The 3rd Niparo Summit on Space Sustainability

Next Steps in Sustainable Space: In-orbit Insurance and Innovation

21st & 22nd May 2025, Heriot-Watt University, Edinburgh

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The 3rd Niparo Summit on Space Sustainability was held 21-22 May 2025 at Heriot-Watt University, Edinburgh.

With the same ethos as the previous two summits in 2023 and 2024, the Third Summit brought together leaders and influencers from academia, industry, business and government. The aim of the event was to make tangible progress to address the challenges of space sustainability.

The summit was titled "Next Steps: In-orbit innovation and insurance" and focused on insurance, liability, UK and European regulatory issues in practice and in-orbit innovation. The Summit included keynote presentations, panel discussions and an open forum for novel ideas and expert analysis.

This is the report from the Summit.

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Space is vital to Earth;

Sustainability is vital to Space

Background and Context

International Space Law

Article VII of the Outer Space Treaty (OST)[1] makes a launching state internationally liable for damage to another State Party to the Treaty. The 1972 UN Convention on International Liability for Damage Caused by Space Objects (“The Liability Convention"), which the UK has ratified, builds on Art VII of the OST and is the foundation for space liability regimes worldwide. Under the Liability Convention, the UK Government is ultimately liable for damage to the persons or property of other states caused by the space activities of its nationals or caused by such activities carried out from its facilities or territory. This means that another state suffering damage can bring a claim against the UK Government under this Treaty.

Domestic Space Law

The flow-down of international obligations from the OST filters into the U.K.'s primary legislation, first in the Outer Space Act 1986 (OSA) and more recently in the Space Industry Act 2018 (SIA). In the UK, the UN space treaties are currently implemented through the Outer Space Act 1986 for activities by UK nationals and entities overseas and the Space Industry Act 2018, which along with the Space Industry Regulations 2021 enables spaceflight and associated activities to take place from the UK.

Under Section 10 of the Outer Space Act, operators must indemnify the UK Government for claims brought against the latter other than in (the limited) circumstances set out in that section. Section 10 imposes an obligation on individuals or entities engaged in space activities to indemnify the UK government against any claims arising from their activities. Specifically, it requires that any person to whom the Act applies must compensate His Majesty's government for any liabilities, costs, or damages incurred as a result of their space operations. This provision ensures that the financial risks

[1] Full title, ``Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies”

associated with space activities do not fall on the government, thereby protecting public funds from potential claims related to accidents or damages caused by such activities. All licences issued under the OSA 1986 must state a limit to the amount of the operator's liability to indemnify the UK Government for claims made against the latter.

Insurance and Liability Requirements

The Civil Aviation Authority (CAA) is the regulator for UK Spaceflight and space operations and has five license types (Spaceport, Range, Launch, Return and Orbital) that lead to space operations. The CAA provides detailed guidance on insurance and liability requirements for space activities, which vary depending on whether the licence is issued under the OSA or the SIA.[2]

For Orbital Operator Licences, under the OSA, standard missions require €60million in third-party liability insurance, higher-risk missions may necessitate increased coverage. For low-risk missions, insurance requirements may be waived, however the €60million indemnity obligation remains.

Under the Space Industry Act 2018 (SIA), iInsurance requirements for orbital operations are determined by the Modelled Insurance Requirement (MIR) approach, which assesses the specific risks associated with each mission. For Launch Operator licences, Insurance requirements are calculated using the MIR approach, tailored to the specific launch activities. All operator licences include a limit of operator liability concerning claims under Sections 34 and 36 of the SIA.

Geopolitical Concerns

The Government of the United Kingdom is one of the OSTs Depositaries along with the Governments of the then USSR and the United States of America. The OST was deposited on the 10th October 1967 in London, Moscow and Washington, D.C.. However, UK is not the leading economic, diplomatic

[2] https://www.caa.co.uk/space/resources/insurance-and-liability/}{https://www.caa.co.uk/space/resources/insurance-and-liability

`heavyweight' and space nation it previously was. As a percentage of GDP, the UK trails almost all OECD comparison countries and is clearly in fourth overall (and the 2nd tier along with Spain and Belgium) of ESA spending. Currently, this is offset through a very strong university R&D base.

Motivation for the 3rd Niparo Summit

The UK, and Scotland in particular, has championed itself as a leader in space sustainability. But what does this mean in practice? One direct practical example of this has been the Niparo Summits on Space Sustainability. The Niparo Summits are the only industry-led forum where commercial interests, leading academics, policy makers and `space-doers' gather and make tangible progress on the outstanding issues of tomorrow.

