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Hackathon for Cities: How to Organize Resources and Create Innovation in PS

METHODOLOGY

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1. What is a hackathon

1.1. Definition

Traditional hackathon definition states that a hackathon is an event, usually hosted by a technology company or related organization, where developers, IT professionals or people who like technology get together for a short period to collaborate on a project to address a particular societal challenge/problem. Participants must work hard to complete their tasks, as a hackathon usually lasts between 24 and 48 hours, depending on the nature of the event.

1.2. Evolution of the concept

By the 2010s, hackathons had expanded beyond the tech industry. Educational institutions, non-profits, and government organizations adopted the format to address social issues, foster creativity, and promote STEM education. The rise of virtual hackathons, facilitated by platforms like Devpost and HackerEarth, further broadened participation, allowing global collaboration.

Today, hackathons are diverse in scope, including domains like healthcare, finance, environmental sustainability, and social services. They often feature multidisciplinary teams and incorporate design thinking and entrepreneurial elements, reflecting their evolution from niche coding events to inclusive innovation marathons and where innovative solutions are not only technological but also social, primarily organizational and based on new relationship qualities.

The duration of the event also varies from one day to two or even three days. Initially organized without a break, now hackathon participants have an opportunity to rest for the night.

The formation of the teams has also evolved, initially formed during the event, now hackathon participants come as a team and sometimes even with a solution prepared.

1.3. Concept and benefits

The hackathon aims to have a working software or prototype by the end of the event and submit a value proposition for this product. Typically, this type of event focuses on creating a minimum-value product.

Hackathons will only be useful if the participants are given the opportunity to translate their ideas into real products and businesses, so before starting it is important to assess the limits of the organizers' capacity and the benefits to be gained.

For cities it is recommended to combine hackathon with an ideathon or creatathon. An ideathon is a structured brainstorming event focused on generating ideas rather than building functional prototypes. Participants collaborate to identify problems, propose solutions, and develop conceptual frameworks for future projects. A creatathon is a creative marathon event where participants, often from fields like design, marketing, and content creation, work intensively on a project. The focus is on artistic and strategic outputs rather than coding or technical development.

2. Hackathon for solving regional societal challenges

The international Hackathon is organized with the objective of bringing together solution providers, challenge owners (public sector representatives), and experts to develop practical responses to real-world challenges within the public sector. The Hackathon focuses on innovation-driven problem-solving, particularly in areas such as AI integration, VR adoption, environmental monitoring, urban development, and citizen engagement.

The first step is communication with the public sector (challenge owners) to identify challenges requiring innovative solutions. In the next phase, these challenges are advertised and communicated in order to attract developers (solution providers) who would participate in the Hackathon and provide solutions to these challenges. The next step is the hackathon event itself, where developers create solutions as well as receive consultations with challenge owners, mentors, and are trained to present the solutions and deliver them. The last activity is the evaluation of the event and further mentoring of the winners on demand.

This methodology provides an overview of the entire hackathon process, covering preparation, execution, evaluation, and key takeaways. Figure 1 summarizes the process of the Hackathon organization:

Figure 1: Process of the hackathon organization

2.1. Topic/theme selection

Hackathons do not necessarily have to have a specific theme, but the choice of a theme allows the event to be less abstract and to focus on key issues in the field or sector. Hackathons are the easiest way for young and talented people to start their own business - the initial investment is low - in a few days, you can generate a product prototype that can become a serious business and a widely used product in the future. For example: the chosen theme of the event is "Hackathon for cities", then this brings ideas and startups whose products help to solve societal problems such as access to education, tourism, social exclusion, mental health, and other public services. For these challenges, technology aims to find a solution to help change the current situation. Recently, the creation of digital products has become very popular, allowing low financial costs and similar infrastructure to scale up a start-up's solution not only at the local level but also globally.

2.2. Event webpage

A dedicated webpage for a hackathon is essential for providing clear, up-to-date information and attracting participants. It should ideally be launched at least 6–8 weeks before the event to attract participants, sponsors, and mentors while providing essential details and it serves as the central hub where everyone can find everything they need to know about the event. An engaging, well-designed webpage not only boosts participation but also ensures that teams stay informed before and during the hackathon. It enhances the event's credibility and accessibility, making it easy for everyone to get involved. A well-structured webpage should include:

- **Event details**: date, time, location (or virtual platform), and schedule.
- **Registration information**: how to sign up, team formation details, and deadlines.
- **Hackathon theme and challenges**: clear problem statements or focus areas.
- **Rules and guidelines**: eligibility, project submission requirements, and judging criteria.
- **Prizes and recognition**: what participants can win and how winners are selected.

- **Mentors and judges**: a list of experts available to support teams.
- **Sponsors and partners**: organizations backing the event.
- **FAQs and contact information**: answers to common questions and a way to reach the organizers.

2.3. Challenge owners

To organize a successful hackathon aimed at solving challenges for public service providers, it is crucial to identify who the challenge owners are. Challenge owners are individuals or departments within public service organizations who face specific problems that need innovative solutions. Potential challenge owners include department heads and managers, who have a comprehensive understanding of their department's operational challenges and strategic goals; frontline employees, who encounter firsthand problems and inefficiencies; IT and innovation teams, who can provide insights into technical challenges and opportunities for improvement; and policymakers and planners, who can identify broader systemic issues.

