themselves around accessible commercial test services for the space sector, including integrated vibration, shock, and thermal-vacuum testing. For Wales, the implication is not simply to have facilities, but to present a clear, market-facing proposition on access, turnaround, assurance, and how Welsh testing complements rather than duplicates nearby capability.
- **AIT as a strategic bridge (from testing to flight-adjacent readiness):** Whilst facilities, such as Snowdonia, pivots towards Assembly, Integration, and Test, Wales has an opportunity to position itself as a place where payloads and sub-systems are assembled, integrated, tested, and prepared for missions, even before routine launch operations are in-scope. This builds commercial traction now and creates a credible pathway towards sustainable launch in the longer term.

Mission Planning, Launch, & Return from Orbit

Expertise

Wales has an identifiable set of mission-planning and launch-adjacent signals centred on Spaceport Snowdonia / Llanbedr and a small group of organisations across enabling functions (mission design and operations signals, payload integration, assembly & integration, and launch-adjacent infrastructure). Representative examples from the Welsh supply chain include Snowdonia Aerospace (spaceport / site capability and enabling infrastructure), B2Space (mission design and mission operations, including balloon-launch elements), Space Forge (launch systems / re-entry systems), and manufacturing / integration contributors such as Magellan Aerospace and Electroimpact (assembly & integration and payload integration signals in launch-adjacent contexts).

In addition, Wales' ambitions around Llanbedr / Spaceport Snowdonia and associated testing infrastructure point to a broader "systems" mindset: building operational capability, test facilities, and demonstrators that can underpin wider resilience objectives, not solely spaceflight. The progress narrative around facility development at Llanbedr (including test centre development and capability-building activity) is important not only because of future space ambitions, but because the site is already being developed through a practical, commercially led model and used for wider aerospace and autonomous-systems activity. This supports the plausibility of Wales developing enabling infrastructure that can serve multiple resilience-linked agendas.

Wales' current trajectory reflects a phased approach: sustainable launch remains a long-term ambition, while the near-term emphasis is increasingly on AIT capability, mission enablement, and return from orbit as a growth focus.

Opportunity Area

The opportunity is to build the enabling functions that make Wales operationally credible and commercially repeatable across mission planning, AIT, regulatory delivery, and return, recognising that launch is a long-term outcome rather than the immediate priority:

- **Spaceport operations "wrap" (campaign delivery capability):** Beyond site infrastructure, Wales needs more capacity in the practical service layer that supports missions and campaigns: mission planning support, customer onboarding, safety/assurance documentation, scheduling and coordination, ground support equipment access, payload processing, and AIT-to-campaign readiness processes. These services reduce cost and friction for customers now, create near-term commercial value, and build the operational maturity required for sustainable launch in the longer term.
- **Regulatory and assurance delivery capacity (licensing readiness and return regulation):** UK rules require a CAA-issued spaceport licence to operate a spaceport, and UK guidance indicates it can take at least nine months for an application to be assessed. Wales can therefore treat licensing / assurance capability as an investable "gap": safety case development, compliance management, and mission assurance expertise that reduces regulatory friction and increases investor confidence. Strengthening this capability shortens time-to-licence, increases the probability of successful applications and campaign approvals, and provides customers with confidence that operations will be robust and repeatable.

- **Market resilience: mitigating launch availability and scheduling bottlenecks:** Industry reporting has highlighted UK launch availability constraints and knock-on effects for operators (e.g., limited access to launch slots at particular sites). Wales can strengthen its proposition by building partnerships and capacity that improve scheduling resilience; this requires clear campaign pathways, diversified mission profiles (e.g., balloon / HAPS and horizontal launch where relevant), and robust test-to-flight integration. In the near term, that resilience may depend as much on access to trusted external launch and return pathways as on domestic infrastructure alone. For Wales, rather than focusing primarily on launch slot availability, the strategic opportunity is therefore to reduce regulatory and operational friction, build credible AIT-to-mission support, and position itself so that, over time, more of the mission-enabling and return-related value chain can be anchored locally as the wider UK market matures.
- **Return from orbit as a near-term focus area (a credible step towards sustainable launch):** If Wales positions return as a strategic focus, it can capture value in recovery logistics, inspection and verification, refurbishment pathways, and mission assurance for returnable systems, aligned to sustainability objectives. In practice, a credible "return offer" differentiates Wales, creates demand for AIT and testing services, and establishes flight heritage and operational credibility that supports the longer-term sustainable launch ambition.

Image credit: NASA/Johnson Space Center

Downstream

Climate & Environment

Expertise

Wales has a credible foundation in climate- and environment-oriented space activity, particularly where EO and geospatial analytics support public value outcomes. The Welsh Government's Wales: a sustainable space nation strategy explicitly positions sustainability as both a differentiator and a delivery principle, linking space-enabled capability to Wales' wider well-being and sustainability objectives.

