# COSMIC

## Second Open Call

## HOW TO APPLY WEBINAR

11 June 2026
Online

COSMIC

AI-POWERED
ENERGY OPTIMISATION

# WELCOME!

COSMIC

AI-POWERED
ENERGY OPTIMISATION

Funded by
the European Union

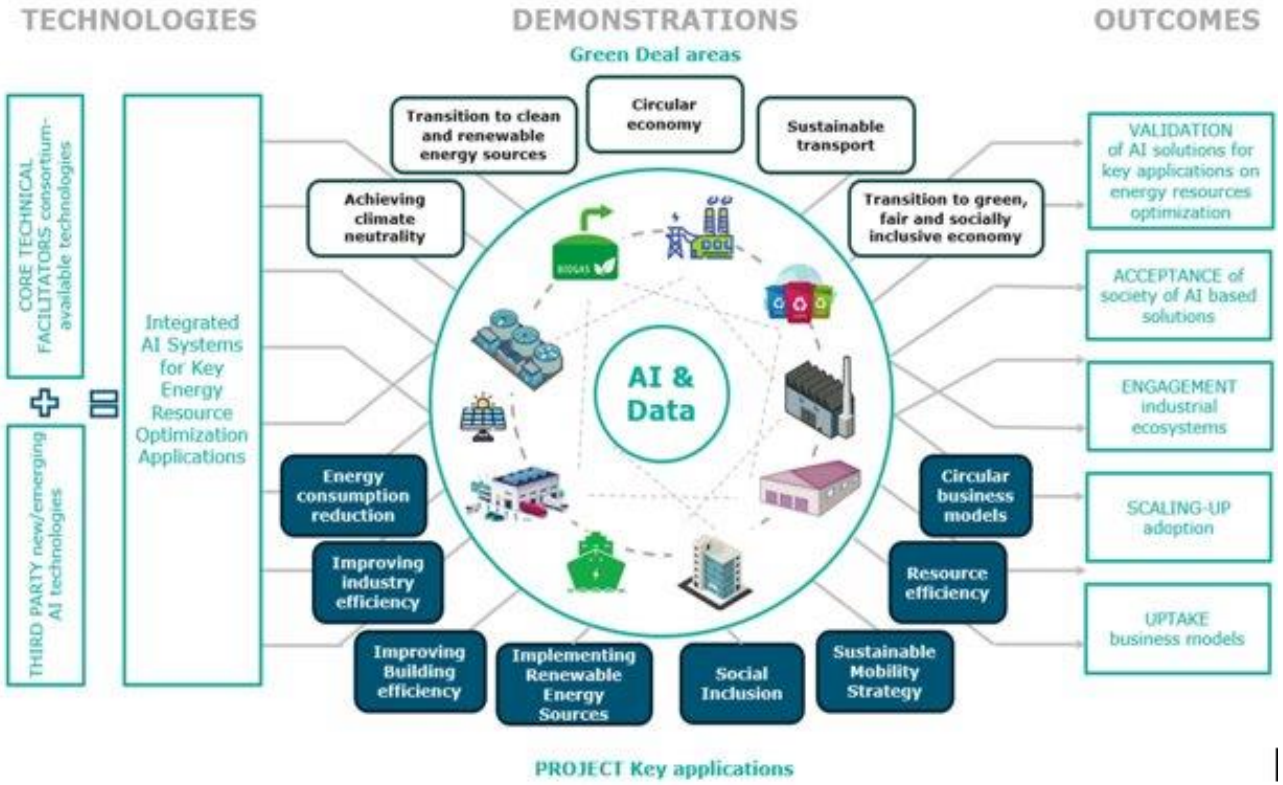
# AGENDA

| | |
|---|---|
| **10:00–10:15** | **Welcome & Objectives** (INETUM & FundingBox)<br>– Purpose of the webinar and intro<br>– About COSMIC by coordinator |
| **10:15–11:15** | **Challenges and Use Cases: deep dive, challenge-by-challenge**<br>➔ Challenge objectives<br>➔ Data availability and basic data requirements<br>➔ How COSMIC CTFs and pilot infrastructure support solutions<br>➔ Expectations (model and outputs)<br>➔ "Ideal project" examples<br><br>INETUM — 10:15–10:30 SEEBURG — 10:30–10:40<br><br>CENAERO — 10:40–10:55 INESC TEC — 10:55-11:05<br><br>CIMNE — 11:05–11:15 |
| **11:15–11:35** | **How to Apply (FundingBox)**<br>➔ Walkthrough of the Open Call Guide<br>➔ Eligibility, evaluation criteria<br>➔ Common mistakes to avoid (with examples) |
| **11:35–12:00** | **Live Q&A**<br>**Closing Remarks & Next Steps** |

# ABOUT COSMIC

**COSMIC is a European project funded by the Horizon Europe programme.**

It aims to demonstrate how Artificial Intelligence (AI) and Big Data technologies can drive the optimization of energy resources across industrial, urban, and residential sectors, in alignment with the goals of the European Green Deal.



# ABOUT COSMIC

## Objectives

- **Optimize energy resources** through Big Data and AI by integrating innovative SME solutions into technological platforms (CTFs) to create scalable Integrated AI Systems (IAIS).
- **Implement 15 large-scale pilots** across key sectors to enhance resource efficiency, in alignment with the Green Deal.
- **Develop European scaling strategies** for industrial ecosystems, facilitating IAIS replication and strengthening the competitiveness of Europe's AI and data-driven industries.

## Main Activities

- **Open calls** for SME participation, targeting innovative AI-based solutions.
- **Implementation of large-scale pilots** with access to extensive historical and real-time datasets.
