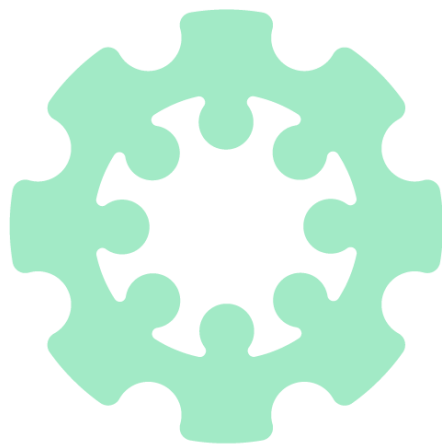


DIGITAL ACTION AT HIGHER EDUCATION INSTITUTIONS AS A CATALYST FOR
SOCIAL CHANGE IN THE COVID-19 CRISIS



HEIDI

**Methodological guidelines for
the design, implementation and
assessment of Digital Action**

Synthesis

Guidelines for the design, implementation and assessment of DA

This synthesis report responds to the specific objective of creating the conditions for co-creation of Digital Action between citizens and Higher Education staff and students. It aims to inform the co-creation process of ten Digital Action activities developed by HEIDI's Consortium partners, involving Higher Education Institutions (HEIs) and communities, but they are further intended to be used by any HEI actor considering to implement Digital Action projects with communities.

This report does not make any claim that the guidelines, descriptions, and processes discussed herein are an “one-size-fits-all solution” for any type of Digital Action. Instead, the intention is to serve as a resource of information for HEIs or partnerships that intend to design, implement, and evaluate Digital Action which responds to community needs.

Key definitions

Makerspaces, Citizen Science projects, and Hackathons are three types of Digital Action that can upskill university staff and students towards more resilience, adaptation to change and agility that could enable HEIs to work together with citizens to shape better societies.

The Maker Movement or Maker Culture is based on the overlap between four main fields of work: digital fabrication, community awareness platform, crafts & do-it-yourself (DIY) and creative industries. It may take place in a variety of spaces, including HEIs but also community centers, Fablabs, and private and association spaces.

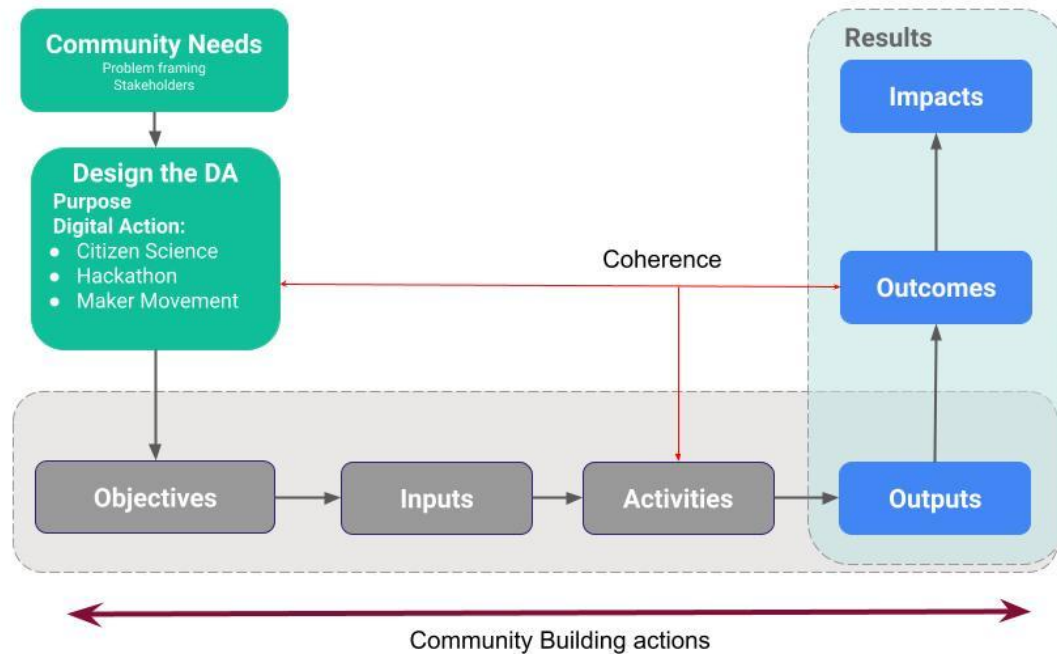
Citizen Science (CS) is a growing global movement that encourages people who do not have a formal scientific training to participate in scientific research. CS projects differ on the purpose, motivation and method.

