

Innovation Management and Industry Users Board (IUB)

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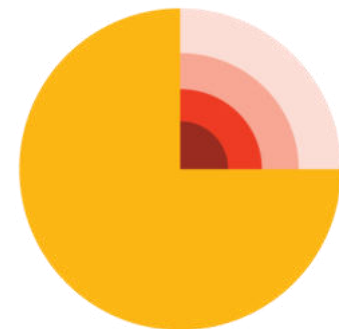


ChEESE-2P Innovation Manager



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ChEESE PIM

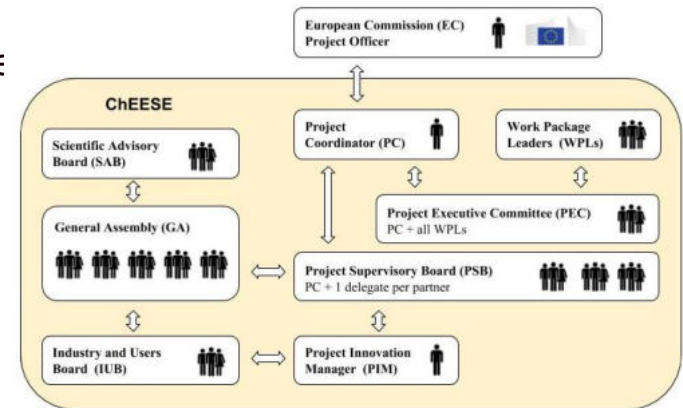


ChEESE

Project Innovation Manager: Main duties

Goal: improve the Consortium capacity to manage the innovation processes required to bring the ChEESE results and ideas to their profitability on the market and the research community

- Coordinate the various **exploitation activities**.
- Responsible for the development of an **Exploitation Plan and for setting up the exploitation strategies** (with the contribution of the whole consortium).
- Deeply involved in linking **WP5** (Farming Pilot Demonstrators) and **WP6** (Simulation Cases and services enabling in EuroHPC infrastructures) with the **Industry and Users Board**.
- Collect feedback from industry, users, develop and exascale community.



Project Innovation Manager: Responsibilities

1. **Identify the project exploitable outcomes**, with emphasis in the pilot demonstrators and the services that will be validated in WP6, to conclude on potential commercial services, business ideas and exploitation pathways.
2. **Protect the Intellectual Property Rights (IPR)** of the individual codes and toolkits developed in the project.
3. **Identify and analyze the target users and stakeholders** that may benefit from the project findings and achievements.
4. **Analyze the exploitation context and business opportunities** to find out what is the actual market situation for the different applications covered in the project.
5. **Assess the competitive environment** of the project: technology readiness, integration, standardization and regulatory, policy framework at the targeted markets, and future trends at social, business and policy levels.
6. **Disseminate the activities related with the exploitation of results**, such as publications in international conferences and journals, and presentation of results in trade fairs, workshops and related events or press releases in technical media.



Project Innovation Manager: IPR

1. **Background knowledge and Access Rights.** Each partner will own the background that it brings to the project.
2. **Patents.** In case a partner wants to submit a patent application, it will communicate to the Project Coordinator and the Project Innovation Manager to determine if it is a joint foreground or not, and initiate the patentability study. All required measures will be taken to guarantee that there is no disclosure that can ruin the patent possibility. The costs of the patent applications will be covered by the submitters.
3. **Foreground knowledge and IP ownership.** Results will be owned by the project partner carrying out the work leading to such results, independently of whether they can be protected or not.



ChEESE-2P Impact

01

New **data** and **software**
for the next wave of
exascale computers

02

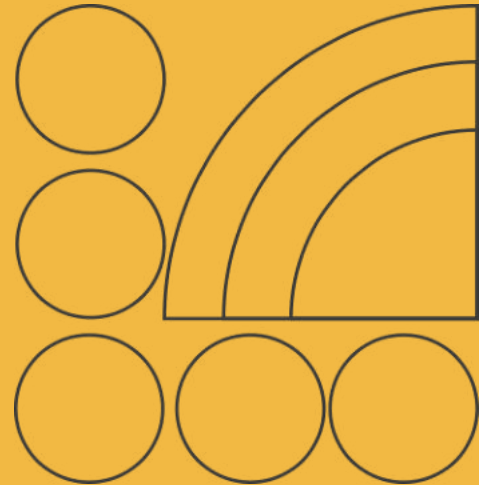
A more **competitive**
Europe in terms of
science and industry

