

## THEMATIC CALL “SPACE FOR OLYMPIC GAMES” – ANNEXES

The topics of interest have been derived after several interactions with key stakeholders of the sector, including:

- Olympic Committees: Paris 2024, Infrastrutture per Milano-Cortina 2026, Fondazione Milano-Cortina 2026, International Olympic Committee;
- Other sports Federations: Italian Taekwondo Federation;
- Partners of the Olympic Games: ATOS, Swiss Timing;
- Innovation hubs for acceleration of technology uptake in the sport industry: European Platform for the Sport Innovation EPSI, Global Sport Innovation Centre GSIC.

**Annex A** covers the topics of interest resulting from the engagement with the Olympic Committees and Innovation Hubs.

**Annex B** covers the topics of interest highlighted by Swiss Timing, official time-keeper of the Games for every competition.

**Annex C** covers the topics of interest highlighted by ATOS, technology provider in charge of ensuring that the Olympic Games are fully connected, secure and digitally-enabled.

**Annex D** covers the topics of interest highlighted by FITA (Italian Taekwondo Federation).

### 1.1. ANNEX A – TOPICS OF INTEREST (Non-Exclusive List)

#### 1.1.1. Sustainability

Events could take a heavy toll on resources, society and the environment.

The ISO 20121 SUSTAINABLE EVENTS, offers guidance and best practice to help manage events and control their social, economic and environmental impact. (ref: [ISO - ISO 20121 — Sustainable events](#))

The aim of this theme is to foster the development of approaches and solutions that could relieve the strain on local infrastructure and utilities, thus reducing the potential for conflict in communities where events are hosted. (ref: [ISO - ISO 20121 — Sustainable events](#))

Non-exhaustive examples of ideas that could benefit from space solutions are presented below

- 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 Games to ensure a return of the investment in the long-term
  - support the planning and location 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)
  - monitoring and maintenance of the fields of play for the athletes, to guarantee the state-of-the-art for all competitions
- Services around construction sites:
  - Providing connectivity to support the construction venues, particularly in remote locations.
  - 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 of the progresses of the construction sites and their timely development.
- Smart and green (Olympics) cities:
  - Services supporting the transition towards circular and smart cities for the sustainability of the hosting locations
  - Cleanness of outdoor areas where competitions are located (e.g. waters for open sea sports; outdoor routes for cycling competitions)
  - Mobility, logistics and transport services in line with the carbon neutral aim of the event and with the need to host a high number of users for a short period of time
  - Mobility and logistic services through all the event venues and locations
  - Achievement of a net-zero event
  - Promote the cultural heritage of the hosting locations

### 1.1.2. *Smart Management of the Event*

Safety of performers and of the public is an overarching non-negotiable priority while organizing event.

The aim of this theme is to use space solutions to leverage other technology to ensure the safety of all, performers and public.

Non-exhaustive examples of ideas that could benefit from space solutions are presented below.

- Crowd management, first response and management of emergency events, public safety:
  - Before the events: predicting the mass, behaviour and composition of the flow of people to optimize the operational services. Data from past events in high-density fan zones (like Euro 2016, Tour de France, Champions League) may be used to model those parameters.
  - During the events: creating a real-time monitoring system of the flow of people (e.g. heatmaps) that can support the management of the operational services. Those can also be distributed externally for self-regulation of the crowd.
  - After the events: systematization of these data for feedback collection and lessons learnt. Optimization and training of machine learning algorithms for the prediction of future behaviours.
- Event management:
  - Services for the navigation and indoor/outdoor flow optimization (e.g. people, vehicles, public transport)
  - Information access & display, e.g. through smartphones or tablets for the general public, with easy-to-use information, display through dashboards, etc...
  - Risk assessment and monitoring (e.g. cyber-attacks, fault of systems)
  - External conditions assessment and monitoring (e.g. accurate weather forecast, alert of possible disruptions of services), especially when variability of the climate conditions is expected (e.g. Winter Games editions)

### **1.1.3. Engagement with fans**

The sport ecosystem is currently looking for new ways to foster and build on the fan engagement. The aim of this theme is to help the development of such innovative solutions and their related business models that are enabling and leveraging engagement with fans.

Non-exhaustive examples of ideas that could benefit from space solutions are presented below.

- Increase accessibility of the “Olympics” experience, improving the fan engagement during the event especially for the younger generations
- Blend sport and culture at Games time and between Olympic Games
- Sharing of the Olympic values (e.g. into education programs)
- Increase transparency and digitalisation of financial management and transactions

### **1.1.4. Performance: Athletes’ preparation and training**

The aim of this theme is to support the development of solutions that help increase the performance of athletes.

Non-exhaustive examples of ideas that could benefit from space solutions are presented below.

- tailored monitoring of the performance for the specific sport (e.g. through new generation of dedicated wearable devices, integration of environmental data in the performance analysis),
- virtual training based on VR/AR,
- customised tools (e.g. AI based) for the health parameters assessment
- sustainable food production/selection to support a higher performance achievement of the athletes
- Management of athletes’ data, security of the distribution channels of their performance and scores, enhanced connectivity for the real time sharing of the competitions’ results

## 1.2. ANNEX B: Swiss Timing Use Cases

In the context of the Olympics, Omega benefits from the technology services provided by Swiss Timing. Swiss Timing oversees sport performance capture (in terms of timing, positioning, speed, motion, scoring, electronic adjudication systems (e.g. VAR), etc) of every athlete in every competition during the Games. Swiss Timing has identified the following needs that might be suitable for space services, provided that a proof of concept / demo-kit is already available at the beginning of the activity.