- **Development of training materials** to support AI adoption in European industry.

# ABOUT COSMIC

### Selecting innovations through Open Calls

We fund innovative AI & data-driven solutions from startups and SMEs and apply them to sustainability projects across different industries.

→

### Testing and integration in pilots

Selected innovations are deployed alongside existing core technologies in our 15 pilots, optimising energy and resource efficiency in real-world conditions.

→

### Scaling up for long-term impact

We ensure solutions are scalable and replicable, sharing results with industries, policymakers, and communities to drive widespread adoption.

# ABOUT COSMIC

**Expected Results:**

- Significant reduction in energy consumption and associated costs.
- Creation of new industrial ecosystems that can be replicated across Europe.
- Strengthening of European leadership in AI and data technology.

**Societal Impact:**

- Reduction of residential energy costs by more than 10%.
- Reduction of energy poverty by up to 20%.
- Improvement in resilience by over 20%.
- Democratization of the AI market: lowering barriers to deploy innovative solutions.

# PROJECT OVERVIEW

**COSMIC in numbers:**

- Partners: 21
- Budget: 10 801 484.46€
- EU contribution: 9 999 846.75€
- HORIZON Innovation Action
- Countries: 9
- GA N°: 101189676
- Duration: 36 Months
- Start: 01/12/2024
- End: 31/11/2027

# ABOUT COSMIC

## Project Partners

# CHALLENGES DEEP DIVE

# Challenge 22: Port Power Digital Twin
## [INETUM]

| CH OC2 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH22 | 7.1. Sizing an Energy-Storage System for OPS (Port Authority of Balearic Islands) | Port Power Digital Twin |

### Problem:

- Fragmented port electrical grids lack real-time visibility of energy flows, making active energy management practically impossible.

### Expected Outcome:

- A replicable model for European ports that enables active decarbonization and feeds real-time constraints to an Energy Management System.

### “Ideal Solution” one-liner:

- A real-time Digital Twin that ingests heterogeneous data to accurately model port energy flows without requiring new hardware sensors.

