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D2.6.1 EnCLOD Hackathon Common Guidelines

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A detailed strategic and operational manual for the successful conception and implementation of EnCLOD Hackathon events

Guideline

1. Introduction: Defining the Framework for Hackathon Organizing

The organization of a Hackathon is a complex process requiring careful planning, precise implementation, and consistent follow-up activities. This guideline serves as a strategic and operational manual that aims to provide organizers with step-by-step guidance on the preparation and implementation of successful Hackathon events within the EnCLOD project, with an emphasis on achieving measurable impact and long-term sustainability. Each phase, from the initial concept to the activities following the event itself, requires a specific approach and attention to detail, which together shape the value of the solutions created.

2. General terms and conditions

Creating a solid legal and ethical foundation is an integral part of the preparation of any Hackathon. This initial phase is not just a formal requirement, but an active tool for building a trustworthy and fair environment for all involved. In this context, close cooperation with legal experts is recommended to minimise risks and to clearly define rights and obligations. General terms and conditions are detailed in the attached document – Annex I. This document should be published prior to the event on the website of the Hackathon. All participants must agree to the General Terms and Conditions during registration.

2.1 Confidentiality

The protection of confidential information is very important in the Hackathon environment. Clear rules and formal mechanisms, such as non-disclosure agreements (NDAs) for organizers, mentors, and judges, need to be implemented. These should cover sensitive data, information from partners, and unpublished ideas from participants. Participants should be instructed on the importance of respecting confidentiality.

2.2 Intellectual Property Rights

There is a need for a clear and pre-communicated setting of intellectual property rights (IPR) for the results created during the Hackathon. The IP policy should be designed to motivate participants while allowing for effective transfer and exploitation of the results. The participants will be the owners or co-owners of the rights to the created IP. The organizers should provide basic information about the possibilities of IP protection and consider transparent terms for possible licensing agreements if they are interested in exploiting the results. **We recommend** at least a **license agreement in favour of the organizers** to promote the results of the Hackathon, marketing of the event, its results, and the project, which will be part of the General terms and conditions. According to the license agreement, Organizers are permitted to sublicense the rights to other project partners if necessary. Support for open-source solutions may also be relevant, depending on the goals of the Hackathon.

2.3 GDPR

Ensuring full compliance with the General Data Protection Regulation is a priority. This aspect is a sign of respect for the privacy of individuals – participants, mentors, judges, and the organizers themselves. Consistent management of personal data includes a clear definition of the purposes of their processing, identification of the relevant legal basis for each purpose, and strict minimization of the collected data to only what is strictly necessary. Transparency is achieved by providing comprehensive and easily accessible information on processing, while free and demonstrable consents must be obtained for specific purposes, such as marketing communications or the publication of audiovisual recordings. It is necessary for the project partners to adapt legal issues related to the GDPR to the context of national legislation, in case there are differences in this area in the national legal system compared to the EU legislation.

3. Goals

The precise formulation of Hackathon goals is not a one-time act, but a dynamic process that guides all subsequent decisions and serves as a baseline for evaluating its success and impact. Clearly defined goals provide information for the direction of the organizing team, motivation of participants, and transparency for all stakeholders.

3.1 Clearly Define Expected Achievement

Explicitly defining the expected level of specificity and feasibility of results is key. **Within the EnCLOD Hackathons, the primary intention is to develop functional prototypes, such as Proof of Concept (PoC) or Minimum Viable Product (MVP),** that demonstrate technical feasibility and are ready for further testing or pilot implementation; however, the outcomes may also include generating innovative ideas and concepts that are not considered functional prototypes. Focusing on generating a wide range of innovative concepts, ideas, and strategic recommendations that serve as a valuable starting point for further research and development is accepted, but participants must acknowledge that they will not be rated as highly as those who develop a functional prototype. Therefore, the recommended outcome for EnCLOD Hackathons is a prototype that demonstrates technical feasibility and is ready for further testing or pilot implementation. **The recommended outcome for EnCLOD Hackathons is a prototype that demonstrates technical feasibility and is ready for further testing or pilot implementation.**

3.2 Choose a Current and Interesting Theme Connected with the Pilot Area

Selection of a relevant and attractive topic with a direct link to the Pilot Area. The theme should resonate with current societal, technological, or environmental trends, be engaging enough to attract talented and motivated participants, and at the same time be closely and concretely linked to the strategic priorities, identified challenges, and development goals of the specific Pilot Area. This will ensure not only the practical relevance of the resulting solutions but also their higher potential for subsequent implementation and positive impact in the local context. Topics that are too general and do not provide sufficient focus should be avoided, or conversely, topics that are too narrowly specialised and could limit the creativity or interest of a wider range of participants.

3.3 Challenges

The **competitive challenges** themselves are the core of the Hackathon, and their quality formulation is crucial. They must be based on an in-depth analysis of the real needs and problems specific to the Pilot Area, ideally formulated in a participatory way, involving local stakeholders. **The recommended number of 2-3 challenges** allows participants to choose the area closest to their interests and skills, while maintaining a sufficient level of focus and competitiveness and avoiding too much fragmentation of efforts. Each challenge should be formulated according to the SMART principles (Specific, Measurable, Achievable, Relevant, Time-bound) and complemented by sufficient context, a description of the current state, and expected benefits.

3.4 Setting of Challenges – Pilot Area Linked, Communicated with Local Municipalities and Stakeholders

The process of creating and setting up challenges should be highly participatory and collaborative. The active involvement of key local actors in this process will not only ensure that the challenges accurately reflect their priorities and needs but will also increase their engagement, sense of ownership, and willingness to support the subsequent implementation of the winning projects. The challenges should be formulated in a clear, comprehensible manner and should be specific enough to guide the efforts of the teams, while leaving sufficient room for creativity and innovative approaches. **It is essential to support each challenge with specific data that can be used to create a usable solution by the participant, and all data should be linked to the Pilot Area.**

3.5 Actual Problem Analysis – Focused on Pilot Area

The process of defining the challenges is linked to the project activity (D1.2.1) and continues with an in-depth analysis of current and relevant issues, needs, and untapped opportunities within a specific Pilot Area. This analysis should be evidence-based and draw on available studies, statistical data, the region's strategic documents, as well as direct consultations with local experts, representatives of local government, the business sector, and civil society. The aim is to identify those areas where the Hackathon can bring the greatest benefit and where there is a real demand for new solutions.

