ProCleanLakes

PROCLEANLAKES

HACKATHON #1

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ProCleanLakes Hackathon Methodology

1. Purpose and scope

The **ProCleanLakes Hackathon** is an online innovation challenge designed to mobilise citizens, students, researchers, professionals, public authorities, NGOs, businesses and other relevant stakeholders around concrete challenges related to the protection, restoration and sustainable management of European natural lakes.

The Hackathon supports the broader objectives of ProCleanLakes project, creating a structured environment in which real lake-related problems are transformed into innovation challenges and addressed through collaborative problem-solving. The process aims to generate actionable concepts, visual prototypes and digital or technology-enabled solutions that may contribute to lake restoration, environmental education, citizen engagement and sustainable management.

The approach is consistent with the ProCleanLakes project, which positions hackathons within the project's citizen-engagement activities and explicitly envisages social hackathons involving not only students but a broader range of relevant stakeholders.

The ProCleanLakes Hackathon focuses particularly on challenges related to:

- Water Quality Monitoring;
- Pollution Prevention and Remediation;
- Data Analytics and Artificial Intelligence;
- Biodiversity and Ecosystem Restoration;
- Citizen Science and Community Engagement;
- Climate Resilience.

2. Key concepts and roles

For the purposes of the ProCleanLakes Hackathon, the following definitions apply.

2.1. Seeker

A **Seeker** is an organisation or entity that identifies and submits a real innovation challenge related to lake protection, restoration or sustainable management and makes this challenge available to Hackathon participants for solution development.

Seekers may include municipalities and regional authorities, universities and research organisations, environmental NGOs, public agencies, water utilities, lake managers, SMEs and technology providers, as well as civil-society organisations. These categories correspond to those identified in the Hackathon Call for Challenges.

The Seeker therefore acts as the **challenge owner**. Its main function is to clearly formulate the problem, provide relevant contextual information and interact with Solvers when clarification or domain-specific knowledge is required.

For clarity, the term *Seeker* in this Hackathon methodology specifically refers to the entity submitting an innovation challenge.

2.2. Innovation Challenge

An **Innovation Challenge** is a solution-oriented problem or opportunity related to the protection, restoration or sustainable management of European natural lakes for which the Seeker invites participants to propose an innovative and feasible response.

An Innovation Challenge should:

- address a concrete and relevant problem for Pro Clean lakes project;
- clearly explain the environmental, societal, educational or technological context;
- identify the expected impact of a successful solution;
- indicate the main potential users or beneficiaries;
- identify any data, expertise, infrastructure or other resources that may be made available to Solvers;
- be sufficiently focused to allow teams to develop a solution during the Hackathon period, while remaining open enough to encourage creativity.

The Hackathon presentation requires challenge submissions to include a clear description of the problem or opportunity, background and context, expected impact, available datasets/resources/expertise, potential users and beneficiaries, and a contact person capable of supporting the participating teams.

2.3. Solver

A **Solver** is an individual participant or a team of two to five participants who selects one of the published Innovation Challenges and works on developing a proposed solution.

Solvers are the active innovation developers within the Hackathon. They transform the challenge formulated by the Seeker into a structured solution concept and demonstrate its potential through the mandatory **ProCleanLakes Hackathon Solution Canvas** and a visual mock-up or prototype.

Teams may be multidisciplinary and may bring together participants with complementary backgrounds such as environmental sciences, education, technology, artificial intelligence, design, entrepreneurship or communication.

The Solution Canvas explicitly encourages mixed teams and distinguishes backgrounds including higher-education students, researchers, professionals, and other participant categories.

2.4. Mentor

A **Mentor** is a member of the ProCleanLakes consortium who provides methodological, technical, environmental, educational or business-oriented guidance to Solver teams during the solution-development phase.

The Mentor:

- helps Solvers better understand the challenge;
- asks questions that support problem clarification and solution development;
- provides expertise and constructive feedback;
- helps teams identify weaknesses, assumptions or implementation barriers;
- may provide guidance concerning impact, feasibility, users, sustainability and scalability;
- does not prepare the solution on behalf of the team;
- does not evaluate or rank the team that he/she has supported as a Jury Member.

Mentoring must preserve the ownership of the solution-development process by the Solver team.