Organisations such as Environment Systems, Geo Smart Decisions, and Ultranyx suggest a cluster that is highly capable, but relatively concentrated, with a small number of firms spanning multiple layers of the EO value chain (data, analytics, and application). This positions sustainability as both a differentiator and a delivery principle for the Welsh space sector, which strengthens the credibility of using climate and environmental resilience as the organising logic for downstream space-enabled services. Taken together, the ecosystem is best characterised as a small number of capable actors with multi-disciplinary breadth, rather than a large, deep bench of specialist EO product firms.

Opportunity Area

Wales' main gaps are not in recognising EO's relevance, but in building the delivery and commercialisation layers that turn EO into repeatable, investable services that public bodies and regulated sectors can adopt at scale:

- **Broaden the bench of application-led EO product companies:** The supply-chain evidence points to a strong nucleus, but limited breadth. The opportunity is to attract and grow more firms that provide sector-specific EO products (e.g., flood / coastal risk, land-use change, biodiversity / peatland monitoring, infrastructure risk, and climate adaptation planning, etc.), rather than relying on a small number of multi-role actors to cover the full spectrum.
- **Build "procurement-ready" EO services and operating models for public sector adoption:** UK-wide evidence consistently highlights that public sector procurement of EO data / services can be difficult because the market changes quickly, offerings vary, and buyers struggle to assess value-for-money and specify requirements. This is a known barrier to scaling EO beyond pilots. A Welsh "observatory" concept will need robust service definitions, assurance, data governance, and outcome metrics that make procurement straightforward and repeatable.
- **Strengthen the bridge from data to decision-support and operational action:** There is a gap between "EO outputs exist" and "operators act on them". Wales can address this by growing integrators who combine EO with local datasets, modelling, and operational workflows (alerting, prioritisation, response planning), and by developing reference architectures that public bodies can adopt without bespoke rework each time.

Rural Connectivity & Inclusion

Expertise

Rural connectivity is a persistent and well-evidenced policy challenge in Wales, and the broader UK context reinforces why hybrid connectivity solutions (including satellite-enabled options) remain relevant even as fibre and 4G coverage improves. Ofcom's reporting shows that fixed broadband not-spots are reducing, but still exist, and that there remains a "long tail" of premises without decent fixed-line broadband, particularly in rural areas (Ofcom, 2025)[9].

Welsh Government activity continues to focus on extending access to fast and reliable broadband and maintaining intervention mechanisms (e.g., grant schemes and successor programmes to earlier roll-outs). In parallel, UK-level programmes to tackle rural mobile coverage gaps (including new mast deployments in Wales) illustrate both progress and the continuing need for solutions that work in hard-to-reach geographies, reinforcing why satellite and hybrid connectivity remain relevant as an inclusion tool.

Organisations such as Excelerate Technology, MLS Solutions, and Dragon WiFi suggests Wales has meaningful capability fragments across connectivity provision, enabling technology, and adjacent platforms, but the number of organisations remains relatively modest.

Opportunity Area

Wales' main gaps are not in recognising EO's relevance, but in building the delivery and commercialisation layers that turn EO into repeatable, investable services that public bodies and regulated sectors can adopt at scale:

- **Develop and / or attract hybrid connectivity integrators and managed service providers:** The opportunity is to grow providers who can design, deploy, and operate end-to-end solutions that blend satcom, terrestrial networks, and IoT, covering installation, service management, uptime assurance, and user support. This is typically the missing layer between "connectivity capability exists" and "rural services reliably run on it".
- **Create adoption pathways that are procurement-friendly for local authorities and anchor institutions:** Even where technology works, roll-out can stall without standard packages, framework-friendly contracting, and clear outcome measures (coverage, resilience, cost per user / site). Wales can position itself by developing repeatable deployment models for rural hubs (community facilities, healthcare access points, emergency connectivity, remote logistics nodes).
- **Embed security-by-design as a standard feature of rural inclusion services:** As rural connectivity becomes a pathway for delivering public services and handling sensitive data, cyber resilience becomes a prerequisite rather than an optional add-on. UK national direction is towards tightening cyber resilience expectations for essential services and their suppliers, which increases the value of having credible security integration capacity within Welsh delivery teams.

[9] Ofcom, 2025. Connected Nations Wales Report 2025, London, UK: Ofcom.

Infrastructure & Energy Resilience

Expertise

Wales has strong strategic rationale for positioning space-enabled capability in support of infrastructure resilience, given the importance of distributed rural networks, coastal exposure, and the need for continuity of communications and monitoring during disruptive events. Space-enabled monitoring (EO), data infrastructure, and communications resilience are increasingly mainstream parts of national resilience toolkits, and Wales' sustainable space framing creates a natural umbrella for applying these tools to asset integrity, environmental hazards, and continuity planning.