3.6 Stakeholder Analysis

An essential part of strategic planning by the organizer is an in-depth analysis of stakeholders. This process involves a systematic mapping of all relevant actors, including the public sector (local governments, regional authorities), the private sector (companies, start-ups, investors), academia (universities, research institutions), the non-profit sector, and wider civil society. For each identified group of stakeholders, it is necessary to analyse their interests, expectations, potential impact (both positive and negative) on the Hackathon, and their ability to contribute to its success (e.g. by providing data, expertise, mentoring, sponsorship, venue, or as future users of the solutions). For this purpose, it is appropriate to **use the information and data that have already been collected within the EnCLOD project**.

A specific engagement strategy for each key group, defining the form of cooperation, communication channels, and mutual benefits within the EnCLOD project, has already been developed as part of the comprehensive Communication Strategy (D1.5.1), available at: https://drive.google.com/drive/folders/1wJKHdELB5Qc9ekcwLP6iD4eUcTmhsLod. High-quality cooperation at the Hackathon can be the basis for the subsequent formalization of partnerships in the form of memoranda of understanding and cooperation to ensure the sustainability of cooperation.

3.7 Broad or Very Specific Theme

There are several factors to consider when deciding on the degree of specialisation of a topic. A broadly conceived theme, such as 'Innovations for Sustainable Urban Development', may attract a more diverse range of participants and generate a wider range of innovative ideas across different sectors. On the other hand, however, it can lead to less depth of individual solutions and make it difficult to maintain focus. On the contrary, a highly specific topic, such as "Optimization Urban Public Transport using AI in Pilot Area XY", allows for a deeper dive into a specific issue and the creation of more detailed and directly implementable solutions, but may narrow the range of potential participants and limit the breadth of creative approaches.

A proven compromise may be an "overarching theme" model with several specific, well-defined sub-challenges that provide some focus but also allow for a certain degree of flexibility. The final decision should be the result of a thorough discussion within the organizing team, taking into account the specifics of the local context, available resources and expertise, as well as the expected outcomes of the Hackathon.

4. Organizer

The effectiveness and success of a Hackathon are directly dependent on the quality, competence, and synergy of its organizational team. This team is not just an administrative background, but a dynamic force that shapes the vision, manages the processes, and creates an environment for innovation. Building a high-performing team with clear leadership, defined responsibilities, and a culture of proactive collaboration is therefore essential.

4.1 Organization Team Composition

The optimal composition and structure of the organizational team requires careful selection of members with the necessary skills and experience. The Core Team should be made up of individuals with full responsibility for the key areas: the Lead Organizer or Project Manager responsible for overall coordination, planning and risk management; Marketing and Communication Manager providing promotion and external communication; Technical Leader overseeing IT infrastructure and technology support; Partnerships and Sponsorship Manager responsible for fundraising and relationship building; Staff/Crew Coordinator; and the Volunteer Coordinator, if volunteers are also planned to be involved. **The individual roles should be covered by the staff teams of the project partners or external facilitators contracted for the organization of the Hackathons. It is recommended that partners assess their capacities and, if needed, use external support to ensure the smooth and effective running of the event.**

The team members listed above may combine multiple areas, especially if the Hackathon has fewer challenges or fewer participants. For operational tasks during the Hackathon itself, such as registration, on-site technical support, logistics, or assistance to mentors and juries, it is advisable to involve a wider team of well-trained and instructed volunteers. Not only expertise is crucial, but also strong soft skills of team members, such as effective communication, the ability to solve problems, and working under pressure. Enthusiasm for the topic of the Hackathon and intrinsic motivation to contribute to its success are equally important.

4.2 Engage Various Experts

Identifying areas where the team's internal capacities are insufficient and the subsequent **strategic use of external expertise** can significantly increase the quality of preparation and implementation. External

experts can act in a variety of roles – as consultants on specific issues (e.g. legal aspects, GDPR), advisory board members providing strategic guidance, lecturers in expert workshops, or even as temporary team members for highly specialized tasks. When selecting external experts, it is important to focus on their proven track record and relevant experience in the field.

4.3 Facilitator

The facilitator is a key figure in a Hackathon who can significantly influence its success and atmosphere. His/her task is to ensure a smooth, efficient, and positive running of the entire event for all participants, from participants to mentors to the jury and organizers. He/she is not a content expert on the problems to be solved (these are mentors), but an expert on the process, group dynamics, and communication. The selection of a facilitator must take place before the event itself.

4.4 Task Allocation

Effective **management of tasks and responsibilities** is essential for the smooth running of preparations. Developing a detailed project plan with clearly defined activities, tasks, deadlines, and assigned responsibilities is crucial. The use of modern project management tools (e.g. Asana, Trello, Jira) can greatly facilitate progress tracking, internal communication, and sharing of relevant documents. Regular operational organisational team meetings with a clear agenda and focus on solving current challenges and monitoring task performance are key to maintaining momentum and early detection of potential problems.

4.5 Involvement of external entities in co-organization

When considering the **involvement of external entities in co-organization**, a thorough analysis of the potential benefits and risks must be carried out. **Cooperation with local governments is mandatory** within the EnCLOD project. Cooperation with entities outside the project is at the discretion of each organizer. However, such cooperation with universities, industrial partners, or non-governmental organizations can bring benefits such as access to unique data sources, expert knowledge, financial resources, venues, as well as increased legitimacy and reach of the Hackathon and its better connection to the local innovation ecosystem. On the other hand, it may also bring risks related to loss of flexibility, different priorities of individual partners, or a more complex decision-making process.

Therefore, within the EnCLOD Hackathons, we will distinguish between the term "**Organizer**", referring to an entity involved in the EnCLOD project, and the term "**Co-organizer**", referring to entities outside the project, such as industrial partners, non-profit organizations, and similar stakeholders.

If the organizers opt for a co-organisation model, it is advisable to formalise this relationship through a written agreement (e.g. a Memorandum of Cooperation) that clearly defines the roles, responsibilities, contributions, decision-making method, conflict resolution mechanisms, and principles for sharing results. For more complex partnerships, it may be useful to establish a Steering Committee, composed of representatives of all key co-organizers, which will be responsible for strategic guidance and oversight of the implementation of the Hackathon.

