

Deliverable 2.2

Scalability Potential Assessment

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Executive Summary

This document complements Deliverable 2.1 and provides an extensive account and description of the review and assessment of Citizen Science projects undertaken in CROPS' WP2 with respect to their upscaling potential.

This effort involved searching and ordering a total of 518 projects relevant to one or more of the 5 EU Missions. These projects have been reviewed with respect to 13 elements derived from the constructs defined in the CROPS Upscaling Framework, i.e. the factors that influence upscaling of citizen science.

A qualitative evaluation and assessment of these projects led to the identification of 76 projects as suitable for upscaling and thus for further consideration in this WP and project. These are presented in this document across the different missions.

Lessons learned both from the evidence collected within each Mission (i.e. Mission specific) and across the Missions themselves (i.e. more generalisable for the Citizen Science discipline as a whole) are reflected upon and provided.

1 Introduction

This Deliverable is dedicated to reporting the activities, outputs and outcomes of CROPS' Work Package 2 (WP2): Curation Appraisal of Current CS Actions and their Suitability for Upscaling achieved to date, i.e. M18.

1.1 The Work Package (WP)

The objective of this WP is drawn upon two main pillars:

1. Identify, review, and assess Citizen Science (CS) projects with respect to their upscaling potential. Specifically, identify at least 500 CS projects, review and assess at least 100, and select at least 3 projects per each of the 5 EU Missions.
2. Identify current and potential synergies between CS actions and the EU Mission's objectives.

These objectives are framed as part of the overall primary goal of CROPS, that is to enable and facilitate upscaling of CS to a Europe-wide level for each of the 5 EU Missions, that are:

1. **Adaptation to Climate Change:** support at least 150 European regions and communities to become climate resilient by 2030;
2. **Cancer:** working with Europe's Beating Cancer Plan to improve the lives of more than 3 million people by 2030 through prevention, cure and solutions to live longer and better;
3. **Restore our Ocean and Waters** by 2030;
4. **100 Climate-Neutral and Smart Cities** by 2030;
5. **A Soil Deal for Europe:** 100 living labs and lighthouses to lead the transition towards healthier soils by 2030.

This WP is delivered through 5 interrelated tasks summarised in Table 1.

Task	Name	Time	Lead	Key activity	Status
2.1	Review Existing CS projects	M1-12	IFC	Map 500 CS to the 5 EU Missions	Done
2.2	Scalability Potential Assessment	M6-18	IFC	Assess Scalability of 100	Done
2.3	Evaluation of Stakeholders	M12-20	IFC	In depth interviews with 3-5 projects per mission	WIP
2.4	Validation	M20-32	IFC	5 Validation Workshops	TBD
2.5	Synergies with EU Missions	M12-36	IIASA	Synergies CS - Missions'	WIP

Table 1: WP2's Tasks

This deliverable reports on the activities and results of Tasks 2.1 and 2.2, i.e. those completed to date. As argued in Deliverable 2.1 (summarised in section 1.2 below), a change has been made in that all projects initially reviewed and identified (i.e. the 500 related to Task 2.1) have been actually assessed with respect to their upscaling potential. In particular, Deliverable 2.1 provided the overall upscaling framework, the key research decisions taken and their associated limitations, the overall methodology as well as the specific methods and techniques employed, and an overview of the preliminary results. This document complements it by providing an account of the actual review and assessment process and an extensive description of its results. A graphical summary is provided in Figure 1.

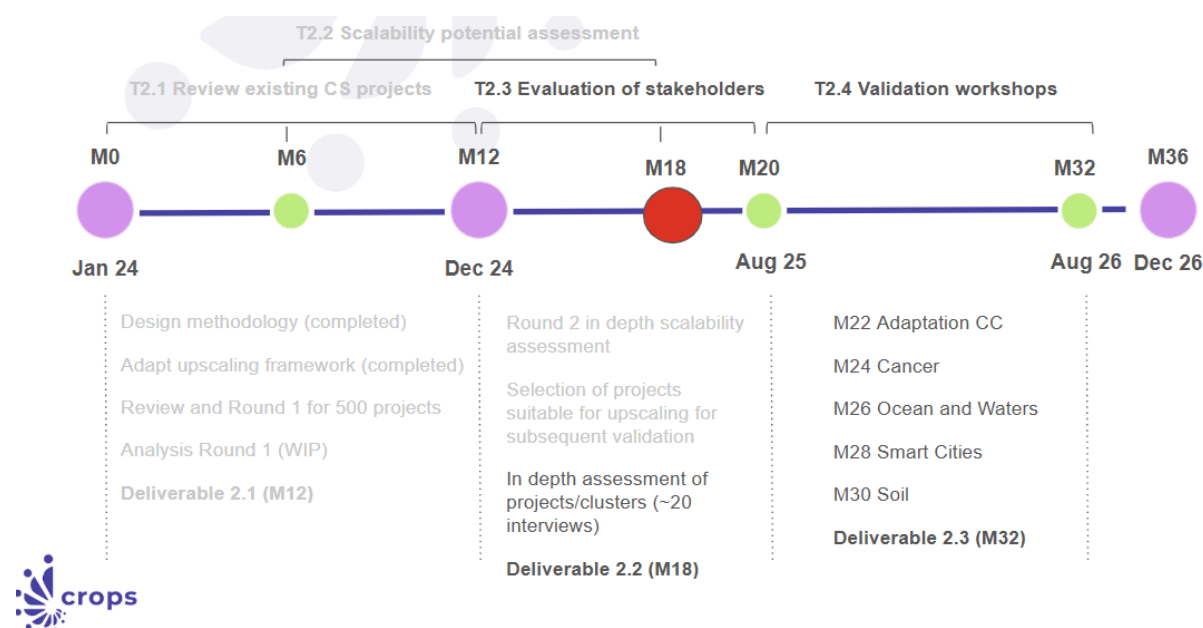


Figure 1: Progress to date and future activities WP2

1.2 Summary of Deliverable 2.1

In the context of WP2 of the CROPS project, Deliverable 2.1 reported on the activities and findings related to the completed Task 2.1 and provided initial insights gathered for Task 2.2.

Deliverable 2.1 presented and discussed the fundamental definitions and the framework adopted for the CROPS scalability assessment, along with the overarching methodology designed. It also addressed key questions that guided the study, helping to establish its boundaries and clearly define what falls within the scope of the CROPS review and assessment, and what does not. The report concluded with the adaptation of an existing upscaling framework to the CROPS context.

Specifically, the CROPS Upscaling Framework identifies nine factors that influence upscaling in citizen science. These factors are organized into three thematic clusters that are both theoretically grounded and empirically tested (Maccani et al., 2020)¹. They guided the data extraction from existing CS projects and have served as the main backbone for the upscaling assessment presented in Deliverable 2.2.

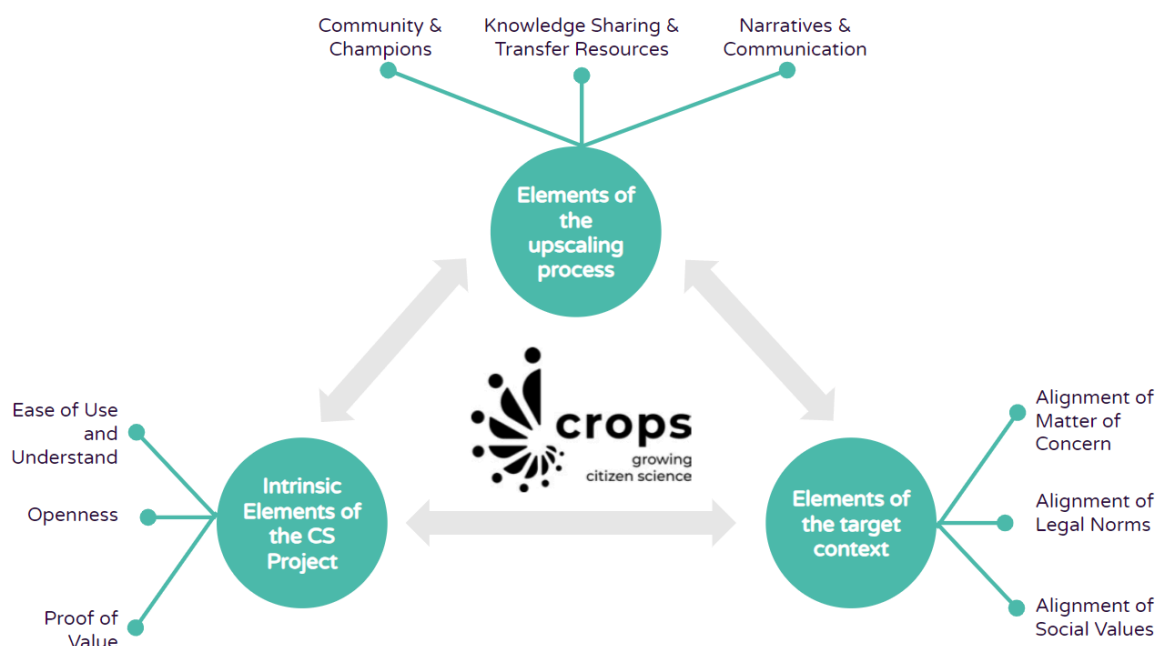


Figure 2. Upscaling Constructs (Maccani et al., 2020)

Deliverable 2.1 also provided initial insights from the assessment of 518 projects that were identified, listed, categorized under the five EU Missions, and preliminarily assessed. Given the broad diversity in project objectives and themes, a tailored, mission-specific approach was deemed necessary. As a result, each Mission was analyzed individually, allowing for the identification of additional thematic clusters within them.

This approach aligned with the overarching goal of the review: to pinpoint citizen science projects with strong potential for upscaling and for contributing meaningful impact to the five EU Missions. Consistent with the core objective of the CROPS project, the emphasis remained on assessing upscaling potential of Citizen Science projects at the transnational EU level.

The main outputs of this deliverable are therefore: (1) the list of the projects that are considered as suitable for upscaling according to the methodology and framework adopted, and therefore considered further in this WP; and (2) the lessons learned during this process.

¹ Maccani G., Goossensen M., Righi V., Creus J. and Balestrini M., Scaling up Citizen Science - What are the factors associated with increased reach and how to lever them to achieve impact, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-25157-6, doi:10.2760/00926, JRC122219.

In total, 518 projects were reviewed and assessed. During the process, 31 have been removed, leaving 487 that were found to be relevant to one or more Missions and assessed. As a result, 76 are selected as suitable for upscaling in CROPS². These are consistent with the Upscaling Framework in Figure 2.

1.3 Structure of the Document

After this introduction, the next section will provide an overview of the overall sample (518 projects) and the review and assessment process resulting in the selection of the 76 projects suitable for upscaling. This includes how the methodology described in Deliverable 2.1 has actually been employed and general statistics of the sample considered.

Chapters 3 to 7 present the findings from each of the 5 EU Missions, following a consistent content structure:

- First, an overview of projects considered within the Mission under analysis is provided together with the final clusters of projects considered. In other words, for each Mission, a number of groups of contributions have been outlined. For example, in Adaptation to Climate Change, projects belonging to the category of Biodiversity have been distinguished from those on Land Use and Land Cover.
- The second section of each Mission chapter is dedicated to discussing some particular patterns or exceptions encountered during the review. This includes outlining with examples the main reasons why projects have not been considered further and lessons learned on upscaling projects within the specific Mission at stake. For space reasons a full description of each project is not provided in the main text (see Appendices).
- The third and final section within each Mission is dedicated to extensively describe those projects selected as suitable for upscaling, the reasons and rationale behind these decisions, and aspects to be investigated further. To do so, the same template is used for all projects and is provided in Figure 3.

The chapters are complemented by Appendices, which provide a comprehensive overview and discussion of each project analysed in CROPS, in the context of WP2. All details about all projects are provided in Appendices 1, 2, 3, 4, and 5, for the Missions Soil, Adaptation to Climate Change, Climate Neutral Smart Cities, restore our Ocean and Water, and Cancer respectively. Each appendix is a reduced version of the overall assessment spreadsheet developed, which is not included for space and readability reasons. Each contains at least the following information for each project: Name, Selected Further [yes, no], URL, Description of

² It is reminded about the limitations of this study and specifically that the projects that appear to be not considered further are not necessarily not upscalable. Rather, the selected ones are found to be suitable for upscaling given the scope of CROPS and the theoretical and methodological assumptions taken for this study.

project focus, EU Mission, Other EU Missions Tackled, Active [yes, no], Start, End, Funded by [type of entity], Funded by [specific entity], Funding Call (if relevant), Led by [type of entity], Led by [specific entity], Area of Focus, Main Outputs, Outcome [types], Outcome and Impact, Evidence of Impact on the Mission, Incidence of the Issue Tackled [local, regional, national etc.], Alignment of Legal Norms [yes, no], Participation Tasks, and a Rational for the Decision taken in this assessment.

PROJECT NAME		
	Project Vision	
	Project URL	
	Mission	
	Timeframe	
	Lead	
	Funding	
	Area of Intervention	
	Participation tasks	
	Outputs	-
	Impact	
	Evidence of Impact	
Why is it suitable for upscaling?		
-		
Next steps: aspects to be investigated further		
-		

Figure 3. template for Projects Presentation

Finally, Chapter 8, is dedicated to outlining and discussing some insights emerging across the Missions on upscaling Citizen Science to the EU transnational level. The concluding section of this chapter provides indication of the next steps to be undertaken in WP2 as well as the work that is currently ongoing.

2 An Overview of the Overall Assessment

This second chapter gives an overview of the selection process and provides some general statistics of the projected selected suitable for upscaling.

2.1 Selection and exclusion criteria

A total of **518 projects have been listed, and 487 have been finally reviewed and assessed using the Scalability Assessment Framework** and the associated methodology developed within the CROPS project (see Deliverable 2.1). Out of these, **76 projects were identified as suitable for upscaling**.

Consistent with Task 2.1, projects were searched using multiple methods. An initial screening was conducted over the 518 identified projects. The first step was to assign each project to the EU Mission(s) it is aligned with in terms of scope and contributions. Subsequently, each project has been investigated in detail from publicly available information (primarily their websites and channels). For each we extracted all relevant information for all constructs in the framework across the 22 variables presented above, in Deliverable 2.1, and in Appendices 1-5. This data has been stored in an integrated spreadsheet. In parallel, the clusters of contributions within each Mission emerged. Each of these was tackled separately in the analysis.

This information was reviewed line by line and project by project. Colour coding has been assigned to each project as follows.

Colour	Typical Aspects
Red (excluded)	No public information at all, beyond some mentions in existing articles or platforms. Marginal or insignificant role of Citizen Science.
Orange (likely excluded)	No evidence of open science, or open data No outputs provided, only project descriptions and aims No evidence of direct contribution to the 5 EU Missions
Yellow (check more in-depth)	Some of the elements missing, or not found and therefore require more in depth investigation.
Green (selected)	Evidence of impact on the mission. Tackling a problem that is relevant to the EU, i.e. beyond very local situated issues. Consistent with open science. Expected accessibility to participants. Open resources supporting activities and technologies provided. Open educational resources provided.

Table 2. Selection and exclusion selection of projects

Projects labelled as “red” were reviewed once only and excluded. For those indicated as “orange”, additional evidence has been sought for the issues initially encountered. Those labelled as “yellow” were investigated more in-depth. As an example of these cases, some projects were found to leave as legacy outputs such as maps or apps. However, from a first review it was still unclear whether these were indeed consistent with open principles. For instance, in some cases it was necessary to verify the level of openness of the data produced (e.g. if it is actually possible to download the datasets). Some other cases were those where, despite open outputs, the impact on the mission was not clearly demonstrated. As a result, a third and final round of evaluation was required to finalize the list of 76 selected projects, finally labelled as “green”. For each project, a decision rationale on why it has been selected further (or not) is provided (see Appendices).

2.2 Overarching Description of the 76 Selected Projects

As mentioned in the previous section, a total of **518 projects** were reviewed and 487 assessed using the *Scalability Assessment Framework* of CROPS project, and **76 CS projects** were identified as suitable for upscaling. The distribution of these projects across the five European Missions is as follows:

- **14 CS projects (i.e. 18.4%)** in *Adaptation to Climate Change*;
- **9 CS projects (i.e. 11.8%)** in *Cancer* (and healthcare more generally);
- **20 CS projects (i.e. 26.3%)** in *Restore our Ocean and Waters*;
- **15 CS projects (i.e. 19.7%)** in *Climate-Neutral and Smart Cities*;
- **18 CS projects (i.e. 23.7%)** in *A Soil Deal for Europe*.



Figure 4. Count of selected projects by EU Missions

Restore Our Ocean and Waters is the mission with the highest number of selected projects (20 i.e. 26.3%). Followed by *A Soil Deal for Europe* (18 i.e. 23.7%) and *Climate Neutral Smart Cities* (15 i.e. 19.7%).