# Challenge 23: Port Energy Investment Simulator
## [INETUM]

| CH OC2 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH23 | 7.1. Sizing an Energy-Storage System for OPS (Port Authority of Balearic Islands) | Port Energy Investment Simulator |

## Problem:

- Port authorities lack tools to accurately assess the technical and economic impacts of expensive energy infrastructure investments before they are built.

## Expected Outcome:

- A transferable, high-value simulation tool to optimize energy infrastructure planning in European ports.

## “Ideal Solution” one-liner:

- A semi-agentic simulator that retroactively analyzes and back-tests the impact of new assets (like PV panels or batteries) using historical port data.

# Challenge 24: Port Energy Management System
## [INETUM]

| CH OC2 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH24 | 7.1. Sizing an Energy-Storage System for OPS (Port Authority of Balearic Islands) | Port Energy Management System |

## Problem:

- Without an active management system, port energy allocation is passive, leading to grid saturation and a heavy reliance on the public grid.

## Expected Outcome:

- A validated system that lowers port energy costs, minimizes public grid demand, and maximizes renewable self-consumption.

## “Ideal Solution” one-liner:

- An AI-based, multi-objective management system that optimizes real-time operations and calculates financial incentives for concessionaires.

# Challenge 32: Maintenance Scheduling Optimizer
[INETUM]

| CH OC2 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH32 | 4.1. Predictive maintenance for optimal operation of energy resources (PHOTOM) | Maintenance Scheduling Optimizer |

## Problem:

- Poorly scheduled maintenance of energy assets causes unnecessary technician visits and avoidable energy production downtime.

## Expected Outcome:

- Lower operational costs, reduced travel emissions, and increased energy yields through smarter, proactive technician dispatching.

## “Ideal Solution” one-liner:

- A multi-criteria scheduling tool that optimizes technician dispatch by weighing fault urgency, logistics, and production downtime.

# Challenge 20: Data-Driven Behaviour Modeling

## [SEEBURG]

| CH OC1 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH20 | 8.1 (AVRA), 1.2 (Porto Energy Agency), 8.2 (FID I&D) | Data-Driven Behaviour Modeling |

- **Problem:**
  Energy providers lack solid data on consumer perceptions of flexible services, leading to low adoption.
- **Expected Outcome:**
  Improved understanding of consumer trust enabling inclusive, tailored, and impactful digital design.
- **“Ideal Solution” one-liner:**
  A scalable methodology using A/B testing and AI to predict user response to energy services.

# Challenge 21: Energy Literacy Online Game
## [SEEBURG]

| CH OC2 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH21 | 1.3. Efficient usage of the heat pumps (Daikin) | Energy Literacy Online Game |

**Problem:**

- The role of household energy flexibility is abstract and poorly understood by citizens, hindering their participation in renewable energy integration.

**Expected Outcome:**

- Increased public awareness and behavioral readiness to adopt flexible, active energy consumption practices.

**“Ideal Solution” one-liner:**

- A free, web-based serious game combining behavioral science and AI to teach energy flexibility and resource optimization intuitively.

# Challenge 31: AI-driven Social Support Tool
## [SEEBURG / USE]

| CH OC2 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH31 | 8.1. Fighting Energy Poverty in Social Housing (AVRA) | AI-driven Social Support Tool |

## Problem:

- Social housing managers struggle to merge technical building data with social vulnerability data, making it hard to prioritize energy efficiency interventions.

## Expected Outcome:

- Highly targeted, data-driven resource allocation that improves thermal comfort and lowers energy costs for vulnerable tenants.

## “Ideal Solution” one-liner:

- A simple decision-support tool that combines building, monitoring, and social data to generate prioritized intervention recommendations for non-technical staff.

# Challenge 25: GeoAI-Driven Optimization of DHC Networks

[CENAERO]

| CH OC2 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH25 | 3.2. Housing buildings (Thomas & Piron Bâtiment) | GeoAI-Driven Optimization of DHC Networks |

## Problem:

- Planners lack a unified tool that integrates spatial data with automated optimization to efficiently design District Heating and Cooling (DHC) networks.

