

# *EOSC SYNERGY Tools Development* Hackathon as a Service

FAIRsFAIR Roadshow, 23<sup>rd</sup> June 2021

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## 1. Vision

Expand EOSC capacity and capabilities by leveraging Investments and existing know-how & resources of national digital infrastructures.



## 2. Objectives

- ✓ Expand EOSC Capacity
- ✓ Building EOSC Capabilities
- ✓ Foster EOSC services integration and promote quality
- ✓ Promoting EOSC policy harmonisation
- ✓ Develop the EOSC Human capital

## Implementing EOSC at the EU National level

Spain, Portugal, UK, Czech Republic, Germany, Slovakia, Poland and the Netherlands.

## 3. Expected impact

The strongest impact of the EOSC-synergy project will be a measurable **increase of the number of resources**, services and data repositories offered to researchers through EOSC, paired with **concrete, contributions to the EOSC governance structure from national perspectives** and a new channel to support the build-up of EOSC human capabilities.

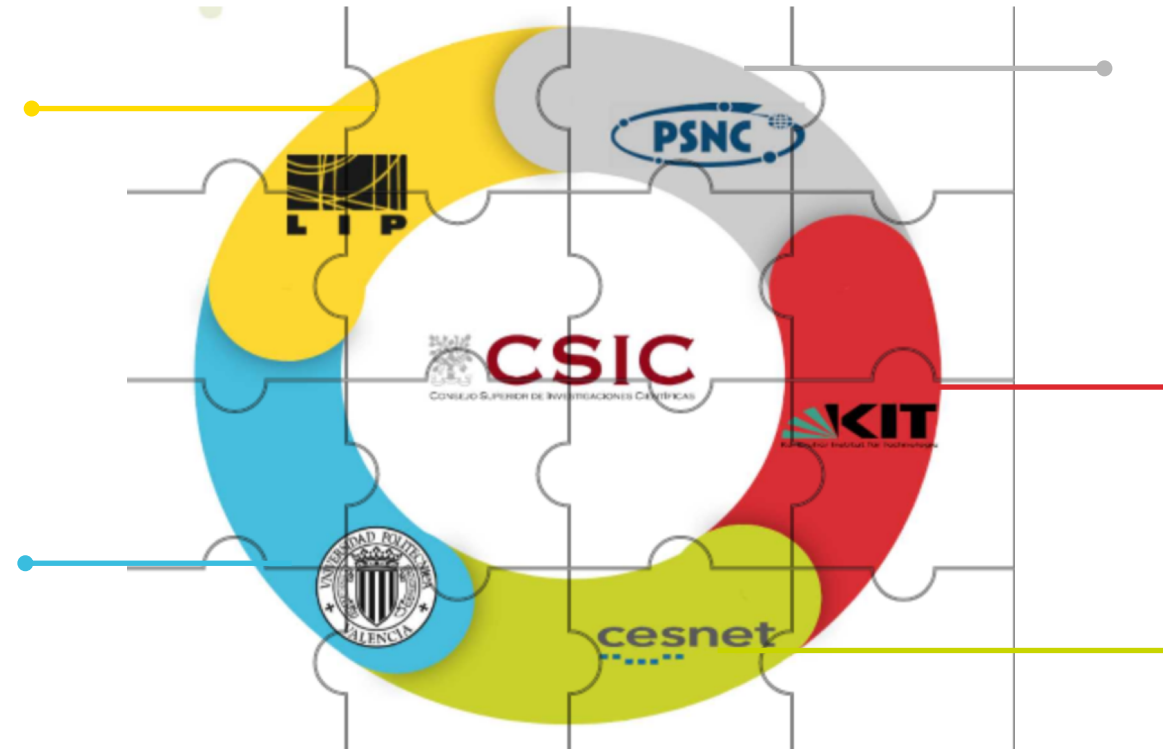


## Promoting EOSC High Quality Services

Software quality as a service, FAIRness evaluation and quality certification badges.

## Thematic Services Integration

10 thematic services addressing 4 scientific areas (Earth Observation, Environment, Biomedicine and Astrophysics).



## Skills development

Environment for tutorials with a dedicated MOOC platform, courses methodology and a Hackaton as a service platform.

## Capacity Expansion at the Infrastructure level

Integration of services and resources from the RIs of the consortium partners.

## Alignment at the Policy Level

Collaboration with regional projects on landscaping activities, gap analysis and contribution to EOSC policies.