A Hackathon is usually a short, intensive event, during which participants join teams and work together to accomplish a project. A common goal of hackathons is to include as many people as possible in the creation of new technologies and foster an environment for informal learning.

Guidelines for Digital Action

One way of structuring and describing the process of Digital Action implementation is to start with the identification and gathering of the resources and team, followed by problem framing and actual design of the Digital Action activity. The activity is then executed - be it a Citizen Science project, a Hackathon, or a Maker Movement event - followed by collection of results and evaluation of outcomes. Finally, the impact and

learnings are evaluated, which then should feed back, creating an iterative process to arrive at better Digital Action in the future. Community building is an essential activity that occurs during all the process.



Steps for designing a Digital Action:

1. Defining the Role of HEI and Resources
2. Problem framing - What do we want to solve?
3. Designing the Impact Strategy - What are the desired impacts?
4. Deciding between types of Digital Action

Commonalities and differences between different types of DA

Citizen Science projects

Citizen Science projects can face various obstacles during implementation. Some of the most common include being able to scale up activities, balancing the roles of professionals and volunteers, recruit and retain participants, face competition and duplication within the

field, clearly communicating the project's mission and objectives, and securing necessary project resources.

There is an expected trade-off between the amount of people that are enrolled in a CS project and the complexity of the protocol. Also, the validity of data gathered might occasionally be questioned, making it important that a Quality Assurance Plan is used to take necessary precautions and steps to ensure high data quality.

CS groups should be assisted through training, collaboration, and the creation or provision of standard operating procedures. In order to ensure adequate data documentation, it is necessary to collaborate closely with citizen scientists to design the data quality strategy and to understand the needs of the users of the information. And finally, a long-term engagement strategy needs to be considered, if possible co-designed with the participants, and verified during the process.

Hackathons

The main obstacles faced by Hackathons are usually the clarity in the definition of its goals and/or expected outcomes and the fostering of an inclusive environment for the people whose needs the DA is supposed to respond to.

The problem must be expressed clearly and a theme must be defined, providing enough background to participants to properly engage them. During the event, it is important to provide enough learning opportunities along with adequate rest periods and social bonding opportunities. Milestones and deployment procedures must be clearly defined and the event should be wrapped up with an invitation to continue the actions initiated during the hackathon, as the solutions or methods proposed are very likely to extend beyond the event.

Finally, in order to promote inclusivity, one should provide training and integration opportunities to new participants, set a flexible schedule and make the event gender responsive. Diversifying the Hackathon Organising Team is a key way to include different perspectives.

Makerspaces

Guaranteeing accessibility, acquiring equipment and establishing a clear communication to foster collaborative learning and a good user experience for all participants are key challenges for Makerspaces.

It is necessary to establish a clear business model, which requires careful consideration of the local stakeholders, their needs and their interests. When considering the impact of the Makerspace and its sustainability, it is necessary to include people to handle its communication strategy, do community-building and perform an impact evaluation.

Furthermore, similarly to hackathons, Makerspaces tend to face inclusivity issues, both in terms of gender equality and towards disabled, marginalised and unprivileged communities. Co-design and co-creation of Makerspaces is key to prevent and/or tackle potential challenges in terms of community building and empowerment.