Opportunity Area

The principal gap is to convert resilience intent into integrated, operational services that infrastructure owners can buy, adopt, and rely upon. This implies three concrete opportunity areas:

- **End-to-end resilience products (not point solutions):** Wales can build propositions that fuse EO monitoring, communications continuity, and analytics into services for transport corridors, coastal infrastructure, and utilities, moving from data services to decision support and action. This requires more integrators, stronger user-driven requirements capture, and sustained customer relationships with asset owners and public bodies. This is how Wales converts "space-enabled capability" into recurring revenue and measurable resilience outcomes: buyers pay for reduced downtime, faster response, and lower lifecycle cost, not for datasets.
- **Assurance, testing, and operational readiness as a differentiator:** Resilience markets are risk-sensitive. To compete, Wales needs visible assurance pathways, test, verification, validation, and operational readiness, that give buyers confidence in performance during outages or extreme events. Llanbedr-linked infrastructure and test ecosystem development is strategically relevant here, but must be packaged as an accessible, market-facing capability with clear routes from prototype to operational deployment. This lowers buyer risk and shortens procurement cycles, because operators can evidence performance under stressed conditions and demonstrate compliance with internal assurance and safety requirements.
- **Security-by-design at scale:** Critical infrastructure resilience increasingly intersects with cyber and information assurance. Where space-enabled data feeds infrastructure monitoring and response workflows, the absence of a mature, well-networked security layer becomes a material adoption barrier. Even if the technical EO / communications capability exists, procurement and operational stakeholders will expect credible assurance and cyber integration as standard. Security-by-design is a gate condition for adoption: without it, services will stall at pilot stage because asset owners cannot accept the operational and regulatory risk of insecure data pipelines or unmanaged supply chains.

Summary

Overall, the Welsh ecosystem presents a strong strategic narrative and a credible base of capability, but the gap analysis indicates that Wales' challenge is now less about "what to prioritise" and more about how to convert capability into repeatable delivery and investable propositions.

Across upstream and downstream segments, the most consistent constraint is the missing middle between having technically capable organisations and achieving sustained outcomes: space-grade assurance and verification maturity, accessible qualification and test pathways, and packaged offers that prime contractors, public bodies, and infrastructure operators can buy with confidence.

- A first consistent gap is assurance, trust, and operational readiness. Whether the objective is manufacturing for higher-value work packages, operating a spaceport, or deploying resilience services into critical infrastructure and public sector workflows, buyers' willingness to adopt is driven by confidence in performance, safety, and compliance. This translates into a need for clearer verification and validation routes, stronger quality / traceability disciplines, and demonstrators that evidence performance under realistic operating conditions. Without this, activity tends to remain at the "pilot" stage, procurement cycles become protracted, and the ecosystem struggles to build the track record required to attract anchor customers and inward investment.

- A second consistent gap is service integration and commercial packaging. Wales has multiple capability fragments, but outcomes depend on integrators who can convert technology into end-to-end services: turning EO into decision support, satcom into managed connectivity, and monitoring into operational resilience products that asset owners can procure as a managed service. This is where many ecosystems stall: the value is not wholly in the dataset or component, but the ability to operate a service reliably, define clear service levels, and evidence value-for-money against outcomes. Strengthening integrator capacity and producing procurement-ready service definitions is therefore central to scaling the three challenge-led themes.

- A third consistent gap is ecosystem breadth and scale in priority niches. Several areas appear concentrated into a small number of multi-role organisations, which constrains growth and creates fragility. Wales' strategy ambitions, particularly around sustainable space leadership, EO-driven public value, and launch-adjacent activity, will be easier to deliver if Wales deliberately broadens the bench in thin, but strategically important capability types: specialist qualification / testing services, cyber and information assurance, space software and AI, and application-led EO product firms. This is also where "magnet business" attraction strategies are most defensible: targeting specific archetypes that fill recognised gaps rather than generic inward investment.

A practical route to closing these gaps is to focus on delivery mechanisms as much as capability building. First, Wales can accelerate downstream adoption by working more closely with programmes such as Unlocking Space for Government, using challenge-led public sector demand to define requirements, standardise service specifications, and move EO and connectivity from pilots into procurement-ready, outcome-based services. Second, establishing a Sustainable Space Accelerator would provide a coherent vehicle to raise "space readiness" across suppliers, coordinate test access and demonstrator pathways, and attract "magnet" businesses into thin, but strategically important areas (e.g., space software & AI, cyber / security-by-design, and specialist qualification services). In parallel, Wales should treat regulatory enablement as a strategic workstream, working with the CAA to streamline approval pathways and to develop a clear route for return from orbit into Wales, thereby reducing friction for near-term delivery while building the governance and assurance maturity required for sustainable launch over time.