As explained in Deliverable 2.1, a significant challenge during the assessment work for Task 2.1 was assigning projects to a single EU Mission, as many CS projects address multiple missions simultaneously. Additionally, some EU Missions have overlapping goals. For example, even very focused projects such as on monitoring certain bacteria in urban gardens can contribute to three missions at once: *Soil*, *Adaptation to Climate Change*, and *Climate-Neutral and Smart Cities*. Therefore, it was argued and decided in Deliverable 2.1 that, in such cases, both the “Main Mission Tackled” and any “Other Missions” would be specified in the review. Also, certain assumptions have been taken to assign certain topics to specific missions.

A total of 51 projects (i.e. 68.9%) were identified to influence a secondary Mission, with this range, 33 projects (i.e. 44.6%) are having influence or impact on the *Adaptation to Climate Change* mission.

Count of Other EU Missions tackled

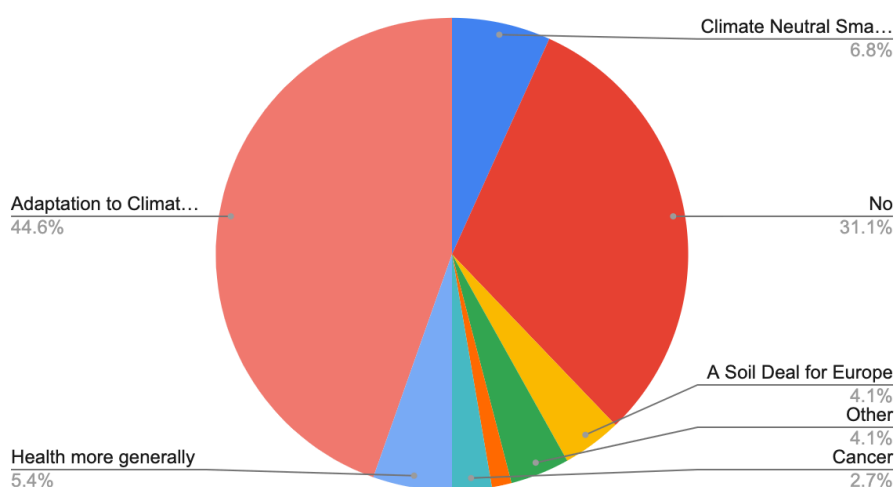


Figure 5. Count of selected projects secondarily influencing an EU Mission

Among the 76 selected projects, the majority appear to be active (68 projects in total i.e. 89.5%), although 1 of them have not released updates or news within the past two years.

Count of Active (yes or no)

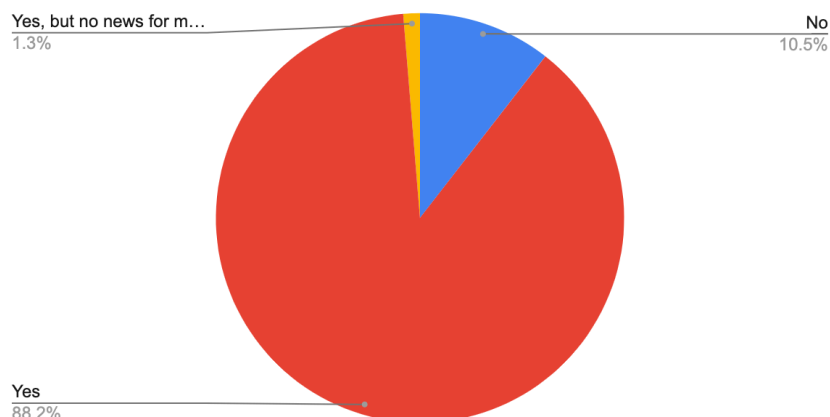


Figure 6. Active and non active CS projects

In terms of funding, the majority of projects are funded from public sources (38 projects i.e. 51.0%), often from the European Commission programs (e.g. HORIZON 2020, Horizon Europe, INTERREG, LIFE). This grows to 43 projects if considering also research institutions and universities. Nine additional projects are currently funded by established NGOs (owning the project itself) and/or through donations and sponsorships. It is noted however, that these are the current funding structures, and often the result of leveraging different funding schemes before finally establishing an organization. It is also common for Citizen Science projects to receive a mix of public and private funding. Typically, universities, research institutes, and NGOs/non-profit organizations collaborate with private entities to conduct research on specific scientific questions. In some cases, projects may begin with private funding and later secure support from public institutions or European funding calls, or vice versa.

Count of Funded by

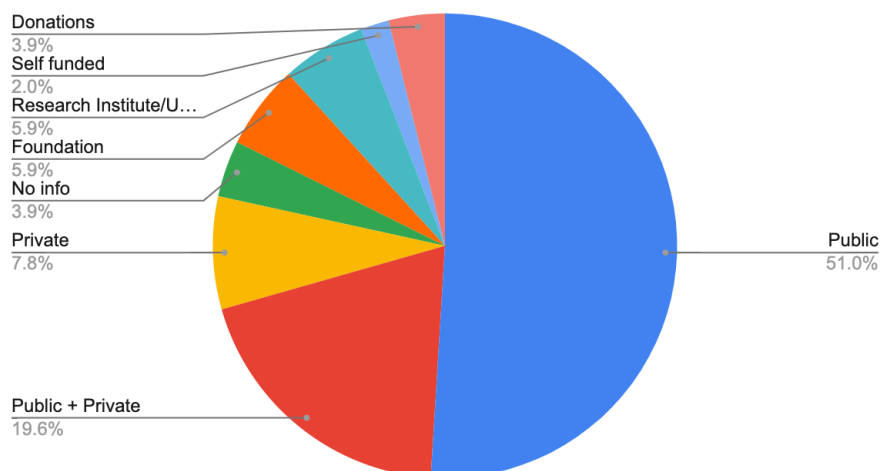


Figure 7. Distribution of Funding Sources

As discussed in Deliverable 2.1, the specific objectives of each of the five EU Missions are closely aligned with the United Nations Sustainable Development Goals (SDGs). This alignment reflects shared priorities such as climate action, environmental protection, public health, sustainable cities, and responsible use of natural resources. As a result, it is not surprising to find that many of the reviewed citizen science projects have a global dimension, both in terms of the challenges they address and the impact they aim to generate. A significant number of these projects operate with a global focus and contribute to broader international efforts to achieve sustainability goals. Below we compare the distribution of the areas of focus of the selected projects (i.e. their actual area of intervention or where the project activities/outcomes are implemented/delivered - see Figure 8) and the incidence of the issues tackled (see Figure 9). As shown, most issues, including those tackled locally in the selected projects, are globally relevant. According to the CROPS Upscaling Framework, this is an important enabler for increasing the upscaling potential.

Count of Area of focus (Local / Regional / National / Global) - data from 2024

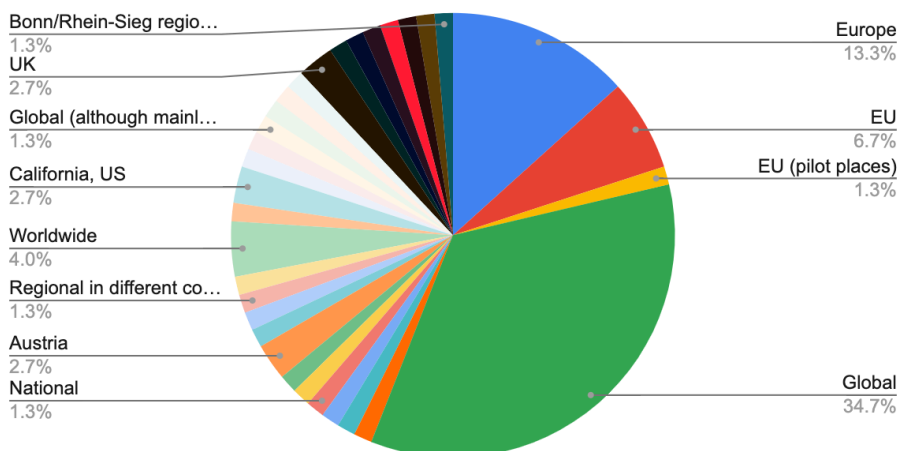


Figure 8. Area of focus of the projects

Count of Incidence of the issue tackled (Local - Regional - National - Global)

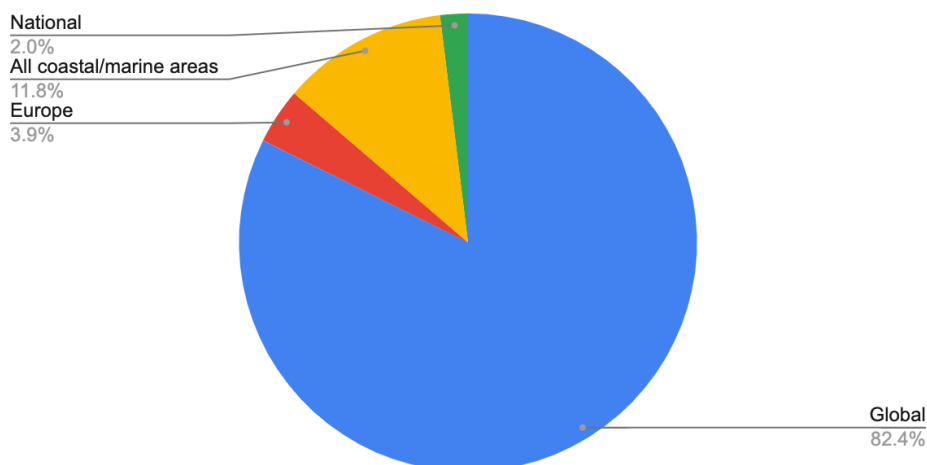


Figure 9. Incidence of the issue tackled by the projects

Finally, we have not encountered any major legal issue inhibiting upscaling among the selected projects. In other words, none of the projects considered suitable for upscaling should face legal impediments to extending its activities across other countries or jurisdictions.

3 A Soil Deal for Europe

The EU Mission A Soil Deal for Europe is drawn upon and operationalised through 8 main objectives:

- reduce desertification;
- conserve soil organic carbon stocks;
- stop soil sealing and increase re-use of urban soils;
- reduce soil pollution and enhance restoration;
- prevent erosion;
- improve soil structure to enhance soil biodiversity;
- reduce the EU global footprint on soils;
- improve soil literacy in society.

These objectives are addressed and pursued through four main classes of actions promoted by the EU. These include:

- funding an ambitious research and innovation programme with a strong social science component;
- putting in place an effective network of 100 living labs and lighthouses to co-create knowledge, test solutions and demonstrate their value in real-life conditions;
- developing a harmonised framework for soil monitoring in Europe;
- raising people's awareness on the vital importance of soils.

Consistent with the structure adopted, this chapter reports on the description of the sample reviewed and assessed (section 3.1); subsequently lessons learned, emerging insights, and common reasons for not inclusion in the selected projects are discussed (section 3.2); finally all selected projects are presented through the template adopted (section 3.3)³.

3.1 Overview of Projects Reviewed

In total, 107 Citizen Science projects reviewed were clustered under the Soil Mission. As already anticipated in Deliverable 2.1, these projects could be further clustered based on the specific contributions to the Mission. In total, the projects reviewed belong to one or more of these clusters⁴:

- **Projects focused on mapping and monitoring soil's attributes (n=66, i.e. 61.7%):** the vast majority of projects in this category refers to Citizen Science efforts to map different characteristics of soils. These, in turn, vary with respect to: (1) their levels of breadth and depth, e.g. projects that map all possible soil attributes in a more general fashion or one specifically (e.g.

³ For space reasons, the links to the different projects are provided as hyperlinks instead of footnotes.

⁴ See Deliverable 2.1 for an extended description of these clusters and their alignment with the Soil Mission.

humidity or acidity or biodiversity or metals or organic content etc.); (2) the task performed by citizens and the methods employed, e.g. through photo uploads on an app, through sample analysis, through sensing activities.

- Projects whose main focus is on **education, i.e. educating the public about the importance of soil and how to address related challenges (n=5; i.e. 4.7%)**: these five projects contribute to the Mission by raising awareness about the importance of preserving soils and best practices on how to do it. Again, projects vary from those like [GLOBE Soil Module](#) that focuses on soils in general, to others that focus on specific aspects such as pesticides in [In My Backyard](#).
- **Projects focused on different aspects of sustainable agriculture and related practices (n=24, i.e. 22.4%)**: this cluster groups together all projects aimed at somehow improving awareness and/or implementation of sustainable practices in agriculture. Examples again vary from projects like [NBSoil](#) that assume a wider scope on supporting agricultural resilience across different practices, and those that focus on specific aspects, such as specific agroecological or agroforestry practices in [AGOMix](#).
- **Advocacy or Awareness Actions (n=2; i.e. 1.8%)**: including two projects consisting of enabling and implementing specific advocacy actions by citizens to raise awareness about the importance of soils.
- **Other (n=5; i.e. 9.3%)** projects whose focus is not covered in the clusters above such as generally exploring soil related threats and reporting them to the scientific and policy making communities. Within this category also projects that cover all aspects mentioned above are included. An example is [HuMus](#) or [Soil Health Benchmarks](#), which simultaneously covers soil biodiversity, sustainable agriculture, awareness, and education.

A graphical representation of this distribution is provided below.

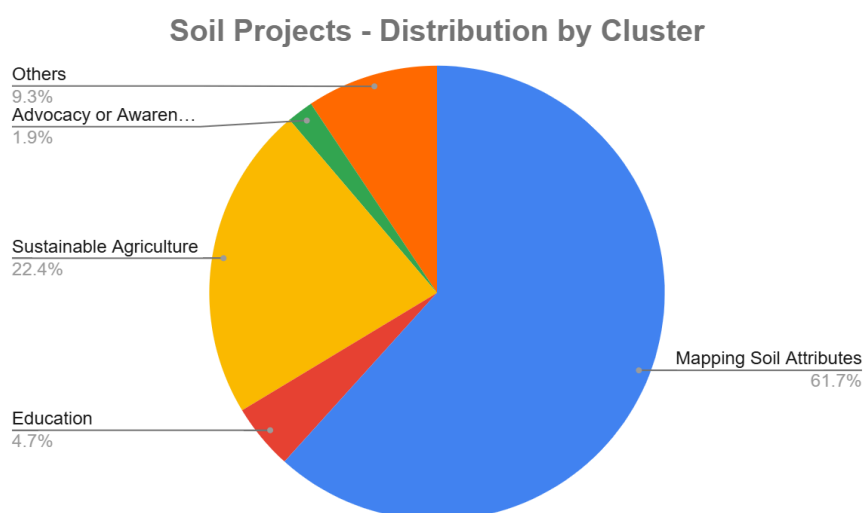


Figure 10: Soil projects distribution by cluster of focus

Of the 107 projects reviewed and assessed, 53 (i.e. 49.5%) are active at the time of writing this report, 52 are completed, and 2 unknown. In terms of funding, complete information was found about 95 projects. The vast majority of these (n=79, i.e. 83.2%) is publicly funded, and this percentage grows to 88.4% if considering also research institutes or universities. The remaining 11% is from various types, i.e. either private funding, donations, or self-funded projects (i.e. financially sustainable).

The review of this mission led to identifying **18 projects** that are carried forward in this WP process, i.e. that have been found suitable for upscaling consistent with the CROPS definitions, assumptions and framework. Collectively, these projects cover four of the five clusters encountered, consistent with the overall distribution.

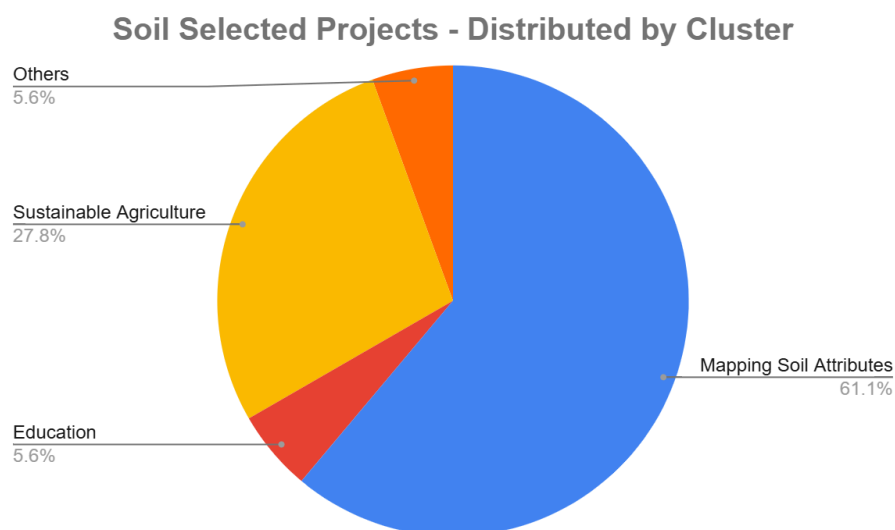


Figure 11: Soil projects distribution by cluster of focus

In particular, of the 18 projects considered further, 11 belong to the Mapping Cluster, 1 to Education, 5 to Sustainable Agriculture, and 1 to the Other category.