# EOSC-Synergy - Expanding training and education capabilities through an innovative online platform



## Guidance and best practice for creating good quality tutorials

- Analysis and design sessions
- Training analysis form available to guide planning
- Design workshop based on ABC-LD, a well-established methodology
- Guidance on formats and tools to create content

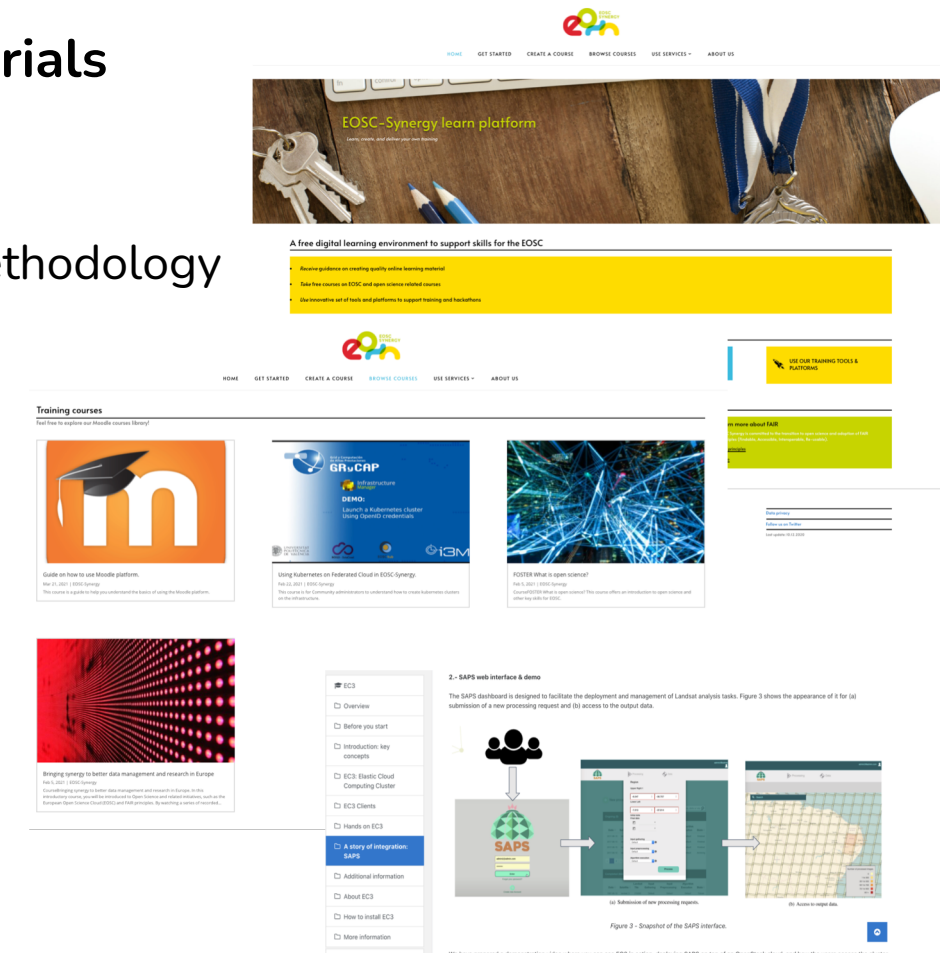
## Set of EOSC ecosystem tutorials and training materials

- Basic tutorials on EOSC
- Advanced tutorials regarding the EOSC-Synergy tools
- Domain specific tutorials regarding thematic services

## Online platforms for content creation/hosting of training material and running hackathons

## Interaction with national education programmes

- Courses developed suitable for education programmes



# Learn@Synergy platform

Modular set of tools for preparing and conducting tutorials <https://learn.eosc-synergy.eu/>

- **MOOC: Moodle:** production/development instance
- **Videoconference:** based on **eduMEET**
- **Interactive computing:** based on **Jupyter Notebook**
- **Shared drive:** based on **NextCloud**
- **Infrastructure Manager** to deploy the training infrastructure
- **Hackathon-as-a-service** to facilitate the organisation of hackathons on the EOSC infrastructure and accessible through the EOSC Portal