The Hackathon structure foresees **3 Mentors from consortium partners** and specifies that Mentors and Jury Members must be different persons.

2.5. Jury Member

A **Jury Member** is an independent expert appointed to assess the solutions submitted by Solver teams against the predefined Hackathon evaluation criteria.
Jury Members should have expertise relevant to one or more of the Hackathon themes, such as lake ecosystems, sustainability, environmental management, digital technologies, innovation, entrepreneurship, education or citizen engagement.

A Jury Member:

- reviews the submitted Solution Canvas and supporting materials;

- attends or reviews the Solver presentations during the Hackathon Day;
- applies the same evaluation criteria to all eligible teams;
- scores solutions independently before the final jury deliberation;
- participates in the jury discussion and final consolidation of results;
- declares any actual or potential conflict of interest;
- does not act as Mentor for competing teams.

The proposed Hackathon structure foresees **3 Jury Members from consortium partners**, distinct from the three Mentors.

3. Hackathon management

The Hackathon is organised around a sequence of interactions between the Organising Team, Seekers, Solvers, Mentors and Jury Members.

3.1. Responsibilities of the Organising Team

The ProCleanLakes Hackathon Organising Team coordinates the overall process and acts as the neutral interface among all participants.

Its responsibilities include:

- preparing and publishing the Call for Challenges;
- opening and managing Seeker registration;
- reviewing submitted Innovation Challenges for relevance, clarity and suitability;
- supporting Seekers in refining challenge descriptions where necessary;
- selecting the challenges to be included in the Hackathon;
- publishing the selected challenges;
- opening and managing Solver registration;
- facilitating team formation when required;
- appointing Mentors and Jury Members;
- making the Solution Canvas and participation instructions available;
- coordinating mentoring interactions;
- organising the Hackathon Day;
- collecting the final submissions;
- coordinating the evaluation process;
- communicating results;
- issuing participation and winner certificates;
- connecting winning teams with the subsequent business mentoring opportunities foreseen by the Hackathon.

4. Seeker responsibilities and intervention points

The involvement of Seekers is organised in four main stages.

Stage 1 – Seeker registration

Potential Seekers submit their interest in submitting an Innovation Challenge to Organising Team via e-mail.

At this stage, the Seeker identifies:

- the responsible contact person;
- the broad thematic area of the prospective challenge;
- relevant expertise or resources that the organisation could make available.

Stage 2 – Innovation Challenge submission

The Seeker develops the challenge using the **ProCleanLakes Hackathon Innovation Challenge Template**.

Each challenge should contain:

- **Problem or opportunity**
  A concise explanation of the issue to be addressed.
- **Context**
  Environmental, technological, societal, educational or geographical background necessary to understand the problem.
- **Expected impact**
  What should improve if an effective solution is developed.
- **Potential users and beneficiaries**
  The stakeholders expected to use or benefit from the solution.
- **Available resources**
  Relevant datasets, previous studies, expertise, technologies or other resources that could support solution development.
- **Contact person**
  A representative available to answer questions from the Hackathon organisation or Solver teams.

Stage 3 – Challenge clarification

After challenge selection and publication, the Seeker becomes a resource person for the Solver teams addressing its challenge.

The Seeker may:

- provide additional information;
- clarify technical or contextual aspects;
- explain the needs of potential users;
- answer questions concerning constraints;
- participate in a challenge-clarification session organised by the Hackathon team.

The Seeker should remain solution-neutral: it explains the problem and its context but should avoid prescribing one predetermined solution.

Stage 4 – Post-Hackathon interaction

Following the Hackathon, Seekers may provide feedback concerning the practical relevance of solutions developed for their challenges and, when

appropriate, explore opportunities for further development, validation, piloting or cooperation with Solver teams.

Submission of a challenge does not automatically constitute a commitment by the Seeker to fund, procure or implement a proposed solution.

5. Solver responsibilities and intervention points

Solver participation follows five main stages.

Stage 1 – Registration

Solvers register for the Hackathon after the challenges have been published.

Participants may register individually or as part of a team consisting of 2 to 5 participants.

Multidisciplinary teams are encouraged.

Stage 2 – Challenge selection and team formation

Each Solver team selects an Innovation Challenge from the list published by ProCleanLakes.