5. Form: Format and Technical-Organization Support

The choice of the most suitable Hackathon format is a strategic decision that must be in line with its main objectives, the characteristics of the target group of participants, the available budget, and technical-organizational capacities. Each format – presentational, online, or hybrid – brings specific benefits and

challenges. Personal attendance is preferred for EnCLOD Hackathons. However, it is also necessary to consider the possibility of an online or hybrid Hackathon in the event of certain restrictive epidemiological conditions or a challenging political and social situation.

5.1 Personal Attendance

Personal attendance is the preferred form for EnCLOD Hackathons. The presentational format traditionally offers the most intense experience and optimal conditions for direct teamwork, spontaneous creativity, and immediate networking. It allows for personal interaction with mentors, judges, and other participants, which strengthens the community aspect of the event and the energy that comes from working together in one place. However, this format places high demands on logistical support, including the selection and preparation of suitable physical premises, technical equipment, catering, and potentially accommodation for non-regional participants.

5.2 Online

The virtual (online) format has become particularly relevant in recent years and offers significant advantages in the form of overcoming geographical barriers, which makes it possible to reach a wider and potentially international audience of participants and experts. It also significantly reduces the costs associated with renting space for the venue and travel. On the other hand, it requires a robust online platform, a well-thought-out strategy for maintaining participant engagement in the virtual environment, active online communication, and team collaboration. Building team chemistry and informal relationships can be more challenging in an online environment.

5.3 Hybrid

The hybrid (combined) format seeks to synergistically combine the advantages of in-person and online approaches. For example, it can enable physical participation for local teams and the community, while remote participants, international mentors, or judges join virtually. However, this format is the most demanding from a technical and organizational point of view, as it requires seamless integration of online and offline elements, ensuring quality streaming, interactive tools to connect both groups, and guaranteeing the same experience and access to information and support for all participants.

5.4 Choose a Reliable Platform

For online and hybrid formats, **choosing a robust and functional online platform is crucial**. The platform should provide a comprehensive set of functionalities supporting all aspects of the virtual Hackathon: high-quality video conferencing and screen sharing for presentations and workshops, chat features for team and overall communication, breakout rooms for parallel team work and mentoring sessions, tools for file sharing and co-working on documents, and ideally also features for voting, Q&A, or integration with other tools (e.g. project management). User-friendliness, stability, security, and availability of technical support from the platform provider, as well as branding and platform customization options to the Hackathon's visual identity, are also important.

5.5 Technical Arrangements

Regardless of the chosen format, **reliable technical and organizational security is an absolute priority**. This includes, above all, a stable and high-speed internet connection with sufficient capacity for all

participants and possible streaming. It is essential to ensure access to the necessary software tools, platforms, and licenses. Especially for the virtual and hybrid form, a communication platform (e.g. Discord, Slack, MS Teams) with clearly defined channels and rules of use is crucial, serving as a central point for interaction between teams, organizers, and mentors. Reliable technical support must be available throughout the duration of the Hackathon, ready to deal with any sudden issues. It is also necessary to thoroughly test all equipment and platforms before the event, along with the preparation of backup plans in case of technical failures. The user-friendliness of the tools chosen and the provision of adequate instructions and training contribute to the smooth running of the Hackathon. In the case of a presentation format, it is necessary to provide enough rooms for the teams and sufficient hardware equipment, such as electrical outlets, extension cables, projectors, and sound systems. Security of data and communication on the platforms used is equally important.

6. Participants

Participants are the heart and soul of any Hackathon; Their talent, motivation, diversity, and commitment directly affect the quality, originality, and potential impact of the solutions created.

Participants are required to agree to the General Terms and Conditions of the Hackathon and to fill in the necessary forms regarding participation in the Hackathon. By agreeing to the General Terms and Conditions, they agree to behave respectfully towards other participants, judges, the organizing team, and other persons involved, as well as to respect the rights of others.

6.1 National/International

When deciding on a geographical scope, it is necessary to consider its strategic implications. International participation can enrich the Hackathon with a wide range of perspectives, cultural approaches, and expertise, thereby increasing the potential for innovation. At the same time, however, it brings higher demands in the field of communication (language barriers), organization (time zone management for online or hybrid formats), and possibly administration (visa requirements). The organizer should carefully consider whether the Hackathon will be conducted in the national language, in English, or a combination of both variants will be allowed. The last option will allow a large number of people to participate, but it will be more complicated organizationally. If only English is used, there is a high probability that this will discourage many local people from participating in the Hackathon. **It is preferable for EnCLOD Hackathons to be held locally, involving regional and national stakeholders.**

6.2 Participant Selection

In the case of limited capacity, implementing a **transparent and fair participant selection process** is key to ensuring the quality and relevance of the participant base. This process should be based on pre-defined and clearly communicated criteria, such as relevant technical and soft skills, demonstrated motivation and interest in solving specific challenges, previous experience, and potential benefits to the team. Structured applications can help with the selection. Ethical communication with unsuccessful applicants is also important. The decision on the maximum number of participants is the responsibility of the local organizer, while it should reflect the available capacities and goals of the event, as well as the optimal ratio of participants to mentors.

It is also important to consider the age of the participants. Participants under 18 years old should have the consent of a legal guardian, especially since Hackathons often run late into the night and usually involve pressure to deliver results within a limited time. It is necessary to keep in mind the safety and health of

younger participants, the protection of personal data for participants under 18 years old (GDPR), liability for damage to property, technology, and the health of these participants, as well as the fact that they may need more support and mentoring during the Hackathon. Therefore, when deciding on the involvement of participants under 18 years old, it is necessary to address these matters in the GDPR compliance, the registration form, and, of course, include them in the General Terms and Conditions.

6.3 Consider Diversity and Team Variety

Active promotion of diversity in the composition of participants and teams is not only an ethical imperative but also a strategic advantage. Teams with a diverse representation of skills (e.g. programmers, data analysts, UX/UI designers, business and marketing experts, domain experts), gender, age, cultural and educational backgrounds often generate more innovative and comprehensive solutions. In case of insufficient representation of participants from various categories, the organizers should make an effort to attract participants, for example, from start-ups, local municipalities, etc. Organizers should create a welcoming environment where everyone feels welcome, respected, and can reach their full potential.

6.4 Stakeholder Involvement as Participants

Representatives of local governments and other stakeholders are directly involved in the EnCLOD project Hackathon, thereby providing teams with unique added value. Employees of local governments, experts from companies operating in the relevant sector, or representatives of the communities for which the solutions are developed provide teams with invaluable practical insights, access to specific information, and facilitate the subsequent adoption and implementation of the proposed solutions.