Taken together, these interventions would help Wales translate its sustainable space positioning into a durable competitive advantage: credible, assured, and market-facing offers that support launch-adjacent growth while directly delivering climate, inclusion, and infrastructure resilience outcomes.

Conclusions

The report finds that Wales has developed a credible and increasingly distinctive space ecosystem, built not on the scale of a major national programme but on the alignment of several strong underlying assets. These include aerospace and high-value engineering capability, defence-linked testing heritage, advanced materials and semiconductor signals, emerging launch-enabling and mission-planning ambition, and a growing cluster identity organised through Space Wales and its partners. Wales, therefore, enters the space sector not as a fully mature end-to-end ecosystem, but as a region with clear technical strengths and a viable basis for further growth.

A central finding of the report is that Wales' strength lies in the combination of technical capability and strategic agility. The ecosystem shows visible strength in design and manufacture, test and evaluation, resilient connectivity, and challenge-led downstream activity. The strategic framing around climate and environment, rural connectivity and inclusion, and infrastructure and energy resilience gives Wales an additional advantage: it helps connect sector development to real-world Welsh priorities, making the space proposition more legible to public bodies, cross-sector partners, and external stakeholders.

At the same time, the report shows that Wales' challenge is one of scale, packaging, and ecosystem completeness. In several areas, Wales has the underlying ingredients of a strong offer, but these do not always yet appear to external audiences as a fully integrated, investment-ready proposition. The key task is therefore to convert existing technical and industrial capability into clearer commercial pathways, stronger market visibility, and more coordinated propositions that make it easier for partners, primes, and investors to engage. The issue is less whether Wales has credible strengths, and more whether those strengths can be presented and supported in a way that leads reliably to contracts, investment, and durable growth.

The report also suggests that Wales is strongest where it builds from what is already distinctive rather than trying to replicate larger ecosystems. That includes advanced manufacturing and subsystem supply, test and evaluation, mission planning and launch-enabling services, resilient communications, and downstream applications tied to public-sector need and cross-sector challenge. Wales' next phase of success is likely to, therefore, depend on how effectively it uses these existing assets to create a more coherent market proposition and attract the partnerships and capital needed to strengthen ecosystem depth.

Opportunities in Wales

For readers considering how to engage with Wales, the report points to several practical opportunity areas.

Opportunities for Germany to address UK gaps

Collaboration opportunities are strongest where Welsh capability is already visible, but where partnership can help increase readiness, credibility, or market access. This is particularly evident in design and manufacture, test and evaluation, mission planning and launch-enabling activity, resilient connectivity, and challenge-led downstream applications. Wales appears especially well positioned for collaborative activity that links technical capability to demonstrators, pilot projects, public-sector use cases, and cross-sector problem-solving.

Foreign direct investment opportunities are strongest where Wales has underlying engineering, manufacturing, and testing capability, but would benefit from stronger ecosystem packaging, higher-value supply-chain integration, or anchor activity that helps the region capture more of the value chain. This includes advanced manufacturing, materials and component supply, test and evaluation infrastructure, and mission-supporting services. For inward investors, the Welsh proposition is likely to be strongest where investment can help turn dispersed capability into a clearer, investable cluster offer.

Export opportunities are most evident where Welsh firms can connect specialist capability to international demand. This includes manufacturing and engineering inputs, test and evaluation services, resilient communications, and downstream application areas linked to environmental monitoring, infrastructure resilience, and inclusion in hard-to-reach geographies. Wales' export potential appears strongest where its capabilities are framed not simply as isolated technical inputs, but as part of broader solutions aligned to pressing operational challenges.

Capability-development opportunities arise in those areas where Wales has clear ambition but needs stronger supporting layers if it is to secure a more durable competitive position. This includes space-grade manufacturing readiness, assurance and qualification, ecosystem packaging around manufacture, test, and integration, stronger commercial pathways for launch-enabling and return-related activity, and broader market adoption of space-enabled services across Welsh priority sectors. For organisations looking to build, invest, or partner in Wales, these areas may offer the most strategically significant opportunities to shape the next phase of ecosystem development.

Closing Conclusion

Overall, the report suggests that Wales has a credible and differentiated space proposition, but that its next phase of success will depend on how effectively it converts that proposition into a more visible, investable, and commercially connected ecosystem. Wales' strongest opportunity lies not in scale alone, but in the ability to align technical capability, challenge-led applications, and international engagement into a coherent growth story. For collaborators, investors, and external partners, this makes Wales an attractive proposition: a focused and agile ecosystem with real assets, clear strategic intent, and a set of opportunity areas where well-targeted support could generate meaningful economic and strategic value.

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