## Expected Outcome:

- Interoperable, automated workflows that save planning time, allow transparent comparison of scenarios, and support sustainable infrastructure decisions.

## “Ideal Solution” one-liner:

- An automated workflow that optimizes district heating layouts to minimize network length while providing interactive, GIS-compatible visual outputs.

# Challenge 26: Uncertainty Quantification for DHC Networks modelling

[CENAERO]

| CH OC2 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH26 | 3.2. Housing buildings (Thomas & Piron Bâtiment) | Uncertainty Quantification for DHC Networks |

## Problem:

- It is difficult to identify which buildings or nodes cause the most energy losses in a district heating network when factoring in climate and market uncertainties.

## Expected Outcome:

- Robust, data-driven network planning that relies on statistical certainty rather than basic heuristics.

## “Ideal Solution” one-liner:

- An AI/ML tool that statistically quantifies how uncertainties in demand and prices will impact a network's cost, layout, and efficiency.

# Challenge 33: AI – Accelerator for Urban CFD simulations
[CENAERO]

| CH OC2 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH33 | 3.2. Housing buildings (Thomas & Piron Bâtiment) | AI – Accelerator for Urban CFD |

## Problem:

- High-fidelity simulations for urban thermal comfort take too much computing time, making them impractical for rapid, early-stage urban design.

## Expected Outcome:

- Reduced urban heat stress and better climate resilience planning by enabling fast scenario testing early in the design process.

## “Ideal Solution” one-liner:

- An AI/ML add-on for OpenFOAM that drastically accelerates the calculation times of complex urban flow simulations.

# Challenge 34: Long-Term Prediction Model for Energy Demand [CENAERO]

| CH OC2 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH34 | 3.2. Housing buildings (Thomas & Piron Bâtiment) | Long-Term Prediction Model |

## Problem:

- Planners lack the tools to accurately predict long-term district energy demand during the early design phases when detailed building data is scarce.

## Expected Outcome:

- Planners are empowered to confidently compare solutions and make major infrastructure decisions based on realistic, long-term energy forecasts.

## “Ideal Solution” one-liner:

- A machine learning model that simulates 20-year hourly energy profiles using only basic, early-stage design inputs.

# Challenge 29: Energy Bill LLM Microservice
## [INESC TEC]

| CH OC2 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH29 | 1.2. Renewable Energy Community (Porto Energy Agency) | Energy Bill LLM Microservice |

## Problem:

- Complex energy bills prevent Portuguese consumers from verifying their charges, optimizing their tariffs, or understanding their environmental impact.

## Expected Outcome:

- Empowered consumers, reduced information asymmetry, and increased public awareness of energy costs and CO2 footprints.

## “Ideal Solution” one-liner:

- An AI-powered application that reads photos or PDFs of energy bills and translates them into clear, actionable financial and environmental insights.

# Challenge 30: REC Discovery & Onboarding Platform
[INESC TEC]

| CH OC2 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH30 | 1.2. Renewable Energy Community (Porto Energy Agency) | REC Discovery & Onboarding Platform |

## Problem:

- Joining a Renewable Energy Community (REC) requires navigating a maze of confusing geographic and technical rules, deterring citizen participation.

## Expected Outcome:

- Accelerated growth of renewable communities across Portugal by removing barriers to entry and mapping citizen demand for policymakers.

## “Ideal Solution” one-liner:

- A user-friendly digital platform that instantly matches citizens with nearby energy communities and simplifies the entire onboarding process.

# Challenge 27: Digital Twin of WWTP Biological Reactor
## [CINME]

| CH OC2 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH27 | 5.2. WWTP energy optimisation and decarbonisation | Digital Twin of WWTP Biological Reactor |

## Problem:

- Biological reactors in wastewater treatment plants use rigid, manual aeration rules, consuming huge amounts of energy regardless of actual waste load or energy prices.