03

Better models to **prevent**
damage and losses from
geohazards



Innovation Management: Community Activities



Activities to be performed during the whole project

Action Taken	Leader	Inputs Requested (To Whom)	Deadline
Identification of the project exploitable outcomes, with special emphasis in the <u>pilot demonstrators, softwares and data</u>	BSC	ALL PARTNERS	Continued WORK
Definition of the ChEESE business ecosystem - Market studies - Stakeholders mapping - Networking – R&I projects, Incubators/Accelerators, Standardisation Bodies, Companies, others Identification and analysis of the target users and stakeholders: Creation of an IUB.	BSC, All	ALL PARTNERS	Continued work
Analysis of the exploitation context and business opportunities.	BSC, All	ALL PARTNERS	Horizon Booster Results / Innovation Radar
Business cases development Business Models → End Users validation	BSC, All	ALL PARTNERS	
ChEESE roadmap for implementation - KPI Monitoring - Trends monitoring - Patent Landscaping/Analysis - SWOT analysis	BSC	ALL PARTNERS	
Knowledge management - Results tracking and assessment - KPIs to measure the ChEESE results vs objectives	BSC	ALL PARTNERS	Continued work
Innovation knowledge transfer and IP management Monitoring of foreground (i.e. results) and IPR issues	BSC	ALL PARTNERS	Continued work

Extended network

HPC services	Standardisation groups
Accelerators/Incubators	Media/Press
Local/National/EU authorities	Policy experts
Trade associations	Citizens
Clusters	

Main differentiating variables under investigation:

Technology-side

- HPC
- Integration availability

Market-side

- Offering width (digital virtual product vs. process)
- Industry (insurance) application coverage

End-user

Large Enterprise	Academia
SMEs	Public administration
Urgent Computing	Public bodies, First-responders
Early Warning	First-responders
Hazard Assessment	Public bodies, ERCC
4K Imaging	Insurance

Suppliers and Partners

- Scientific Associations
- Academic institution
- University spin-offs
- ICT services providers
- System integrators
- Insurance/Solid Earth industry
- HPC experts

Market overview



Resellers (Consultancy)

System integrators or services provider in general, providing customized solution to end users

Other projects funded by EU



Market Analysis: Segmentation

- Hazard assessment
- Early Warning Systems
- 4 Urgent Computing
- 4D Imaging
- EPOS (TSU-TCS, VO-TCS)

ChEESE services

- Civil Protection Agencies
- Insurance Companies
- Consultancy Services
- Oil & Gas Industry
- HPC community

Market Segmentation

- PD, SC interests
- Partner interest

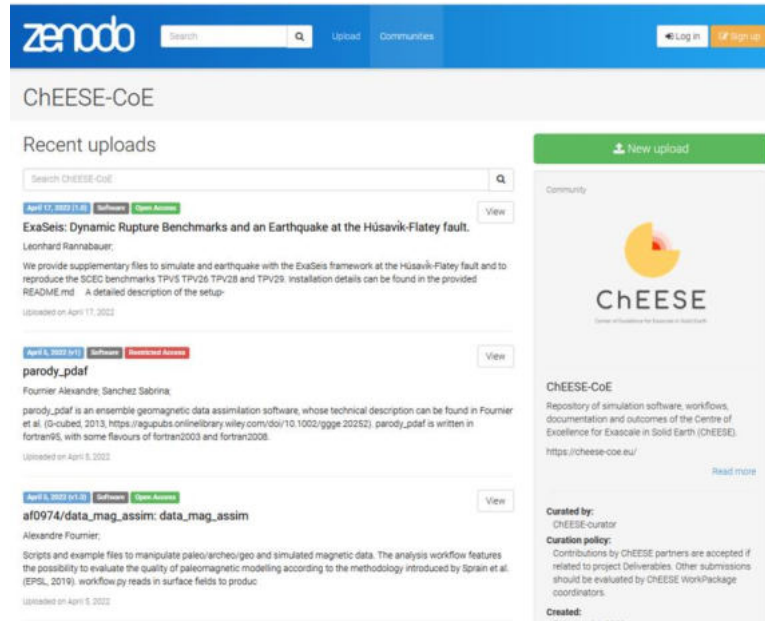
- Industry and Users Board (IUB)

Stakeholder engagement



Identification of exploitable foreground

Foreground nature: methods, software, know-how in experiment methods, physical models, data and libraries.