Choosing the right challenge owners is essential for ensuring that the hackathon addresses relevant and impactful problems. Criteria for selection include:

- **The impact and relevance of the challenge**, ensuring it will have a significant positive impact on the community or public service efficiency;
- **Feasibility**, ensuring the challenges can be addressed within the hackathon's timeframe and resources;
- **The engagement level of the challenge owners**, prioritizing those who are enthusiastic and willing to actively participate in the process.

Effective communication and engagement strategies are necessary to reach and involve challenge owners. Internal communication channels such as emails, newsletters, and internal portals can be used to announce the hackathon and call for challenge submissions. Hosting informational workshops and meetings to explain the hackathon's objectives, the benefits of participation, and the process of submitting challenges can also be beneficial. Personalized outreach, such as sending invitations to department heads and managers, can highlight the importance of their involvement.

To streamline the collection of challenges, establishing a clear and straightforward submission process is essential. Creating an online portal where challenge owners can submit their problems, along with providing detailed submission guidelines, will ensure a smooth process. Offering support through helpdesks or dedicated contact persons can assist challenge owners in formulating and submitting their challenges.

Maintaining ongoing communication and support for challenge owners throughout the hackathon process is crucial. Regular updates should be provided to keep challenge owners informed about the hackathon's progress. Implementing a feedback mechanism where challenge owners can offer insights and suggestions during the hackathon can enhance the process. After the hackathon, involving challenge owners in reviewing the solutions and providing opportunities for feedback and further development will ensure continuous engagement and improvement.

2.4. Solution providers

To ensure a successful hackathon for public service providers, it is essential to identify the right solution providers who can effectively address the challenges posed. Potential solution providers typically include tech enthusiasts and developers with strong programming skills, designers and UX/UI experts who can create user-friendly interfaces, data scientists and analysts who can develop data-driven solutions, subject matter experts with deep knowledge in relevant areas, and entrepreneurs who bring innovative ideas and implementation experience.

Selecting the appropriate mix of solution providers is crucial. Criteria for selection should include relevant expertise with specific challenges, a proven track record of developing successful projects, diversity to ensure various

perspectives and strong collaboration skills. Effective outreach strategies are necessary to attract and engage these solution providers. Leveraging existing networks and communities, using social media and online platforms, partnering with educational institutions, and collaborating with tech companies and startups are all effective methods for reaching a wide audience.

To streamline the selection process, establish clear guidelines and criteria. Create an online application portal with detailed forms to gather information about applicants' skills, experience, and motivation. Form a selection committee of experts to review applications based on predefined criteria, maintaining transparency by communicating the criteria and providing feedback to applicants.

Providing the necessary resources and support is crucial for the success of solution providers during the hackathon. This includes access to relevant data sets, APIs, and development tools, as well as mentorship and guidance from experts. Organizing pre-hackathon workshops and training sessions can help participants prepare and enhance their skills.

Maintaining ongoing engagement with solution providers is essential. Regular updates about the hackathon schedule, resources, and any changes should be communicated. Using interactive platforms like Slack or Discord for continuous interaction and support can help keep participants motivated. Encouraging participants to seek feedback and continuously iterate on their solutions will foster a productive and innovative environment.

2.5. Teams providing solutions

Hackathons are collaborative events where teams work intensively to develop innovative solutions within a limited time. Team formation is a crucial part of the experience, as diverse skills and perspectives contribute to better results. Depending on the hackathon format, participants can form teams in different ways:

1. **Pre-formed teams.** Already formed teams can apply together. This is a great option for friends, colleagues, or startup teams who have experience working together. Pre-formed teams have a sort of advantage as they can immediately focus on their project rather than spending time forming a team.
2. **Team formation before the hackathon.** Participants can apply individually and connect with future colleagues before the event through pre-hackathon networking sessions where participants can discuss their skills and interests to form well-balanced teams. This approach helps participants align their expectations and come prepared with an initial concept.
3. **On-site team formation.** Sometimes participants who register individually can form a team just before the event. Hackathon can have a team-building session at the start of the event. Organizers can facilitate this through pitch sessions (participants briefly present their ideas, and others join projects that interest them), Skill matching (organizers may use a database of participants' skills and interests to help form balanced teams) and Networking activities (Icebreakers and informal meetups encourage participants to connect naturally).
4. **Hybrid model. Mixed teams** can be formed then already established groups can add individual participants who complement their skills. This ensures that every participant, even those joining solo, has a chance to contribute.

An ideal team consists of members with diverse skill sets that complement each other, such as:

- **Developers** (frontend, backend, or full-stack) to build the technical solution.
- **UI/UX designers** to create an intuitive user experience.
- **Business strategists** to refine the project's value proposition and pitch.
- **Domain experts** (if applicable) who understand the problem being solved.
- **Marketing experts.**

2.6. Mentors

Mentors play a crucial role in guiding participants during a hackathon, providing expertise, and ensuring the quality of the solutions developed. Potential mentors can come from various backgrounds, including:

- **Industry experts** with significant experience in relevant fields such as healthcare, education, transportation, or public administration;
- **Technical specialists** skilled in coding, data analysis, and software development;
- **Academics and researchers** with expertise in public policy, social sciences, or specific technical domains;
- **Experienced entrepreneurs** who have successfully started and managed startups; and public service professionals who understand the intricacies of public sector challenges and operations.