## Expected Outcome:

- Reduced energy usage and emissions in wastewater treatment without compromising strict water quality regulations.

## “Ideal Solution” one-liner:

- A Digital Twin coupled with an AI optimizer to generate dynamic, cost-saving aeration schedules based on real-time data and energy prices.

# Challenge 28: Multi Vector Energy Optimiser in WWTP
## [CINME]

| CH OC2 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH28 | 2.1. Industrial energy communities (Granollers Mercat) | Multi Vector Energy Optimiser in WWTP |

## Problem:

- Wastewater treatment plants struggle to balance their biogas generation, solar PV production, and grid exchanges to reach strict energy neutrality goals.

## Expected Outcome:

- Optimal coordination of energy flows and market interaction to help treatment plants meet economic and climate neutrality targets.

## “Ideal Solution” one-liner:

- An AI-based multi-vector optimizer that forecasts energy needs and automatically schedules the most profitable and eco-friendly energy exchanges.

# Challenge 35: Energy Community Marketplace
## [CINME]

| CH OC2 | PILOT | CHALLENGE NAME |
|---|---|---|
| CH35 | 2.1. Industrial energy communities (Granollers Mercat) | Energy Community Marketplace |

## Problem:

- Companies with excess solar energy lack an efficient mechanism to share or sell that energy fairly to nearby businesses within a 5 km radius.

## Expected Outcome:

- Reduced electricity costs and increased renewable self-consumption through highly replicable, optimized energy-sharing models in industrial estates.

## “Ideal Solution” one-liner:

- An AI-based marketplace platform with a user-friendly GUI that optimally matches local energy producers and consumers while respecting tariff constraints.

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# COSMIC 2nd Open Call
# HOW TO APPLY

Almudena Sánchez - FundingBox

# 2nd Open Call

**COSMIC 2nd Open Call** – Call for AI & Data Solutions to Boost the Green Transition

**Scope:** develop and test AI-driven solutions for energy optimization, offering core data and AI platforms and tools as shared infrastructure.

- Up to **13 SMEs/start-ups** to be selected

**Open Call Dates:**

- Submission start: **20 May 2026**, 08:00 Brussels Time
- Submission deadline: **20 July 2026**, 17:00 Brussels Time

