



ARTES 4.0 Generic Programme Line Business Applications - Space Solutions
ACTIVITY DESCRIPTION

“Space for Sustainability in Sport and Mass Events”

THEMATIC CALL FOR PROPOSALS

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Table of Contents

1. OVERVIEW 4

2. BACKGROUND AND RATIONALE 4

3. OBJECTIVES OF THE CALL 7

4. SPACE ASSETS AND DIGITAL TECHNOLOGIES 8

5. SCOPE OF THE CALL..... 9

6. PROCUREMENT APPROACH 10

7. PROCESS AND SCHEDULE 11

7.1 Timeline and procedure 11

7.2 Evaluation Criteria 13

8. GENERAL CONDITIONS..... 13

Table of Acronyms

AI	Artificial Intelligence
AoF	Authorisation of Funding
APQ	Activity Pitch Questionnaire
ARTES	ESA Advanced Research in Telecommunications Systems Programme
BASS	ESA Business Applications and Space Solutions
CAGR	Compound Annual Growth Rate
ESA	European Space Agency
FIA	International Automobile Federation
FIFA	International Federation of Association Football
FIS	International Ski and Snowboard Federation
FP	Full Proposal
GDCF	Green Deal Circular Festivals
GNSS	Global Navigation Satellite Systems
OP	Outline Proposal
OSIP	Open Space Innovation Platform
PSI	Project Security Instruction
SatCom	Satellite Communications
SatEO	Satellite Earth Observation
UEFA	Union of European Football Associations
SDGs	Sustainable Development Goals
VSA	Association of Sports Rights Holders

1. OVERVIEW

This document provides an overview of the “Space for Sustainability in Sport and Mass Events” thematic call for proposals under the ARTES BASS, 5G and 4S programme lines. It invites companies to submit business ideas that develop space-based services aimed at addressing the sustainability in sport or mass events.

2. BACKGROUND AND RATIONALE

Large-scale events such as sports championships, music and food festivals, and conferences are pivotal in fostering community engagement, enhancing social interaction, and contributing to local economies through job creation and economic development¹. These events are also a growing part of the global economy. With a compound annual growth rate (CAGR) projected at 6.4%, the value of the events industry is expected to rise from \$1,135.4 billion in 2019 to \$2,046.7 billion by 2032². A significant portion of this market is driven by sporting events, which currently account for \$267 billion and exhibit a higher CAGR of 7.8%, making it the fastest-growing segment. This surge is driven by increasing global interest in sports, where sustainability and corporate social responsibility (CSR) have become essential trends and drivers³. For example, the FIFA World Cup 2022 engaged an estimated five billion people—nearly two-thirds of the global population⁴—showing how sporting events can unite a diverse audience in an otherwise polarized world.

Sustainability in Sporting Events

The relationship between sports events and sustainability is becoming increasingly significant, as the industry plays a key role in promoting the United Nations' Sustainable Development Goals (SDGs)⁵. However, these international events, with their vast audiences and complex logistics, also face criticism for their environmental impact, including carbon emissions from travel, waste generation, and energy consumption. PwC's 2021 sports survey⁶ highlighted that 84% of industry leaders now feel pressure from fans, sponsors, and governments to adopt sustainable practices, integrating environmental and social responsibility into their core business strategies. As a result, organizations are seeking ways to reduce carbon footprints, enhance inclusivity, and ensure responsible governance.

In addition to their environmental impact, sports events must also contend with the effects of climate change on their operations which is an important aspect of sustainability for the sport

¹ [Economic Impacts - International Association of Event Hosts](#)

² <https://www.alliedmarketresearch.com/events-industry-market>

³ [Sports Market Size, Trends, Share Growth Report And Opportunities By 2024-2033 \(thebusinessresearchcompany.com\)](#)

⁴ [One Month On: 5 billion engaged with the FIFA World Cup Qatar 2022™](#)

⁵ <https://www.aimr.asia/impact-reporting/esg-in-sports-a-sustainable-future-for-the-global-industry/>

⁶ <https://www.pwc.ch/en/insights/sport/sports-survey-2021.html>

industry. As global temperatures rise, extreme weather events such as heatwaves, wildfires, and floods are becoming more frequent, disrupting sports schedules and threatening the safety of athletes and spectators⁷. For instance, the 2020 Australian Open faced severe air quality issues due to nearby bushfires, affecting players' health leading to several players withdrawing from the event⁸. More recently, during the 2024 UEFA European Football Championship in Germany, a game had to be suspended because of an intense thunderstorm with heavy rain, lightning and hail⁹. The ski industry is also under threat, with a recent 2022 study highlighting that half of the former Winter Olympic host cities could be unable to sponsor winter games by 2050, due to a lack of snow and ice¹⁰. These climate-driven challenges are forcing the sports industry to adapt and protect the well-being of participants and audiences alike.