The screenshot shows the Zenodo website interface. At the top, there is a blue header with the Zenodo logo, a search bar, and links for 'Upload' and 'Communities'. Below the header, the page title is 'ChEESE-CoE'. The main content area is titled 'Recent uploads' and contains a list of three items, each with a search bar and a 'View' button. The first item is 'ExaSeis: Dynamic Rupture Benchmarks and an Earthquake at the Húsavík-Flatey fault.' by Leonhard Rannabauer, dated April 17, 2022. The second item is 'parody_pdaf' by Fournier Alexandre, Sanchez Sabrina, dated April 5, 2022. The third item is 'af0974/data_mag_assim: data_mag_assim' by Alexandre Fournier, dated April 5, 2022. On the right side of the page, there is a green 'New upload' button and a 'Community' section with the ChEESE logo and a description of the repository.



The screenshot shows the EPOS Data Portal website. The header is dark green with the EPOS logo and navigation links: 'ABOUT EPOS', 'USERS', 'PARTNERS', 'SERVICES', 'PROJECTS', and 'COMMUNICATION'. The main content area has a large green background with a grid pattern and the text 'Welcome to the EPOS DATA PORTAL'. Below this, it says 'A multi-disciplinary open data portal for integrated access to Solid Earth science datasets' and a 'Data Access' button. At the bottom, there are four statistics: '256 Research Infrastructures', '37 Data and Service Providers', '>800 Terabytes of Integrated Data', and '228 Services'. To the right of these are two more statistics: '>2000 Users' and 'Integrated Core Services'. The footer has a dark green background with the text 'Integrated Core Services' and 'Thematic Core Services'.

Stakeholders engagement during the exercises

1

6 exercises as a demonstration of the Pilot Demonstrator evolution: from Pilots to operational environments.

2

53 institutions engaged* and 99 individuals

3

26 countries represented**

* The number does not include ChEESE partners involved in the exercises

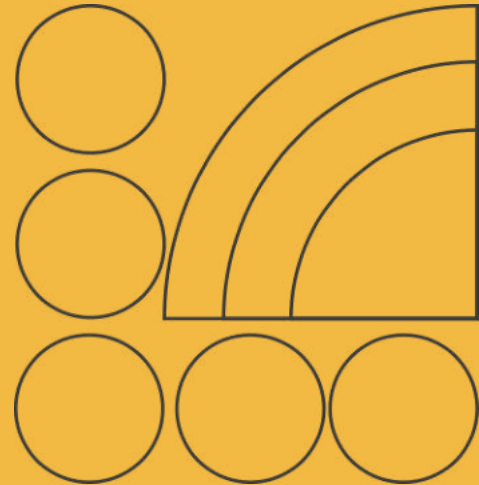
** The number of countries does not include ChEESE partners participating in the exercises



IUB and Extended Network: Actual Engagement

Stakeholders' institution	Mission	Role played in exercises
ARISTOTLE	ARISTOTLE is a long-term operational, research, and cooperation project financed by the Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG ECHO). ARISTOTLE-eENHSP aims to continue strengthening the monitoring and analysis functions of the Emergency Response Coordination Centre (ERCC) by delivering a unique multi-hazard advice service at global level and on a 24/7 operational basis.	PD6. Simulates reporting to ERCC. PD1. Evaluates rapid post-EQ assessment by using numerical simulations PD8. Potential end-user
PLINIVS	PLINIVS (Study Centre for Hydrogeological, Volcanic and Seismic Engineering) is a National Competence Centre on Volcanic Risk for the Italian Civil Protection.	PD6. Receives hazard information and elaborate risk/impact maps and information on its basis.
IGN	IGN (Spain) has the mandate to plan and manage systems for detecting seismic movements countrywide and their possible effects on the coasts, and to notify them to the institutions.	PD2. Provides trigger and source information for simulated EQ and associated fault characteristics. Elaborate results and issue Alert messages.
Global Parametrics	Global Parametrics' mission is to leverage advances in climate science, data modelling and financial engineering to build the tools needed to understand, manage and mitigate the risks of extreme weather and natural hazards anywhere in the world.	PD1.
Buenos Aires VAAC	The Buenos Aires VAAC is one of the 9 Volcanic Ash Advisory Centers established by the ICAO (International Civil Aviation Organization) with the mission of monitoring and forecasting the location and trajectories of volcanic clouds occurring under their respective areas of responsibility. In the event of an eruption, the international civil aviation arrangements state that the affected VAAC must issue periodic Volcanic Ash Advisories (VAA), consisting of text messages including the forecasted ash polygons delineating unsafe flight areas.	PD12 exercise owner. Triggers the simulated events, issues the VAA messages. Coordinates the exercise.
CAT Tsunami Warning Centre	Centro Allerta Tsunami: The CAT-INGV became fully operational on 1 January 2017, as provided for in the agreement with the National Civil Protection Department (DPC). On 5 June of the same year, the Centre was formally designated - by a directive of the Prime Minister - as a component of SiAM - National Alert System for tsunami (SiAM) generated by earthquakes in the Mediterranean Sea, coordinated by the National Civil Protection Department (DPC).	PD8.

