



CASSINI
Hackathons & Mentoring

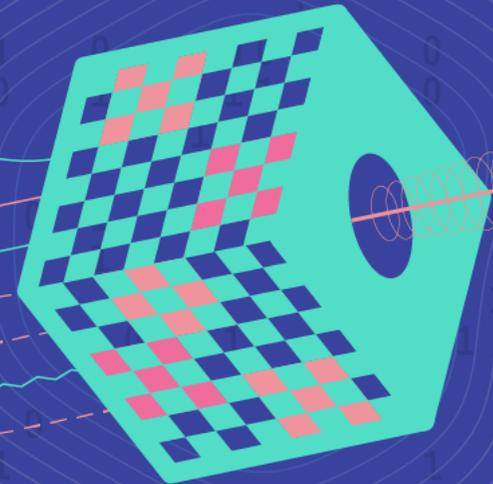
Participant Playbook

Re(Visit) Europe
12-14 May 2022

Implemented by

VERHAERT | MASTERS IN INNOVATION

 **space-tec**
PARTNERS





The participant playbook is intended to guide you through the **most important information** about the **3rd CASSINI Hackathon & Mentoring**.

Inside you will find information about the **tools, platforms, and communication channels** you need to make the most of the weekend.

We can't wait to see how you use EU space technologies **to shape the tourism of tomorrow!**



What you will find in this playbook



1. Core information

- Overview of the 3rd CASSINI Hackathon
- The theme and challenges
- EU Space programme
- Tools & resources
- Accessing help & support

2. The Hackathon

- How to get involved
- The 9 local organisers
- Accessing the data cube with WEKEO
- The Big Ideas Campaign
- The hackathon agenda & rules
- Overview of the hackathon platforms
- The demo day & awards ceremony

3. Mentoring programme

- Introduction to the programme
- How to get involved
- How to make the most of it

Coming soon



3rd CASSINI HACKATHON

12-14 MAY 2022

(Re)Visit Europe



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The 3rd CASSINI Hackathon & Mentoring | 12-14 May

1 Hackathon

10 Locations around Europe

EU Space

Hybrid

Local

European

Global Themes

▶ Re(Visit) Europe

You?

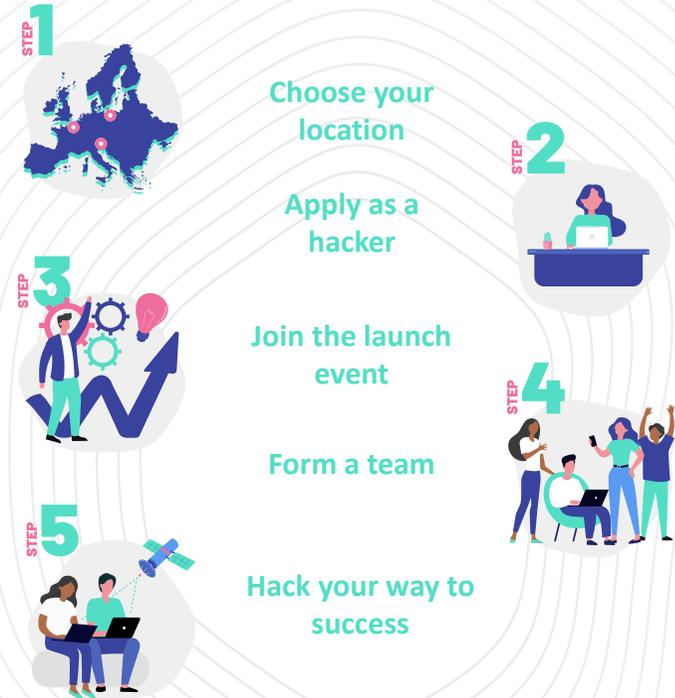
Explore new destinations as you uplift the tourism sector with resilience, sustainability and digitalisation during the 3rd CASSINI Hackathon.

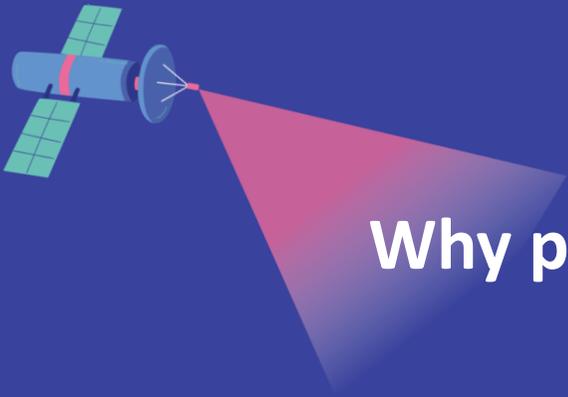
The EU and regional and national governments, require your fast thinking to revitalise tourism and create new, climate-friendly ways to access European destinations. We're looking for innovative minds to develop sustainable solutions that stabilise and advance Europe's tourism sector.

The hackathon is open to anyone enthusiastic about entrepreneurship, tourism and EU space technologies. Embark on the challenge of your choice using one or a combination of the following tools:

- 1) geospatial information from Copernicus Earth observation data and its services
- 2) positioning technologies from Galileo & EGNOS
- 3) Emerging technologies (e.g. machine learning, virtual reality, blockchain)

Applying is easy!





Why participate in the hackathon?

{ Code the future }

Draw on your unique skills to create solutions that solve critical problems which are affecting our future.

{ Put your skills to the test }

Roll up your sleeves and compete against fellow coders, creatives and business experts for your chance to win!

{ Expand your network }

Develop your understanding of Copernicus, Galileo & EGNOS with our tailor-made training and support, and learn to design for the future.

{ Discover EU Space }

Meet fellow hackers and experts from inside and outside the European space ecosystem. Gain experience networking and grow your connections.

{ Access expert knowledge }

Engage with our technical and business experts who will be on-hand throughout the event to help, advise and support you in reaching your goals.

{ Take home the prize }

Don't miss your chance to win prizes on a local and European level. Cash and mentoring opportunities are just two of the many prizes up for grabs!



Challenge #1: Finding sustainable destinations

Each year, many European citizens vacation within the continent, concentrating primarily on a limited number of cities and regions. Reliant on the income and employment the tourism sector generates, these destinations must balance the high cost to their environment and communities. Travel to and from Europe's top locations depends heavily on airplanes, cruise ships, busses and cars, all of which leave a high carbon footprint. As travellers become increasingly aware of their climate impact and actively seek out sustainable tourism options, it's the ideal time to present more transparent travel options.

This challenge calls on tomorrow's inventors to either **develop innovative ideas or design new products or services that reduce the carbon footprint of tourism travel**. Leverage European space data, information and signals from Copernicus, Galileo and EGNOS to turn your ideas into reality. We encourage participants to explore these areas of focus:

- Navigation route optimisation
- Extreme weather and sea ice warnings
- Support for the development and connectivity of future shipping lanes
- Environmental disaster and emergency management



13 CLIMATE ACTION



Encouraging the development of sustainable alternatives for travel will contribute to the United Nation's Sustainable Development Goal 14 to conserve and sustainably use the oceans, seas and marine resources for sustainable development.



Challenge #2: Experiencing cities and cultures

Travelling offers rich experiences from food and culture to history, music and art. **Sharing these moments on social media brings the experience home by providing a direct window to the destination, but viral images can also lead to congestion and over-tourism.** At a time when travellers are keen to discover lesser-known places, it's important to harness the power of social media and utilise innovative digital technologies such as augmented and virtual reality to create unique experiences.

This challenge calls on tomorrow's inventors to either **develop innovative ideas or design new products or services to offer travellers a unique and sustainable way to experience local destinations while supporting local businesses and communities.** Leverage European space data, information and signals from Copernicus, Galileo and EGNOS to turn your ideas into reality. We encourage participants to explore these areas of focus:

- Crowd management and slow tourism
- Personal recommendations and itineraries
- Social recognition and social media
- State-of-the-art, virtual travel experiences
- Supporting local businesses and communities



11 SUSTAINABLE CITIES AND COMMUNITIES



Enhancing the experience of local cities and cultures will contribute to the United Nation's Sustainable Development Goal 13 to take urgent action to combat climate change and its impacts.



Challenge #3: Exploring nature with care

Europe's outdoors offer many activities for travellers, such as hiking, cycling, water sports, winter sports and more adventurous experiences. From the countryside and beaches to the forests and mountains, travellers frequent these destinations for days, weeks and even months at a time. With so many visitors taking advantage of what the outdoors have to offer, a key focus of tourism must be on nature protection.