Competition teams composed directly of employees of **local governments, stakeholders, and small and medium-sized enterprises (SMEs) are highly welcomed. Companies operating in the field of territorial development or urban planning** are the most important participants for the EnCLOD approach, and their **participation** in local Hackathons **is considered mandatory.**

6.5 Consider Number of Participants

Within the EnCLOD Hackathons, the recommended minimum number of teams is 6. Optimizing team size is important to ensure effective collaboration and team dynamics. Teams that are too small may suffer from a lack of necessary skills or capacity, while teams that are too large may face challenges in internal communication, coordination, and decision-making. **The recommended team size (typically 3-5 members)** should allow for an efficient division of labour, sufficient diversity of skills, and at the same time, flexible interaction.

6.6 Prepare Registration Form to Collect Basic Information

Preparing a **comprehensive and GDPR-compliant registration form** is essential to obtain all the necessary information from applicants. The form should have a logical structure, clear instructions and should collect contact details, demographic information (considering the GDPR and the purpose of processing), an overview of skills and experience, preferred challenges or thematic areas, information about any existing team and explicit consents to the General terms and conditions of participation and to the processing of personal data. Also important is a section for individual participants looking for a team, where they can describe their skills and preferences.

For EnCLOD Hackathons, we recommend online registration, but direct registration is also possible. The registration form will be available on the website. As part of the registration form, the organizer should inform potential participants in detail about the procedures and support activities (both pre-Hackathon and early Hackathon) that will ensure the effective integration of individually registered applicants and help them find optimal partners to form a competitive team, thus maximizing the use of the talent of all participants.

6.7 Teambuilding Support and Individual Stakeholder Management

With many talented individuals signing up for Hackathons without a pre-formed team, implementing **proactive strategies to support teambuilding and manage individual participants** is crucial. Organizers should see individuals as a valuable source of potential for creating new, dynamic, and often very innovative teams. This includes providing pre-Hackathon online tools and platforms for networking and communication or organizing virtual "ice-breaking" or "matchmaking" events, or allocating sufficient time and space for a networking block at the very beginning of the Hackathon. During this block, individuals can briefly present ("pitch") their ideas or skills and actively seek out teammates. Organizers and mentors should play an active role in this process, helping to introduce and connect people with individual profiles.

7. Venue – Place and Dates

Careful and strategic planning of the venue, the choice of date, and a detailed time schedule are the basic prerequisites for creating a productive, motivating, and seamless environment that allows participants to fully focus on creative work and achieving the set goals of the Hackathon. **In the EnCLOD project, Hackathons should primarily be organized at universities that will provide strategic venues**, and at most partners, these venues will be provided free of charge.

7.1 Choose a Suitable Date

The strategic choice of event dates can be more complicated than it first appears. A thorough analysis of potential date conflicts with other relevant events, such as professional conferences in the field, other Hackathons or technology competitions, major regional or national events, and public holidays, that could negatively impact participation, is required. At the same time, it is important to consider the specifics of the target group – for example, the academic calendar in the case of students' focus, or typical work cycles and vacation periods for professionals. In some regions, climatic conditions may also play a role, especially in the presentational format. It is also crucial to verify the availability of important personalities, such as main mentors, judges, or key partners, whose participation is beneficial for the hackathon.

7.2 Consider Sufficient Capacity and Technical Infrastructure

The **selection and preparation of the optimal space for the presentation format** are critical to creating a stimulating and functional working environment. The space should not only meet the capacity requirements for the expected number of participants but should also be flexible enough to allow for different types of activities – from intensive teamwork, through presentations and workshops, to relaxation and informal networking. Aspects such as high-quality natural and artificial lighting, effective ventilation and air conditioning, furniture (tables, chairs), a sufficient number of easily accessible electrical sockets, and extension cords are important. Of course, there is a robust technical infrastructure, especially a reliable and high-speed Wi-Fi connection with the capacity to handle the load of all connected devices. Good

transport accessibility of the venue, parking options, and possible wheelchair access are also not negligible. The safety of the venue and participants must be a priority.

7.3 Make your Hackathon Attractive if you Have an Interesting Place in your Region

If the area has unique or inspiring spaces, using them to **increase the attractiveness of the Hackathon** can be a significant added value. Genius loci, i.e., the specific atmosphere and character of a place (e.g. historic buildings with modern equipment, innovative technology parks, spaces with a view or close to an inspiring natural environment), can positively influence the creativity and overall experience of the participants. Such places should be actively used in marketing communication.

7.4 Create a Detailed Timeline of the Entire Process (Comprehensive Project and Event Schedule)

The basis for successful implementation is the **development of a detailed timeline of the entire process**, which covers all phases of the Hackathon with clearly defined milestones, responsibilities, and deadlines. This comprehensive project and event schedule should be divided into at least three main phases:

- **Pre-Hackathon (Preparatory phase – e.g. W (-12) to W (-1) week):** This phase includes all activities from the initial concept to the final preparations just before the launch. A detailed plan for each key area (marketing and communication, logistics, technical support, content preparation of challenges and data, partner and sponsor management) is essential. Subsequently, meetings of the project team are necessary to monitor the fulfilment of individual tasks. Within the EnCLOD Hackathons, it is necessary to follow the communication guidelines developed by AIDA+ for public events (Guidelines Activity 2.7), which include instructions for internal and external communication. It is also necessary to develop a risk management plan that identifies potential threats and prepares crisis scenarios. Example framework of activities in this phase:

  - ☐ **W (-12) to W (-8) weeks:** Finalizing the overall concept, topic, and main goals of the Hackathon; assembling the key organizational team and defining the roles; initial research and reaching out to strategic partners and potential sponsors; creating a framework budget.

  - ☐ **W (-8) to W (-4) weeks:** Intensive marketing campaign and launch of the official Hackathon website; opening of registration for the participants; active outreach and confirmation of key mentors and judges; final selection and provision of the venue (for presentational format) and technology platform (for online/hybrid format).

  - ☐ **W (-4) to W (-1) week:** Selection process and confirmation of participation for selected participants; finalization of the detailed Hackathon program; preparation and distribution of information materials for the participants; publication of final details about the competition challenges and data sets provided; thorough technical preparation and testing of all systems and platforms.