3.2 Overall Insights and Reflections from the Review Process

The fact that 18 projects have been selected further was not related to a specific KPI or objective. Rather, for these, the potential for upscaling was inferred by applying the framework to the information we found about those projects⁵. Of the remaining 89 projects, certain patterns can be identified and discussed for reasons why these are not part of the ensemble of those considered further. These and other lessons learned during the process are proposed below.

⁵ We once again reinforce the limitations of this method and in this specific case the fact that we so far have relied on publicly available information and secondary data mainly from the projects' websites and channels.

- The most prominent reason for not considering projects further is **lack of evidence of impact**. A typical example is the [Programa de Conservaci3n de Suelos](#), a Mapping Citizen Science project based in Vitoria, Spain. This has a full set of resources and complies with most open principles. However, evidence shows very little participation, way below their objectives, with only 4 people participating over the last two years. Other cases, while not providing evidence of impact on the Mission (e.g. reduced use of certain pesticides, and therefore more sustainable agricultural practices), do provide evidence of outputs (e.g. number of farmers and citizens actively engaged in workshops). Although there is no direct link between the output and the outcome, the outputs can be seen as proxies for the outcomes. These cases (if other elements are in place) have not been excluded at this stage, underlying that further evidence of impact will be sought (e.g. through the subsequent interviews).
- The second main reason, as expected, is **lack of information**. Too often, projects are not replicable or upscalable simply because information about them is not publicly available (including contact points to whom this could be potentially retrieved).
- **Lack of openness** and transparency is another common reason for not considering a specific project. Very often projects appear as black boxes where citizens provide their contributions, e.g. soil mapping of biodiversity like in the case of [Worm Watch Lab](#), but there is no evidence of who uses this data, of the data itself, and what the outputs from data use are either not open themselves or not available on the Citizen Science project website (they may be elsewhere). Rather, these typically state “your data is used to improve research”. Period.
- In other cases, the **role of Citizen Science is either minimal or marginal** compared to the wider initiative or program it is part of. This is the example of [AgriAdapt](#), a project designed to test farming solutions that ingrains a small component of Citizen Science soil quality monitoring. In these cases, upscaling this marginal component of the project would often mean upscaling a much wider setting and infrastructure, way beyond the scope of this exercise. These have therefore not been considered further.
- Some other projects **required proximity to deliver their outcomes**. These are typically very local actions like [Acid-Soils-Testing-Blitz](#), relying strongly on a community of local enthusiasts and, most importantly, on physical interactions. [Dust Analysis](#), an Australian Citizen Science project, similarly requires proximity in that participants need to physically collect their kits and return them following a specific procedure. Others have been specifically designed for a local community addressing a local matter of concern, e.g. the prominence of certain metals in soils like in the case of the abovementioned Dust Analysis project.




- Other times, **projects naturally have a beginning and an end**. This is the case of all those projects that aim to develop a product or service (e.g. through leveraging Citizen Science as a form of co-creation) or to answer a very specific research question. An example of the latter could be [Summer Solstice](#), to specifically investigate through soil samples analysis the resistance of fungicidal drugs. Another example is [Proyectos Nuestros Suelos](#), a project specifically implemented to co-create a very local policy in Chile. The common denominator across these examples (among others) is that they can be considered completed. The fungicidal drug has been tested through Citizen Science, improved accordingly, and entered the market.
- Other cases were not considered as the main leader behind them **acknowledged that the pilots have not been successful** or did not achieve the pre-determined objectives and expectations and were therefore interrupted. This is the case of [Latrobe Valley Dust Research](#) where in one of their final updates the team concluded that “significant conclusions could not be drawn from the results” (project website).
- In certain cases, **projects merged amongst themselves**. In these cases, we considered the most recent ones, and did not consider those merged, e.g. [UKSO My Soil](#) merged into the more developed [UKSO Soil Observatory](#).

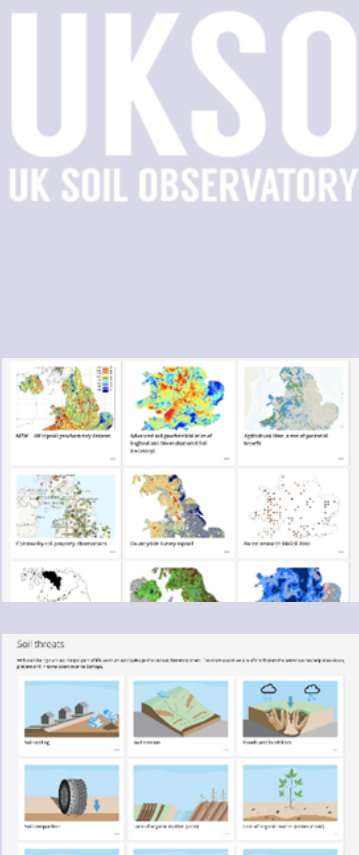
Regarding the latter case, two further, more articulated examples are proposed. First, [Tea Composition Initiative](#) has been selected as suitable for upscaling (see section 3.3) from considering several similar projects. It consists of experiments involving citizens in monitoring soil health by observing tea bags buried in the ground and their evolution, to improve research on soil decomposition rate and stabilization factors. This project is the result of the evolution of similar efforts, started in 2010 as part of [TeaBag Index](#) in Sweden, subsequently upscaled within the country as [Tea Bag Experiment](#). This concept and method was partially uptaken and built upon by [Tea Composition](#) (Australia) as well as its [EU branch](#), a similar one in [Germany](#), [Bodemleven](#) in Belgium. The selected project, i.e. [Tea Composition Initiative](#) ingrain the most recent tools and resources, as well as the learning from the previous ones. It runs on the SPOTTERON Citizen Science Platform, has a dedicated [mobile app](#), and provides a wide set of support resources. Its "predecessors" are not considered further. However, some of these are found to be particularly suitable for schools, and will therefore be provided as an input to the development of the CROPS MOOC.

Similarly to the previous, a series of different projects was found about burying underwear. [Proof by underpants](#) has been included in the list of suitable projects as the most developed amongst similar ones considered such as [Soil your Undies](#), [Alsóban az élet](#), and [Plante ton Slip](#). Its originality, results and the fact that its principles and methods have been successfully applied in several countries through other projects, are all considered valuable aspects that led to its inclusion.

3.3 Soil Mission: Projects Considered Suitable for Upscaling

Next, we present the 18 Mission Soil-related projects identified as suitable for upscaling.

Vigilantes Del Suelo		
  	Project Vision	Gain knowledge about soil quality and attributes through citizen science.
	Project URL	https://vigilantesdelsuelo.es/
	Mission	Soil (Map Cluster)
	Timeframe	2023 - Ongoing
	Lead	Ibercivis (NGO)
	Funding	National Spanish Funding (FECYT)
	Area of focus	National, Spain
	Participation tasks	Download the app and submit soil observations. Tutorials available.
	Outputs	<ul style="list-style-type: none"> - Results Reports - Open Data - Dedicated App - Full suite of Replication kit
	Impact	Increased knowledge of soil attributes in Spain and raised awareness.
	Evidence	Publications
Why is it suitable for upscaling?		
<ul style="list-style-type: none"> - Proven impact in Spain - Tasks conducted with open resources (DIY) and supported by associated guidelines - Open data and open hardware. - Proven effective in engaging citizens although in a short period of time 		
Next steps: aspects to be investigated further		
<ul style="list-style-type: none"> - Willingness of original team to foster adoption beyond Spain - Openness of the application and possibility to export the main data collection feature to other apps too. - Extent of data adoption and type of data use (effort ongoing in the project at the time of writing this report) 		

UK Soil Observatory		
	Project Vision	Map soil attributes across the UK. The UKSO is an online archive of UK soils data. The datasets have knowledge of soil types and properties, allowing to develop strategies for sustainable agricultural production.
	Project URL	https://www.ukso.org/
	Mission	Soil, Adaptation to Climate Change
	Timeframe	2020 - Ongoing
	Lead	UKSO
	Funding	The Natural Environment Research Council (NERC) Biotechnology and Biological Sciences Research Council (BBSRC), UK Research and Innovation (UKRI)
	Area of focus	National (UK)
	Participation tasks	Upload observation data in one of the mobile and website interfaces, Learn about soil threats via apps, the website, and other literacy resources.
	Outputs	<ul style="list-style-type: none"> - UKSO map viewer, - Mobile apps to crowdsource soil data - Website open data sources, - Industry resources to better understand soils, - Literacy resources, - Education resources,
	Impact	Better understanding of soils and protecting them for future generations by enabling national action
	Evidence	Publications by 8 partners involved in the project.

Why is it suitable for upscaling?

- Proven scientific impact
- Open data: crowdsourced data are a complementary source of data on soil-related threats,
- Full kit of training and literacy resources,
- Global issue,
- Financial stability by local organizations

Next steps: aspects to be investigated further

- Consider potential competition with other projects versus synergies.
- Level of openness of the data sets,
- Collaboration with local stakeholders beyond the 11 partners involved in the project?
- Training resources & engagement

One Million Voices of Agroecology

  	Project Vision	Enable farmers, producer organizations, consumers and other potential end users around the world to inclusively participate in agroecology movements.
	Project URL	https://onemillionvoices.agroecologymap.org/
	Mission	Soil (Sust. Agriculture Cluster), Climate Change Ad.
	Timeframe	2023 - Ongoing
	Lead	Agroecology TPP (NGO)
	Funding	Public: Swiss Agency Development and Cooperation (SDC)
	Area of focus	Global
	Participation tasks	Citizens and projects can upload the information about local projects working on agroecology related topics.
	Outputs	<ul style="list-style-type: none"> - Agroecology Map, "Share your practice" system - Manual and mobile app (Android only) - Open data (CC license) and data platform - Agroecology data and practices
	Impact	Improved and increased agroecological practices from the collection, co-creation and sharing of experiences and knowledge on the performance of agroecology and its practices.
	Evidence	Use of the Platform, and New Practices




Why is it suitable for upscaling?

- Global by design and tackling a global issue. Supports multi language.
- Significant participation and proven impact to date

Next steps: aspects to be investigated further

- Extent of data use and additional evidence of scientific impact
- Accessibility of the data
- Willingness to upscale further and align with Soil Mission

Seed Library

  	Project Vision	Local communities share homegrown seeds where the libraries are located. Collections are described and searchable with predefined metadata.
	Project URL	https://www.gkfb.si/za-uporabnike/knjiznica-semen
	Mission	Soil (Sust. Agriculture Cluster), Climate Change Ad.
	Timeframe	2020 - ongoing
	Lead	France Bevk Public Library
	Funding	France Bevk Public Library
	Area of focus	Slovenia
	Participation tasks	Engage through donating, collecting, using home grown seeds at libraries within your residential area
	Outputs	<ul style="list-style-type: none"> - Ekosplet App provides general descriptions, cultivation notes, and to trace individual seeds - Resources for Libraries (Slovenian) - Learning and knowledge modules, how to guidelines (e.g. how to grow)
	Impact	22 Public libraries and 10K + app downloads Preserve the biodiversity of local indigenous plants through the free circulation of seeds
	Evidence	Ars Electronica Prize Page


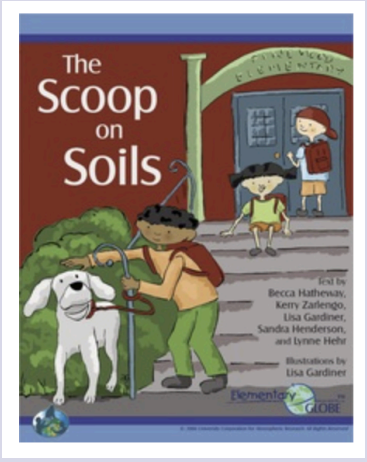

Why is it suitable for upscaling?

- Successful upscaling within Slovenia
- Issue relevant across EU contexts and levels (urban, suburban, rural)
- Common metadata structures defined and provided
- Existing knowledge transfer resources
- Existing active involvement and networks of libraries in enacting CS initiatives
- Similar projects upscaled in the US
- [Honorable Mention in 2024 IMPETUS EU Citizen Science Awards](#)

Next steps: aspects to be investigated further

- App openness
- Explore replicability of engagement activities: workshops, lectures, and gardening clubs

Elementary GLOBE Soil

  	Project Vision	Develop and establish a system for volunteer based education on soil to students
	Project URL	https://www.globe.gov/web/elementary-globe/overview/soils
	Mission	Soil (Education Cluster)
	Timeframe	2006 - Ongoing
	Lead	GLOBE network (NGO)
	Funding	Public: US Government and NASA
	Area of focus	Global
	Participation tasks	Consume content, interactive and action based exercises are included. Mainly dedicated to elementary schools.
	Outputs	The teaching material includes a science-based fictional storybook, three learning activities, and teacher's notes with a glossary of relevant scientific terminology.
	Impact	Impact on education and raised awareness subsequently.
	Evidence	Users

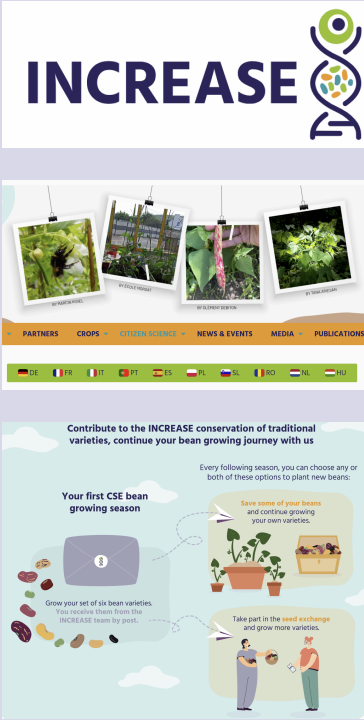
Why is it suitable for upscaling?

- Long lasting and proven sustainability
- Focused on education (raise awareness and literary alignment) through open resources
- Existing network of schools engaged in Citizen Science across the EU
- [Open resources](#) (both learning modules and books and activities and actions)
- Available in Arabic, french, German, Norwegian, Spanish, and English

Next steps: aspects to be investigated further

- Extent of measurable impact on the Mission
- Possibility to complement the content

INCREASE (Share the Bean)

	Project Vision	Citizens to voluntarily contribute to and test an innovative decentralised approach to seed conservation, multiplication and sharing in order to conserve agro-biodiversity.
	Project URL	https://www.pulsesincrease.eu/experiment
	Mission	Soil (Sust. Agriculture Cluster), Climate Change Ad.
	Timeframe	2020 - Ongoing
	Lead	Università Politecnica delle Marche
	Funding	EU Horizon 2020 - Societal Challenges
	Area of focus	Global
	Participation tasks	Complete a bean planting and growing action as part of a community.
	Outputs	"conservation tools and methods to foster agricultural biodiversity in Europe. Focusing on the food legumes chickpea, common bean, lentil and lupi. Step by step guide Mobile App
	Impact	Sharing of food legume genetic resources data through optimised databases and easily accessible tools. Raised Awareness.
	Evidence	Publications

Why is it suitable for upscaling?

- Proven impact - both scientific and in terms of participation so far
- Full set of [resources](#) and instructions available for easy adoption and or replication
- Exhaustive [knowledge base](#) openly available
- Can improve through potentially integrated resources from Seed Library

Next steps: aspects to be investigated further

- Future plans of the consortium and dependency of their active participation, i.e. what would it imply for others to adopt it and replicate it?
- Level of openness and accessibility of the data

Grow Observatory

  	Project Vision	Enable and support a movement of citizens generating, sharing and using information on growing and soil
	Project URL	https://growobservatory.org/
	Mission	Soil (Map Cluster), Adaptation to Climate Change
	Timeframe	2016 -2019
	Lead	University of Dundee
	Funding	EU Horizon 2020 - Societal Challenges
	Area of focus	Europe
	Participation tasks	Crowdsourced ground observations from low-cost sensors to validate soil moisture information from satellites
	Outputs	Citizen Observatory on soil and land
	Impact	Enable individual and community based climate actions through awareness raising and citizen generated data. Improved the accuracy of satellite predictions of extreme events, such as flood, drought and wildfire
	Evidence	Results and Publications


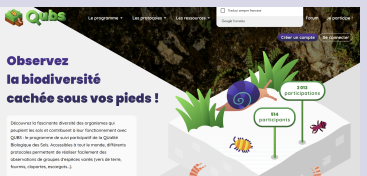
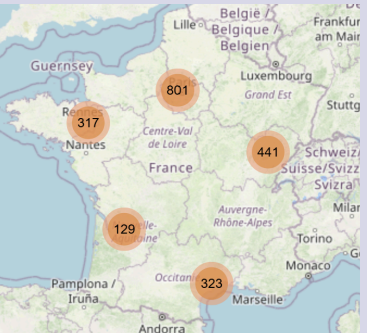
Why is it suitable for upscaling?