Teams should consider:

- their expertise;
- interest in the challenge;
- access to relevant knowledge;
- complementarity of team members;
- feasibility of developing an initial solution within the Hackathon timeframe.

Each team nominates a **Team Leader**, who acts as the primary contact person with the Hackathon Organising Team.

Stage 3 – Solution development

The Solver team analyses the challenge and progressively develops its proposed solution.

During this period, the team may interact with:

- the **Seeker**, primarily for challenge clarification;
- a **Mentor**, for guidance concerning solution development;
- the **Organising Team**, for procedural or administrative questions.

The solution must remain the Solver team's own intellectual and creative work.

Stage 4 – Solution Canvas submission

Each Solver team must complete and submit the official **ProCleanLakes Hackathon Solution Canvas**.

The template requires teams to address the following components:

- **Title of the solution** – maximum 10 words.
- **Target group** – identification of users and explanation of how the solution responds to their learning or engagement needs.

- **Impact** – expected learning and behavioural outcomes and measurable effects.
- **Solution description** – explanation of what the solution does, who uses it, its main features and its intended learning outcomes.
- **Sustainability** – explanation of how the idea could remain relevant after the Hackathon, including a strategy for funding.
- **Teamwork** – team leader, members, roles and complementarity of competencies.
- **Challenge category.**
- **Innovativeness** – explanation of the novel elements and the added value of the proposed approach.
- **Challenge addressed** – identification of the freshwater protection issue and explanation of the contribution to sustainable water ecosystems.
- **Visual mock-up/prototype** – at least one screenshot, drawing or sketch illustrating the proposed solution.

All these requirements are embedded in the participant Solution Canvas, available to solvers after registration.

Stage 5 – Hackathon presentation

Eligible Solver teams present their solution during the Hackathon Day.

The presentation should focus on:

1. the challenge addressed;
2. understanding of the problem and target users;
3. the proposed solution;
4. innovative features;
5. the visual prototype/mock-up;
6. expected environmental and/or societal impact;
7. feasibility;
8. sustainability and further development potential.

Teams should also be prepared to answer questions from the Jury.

6. Mentoring methodology

Mentoring constitutes a support mechanism rather than part of the evaluation process.

Each Mentor may support one or several Solver teams depending on the total number of participating teams.

The mentoring process should preferably contain three steps:

Mentoring Step 1 – Problem–Solution Fit

The Mentor helps the team verify whether:

- the problem has been correctly understood;
- the proposed user or beneficiary is clearly identified;

- the solution responds directly to the Seeker's challenge;
- the team's assumptions are explicit.

Mentoring Step 2 – Solution refinement

The Mentor provides feedback concerning:

- innovativeness;
- user experience;
- environmental relevance;
- technological feasibility;
- availability of necessary data or resources;
- scalability and replicability;
- measurable impact.

Mentoring Step 3 – Final solution preparation

Before submission, the Mentor may review the logical coherence of the proposed solution and help the team prepare to communicate it clearly.

Mentors may suggest improvements but should neither write the Solution Canvas nor design the prototype on behalf of Solvers.

7. Interaction model

The roles are summarised as follows:

Phase	Seeker	Solver	Mentor	Jury
Call for Challenges	Registers	—	—	—
Challenge submission	Formulates and submits challenge	—	—	—
Challenge validation	Clarifies/refines challenge if requested	—	—	—
Challenge publication	Makes challenge available	Reviews available challenges	—	—
Solver registration	—	Registers individually/team	—	—
Team/challenge selection	Available for clarification	Selects challenge	—	—
Solution development	Provides contextual information	Develops solution	Guides team	—
Canvas preparation	May answer challenge-specific questions	Completes Canvas and prototype	Provides feedback	—
Final submission	—	Submits Canvas	—	Receives eligible submissions
Hackathon Day	May attend and observe	Pitches solution	May support presentation preparation but does not evaluate	Evaluates pitch and solution
Selection of winners	—	—	—	Scores and deliberates
Post-Hackathon	May explore further cooperation	May further develop solution	Business/development support may continue	—

8. Solution evaluation

Solutions will be evaluated against the six criteria established in the Hackathon presentation:

1. **Innovation and creativity – max. 20 points**
2. **Environmental impact – max. 15 points**
3. **Technical feasibility – max. 20 points**
4. **Scalability and replicability – max. 15 points**
5. **User relevance and usability – max. 15 points**
6. **Sustainability and long-term value – max. 15 points**

The Hackathon presentation establishes a total of **100 points** and an overall **minimum threshold of 60 points**.