This challenge calls on tomorrow's inventors to either **develop innovative ideas or design new products or services to offer tourists a unique and sustainable opportunity to explore our nature.** We encourage participants to explore these areas of focus:

- Tourist information about the environmental state
- Conservation of local nature and biodiversity
- Generation of (new) routes, points of interest and activities
- Social recognition and social media
- Supporting local businesses and communities



15 LIFE ON LAND



14 LIFE BELOW WATER



Promoting thoughtful exploration of Europe's nature will contribute to the United Nation's Sustainable Development Goal 14 for the protection of life below water and Sustainable Development Goal 15 for the conservation of life on land.



Connecting you with the EU Space programme

The EU Space programme consists of several flagship programmes including Europe's Earth observation, satellite navigation, secure communications and space situational awareness programmes. The 3rd CASSINI Hackathon challenges participants to use data and signals from Copernicus, Galileo & EGNOS.



Copernicus is the European Union's Earth observation programme, looking at our planet and its environment to benefit all European citizens. It offers information services that draw from satellite Earth Observation and in-situ (non-space) data.

copernicus.eu



Galileo is Europe's Global Navigation Satellite System (GNSS), providing improved positioning and timing information with significant positive implications for many European services and users.

euspa.europa.eu/european-space/galileo/What-Galileo



The European Geostationary Navigation Overlay Service (EGNOS) is Europe's regional satellite-based augmentation system (SBAS) that is used to improve the performance of global navigation satellite systems (GNSSs).

euspa.europa.eu/european-space/egnos/what-egnos



The EU Space programme continued

The CASSINI Hackathons & Mentoring will look to engage participants with secure communications and space situational awareness in future editions.

GOVSATCOM

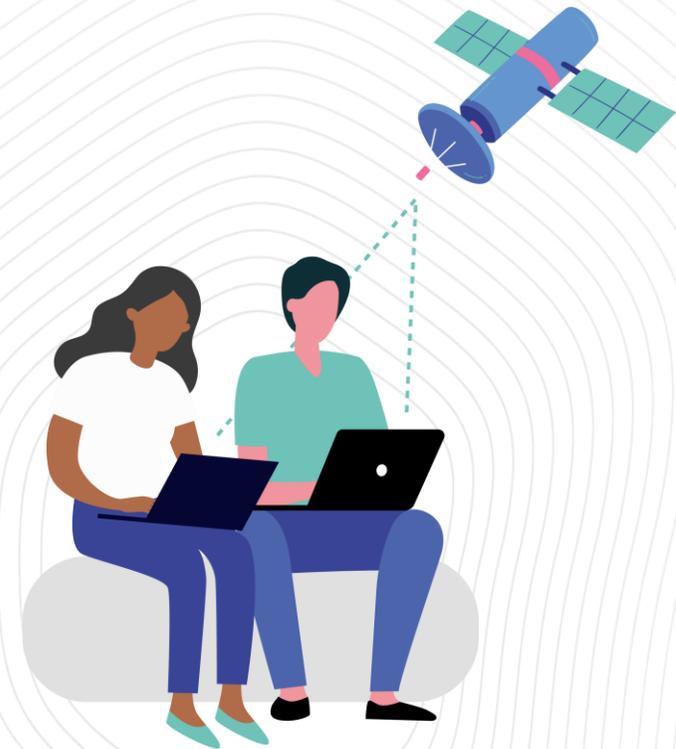
The European Union Governmental Satellite Communications (GOVSATCOM) programme provides secure and cost-efficient communications capabilities to security and safety critical missions.

euspa.europa.eu/european-space/govsatcom

EUSST

The Space Situational Awareness initiative will provide Europe and its citizens with complete and accurate information on objects orbiting Earth, on the space environment and on threats coming from space.

eusst.eu



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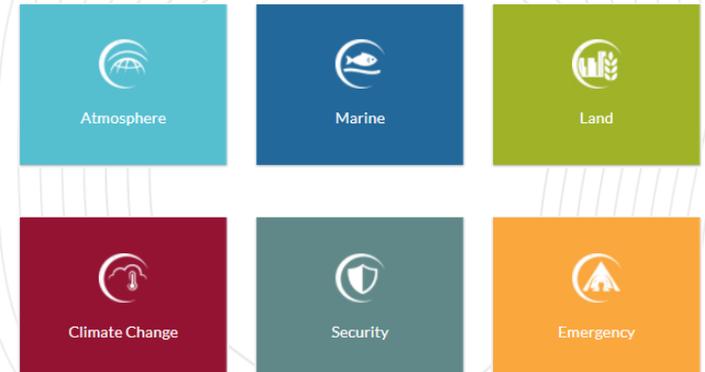


Spotlight on Copernicus data & information

Never worked with Copernicus Earth observation data & information? No problem!

We have put together some important resources to get you started:

- [What is the Copernicus programme?](#)
- [Overview of the programme](#)
- [Introducing the Copernicus Sentinel missions](#)
- [The Copernicus services](#)



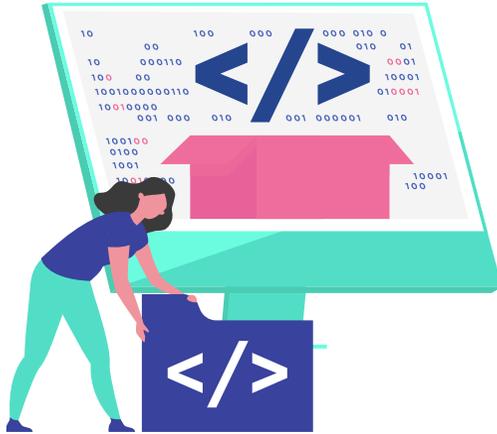
Spotlight on Galileo & EGNOS

Just getting started using satellite positioning technologies? We have collected some important resources for you to get started:

- [What is Galileo?](#)
- [EGNOS and Galileo: Programme Reference Documents](#)
- [GNSS raw measurements white paper](#)
- [Database of GNSS raw measurements](#)
- [Glossary for GPS test](#)
- [GNSS market report](#)
- [Galileo-enabled devices](#)



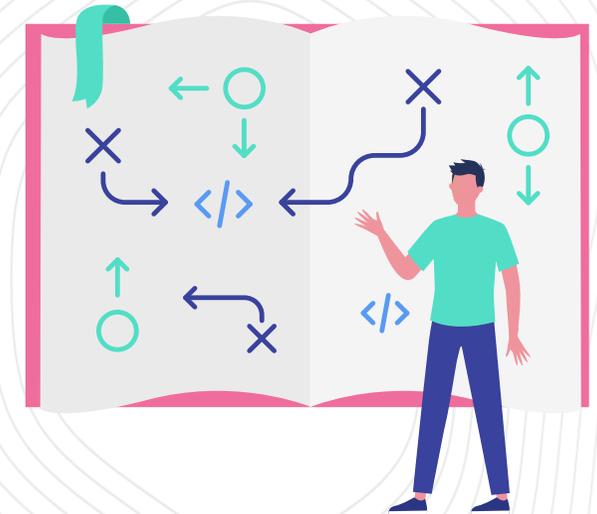
Some of our other tools...



Code repository

Still missing crucial data? We've got you! You will have access to our code repository for space-data sources. Hackers are invited to share their code with the CASSINI Hackathon community as open source on Github.

github.com



Playbook

New to hackathons? No problem. We've prepared two playbooks that will allow you to make the most of your first hackathon experience. Access helpful tips on how to face challenges, where to go if you need support, and what tools you'll be required to use throughout the event in the Participant Playbook. The Business Design Playbook guides you to discover, build and tap into business opportunities with your ideas.

[Business Design Playbook](#)

[Participant Playbook](#)



Looking for additional resources?

Here are a collection of publicly available trainings:



The Copernicus MOOC addresses 3 key topics:

- Chapter 1 - Understanding Copernicus data and services– what they are, and how they can be accessed and used
- Chapter 2 - Learning from success stories – understanding how existing Copernicus-enabled services and applications have been developed and deployed
- Chapter 3 - Doing it yourself – acquiring the key skills and knowledge to develop and deploy Copernicus-enabled products and services and to navigate the Copernicus ecosystem.

copernicus.eu/copernicus-mooc



Attend 14 on-demand training sessions that will steer the technical and business development of your Galileo-enabled IoT product.