- Reference project in Citizen Science and Soil
- Global issue and global by design
- Open hardware, open data

Next steps: aspects to be investigated further

- Project completed, regain access to some resources.
- Understand how the projects and its components have evolved since, found evidence on only some elements and aspects.
- Look for evidence of data use beyond the satellite calibration

QUBS

  	Project Vision	Establish a citizen science program accessible to all to assess the diversity and abundance of invertebrates indicating soil quality
	Project URL	https://www.qubs.fr/
	Mission	Soil (Map), Adaptation to Climate Change
	Timeframe	2023 - Ongoing
	Lead	CNRS (Research Institute)
	Funding	Mix of French Public Entities (See here)
	Area of focus	France
	Participation tasks	Primarily upload observations on soils.
	Outputs	Participatory Platform Observations submitted by citizen scientists 1973 so far Resources and protocols
	Impact	Raised awareness among citizens about this hidden biodiversity, often little known, and the issues related to the preservation of soil biodiversity.
	Evidence	Publications




Why is it suitable for upscaling?

- Significant participation and contributions to date - over 2,000 participants
- Global issue
- Full set of resources and protocols to enable upscaling through replication and independent adoption
- Proven impact on the mission through scientific publications
- Fully meets criteria of open science

Next steps: aspects to be investigated further

- Check willingness to upscale beyond France and requirements
- Investigate further data entry process and room for improvement / adaptation
- Check effort to translate resources to other languages. Currently most are available in French

SoilPlastic

  	Project Vision	It explores the impact of microplastics on soil health and biodiversity. It engages citizens in collecting data to better understand plastic pollution's effects on terrestrial ecosystems.
	Project URL	https://minagris.eu/soilplastic-app/
	Mission	Soil (Map Cluster)
	Timeframe	2021 - Ongoing
	Lead	AGES - Austrian Agency for Health and Food Safety (Research Institute)
	Funding	EU - Societal Challenges
	Area of focus	Europe
	Participation tasks	Download the app and contribute with observations, Data collection through an app about plastic waste in soils.
	Outputs	Mobile App Full users guide Data map and datasets Data on SPOTTERON
	Impact	Better understand the impacts of plastic residues on soil health (transfer to a wider project)
	Evidence	Scientific Publications , and specifically on soil health Participants


Why is it suitable for upscaling?

- Several thousands of contributions submitted to date
- Proven scientific impact
- Set of resources to support meaningful and full adoption of the mobile app
- Already linked with wider scientific infrastructure, with extensive proven impact on soil science

Next steps: aspects to be investigated further

- Investigate further accessibility and level of openness
- Check further whether there is evidence of data use, and impact from its use
- Willingness to continue the effort

Observatoire Agricole de la Biodiversité (OAB)

	Project Vision	Platform that promotes biodiversity monitoring on agricultural lands. It encourages farmers to participate in five observation protocols, covering species such as bees, butterflies, and bats, to assess ecosystem health and support sustainable farming practices.
	Project URL	https://www.observatoire-agricole-biodiversite.fr/
	Mission	Soil (Sustainable Agriculture), Ad. Climate Change
	Timeframe	2009 - Ongoing
	Lead	National Museum of Natural History
	Funding	Public: French Ministry of Agriculture
	Area of focus	France
	Participation tasks	Conduct one or more of the required activities following the clear guidelines, different levels of participation are possible.
	Outputs	Data part of the Vigienature observatory ; Wide set of resources for each activity
	Impact	Mapping and better and more sustainable farming practices
	Evidence	Results by year available here



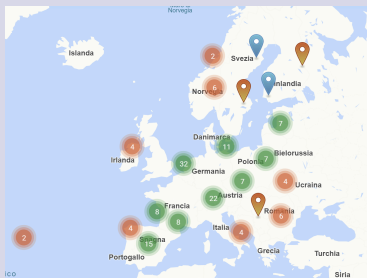
Why is it suitable for upscaling?

- Long lasting as proof of autonomy and sustainability
- Significant amount of contributions to date and proven impact
- Fully aligned with openness and open science principles
- Comprehensive set of resources available for facilitating adoption

Next steps: aspects to be investigated further

- Investigate data entry process and data management
- Check willingness of team to commit to upscaling
- So far it has engaged more than 15 sites across France. What does it take to become a "site"?

Prepsoil

  	Project Vision	developing effective strategies for soil protection, enhancing sustainability in agricultural practices. It integrates research and innovations to optimize soil management and improve resilience to environmental challenges.
	Project URL	https://prepsoil.eu/
	Mission	Soil (General Cluster)
	Timeframe	2022 - Ongoing
	Lead	Aarhus Universitet
	Funding	EU - Food, Bioeconomy Natural Resources, Agriculture and Environment
	Area of focus	Europe
	Participation tasks	Join an existing community, or organise the LLs
	Outputs	Reports Mobile App Tools for LLs To set up and undertake engaged activities through Living Labs Knowledge Hub Communication Kit
	Impact	Several local actions undertaken, impact on existing communities through novel methodologies and resources to adapt independently
	Evidence	Reports of results

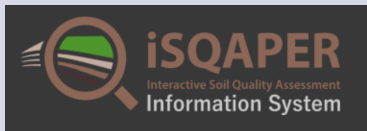


Why is it suitable for upscaling?

- Proven impact so far.
- complete and comprehensive set of replication resources including communication ones, existing communities of practice establishing. Good momentum.
- Chance to become a champion (soil [advocate](#)) - emerging network
- For education: [soil best teaching practices](#)

Next steps: aspects to be investigated further

- Check further the Mobile App, its intended use in the future
- The project is coming to an end at the time of writing this report. Understand future plans or legacy.

iSQAPER-is

 <p>Upscaling from local to regional</p>  <p>In this section of iSQAPERIS we upscale the environmental footprint in Europe and China and farming systems (which provides the assessment, indicators & management (w) indicators of soil quality).</p>  <p>iSQAPER: Tests the soil app, refines it, and rolls it out across Europe and China</p>	Project Vision	The iSQAPER project provides a mobile app (SQAPP) for assessing soil quality, offering data on sustainable land management practices. It aims to support farmers, policymakers, and researchers in improving agricultural productivity and environmental resilience.
	Project URL	https://www.isqaper-is.eu/
	Mission	Soil (Map Cluster), Adaptation to Climate Change
	Timeframe	2015 - 2020
	Lead	Wageningen University (EU Consortium)
	Funding	EU - Societal Challenges
	Area of focus	Europe and China
	Participation tasks	Download the app and contribute data from personal observations
	Outputs	Full set of resources and roadmaps related to upscaling specifically
	Impact	Improved understanding of soil and more granular monitoring while increasing awareness.
	Evidence	Publications




Why is it suitable for upscaling?

- Proven scientific impact
- Full set of resources including roadmaps specifically dedicated to upscaling - "From local to regional"
- Each Zone and System in the website includes a set of resources for accessing the raw data and to enable transferability and replicability

Next steps: aspects to be investigated further

- Check if the application is open source for potential upgrade and update
- Check level of openness of data
- Check level of support required for knowledge transfer to other entities

TeaComposition Initiative

  	Project Vision	The project involves citizens in monitoring soil health by observing tea bag decomposition. It provides valuable data for studying carbon cycling, soil biology, and environmental conditions, with a focus on global collaboration.
	Project URL	https://www.teacomposition.org/
	Mission	Soil (Map Cluster)
	Timeframe	2016 - 2021
	Lead	International group of scientists (see here)
	Funding	Mix of EU projects, Unilever, COST Action funds.
	Area of focus	Global
	Participation tasks	Plant a teabag and observe over time. Entry the data in the system. If groups: participate in related wider activities.
	Outputs	Data platform Instructions From TeaBagIndex: Map and app
	Impact	Improved understanding of soil decomposition rate and stabilization factor
	Evidence	List of publications

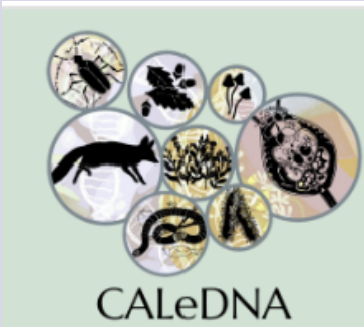
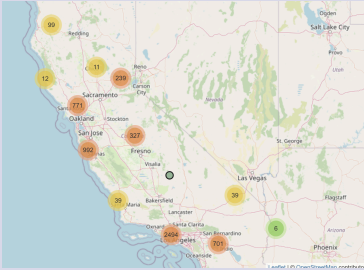

Why is it suitable for upscaling?

- Easy to implement and also suitable for schools and both individual and group actions.
- Supported by a comprehensive set of resources including both educational ones and those to effectively implement the task through collection and analysis
- Proven impact and significant upscaling to date since the first initiative funded by the Swedish Government. This section also includes elements of other projects.
- Aligned with open science principles, open data and open platform.

Next steps: aspects to be investigated further

- Level of collaboration among different projects and efforts. It seems resources are exchanged among them.
- Further evidence and impact from data use.
- Level of effectiveness and satisfaction of school-related experiences.

CALeDNA

  <p>Environmental DNA Education for Undergraduates</p> 	Project Vision	The project uses environmental DNA (eDNA) to assess and monitor biodiversity. Volunteers and researchers collaborate to collect soil, sediment, and water samples, analyzing species diversity to support conservation efforts
	Project URL	https://ucedna.com/
	Mission	Soil (Map Cluster), Adaptation to Climate Change
	Timeframe	2017 - Ongoing
	Lead	UCSC Genomics Institute, the University of California
	Funding	Mixed: Office of the UC President, Metabolic Studio, the Howard Hughes Medical Institute, and the Global Genome Biodiversity Network.
	Area of focus	California, US
	Participation tasks	Engage with the project through registration, training, test, and sample kit delivery. Perform data collection and entry.
	Outputs	Open data Educational Resources (not open) Training and enrollment process
	Impact	Improved understanding and mapping of soil biodiversity in California
	Evidence	News and results Publications

Why is it suitable for upscaling?

- Significant impact and participation to-date.
- Long lasting project, easy to perform by citizens.
- Potential data quality and other scientific related issues, addressed through training program and subsequent evaluation prior to engaging in data collection.
- Global issue. .

Next steps: aspects to be investigated further

- Further understand the sample kit as most of the action revolves around it.
- Understand to what extent this is open hardware and the possibilities of sourcing the components from the EU.
- Explore further what they define as education resources. Seems more a promotion of the USGC

Gärtnern für den Umweltschutz



Workshop: Healthy Garden – Improving Soil Fertility

Workshop: Healthy garden – optimal water balance

Workshop: Biodiversity – at eye level with the earthworm

Workshop: Humus and Climate Protection

Project Vision

The "Gärtnern für den Umweltschutz" (Gardening for Environmental Protection) initiative offers DIY workshops and experiments focused on soil health, climate protection, and biodiversity.

Project URL

<https://www.h-brs.de/de/izne/gaertnern-umweltschutz>

Mission

Soil, Adaptation to Climate Change

Timeframe

2023 - Ongoing

Lead

Bonn-Rhein-Sieg University of Applied Sciences

Funding

Bonn-Rhein-Sieg University of Applied Sciences

Area of focus

Bonn/Rhein-Sieg region, Germany

Participation tasks

Adopt resources and consume learning content. Primarily participate in workshops and actions.

Outputs

[A set of DIY workshop materials, as well as videos tutorial and learning](#) resources

Impact

Participants learn how to improve soil fertility, manage water, and enhance biodiversity, with practical activities for urban gardeners.

Evidence

[Workshops documentations](#)


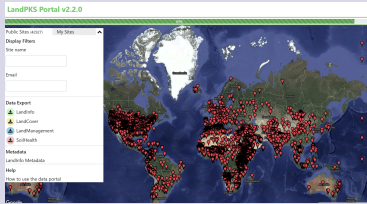

Why is it suitable for upscaling?

- The resources it offers may be considered instrumental for upscaling other projects or to set up new Citizen Science communities designed around soil health issues.
- Every theme covered in the DIY toolkit includes: theory, action, and video tutorials, thus providing all the required information.
- Global issue covered by the project.

Next steps: aspects to be investigated further

- All resources are in German, understand to what extent these can be adopted and adapted.
- Further understand how impact has been measured so far.

Land-Potential Knowledge System (LandPKS)


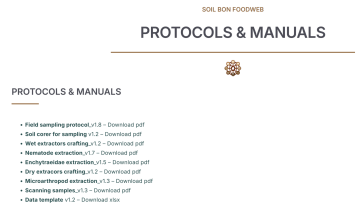

  	Project Vision	LandPKS offers a mobile app that helps landowners assess and monitor land potential, soil health, and vegetation. It aids in sustainable land management, tracking changes, and supporting data-driven decision-making
	Project URL	https://landpotential.org/
	Mission	Soil, Adaptation to Climate Change
	Timeframe	2013 - Ongoing
	Lead	The USDA-ARS Range Management Research Unit
	Funding	Public: United States Agency for International Development
	Area of focus	Global
	Participation tasks	Download the app and contribute soil data to the global map.
	Outputs	Knowledge and learning hub Data portal Mobile App
	Impact	Knowledge sharing and raised awareness among landowners. More sustainable practices by landowners.
	Evidence	Website

Why is it suitable for upscaling?




- Long lasting, proves sustainability of the effort.
- The app has been recently updated and volunteers responded to the development call made in 2024, demonstrating that a community exists and is active.
- Global issue.
- Aligned with open science principles. Open data and metadata available.
- Over 50K datasets created to date. Strong presence in the US and Africa.

Next steps: aspects to be investigated further

- To what extent resources can be adopted.
- Proximity support from the central team seems not required. Confirm it.
- Look for more information and evidence of data use from the portal.

SOIL Bon		
  	Project Vision	The Soil BON Foodweb initiative, launched in 2021, focuses on assessing soil animal biodiversity and interactions in soil food webs globally.
	Project URL	https://soilbonfoodweb.org/
	Mission	Soil, Adaptation to Climate Change
	Timeframe	2021 -Ongoing
	Lead	Soil BON (a volunteers organization)
	Funding	Primarily through various donations
	Area of focus	Global
	Participation tasks	Contact a national coordinator and choose among the available roles
	Outputs	Comprehensive list of protocols and manuals including audiovisual materials. Global network of coordinators.
	Impact	It fosters collaboration among soil zoologists to monitor and conserve soil biodiversity. Scientific impact.
	Evidence	Publications
Why is it suitable for upscaling?		
<ul style="list-style-type: none"> - Global issue and the project is global by design. - Full set of resources, protocols and manuals to undertake the project in other locations. These also include audiovisual materials. - Existing global network of coordinators to improve granular reach of the project globally. 		
Next steps: aspects to be investigated further		
<ul style="list-style-type: none"> - Accessibility and willingness of coordinators in the EU to commit to upscaling. - Process to become a new coordinator to expand the network in the EU. 		

Beweisstueck Unterhose/ Proof by Underpants

  	Project Vision	Participants bury cotton underwear to assess soil health. The project highlights biodiversity and soil activity, with degradation of the fabric indicating healthier soil ecosystems. Participants engage via an app to track results, promoting awareness of soil conservation.
	Project URL	https://www.beweisstueck-unterhose.ch/
	Mission	Soil (Map Cluster)
	Timeframe	2021 - 2022
	Lead	University of Zurich
	Funding	Public: Swiss Government
	Area of focus	Italy, Switzerland, France
	Participation tasks	Download an app and complete the activity of burying underwear and report its status.
	Outputs	Map of observations and sampling Basic learning resources for soil in three languages Mobile App
	Impact	Raised awareness, data and improved understanding of soil
	Evidence	Data and contributions Results reporting

Why is it suitable for upscaling?

- Easy to implement and supported by a full set of resources, including basic education ones.
- Significant success in only one year with over 1000 participants across four countries.
- Aligned with open science principles
-

Next steps: aspects to be investigated further

- Scientific use of the data beyond awareness
- Process to ensure that all use the same material? How to ensure the process is scientifically solid?
- What was the original infrastructure and how to replicate it.
- Plans with respect to the future of the app.

4 Adaptation to Climate Change

The Mission on Adaptation to Climate Change supports EU regions, cities and local authorities in their efforts to build resilience against the impacts of climate change, by putting into practice the EU's Adaptation Strategy⁶. This strategy is established to: make adaptation smarter, faster, and more systemic, and to step up international action on adaptation to climate change. It supports regions in gaining a deeper understanding of the climate risks they currently face and those anticipated in the future. It helps them design pathways to enhance preparedness and adapt to a changing climate while testing and implementing innovative solutions to build resilience. By 2030, the mission aims to guide at least 150 European regions and communities toward achieving climate resilience⁷.

Consistent with the structure adopted, this chapter reports on the description of the sample reviewed and assessed (section 4.1); subsequently lessons learned, emerging insights, and common reasons for not inclusion in the selected projects are discussed (section 4.2); finally all selected projects are presented through the template adopted (section 4.3).