- **During the Hackathon (Implementation Phase - typically 48-56 hours):** This phase requires a precise timer and dynamic management. The program should include: the official opening of the event with the presentation of all relevant information; block for team formation; intensive blocks for teams to work on solutions; regular mentoring sessions; a series of complementary workshops and lectures; ongoing informal check-ins with organizers or mentors to track progress; a clearly defined deadline for the submission of projects; block of final presentations (pitching); jury meeting and evaluation of projects; winners announcement and award ceremony; a final word and space for informal networking. It is important to retain some time flexibility for dealing with unexpected situations and to ensure effective coordination of the organizational team on site (or in a virtual space).
- **Post-Hackathon (Follow-up and Sustainability Assurance - W (+1) week and beyond):** Follow-up activities are key to maximizing the long-term impact and value of the Hackathon. This phase should include: the systematic collection and analysis of feedback from all parties involved; internal evaluation of the event and processing of "lessons learned" for future improvements; active communication of the results and successes of the Hackathon to the public and stakeholders; and above all, the implementation of a strategy to support the most promising projects and teams. A plan for maintaining and developing the created community should also be included.

8. Data

The quality, relevance, availability, and correct interpretation of data, together with precisely formulated and motivational challenges, represent absolute fundamental prerequisites for Hackathon participants to be able to create truly valuable, innovative, and potentially implementable solutions.

It is necessary to transparently specify the origin, type, format, and ownership of the datasets provided. Clearly defined license terms, restrictions on use (e.g. exclusively for Hackathon purposes), and requirements for anonymization or pseudonymization of sensitive data are a priority. Organizers must ensure secure access to datasets and the quality of data. Providing detailed data documentation, access via API interfaces (if possible), and providing expert support when working with data significantly increases the potential for quality solutions. Ethical guidelines for working with data are an integral part of a responsible approach. In the case of non-open data, it is necessary to specify usage restrictions, for example, limited to the given event only.

8.1 Data Inventory

An essential part of the preparation is a systematic inventory, preparation, and management of data. This process involves several key steps:

- **Identification and acquisition of data sources:** Thorough mapping and collection of all available and relevant datasets – whether it is open data from public portals, **data generated within the EnCLOD project itself**, data provided by partners and sponsors, or other potential sources.
- **Quality assessment and data cleaning:** Critical assessment of the quality of individual datasets in terms of their completeness, accuracy, consistency, timeliness, and relevance to defined challenges. If necessary, it is essential to ensure that they are cleaned, transformed, and pre-treated so that they are in a usable condition.

- **Formatting and standardization:** Prepare data in standardized and easily processable formats (e.g. CSV, JSON, GeoJSON, access through well-documented API interfaces) that are compatible with commonly used analytical and development tools.
- **Creation of comprehensive data documentation:** For each dataset, it is necessary to create understandable documentation (metadata), which includes a description of the origin of the data, methodologies for their collection, definition of individual variables (data dictionary), explanation of coders, identification of known limitations or biases of data and examples of their possible use or analysis.
- **Definition of terms of use and license restrictions:** For each dataset, the license terms and any restrictions associated with their use must be clearly and transparently defined (e.g. restriction only for non-commercial purposes of the Hackathon, requirements for attribution of the source, prohibition of further redistribution). Ensuring full compliance with the GDPR and other relevant legislation is key, especially when working with data containing personal or otherwise sensitive information.

8.2 Revision of Challenges due to Data Analysis

After a thorough analysis of the available data sources and their quality, it is important to carry out an iterative revision and possible modification of the formulation of the challenges. The aim is to ensure that challenges are realistically solvable with the data sources provided and to maximise the potential for the creation of data-driven and relevant solutions.

8.3 Make Available Data before Hackathon Opening on the Website

The key is to make the prepared datasets available to registered participants in a timely manner. Providing these materials well in advance of the official start of the Hackathon (ideally at least one week) will allow them to thoroughly familiarize themselves with the issue, analyse data, start forming teams, and develop initial ideas and concepts for solutions.

8.4 Pilot Area Data Availability for Other Pilot Area Hackathons

A strategic issue to consider in the context of a project involving multiple Hackathons is the possibility of sharing data generated within the EnCLOD project of individual Pilot Areas or project partners between Hackathons. Such an approach, provided that legal and ethical constraints (e.g. anonymisation, aggregation) are respected, can bring a significant synergy effect. It allows for comparability of solutions developed in different contexts, the identification of best practices, and the wider use of valuable data sources, which could increase the overall impact of the project. Two problems have been identified: Firstly, the data may not be ready due to the project partners running the Hackathon at different times. Secondly, there is a possible preference for local challenges connected to the Pilot Area. **For EnCLOD Hackathons organizing is recommended to use data from the local Pilot Area.**

9. Budget

Precise and realistic financial planning, together with consistent monitoring of expenses, is a basic prerequisite for financial sustainability and the successful implementation of the Hackathon. Efficient management of available resources is key to the fulfilment of all planned activities and goals.

9.1 Cover All Expenses

The first step is **comprehensive cost planning**, which includes the creation of a detailed and structured budget covering all anticipated direct and indirect expenses associated with the organization of the event. It is important to identify all potential cost items and realistically estimate their amount. The main cost categories typically include:

- **Venue and logistics: Partners should be able to use the venue "free of charge" and pay only the real costs related to the implementation. If this is not possible for the EnCLOD Hackathon organizer, these costs need to be included in the budget:** Costs of renting suitable premises (if it is a personal or hybrid form), including utility charges, cleaning services, technical support of the venue (e.g. stage, lighting, sound system), and administrative permissions, if applicable.
- **Technical equipment and infrastructure:** Costs of renting or purchasing the necessary audiovisual equipment, IT equipment (computers, monitors, printers), software licences, provision of high-speed internet connectivity, or specialised technological platforms.
- **Catering and refreshments:** Costs of ensuring quality and sufficient meals (breakfast, lunch, dinner) and refreshments (coffee, tea, water, snacks) for participants, organizers, mentors, and the judges throughout the duration of the Hackathon.
- **Marketing, promotion, and communication materials:** Expenses related to the creation and distribution of promotional materials (online graphics, videos, printed materials – posters, leaflets, brochures), costs of targeted online advertising, PR activities, and possible cooperation with the media.
- **Prizes and rewards:** Funds to provide financial and material prizes for the winning teams, as well as the cost of producing trophies, diplomas, and certificates of participation.
- **Costs of human resources and external services:** Remuneration, fees or travel costs for external experts, consultants, workshop lecturers, the facilitator, professional technical support, photographers or videographers.
- **Travel and accommodation expenses:** Travel and accommodation coverage, if any, for key guests, distinguished mentors or judges, especially if they come from other cities or countries.
- **Administrative and overhead costs:** Miscellaneous operating costs such as postage, office supplies, bank fees, event insurance, and other unforeseen expenses (it's advisable to have a reserve in your budget).