Selecting the right mentors is essential for the success of the hackathon. The selection criteria should focus on relevant expertise, and choosing mentors with skills and knowledge pertinent to the hackathon's challenges and objectives. A proven track record is important, so prioritize individuals with a history of mentoring or involvement in hackathons, incubators, or accelerators. Effective communication skills are also crucial, as mentors need to convey complex ideas and provide constructive feedback. Ensuring a diverse group of mentors will bring a range of perspectives and approaches.

Effective outreach strategies are necessary to attract and engage mentors. Leveraging existing professional networks, industry associations, and alumni groups can help identify potential mentors. Sending personalized invitations to experts and professionals, highlighting the hackathon's objectives and the value of their participation, is an effective approach. Collaborating with universities, research institutions, and tech companies can recruit mentors from their staff and networks. Using social media channels, LinkedIn, and professional forums to announce the need for mentors and invite applications can also be beneficial.

During the hackathon, mentors have multiple roles. They provide technical, strategic, and domain-specific guidance to participants, helping them refine their ideas and solutions. Offering constructive feedback, suggesting improvements, and validating approaches are key aspects of their role. Mentors keep teams motivated, helping them overcome challenges and stay focused on their goals. They also facilitate connections by introducing participants to useful contacts, resources, and networks that can aid their projects. Conducting workshops or mini-sessions on relevant topics to enhance participants' skills and knowledge is another important aspect of their role. A maximum of four hours per day is suggested for mentoring sessions during the event. One mentor should not have more than 4-5 teams per hackathon.

Ensuring mentors are well-prepared and continuously engaged throughout the hackathon is crucial. Conducting orientation sessions to brief mentors on the hackathon's objectives, schedule, and expectations is essential. Providing mentors with necessary resources, such as challenge briefs, participant information, and access to collaboration tools, will help them support participants effectively. Setting up dedicated communication channels, such as Slack or email groups, for mentors to coordinate with organizers and interact with participants is important. Keeping mentors informed about the hackathon's progress, schedule changes, and any important updates ensures they remain engaged and effective.

Maintaining engagement with mentors after the event is also important. Gathering feedback from mentors about their experience and suggestions for improvement can help enhance future events. Recognizing and appreciating mentors' contributions through certificates, public acknowledgments, and follow-up communications is crucial for maintaining good relationships. Inviting mentors to participate in post-hackathon activities, such as project follow-ups, mentorship programs, or future events, can ensure continued involvement and support.

2.7. Judges, investors

Judges play a critical role in evaluating the solutions developed during a hackathon, providing valuable feedback, and ultimately selecting the winners. Potential judges (investors) for a hackathon:

- **Public service providers**;
- **Industry experts** with deep expertise in fields relevant to the challenges, such as healthcare, education, transportation, and public administration;
- **Technical specialists** experienced in software development, data science, and technology who can assess the technical feasibility and innovation of the solutions;
- **Public service leaders** who understand the practical implications and usability of the solutions;
- **Investors and entrepreneurs** with experience in funding and scaling innovative projects, providing insights into the viability and potential for implementation;
- **Academics and researchers** who can provide an evidence-based perspective on the proposed solutions.

Selecting the right judges is essential to ensure a fair and comprehensive evaluation of the hackathon projects. The criteria for selection should include relevant expertise, ensuring judges have knowledge and experience relevant to the specific challenges and the public service sector. Impartiality is crucial, so ensure judges have no conflicts of interest and can provide unbiased evaluations. A diverse panel of judges brings various perspectives and reduces the risk of biased decisions. Opt for judges with a strong reputation and credibility in their respective fields.

Effective outreach strategies are necessary to attract and engage judges. Leverage professional networks, industry associations, and alumni groups to identify potential judges. Send personalized invitations to respected experts, highlighting the hackathon's goals and the significance of their participation. Collaborate with universities, research institutions, and tech companies to recruit judges from their senior staff and leadership. Use social media, LinkedIn, and professional forums to announce the need for judges and invite applications or nominations.

During the hackathon, judges (investors) have several key roles. They assess the projects based on predefined criteria such as innovation, feasibility, impact, and alignment with public service goals. Judges provide constructive feedback to participants, helping them understand the strengths and weaknesses of their solutions. They deliberate and decide on the best projects, recognizing those that offer the most promising solutions. In some cases, judges can also serve as mentors, providing guidance and advice during the hackathon.

Ensure judges (investors) are well-prepared and continuously engaged throughout the hackathon by conducting briefing sessions to inform them about the hackathon's objectives, judging criteria, and process. Provide judges with necessary tools and materials, such as scoring sheets, project briefs, and access to demonstration platforms. Set up communication channels for judges to coordinate with each other and the organizing team. Keep judges informed about the hackathon's schedule, participant progress, and any important updates.

After the hackathon, maintain engagement with judges by gathering feedback about their experience and suggestions for improvement. Recognize and appreciate judges' contributions through certificates, public acknowledgments, and follow-up communications. Invite judges to participate in post-hackathon activities, such as project follow-ups, mentorship programs, or future events.