ChEESE-2P: Sustainability (KER, Horizon Booster)



1 Definition of Pilot Demonstrator Service strategy

- Exploitation strategy for the asset: product/service/academia/scientific.
- Exploitation (scientific/industry) of flagship codes, workflows and tools.
 - Industry interest and initial discussions in workflows.
 - HPC Experts: licensing, services (e.g. audits, optimization, implementation of new models)
 - Expected revenues from Pilot exploitation:
 - *Industrial end-users; Industry, Insurance, Public Authorities, Research and Developers/Code developers, Academia, Open Source Groups, Centers of Excellence (COE).*
- **Success story: Exercises as stakeholder engagement strategy**



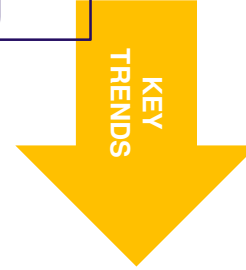
Use Cases

Implemented functions
enabled by ChEESE



Business Ecosystem

Stakeholders mapping



	Helpful to achieving the objective	Harmful to achieving the objective
Internal origin (attributes of the organization)	Strengths S	Weaknesses W
External origin (attributes of the environment)	Opportunities O	Threats T

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INDUSTRY
FORCES



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MARKET
FORCES

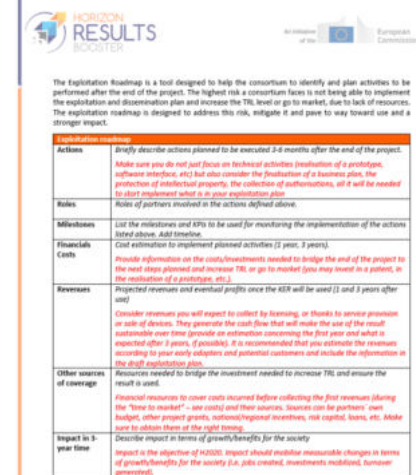
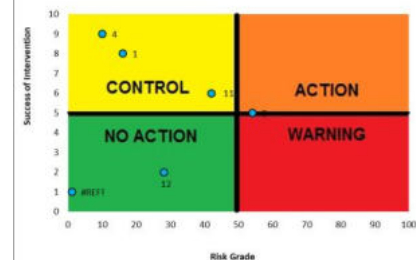
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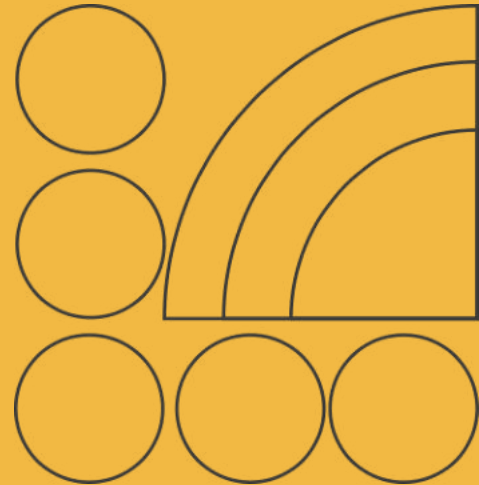
KER Risk Assessment Map