The theme of the Third Niparo Summit on Space Sustainability was "Next Steps in Space Sustainability: In-Orbit Innovation and Insurance."

This Report

This report aims to summarise, at a high-level the themes, topics and `zeitgeist' that was discussed at the Third Niparo Summit.

The report is structured around two main themes: 'Challenges' and 'Next Steps'. Within each theme, there are three sections. For Challenges, these are `Tracking and Management', `Fly-tipping' and `Debris'. For Next Steps the three sections are `Insurance', `Innovation' and `Sustainability For Whom?'

In addition, we give a short update on developments since the Summit and offer Recommendations.

Challenge 1: Tracking and Management

One of the first major issues connected to space situational awareness and space domain awareness.[3] A UK Space Agency commissioned report from 2022 by CGI into the requirements and opportunities for space domain awareness (SDA) in the UK remains a good overview document and jumping off point for the current discussion.

Traditionally, Two-line Element sets (TLEs) have been the data format for space object positioning. TLEs are a simple two-line of 72 characters data format encoding orbital elements of an Earth-orbiting object for a given epoch. Using a suitable prediction formula, the state (position and velocity) at any point in the past or future can be estimated to some accuracy.

The TLE data representation is specific to the simplified perturbations models (namely SGP, SGP4, SDP4, SGP8 and SDP8), so any algorithm using a TLE as a data source must implement one of these models to correctly compute the state at a time of interest. TLEs are widely used as input for projecting the future orbital tracks of space debris for purposes of characterising "future debris events to support risk analysis, close approach analysis, collision avoidance maneuvering" and forensic analysis.[1][2]

However, the SGP perturbation models are known to deviate quickly (on the order of hours) and thus propagation of orbital assets for more than a couple of LEO orbits become increasingly unreliable.

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[3] We use the broadly accepted term of Space Situational Awareness (SSA) to be of primary concern with the physical characteristics and movement of objects in space, including satellites, debris, and other objects; Space domain awareness (SDA) SDA builds upon SSA by incorporating a broader understanding of the space environment, including not only what is happening but also why and who is responsible, especially in the case of potential threats.

Data Sharing

The UK has recently announced the start of the Borealis command, control and data processing system which will help the UK military and the UK Space Agency to better monitor and protect satellites, through new software which compiles and processes data from multiple sources, more quickly, to monitor space. The £65 million deal with CGI UK, the IT systems integration company aims to boost the UK's space capabilities and includes a consortium of UK SDA companies.

The new technology will provide the UK Defence force with a better understanding of the space domain, improving military commanders decision-making process and supporting operations. Borealis will provide software for the National Space Operations Centre, which develops and operates the UK's space surveillance and protection capabilities. It will be a unique, UK-made system which supports military operations around the world. We return to the framing of space sustainability with UK Defence and security below.

Current Challenge 2: Fly Tipping

Fly-tipping, the illegal dumping of orbital waste, is a form of environmental crime with potentially serious consequences. `Orbital Fly-tipping' carries this to outer space and the celestial bodies.

Whilst space debris is widely recognised as a critical concern in the latter stages of spacecraft and satellites life cycles, `fly-tipping' deserves direct attention as a distinct and growing threat. As highlighted at the Summit, the growing concern of abandonment and improper disposal of spacecraft, beyond its contribution to orbital congestion, is now being linked to emerging environmental risks and consequences. This includes potential harmful interactions with Earth's atmospheric and terrestrial environments. The opening presentations at the Summit laid out and emphasised the increasing amount of evidence that links reentering spacecraft materials to atmospheric

contaminants, including the presence of exotic metallic particles in the stratosphere.

Recent atmospheric studies highlight expected impacts to include metal oxide particles acting as catalysts for ozone depletion, as well as disrupting atmospheric conductivity, and increasing scattering of solar radiation. These could potentially affect weather systems and climate dynamics beyond the current climate crisis. Furthermore, the long-term impacts of these materials eventually settling on terrestrial and marine ecosystems has been mainly unexplored. This threat is not only an issue alongside space traffic management and debris, but also a sustainability challenge with cross-system consequences.