2.8. Moderator of the hackathon and team of organizers

A moderator or presenter plays a crucial role in ensuring a smooth and engaging hackathon experience. They serve as the event's guide, keeping participants informed, energized, and on track throughout the competition. One of their main responsibilities is to set the tone at the beginning of the event: welcoming participants, explaining the rules, and introducing key speakers or sponsors. A good moderator maintains engagement and momentum, announcing important milestones, deadlines, and schedule updates. At the end of the hackathon, the presenter leads the final pitches, introducing teams and keeping presentations on schedule. They also guide the judging process, ensuring transparency and fairness. A dynamic and approachable moderator fosters a positive atmosphere, encourages collaboration, and helps teams stay motivated – even during the most intense coding sprints. Without one, a hackathon can feel disorganized and chaotic, making this role essential for a successful event.

During the hackathon, it is advised to have facilitators from the organizing team to monitor up to 4 teams to facilitate Q&A sessions, provide clarifications, and help troubleshoot organizational issues. If the event includes mentoring sessions, they ensure a structured flow, directing participants to the right mentors or resources.

2.9. Sponsors

Sponsors play a crucial role in the success of a hackathon by providing financial support, resources, and expertise. Potential sponsors for a hackathon targeting public service providers can include:

- **Technology companies** that provide software, hardware, and other technological solutions;
- **Public service organizations** such as government agencies and non-profits that have a vested interest in improving public services;
- **Educational institutions** like universities and research institutions that can contribute knowledge, corporate entities interested in corporate social responsibility (CSR) initiatives;
- **Financial institutions** that can provide monetary support;
- **Industry associations** related to public service sectors that can offer resources and networking opportunities.

Selecting the right sponsors is essential to ensure alignment with the hackathon's goals and to maximize benefits for both the event and the sponsors. Criteria for selection should include:

- **Relevance**, choosing sponsors whose products, services, or mission align with the hackathon's objectives and challenges;
- **Reputation**, opting for reputable sponsors with a positive public image and a history of supporting innovation and public service initiatives;
- **Resources and support**, selecting sponsors who can provide not only financial support but also resources such as technology, mentorship, and promotional support.

Effective outreach strategies are necessary to attract and engage sponsors. Leveraging existing networks, industry associations, and alumni groups can help identify and connect with potential sponsors. Sending personalized invitations to target sponsors that outline the hackathon's objectives, expected outcomes, and benefits of sponsorship can also be effective. Establishing partnerships with organizations that have previously supported similar events or have a vested interest in the hackathon's focus areas is beneficial. Developing comprehensive sponsorship proposals and presentations that highlight the value of the hackathon, its impact, and specific benefits for sponsors can help engage potential sponsors.

To attract sponsors, it is important to clearly outline the benefits they will receive by supporting the hackathon. Sponsors gain significant brand visibility through event marketing, promotional materials, and media coverage. They also have networking opportunities, interacting with innovative minds, public service leaders, and potential clients or partners. Sponsors can scout for talent among participants, beneficial for recruitment and innovation, and sponsoring a hackathon aligns with CSR objectives, enhancing the sponsor's reputation as a supporter of community and public service initiatives. Technology sponsors can showcase their products and services, allowing participants to use and familiarize themselves with these tools, and sponsors can gain valuable feedback and insights on their products or services from a diverse group of users.

2.10. Expected results (quantitative, qualitative – assessment methods)

When organizing any hackathon or event, it is important to define the results to be achieved. These outcomes do not have to be large in number, but they do need to be worthwhile. Key performance indicators are usually divided into quantitative and qualitative:

Quantitative indicators are recommended as follows:

- Number of people reached through communication channels;
- Number of registrations;
- Number of attendees at the event;
- Number of mentors and the ratio of mentors to participants (it is recommended that no more than 3-4 teams per mentor).

Qualitative recommendations are:

- Participants' qualitative evaluation of the event after the event (on a scale from 1 to 5, with an average rating of at least 4);
- A clearly structured program for the hackathon;
- Highly professional and experienced mentors;
- Highly professional and experienced jury members;
- Highly professional and experienced event host(s) with knowledge of the specificities of hackathons.

3. Preparation and implementation of the hackathon

3.1. Timeline of the organization of the hackathon

Early preparation is crucial for the success of a hackathon because it allows sufficient time for identifying and engaging key stakeholders, securing necessary resources, and developing a comprehensive plan. It ensures effective promotion and recruitment, attracting high-quality participants and mentors. Addressing logistical and technical requirements well in advance minimizes the risk of issues during the event. Thorough preparation enhances the overall experience for all participants, fostering an environment conducive to innovation and problem-solving.

Organizing a hackathon for public service providers is a complex process that ideally **starts 6 to 8 months before the event**. The initial phase involves defining the objectives and scope of the hackathon, establishing the goals, target public service areas, and desired outcomes. An organizing committee is assembled to oversee planning and execution. Securing funding, sponsorships, and necessary resources is crucial at this stage, as is selecting a suitable date and venue that are accessible and can accommodate the expected number of participants.

5 to **6** months before the hackathon, the focus shifts to identifying and engaging stakeholders. Meetings with public service providers are conducted to understand their challenges better. An online platform for submitting challenges is developed and launched, and communication with potential challenge owners is initiated to gather relevant problems they face.

During the **4** to **5** months leading up to the event, detailed plans and resources are developed. This includes creating a marketing plan to attract participants, sponsors, and media coverage. Ensuring the availability of technical resources, such as software, hardware, and data sets, is critical. Additionally, recruiting mentors who will guide participants during the hackathon is undertaken.