The Role of Sponsors and the Urgency of Sustainability

Roughly half of the revenue in the sports events sector comes from sponsorships¹¹, and corporate social responsibility has become a critical factor in sponsor decision-making. In a recent survey by the Association of Sports Rights Holders (VSA), 86% of sponsors indicated that CSR and sustainability are key considerations when forming partnerships¹². For these reasons, sustainability is no longer a matter of goodwill but a necessity for the survival of the sports industry. In response, many organizations are adopting sustainability frameworks, reducing waste, transitioning to renewable energy, and fostering positive social change through partnerships and initiatives. This is highlighted by recent major investments in sport events where sustainability takes a central role like CVC Capital Partners' €2 billion investment in La Liga¹³. While it is promising that global events are focusing on climate action, there is still room for improvement. For example, reports have cast serious doubts on the accuracy of the 2022 FIFA World Cup's carbon neutrality claim¹⁴. This has led sport event organisers to increase the scrutiny and reassess their methodology to measure emissions and sustainability impact.

⁷ <https://www.weforum.org/agenda/2024/08/climate-change-sports-impact/>

⁸ <https://www.theguardian.com/australia-news/2020/jan/14/australian-open-in-doubt-as-bushfire-smoke-endangers-players>

⁹ <https://apnews.com/article/germany-denmark-thunderstorm-euro-1fe44677f6adf75b5d3937a4d41c4409>

¹⁰ <https://www.tandfonline.com/doi/abs/10.1080/13683500.2021.2023480?journalCode=rcit20>

¹¹ <https://www.technavio.com/report/sporting-events-market-analysis>

¹² <https://sportfive.co.uk/beyond-the-match/insights/here-to-stay-sustainable-sports-sponsorship>

¹³ <https://sustainabilityreport.com/2023/05/04/private-equity-should-be-driving-sustainability-in-sport/>

¹⁴ <https://carbonmarketwatch.org/publications/poor-tackling-yellow-card-for-2022-fifa-world-cups-carbon-neutrality-claim/>

Environmental sustainability problem areas



UN Sports for Climate Action

To guide sustainability efforts across the sector, the **UN Climate Change initiative—Sports for Climate Action**¹⁵ urges sports organizations to commit to measurable climate goals, aiming to achieve net-zero emissions by 2040, in line with the Paris Agreement¹⁶. This initiative encourages sports organizations to reduce their greenhouse gas emissions, with the aim of halving them by 2030, and report their progress. Signatories, including organizations such as UEFA, FIS, and FIA, must publicly submit annual reports on their climate targets, detailing the actions they are taking to reach these objectives. However, stakeholders have expressed concerns about the challenges of measuring the effectiveness of these efforts, presenting an opportunity for new services that can support organizations in meeting their goals.

Sustainability in Music Festivals

Music festivals face similar sustainability challenges to sports events, particularly as extreme weather events such as heatwaves and storms become more frequent. In addition to climate risks, festivals contribute significantly to environmental degradation, with recent studies showing that UK music festivals alone generate 23,500 tonnes of waste annually, 68% of which ends up in landfills¹⁷. To tackle these issues, music festivals have united under initiatives like the **Green Deal Circular Festivals (GDCF)**¹⁸, a collaborative European effort focused on reducing waste, utilizing renewable energy, and promoting sustainable travel and food sourcing. This mirrors the sports sector's **UN Sports for Climate Action Initiative**, demonstrating how both industries are working toward adopting climate-resilient practices to reduce their environmental impact.

¹⁵ <https://unfccc.int/climate-action/sectoral-engagement/sports-for-climate-action>

¹⁶ <https://unfccc.int/most-requested/key-aspects-of-the-paris-agreement>

¹⁷ <https://www.willshees.co.uk/news/how-much-waste-is-leftover-after-a-music-festival/>

¹⁸ <https://www.circularfestivals.nl/default.aspx>

3. OBJECTIVES OF THE CALL

The objective of this call for proposals is to foster the development of innovative applications and services with high market potential that address the sustainability challenges inherent in sport and mass events. These solutions are envisioned to support diverse stakeholders—from event organizers, federations, and venues to sponsors—who are committed to reducing the environmental footprint and enhancing social responsibility at large-scale events, including sports championships, music festivals, and conferences. This is not an exhaustive list of users. The initial areas of interest include, but not limited to, the following:

Carbon Reduction

- Mobility, logistics and transport services in line with the carbon reduction KPIs set by the event and frameworks and with the need to host a high number of users for a short period of time. E.g. autonomous electric transport of people and goods, tracking of traffic and logistics and their related emissions.
- Measuring and validating direct emissions attributable to the event.