# 1st Open Call

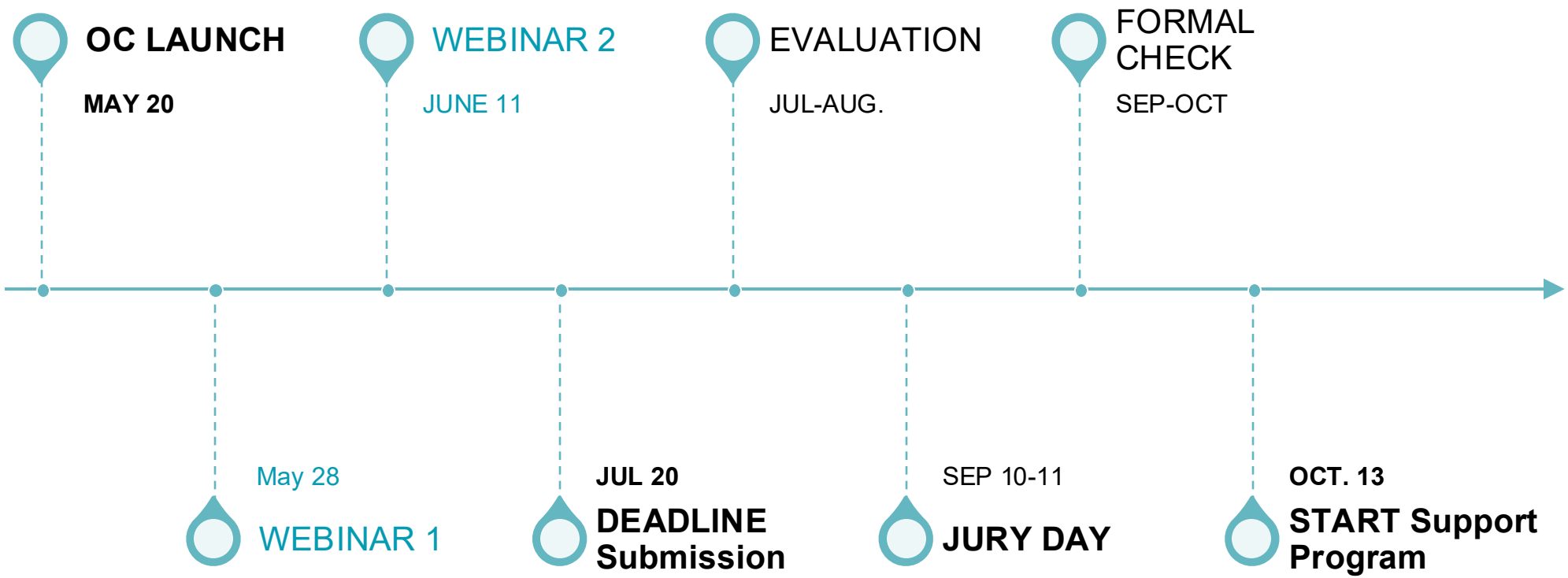
**What Do Selected Projects Receive?**

💶 Funding: up to **€150,000** lump sum per project

**Successful applicants will:**

- Integrate their solutions into COSMIC's AI-driven platforms
- Participate in **large-scale pilots** across  Spain, Belgium, Portugal, France, Ireland and Finland
- Gain real-world validation and boost market readiness

# OC TIMELINE




***Estimated dates**

# Who can apply?

**Individual SMEs (including start-ups)** registered in:

- EU Member States and their Overseas Countries and Territories (OCT)
- Associated Countries (AC) to Horizon Europe
- Include co-financing at least 30% of the total project budget
- Propose data- and AI-driven solutions or services aligned with COSMIC's Challenges and pilots and contributing to Green Deal Key Applications

**Ideal Applicants Include:**

- **Tech Developers** - SMEs with expertise in software, system integration, and innovative IT
- **AI Providers** - companies building AI tools in machine learning, computer vision, and analytics for energy optimization.
- **Data & IoT Experts** - Specialists in big data, smart platforms, and IoT integration
- **Green Tech Innovators** - Businesses focused on sustainability—carbon tracking, circular economy, and energy efficiency.

# WHAT activities will be funded?

**Projects must align with COSMIC's mission** to optimize large-scale resource management and support the transition to a net-zero society.

🔧 **Solution Development**
AI/data-based services & tools (e.g., digital twins, smart charging, user interfaces) targeting a specific COSMIC challenge.

🔗 **Integration & Facilitation**
Interfacing new solutions with existing platforms (e.g., BIM/GIS, HEMS) to boost interoperability and data flow.

🧪 **Testing & Validation**
Large-scale pilot testing to verify performance, scalability, and user acceptance.

🚀 **Proof-of-Concept Projects**
Demonstrators showing real-world impact and industrial applicability.

# Key Requirements

- ✅ Address **one specific challenge** from the Technical Guidelines
- ✅ Demonstrate a strong **European Dimension**
- ✅ Show **measurable benefits** for EU citizens, industries & ecosystems
- ✅ Support the **climate-neutral and digital transition**
- ✅ Target as minimum **TRL 6 Technology demonstrated in relevant environment**: proposals must build on a solution already validated at small scale (entry **minimum TRL 3 – experimental proof of concept**) and ready for testing and refinement in COSMIC's industrial pilots (TRL 6–7)

# 1st Open Call

## 10-Month Support Programme:

- **Technical mentoring**
  - Individual Mentoring Plans
  - Define initial Proof of Concept
- **Solution development**
  - Alpha version testing
  - Iterative improvement cycles
- **Pilot testing**
  - Beta solution evaluation
  - Controlled & real-world pilot environments
- **Market readiness & exploitation**
  - Tailored business support
  - Joint sessions to boost market impact

# HOW the process will look like?

**Evaluation Process**

1. **Eligibility Check**
   After the call deadline, each proposal is reviewed to ensure it meets all eligibility and admissibility criteria. Non-eligible proposals are rejected, and applicants are notified.