3 to **4** months before the hackathon, efforts concentrate on participant recruitment and engagement. The application portal is launched, and the selection criteria for participants are clearly outlined. Promotional efforts are intensified across various channels, including social media, educational institutions, and tech communities. Preliminary workshops and informational sessions are hosted to engage and prepare potential participants.

2 to **3** months prior, logistical and resource arrangements are finalized. Applications are reviewed, and participants are selected based on predefined criteria. Venue arrangements, catering, and other logistical needs are confirmed. A detailed schedule for the hackathon, including timelines for key activities and sessions, is developed.

In the final **1** to **2** months before the hackathon, participant preparation, and final arrangements take place. Pre-hackathon training sessions and webinars are offered to equip participants with the necessary skills and knowledge. Rules, guidelines, and expectations are communicated to participants, mentors, and challenge owners. All technical setups, such as network infrastructure and software tools, are put in place and thoroughly tested.

1 to **2** weeks before the hackathon, final checks and rehearsals are conducted. A mental run of the event helps identify and address any potential issues. Participants are provided with necessary materials, including schedules, challenge briefs, and access credentials. Continuous communication with all stakeholders ensures alignment and readiness.

On the **day of the hackathon**, the event is executed and managed in real-time. Registration and the opening ceremony are facilitated, and continuous support and mentoring are provided to participants. Judging sessions are conducted, and winners are announced. Progress is monitored closely, and any issues are addressed promptly to ensure smooth execution.

In the **post-hackathon phase**, which spans one to two weeks after the event, the focus is on evaluation and follow-up. Feedback is collected from participants, mentors, and stakeholders to identify strengths and areas for improvement. A post-event review analyzes outcomes and prepares a report summarizing the event's impact and learnings. Continued support is offered for the implementation of promising solutions developed during the hackathon.

3.2. Time and duration

It is important to choose the date of the event carefully. Avoid summer, holidays, and other important public events. Weekends are preferable, as weekdays are school or workdays. The best time of year is no earlier than October-November or February-April.

A hackathon usually lasts between 24 and 48 hours. It is not recommended to do a shorter or longer hackathon, as it is not realistic to create a minimum-value product prototype or at least assess the market situation in a shorter time. A longer hackathon is also not recommended as 48 hours is very intense, and if you work longer than 48 hours, productivity and concentration will drop considerably, and participants will not be able to add value to the product.

If a hackathon is being organized in a city or region for the first time, or if an organization has decided to organize an event of this type for the first time, it is recommended to start with a one-day hackathon to get an idea of how such events work.

Before the event starts, it is important to organize an introductory interview with the participants and to explain the technical details of the event, so that the time spent during the event is of high quality and only focused on developing the idea.

3.3. Promotion of the hackathon

Although the motivation of participants may be high, several aspects may determine the final decision to participate in the event. Such important aspects include:

- Having/not having a business idea (it is easier when a person has an idea and wants to test it at the event);
- Have a team of at least 5 people, not just one person;
- Not being afraid to speak in public;
- Location of the event.

It is therefore important to consider and answer these questions when designing information and publicity tools. For example, allowing individual participants to register and form a team during the hackathon, or allowing them to join another team during the event.

This decision is not as quick as attending a conference or training, as it requires a lot of deliberation and thought, which is why it is recommended to start communicating the registration for the event at least 2 months before the event. When choosing publicity tools, it is important to take into account the target audience. For example, the most effective publicity tools currently available for young people are:

- Social media channels (Instagram for young people aged 14-25, Facebook for young people aged 20 and over);
- Social media tools (choose "stories" rather than posts);
- Direct emails to target organizations can help reach the target audience (schools, universities, communities);
- Advertising panels ("banners") on Google account;
- Non-traditional advertising methods - these help to attract attention and encourage interest in the event, which can lead to targeted information on the organization’s page.

3.4. Collection of challenges

Engage with public service providers early on by organizing consultation meetings with key stakeholders to understand their pain points and operational challenges. Conduct detailed surveys and interviews with employees at different levels within these organizations to capture a wide range of challenges.

Establish a challenge submission platform with a user-friendly interface where public service providers can easily submit their challenges. Ensure the platform includes clear guidelines on the types of challenges suitable for the hackathon, along with examples of well-defined problems.

Define criteria for challenge selection by prioritizing relevance and impact, assessing feasibility within the hackathon timeframe and available resources, and looking for innovation potential in the challenges.

Promote public participation through community outreach via social media, local news outlets, and community centers to raise awareness about the opportunity to submit challenges. Host informational workshops and webinars to guide public service providers on how to articulate their challenges effectively.

Form a review committee with diverse expertise, including representatives from public services, tech industry professionals, and community leaders. Develop a transparent evaluation process with clear criteria to review and select the most compelling and actionable challenges.

Categorize and prioritize challenges by grouping them into thematic categories such as healthcare, education, transportation, and public safety. Prioritize based on urgency, potential impact, and the likelihood of achieving a viable solution during the hackathon.

Provide detailed challenge descriptions that include background information, current obstacles, and desired outcomes. Ensure the inclusion of any relevant data and resources that participants may need to understand and address the challenges effectively.

Enable ongoing communication by establishing dedicated support channels such as Slack or email for continuous interaction between challenge providers and hackathon participants. Set up mentorship programs to connect public service providers with mentors who can offer additional insights and support during the hackathon.

3.5. Registration and access to information

The registration form should be simple and short, and participants need to be able to enter: name, contact details, age and team members' details (if registering with a team).