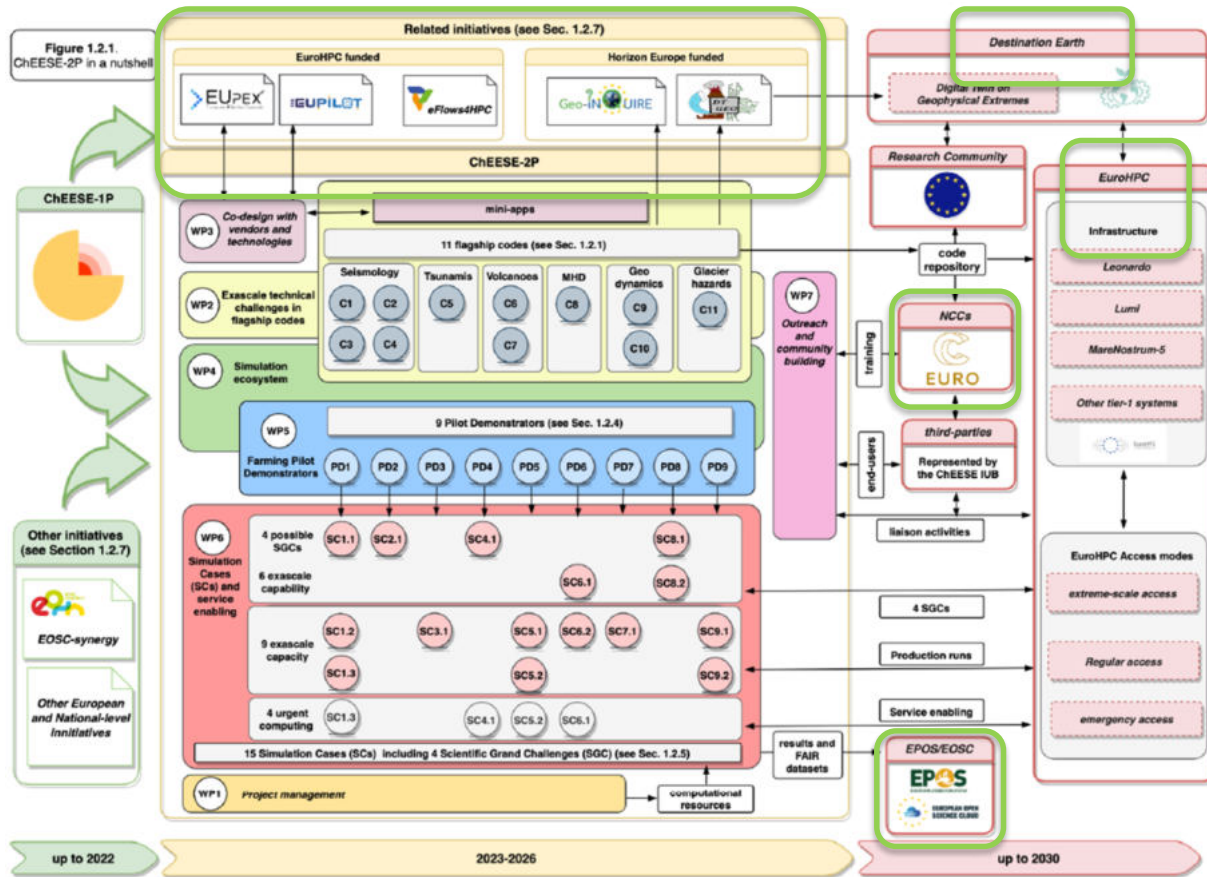
	Description of Risks	Degree of criticality of the risk related to the final achievement of this Key Exploitable Result. Please rate from 1 to 10 (1 low- 10 high)	Probability of risk happening Please rate from 1 to 10 (1 low - 10 high)	Risk Grade	Potential intervention	Estimated Feasibility/Success of Intervention Please rate from 1 to 10 (1 low- 10 high)	Conclusion
	Partnership Risk Factors						
1	Industry for demonstrator not available (i) Possible (ii) Low	4	4	16	Search of different partners	8	Control.
2	Communication between ICT and industrial sector (e.g. solid earth partners) is not satisfactory	10	2	20	Internal reorganization to enhance the interaction	8	Control.
3	Links with other projects introduce dependencies.	4	4	16	Common meetings to improve the coordination and synergies will be organized.	9	Control.
	Technological Risk Factors						
4	Clients do not like the platform as it is not friendly	5	2	10	Focus less on the specific software but in the service	9	Control.
5	Computational resources too low (i) Possible (ii) Medium	7	1	7	BSC will send proposals to national networks such as RES or to PRACE	9	Control.
6	New HPC technologies appears during the development of the project (new architectures)	4	3	12	BSC will internally discuss the modification of the modules affected to include the new advances in this field.	7	Control.
7	Possible failure of algorithms	6	1	6	This is a useful outcome of the project and can drive research in this field towards other directions. In some of these areas, gains in performance will be higher than expected, in others lower.	7	Control.
	Market Risk Factors						
8	The market (Academia, R&D Centers and Industry) does not accept the KER	6	9	54	Offer R&D services that do not demand investment by the partners (scientific collaborations). Bad for business but good for social impact	5	Between Action & Warning
	IPR/Legal Risk Factors						
9	The test data are confidential	2	5	10	A non-disclosure agreement dealing with management of IPR will be signed by the partners.	9	Control.
10	Delay of a IPR definition of more than six months, variations in available budget devoted to foster the market implementation of more than 20%, Technology Transfer key personnel leaving BSC	4	8	32	Empowering of the responsible staff	7	Control.
	Financial/Management Risk Factors						
11	Marketing and distribution fails due to a weak strategy	7	6	42	Revise the strategy with the BSC dissemination and communication experts.	6	Control.
12	Marketing and distribution fails due to a lack of resources	7	4	28	Search for funding (private and competitive)	2	No Action'
	Environmental/Regulation/Safety risks:						
13	Project outcomes are not compatible with regulations of existing market procedures expressed through standards. (likelihood: low, severity: high)	5	4	20	Revise Alya strategy towards being an standard code, not only in Scientific environments.	5	Between Control & No Action