In the first part of our Point.MOOC, you'll learn all about the basics of creating an IoT business by journeying through the customer problem, product concept design, business model creation and launching your product.

Not sure where to start with Galileo integration? The second part of Point.MOOC examines positioning in our connected world, and dives deep into Global Navigation Satellite Systems and the European system, Galileo.

point-iot.thinkific.com



Access 18 webinars about entrepreneurship in the space industry by Astropreneurs Training.

From the potential for space data and funding sources, through to pitching and business plans, a wealth of knowledge and expertise awaits.

Astropreneurs is a three-month acceleration programme that includes business and technical mentorship, support to fund your business idea and access to our "SPACE Economy "Astropreneurs" network".

astropreneurs.eu/training



Meet the core team behind the hackathons & mentoring

Got questions? One of us will get back to you with the answer.

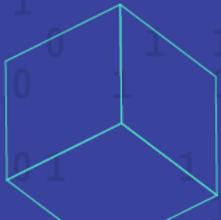
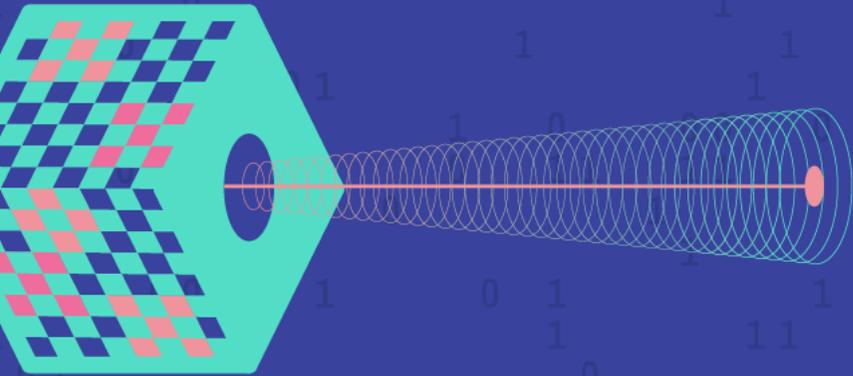


Reach us at: hello@hackathons.cassini.eu





CASSINI
Hackathons & Mentoring



The Hackathon

In this section, you will find all the information you need to participate in the hackathon.

The CASSINI Hackathon event

Hackathon activities are split across three main events:



1. Big ideas campaign

25th April –
5th May

2. THE HACKATHON

12th – 14th
May

3. Demo day + Awards

19th May

Get involved as a participant

Ready to apply your skills and knowledge to solve global challenges & make a positive impact?

We are looking for determined hackers with a passion for developing sustainable solutions. No previous space experience is required. Just choose a challenge that interests you, and leverage EU space technologies to uplift the tourism industry! Follow this simple process to get involved:



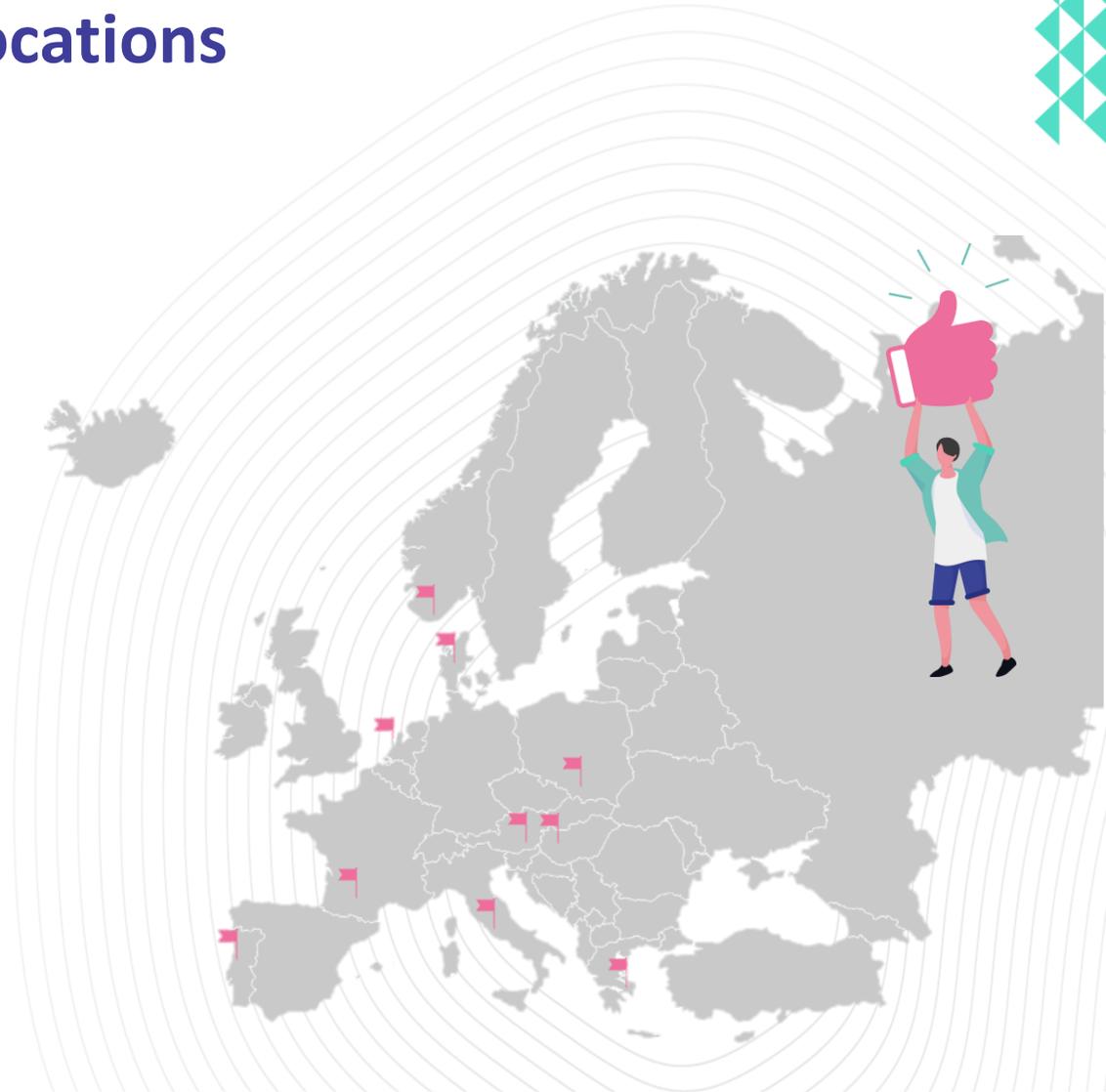
Discover the 9 hackathon locations

The 3rd CASSINI Hackathon takes place simultaneously in 9 different locations around Europe.

As a virtual participant, you can take part in any of the locations – it is up to you! You can choose from:

- [Austria](#)
- [France](#)
- [Greece](#)
- [Hungary](#)
- [Italy](#)
- [Netherlands](#)
- [Norway](#)
- [Poland](#)
- [Portugal](#)

Each location will look to revitalise European tourism with a focus on the problems and challenges with travel and exploring destinations. They each have their own expert mentors and prizes as well!





The Hackathon

This edition, the hackathon in Austria will be organised by Science Park Graz as part of AplusB, the Austrian Incubator Network.

AplusB aims to bridge the gap between academia and business to help increase the success rate of innovative, technology-orientated start-ups.

The CASSINI Hackathon Austria will take place at the TU Graz: **Stremayrgasse 16, 8010 Graz**. You can choose to participate physically (on-site) or virtually (from home).

The Prizes

Prizes

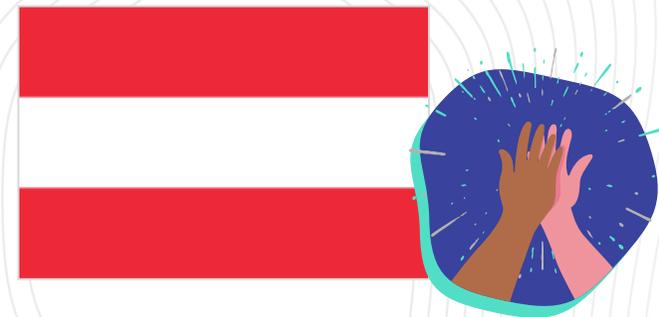
- €2,500 cash prize.
- Sentinel Hub Enterprise S annual plan.
- EODC exclusive 6 months access package to openEO Platform.