No later than 24 hours after registration, the participant's details must be confirmed by the organizer and a reminder sent with the most important information for the event (date, time, location, contact details, and documents to be filled in).

No later than 1-2 weeks before the event, participants must be provided with more detailed information about the event program, mentors, panel members, preparation materials (e.g. a list of free digital tools that participants can use during the event), presentation template slides (as a guideline for the recommended structure), and information about the pre-meeting/interview.

A final reminder and information should be sent at least 1-2 days before the event starts, confirming the registration of participants and sending logistical information (venue coordinates, contact persons, etc.)

IMPORTANT TO NOTE! Participants must sign written consents to the public use of photographs and videos from the event and the participant's consent to this. This aspect is important due to the general data protection law. Otherwise, the participant may file a complaint.

3.6. Venue and technical equipment

Choosing a convenient location is one of the most important aspects in determining whether a participant will register for a hackathon. The location must be convenient and accessible by various means of transport and meet all hygiene standards. It must be an indoor venue with space to accommodate at least 30-50 participants and be accessible 24 hours a day if the event lasts more than one day. Each team must be provided with: a table, chairs

and an electrical connection. Modern, innovation-driven rooms or facilities are recommended. For example, libraries in the regions are now well equipped and open at weekends, with longer hours than regular institutions. For a live hackathon, the following equipment is the minimum needed to organize a hackathon:

- At least 2-3 computers for the organizers (one of which is for showing slides);
- A projector;
- Projector screen;
- High-speed internet connection;
- Each team must have at least one laptop.

If it is not possible to organize the event live, hackathons can be organized remotely. It is important to choose a suitable and friendly platform, which the organizers themselves have mastered. The most popular platforms are Zoom, MS Teams, Hangouts. As the aim is to create the impression of a physical hackathon, it is important that the platform can create separate, virtual rooms for each team.

If the hackathon is virtual, the following equipment is the minimum required to organize the hackathon:

- At least 2-3 computers for the organizers (one of which is for displaying slides);
- A high-speed internet connection;
- Video cameras;
- Additional microphones for sound quality;
- Virtual meeting platform with separate virtual rooms (Zoom, MS Teams or other).

3.7. Catering

During the Hackathon, catering must be provided for the participants so that they can concentrate on working on their business ideas if there is a physical event. Food must be ordered before the start of the event. It must be nutritious and easy to digest.

If the event is virtual, it is recommended that food vouchers and coupons are provided and given to participants before or after the event. The recommended amount is around €10 per participant per meal.

3.8. Merchandise/participant pack

Providing merchandise and participant packs at a hackathon enhances the experience and creates a sense of community. These items not only serve as practical tools during the event but also as souvenirs that participants take home, reminding them of their hackathon journey. A well-designed participant pack may include:

- **T-shirts or hoodies** – A classic item that fosters team spirit and brand visibility;
- **Badges and lanyards** – Essential for networking and easy identification;
- **Stickers and laptop decals** – Fun collectibles that participants love;
- **Notebooks and pens** – Handy for jotting down ideas and brainstorming;
- **USB drives or power banks** – Useful tech accessories for coding on the go;
- **Snacks and energy drinks** – Fuel for those long coding hours.

Branded merchandise not only enhances the participant experience but also promotes the hackathon and its sponsors beyond the event. Thoughtful, high-quality items make attendees feel valued, boosting engagement and motivation. Whether it is a custom tote bag filled with goodies or a limited-edition hoodie, a well-prepared participant pack adds excitement and makes the hackathon more memorable.

3.9. Human resources

A hackathon organizational committee ensures that the event runs smoothly from planning to execution. The number of people required depends on the scale of the hackathon, but a core team of 6-10 members is usually sufficient. Each member has defined responsibilities before and during the event to ensure efficient coordination.

- **Lead organizer**. Defines the hackathon theme, objectives, and structure, manages the budget and secures sponsorships, oversees the logistics, venue (or virtual setup), and partnerships. During the Event ensures everything stays on schedule and manages last-minute issues, acts as the key decision-maker in case of unforeseen challenges.
- **Marketing and outreach coordinator.** Develops and executes a promotional strategy using social media, email campaigns, and partnerships, maintains the event website with relevant information, engages potential sponsors and media outlets for visibility. During the Event provides live event updates on social media, coordinates media coverage and engages with participants for feedback.
- **Registration and participant manager**. Handles participant sign-ups and team formation support, communicates important event details to registrants. During the Event manages check-ins and ensures participants receive necessary materials (badges, merchandise, schedules), assists with logistical or administrative questions from attendees.
- **Mentor and judge coordinator.** Recruits industry experts, mentors, and judges, prepares the judging criteria and schedules mentor engagement. During the Event coordinates mentor interactions with teams and ensures availability, manages the judging process, including scoring and final evaluations.
- **Technical and platform support.** Sets up and tests necessary software tools (e.g., submission platforms, virtual communication tools), ensures all digital infrastructure, including the hackathon website, is functional. During the Event troubleshoots technical issues for participants and organizers, manages virtual environments if the hackathon is online.
- **Logistics and operations coordinator.** Manages venue setup, catering, Wi-Fi, and participant merchandise, ensures all physical and digital resources are prepared. During the Event oversees venue logistics and maintains a smooth operational flow, ensures participants have access to necessary supplies.