4.1 Overview of Projects Reviewed

In total, 103 projects have been identified, listed, and reviewed under the Adaptation to Climate Change Mission. Similarly to what has been done for other Missions, the projects have been clustered around ten categories, representing diverse contributions to the Mission:

- **Projects focused on monitoring and preserving biodiversity (n=49; i.e. 47.6%):** this cluster is the most represented overall across missions. Addressing the biodiversity crisis is an issue where Citizen Science has proven effective through several angles. A specific paragraph is dedicated to discuss this cluster in section 4.2.
- **Projects tackling pollinators (n=7; 6.8%):** this cluster, although related to biodiversity, has been defined since a significant number of projects focuses on encouraging individuals and communities to create, maintain, and monitor pollinator-friendly habitats specifically.
- Projects whose scope is to generally **Monitor Ecology (n=13; 12.6%):** this cluster includes projects that typically have a wide scope, often including multiple elements of the other categories. These initiatives typically bring people together to monitor several aspects of our ecological systems while

⁶ https://climate.ec.europa.eu/eu-action/adaptation-climate-change/eu-adaptation-strategy_en

⁷

https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/adaptation-climate-change_en

also providing an essential source of non-traditional data for tracking progress in understanding climate change, sometimes also leveraging the capacity of citizen science to foster social innovations. A popular example is [GroundTruth 2.0](#) which covers several environmental indicators in urban and rural areas (e.g. water quality and quantity, air quality, phenology, biodiversity, heat, human-wildlife incidents, among others). These are then related to a variety of issues ranging, for example, from spatial planning to land and natural resources management.

- Projects focused on **Land Use and Land Cover Monitoring (n=9; 8.7%)**: these initiatives engage citizens in collecting evidence of changes in land, such as [POC21 - Harnessing the power of Crowdsourcing for Mountain Monitoring](#), a Swiss-based project that leverages Citizen Science to monitor the evolution of glaciers and rock-fall events. Projects here could be also divided between those that are primarily for scientific purposes, and those that aim at raising awareness among people, e.g. through creatively communicating changes in our lands, as proxies to climate change, using mechanisms such as timelapses, like in the case of [Chronolog](#).
- **Climate Assemblies (n=3; i.e. 2.9%)**: this cluster includes projects that are the result of the proliferation of citizen assemblies, in the context of participatory, community-driven, climate actions. In other words, projects in this cluster attempt to bring communities of citizens together to conduct one or more (or all) activities such as: learn about and explore particular climate issues; discuss them collectively; design and create ideas and insights on what should be done to address these issues and how. These projects are typically led by public authorities or national governments.
- **Education and Behavioural Change (n=8; i.e. 7.7%)**: the purpose of these eight projects revolves around designing and deploying literacy and educational resources to raise societal awareness about climate change. The aim of these Citizen Science initiatives is typically to empower individuals by providing knowledge and tools to understand their (individual and collective) environmental impact and to encourage behaviour, lifestyle, and consumption changes that contribute to environmental improvement. This category is similar to the ones defined for other Missions, apart from the Cancer one.
- Three further projects focus on extracting **Indigenous Knowledge for enriching our understanding of Climate Change and related practices (n=3; i.e. 2.9%)**: these projects aim to integrate insights from indigenous and local knowledge into climate research. However, none of these have been selected further in this assessment. This partly due to the data they collect, the methods they employ, and the format through which information and knowledge is codified. For example, [CoAdapta](#) explores the so far underexplored knowledge of indigenous communities through ethnographies, which are not amongst the most scalable methods.

- **Meteorological Citizen Science Data (n=5; i.e. 4.9%):** Citizen Science projects that aim at monitoring meteorological patterns and changes (e.g. [MySnowMap](#)) and, in some cases, the impact on the environment. The contribution is typically about complementing official data (i.e. either validating or filling data gaps) with observations from citizens. The data complemented is usually provided as open government data. Some, like in the case of [Schools and Satellite](#), complement satellite data with ground, more granular, information from citizens.
- **Digitise Information (n=2; i.e. 1.9%):** Two projects within this Mission focus on collective action to transcribe analog data. This is the case of handwritten letters received by the Botanic Garden of the University of Coimbra between 1870 and 1928, in the [Plant Letters](#) project, or in [Explorator](#), where citizen scientists digitise biological collections in Portugal.
- **Other (n=4; i.e. 3.9%):** four projects within this Mission did not belong directly to any of the other clusters, like [COwLearning](#) focused on fostering animal welfare and related environmental impact, or [Harnesstom](#) which leverages Citizen Science to make resources on climate change from previous EU projects more accessible.

A graphical representation of the distribution of projects considered in this review by cluster within this Mission is provided below.

Adaptation to Climate Change Projects - Distribution by Cluster

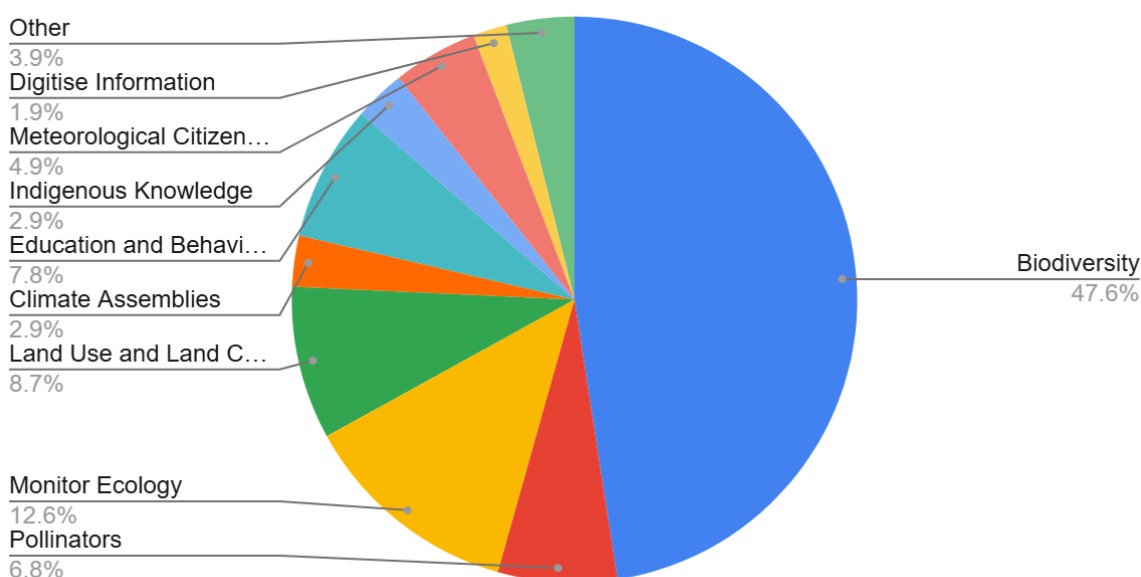


Figure 12: Adaptation to Climate Change projects distribution by cluster of focus

As expected, biodiversity (in all its variances) is the most represented discipline and focus, followed by projects on Monitoring Ecology and Land Use and Cover, representing 12.6% and 8.7% of the sample respectively. Of the 103 projects, 63 appear to be active at the time of writing this deliverable (i.e. 61.17%), 3 seem active but have not provided news or updates in the past two years, and 37 are inactive or completed (i.e. 35.9%). In terms of funding, even if to a lesser extent if compared with the Soil Mission, the majority of projects considered are publicly funded (n=63; 61%), followed by mixed funding structures (or funding schemes over time) between private and public sector entities (n=13, 12.6%).

In total, 14 of the 103 projects reviewed have been selected as suitable for upscaling in CROPS. The clusters that are not represented are: (1) Pollinators, (2) Indigenous Knowledge; (3) Digitise Information; and (4) Other. It is also noted that 33 of the projects selected from other Missions include contributions to Adaptation to Climate Change.

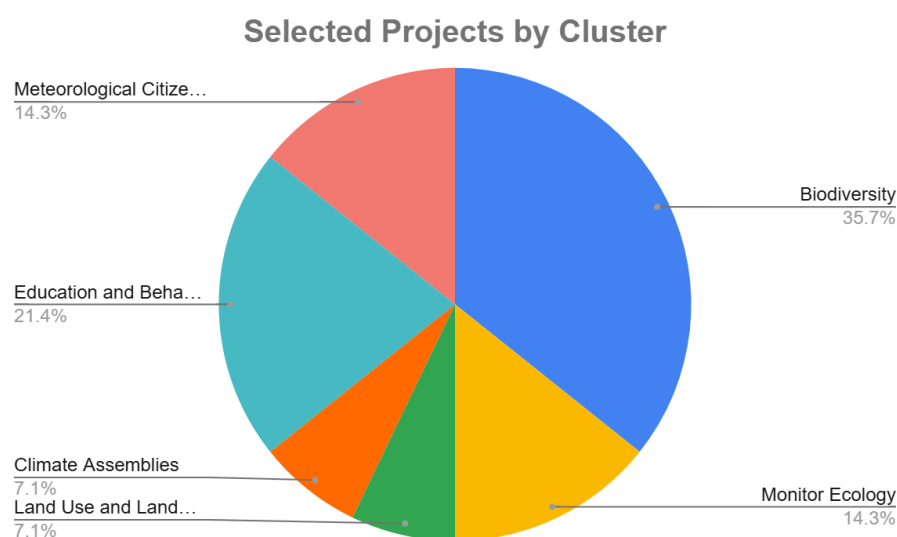


Figure 13: Adaptation Climate Change Selected Projects by Cluster of Focus

Aligned with the overall distribution, 5 projects belong to the Biodiversity cluster, 3 to Education and Behavioural Change, 2 for both Monitoring Ecology and Meteorological Citizen Science Data, and 1 for each from the Land Use and Land Cover Monitoring and Climate Assemblies clusters.

4.2 Overall Insights and Reflections from the Review Process

Like for the Soil Mission presented in Section 3, the fact that the selected projects are 14 is not related to a specific goal. Rather patterns can be identified in the projects that are not considered further. The most common factors impeding projects' suitability for upscaling are presented below together with additional lessons learned:

- Similarly to the Soil Mission discussed above, **lack of information** about some projects remains a major reason for not considering them further, together with **lack of evidence of impact**. The trend of projects reporting impact through outputs (e.g. number of workshops or participants) instead of outcomes (i.e. what these outputs actually enable).
- In Adaptation to Climate Change (maybe due to the fact that this Mission is more commonly known and considered as a priority by the public if compared for example with the Soil one) it occurs more often than in other Missions to find projects that are kickstarted and sustained by or through an established local community. In other words, sometimes projects are purely bottom up, in some cases even self funded by the participating citizens' community. These cases **typically focus on addressing very local and situated matters of concerns**, such as traffic in a specific street or new urban planning decisions. For example, [Feed Food Forest](#) is an established Citizen Science community in Berlin that meets periodically locally, and produces and shares knowledge on permaculture and other soil regeneration techniques in a specific area of the city. Also, these interactions happen physically, without any digital legacy or scalable infrastructure. These were therefore not selected to be considered further.
- Similarly to the previous point, projects enabling and promoting Climate Citizen Assemblies are often situated and focused on specific policies positioned in an existing framework and local agenda. The fact that the specific issue tackled is local by definition, would suggest that their suitability for upscaling is lowered. However, certain efforts produce a legacy suite of resources and toolkits to enable others to replicate the activities and results in other contexts. This is the case for example of [Climas](#), a current EU project that, from their experiences and implementation, offers an integrated toolkit for other contexts to develop their citizen climate assemblies through living labs for deliberative democracy in climate policy making.
- Biodiversity projects are also peculiar compared to others because of the presence of [iNaturalist](#), by far the dominant platform in this space. By nature, iNaturalist hosts thousands of biodiversity Citizen Science projects providing a comprehensive IT architecture (app for data collection, storage, visualizations, analytics) that provides a high level of interoperability and therefore potential for data use and ultimately impact on the Mission. Typical dynamics here are projects that emerge focusing on specific geographical areas or regions. As these upscale over time, communities tend to develop and their bonds reinforce the project itself creating virtuous cycles of more and more contributions and bigger and/or stronger communities. We argue that some of these projects are not to be considered for high potential upscaling to the transnational level, as they would miss one of their most relevant drivers. This is the case for example

of [Ritme Natura](#), a Citizen Science biodiversity project in Catalunya born from seed funding of Ground Truth 2.0 and grown since through other sources of local and national funding. Today it counts over 100K observations from over 1200 citizen scientists, that motivate each other and continuously discuss their findings. They appear to be passionate about their territory, and less interested in expanding these contents beyond their region. In summary, we considered these projects should remain local while iNaturalist exists to enable the chance of bringing the data from these projects together, i.e. to enable research and/or policy-driven transnational responses to the biodiversity crisis, i.e. to contribute to the Adaptation to Climate Change Mission.

- Another positive consequence of the presence of iNaturalist and other well-established platforms, is that typically the data is provided consistent with open principles, accessible (e.g. complying with the W3C's 5stars Linked Data guidelines and principles⁸). However, connecting again to a common issue among projects in this overall review, who uses this data, for what purposes, and how, remain largely unknown. This leads unavoidably to challenges in finding evidence for impact, especially for those endeavours that aim at producing Citizen Science data “to help science”, while in fact little is known beyond the data produced and provided.
- Interestingly, although covering multiple aspects related to climate change simultaneously, projects characterised under the Monitor Ecology cluster often lag behind in addressing all aspects of all elements that they focus on. For instance, the EU project [Alternet Europe](#), active since 2004, is set to cover several aspects of climate change as well as sustainable land management, soil health, and biodiversity, to mention a few. This, and similar ones in this category, have not been considered further. In fact, given the amount of different focuses, each of these is typically not comprehensively covered with support and knowledge exchange resources, consistent methods, and integrated IT solutions;
- In the category Education and Behavioural Change, of the 8 projects reviewed, 3 have been selected as suitable for upscaling. Beyond the relevancy for CROPS and specifically for considering education instrumental for upscaling (see WP6), these projects typically provide a set of resources, sometimes divided by levels or age groups, for people to gain awareness about climate change and empower them to take actions to address it. What makes these projects particularly upscalable is the opportunity to use these resources with little to no adaptation required (beyond translation). This is because they are scalable by design and the topics covered are relevant globally. [Agora](#) and [ECF4CLIM](#) are examples of related projects reviewed and selected. Furthermore, these are strongly

⁸ https://www.w3.org/2011/gld/wiki/5_Star_Linked_Data

aligned with the EU's Adaptation Strategy⁹, a pillar of the Adaptation to Climate Change Mission.

- The contribution and impact of projects from the Meteorological Data appear evident. This is interpreted to be partly due to the fact that these are positioned within bigger efforts, or at least the data they produce is. In other words, these typically combine Citizen Science observations with well-established datasets. Compared to other domains, these datasets appear to be more suitable for integration as they are amongst the most popular and mature open government data.

This section highlighted some trends and discussed some reflections emerging from the review and assessment within the Adaptation to Climate Change Mission.

4.3 Adaptation to Climate Change Mission: Projects Considered Suitable for Upscaling

Each of the 14 projects selected as suitable for upscaling in this Mission is presented separately below consistent with the structure adopted in this report.

⁹ https://climate.ec.europa.eu/eu-action/adaptation-climate-change/eu-adaptation-strategy_en

Butterfly Monitoring

  	Project Vision	Citizen Science Network for the well established European Butterfly Monitoring Scheme - eBMS. Map butterfly across the EU.
	Project URL	https://butterfly-monitoring.net/
	Mission	Adaptation to Climate Change (Biodiversity)
	Timeframe	2011 - Ongoing
	Lead	Butterfly Conservation Europe (NGO)
	Funding	Butterfly Conservation Europe and the UK Centre for Ecology & Hydrology
	Area of focus	Europe
	Participation tasks	Download the app and upload observations of butterflies.
	Outputs	Fully open data , Resources and Guidelines , and transparent methods Online Map Mobile App
	Impact	Over 1 Mln observations recorded. Scientific discoveries.
	Evidence	Reports and Publications


Why is it suitable for upscaling?

- Fully open source and open data.
- Comprehensive set of guidelines and resources available for anyone to use it.
- Ongoing for more than 10 years, proven sustainability over time.
- Possibility to integrate additional specific projects in the platform.
- Some projects have already upscaled through integration in this platform.

Next steps: aspects to be investigated further

- Explore how data is used more specifically and further impact from open data.
- Explore further the alignment and the complementary contribution to the wider EU wide eBMS.

eBird

 	Project Vision	Organizations and communities support eBird to detect birds around the world and assist in scientific research to understand the needs of this species.
	Project URL	https://ebird.org/home
	Mission	Adaptation to Climate Change (Biodiversity)
	Timeframe	2002 - Ongoing
	Lead	Cornell Lab of Ornithology
	Funding	Fitzpatrick, the Director of the Cornell Lab of Ornithology and former director of Archbold Biological Station.
	Area of focus	Global
	Participation tasks	Volunteers contribute by adding to the platform their observations, photos, sound recordings, and make them available for educators and scientists all around the world.
	Outputs	Open Map Data Mobile App Taxonomy of bird topics
	Impact	Data is used by researchers around the world to better understand the needs of birds, supporting scientific research and public awareness.
	Evidence	Science Reports and Publications ; Data platform. List of publications .



Why is it suitable for upscaling?

- Ongoing for more than 20 years. Well established and sustainable initiative.
- Significant amount of contributions. Thousands of entries daily.
- Born in the US, but data available from the EU too. Proven transferability to a global scope.
- Available in several languages, arguably the biggest CS birds community.