Nature and biodiversity protection

- Security of the access to the construction sites, e.g. tracing the authorised vehicles, checking the compliance of materials and tools to the regulations, verifying the compliance of environment and places within the sites.
- Monitoring the progress of construction sites and in particular land use and landscape transformations.
- Promote a new level of intelligence for the sustainable use of resources in snowmaking, to achieve significant savings in water and electricity use. This is achieved by ensuring accurate planning of the amount of snow required per area and slope. Continuous comparison of planned and actual quantities and other important factors can ensure optimal planning of snowmaking, saving resources.

Circular Economy

- Services supporting the transition towards circular and smart cities for the sustainability of the hosting locations. like impact of large events on green spaces and urban heat islands, traffic and transportation management of the host venues and air quality control.
- Tracking the supply chain by providing deep insights into each individual segment of it to assurance that the products are produced in an environmentally sustainable and ethical way. Having access to an accurate, complete view of the supply chain makes it easier to pursue proactive changes such as shifting production methods to become more sustainable or pressuring a supply partner to improve its labour practices.
- Services tracking waste management to ensure accurate waste segregation, contributing to lower carbon output across the supply chain, particularly in managing Scope 3 emissions, which encompass waste disposal and its impact.

Sustainable Infrastructure

- Planning of sustainable new building/infrastructures (transport, energy and other utilities, connectivity) based on assessment of their environmental impact, and aiming at versatility and flexibility of their use after the events to ensure a return of the investment in the long-term.
- Support the planning and placement in case of temporary and demountable venues where no long-term venue legacy need exists or can be justified (e.g. mapping of the locations and analysis of the logistics, environmental impact analysis, efficiency of the buildings, monitoring of the working sites status).
- Renewal, adaptation and enhancement of the use of existing facilities (e.g. smart building, digitalisation and safety of access).

Impact of environment on events

- Measure of impact and risk of weather events and environmental changes on the events like extreme weather events, impact of air quality on the athletes or changes produced by the event in the host venue.

The Tenderer can also propose additional use cases provided that they are supported by relevant user representatives.

4. SPACE ASSETS AND DIGITAL TECHNOLOGIES

Satellite technologies and data, integrated with other digital technologies, have a significant role to play for prospective services addressing sustainability in sport and mass events:

- **Satellite Positioning and Timing**
Global Navigation Satellite Systems (GNSS) can enable innovative applications for the tracking and tracing of vehicles and goods through precise positioning, navigation, and timing. It can be used to provide coarse to high accuracy positioning information based on the specific use cases. For instance, GNSS can enable various route optimisation solutions by providing real-time location data as well as flow monitoring of fans, vehicles and goods
- **Satellite Communications (SatCom) and terrestrial networks**
In remote areas where communication is lacking, SatCom provides the possibility of connection with IoT sensors - for instance to monitor air quality with local sensors or to provide alerts, such as emergency warnings for extreme weather events.
- **Satellite Earth Observation (SatEO)**
SatEO data combined with advances in AI and machine learning, could be used to directly measure GHG emissions, measure traffic flow, movement of people, activities along points of the supply chain, identify infrastructure needs, and understand direct effects of the events in the surroundings like biodiversity. SatEO data can be used for

the planning of the infrastructure and traffic flows. Additionally, weather forecasts can be used to anticipate adverse situations that can affect events.

5. SCOPE OF THE CALL

The proposals submitted under this Call for Proposal (CfP) shall target innovative and user-driven services which rely on advanced digital and space-based technologies. The proposals shall leverage target opportunities related to sustainability in the organisation and running of sport and mass events.

The Bidder has two options for addressing use-cases in their proposal: either address the optional use-cases included in the Annexes ([available on the website](#)), or address other use-cases and requirements related to the Call by involving other customers or users directly. If choosing the latter, the Bidder must provide letters of interest from these potential customers as evidence of their support, which should be attached to the Outline Proposal (the second step in the application process). Both options will be considered equally in the evaluation process.

The service provider shall be identified and be part of the bidding team to ensure the commercial operational roll-out of the proposed service following completion of a demonstration project.

This Call for Proposal covers two types of activities:

1. **Feasibility Studies** which provide the preparatory framework to identify, analyse and define new potentially sustainable services.