In addition, the top three will receive:

- Access to EU-funded SUN Pre-incubation programme, offering 1-on-1 mentorship

Mentoring

The top 3 teams across all hackathons will be awarded with an additional 100 hours of expert mentoring.



hackathons.cassini.eu/austria





The Hackathon

This edition, the hackathon in France will be organised in a collaboration between Murmuration and OTL.

Murmuration is an SME that aims to put the environment at the heart of decision-making. OTL (Open Tourisme Lab) is an open innovation platform that create innovative solutions for the tourism industry. The CASSINI Hackathon France will take place at OTL's offices: **160 Allée Frédéric Desmons, 30000 Nîmes**. Only physical, in-person participation is possible for this hackathon location.

The Prizes

Prizes

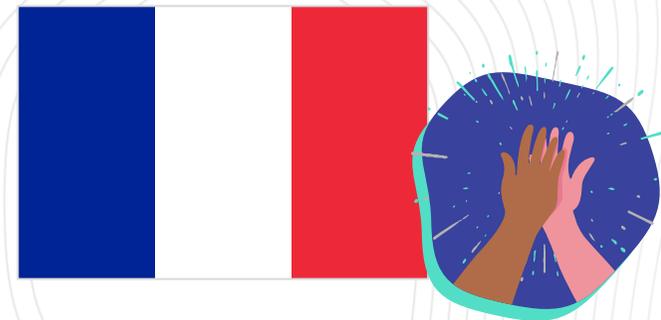
- 3 days intensive business bootcamp.
- 2 days of relevant industry expertise.
- 1 free month in an inspiring coworking space.

In addition, the top three will receive:

- €3,000 cash prize (shared by all winning teams).

Mentoring

The top 3 teams across all hackathons will be awarded with an additional 100 hours of expert mentoring.



hackathons.cassini.eu/france





The Hackathon

This year, the hackathon in Greece will be organised by Corallia, as part of the Athena Research Center.

As an incubator, youth entrepreneurship accelerator and multi-cluster facilitator, Corallia has a vision to develop an environment with the right conditions to help sciences, innovation, and entrepreneurship flourish in Greece.

The CASSINI Hackathon Greece will take place at Corallia's offices: [Monumental Plaza, Building C, Kifissias Ave. 44, GR-15125 Maroussi, Athens](#). You can choose to participate physically (on-site) or virtually (from home).



The Prizes

Prizes

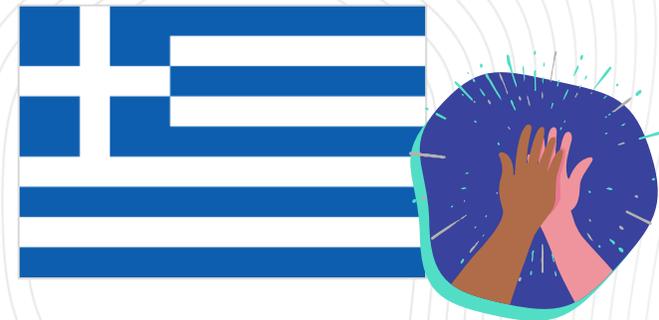
- €5,000 cash prize fund to be shared by the top three teams.

In addition, all participants will receive:

- Tailored support programme from ESA BIC Greece.
- 4-day intensive business bootcamp.

Mentoring

The top 3 teams across all hackathons will be awarded with an additional 100 hours of expert mentoring.



hackathons.cassini.eu/greece





The Hackathon

This edition, the hackathon in Hungary will be organised by Design Terminal.

Based in Budapest, Design Terminal is Central Europe's leading innovation agency and prides themselves in building "Innovation Champions" through incubation, talent acceleration and corporate partnerships.

The CASSINI Hackathon Hungary will take place at Design Terminal's offices: **Székács utca 29, Budapest 1126**. You can choose to participate physically (on-site) or virtually (from home).



The Prizes

Prizes

The top team will receive:

- €1,500 worth WizzAir voucher.
- €500 worth otp bank voucher.
- Brain Bar festival tickets.
- Mentoring package by Innobay on business development and project management worth €600.
- Business development support by Design Terminal.

Mentoring

The top 3 teams across all hackathons will be awarded with an additional 100 hours of expert mentoring.



hackathons.cassini.eu/hungary



CASSINI Hackathon *Italy Ciao!*



The Hackathon

This year, the hackathon in Italy will be organised by Lazio Innova.

As the in-house agency for innovation, research and entrepreneurship for the local Government of Regione Lazio in Italy, Lazio Innova sits at the forefront of promotion and development for the region's entrepreneurial ecosystem. You can choose to participate physically (on-site) or virtually (from home).

The CASSINI Hackathon Italy will take place at the Roma Scout Center: **Largo dello Scautismo, 1, I-00162 Roma**. You can choose to participate physically (on-site) or virtually (from home).

The Prizes

Prizes

- €5,000 cash prize.
- Entry to pre-acceleration programme (pre-incubation) at ESA BIC Lazio.
- Technological & business development support from Spazio Attivo Roma Tecnopolo.

Mentoring

The top 3 teams across all hackathons will be awarded with an additional 100 hours of expert mentoring.



hackathons.cassini.eu/italy



CASSINI Hackathon Netherlands Hallo!



The Hackathon

This edition, the hackathon in the Netherlands will be organised by The Space Business Innovation Centre (SBIC) Noordwijk.

The SBIC is dedicated to bringing the possibilities of space technologies to earth via entrepreneurship. They offer a wide range of programmes, workshops, and events for every stage of the entrepreneurial journey and give unrivalled access to an international network of tools, knowledge, and finance.

The CASSINI Hackathon Netherlands will take place at the offices of our main partner **Sunweb: Bahialaan 2, 3065 WC Rotterdam**. You can choose to participate physically (on-site) or virtually (from home).

The Prizes

Prizes

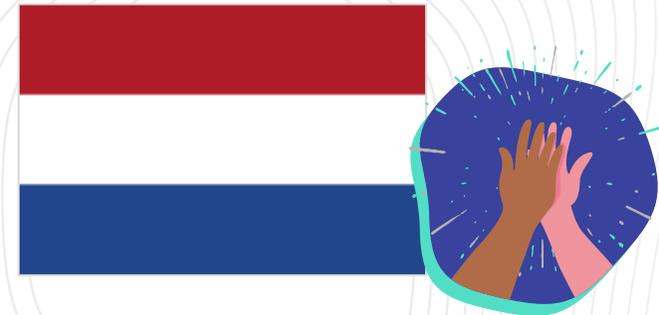
- 1st place €750 cash prize + Ski/Sun holiday to a SUNWEB's destinations + Pitch session & drinks event at NL Space Campus.
- 2nd place €250 cash prize + Participation in Venture Academy from PLNT.
- 3rd place two-month access to "The Sandbox", an early-stage entrepreneur workshop from PLNT.

In addition, the top two places will receive:

- 3 months of community membership for SBIC Noordwijk for each team member (worth €300).

Mentoring

The top 3 teams across all hackathons will be awarded with an additional 100 hours of expert mentoring.



hackathons.cassini.eu/netherlands





The Hackathon

This edition, the hackathon in Norway will be organised by Bølgen bærekraftsenter.

As a regional centre for Sustainability, Bølgen bærekraftsenter brings together businesspeople, environmentalists, innovators, and academics to collaborate on sustainable change. The CASSINI Hackathon Norway will take place at the Bølgen Bærekraftsenter: [Vestre Strandgate, 12 4610 Kristiansand](#). You can choose to participate physically (on-site) or virtually (from home).

The Prizes

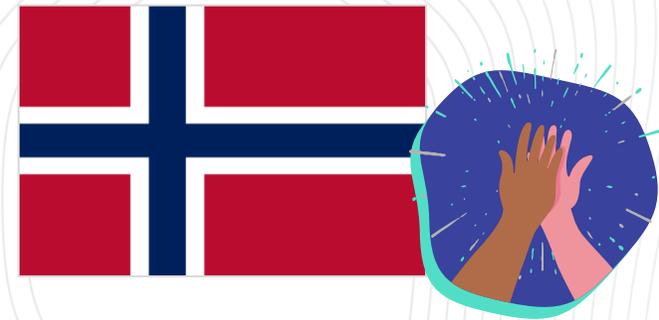
Prizes

The top three teams will receive:

- Cash prizes of up to €5,000 from local sponsors.
- 1 year office space in Bølgen bærekraftsenter, valued at €5,000.
- Free sustainability programme at Bølgen bærekraftsenter.
- 1 year membership for Digin, valued at €335.
- 1 year membership to visit Sørlandet Cluster, valued at €3,500.