On the day of the event a few more responsibilities arise:

- **Moderator of the event.** Guides the event, keeps participants informed, energized, and on track throughout the competition, explaining the rules, and introduces key speakers or sponsors.
- **Facilitators for the teams**. Have all information about the event and serves as an information point for the teams.
- **Pitch facilitator**. Participants can do a demo pitch for the pitch facilitator and get live feedback from the professional before giving final pitch for the Judges.
- **Photographer/filmmaker** (for live events) - who collects moments of the event.

On the day of the event, the organizers need to be at the venue at least 30 minutes before the start of the event to ensure the smooth operation of the technical equipment (computers, audiovisual quality, etc.), to prepare the space for comfortable working, and to prepare the prizes. During breaks and the work of the participants, at least one organizer must be always on-site and available to the participants.

3.10. Agenda

It is important to include the following aspects in the design and implementation of the hackathon agenda:

- A meeting, a familiarization session;
- Ground rules and technical information;
- Pre-introduction of the organizers, mentors, jury members and sponsors;
- Contact details of the organizers who are always available;
- Keynote address to start the hackathon. The presentation should be given by a professional in the field of technology, business development, market analysis, creativity (it is important that it correlates with the theme and nature of the hackathon);
- Mentoring sessions;
- Training on how to present/sell your idea to a short hackathon panel at the end of the event;
- Presentations;
- Commission evaluation time;
- Closing.

Example of a possible agenda (Figure 2):

Day 1	
8:00 - 9:00	**Registration and welcome breakfast** Participants check in, receive their badges, and enjoy breakfast.
9:00 - 9:30	**Opening ceremony** Welcome remarks by the organizers. Introduction to the hackathon objectives and schedule.
9:30 - 10:00	**Keynote address** Inspirational talk by a notable public service leader or industry expert.
10:00 - 10:30	**Challenge overview** Presentation of the public service challenges by representatives from the respective organizations. Q&A session to clarify challenge details.
10:30 - 11:00	**Team formation and idea pitches** Participants network and form teams based on their interests and skills. Brief idea pitches from teams to get feedback and finalize concepts.
11:00 - 13:00	**Initial hacking session** Teams start brainstorming and planning their projects. Mentors are available for consultation.
13:00- 14:00	**Lunch** b**reak** Lunch is served. Informal networking opportunity.
14:00- 18:00	**Hacking session** Teams work intensively on their projects. Mentors circulate to provide guidance and support.
18:00- 19:00	**Dinner break** Dinner is served. Teams take a break and discuss their progress.
19:00- 22:00	**Late-night work session** Teams continue to refine their ideas and develop their solutions. Mentors are available for late-night consultations.

Day 2	
8:00 - 9:00	**Breakfast and morning briefing** Light breakfast provided. Recap of the previous day and outline of the day's schedule.
9:00 - 11:00	**Final hacking session** Teams finalize their projects and prepare for presentations. Mentors assist with last-minute issues and help polish presentations.
11:00 - 12:00	**Project presentations and demonstrations** Each team presents their solution to a panel of judges. Demonstrations of prototypes and Q&A with judges.
12:00 - 12:30	**Judges' deliberation** Judges deliberate and decide on the winning projects. Participants have a chance to relax and network.
12:30 - 13:00	**Award ceremony and closing remarks** Announcement of winners and presentation of prizes. Closing remarks by the organizers and thank yous to participants, mentors, and sponsors.
13:00	**Event conclusion** Informal networking session to wrap up the event. Exchange of contacts and discussion of next steps for project implementation.

Figure 2: Hackathon agenda

3.11. Pitches

A short pitch is a presentation of a team's business idea to an investor or group of investors in a very short, strictly limited time (3-5 minutes). Although the hackathon takes 24-48 hours, the participants have to fit their presentation into the time limit, so it is important to include training on how to present their ideas in a short and focused way. Each presentation must reflect the following aspects:

- The problem;
- The solution;
- The target audience;
- The market;
- Value proposition;
- Monetization;
- Near-term milestones.

3.12. Rewards

Designing effective awards for a hackathon involves offering a mix of monetary and non-monetary prizes. Monetary prizes serve as an incentive and recognition of hard work, while non-monetary prizes, such as internships, mentorship opportunities, training courses, and access to professional networks or resources, can provide long-term benefits to participants. Additionally, special recognition awards, like “Most Innovative Solution,” “Best Use of Data,” “Community Impact,” and “Best Presentation,” should be included to acknowledge various aspects of excellence. The criteria for each award category need to be clearly defined and communicated to participants at the start of the hackathon to ensure they understand what will be evaluated. Engaging public service providers and sponsors in determining the types of awards and their significance can ensure alignment with the goals and needs of public services.

3.13. Post-event activities

Post-event activities should focus on supporting the development and implementation of the most promising projects. This support can be provided through mentorship programs, incubators, or accelerators, helping teams refine their solutions and move toward implementation. Facilitating partnerships between winning teams and public service providers to pilot and implement their solutions is also crucial. Follow-up events such as demo days or showcases should be organized, allowing teams to present their progress to a broader audience, including potential investors and stakeholders. Additionally, hosting workshops or training sessions can further develop participants' skills and help advance their projects.