Next steps: aspects to be investigated further

- More evidence of use of open data.
- Possibility to integrate specific projects in the platform.
- Existing plan for growing the community.

Observation

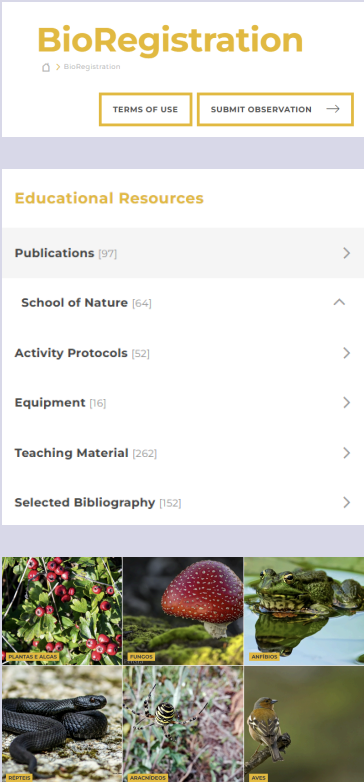
 	Project Vision	A platform for biodiversity citizen science project development and monitoring. The vision is to advance nature research and conservation efforts by collecting, enhancing and sharing biodiversity data through a community of observers and validators.
	Project URL	https://observation.org/
	Mission	Adaptation to Climate Change (Biodiversity)
	Timeframe	2004 - Ongoing
	Lead	Observation.org (NGO)
	Funding	Various partners and donations
	Area of focus	Started in the Netherlands, now Global focus
	Participation tasks	Take a picture and upload it to the platform using an app. The app automatically shows a name of the animal/plant that has been shot, and the user can confirm it or not. Further details about the animal/plant shot are required.
	Outputs	Mobile App Species Directory
	Impact	The project contributes to enhancing the awareness about climate change disasters, and also shares data in the Global Biodiversity Information Facility (GBIF). The data is used for early warning for invasive alien species, monitoring disease vectors, and tracking species distribution and climate change.
	Evidence	Reports and results on the website ; Over 750 bioblitzes organised so far in multiple countries.

Why is it suitable for upscaling?

- Already demonstrated ability to upscale, originally started in the Netherlands, now with contributions from several countries.
- Already integrated with GBIF, i.e. citizen science becoming complementary to the understanding and tackling of climate change biodiversity - related issues.
- Global focus and global issues.
- Possibility to organise local BioBlitzes.

Next steps: aspects to be investigated further

- Further evidence of data use.
- Understand better the dynamics of integration with the GBIF, and success cases of early warning or tracking actions.

BioRegistro		
	Project Vision	Leverage citizen science to create and map biodiversity knowledge through observations and an integrated platform.
	Project URL	https://ambiente.cm-viana-castelo.pt/bioregisto
	Mission	Adaptation to Climate Change (Biodiversity)
	Timeframe	2018 - Ongoing
	Lead	The Environmental Department of the Municipality of Viana do Castelo
	Funding	Poseur, Portugal 2020, EU funding, Portuguese public agencies.
	Area of focus	Portugal
	Participation tasks	Citizens are invited to contribute to biodiversity knowledge, by doing species observation. Upload species observations on BioRegisto platform, introducing, at least, one photo of the specimen, location, date and time of observation.
	Outputs	Mobile App Full Suite of Educational Resources Glossary and Knowledge Hub
	Impact	Increase awareness/literacy about biodiversity, and create geographical data useful to support scientific research on the matter.
	Evidence	97 scientific publications


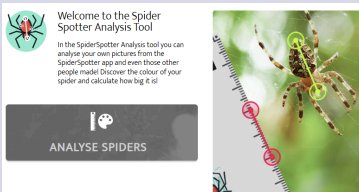

Why is it suitable for upscaling?

- Although local and locally managed, it meets all the elements of the framework.
- It provides open data and has proven to be scientifically valuable - 97 scientific publications.
- Suitable for education, with plenty of material for both lecturers and students.
- The platform has a comprehensive set of features compared to others considered in biodiversity in this review.

Next steps: aspects to be investigated further

- Explore effort to translate it in different languages. The web platform seems compatible with translation plug-ins.
- Explore to which extent the presence of the original founders / leaders is required if the platform is upscaled beyond Portugal.

Spin-City

  	Project Vision	Monitoring spiders' colour and webs, to get information about how animals can adapt to climate change, using the spider color as a natural thermometer to better determine how quickly the city's environment heats up.
	Project URL	https://www.spiderspotter.com/en/
	Mission	Ad. to Climate Change (Biodiversity), Smart Cities
	Timeframe	2019 - Ongoing
	Lead	Ghent University
	Funding	Ghent University
	Area of focus	Mainly France and Austria, but contributions from other countries
	Participation tasks	Using the SPIDERSPOTTER app citizens take spider photos and report observations. Citizens analyze their own photos and those of others on the website to determine spider color, length and web size.
	Outputs	Spider Species , and Webs knowledge base Dashboard , Manual , Data Analysis Tool Mobile App Resources for Scientists
	Impact	Monitor spider data so scientists can better determine how quickly city environments are warming and understand how spiders adapt to climate change.
	Evidence	Science reports


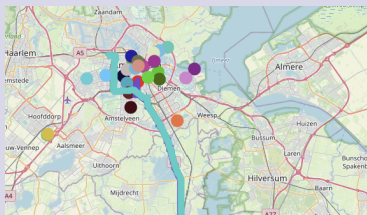
Why is it suitable for upscaling?

- Evidence of initial upscaling beyond France and Austria where thousands of contributions have been achieved. Proven scientific impact and participation.
- Aligned with and integrated in SPOTTERON Citizen Science, a scalable platform.
- Full set of resources are openly available for several types of audiences, including participating citizens and scientists.

Next steps: aspects to be investigated further

- Further scientific impact beyond publications and future plans.
- Explore process of data re use and competencies required.

iChange

 <p>Our Climate Toolkit</p> <p>You don't always need to study to become a scientist! Just open your eyes and switch on your sensors! Here you can explore different ways to share your observations of hazard such as flooding. You can also learn more about different low-cost sensors with which you can either gather weather and air quality information or simply browse information collected by other citizens.</p> 	Project Vision	Empower citizens through knowledge and tools to understand their individual impact to improve the environment through their behavior, lifestyle and consumption.
	Project URL	https://ichange-project.eu/
	Mission	Adaptation to Climate Change (Education for behavioural change), Smart Cities
	Timeframe	2021 - 2025
	Lead	CIMA: Centro Internazionale in Monitoraggio Ambientale (NGO)
	Funding	EU: SOCIETAL CHALLENGES - Climate action, Environment, Resource Efficiency and Raw Materials
	Area of focus	Europe
	Participation tasks	Participate in various Living Labs activities, a wide variety of tasks depending on the type of living lab.
	Outputs	Dashboard + Map Toolkit available and manuals, Educational Boardgame My Footprint system Online Course
	Impact	Raised awareness about own footprint, behavioural change, Climate campaigns in the pilot cities.
	Evidence	Project Reports and Results

Why is it suitable for upscaling?

- Timing: project is currently finishing and planning for sustainability beyond the funded period.
- Suitable for schools and education with related material openly available.
- Consistent with open science principles.
- Comprehensive set of other resources and integrated toolkit for others to replicate the iChange pilots.

Next steps: aspects to be investigated further

- Explore further evidence of impact and how they have measured it.
- Check and confirm commitment to dedicate time and resources to upscale.

ECF4CLIM



CROWDSOURCING



LEARNING SPACE



Project Vision

ECF4CLIM uses a multidisciplinary, transdisciplinary, and participatory approach to develop and validate a European Competence Framework (ECF) for transformative change, enabling the educational community to tackle climate change and support sustainable development.

Project URL

<https://ecf4clim.eu/>

Mission

Adaptation to Climate Change (Education for behavioural change), Smart Cities

Timeframe

2021 - 2025

Lead

Centro de Investigaciones Energéticas Medioambientales y Tecnológicas

Funding

EU: SOCIETAL CHALLENGES - Climate action, Environment, Resource Efficiency and Raw Materials

Area of focus

Europe

Participation tasks

Citizens participate in workshop activities and primarily co-create and/or discuss climate related policies

Outputs

[Digital Platform](#)
[Dissemination Materials](#),
[Online space for education including open Games](#),
[Footprint Calculator Primary](#),
[Retrofitting toolkits](#)

Impact

Raise awareness about climate change and nudge towards citizens actions to change behaviours.

Evidence

[Articles and Publications](#)

Why is it suitable for upscaling?

- Proven scientific impact.
- The focus should be on disseminating and fostering use of the full sets of resources provided, and dissemination material is also openly provided.
- Suitable for education and schools with several open artifacts including games available.
- Timing: project is currently finishing and planning for sustainability beyond the funded period (sister project to the previous one).

Next steps: aspects to be investigated further

- Explore further evidence of impact beyond the number of participants. Explore motivations to upscale.

Agora

  	Project Vision	Establish and maintain a dynamic, pan-European community that creates and shares advanced tools to enhance awareness on climate change and adaptation solutions.
	Project URL	https://adaptationagora.eu/
	Mission	Adaptation to Climate Change (Education for behavioural change), Smart Cities
	Timeframe	2023 - Ongoing
	Lead	CMCC
	Funding	EU: Climate, Energy and Mobility
	Area of focus	Europe (pilots)
	Participation tasks	Be part of the different participatory activities in the hub. Consume content or upload experiences through the app.
	Outputs	4 digital tools: Agora Community Hub , Digital Academies , Mobile App , Digital Handbook
	Impact	Pan EU community of informed and engaged citizens who can actively participate in climate adaptation activities, giving their contribution to ensure co-produced and sustainable input.
	Evidence	Results and Outputs , Scientific Publications




Why is it suitable for upscaling?

- Proven impact to date although actions are ongoing when writing this report.
- Full set of resources openly available, including guidance.
- Suitable for education with novel and current topics included in the Digital Academies (e.g. disinformation and climate change).
- Suitable for schools and education.

Next steps: aspects to be investigated further

- Check Digital Handbook Platform (to be released in January 2026) and app to be launched in June 2025.

Climas

  <p>1. A Citizen-collaborative future scenario building tool</p> <p>To involve citizens in generating views of the future, gradually converging towards concrete descriptions of how to realise them, who shall be involved and what actions shall be taken to maximise the benefits.</p> 	Project Vision	Design, test and establish climate assemblies and living labs for deliberative democracy in climate policy making
	Project URL	https://www.climas-project.eu/
	Mission	Adaptation to Climate Change (Climate Assemblies), Smart Cities
	Timeframe	2023 - Ongoing
	Lead	Vilnius Tech
	Funding	EU: Climate, Energy and Mobility
	Area of focus	EU (pilot places)
	Participation tasks	Participate in Living Labs
	Outputs	Toolbox to be published in June 2025 , scientific-based guidelines for policymakers based on solving the dilemmas from a bottom-up, more societal and value-based perspective
	Impact	Enhance the acceptance of citizens' led decisions by policymakers.
	Evidence	Publications and here




Why is it suitable for upscaling?

- Proven impact even though the project is in the middle of its development.
- Full set of resources for public actors to appropriate and upscale the living lab concept in their contexts.
- Aligned with the priority of involving citizens in climate policies.

Next steps: aspects to be investigated further

- Check toolbox if aligned with descriptions currently available (to be released in June 2025).
- Understand further future plans.
- Get access to how impact is measured in the project.

GrowApp

  	Project Vision	GrowApp allows animations of trees, gardens and landscapes by taking pictures with the smartphone
	Project URL	https://www.growapp.today/#/
	Mission	Adaptation to Climate Change (Climate Assemblies), Smart Cities
	Timeframe	2021 - Ongoing
	Lead	GLOBE Program, NatureToday, Gordon, Forget the Fish
	Funding	GLOBE Program, NatureToday, Gordon, Forget the Fish
	Area of focus	Europe
	Participation tasks	Take nature pictures and the app directly transforms these pictures in a time lapse movie that shows changes over the seasons and even over the years
	Outputs	<ul style="list-style-type: none"> - App - International GLOBE GrowApp campaign for schools to join - Documentation
	Impact	Help scientists who investigate the effect of climate change on nature
	Evidence	Schools participating in GLOBE campaigns and using the app




Why is it suitable for upscaling?

- App that is open and ready to be used for campaigns

Next steps: aspects to be investigated further

- Ask if the organization is considering improving the app's usability to reach a broader audience.
- Review the documentation and the efforts made to translate materials into other languages.

Budburst

 Budburst  	Project Vision	Contribution to understanding changes in the environment through the observation of the life cycle of plants
	Project URL	https://budburst.org/
	Mission	Adaptation to Climate Change (Climate Assemblies), Smart Cities
	Timeframe	2007 - Ongoing
	Lead	Chicago Botanic Garden
	Funding	Chicago Botanic Garden
	Area of focus	National
	Participation tasks	Contributions to different biodiversity studies uploading observation data in an app
	Outputs	<ul style="list-style-type: none"> - App - Data: Methods and Platform - Resources for educators - Step by step guide of app use
	Impact	Raising awareness about climate change related topics such as: How is climate change affecting plants? Study about native and invasive plants responses to climate change in Chicago
	Evidence	Literacy available from data gathered with the app


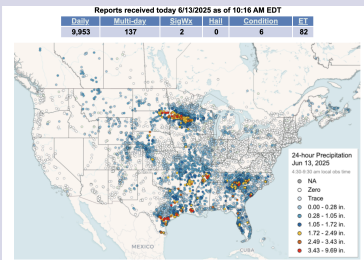

Why is it suitable for upscaling?

- National focus but global issue
- Infrastructure ready to be expanded to other contexts in collaboration with research institutes

Next steps: aspects to be investigated further

- Willingness to teach how to apply the same protocols in a different context
- Check further the resources for educators

CoCoRaHS

  	Project Vision	The Community Collaborative Rain, Hail, and Snow Network is a unique, non-profit, community-based network of volunteers of all ages who measure and report precipitation
	Project URL	https://www.cocorahs.org/
	Mission	Adaptation to Climate Change (Climate Assemblies), Smart Cities
	Timeframe	1998 - Ongoing
	Lead	Grassroot volunteers community
	Funding	Various including private actors and universities
	Area of focus	USA
	Participation tasks	Submit observations through a webpage
	Outputs	<ul style="list-style-type: none"> - Map of observations https://maps.cocorahs.org/ and training material - Educational resources (US focused)
	Impact	Amount of precipitation for improving science
	Evidence	publications



Why is it suitable for upscaling?

- Although focused in the USA, it provides all requirements for upscaling including: demonstrated impact, participation, and resources, both technical and educational

Next steps: aspects to be investigated further

- To be checked what is required to extend it to the EU (e.g. storage and analytics) and interest/chances to transfer. Also interface is not user-friendly

Community Snowobs


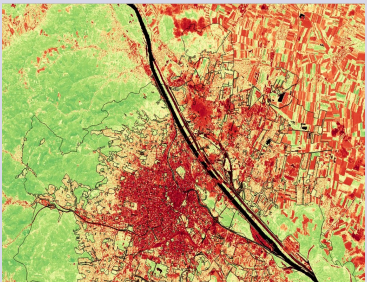
 	Project Vision	A community science campaign to measure snow depths in mountain places too vast for researchers to monitor
	Project URL	https://communitysnowobs.org/
	Mission	Adaptation to Climate Change (Climate Assemblies), Smart Cities
	Timeframe	2016 - Ongoing
	Lead	NASA Citizen Science
	Funding	NASA Citizen Science
	Area of focus	Worldwide
	Participation tasks	Contribute by recording your observations in the app
	Outputs	<ul style="list-style-type: none"> - Dashboard - Materials to participate
	Impact	<p>Uses of the data gathered:</p> <p>(1) "On the ground" measurements aid interpretations of satellite and airborne snow measurements collected by NASA and other agencies.</p> <p>(2) Snow data help improve water runoff models.</p> <p>(3) Community scientists will learn more about snow depth distribution.</p>
	Evidence	Clear evidence of data use

Why is it suitable for upscaling?

- Scientific relevance
- Open data available
- Global focus and global issue
- Open hardware with available documentation
- Evidence of data use

Next steps: aspects to be investigated further

- Understand further future plans and upscale strategy

LandSense		
 	Project Vision	Connecting citizens with satellite imagery to transform current approaches to environmental decision making with Land Use & Land Cover (LULC) monitoring
	Project URL	https://landsense.eu/
	Mission	Adaptation to Climate Change (Climate Assemblies), Smart Cities
	Timeframe	2016 - 2020
	Lead	International Institute for Applied Systems Analysis (IIASA)
	Funding	Horizon 2020
	Area of focus	Europe
	Participation tasks	Observations and data entry
	Outputs	<ul style="list-style-type: none"> - Datasets - Citizen Science Observations
	Impact	Give service and tools to develop your innovative Citizen Science campaigns that meet citizens needs and research questions
	Evidence	
Why is it suitable for upscaling?		
<ul style="list-style-type: none"> - Scalable context, relevant globally - Set of resources for reusing their tools for newer initiatives 		
Next steps: aspects to be investigated further		
<ul style="list-style-type: none"> - Further scientific impact beyond publications and future plans 		

This chapter focused on the Adaptation to Climate Change Mission and, consistent with the other chapters, provided an overview of all selected projects, together with a description of the assessment process and the insights and patterns that emerged from these analyses. The complete information about all 103 projects is provided in Appendix 2.