9.2 Seek Sponsors in Advance for Budget Planning

In parallel with cost planning, **proactive fundraising and strategic addressing of sponsors are essential**. Identifying and addressing potential sponsors – whether from the commercial sector (companies relevant to the topic of the Hackathon, technology companies), public institutions, or foundations – should start well in advance of the event itself. It is important to prepare professional and attractive sponsorship packages that offer different levels of partnership and adequate benefits for sponsors (e.g. visibility of the logo, the possibility of presenting products/services, participation of a representative in the jury, access to talented participants and innovative ideas, PR).

9.3 Awards

Prizes and forms of awards should be conceived as a comprehensive system of motivation and support, going beyond financial remuneration. The specific form of the prizes is in the competence of local organizers, who should consider their financial capabilities and the specifics of the target group. In the context **of a prize and reward financing strategy**, it is important to clearly define resources. It is recommended to diversify these resources, combining funds from the project budget with contributions from the sponsors.

9.4 A Mix of Financial and Non-financial Prizes Needs to be Considered

The focus should be on creating a prize package that is not only financially attractive and provides real added value and support for the further development of the winning projects, as well as the personal or professional growth of the participants. This means considering a combination of direct financial rewards (recommended is 3,000 EUR for the winning team, 2,000 EUR for second place, 1,000 EUR for third place), with non-financial benefits, such as access to specialized mentoring, opportunities in incubation or acceleration programs, the possibility of obtaining seed capital, internships in partner companies, or support in the pilot implementation of the solution.

10. Marketing, Sponsors, Communication

An integrated, targeted and effective marketing and communication strategy is crucial to achieve optimal participation, to attract relevant sponsors and partners, and to build a positive reputation and visibility of the Hackathon.

10.1 Promotion - Website, Social Media, PR, and Media

The basis is **a multi-channel promotional strategy** that uses the synergy effect of different communication tools:

- **Professional website: The organizer of the EnCLOD Hackathon uses their own website for organization and communication, and the official project website for international reach.** The website should serve as a central information hub, providing all the key information: a detailed description of the Hackathon, objectives, topic, challenges, data information, schedule, rules of participation, online registration form, profiles of organizers, mentors and judges, information about partners and sponsors, FAQ section and contact details.
- **Strategic use of social media:** It is essential to develop a detailed content strategy for social media, actively use the platform that is most relevant to the target audience (e.g. LinkedIn to reach the professional and academic community, Facebook and Instagram to reach out more broadly audience and to build a community, Twitter for quick updates and interaction with influencers), regular publication of engaging content (stories, videos, graphics, interviews with organisers/mentors), organising competitions and using targeted advertising to increase outreach. For this purpose, we can use the practical experience of the organizers, as well as the communication and dissemination plan developed within the EnCLOD project and used by all partners for project activities.

- **Partnership and cross-promotion:** It is necessary to establish active cooperation with universities, student organizations, technology communities, professional associations, local municipalities, and other relevant organizations to jointly disseminate information about the Hackathon and reach their membership base.

Organizers must proceed in accordance with the already developed communication and dissemination strategy for the EnCLOD Hackathons.

10.2 Communication with Participants – Regularly Inform about News

Systematic and **proactive communication with participants** throughout the Hackathon's lifecycle is essential. It is important to implement a plan for regular and targeted communication with registered and potential participants. Personalized emails, newsletters, updates on social networks and the communication platform can be used to inform in a timely manner about all important deadlines (e.g. registration deadline), changes in the program, publication of datasets and details of challenges, introductions of mentors and judges, as well as other relevant news and logistical instructions.

11. Jury, Mentors

The quality, expertise, commitment, and diversity of mentors and judges fundamentally affect the value that participants will take away from the Hackathon, as well as the credibility and fairness of the evaluation process.

11.1 Judging Criteria

The evaluation process of the resulting projects must be based on pre-defined and published **evaluation criteria** that are **clear, measurable, and objective**. These criteria should comprehensively cover the innovativeness of the solution, its technical feasibility and prototype quality, potential impact and relevance to the challenge, sustainability and scalability, as well as the quality of the final presentation and business potential. Assigning weights to individual criteria and using detailed scoring tables helps minimize subjectivity. It is also important to provide constructive feedback for all teams.

11.2 Find Mentors Helpful for the Participants due to their Professional Background – Online and Offline

Careful selection and diversification of mentors is key. Identify and actively reach out to a sufficient number of qualified and experienced mentors with a diverse focus that comprehensively covers the needs of participants. Ideally, it should be a mix of experts for:

- **Technical aspects:** Programming languages and technologies relevant to challenges, data analysis and visualization, artificial intelligence, UX/UI design, and hardware development.
- **Business skills:** Creation and validation of business models, marketing strategy, financial planning, intellectual property protection, and legal aspects of business.

- **Experts in the field:** Deep expertise in the thematic area of the Hackathon and the specifics of the competitive challenges.
- **Experts from the EnCLOD projects:** Deep expertise in data collected via EnCLOD project in the Pilot Areas.
- **Presentation skills and pitching:** Ability to advise on creating and delivering an effective pitch.
- Make them available for consultations throughout the duration of the Hackathon, whether online or offline, depending on the format of the event.

11.3 Data Knowledge and Entrepreneurship Experience

The **recommended competencies of mentors** include not only top expertise in their specialization, but also practical experience in the business environment, with the establishment and development of startups, as well as familiarity with the provided datasets, knowledge of working with data, and the specifics of the challenges of the Hackathon. The ability to provide constructive, critical, yet supportive feedback, ask the right questions, and guide teams effectively without suggesting solutions directly is key.

11.4 Prepare Time Slots for Mentoring

For the **effective organization of mentoring**, it is advisable to plan structured time blocks during which teams can sign up for consultations with specific mentors according to their expertise. At the same time, it is important to allow flexibility for ad-hoc consultations according to the acute needs of teams. Consider implementing an online booking system for mentoring slots or communication channels for individual mentors.