General community building guidelines

- Develop a clear and effective communication strategy
- Establish a methodology for reporting, feedback and review
- Design appropriate incentives for engagement
- Provide training where appropriate
- Define clear roles and responsibilities
- Establish partnerships with suitable stakeholders
- Create an environment of transparency and trust

Impact assessment methodology

An impact assessment is used to enhance or refocus an intervention or to help make decisions about whether an initiative should continue, replicate or scale up. Beyond explaining or evaluating the effects of an intervention, it is also important to determine how they are caused - their causal attribution - and investigate unintended consequences.

To accomplish an impact assessment it is necessary to map and assess the Digital Action's inputs, activities, outputs, anticipated outcomes, and anticipated impacts. Outputs are the products, goods, and/or services that are produced as a result. The Outputs lead the short- and medium-term effects (Outcomes), as well as long-term effects (Impacts).

The aim of the questionnaire below is to identify whether there is a significant increase of awareness between before and after the Digital Action. Awareness building can be considered successful if the participant understands the nature of change and what it requires. The awareness assessment should be performed both at the start and at the end of the activity.

Initial questions - distributed before the activity

1. Have you ever participated in Digital Action that addresses community needs, or aims to address a sustainable development goal?
2. If yes to (1), what was your role in the Digital Action(s) you joined?
3. Are you familiar with the concept of theory of change?
4. What are your expectations for this activity?

Final questions - distributed after the activity

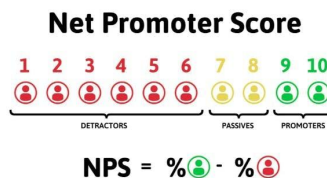
1. Has the activity you just participated in met your expectations?
2. How likely are you to participate in a Digital Action that tackles the community needs or sustainable development goals in the future?
3. Digital Action can address the needs of different stakeholders. Which targets do you prefer?
4. What skills do you think you would need to have in order to successfully participate in a Digital Action?
5. Do you think the activity has increased your motivation or interest for participating in Digital Action that addresses community needs?
6. What are your motivations or interests to be engaged with a Digital Action that addresses the community needs?
7. In the context of participating in Digital Action, what do you think you will do differently in the future, as a result of what you learned today?
8. Would you recommend participating in Digital Action that addresses community needs to a friend or associate?
9. On a scale from 1 to 10, rate your satisfaction with this event

Open dialogue

Enabling open dialogue between participants is important to have them reflect, ask questions, and share their own examples and experiences. We suggest a moment of sharing experiences at the end of the event.

Indicators and metrics calculations

The answers to the questionnaires should be analysed to show attitudes and opinions of the participants. We suggest the use of the Net Promoter Score (or NPS) is an indicator of the overall satisfaction rate of the event.



We also recommend the calculation of the growth in the number of participants between events and the number of subscribers to the newsletters if applicable.

Finally, a more comprehensive analysis should be performed of the impact of the DA on three dimensions:

Scientific Dimension

The impact of the DA in scientific terms should be assessed by evaluating the number and characteristics of the scientific knowledge and publications produced, the new research questions, projects or proposals created, the contribution to institutional and/or structural changes and the production of new knowledge resources and/or new technologies.

Participant Dimension

In terms of participant engagement, the individual and collective impact of the DA should be analysed by evaluating:

- The knowledge and skills developed by participants
- The contribution of the DA to scientific literacy
- The sense of ownership of the participants about the project
- The effectiveness of the communication between participants
- The motivation and engagement of individuals
- The establishment of common goals and a collective capacity to achieve them
- The collaborations established between participants
- The political participation and data sharing between stakeholders
- The multilevel interaction between actors

Environmental, Economic and Sustainability Dimension

From the environmental point of view, the DA should be assessed for its contribution to the protection of natural resources and awareness of environmental protection.

In terms of Sustainability, it should also be evaluated whether the project considers sustainability (environmental impact or sustained social relations) as part of the DA planning and whether the results can be transferred to other contexts or organisations.

Finally, in terms of economic potential, the projects should be evaluated for the generation of economic impact or competitive advantages, (e.g., cost reduction, new job creation, new business models, etc.) and for the creation of new market opportunities (e.g. social entrepreneurship).