Other concerns include the environmental challenges of these atmospheric elements and leftover "fly-tipped" debris on the oceans and land of the planet. There are now several cases of space debris impacting below-stratosphere altitudes.[4] While meteorites impact the upper atmosphere continually, the metals associated with reentering spacecraft are already present in approximately 10% of atmospheric particles, yet their material responses, surface chemistries, and aerodynamic behaviour remain poorly understood.

Challenge 3: Debris

Space debris is perhaps the paramount contemporary issue for space sustainability. Space debris is discussed in extensive detail elsewhere.[5] The ESA's 2025 Space Environment Report highlights an accelerating accumulation of orbital debris with around 40,000 tracked objects and estimates exceeding 1.2 million objects larger than 1 cm in Low Earth Orbit

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[4] "Kenya investigates space junk that fell on village", https://www.bbc.co.uk/news/articles/clyn9dgdwe3o, retrieved 16 July 2025

[5] ESA Space Environment Report 2025, https://www.esa.int/Space_Safety/Space_Debris/ESA_Space_Environment_Report_2025, accessed 16 July 2025

(LEO). Fragmentations remain a pressing concern, with over 3,000 new trackable pieces created in 2024 alone due to satellite or rocket body break-ups.

Approaching unusability

Critically, new evidence suggests that for smaller objects (e.g. <10mm) space debris is already self-sustaining.

Although we know that ~1mm sized objects can create potentially hazardous environments, both for orbital assets and human spaceflight, at some point, do we just accept that risk, try to minimize and mitigate it and say small objects (e.g. <10mm in size) are just too tricky to track and remove from the space environment.

Next Steps 1: Innovation

ISAM and Circularity

In-orbit Servicing, Assembly, and Manufacturing (ISAM) was identified at the 3rd Niparo Summit as a pivotal capability for enabling a circular space economy. ISAM has the potential to fundamentally alter the traditional life cycle of space systems by facilitating in-orbit refuelling, repair, upgrade, assembly, and controlled disposal.

These functions contribute directly to orbital sustainability by reducing the need for full satellite replacement and minimising debris generation. The integration of modular design and standardised servicing interfaces was highlighted as a key enabler of scalability. Commercial exemplars, such as Orbit Fab's propellant depots and emergent UK-based ISAM ventures, demonstrated that in-orbit infrastructure is transitioning from concept to operational deployment, with implications for both economic competitiveness and space environmental management.

To fully design, develop and deploy ISAM within the UK and international regulatory landscape, there is an deep requirement for policy development addressing the legal, licensing, and liability dimensions of these activities. Current frameworks, derived from legacy spaceflight models, often lack provisions for multi-actor interactions, complicating questions of responsibility and recourse in cases of mishap. The integration of ISAM into international guidelines, including e.g. the UN COPUOS Long-Term Sustainability (LTS) Guidelines, and emerging standards, e.g. BSI 1969 and ISO 24330 for orbital servicing) will be essential to ensure coherence across jurisdictions and reduce regulatory ambiguity.

The UK is recognised as well-positioned to lead in ISAM policy and capability development, leveraging its academic research strength, growing SME ecosystem, and established policy infrastructure. Key recommendations included the establishment of a UK national test and demonstration facility for

ISAM technologies; the integration of ISAM into future revisions of the Space Industry Regulations; and the expansion of targeted public funding through UKRI, ARIA, and Horizon Europe to support pre-competitive research and standards development.

Embedding ISAM within the UK's broader space sustainability strategy, both as a mitigation measure and a growth opportunity, and would signal a shift toward systemic, circular thinking in orbital operations, consistent with environmental governance principles and the UK's ambitions as a spacefaring nation.

Next Steps 2: Insurance

Driving behaviour?

The legal and regulatory framework governing orbital liability and insurance in the United Kingdom derives from its obligations from international space law, most notably the Outer Space Treaty 1967 and the Liability Convention 1972. This is realized in domestic legislation, including the Outer Space Act 1986 (OSA) and the Space Industry Act 2018 (SIA).

These instruments place ultimate liability for damage caused by UK space activities on the Government, which is subsequently indemnified by operators through licence conditions. Historically, this has involved a fixed third-party liability insurance requirement of €60 million under the OSA, irrespective of the mission profile.