11.5 Jury - 3 or 5 members

The optimal composition and size of the jury should be **3 or 5** respected and independent experts with a diversified profile to ensure the comprehensiveness and objectivity of the evaluation. An ideal mix may include representatives of technology companies and industry, investors and venture capital, academia, subject matter experts, and possibly representatives of the public sector or non-profit organizations.

To **ensure the independence and objectivity of the jury**, it is necessary to strictly adhere to the principle that jury members must not also be mentors for the competing teams during the Hackathon. This prevents any potential conflict of interest or suspicion of bias and strengthens trust in the fairness of the evaluation process.

11.6 Engage a Jury Member from Local Municipalities

The involvement of representatives of local governments in the jury is mandatory for EnCLOD Hackathons. It increases the connection of the Hackathon with the real needs and priorities of the site, increases the credibility of the evaluation in terms of practical implementation of solutions, and potentially may increase the interest of the local government in cooperation in piloting or implementing winning projects.

11.7 Prepare Criteria for Judging the Projects and Settle Voting Process

Thorough preparation of the jury and the definition of a transparent evaluation process are crucial. Before the final presentations, it is necessary to familiarize all members of the jury in detail with the pre-defined and clearly communicated evaluation criteria, their weights, the scoring system (e.g. the use of standardized evaluation sheets), and the exact procedure for deciding and selecting winners. For the EnCLOD Hackathons, the **following evaluation criteria have been proposed**:

- Problem Analysis (quality of data analysis, accuracy of the conclusions),
- Idea (relevance, innovativeness, social return, reproducibility to similar context, user-friendly, short-term implementation potential, technical quality, economic viability),
- Presentation and clarity (presentation, explanation, quality of the answers from the jury).

Jury evaluation could be done online by an Excel table or on paper, depending on the skills of the Jury members. For the table written or online, use EnCLOD template (**Annex III**). It is advisable to adapt the template to the conditions of the particular EnCLOD Hackathon and select the evaluation criteria offered in the template.

12. Program (Structure Content of the Hackathon)

A well-thought-out, dynamic, and balanced program is the absolute key to maintaining high energy, motivation, creativity, and productivity of participants throughout the intense duration of the Hackathon. The program should provide not only enough time for teams to work, but also space for learning, networking, and regeneration.

12.1 Hackathon Duration from 48 – 56 hours (mostly 48 hours)

The optimal duration of the Hackathon is usually in the range of 48 hours, which typically corresponds to two full days of intensive work (for example, from Friday evening to Sunday afternoon or evening). This time frame provides enough space for in-depth work on projects, from the initial idea to the development of the prototype and the preparation of the final presentation, but at the same time, it is not disproportionately long so as not to cause extreme exhaustion of the participants. Flexibility between 48 and 56 hours allows adaptation to local specifics and schedules.

12.2 Opening Presentations – Explain Rules, Schedules, Data, and Challenges

The informative and motivating opening of the Hackathon is the moment that sets the tone for the whole event. The Hackathon is set to begin with a dynamic and engaging introductory block, which includes not only a formal welcome to the participants but also an introduction to the organizing team, key partners, and sponsors. It is necessary to explain in detail and comprehensibly all the rules of the competition, the time schedule of individual blocks, the final competition calls (with possible specification from their sponsors), the available datasets, and the method of access to them. Not forgetting to introduce the team of mentors with their expertise and how participants can benefit from their support, as well as the composition of the jury and the main evaluation criteria. Sufficient time should be set aside to answer all introductory questions from the participants.

12.3 Information Materials - Provide Participants with all Information and Contacts

To ensure a smooth running and easy orientation of the participants, it is important to prepare a **comprehensive information package**. This package, whether in digital form (e.g. on a Hackathon platform, website or shared repository) or in printed form, should contain all the key information: a detailed Hackathon program with a timetable, the exact wording of the competition rules, important contacts to the organizers and technical support, a list of mentors with their specialization and availability, a detailed description of the challenges and access to datasets, access data to online platforms and Wi-Fi, and possibly also a map of the premises (in the case of personal format).

12.4 Schedule of Project Work - Create Timeline, Check-ins, Milestones to Monitor Progress

A structured framework for teams to work **should be designed** to help them manage time and effort effectively. This framework can include recommended phases of the project, such as initial ideation and brainstorming, deeper analysis of the problem and validation of the idea, design of the solution architecture, prototype development itself, continuous testing, and finally, the preparation of the final presentation. Implementation of short, informal "check-ins" with organizers or assigned mentors at regular intervals (e.g. every 4-6 hours) is advised to monitor the progress of the teams, identify potential problems or blockers in a timely manner, and provide the necessary support and guidance. Defining clear milestones can also help teams stay on track.

12.5 Consultations - Consulting with Mentors and Experts

Maximizing the benefits of mentoring is one of the biggest benefits for the participants. It is important to allocate sufficient and well-distributed time blocks in the program, specifically designed for team consultations with mentors. It is essential to encourage a proactive approach by teams to the use of mentoring support and to ensure that teams have access to mentors with relevant expertise for their specific needs. In addition to the planned blocks, it is recommended to allow flexibility for ad-hoc consultations.

12.6 Additional Activities - Workshops and Lectures to Enrich Participants

It is desirable to include additional educational and development activities in the form of short, targeted workshops or inspiring lectures in the program. These activities should provide participants with practical skills and knowledge that they can directly apply when working on their projects, and which also represent the added value of participating in the Hackathon itself. Particularly recommended are workshops focused on:

- **"How to Pitch/Effective Presentation Skills":** Practical practice in creating and delivering a concise and engaging "pitch" that effectively communicates the value and potential of their solution.
- **"Idea Validation/Lean Startup Basics":** Introduction to the basic principles and methodologies of the Lean Startup, such as Customer Development, MVP creation, and rapid verification and validation of ideas and hypotheses.

- **"UX/UI Design Principles for Non-Designers":** Basic principles for creating user-friendly and intuitive interfaces, even for teams without a designer.
- **"Business Model Canvas (BMC)":** The practical use of the BMC tool to define and analyse the business model of their project.
- If necessary, also specific technical workshops focused on more complex datasets, specific technologies, or API interfaces used in competitive calls.