The applications and/or services covered by the proposed Feasibility Studies must:

- **Be customer - and user-driven:** proposals should demonstrate a clear understanding of user needs and present a strong potential for sustainability.
- **Leverage integrated space assets:** propose a service demonstrating the benefits of the utilisation of integrated space assets.
- **Include a plan to test business hypotheses:** a plan should be included that details how the user desirability, technical feasibility, and commercial viability of the service will be tested.
- **Target marketed readiness:** Aim to evolve the targeted applications and services to marketability and operational roll-out, potentially through a Demonstration Project after successful completion of the Feasibility Study

2. **Demonstration Projects** dedicated to the implementation and demonstration of pre-operational services.



The applications and/or services covered by the proposed Demonstration Projects must:

- **Be customer- and user-driven:** Active user involvement is essential throughout the project, including their participation in defining requirements, validating results, and contributing to the pilot activities.
- **Showcase the value of space assets:** Proposals must clearly demonstrate how the utilisation of space technologies provides a distinct advantage, with a strong potential for long-term sustainability.
- **Deliver measurable socio-economic benefits:** The project should quantify its impact, highlighting improvements in efficiency, sustainability, or other key outcomes that align with user and societal needs.
- **Ensure user participation:** Representatives from the target user communities must actively engage in the project, including participation in the pilot phases to ensure alignment with their requirements and expectations.

The goal of Demonstration Projects is to validate pre-operational services in a real-world environment, paving the way for scaling and operational deployment.

To apply to a demonstration project, the Bidder is required to have addressed the key technical and business risks associated with the proposed project, and to have established a solid business plan including clear support from prospective customers.

6. PROCUREMENT APPROACH

The proposals submitted in reply to the call shall be implemented in the context of ARTES 4.0 Generic Programme Line “Business Applications – Space Solutions”, “Space Systems for Safety and Security” (4S) and “Space for 5G/6G and Sustainable Connectivity” Strategic Programme Lines in coordination with National Delegations.

The Bidder shall submit first an Activity Pitch Questionnaire, and following evaluation, may be invited to submit the Outline and Full Proposal. The Activity Pitch Questionnaire (APQ) template provided by ESA shall be used. This is considered as entry point for companies to submit their idea, providing a simplified and single point of access to the ESA ARTES framework.

The price of activities carried out in a given State are charged against the contribution of that State in the programme. A letter of Authorisation of Funding (AoF) from the relevant National Delegation is therefore required as part of the Full Proposal. The Bidder is however advised to inform the relevant National Delegation(s) when submitting the Pitch. The contact information of the National Delegates can be found here:

<https://artes.esa.int/national-delegations>.

The Agency will admit for evaluation only (Outline and Full) proposals from a bidding team composed of a company and/or organisations (be it Prime or Subcontractor) residing in any of those states that subscribe to the Programme under which you wish you submit your proposal:

- I) **for the ARTES 4.0 BASS Generic Programme Line:** Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Sweden, Switzerland and the United Kingdom.
- II) **for the ARTES 4.0 Space for 5G/6G and Sustainable Connectivity Strategic Programme Line:** Austria, Belgium, Finland, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Romania, Spain, Sweden, Switzerland, the United Kingdom and Canada.
- III) **for the ARTES 4.0 Space Systems for Safety and Security (4S) Strategic Programme Line:** Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Norway, Portugal, Romania, Spain, Switzerland, the United Kingdom and Canada.

7. PROCESS AND SCHEDULE

It is planned for the call for proposals to open on 7th May 2025 until the 10th October 2025.

7.1 Timeline and procedure

The Bidder shall submit first an **Activity Pitch Questionnaire**, and following evaluation, may be invited to submit the **Outline Proposal** and subsequent **Full Proposal**. The Activity Pitch Questionnaire (APQ) template provided by ESA shall be used, which is considered as entry point for companies to submit their idea. The details of the APQ can be found here: [Open Space Innovation Platform - OSIP - Channel: APQ for ARTES Downstream Business Applications](#)



Figure 11: Application steps

This Call is planned to be implemented according to the following stepwise approach.

Step 1: APQ Submission

In Step 1, the interested Bidders are requested to submit their proposal(s) based on a short Activity Pitch Questionnaire (APQ) template made available by ESA that can be downloaded from the Thematic Call website. The pitch should provide the initial idea of what the Bidder would like to propose, elaborated on the basis of the thematic areas and either the use cases proposed by ESA's partners or others selected by the Bidder. If the Bidder has the relevant



information available to them, they may consider completing the supplementary questions (AP5) in the APQ template as part of the APQ+, which may allow to skip Step 3 below, at ESA's discretion.