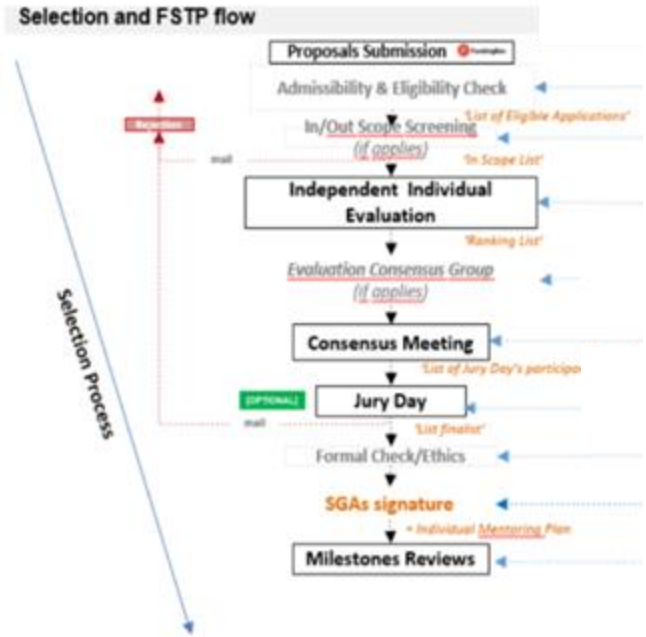
2. **In/Out of Scope Review**
   The Selection Committee assesses whether the proposal aligns with COSMIC's objectives and scope. Only eligible and relevant proposals move forward.

3. **External Evaluation**
   Three independent external experts evaluate each proposal based on excellence, impact, and implementation. A minimum score is required to proceed to the next stage.

4. **Consensus Meeting**
   The Selection Committee, together with external experts, reviews and finalizes the list of proposals invited to the *Jury Day*, based on rankings and other relevant considerations.

5. **Jury Day**
   Shortlisted applicants present their projects to a jury. The evaluation focuses on potential impact, team vision, and relevance to applicant needs. A provisional list of beneficiaries and a reserve list are created.

6. **Formal Verification & Grant Agreement (SGA)**
   Selected applicants must submit formal documentation to confirm eligibility. Upon successful verification, they sign the grant agreement and officially join the program.



# Support schedule

| Stage | Deliverable | Duration | AMOUNT | % Total grant |
|---|---|---|---|---|
| Stage 1: Individual Mentoring Plan & Proof of Concept | IMP & PoC | 1 month | up to 15.000 € | 10% |
| Stage 2: Innovative Solution Development | Solution Alpha version | 3 months | up to 60.000 € | 40% |
| Stage 3: Solution Testing and Validation | Solution Testing Report | 3 months | up to 45.000 € | 30% |
| Stage 4: Business Support | Exploitation Plan | 3 months | up to 30.000 € | 20% |
| | **Total** | **10 months** | **up to 150.000 €** | **100%** |

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# Q&A

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# Thank you for joining us today!

**Website**
cosmic-horizon.eu

**LinkedIn**
linkedin.com/company/cosmic-eu/

**Discord**
discord.gg/ezcgJWPyBd

**Helpdesk**
helpdesk.cosmic@fundingbox.com

**APPLY at OnePass**

# THANK YOU!

**Any additional questions? Reach us at**

**helpdesk.cosmic@fundingbox.com**

Learn more:
**www.cosmic-horizon.eu**
**@COSMIC project**