Mentoring

The top 3 teams across all hackathons will be awarded with an additional 100 hours of expert mentoring.



hackathons.cassini.eu/norway





The Hackathon

This edition, the hackathon in Poland will be organised by the Kraków Technology Park.

For almost 25 years, they've helped businesses grow fast at every development stage and have been the beating heart of innovative tech start-ups both in Poland and beyond.

The CASSINI Hackathon Poland will take place at Krakowski Park Technologiczny: Podole 60, 30-394 Kraków, Poland. You can choose to participate physically (on-site) or virtually (from home).



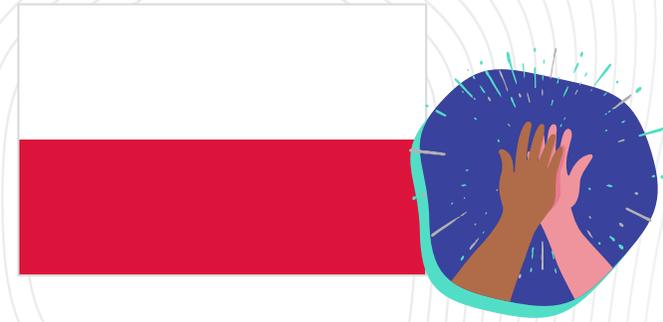
The Prizes

Prizes

- €4,000 total prize fund.
- Special prizes for the top three places.
- Additional prizes for the best team in each challenge & for the winner of our live vote.

Mentoring

The top 3 teams across all hackathons will be awarded with an additional 100 hours of expert mentoring.



hackathons.cassini.eu/poland



CASSINI Hackathon Portugal Olá!



The Hackathon

This edition, the hackathon in Portugal will be organised by IPN – Instituto Pedro Nunes.

IPN is a private non-profit organisation created in 1991 by the University of Coimbra, which promotes innovation and technology transfer by connecting business to academia. The CASSINI Hackathon Portugal will take place at IPN's offices: [Rua Pedro Nunes, Edifício D 3030-199 Coimbra](#). You can choose to participate physically (on-site) or virtually (from home).

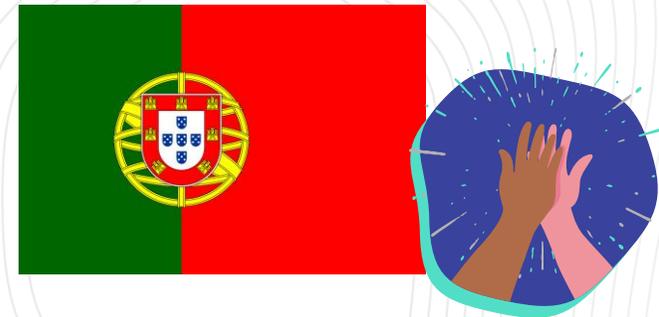
The Prizes

Prizes

- €1,000 to purchase services and materials
- 3-Month mentorship to help develop business idea and concept worth €600
- 3-Month virtual incubation worth €150
- 6-Hours community engagement networking worth €300

Mentoring

The top 3 teams across all hackathons will be awarded with an additional 100 hours of expert mentoring.



hackathons.cassini.eu/portugal



ONDA – The DIAS platform

ONDA enables users to host data and build their Copernicus applications in the cloud.



Benefits of ONDA

Open

We provide open and free access to a huge volume of geospatial products and information

Simple

With only few simple steps users are able to access data and services and predict the costs

Flexible

We offer custom solutions to cater for all users' needs

Reliable

Our users get all requested resources with optimised and consistent performance through the native scalability and elasticity solutions of the Cloud

Secure

All data, information, applications and transactions are securely protected

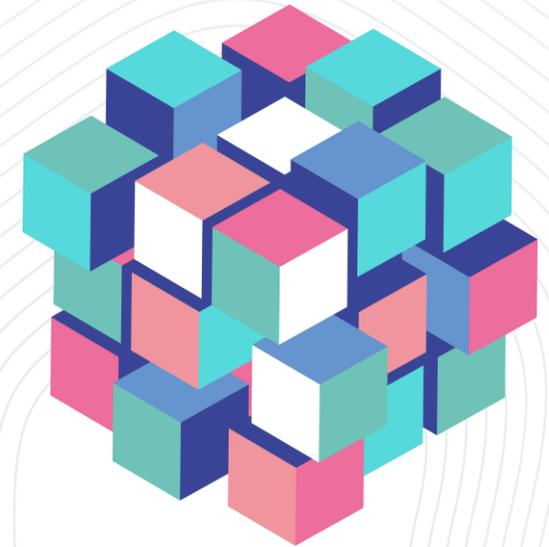
Fast to market

Our OVH market leading Cloud solutions and pricing are combined with the cutting edge technologies of our custom services



The role of ONDA in the 3rd CASSINI Hackathon

- **Access to hackathon data cube:** Participating teams will have access to the data cube, prepared for the chosen thematic, through the Copernicus DIAS



Getting started with ONDA DIAS



The 3rd CASSINI Hackathon is supported by ONDA, offering free and open access to a wealth of datasets from different sources, from the Copernicus Sentinels family, to other Earth Observation satellite missions, and the Copernicus Services projects.

For data processing, each team will have access to a Virtual Machine (VM) with the D-Light environment, including:

- B2-15 VM with 4 vCores CPU
- 15 Gb RAM
- 100 Gb SSD Storage (OS Linux or Windows)
- Object Storage 100 Gb
- 2 Days before and after Hackathon
- 4 x GPU shared amongst teams (90 GB RAM, 18 core, 2xTesla V100 16 GB, 800 GB SSD, 4 Gbps guaranteed (4 Gbps MAX private network)

Instructions on how to test the VMs and then set up your team's own VM are on the following slides. But, to get started with ONDA, we encourage you to review the following resources:

- [ONDA Presentation](#)
- [How to use the ONDA Catalogue](#)
- [An introduction to the ONDA Virtual Machine with Remote Desktop](#)

onda-dias.eu

 ONDA



CASSINI
Hackathons & Mentoring



Cloud infrastructure

Participants can access a wide range of online tutorials already made on demand by ONDA and available on our tools page. The two dedicated sessions are:

- Copernicus & the ONDA DIAS: A training on Copernicus data and how to use the DIAS platform
- The data & challenges collide: A training about the datasets and how they work within the challenge scopes

There will be **support available during the hackathon** via the Discord channel and two 1h dedicated check-in sessions with ONDA SERCO experts:

- Supporting teams with using the platform
- Supporting teams with questions about the datasets



Accessing the virtual machines

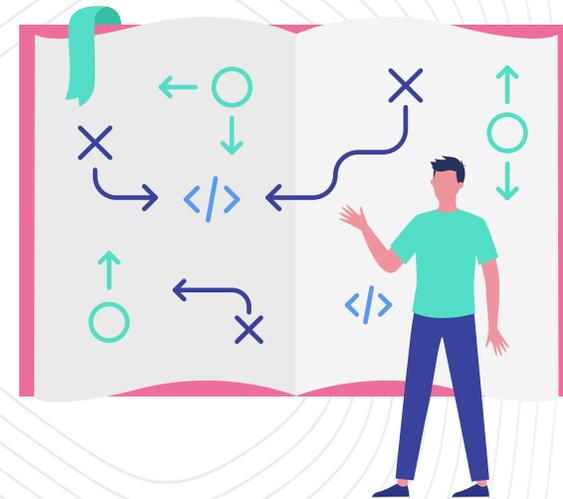
If you would like to have access to the virtual machines, please contact your local organizer!*

Once you have access to the VM, on the Desktop you will find a document named "**Instructions**", which among others it includes instructions on how to open and use the Jupyter Notebook and how to locally copy images from the ENS.

**Please notice that the number of VMs are limited, thus please assess if your project really needs access to such infrastructure.*

How to log in?