Should the bidder wish to cooperate with any of the listed partners in the annexes, they shall give to the Agency the authorisation to distribute the activity pitch questionnaire to these stakeholders by explicitly stating it in the Activity Pitch Questionnaire. Subject to such authorisation, the Agency will follow up distributing the APQ to the bidder's authorised stakeholder(s) and liaise with them to facilitate interactions with the Bidder.

The completed Activity Pitch Questionnaire (APQ) shall be uploaded using the online web submitter, ESA's open space innovation platform (OSIP) in the channel named "[APQ for ARTES Downstream Business Applications](#)".

Multiple Pitches with different ideas can be submitted.

It is strongly recommended that the interested Bidder liaises from the beginning with the relevant ESA Member States Delegates.

Step 2: APQ Evaluation

In Step 2, following an assessment of the pitch by ESA, ESA will provide feedback to the company, aiming to provide a reply within 10 working days following the deadline for submission of the pitch.

It is recognised that some interactions with the Bidder may be required, and ESA may therefore consult with the Bidder and may offer support in providing further clarifications, aimed at better shaping the Outline Proposal(s). Dialogue sessions may be organised individually with potential partners prior to Step 3.

ESA might also consult, when necessary, with the relevant National Delegation(s) for orientation and will provide key information (e.g. title, cost, price, subcontractor) to the relevant National Delegation(s).

Subject to a positive evaluation of the pitch and the Bidder having informed the National Delegation(s), the Bidder will be notified by ESA and invited to submit an Outline Proposal. Note that the APQ+ can act as a substitute for the Outline Proposal, thus if having adequately answered the additional questions included in the APQ+, the Bidder may be able to skip Step 3.

Step 3: Outline Proposal Submission

In Step 3, the Bidder will submit the Outline Proposal, based on a template provided by ESA, with letter(s) of interest from users/stakeholders. The Outline Proposal expands upon the pitch with a more extensive level of details. The Bidder will be allowed 2 months from ESA's approval of the APQ to the submission of their Outline Proposal. The outline proposal shall be submitted on the OSIP platform under the channel "[Outline Proposal for ARTES Downstream Business Applications – Feasibility Studies/Demonstration Projects](#)".

Step 4: Full Proposal Submission

In Step 4, subject to a positive assessment from ESA and in-principle support from the National Delegations, the Bidder will be invited to submit a Full Proposal on ESA-STAR in accordance with BASS programme line. The Bidder will be allowed 4 months from submission of their Outline Proposal to submit their Full Proposal on ESA-STAR.

A letter of Authorisation of Funding (AoF) from the relevant ESA National Delegation is required as part of the Full Proposal. The Bidder is however advised to inform the relevant National Delegation(s) when submitting the Pitch. The details of the National Delegates can be found here: <https://artes.esa.int/national-delegations>.

After the Bidder have submitted a Full Proposal with the Authorisation of Funding (AoF) from the relevant National Delegation(s) and following a positive assessment by ESA, the proposed activity will be approved for implementation.

7.2 Evaluation Criteria

The evaluation process is non-competitive, as each proposal will be assessed individually on its own merits, according to the evaluation criteria applicable for [CALL FOR PROPOSALS FOR DOWNSTREAM APPLICATIONS IN ARTES 4.0](#) (esa star ref.: 1-10494).

More information for the assessment of the APQ and outline proposal stages can be found on the OSIP page [“APQ for ARTES Downstream Business Applications”](#).

More information on the evaluation criteria for the final proposals can be found within the document “Appendix 1 to AO/1-10494/20/NL/CLP (Issue 2.2) ” which can be found on ESA-STAR at the following [link](#) under "Tender conditions".

8. GENERAL CONDITIONS

The submissions and all correspondence relating to it shall be in English.

The tender shall not contain any Classified Information, whether in the APQ, Outline Proposal or in the Full Proposal. To avoid any confusion with Classified security markings, the unclassified protective marking used by the Tenderer in the proposal shall not contain the terms: "Restricted", "Confidential", or "Secret".

However, should the Tenderer consider necessary to include Classified Information in the tender, the Tenderer shall inform beforehand the ESA Security Officer.

The Tenderers are informed that Classified Information can be shared with ESA only in compliance with the Project Security Instruction (PSI) duly established by the Agency beforehand and subject to the approval by the ESA Member States.



The Agency will treat commercially sensitive or proprietary information confidentially and solely for the purpose of the assessment of the response.

Expenses incurred in the preparation and dispatch of the response to the announcement will not be reimbursed. This includes any expenses connected with a potential dialogue phase. The announcement does not bind the Agency in any way to place a contract. The Agency reserves the right to issue amendments to the announcement.