5 Climate Neutral Smart Cities

The Climate Neutral Smart Cities Mission currently focuses on two primary goals: (1) achieving 100 climate-neutral and smart cities by 2030, and (2) transforming these cities into innovation hubs to inspire and enable all European cities to achieve similar outcomes by 2050. The success of this Mission relies also on active citizen engagement and social innovation, thus offering potential for Citizens Science to contribute to it.

Consistent with the structure adopted, this chapter reports on the description of the sample reviewed and assessed (section 5.1); subsequently lessons learned, emerging insights, and common reasons for not inclusion in the selected projects are discussed (section 5.2); finally all selected projects are presented through the template adopted (section 5.3).

5.1 Overview of Projects Reviewed

In total, 82 Citizen Science projects have been reviewed and clustered within the Climate Neutral Smart Cities Mission. As with the other Missions, the projects have been grouped into 14 thematic categories, each representing a different domains and avenues of contribution to the Mission's objectives:

- A significant number of projects (**n=20 i.e. 24.3%**) **focused on monitoring air quality**, primarily in urban environments. Their typical contributions revolve around generating granular data about air pollution, sometimes enriched by qualitative experiences of the participants. The main enablers are (both digital and analog) low cost air quality sensors that allow much more granular deployment if compared with more traditional air quality measurement systems formally adopted by public authorities. Projects like [Sensor Community](#) focus on monitoring air quality through low-cost sensing systems, recently expanding to include noise monitoring. [Socio-BEE](#) aims to influence policy through its monitoring efforts, while [HackAir](#) concentrates on raising collective awareness about daily air quality conditions and thermal comfort.
- The second larger cluster is the one referring to **mobility (13 projects i.e. 15.9%)**. In this context, Citizen Science is leveraged mostly to promote more sustainable mobility options. Several collaborative platforms enable users to share data and information related to cycling such as bicycle parking, theft, safety, conflicts with other road users, or obstructions on cycle paths. An example is the [BiciZen](#) project. Other initiatives, like the [Mobility Urban Values \(MUV\)](#) project, use gamification and citizen participation to promote sustainable urban mobility. Additionally, some projects explore how to make mobility in cities more inclusive for underrepresented groups, such as people with disabilities or children, through citizen science, as seen in the

[Tra:Well](#) project. Finally, projects like [Telraam](#), involve citizen sensing activities for quantifying traffic and its impact.

- As another citizen sensing activity, **4 projects (i.e. 4.9%) focus on monitoring noise pollution**. Citizen Scientists typically produce noise pollution data either through submitting their perceptions and experiences through e.g. a dedicated mobile app (e.g. [Hush City](#)), or through low cost sensing technologies like the *Smart Citizen Kit* mentioned above.
- Some specific projects address the topic of **energy in urban contexts (n=5; i.e. 6.1%)**, with the goal of promoting more efficient energy use among citizens. A good example is the [Aurora](#) project, which engages participants in monitoring their own behavioral patterns related to heating and cooling, transport, and electricity use. In return, they receive tailored suggestions on how to reduce their energy demand and lower their costs.
- Some projects are categorized under the concept of **participatory democracy (7 projects i.e. 8.5%)**, as their primary focus is on enabling co-creation of problems and solutions related to sustainability actions and policies in cities. Examples include the [MOSAIC](#) project and the [Opush](#) initiative, where librarians, scientists, community managers, city administrators, and members of the general public collaborate to build a community of practice for sustainable urban development. Projects in this cluster typically attempt to bridge the gap between citizens and policy makers. Unlike many of those related to citizens sensing actions that tend to be more protest-based interactions (e.g. evidence based advocacy actions), projects here tend to be more collaborative by nature. A cooperative relationship is established between citizens and policy makers from the onset, as opposed to a conflictual one.
- **Response to extreme events (n=3; i.e. 3.7%)**: although partially related to the Adaptation to Climate Change, 3 projects on weather and extreme events were clustered here since the main scope is argued to be more around improving resilience of cities, i.e. an integrated component of cities becoming “smart”. As an example, [Missing Maps](#) is led by a collective of organizations working toward the shared goal of creating accessible map data in areas where humanitarian organizations operate. Other projects, such as [Fire Database](#), provide free access to data and allow users to query forest fire events, generate statistics, and create visualizations. The latter operates both within and outside urban environments.
- Some additional projects **(n=6; i.e. 7.3%) focus on monitoring the effects of climate change in urban areas**, particularly through the observation of events such as floods, heatwaves, and sea level rise. One example is the [iSeeChange](#) project, where residents contribute real-time observations of climate-related events like flooding and heatwaves. iSeeChange combines these citizen reports with AI and sensor data to generate actionable

insights. These insights help cities, engineers, and utility providers prioritize infrastructure investments and design resilient solutions.

- **Nature Based Solutions - NBS (n=5; i.e. 6.1%):** Some projects focus on activating NBS by collaborating with citizens to ensure a just transition to low-carbon cities, grounded in the principle of the right to ecological space. The [JUSTNature](#) project is one example. Others, like [Tiny Forest](#), aim to conduct a UK-wide research study to explore the powerful potential of these small-scale urban woodlands.
- Some specific projects, such as [D-NOSES](#), use citizen science to research **odour pollution (n=2; i.e. 2.4%)**. The project's main goal is to monitor and address odour pollution at local, national, and global levels. While it did not directly lead to the development of policies or local odour regulations, it successfully engaged citizens in citizen science practices and encouraged their participation in other related initiatives.
- **Healthy and Sustainable lifestyle (3 projects i.e. 3.6%):** A few projects aim to enable and steer citizens to adopt a positive, sustainable, and healthier lifestyle by helping them reduce their environmental impact. The description of one of these projects, *PS Lifestyles*, summarises this concept: "The project is closing the gap between climate awareness and individual action. Its aim is to inspire citizens to adopt a positive, sustainable, and healthier lifestyle by helping reduce their environmental impact". One further example is the [DivAirCity_H2020](#) project, which supports the Sustainable Development Goals (SDGs) by valuing diversity and social inclusion to foster an innovative, creative, culture-driven, green, and carbon-neutral urban society.
- **Education (2 projects i.e. 2.4%):** Two further projects were classified in a broader education oriented cluster. These are: [GreenSCENT](#) which focuses on developing competency frameworks aligned with the Green Deal's priority areas, including sustainable transport, a zero-pollution Europe, and the transition to a circular economy; and [On the Trail of Springs](#), which educates participants about the importance of water springs, highlighting their ecological value for highly specialised species and the role of certain organisms as indicators of water quality.
- **Other (n=12; i.e. 14,6%):** Projects that do not fall within the previously mentioned clusters include a diverse range of initiatives. These range from engaging citizens in biological DNA monitoring, as seen in the [Basecamp Research](#) project, to monitoring waste management systems through initiatives like [Recycling Heroes](#). Other projects, such as [Smart Cities for All](#), aim to assess ICT accessibility in Smart Cities worldwide, with a focus on eliminating the digital divide for persons with disabilities and older adults. One further project in Urban planning and design is included in this category: the [City Layers](#) project introduces a contemporary framework for city mapping that centers on citizens' experiences of urban space as an

integrative approach to promoting more egalitarian city design. Citizen Science has also contributed to the Food disciplines and towards more sustainable food systems in cities. An example is [Svinnkollen \(The Food Waste Experiment\)](#). It aims to reduce food waste in Swedish schools by providing information and individual feedback. Finally, [Globe at Night](#) monitors light pollution in cities through an international campaign aimed at raising awareness about its importance and impact. Participants measure night sky brightness and upload their data using a laptop or smartphone.

A graphical representation of the distribution of projects considered in this review by cluster within this Mission is provided below.

Distribution by Cluster

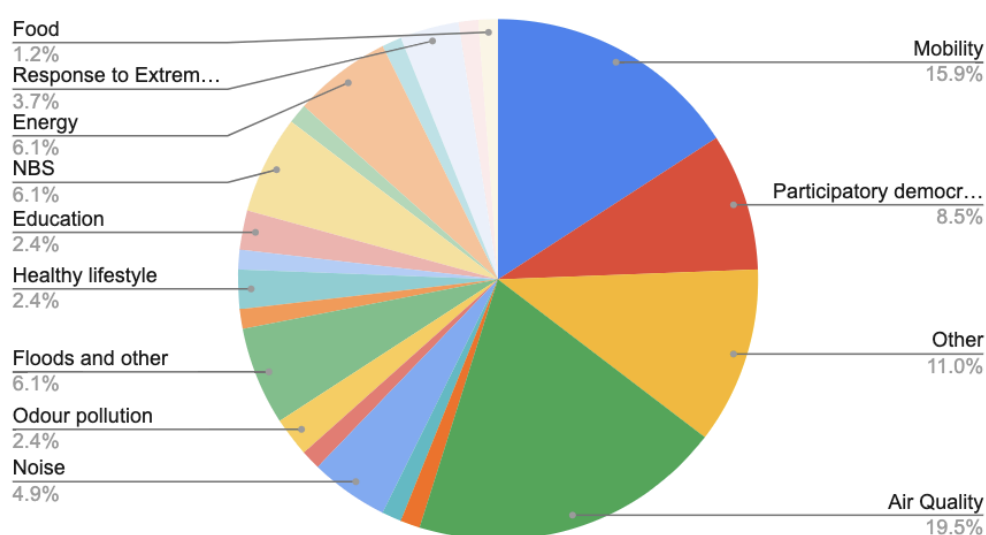


Figure 14: Smart Cities Mission - Distribution of Projects by Cluster

Mobility, Air Quality, and Participatory Democracy appear as the most represented cluster in this sample.

Of the 82 projects examined as part of the Mission, 47 projects (57,3%) are active at the time of writing this report, while 32 projects have already been completed. The status of 6 projects remains unknown. Funding information was accessible for about 90% of the projects. The majority of the projects received public funding. This is followed by projects supported through private funding, a combination of public and private sources, including research institutions, academia, foundations, donations, and occasionally, self-funding by the communities involved.

From this review, **15 projects** were identified as suitable for upscaling and have been selected to be considered further in this WP process. These projects collectively span nine out of the fourteen clusters observed, showing a

distribution that aligns closely with the overall pattern found during the assessment.

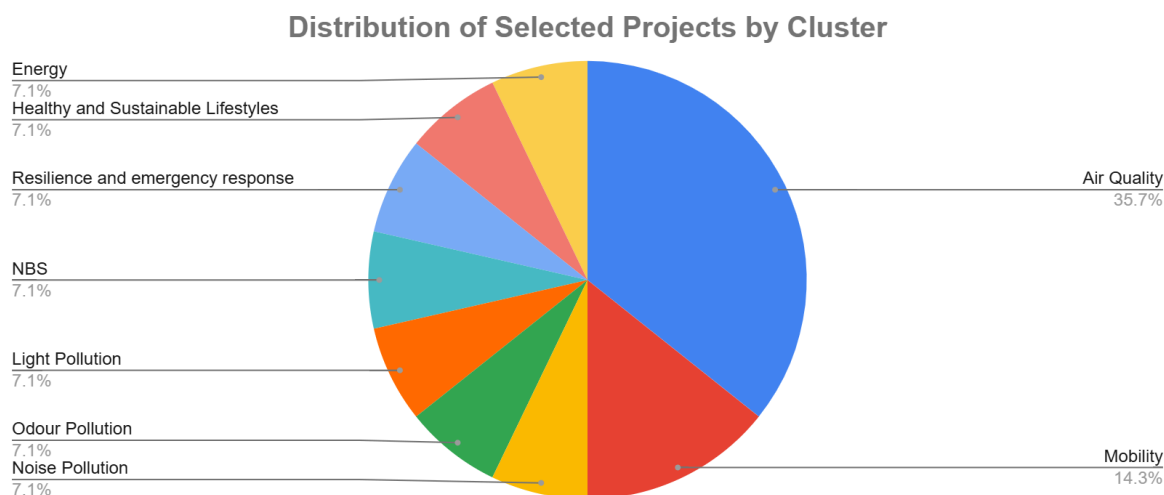


Figure 15: Smart Cities Mission - Distribution of Selected Projects by Cluster

5.2 Overall Insights and Reflections from the Review Process


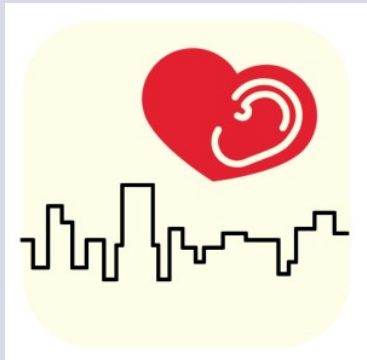
- Once again, like in the previous Missions, **lack of evidence of impact**, **lack of information**, and **not compliance with open science principles** remain three of the most common reasons why certain projects have not been selected as suitable for upscaling.
- Air quality projects are often based on citizen sensing activities. These are often scalable by nature as they consist of a centralised platform that can host and visualise (and make available in most cases as open data) air quality data produced by determined sensors from anywhere. Several projects considered revolved around one single sensor that evolved over time. A typical example is the [Smart Citizen Kit](#) and its related platform, leveraged in projects like [Making Sense](#), [iScape](#), [Citizen Science Garrotxa](#) among others. In each project, the technology is typically improved and a newer version is released. While this motivates the general tendency of these projects to be upscalable, specific ones were mainly selected based on their achievements to date, the resources offered (both guidelines and educational resources) and the level of openness, both in terms of the resulting data as well as the openness of the hardware, i.e. the sensor employed. What is often considered a challenge for these projects to have an actual impact, e.g. on policies, is the quality of the data produced. This review effort did not conduct a specific evaluation of the sensors employed or of the data produced, which is proposed as a next step.

- As a consequence of the previous point, **the maker communities become enablers for upscaling citizen science projects in the fields of smart cities** and monitoring air quality, noise, and pollution. The existing network of maker labs and spaces across EU countries, can be leveraged as a valuable asset to support upscaling efforts. These communities emphasize open-source sensing systems, which allow for extensive experimentation and integration of various IoT solutions. Using sensors, it is possible to measure particulate matter (PM), light intensity, noise, temperature, humidity, CO₂ levels, barometric pressure, and more. This leads to the possibility of creating projects that have integrated these systems to monitor diverse environmental variables and pollutants. This enhances both the granularity of understanding specific problems and public awareness, ultimately helping to influence policy. All this, as argued above, is achieved through scalable platforms and resources.
- Although 5 projects have been found in the field of Energy, in most cases these projects were much more than Citizen Science, which in fact had a marginal role and contribution. These conditions have led not to consider these projects further also within the other Missions. However, for energy specifically, the emergence of energy platforms and, in particular, of technologies and processes to enable energy sharing pave the way for important opportunities for the Citizen Science discipline in this way. Some projects show initial evidence. The technology, however, is not yet mainstream.

As a final reflection, in this Mission, the vast majority of projects targets city authorities or councils. These are seen by many, and by the Mission itself (see NetZeroCities Contracts). An interesting phenomenon that emerges is a trend whereby the more collaborative (and less conflictual) the relationship between these councils and the community of citizen scientists, the more likely is for impact to occur, e.g. through reusing data for policies aimed at pollution abatements. However, this is generally negatively related to the number of participants. In other words, projects built upon advocacy actions towards policy makers seem to motivate more participants to engage. One interpretation of this from the projects reviewed may come from the fact that Citizen Science is showing more evidence of impact in defining problems (e.g. pollution spots or situations, mobility issues or emissions, lack of accessibility) rather than providing solutions to these problems. The latter is often thought of as a responsibility of policy makers, i.e. the solutions should be delivered as a public service.

5.3 Smart Cities Mission: Projects Considered Further

Next, we present the 15 Smart Cities Mission projects suitable for upscaling.

Hush City		
 	Project Vision	Free, citizen science app, which empowers people to identify and assess quiet areas in cities as to create an open-access, web-based map of quiet areas, with the potential of orientating plans/policies for healthier living
	Project URL	https://opensourceoundscapes.org/
	Mission	Smart Cities (Noise)
	Timeframe	2016 - Ongoing
	Lead	Independent Individual
	Funding	NA
	Area of focus	Global
	Participation tasks	Download the app and submit observations (pictures and location) of quiet places.
	Outputs	Hush City App Hush City Map Other resources
	Impact	Inform public policies. "Hush City has been adopted by the Municipalities of Berlin (2018) and Limerick (2020-2022) for the creation of the Plans of Quiet Areas"
	Evidence	Publications and evidence of Berlin and Limerick adoption.