Priority Map - With Risk Numbers

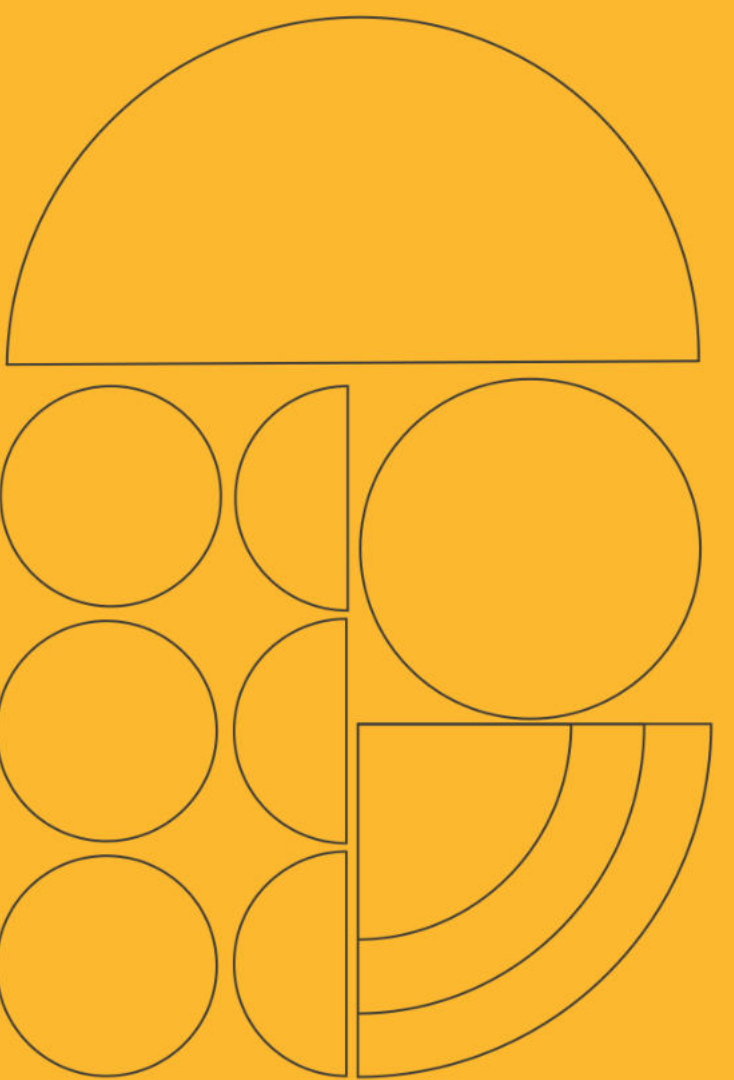


ChEESE-2P Foundation: *Does still make sense to create a Non-for-Profit Institution in the new EU Solid Earth framework?*





- Direct reinvestment in R&D projects
- Direct reinvestment in **Grants** (PhD, Post-Doc, sabbaticals)
- **Academia and R&D centers** are used to be part of Foundations
- Possibility to have **Access to EU funds** (Horizon Europe)
- Clustering and Lobbying
- **Can be explored** inside ChEESE-2
- Ownership of the institution



Thank you



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