However, with the effort to use insurance as a financial 'carrot', the UK's approach to insuring space assets was revisited in a Consultation on Orbital Liabilities, Insurance, Charging and Space Sustainability in late 2023/early 2024.[6] Here, the UK Government has consulted on proposals to introduce a

[6] https://www.gov.uk/government/consultations/consultation-on-orbital-liabilities-insurance-charging-and-space-sustainability/consultation-on-orbital-liabilities-insurance-charging-and-space-sustainability

more differentiated and risk-based insurance model. The Modelled Insurance Requirement (MIR), already used for certain launch and orbital licences under the SIA, forms the basis for this evolution. It allows regulators to tailor insurance obligations to the actual risk profile of each mission, including parameters such as orbital regime, expected conjunction frequency, failure mode analysis, and post-mission disposal compliance.

Calculating risk

A risk-adjusted insurance framework could serve as a regulatory lever to incentivise sustainable (orbital) behaviour. Operators that invest in design features to enhance reliability, include propulsion systems for end-of-life disposal, or integrate active collision avoidance capabilities may see reduced insurance burdens. Conversely, higher premiums could be imposed on missions presenting elevated risks to the orbital environment. Such an approach would operationalise the polluter-pays principle within the UK's domestic regulatory system, aligning financial liability with environmental stewardship.

The consultation also proposed a link between premium adjustments or licence fee structures to demonstrable adherence to sustainability best practices, including compliance with the UN Long-Term Sustainability Guidelines or ISO standards for space debris mitigation.

This evolution raises questions around risk attribution in multi-actor collision scenarios, transparency in MIR modelling assumptions, and the enforceability of conditions across (international) jurisdictions.

Attributing cause

As noted above, under the current international legal framework, states, and not private actors, bear responsibility for damage caused by space activities. Article VII of the Outer Space Treaty (1967) and the accompanying Liability Convention (1972) establish that a launching state is internationally liable for

damage caused by its space objects to other states or their property, whether on Earth, in airspace, or in outer space.

This legal architecture means that claims for damage must be brought on a state-to-state basis. In practice, if a satellite licensed or launched by the UK causes damage to another state's assets, the injured state may lodge a formal claim against the UK Government. The UK, as a signatory to both treaties, is obligated to respond and potentially compensate for such damage.

However, domestic legislation passes this liability down the chain to the operator. Under Section 10 of the Outer Space Act 1986, UK operators are required to indemnify the government for claims arising from their space activities, unless specific exemptions apply. A similar indemnity structure exists under the Space Industry Act 2018, reinforced by licensing conditions set by the Civil Aviation Authority (CAA).

In policy terms, this dual-layered liability regime ensures: international accountability remains state-centric, in line with treaty obligations. Domestic risk is internalised by commercial operators, preserving public funds and promoting responsible behaviour through regulatory and financial incentives, such as mandatory third-party insurance.

As the UK transitions toward a more risk-adjusted insurance model (e.g. the Modelled Insurance Requirement), clarity around liability attribution, particularly in multi-actor/multi-launching state scenarios, is increasingly critical. Future policymaking must ensure the space insurances system remains both robust and adaptive, as new mission types such as in-orbit servicing, active debris removal, and repurposing activities will pose questions around control and fault.

Next Steps 3: Sustainability - but for whom?

There is a lack of equity and inclusivity in access to space and the benefits it provides. While sustainability is often framed through technical and regulatory lenses, this summit also raised a more foundational question: “Sustainability, but for whom?”

We note that the current space ecosystem remains skewed toward a small number of wealthy, technologically advanced nations and private actors with the resources to participate in and shape space governance, infrastructure, and financial markets. Developing nations, emerging space actors, and marginalised communities are often excluded from key decision-making processes, capacity-building opportunities, and the economic returns of space activities.

The prevailing legal and regulatory frameworks reinforce a liability regime that places the burden of risk management and financial responsibility squarely on operators. While necessary for accountability, this inadvertently raises barriers to entry for newer/non-traditional space actors who may struggle to meet high insurance thresholds or navigate complex licensing structures. The move toward risk-adjusted insurance, as discussed at the Summit, could further create inequities if not coupled with support mechanisms to ensure fair participation across the domestically and global space community.

If sustainability measures become yet another gatekeeping tool, the sector risks entrenching existing power dynamics, rather than building an actually inclusive and responsible space future.

Space sustainability is inseparable from the sustainability of people, skills, and mobility. The sector relies on a holistic workforce: from astronauts and engineers to operational staff and logistics professionals, and immigration

frameworks are central to supporting this full spectrum. With the increased need for multi-national consortia, mobility systems must respond to realities such as short-term deployments, secondments, founder visas, and family support. Without agile and inclusive immigration policy, there's a real risk of bottlenecks slowing progress toward our collective goals.