The screenshot displays the Learn@Synergy platform interface. At the top right is the EOSC Synergy logo. Below it, a navigation bar includes links for HOME, GET STARTED, CREATE A COURSE, BROWSE COURSES, USE SERVICES, and ABOUT US. The main content area features several service tiles: ONLINE LEARNING PLATFORM (powered by Moodle), VIDEOCONFERENCE (based on eduMEET), INTERACTIVE COMPUTING (based on Jupyter), SHARED DRIVE (based on NextCloud), and INFRASTRUCTURE MANAGEMENT. A 'HACKATHON AS A SERVICE' tile is also present. At the bottom, there is a 'Hackathons' section with a table listing events. The table has columns for Name, Manager, Infrastructure, Starts on, Ends on, Vets per user, Created on, and Actions. One event is listed: BIFI Hackathon, managed by test\_manager, starting on March 20, 2021, and ending on March 21, 2021.

| Name           | Manager      | Infrastructure | Starts on              | Ends on                | Vets per user | Created on                | Actions               |
|----------------|--------------|----------------|------------------------|------------------------|---------------|---------------------------|-----------------------|
| BIFI Hackathon | test_manager | BIFI           | March 20, 2021, 8 p.m. | March 21, 2021, 8 p.m. | 2             | March 22, 2021, 3:52 p.m. | [Add] [Edit] [Delete] |

# Guidelines

- Analysis and design sessions
- Uses the ADDIE model as a framework
- Training analysis form available to guide planning
- Design workshop based on ABC-LD, a well-established methodology
- Templates for storyboarding
- Guidance on delivering live events
- Checklists for training materials (FAIR, event planning/delivery)



## Initial training analysis

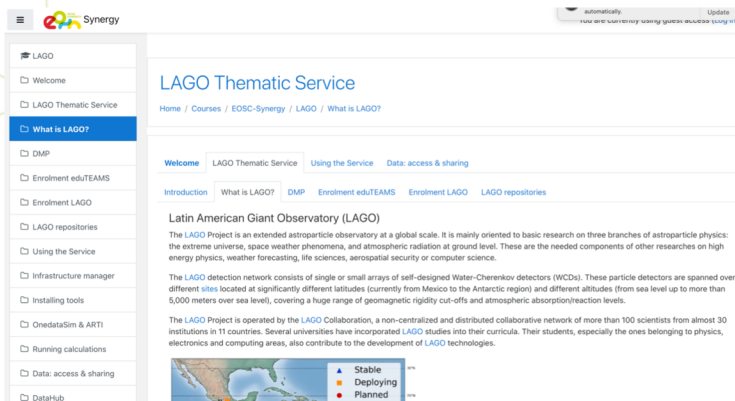
Fill in as much detail as you can at this stage – these are your initial thoughts and some of this might be guesswork. You'll go into more detail in the Design stage and you can update this form if needed.

### Goals and audience

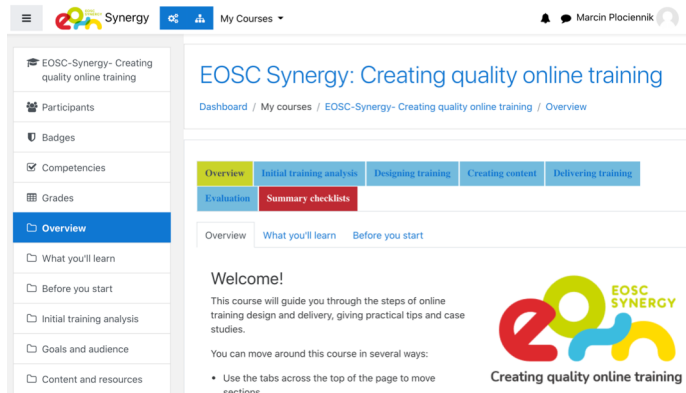
|  |  |
|--|--|
| <b>Your service</b><br>What does it offer? What benefits does it have?   |  |
| <b>Training goal</b><br>Why are you doing this training? What would success look like? This can include developing skills, gaining knowledge and changing attitude, improving service awareness/use etc  |  |
| <b>Audience</b><br>Who is your target audience? This could be particular roles (eg researcher, students), knowledge level (eg aimed at beginners) or task based - eg those who want to be able to do a specific task.  |  |
| <b>Benefits/outcomes for learners</b><br>What will learners gain from your training? What will they be able to do? What will they know? It is helpful to use the phrase 'By the end of this training you will: Be able to... Be familiar with... Have practiced...'. |  |



# Support for training materials development



- Using Kubernetes on Federated Cloud in EOSC-Synergy.
- Bringing synergy to better data management and research in Europe.
- LAGO Thematic service
- SAPS Thematic service
- Creating quality online training



# What is a hackathon?

- Hackathon: sprint-like event in which computer programmers and others involved in software development (UI and graphic designers or project managers) collaborate intensively on software projects with the goal of creating a functioning product by the end of the event (typically 24-48 hours)