- 1- [Log in](#)/[Register](#) with your account
- 2- On the ONDA website go to 'Services' (top menu) and click on 'Data Access'
- 3- Click on 'Discovery'; this service allows you to browse, filter and view the list of datasets.
 - Discovery also contains Catalogue GUI (Graphical User Interface) and the OData API



General information about the data cube

Copernicus data & information, as well as local and in-situ data will be compiled for the regions around Mont-Saint-Michel, the national parc of the Camargue, and Grenoble and the French Alps indicated by the pink boxes.

The following slides will detail the different data sets available to participants on the ONDA DIAS to solve the hackathon challenges.



The data cube - Sentinel imagery

The pre-processed data cube has been created for touristic regions in France, however you as local organisers can also provide additional data sets.

Test the data starting with 6 May 2022

Finding sustainable destinations

- Sentinel-2 imagery – summer 2021
- Sentinel-5P imagery – spring 2020 and spring 2022 (different travel patterns between these two years)

Experiencing cities and cultures

- Sentinel-2 imagery – summer 2017 and summer 2021 to detect changes in land use and land cover

Exploring nature with care

- Sentinel-2 imagery – summer 2021
- Sentinel-3 imagery – summer 2021

- **Sentinel-2** is a versatile source of information – it can be used both for monitoring of conservation areas, natural habitats, and sustainability measures, as well as mapping cultural heritage sites and natural beauty.
- **Sentinel-3** imagery provides insights into algal blooms, to help map marine areas with potential harmful blooms, or where port activities impact local biodiversity.
- **Sentinel-5P** is the European Union's first satellite dedicated to monitoring our atmosphere, by mapping trace gases such as NO₂, sulphur dioxide, and other aerosols.



Additional content on the data cube

Murmuration environmental indicators

• Air Quality

- Concentration NO₂, SO₂, O₃, CO, PM_{2.5}, PM₁₀ + Murmuration's aggregated index combining all pollutants
- Resolution 10 km, daily from January 2019 to today, Europe

• Vegetation

- Vegetation health (NDVI, quantity of chlorophyll)
- Resolution 300 m, 10-days period from January 2019 to January 2022, Europe

• Water Quality

- Physical (salinity, temperature) et biochemistry (pressure of CO₂ in sea water, pH, concentration of chlorophyll)
- Resolution 25km (physical) et 1 km (biochemistry) , daily from May 2019 to May 2022, Europe

• Aquatic coverage

- Continental water → lakes, rivers...
- Resolution 100m, monthly from October 2020 to today, Global

• Urbanisation

- Soil artificialisation
- Resolution 20m, Year 2006/2009/2012/2015/2018, France

Total size = ~500 GB
(Storage managed by Murmuration and ONDA)



Additional content on the data cube

Murmuration tourism indicators

- **Tourism infrastructure**
- Location of tourism infrastructures (hotel, restaurants...) and sites
- Notebook to access OpenStreetMap API, extract data and manipulate it



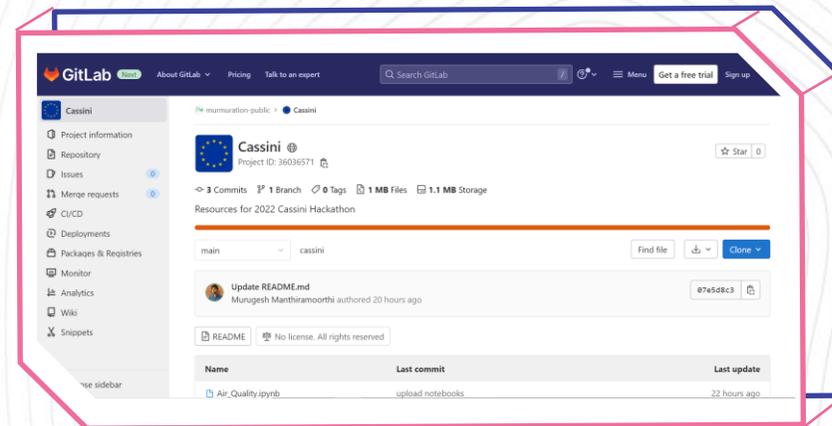
Understanding data usage with Murmuration Indicators

For instructions on how to access and use the indicators you can turn to the **CASSINI repository**, provided by MURMURATION:

gitlab.com/murmuration-public/cassini

In the repository you will find six Jupyter Notebooks, one for each indicator that is being provided:

- 1- [Air Quality](#)
- 2- [Aquatic Coverage](#)
- 3- [Vegetation](#)
- 4- [Urbanisation](#)
- 5- [Water Quality](#)
- 6- [Tourism Infrastructure](#)



Need any technical support? Reach out to the Murmuration team via support@murmuration-sas.com or [Discord](#) (further contact details in the Github repository)

The data cube – Copernicus services

Copernicus Land Monitoring Service:

- Urban Atlas, Population Estimates, Street Tree Layer and Building Height
- High Resolution Layers: Imperviousness, Forests and Grassland
- European Settlement Map
- Coastal Zones
- Natura 2000

Copernicus Atmosphere Monitoring Service:

- European Anthropogenic emissions
- Greenhouse gases
- Daily forecasts of source contributions to EU cities
- Global forecasts of aerosols
- Pollen forecasts

Copernicus Marine Environment Monitoring Service:

- Ocean wave analysis and forecast
- Biogeochemical analysis and forecast
- In situ Near-Real-Time Observations for the Atlantic Ocean and Mediterranean Sea
- Sea Surface Chlorophyll Concentration
- Sea Surface Temperature



Get precise location data with JASON

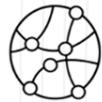


The 3rd CASSINI Hackathon is supported by JASON, a cloud GNSS processing service by Rokubun, providing participants with accurate location/navigation results immediately.

[JASON](#) is a GNSS post-processing cloud service to get accurate location at affordable cost. It is a fully automatic Post Process Kinematic (PPK) processing engine such that users are delivered precise location/navigation results in few clicks.

J A S O N

JASON key features



Automatic PPK, JASON fetches the nearest GNSS base station



Automatically match your camera events



Up to centrimetic accuracy



Use our API to automate your campaign data processing workflow

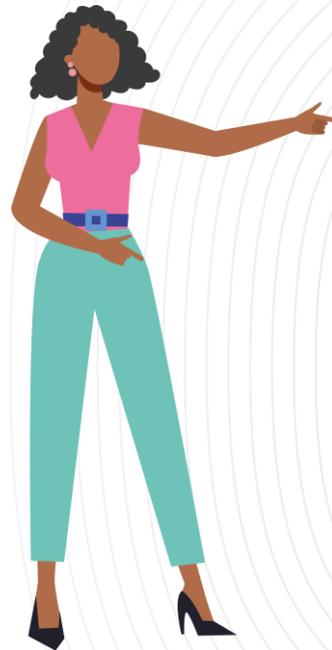


Accessing JASON by Rokubun

Participants of the CASSINI Hackathons & Mentoring have access to the 14-day free trial of JASON. After the 14 days, you will continue to have access on a pay-per-use basis. [You can see the full pricing options here.](#)

For that reason, we recommend that you sign up after the 25th April in order to have access to the full suite of features during the hackathon.

As users of JASON, you will have access to the standard support team via: support@rokubun.cat. There will also be access to a dedicated CASSINI Hackathon support session on Friday 13th May, during the hackathon.



Learn more about JASON:

- [How to use JASON](#)
- [How to improve accuracy](#)
- [Features](#)
- [Coverage](#)
- [FAQs](#)
- [Documentation](#)

R O K U B U N



Big Ideas Campaign

The Big Ideas Campaign is a series of evening events between 25 April – 5 May filled with exciting and invaluable sessions intended to get you warmed up for the hackathon weekend! Join the campaign and take advantage of the benefits!

Training

Learn about EU space technology, Copernicus, Galileo & EGNOS. We'll make sure you are equipped with the knowledge and tools to succeed during the hackathon.



Inspiration

Get inspired by our success stories, past winners and training sessions we prepared so you can change the way we do tourism!



Networking

Take advantage of the Pan-European network and engage the community!



April 26

Tuesday

17:00 (CEST)

(Re)Visit Europe Launch

Get to know more about the hackathon! First, we will tell you everything you need to know to participate. Then, we welcome two speakers who will inspire us about tourism and space data and signals. Finally, there is also time for your questions.