The Summit emphasised legal clarity, equity, and dual-use innovation, but it became apparent that *mobility* - in terms of movement of people and workforce - should be viewed as critical infrastructure as well, enabling participation, operational readiness, and diversity of thought across the entire space value chain.

Tackling the skills crisis requires a multi-pronged approach. While home-grown talent and expanded apprenticeship provision are essential, and the first action, immigration must also be recognised as a strategic lever. Calls for tailored immigration solutions for Scotland (such as a Scottish Graduate Visa and a Rural Talent Pilot Scheme) align the need to attract global engineering, technology, and defence talent to fill persistent and acute shortages.

Continued investment success also relies on access to a diverse and international talent pool. Recent restrictions on overseas recruitment (particularly within the aerospace and technology sectors) could undermine our competitive edge. Policies which enable high-skill migration, entrepreneurial mobility and post-study work are critical to ensuring that international companies and start-ups continue to view Scotland. and the UK more broadly, as a welcoming, high-potential destination for investment.

To maintain our global standing, Scotland and the U.K. must attract and retain top global talent. Restrictions on skilled worker routes and post-study opportunities curtail our international collaboration. Immigration must therefore be positioned as a tool to advance our export ambitions, deepen academic and industrial partnerships, and grow our innovative ecosystem.

Realising the sector's potential also means adopting an open, strategic approach to immigration. Home-grown skills remain vital, but demographic trends, labour shortages and the space sector global marketplace mean overseas talent is a necessary part of the equation. We propose that mobility acts as a catalyst, not a constraint, for Scotland's economic and national success for the space sector (as well as more broadly).

Strategies, UK Defence, EU Space Law and the space sustainability landscape in 2025

Several strategies and policy driving documents have been produced in 2025, specifically between the hosting of the Niparo Summit and the writing of this document. Key policy documents and their relevance to Space Sustainability are outlined in the table below.

Key Policy Document	Space Sustainability interaction
Strategic Defence Review (SDR)	Positions space as a critical national infrastructure (CNI) and contested domain. Embeds space debris mitigation and space domain awareness into defence strategy. Supports dual-use innovation and resilience planning.
National Security Strategy (NSS)	Elevates space as a national priority across systemic risks. Highlights sovereign space capability. Reinforces potential for deeper integration.
Industrial Strategy	Identifies space as a high-growth sector, aligning with space sustainability objectives through innovation and manufacturing. Opportunities to develop a UK test facility for ISAM, and embed sustainability in industry-wide plans.

Advanced Manufacturing Sector Plan	Highlights space technology within UK manufacturing ambitions. Supports the development of sustainability space technologies.
EU Space Act (proposed, June 2025)	Introduces mandatory environmental impact assessments, disposal planning, and debris-mitigation compliance. Broadly aligns with UK policy; creates potential for regulatory harmonisation across UK-EU market interactions.

The 2025 Strategic Defence Review (SDR) defines space as both a contested warfighting domain and critical national infrastructure (CNI), vital for secure communications, navigation, satellite-based intelligence, surveillance and reconnaissance (ISR), and command & control.

The SDR emphasises the vulnerability and congestion of the space domain, noting that nearly 20% of UK GDP depends on satellite services and warning that increasing debris threatens resilience and security.[7] To protect these national, critical capabilities, the UK plans to expand Space Domain Awareness (SDA) and embedded debris mitigation into Defence planning - with UK policy ensuring that space sustainability is a security, safety and resilience issue.

The key challenges and innovations brought to the forefront during the Summit extend beyond purely civil concerns. “Everything in Space is Dual Use” and space sustainability innovation intersects with the UK’s Defence and Security priorities, including long-term resilience, capability assurance, and freedom of action in the space domain.

[7] https://www.gov.uk/government/publications/the-strategic-defence-review-2025-making-britain-safer-secure-at-home-strong-abroad/the-strategic-defence-review-2025-making-britain-safer-secure-at-home-strong-abroad?utm_source=chatgpt.com

Discussions and outcomes during the Summit also reinforce that the future of sustainability policies must align with these strategic defence needs. Key concerns include:

Sustainability Concern	Defence Relevance
Orbital Debris & Traffic Management	Threats to ISR, PNT, SatCom, and deconfliction in active orbits.
Legal Uncertainty (e.g. ISAM)	Undermines in-orbit logistics and future servicing capabilities.
Technology Standards	Enables modular, serviceable systems that extend asset life and reduce risk.
Private Sector Engagement	Dual-use innovation supports cost-efficient resilience. SDR calls for closer industry-defence-academia integration.
International Cooperation	Common norms reduce operational risk and support alliance interoperability (e.g. NATO SDA).