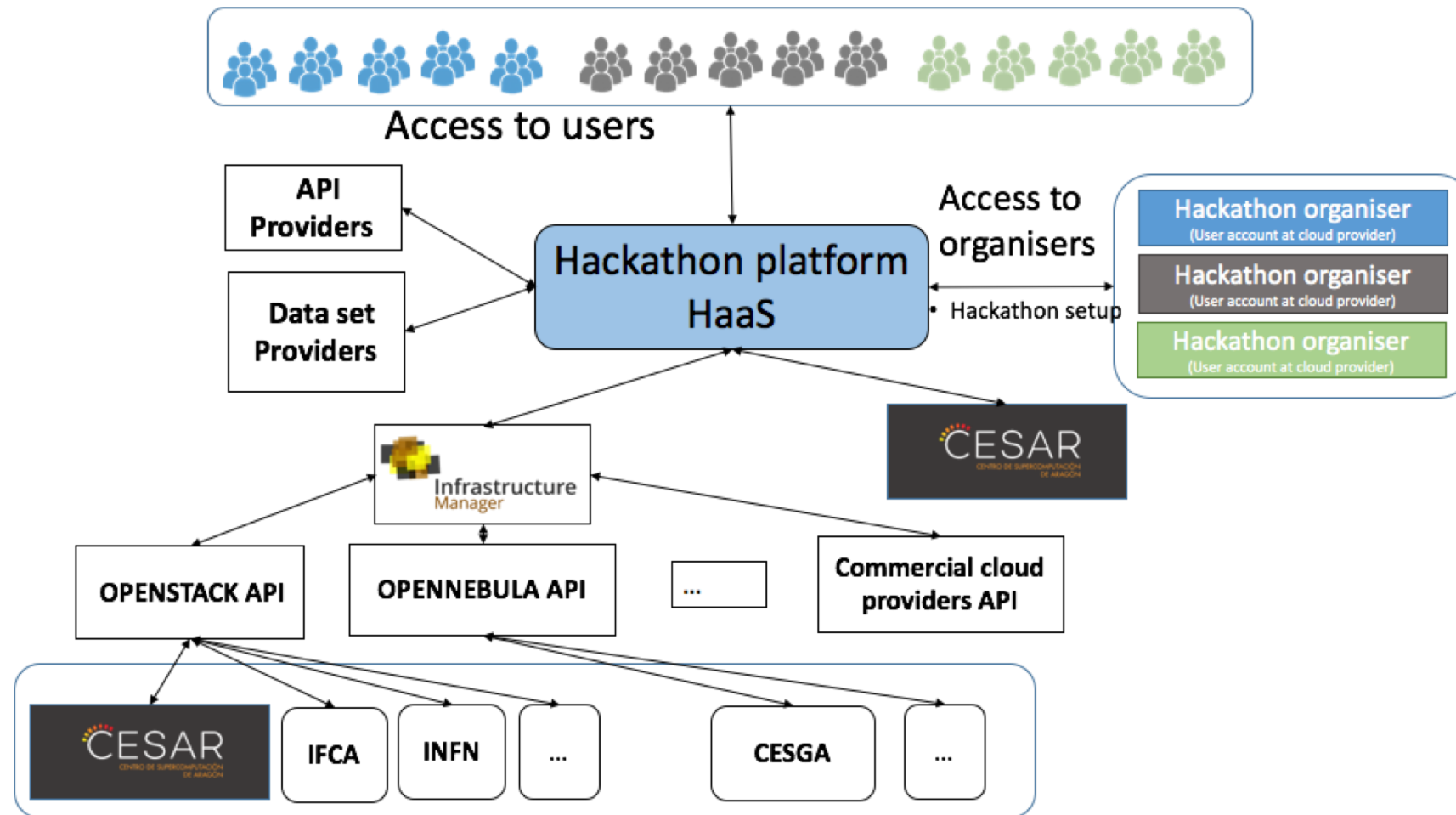
## Why Haas?

- We had experience organizing hackathons with regional government and city council
- Nowadays it is common that organizers provide infrastructure so participants focus only in their work
- The process of creating and giving access to the offered infrastructures was done manually and required knowledge
  - Creating VMs or assigning physical nodes
  - Configuring the network
  - Creating users and giving credentials to participants
  - Once it has finished submit results, destroy the infrastructure
  - ...
- Why do not automate the process?