12.7 Rest Areas – provide space to relax, network, and for catering

It is important not to forget to provide adequate **space for relaxation, informal networking, and refreshments**. It is necessary to create pleasant, comfortable, and well-equipped relaxation zones, where participants can take a break from intensive work for a while, have informal discussions with other teams or mentors, make new contacts, and replenish their energy. It is necessary to ensure that basic snacks such as coffee, tea, water, fruit, and snacks are always available, as well as the serving of quality and balanced main meals (breakfast, lunch, dinner), if this is part of the plan and budget.

13. Final Event, Awards

The final part of the Hackathon, including the final presentations of the projects and the award ceremony, represents the culmination of the intensive efforts of all participants and should be prepared and implemented with an emphasis on professionalism, fairness, and celebration of the results achieved.

13.1 Final Presentations – Prepare a Schedule for Teams

It is necessary to **precisely plan the final presentations** and create a detailed and fair time schedule for the final presentations (pitches) of all competing teams. Also, ensure thorough technical preparation of the presentation space (projector, sound system, microphones, reliable connection) and a smooth transition between individual presentations to minimize downtime.

13.2 Prepare Layout for Presentations of Participants

Providing a **recommended structure and format for participants' presentations** can go a long way in helping teams not forget something important, focus on key aspects of their solution, and ensure consistency and comparability of presentations to the jury. The template or guideline should include recommended sections such as problem definition, description of the proposed solution, prototype demonstration (if available), analysis of market or societal potential, introduction of the team, and possible business model. It is appropriate to use the presentation template created within the EnCLOD project to link it with the project's outputs.

13.3 Final Presentation: 4 minutes + 4 Minutes to Answer Questions or for Discussion

Set and strictly adhere to **time limits for presentations and subsequent discussion with the jury**. A typical format is from 3 to 5 minutes for the presentation itself and another 3 to 5 minutes for questions from the jury and a short discussion. Strict adherence to these limits ensures fair conditions for all teams and allows

efficient use of the time allotted for final presentations, especially with a larger number of teams. We recommend 5+5 minutes for up to 10 teams and 3+3 minutes for more than 10 teams.

13.4 Awards – Secure Valuable Prizes for Winning Teams

The preparation and presentation of the awards should be a dignified and motivating act. It is necessary to ensure that all prizes (financial, material, symbolic) are prepared in advance and that their presentation takes place in a festive atmosphere. Consider involving high-profile figures, representatives of sponsors, or key partners in the award ceremony, which can increase its prestige.

13.5 Certificates – Create a Certificate for all Participants to Recognize their Participation and Effort

As a form of recognition of the efforts of all those involved, it is appropriate to use prepared **certificates of participation - Annex II of the document**. The provision of digital or printed certificates to all participants, mentors, and jury members is a positive gesture that formally recognizes their contribution and commitment, while also serving as a valuable reference for their further professional or academic development.

14. Post-Hackathon Activities

14.1 Ensuring Long-term Impact and Sustainability

The commitment and responsibility of the organizers should not end with the final award ceremony. Follow-up activities are important for maximizing the long-term impact of the Hackathon, supporting the further development of the resulting solutions, and maintaining the created community.

14.2 Feedback Collection

It is necessary to **systematically collect and thoroughly analyse feedback** from all key groups participating in the Hackathon – participants and teams, mentors, jury members, partners, sponsors, as well as the members of the organizing team themselves. Various methods can be used, such as anonymous online questionnaires, structured interviews, or informal discussions. For the purposes of the EnCLOD Hackathons, an anonymous online questionnaire is used. The EnCLOD template has been used to create a questionnaire (**Annex IV**). **Feedback questionnaire is mandatory for all project partners** in order to achieve comparability of the data collected. It is necessary to focus on obtaining feedback on all aspects of the event, from the preparatory phase to the actual implementation and results. Findings and recommendations from the feedback should be shared with EnCLOD project partners to enable continuous improvement and learning from the Hackathons already taking place.

14.3 Evaluation - Analyse the Success and Outcomes

Based on the collected feedback and internal data, it is necessary to carry out a **comprehensive evaluation** of the Hackathon. This evaluation should be aimed at assessing the degree of achievement of pre-defined goals and the success of the Hackathon. It is required to analyse the quality, innovativeness and potential of the created solutions, the effectiveness of organizational processes, the level of satisfaction of individual

groups of participants, and the overall impact of the Hackathon on solving the defined challenges, on the development of participants' skills, and on strengthening the innovation ecosystem in the Pilot Area.

Finally, it is needed to identify best practices that can be replicated, as well as areas and processes that demand improvement in future Hackathons. Reporting activities for each of the Hackathons will be published and will form the basis for the finalisation of deliverable D2.6.2: five Hackathons implemented in Pilot Areas, including their reporting. All organizers of the EnCLOD Hackathon must provide information related to the local Hackathon, which will be used to prepare the final report. The data and materials necessary to be collected and submitted by organizers are listed in Annex V.

14.4 Project Support – Assist Participants with further Development of their Projects

A key part of post-Hackathon activities is **active support for the further development of the most promising projects and teams**. The organizers, in cooperation with partners and sponsors, should look for and mediate opportunities to continue working on promising solutions. This may include:

- Providing ongoing specialized mentoring in the field of technical development, business modelling, marketing, or legal aspects.
- Connect teams to relevant incubation or acceleration programs that can provide additional resources, expertise, and infrastructure.
- Mediating contacts with potential investors (angel investors, venture capital funds) or partners for pilot implementation and testing of solutions in a real environment.
- Organizing specialized workshops or trainings focused on the specific needs of teams (e.g. preparation of an investment pitch, intellectual property protection, scaling the business).

14.5 Post-Hackathon Meetings – Organize Follow-up Meetings and Networking Events

It is important to **maintain and develop the community created during the Hackathon**. It is desirable to maintain and further develop the relationships that were created during the Hackathon. It is advised to organise regular or occasional follow-up meetings, whether formal (e.g. workshops, project progress presentations, investor meetings) or informal (networking events). This will strengthen the existing ties and support long-term cooperation, the exchange of experience, and a continuous flow of innovations, even after the official end of the Hackathon.

Annexes

1. General Terms and Conditions (Annex I)
2. Certificate of Participation (Annex II)
3. Jury Evaluation Template (Annex III)
4. Feedback Collection Questionnaire (Annex IV)
5. Final Report Materials (Annex V)