Networking opportunities should be created to connect participants with industry experts, public service leaders, and other stakeholders who can provide valuable feedback and support. Establishing an online community or forum can facilitate continued idea-sharing, collaboration, and updates on future opportunities. Collecting feedback from participants, mentors, judges, and public service providers is essential for evaluating the hackathon's success and identifying areas for improvement. This feedback should be used to refine future hackathons, ensuring they are more impactful and aligned with public service needs.

Publicly recognizing the achievements of winning teams through press releases, social media announcements, and features on the hackathon's website can enhance visibility and inspire future participants. Highlighting success stories and case studies demonstrates the hackathon's impact. Documentation and reporting are also important. Outcomes of the hackathon, including solutions developed, awards given, and impacts on public service providers, should be documented. A comprehensive report detailing the event's successes and lessons learned should be shared with stakeholders, sponsors, and participants.

3.14. Intellectual property

To manage intellectual property (IP) effectively during a hackathon for public service providers, it is essential to establish clear IP guidelines before the event. This involves defining who will own the IP created during the hackathon, with options including participants retaining full ownership, co-ownership with public service providers, or transferring ownership to the providers. These guidelines should be included in the registration process and agreed upon by all participants before the event begins. A detailed participant agreement should outline the terms of IP ownership, usage rights, and any licensing arrangements, ensuring all participants sign this agreement during registration. Legal support should be provided during the hackathon to help participants understand the IP policies and address any concerns, with legal advisors available to assist with any potential disputes or clarifications.

Effective communication and transparency are crucial. A pre-hackathon briefing session should be hosted to explain the IP policies and answer participants' questions, providing examples of similar arrangements from past hackathons to clarify potential outcomes. All IP-related documents should be easily accessible to participants, including FAQs, detailed policies, and participant agreements. Any changes to the IP policies must be communicated promptly and clearly to all participants.

To facilitate collaboration while protecting IP, a culture of open innovation should be promoted where participants are encouraged to share ideas and collaborate while respecting the IP rights of others. Tools and platforms that allow secure sharing and collaboration should be used to protect sensitive information. If certain projects require confidentiality, participants should sign non-disclosure agreements (NDAs) to protect sensitive information and IP, ensuring any confidential information shared during the hackathon is clearly marked and understood by all parties involved.

Post-hackathon IP management involves clarifying the rights and obligations of participants and public service providers regarding the use and development of the IP created during the event. This includes outlining any follow-up actions required from participants, such as transferring IP rights or further collaboration with public service providers. Recognizing and potentially compensating participants for their contributions, especially if their solutions

are implemented by public service providers, is important. Options for ongoing collaboration or development opportunities for participants whose projects show significant promise should be explored. Detailed records of all IP created during the hackathon and its post-event use should be maintained, and the use of IP should be monitored to ensure compliance with the agreed terms, addressing any misuse or disputes promptly.

3.15. Possible risks

Organizing a hackathon involves multiple challenges and risks that can impact the success of the event. Below are some key risks and ways to mitigate them:

- **Low participant turnout.** Not attracting enough participants can reduce competition, creativity, and engagement. Start marketing early with an engaging webpage and active social media promotion, partner with universities, tech communities, and companies for outreach, offer incentives such as prizes, networking opportunities, and mentorship.
- **Number of registrations VS number of participants.** This number of registrations is usually higher than the number of participants themselves, with an attrition rate of around 20-30% of the number of registrations. It is important to include this fact in organizational plans.
- **A mentor or panel member cancels at the last minute.** It is recommended to have at least several mentors in the same field.
- **Technical failures**. Unstable internet connections, power outages, or failures in virtual platforms can disrupt the event. Test all tech setups before the event, have backup internet sources and technical support staff. If online, choose a reliable platform and provide clear guidelines for participants.
- **Poor team formation**. Participants struggling to form balanced teams can impact collaboration and overall engagement. Facilitate pre-hackathon networking sessions, use team-matching tools or icebreaker activities at the start, allow solo participants to be matched with existing teams.
- **Lack of engagement during the event**. Participants may lose motivation, especially in long hackathons. Schedule interactive mentor sessions, mini-challenges, and check-ins, provide food, drinks, and relaxation zones for in-person events, keep the atmosphere lively with social media updates, leaderboards, or gamification.
- **Unclear judging criteria or biased evaluation**. Lack of transparency in judging can lead to participant dissatisfaction. Clearly define judging criteria and share them in advance, ensure a diverse panel of judges with technical and business expertise, use a structured scoring system to ensure fairness.
- **Sponsor or funding issues**. Insufficient sponsorships can lead to a lack of prizes, resources, or marketing funds. Approach sponsors early with a clear value proposition, offer multiple sponsorship tiers with different levels of exposure, leverage partnerships with universities or incubators to share costs.
- **Intellectual property (IP) concerns**. Participants may be unclear on who owns the projects they develop. Define clear IP guidelines in the hackathon rules, encourage open-source development or specify rights in collaboration with sponsors.

There is always a possibility that anything can go wrong, and the organizers must be active and ready to act. Here are some final recommendations for the future Hackathons:

- **Early promotion leads to higher engagement** – extending the promotional period ensures broader participation and better preparedness among attendees.
- **Providing detailed challenge descriptions enhances solution quality** – clearly defined problem statements help teams focus on relevant issues and prepare effectively before the event.
- **Structured mentoring sessions maximize solution development** – a well-organized mentoring process enhances the quality and feasibility of solutions developed during the hackathon.

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