- Connectivity services:
  - Wireless connectivity, especially in remote areas (IoT, 5G, satellite communication): those need to be low-cost and low-latency (in the range of 100ms) and can be supported by satellite data communication. The connectivity service could be dedicated to the organisers and/or broadcasters, or it could be a general public network with prioritisation services for Swiss Timing data transmission, guaranteeing the adequate level of service (SLA) during the competitions and the crowded events.
  - Wireless communication in wearable devices: low-power wireless communication with low-latency (in the range of 10ms), with a minimum of 1 km range and size adaptable to different wearables. The wireless features should be adaptable and configurable to be compliant with regulations anywhere in the world.
  - Note: all the communication systems shall be synchronized
- Miniaturised universal GNSS tracker for athletes Positioning, Velocity and Time, in particular for cycling road, alpine skiing, cross country skiing, rowing, to provide information during the different Olympic events e.g. about velocity, length of jumps, live ranking:
  - high precision positioning in the range of 1m – desired value within 10cm
  - real-time, latency within 10ms
  - the adoption of the tracker in term of size and weight should be in agreement with the specific Federation through the main stakeholder Swiss Timing

- Generation of updated 3D maps and animations to present competition venues during the shows to provide an overview to the general public, to be ready right before the competitions.

### **1.3. ANNEX C: ATOS Use Cases**

ATOS strategy gives priority to the development and implementation of environmental and climate services enabling to monitor on the long-term the environmental conditions worldwide in support to decision-making for sustainable development goals and to transparent and easy-to-use information for the general public.

Olympic and Paralympic Games offer an excellent opportunity for developing and testing environmental and climate applications providing added-value to their organizers, participants and to the general public.

It is expected that these applications will in particular focus on the quality of the environment (including air, water and land), as well as on the mitigation of greenhouse gas emissions – including emission offsetting – and solutions for adaptation to environmental and climate change impacts – considering events such as heat waves, droughts, floods and storms and including nature-based ones –over competition and surroundings areas.

It is specifically important that environmental monitoring could be available before, during and after the Olympic and Paralympic Games in order to describe and quantify their environmental footprint and contribution to sustainable development and net-zero emission goals.

For this purpose, the design and validation of simple and complex indicators, gathering and weighting several environmental variables, is strongly encouraged.

Moreover, the proposed applications should customize their indicator information according to the users to be reached, e.g. organizers, participants and general public. Particular attention should be given to easily accessible and ready-to-use information delivery.

The environmental and climate services supported by ATOS should provide local geographic information derived from EO and other data collected from space infrastructure. These space

data should be combined with other data sources such as public in-situ observations and socio-economic data, as well as private data enabling to describe the presence and behavior of individuals and groups. Specific attention should be given to applications combining EO and other space data with multiple public and private data sources.

During the Olympic and Paralympic Games, it is very important to get frequently refreshed information allowing to react and modify plans or behaviors according to what is currently happening. For this purpose, the availability of real-time or near-real-time updating of information, based on “hot data” integration, is strongly encouraged and supported.

#### **1.4. ANNEX D: FITA (Italian Taekwondo Federation) Use Cases**

The Italian Taekwondo Federation (FITA) is a Sports Federation that promotes and administers Taekwondo in Italy. It is part of the Italian National Olympic Committee (CONI) and member of the World Taekwondo, the International Federation of reference.

As a Sports Federation, FITA has got several and different goals: the transmission of taekwondo values, the organization of National and International sport events, the relationships building with partners who wants to support the spread of Taekwondo movement, and so on.

FITA also works hard to have a strong social impact, through projects that includes schools, gyms, and European subjects, as the main goal is to become a sustainable Federation giving priority to realize, as much as possible, net-zero emission sport events. To get this purpose, FITA would like to find strategies or applications to implement and develop a system to reduce the environmental impact due to FITA’s actions.

It is also extremely important monitoring and quantifying the environmental footprint before, during, and after competitions. At the same time, data and the social report provided by this analysis, shall be transparent and have easy-to-use information for the public.

Some clear and measurable objectives and long-term KPIs that FITA wishes to improve are listed below:

- development of eco-sustainability policies of taekwondo
- quantification of consumption of FITA's indoor and outdoor competitions, putting the focus on the World Taekwondo Roma Grand Prix 2023 at Parco del Foro Italico
- natural resources consumption and greenhouse gases reduction and optimization
- improving taekwondo image as a sustainable reality
- to raise awareness to Taekwondo clubs and other organizations on environmental issues starting from the commitment of FITA to help the shaping of a better and more sustainable world

All the above KPI's are considered as a unique focus of a sustainability plan that starts from FITA but have the goal to engage FITA's clubs, fans, stakeholders, and players themselves. We can work all together to have a positive impact to live in a better and sustainable world thanks to the sports world commitment and the teamwork power. This is the key to success. Therefore, FITA needs a company available to develop technologies, methodologies or plans useful to improve the environmental sustainability and a responsible use of natural resources.