The 2025 UK National Security Strategy (NSS) bolsters the SDR's stance by positioning space within a broader matrix of systemic risks, from geopolitical volatility to technological disruption. Whilst the strategy also affirms space as CNI, it lacks detailed engagement with operational resilience and governance challenges, especially those arising from orbital debris, legal ambiguity, and sustainability risks.

In light of the themes raised at the summit, the NSS offers a useful framework for situating space sustainability as a national security priority. Although not directly addressed during the event, the NSS's three strategic pillars ('Security at Home', `Strength Abroad' and `Resilience and Sovereign Capability') closely align with many of the challenges and recommendations explored during the summit. These pillars reflect a strategic direction that could benefit from the

deeper integration of space sustainability principles. As highlighted throughout the summit, orbital safety, servicing readiness, and interoperable governance are essential to the UK's long-term national resilience in space.

The eagerly awaited 2025 UK Industrial Strategy targets high-growth sectors including advanced manufacturing, clean energy, and defence, and Space is an explicit mentioned sector in the Advanced Manufacturing Sector Plan. The Industrial Strategy along with the Advanced Manufacturing Sector Plan were generally well received by the Space Sector.

The House of Lords UK Engagement with Space Committee Select Committee continues its inquiry to consider UK policies relating to space. The UK's space sustainability leadership role, and how it can maintain this has been covered in both the oral and written evidence.

The proposed EU Space Act was introduced in June 2025 and broadly aligns with UK aims by requiring operators offering services in Europe (EU and non-EU) to conduct environmental impact assessments, plan for satellite disposal, and support debris-mitigation technologies. UK regulatory reform already mirrors these pillars, and domestic policy is well aligned with the EU's sustainability and security focus. With financial incentives, regulation, and defence resilience all tied to debris mitigation and sustainable design, UK strategy not only aligns with EU policy but seeks to chart global leadership in ensuring a responsible orbital environment. How this plays out in practice, is of course, the next step and challenge.

Recommendations

Given the discussions from the 3rd Niparo Summit on Space Sustainability, we have the following recommendations:

Produced a UK Space Sustainability Roadmap with a 25 year horizon (2025-2050).

Utilise the Industrial Strategy, and focus in on national facilities for ISAM and ADR specially and space sustainability in general.

Continue a strong UK leadership role in Cornerstone mission through the ESA Space Safety Programme at the 2025 Ministerial Council.

Continue to grow UK presence, interaction and leadership at the Committee on the Peaceful Uses of Outer Space, in both the Scientific and Technical Subcommittee and the Legal Subcommittee.

Increase space sustainability specific research funding. This would include Space Sustainability Cross-disciplinary Research Fellowships via UKRI.

Further promote and encourage research at the academic-industry interface using Advanced Research and Invention Agency (ARIA), COST, Horizon Europe. COST is a networking action run by the ESF (https://www.cost.eu/.) These are ideal for bringing together scientists working in a specific area.

Influence holistic policies which enable high-skill mobility and migration, in order to advance Scotland and UK export ambitions, deepen academic and industrial partnerships, and grow the innovation ecosystem.

3rd Niparo Summit on Space Sustainability Speakers and Panelists

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Prof. Ross Donaldson, Associate Professor, Heriot-Watt University

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Gulnur Erol, University of Brighton

Ray Fielding, Head of Space Sustainability and ISAM, UK Space Agency

Kelly Hardman, Director, Fragomen

Saskia Hawkins, ESA Graduate Trainee

Louis Head, Senior Associate, DLA Piper

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Dr. Maria Manoli, Lecturer, School of Law, University of Aberdeen

Angela Mathis, CEO and Co-founder, ThinkTank Maths

Prof. Martin McCoustra, Professor, Heriot-Watt University

Doug Meyerhoff, Director & Co-Founder, Airspace Unlimited

Prof. Andy Lawrence, Regius Professor of Astronomy, University of Edinburgh

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3rd Niparo Summit on Space Sustainability registered institutions and organisations

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Shepherd and Wedderburn
Space Clipper Industries
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