# Hackathon roles

- Hackathon organisers: they need an agile a flexible tool to manage the hardware infrastructure and software to be provided to hundreds of participants
- Hackathons participants: they need an environment easy and ready to use where hardware and software resources are available
- Infrastructure providers: they must guarantee reliable infrastructure to users and flexibility to manage VM for hackathon organisers
- Dataset & API providers: datasets of scientific fields are usually unexploited as they are considered hard to understand for commercial or individual usage

# Our proposal



## How it works

- A platform to facilitate the organisation of hackathons on the EOSC infrastructure and accessible through the EOSC Portal
- Hackathon **organisers** can:
  - Create and publish hackathons, describing the rules and technical requirements
  - Offer their infrastructure to support their hackathons, which will be automatically deployed every time a participant joins
  - Give instructions to access specific resources such as datasets, APIs
  - Control who participates in their hackathons, setting them as public (moderating requests) or private (inviting participants)
  - See statistics of their hackathons
  - Evaluate participant solutions

## How it works

- **Participants can:**
  - Find, join and get invited to hackathons
  - Use the offered infrastructure by managers during the hackathon
  - Infrastructure is automatically deployed, access instructions and credentials are shown on the screen
  - Use external resources such as datasets or APIs through instructions added by organisers
  - Submit and update their solutions to be reviewed and rated by organisers

# Organiser view



Hi test\_manager! [Change password](#) [Log out](#)

## Hackathons

Managed Participated Other

| Name           | Manager      | Infrastructure | Starts on              | Ends on                | VMs per user | Created on                | Actions   |
|----------------|--------------|----------------|------------------------|------------------------|--------------|---------------------------|---|
| BIFI Hackathon | test_manager | BIFI           | March 20, 2021, 8 p.m. | March 21, 2021, 8 p.m. | 2            | March 22, 2021, 3:52 p.m. | <a href="#">Email</a> <a href="#">Info</a> <a href="#">Star</a> <a href="#">Trash</a> |

[+ Add hackathon](#)



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Hi test\_manager! [Change password](#) [Log out](#)

## Add IM hackathon

Name

Start date

End date

Joining mode

Infrastructure

Instructions (admits [markdown](#))

Describe the specific instructions of your hackathon, include references to external resources such as datasets, APIs, etc.

## Infrastructure credentials

Host

Username

Password

## Infrastructure configuration

VMs per user

CPUs per VM

RAM per VM

Image


Network

[Save](#)



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# Organiser view


Hackathon Manager

Hi test\_manager!
Change password
Log out

## Evaluate solution

### My solution


#### Introduction

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

#### How we did it

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

#### Results





Test our API here: [API](#)

Score

From 0.0 to 10.0

Save

Infrastructure Manager

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Hackathon Manager

Hi test\_manager!
Change password
Log out

## View hackathon

Name: BIFI Hackathon  
Manager: test\_manager  
VM per user: 2  
Start date: March 20, 2021, 8 p.m.  
End date: March 21, 2021, 8 p.m.

### New users per day



| Date       | New users |
|------------|-----------|
| 23/03/2021 | 1         |

### New resources used per day



| Date       | New resources |
|------------|---------------|
| 23/03/2021 | 2             |

### Accumulated users



| Date       | Accumulated users |
|------------|-------------------|
| 23/03/2021 | 1                 |

### Accumulated resources



| Date       | Accumulated resources |
|------------|-----------------------|
| 23/03/2021 | 2                     |

## Solution ranking

| Position | User                   | Score |
|----------|------------------------|-------|
| #1       | test_developer@bifi.es | 8.50  |




Infrastructure Manager

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# Participant view



Hackathon Manager

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## Hackathons

Participated **Other**

| Name           | Manager      | Infrastructure | Starts on              | Ends on                | VMs per user | Created on                | Actions                             |
|----------------|--------------|----------------|------------------------|------------------------|--------------|---------------------------|-------------------------------------|
| BIFI Hackathon | test_manager | BIFI           | March 20, 2021, 8 p.m. | March 21, 2021, 8 p.m. | 2            | March 22, 2021, 3:52 p.m. | <a href="#">▶</a> <a href="#">✓</a> |



Hackathon Manager

Hi test\_developer! [Change password](#) [Log out](#)

## View hackathon

Name: BIFI Hackathon  
Hackathon manager: test\_manager  
VM per user: 2  
Start date: March 20, 2021, 8 p.m.  
End date: March 21, 2021, 8 p.m.

[Deploy infrastructure](#)



Infrastructure  
Manager

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Infrastructure  
Manager

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