18:00 (CEST)

Welcome & Info Sessions

Your local organiser will tell you what will happen in their local hub and answer all your questions.

Links & more at hackathons.cassini.eu#agenda

April 27

Wednesday

15:00 (CEST)

Accelerating Tourism with Space Technologies (GR)

17:00 (CEST)

From Pixels to Actions (AT)

Shaping the Future of Sustainable Tourism (FR)

Big Ideas from Space with István Sárhegyi (HU)

Get Inspired & Choose Your Challenge (PL)

April 28

Thursday

17:00 (CEST)

Copernicus & ONDA

Learn about Copernicus and the Sentinels from ONDA. They'll also explain how to use their platform and the data storage and cloud computing resources.

17:45 (CEST)

Galileo & EGNOS

Learn about the European satellites for positioning and timing, what differentiates them and how you can use them with a smartphone.

18:30 (CEST)

Intro to JASON

Learn more about JASON, a precise location service and what you use it for during the hackathon.

What's in store: The Big Ideas Campaign Agenda



May 2
Monday

17:00 (CEST)

Intro to openEO (AT)

May 3
Tuesday

17:00 (CEST)

Revitalising Tourism
in Italy (IT)

Choose Your Challenge! (NL)

Explore the (Re)Visit
Europe Challenges (PT)

May 4
Wednesday

16:00 (CEST)

The Data Cube

We take you through the different datasets we have prepared and discuss how they relate to the three challenges of the hackathon.

17:00 (CEST)

Norwegian Sustainable
Tourism Challenges (NO)

19:00 (CEST)

Tourism 4.0 (AT)

May 4
Wednesday

17:00 (CEST)

Team Formation Sessions

Get to know other local participants, exchange ideas for hackathon projects and find your dream team for the hackathon.

18:00 (CEST)

Team Formation Session (PT)

What's in store: The Big Ideas Campaign Agenda



Links & more at hackathons.cassini.eu#agenda



CASSINI
Hackathons & Mentoring

The Hackathon Weekend & Demo Day Agenda

Over the weekend, you can join the live stream via:



In addition, there will be sessions led by local hackathon organisers that you can access.

May 12

Thursday

19:00 (CEST)

Welcome to the (Re)Visit Europe hackathon

20:00 (CEST)

Getting started

May 13

Friday

9:00 (CEST)

Good morning

9:05 (CEST)

Surviving or thriving [Replay]

9:35 (CEST)

Stories from travelling the continent

10:00 (CEST)

Good morning again

10:10 (CEST)

Digital business models for sustainable tourism

10:50 (CEST)

Europe as the leading destination of the future

11:20 (CEST)

The Data Cube [Replay]

13:10 (CEST)

Copernicus & ONDA [Replay]

13:50 (CEST)

Galileo & EGNOS [Replay]

13:50 (CEST)

Stories from travelling the continent [Replay]

17:00 (CEST)

Meet the other teams



The Hackathon Weekend & Demo Day Agenda

May 13

Saturday

10:00 (CEST)

Good morning

10:05 (CEST)

How to win the hackathon?

10:30 (CEST)

Pitching Crash Course

14:30 (CEST)

Submission deadline

Local pitch contest

Local award show

14:30 (CEST)

Trip around Europe (Part 1)

15:40 (CEST)

Investing in a better tourism

16:30 (CEST)

Trip around Europe (Part 2)

17:45 (CEST)

Closing of the hackathon

May 19

Thursday

19:00 (CEST)

**Demo Day &
Award Ceremony**

**Over the weekend,
you can join the
live stream via:**

TAIKAI

In addition, there will be sessions led by local hackathon organisers that you can access.



Get to know the hackathon rules

- No development may start before the actual date and time of the Hackathon Weekend. Please do not begin hacking before **Thursday 12 May 2022 at 19:00 CEST.**
- To ensure a level field for all contestants, all code must be created by the team, during the Hackathon Weekend.
- You are permitted to use publicly available or openly licensed APIs, SDKs, frameworks and other software libraries for your project.
- Any software development tools and/or programming language can be used.
- Teams that violate these rules will be automatically disqualified.

For full information about participating the CASSINI Hackathons, read the [Terms & Conditions](#)



Participating in the virtual hackathon

Click the register button on our website hackathons.cassini.eu and engage with us across these platforms:

Hackathon platform

Want to register as a participant? Great! Head to the hackathon platform, register, and join/form a team.

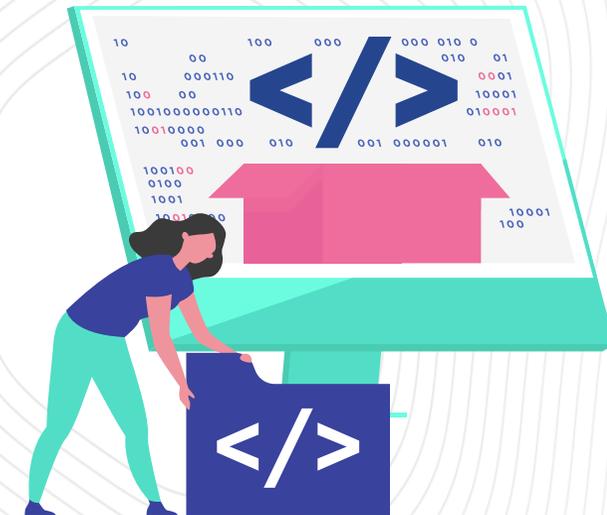
<https://taikai.network/en/cassinihackathons/hackathons/visit-europe>

TAIKAI

Community platform

Keep up to date with the latest hackathon information, find team mates and ask questions on our community platform.

discord.gg/cassinihackathons



Form or join a team on the hackathon platform

Sign into your TAIKAI account [here](#) and follow the steps to create or join a team and submit your hackathon project.

1. Create or join a team

Already know who your team members are? Create a team and share a link.

Looking to join a team? Head to [Discord](#) to meet fellow participants. Check out the #find-your-team channel

2. Select a challenge

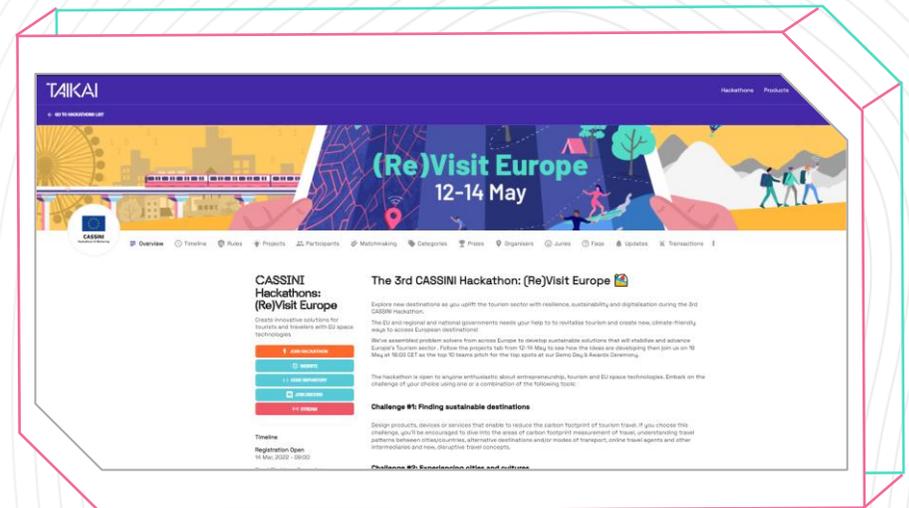
Choose from one of the three challenges:

- Finding sustainable destinations
- Experiencing cities and cultures
- Exploring nature with care

3. Submit your project

Make sure to submit before the deadline:
14:30 CEST, Saturday 14th May

TAIKAI



TAKAI's participants journey – Forming a team

If you are a team leader and already have a project in mind, but don't yet have a full team, follow these steps to create your dream team:

1. Go to the innovators tab

Visit **TAIKAI**, go on to the 'participants' tab and take the first steps to create a dream team!