For operational transparency, the precise distribution of the 100 points among the six criteria should be approved by the Hackathon Organising Team and communicated to Solvers before the start of the solution-development period.

Each Jury Member should first evaluate the solutions independently. Scores can subsequently be consolidated and discussed in a jury deliberation session.

In the event of a conflict of interest, the Jury Member concerned should not score the respective team.

9. Selection of winning teams

Only solutions that:

- comply with the participation rules;
- use the official Solution Canvas;
- are submitted within the deadline;
- address one of the published Innovation Challenges;
- achieve the established minimum quality threshold

should be eligible for ranking.

The Hackathon foresees recognition of **1st, 2nd and 3rd place**, while certificates are provided to all participants.

The final ranking is determined by the Jury following consolidation of the individual evaluations.

10. Post-Hackathon pathway

The Hackathon should not be regarded as ending with the selection of the winning teams. Its purpose is also to create a pipeline for further solution development.

According to the proposed structure, winning teams receive:

- a **certificate** recognising their result;
- **three months of free business mentoring** to further develop the proposed solution and transform it into a more mature business or implementation concept through the ProCleanLakes Virtual Incubator and Accelerator;
- **personalised support** in identifying and preparing for potential funding opportunities.

11. Principles governing the Hackathon

The Hackathon should be organised according to the following principles:

- **Transparency.** Participation conditions, deadlines, expected outputs and evaluation criteria are communicated in advance.
- **Equal treatment.** All Solver teams receive equivalent access to procedural information and mentoring opportunities.
- **Challenge relevance.** Challenges must contribute directly to lake protection, restoration, environmental awareness or sustainable management.
- **Solution ownership.** Solvers retain responsibility for the intellectual contribution contained in their solutions, subject to the applicable ProCleanLakes and Horizon Europe provisions.
- **Conflict-of-interest management.** Mentors and Jury Members are different persons, and Jury Members abstain from evaluating teams where an actual conflict exists.
- **Multidisciplinarity.** Teams having environmental, technological, educational, design and entrepreneurial competencies are encouraged.
- **Citizen engagement.** The Hackathon remains accessible beyond the academic community, in line with the Grant Agreement's concept of a social hackathon involving a broader range of stakeholders.
- **Gender and inclusion.** The Grant Agreement explicitly envisages equal involvement of women and men in citizen-engagement activities.

12. Expected outputs and monitoring

At minimum, the Hackathon should generate:

- a portfolio of Innovation Challenges submitted by Seekers;
- a published shortlist of eligible challenges;
- registrations of Solver participants and teams;
- completed Solution Canvas submissions;
- visual mock-ups or prototypes;
- Jury evaluation records;
- identification of the three winning teams;
- participation and winner certificates;
- mentoring pathways for winning solutions;
- communication material documenting the Hackathon;
- evidence contributing to the ProCleanLakes citizen-engagement KPI.

13. ProCleanLakes Hackathon Calendar

Phase	Deadline / Date	Main responsible actor	Expected result
Registration for Seekers	**9 November (extension)**	Seeker	Seeker registration via Google Form
Submission of Innovation Challenges	**9 November (extension)**	Seeker	Completed Innovation Challenge submitted
Publication of selected Challenges	**12 November 2026**	Organising Team	Challenges publicly available
Registration for Solvers	**from 12 November 2026**	Solver	Individual/team registration via Google Form
Challenge selection and solution-development period	**12 November – 8 December 2026**	Solvers, with Seekers and Mentors	Development and refinement of proposed solution
Submission of Solution Canvas	**8 December 2026**	Solver	Final Solution Canvas + visual mock-up/prototype
Hackathon Day	**14 December 2026**	Solvers / Jury / Organising Team	Solution pitches, evaluation and selection of winners
Post-Hackathon mentoring	**3 months after Hackathon**	Winning teams / Business Mentors	Further solution and business-model development