2. Scout for participants

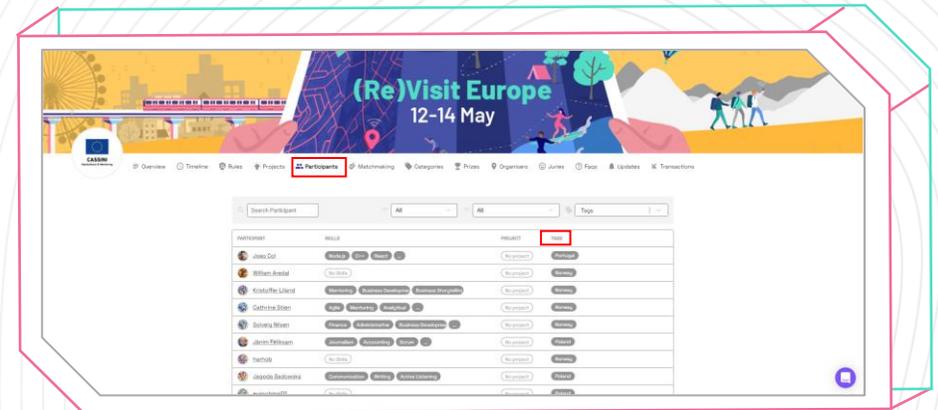
Find your ideal team member:

- Search for participants from your hackathon location
- Check 'Looking for a team' tag
- Filter by skillset

3. Contact future team members

Message the person, introduce yourself and your project.

TAIKAI



TAKAI's participants journey – Joining a team

If you are an innovator looking for a team, follow these steps to find your dream team:

1. Go to the matchmaking tab

Visit **TAIKAI**, go on to the 'matchmaking' tab and take the first steps to join a dream team!

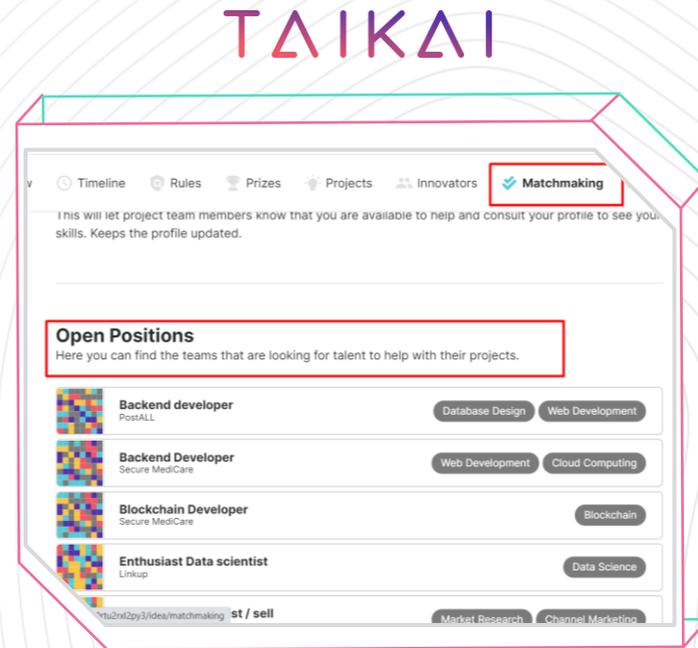
2. Scout for projects

Find your ideal project:

- Search for projects from your hackathon location
- Check the skills needed for the project
- Choose your ideal team

3. Contact project owner

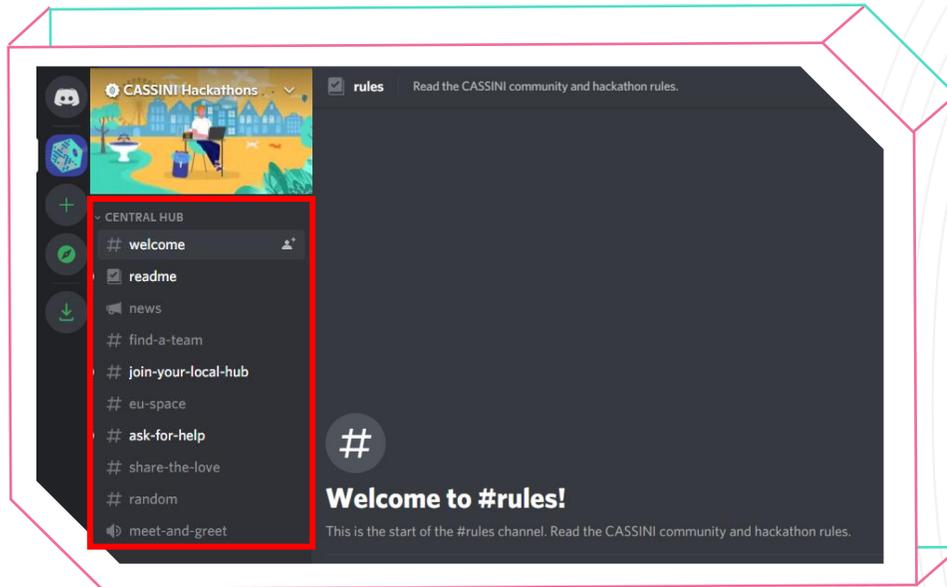
Message the person and introduce yourself.



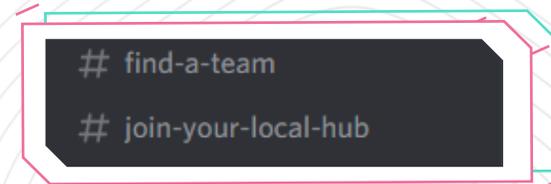
Engage with the hackathon community on discord

Interact with your local organisers and fellow participants on [Discord](#). This is where the main hackathon communication will take place throughout the weekend. You can use the different channels to ask questions, have a chat, and hear the latest information about your local hackathon.

Central Hub



Local Hackathon



Demo Day & Award Ceremony

During the Demo Day & Award Ceremony the 9 winners of the local hackathons will pitch their projects. A jury of experts will evaluate the projects and select the three overall winners who will win 100 hours of expert mentoring.



Join the demo day to...

Meet the top teams from the 9 local hackathons

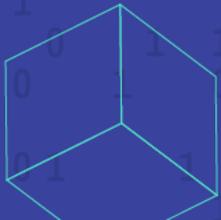
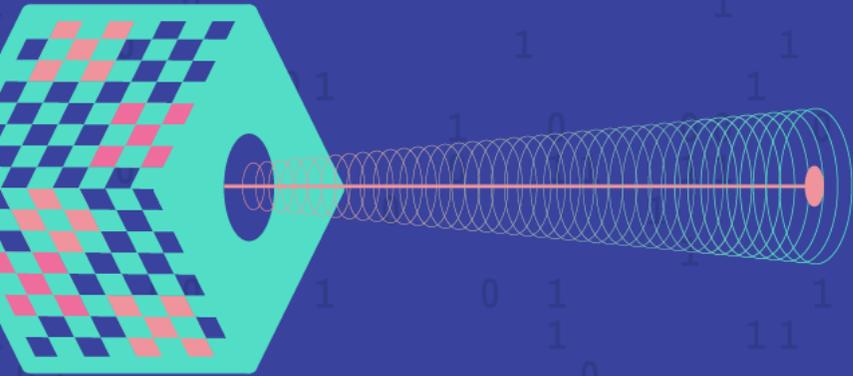
Watch 9 innovative project pitches

Discover the 3 overall winners of the hackathon





CASSINI
Hackathons & Mentoring



Mentoring Programme

In this section, you will learn about the mentoring programme available to the top 3 teams selected in the hackathon.

Each winner has access to 100 hours of mentoring

Three winning teams can benefit from 100 hours of mentoring spread across the six months following the event.

How does it work?



Each team will have a lead mentor who will guide them through the mentoring programme.



The lead mentor will connect the teams with different expert mentors who are available in 5-hour blocks.



Teams will monitor their progress over the six months on their path to creating a sustainable and commercially viable solution!



Meet some of our mentors

Each of the three overall winners will work with our expert mentors. Their backgrounds range from product development, Earth observation and GNSS through to business development, marketing, design and more. Here are a small selection:



Carlos Bello Marcos
INNOVA4EU



Dimitris Matsakis
P.L.A.N.



Dr. Johanna Braun
Owner, Innovation, Venture &
Sustainability Advisory



Dennis Kibirev
Mesh Ai, FrontierFunder



Floriano Bonfigli
AC75



Pablo Garrido
EIT Urban Mobility



Alexandre Mencik
Space Platform



Pedro Branco
Virtual Angle B.V.





CASSINI
Hackathons & Mentoring

Thank you