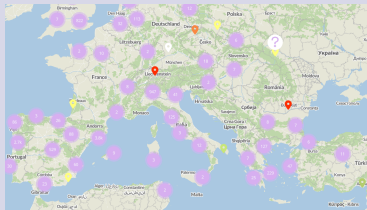
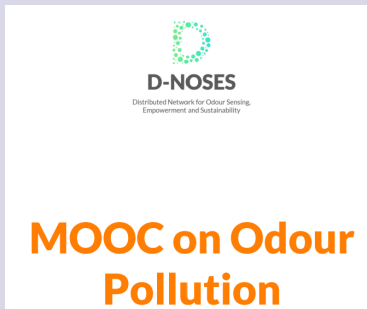
Why is it suitable for upscaling?

- Easy to use.
- Scalable context, relevant in all cities globally.
- Long lasting, and significant amount of contributions and recognitions from the discipline.
- Compliant with open science principles.
- Existing network of [ambassadors](#), acting like champions.

Next steps: aspects to be investigated further

- Better understand the process through which data is adopted by city councils from the lived experience with Berlin and Limerick.
- Understand how the data is used and by whom exactly.
- What does a city need to implement it in their own context?

D-Noses

  	Project Vision	Monitor odour pollution control at local, national and global levels to inform the development of new policies.
	Project URL	https://dnoses.eu/
	Mission	Smart cities (Odour Pollution)
	Timeframe	2018 - 2021
	Lead	Ibercivis (NGO)
	Funding	EU H2020, specific call available here .
	Area of focus	Global (pilots in three continents)
	Participation tasks	Download the app, submit odour observations, and participate in local events if in place.
	Outputs	Odour Collect App , Odour Observatory , Methodology and Resources MOOC on Odour Pollution
	Impact	Impact on policies is still ongoing. From local to European policy. Definition of a new standard in odour management.
	Evidence	Reports

Why is it suitable for upscaling?


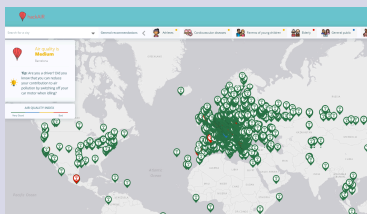

- Global issue, underexplored both from the policy and the citizen science perspective.
- Significant impact, though with limitations.
- Even though the project has ended, its main outputs are still available and maintained, including: the Odour Collect App for data collection, The International Odour Observatory, and the related methodologies enriched by actionable tools.
- It includes a MOOC on this current, relevant, and novel topic for CS.

Next steps: aspects to be investigated further

- Ensure alignment with the mission, as odour pollution is not specifically mentioned as a key focus.
- Understand the current stage of the process of enforcing the standard defined in the project and how it is impacting policies in the medium term.
- Understand the level of support required from the central team.

Sensor.Community		
	Project Vision	Mapping air quality through low cost sensors. Recently added noise pollution.
	Project URL	https://sensor.community/en/
	Mission	Smart Cities (Air Quality)
	Timeframe	2015 - Ongoing
	Lead	Sensor.Community (volunteers)
	Funding	various over time. Started with Code For Germany - public funding. Now relying on donations.
	Area of focus	Global
	Participation tasks	The most basic task is about buying, assembling and installing a sensor.
	Outputs	Data maps , and open data. Set of downloadable DIY resources Several applications developed from the data (see GitHub)
	Impact	Over 11K sensors installed worldwide. Several applications developed from the data, both from private and other actors. Presence in 75 countries, and 3,8K GitHub commits.
	Evidence	Reports and Data
Why is it suitable for upscaling?		
<ul style="list-style-type: none"> - Considered a best practice for Citizen Science upscaling through platform mechanisms - Compelling example of openness, open data, open source software, open hardware. - Significant impact and long lasting project. - Potentially integrating different layers (already testing noise and other CGD). - Clear evidence of upscaling, from initiative in Germany in 2015. - Already available in 20+ languages. 		
Next steps: aspects to be investigated further		
<ul style="list-style-type: none"> - It is clear that the team is small and relies on volunteering work. Explore potential commitment or dedication for promotion and for fostering further adoption. 		

HackAir

  	Project Vision	HackAIR aims to raise collective awareness about the daily conditions of air quality and thermal comfort, as well as provide information about the probability of forest fires in Europe.
	Project URL	https://www.hackair.eu/
	Mission	Smart Cities (Air Quality, Heat)
	Timeframe	2016 - Ongoing
	Lead	Draxis Environmental SA (SME)
	Funding	Initially EU-funded project on 'Collective Awareness Platforms for Sustainability and Social Innovation'
	Area of focus	Global
	Participation tasks	Citizens can access information on air quality, thermal comfort and probability of forest fires in Europe, and also contribute to their monitoring by stating their perception about them.
	Outputs	Dashboard
	Impact	Raise collective awareness about the daily conditions of air quality and thermal comfort.
	Evidence	Publication


Why is it suitable for upscaling?

- Successful example of EU project legacy exploited through private endeavour preserving the openness of its solutions.
- Financial sustainability and long lasting.
- Significant amount of contributions globally.

Next steps: aspects to be investigated further

- Possibility to integrate this solution with others (e.g. Sensor.Community) to for example explore a way to humanise sensors' data.
- Understand the business model behind and whether independent entities can adopt the tools autonomously or if they are all part of the commercial offering.

AIR Casting

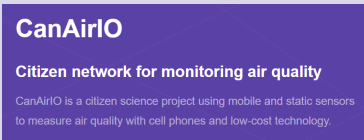

 <p>AirCasting is an open-source environmental data visualization platform that consists of a smartphone app and online mapping system.</p> 	Project Vision	AirCasting platform empowers community-based organizations, educators, academics, regulators, city managers, and community scientists to map air pollution and organize for clean air.
	Project URL	https://www.habitatmap.org/aircasting
	Mission	Smart Cities (Air Quality)
	Timeframe	2017 - Ongoing
	Lead	HabitatMap (Private Company)
	Funding	Financially Sustainable - Sell the sensors
	Area of focus	Global - so far mainly in the US
	Participation tasks	Purchase a sensor, install it; and/ or participate in related activities.
	Outputs	Air quality map app How to Videos
	Impact	Over 4B datapoints achieved so far.
	Evidence	Online Dashboard and from the news .

Why is it suitable for upscaling?

- Global issue where citizen science has demonstrated impact.
- Open Data and open source based platform.
- Mobile app available together with a suite of open resources and “how to” guidelines to facilitate adoption.
- The dashboard already integrates the citizen generated data with open government data.
- Financially sustainable while meeting open science principles.

Next steps: aspects to be investigated further

- Check potential integration of effort with other projects similar in scope (e.g. Sensor.Community) or complementary (e.g. HackAir).
- Check further accessibility and reusability of data as well as compliance with recent data and data governance directives.

CanAIR.IO		
 	Project Vision	To build a citizen network, an air quality map. With the data collected citizens independently validate official air quality numbers.
	Project URL	https://canair.io/index.html
	Mission	Smart Cities (Air Quality)
	Timeframe	2019 - Ongoing
	Lead	CanAIRio (Community)
	Funding	Funded through several donations
	Area of focus	Global - anyone can build a Canairio
	Participation tasks	Install the app and engage in different layers of participation, e.g. building and connecting your own DIY sensor.
	Outputs	Mobile app , All resources available and software open source
	Impact	Data from both mobile and static sensors and related advocacy actions (see Prague).
	Evidence	From the Dashboard



Why is it suitable for upscaling?

- Built around a shared matter of concern of the community as an advocacy action.
- Everything is open source and it seems easy to use.
- Full set of resources and for all levels of participation.
- Successfully adopted in the EU (Prague) and Latin America mostly.

Next steps: aspects to be investigated further

- Check attitude and willingness to shift from advocacy to collaboration.
- Explore potential integration with other air quality projects considered.
- The core team behind this initiative are developers. Some of the processes may be streamlined. Explore the effort that would be required.
- Explore further if and how data use and therefore impact is monitored.

Urban Relief

 <p>A look at the <i>project in numbers</i></p> <p>15 Partners, 6 Pilot cities, 10 Accelerator cities, 4 Years, €5.2m Budget, 9 Countries</p> 	Project Vision	Promotes collaboration between local communities and public authorities to address urgent climate issues related to urban greenspace planning, heat stress, and air pollution.
	Project URL	https://urbanreleaf.eu/
	Missions	Smart Cities (Air Quality, Health), Adaptation to Climate Change.
	Timeframe	2023 - Ongoing
	Lead	International Institute for Applied Systems Analysis
	Funding	Combined EU and UK public funding schemes
	Area of focus	Six pilot cities within the EU
	Participation tasks	Various depending on the specific pilot
	Outputs	More action and scientific based, i.e. the outputs are the inclusion of citizen generated data in policy processes across six locations.
	Impact	Piloting CGD adoption for policy in 6 cities.
	Evidence	List of reports, deliverables, and publications

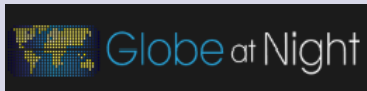
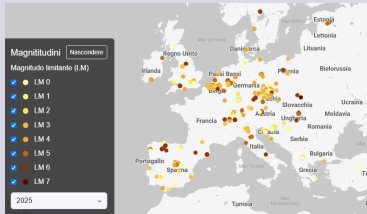
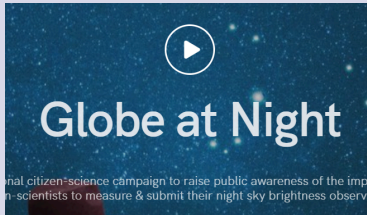
Why is it suitable for upscaling?

- Compliant with open principles.
- Closes the loop between Citizen Science actions and impact, by also integrating public sector innovation elements.
- It already includes in its structure a plan for upscaling to 10 cities beyond the six initial pilots.

Next steps: aspects to be investigated further

- Interview IIASA (project partner).
- Explore further impact on the Mission and related evidence (especially emerging from the pilots).
- Understand further specific focuses in the pilot cities and required stakeholders.

Globe at Night

  	Project Vision	An international campaign to raise awareness about the impact of light pollution, by measuring night sky brightness and uploading the data via laptop or phone.
	Project URL	https://globeatnight.org/
	Mission	Smart Cities (Light Pollution), Adaptation to Climate Change
	Timeframe	2006 - Ongoing
	Lead	National Optical Astronomy Observatory, US
	Funding	National Science Foundation, US
	Area of focus	Global
	Participation tasks	Record the following through either phone or web: "Observation details, and use of sky quality meter.
	Outputs	Data Interactive Data Map Sky Brightness Monitoring Network Resources
	Impact	Primarily raise awareness on light pollution through data and education
	Evidence	Data reports in different languages about the yearly findings

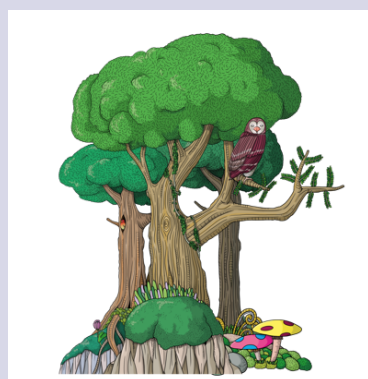
Why is it suitable for upscaling?

- Proven impact so far, and proven sustainability over time.
- Full set of open resources available.
- Consistent with open science principles.
- [Teaching Kit](#) also available both to onboard participants and for education.
- Translated already by volunteers in more than 20 languages.
- Global issue underrepresented in citizen science. Complements previous efforts.

Next steps: aspects to be investigated further

- Understand the level of support in the EU or possibility to build local projects.
- Explore further accessibility of all data.
- Explore the possibility of integrating light pollution as a further environmental variable in platforms that are EU based.

Tiny Forest



Project Vision

Bring tiny forests benefits to cities and urban spaces: connecting people with nature, helping to mitigate the impacts of climate change, as well as providing nature-rich habitat to support urban wildlife.

Project URL

<https://edu.earthwatch.org.uk/tinyforest>

Mission

Smart Cities (NBS), Soil, Adaptation to Climate Change

Timeframe

Unknown - Ongoing

Lead

Earthwatch (NGO)

Funding

Mixed with also public authorities (e.g. Birmingham, Blackpool)

Area of focus

UK

Participation tasks

Upload observations on the map of tiny forests, participate in group activities and actions oriented towards education.

Outputs

[Resources available on the website](#)
Data on the [map](#)

Impact

Identification and mapping of tiny forests across the UK

Evidence

[Platform. Research avenues](#)

Why is it suitable for upscaling?

- Based on open science.
- Provides a full set of [resources](#) supporting the field work.
- Suitable for schools and education.
- Award from [Department of Education](#).

Next steps: aspects to be investigated further

- Explore reusability of data.
- Explore if and how to extend it beyond the UK.
- Explore how to extend the Citizen Science presence in NBS-related projects.

BiciZen

	Project Vision	Collaborative platform that allows users to share data and information about cycling: bicycle parking, theft, safety, conflicts with other road users, or obstructions in cycle paths, and more.
	Project URL	https://www.bicizen.org/
	Mission	Smart Cities (Mobility)
	Timeframe	2022 - Ongoing
	Lead	Universiteit Twente
	Funding	EU H2020 - Science With and For Society
	Area of focus	Europe
	Participation tasks	Contribute by uploading useful information through the app so that cyclists can travel safely in cities.
	Outputs	Map. How to participate page Open Data Mobile App
	Impact	Increased safety for cyclists. More sustainable mobility. Dashboard and data points.
	Evidence	Report



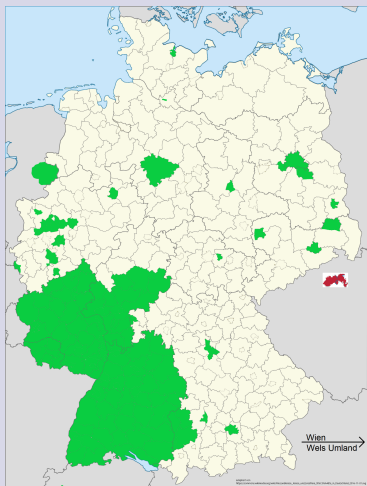
Why is it suitable for upscaling?

- Fully consistent with open science principles. Open data available from the platform.
- Easy to use and visualise.
- Global issue and key driver for sustainable mobility, fully aligned with the Mission.
- The dataset is current, and the application is used everyday in several countries in the EU.

Next steps: aspects to be investigated further

- Explore additional impact achieved from data use.
- Explore success factors for policy uptake and reflect on replication opportunities across contexts.
- May benefit to link this effort with Common EU Mobility Dataspace. Explore willingness and possibilities.

SimRa

  	Project Vision	Develop a platform for collecting data on bicycle routes and near miss incidents using smartphone-based crowdsourcing. It consists of a smartphone app that uses GPS information to track routes of bicyclists and the built-in acceleration sensors to pre-categorize near crashes.
	Project URL	https://www.digital-future.berlin/en/research/projects/simra/
	Mission	Smart Cities (Mobility)
	Timeframe	2021 - Ongoing
	Lead	Einstein Center Digital Future (ECDF)
	Funding	Technische Universität Berlin, Charité – Universitätsmedizin Berlin, Freie Universität Berlin, Humboldt-Universität Berlin and Universität der Künste Berlin.
	Area of focus	Berlin and Germany
	Participation tasks	Install the app and activate it while they are cycling. After their trip, users are asked to annotate and upload the collected data, pseudonymized per trip
	Outputs	App (updated Jan 2024) All code is open source on GitHub , Full Dashboard
	Impact	Increased knowledge of traffic, increased safety for cyclists, new data.
	Evidence	Award and Publications


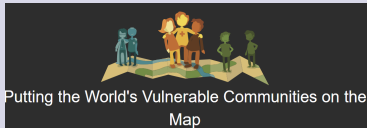
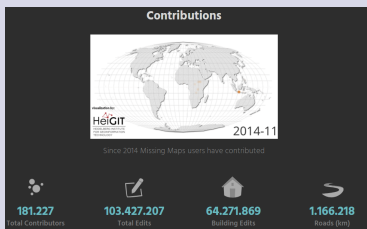
Why is it suitable for upscaling?

- High level example of openness, both open source and open data. Very active in the open source community.
- Scalable by design, as born as an open source initiative (the algorithm).
- Easy to use and ready to be adopted in other contexts.
- Proven scientific impact from the data collected.

Next steps: aspects to be investigated further

- Explore further impact in terms of policies or traffic mitigation actions
- Get information about future plans for the app updates.
- Understand better the dynamics of the case in Berlin, the most successful so far.

Missing Maps

  	Project Vision	Leverage volunteers' contributions to create accessible map data where humanitarian organizations are operating.
	Project URL	https://www.missingmaps.org/
	Mission	Smart Cities (Response and Resiliency to Extreme Events)
	Timeframe	Unknown - Ongoing
	Lead	Red Cross from various countries
	Funding	International Red Cross Associations
	Area of focus	Global
	Participation tasks	Contribute data on open street maps.
	Outputs	Global Platform including contribution statistics. Open Data From Open Street Maps.
	Impact	Increased access and effectiveness of the work of humanitarian organizations in response to extreme events. Resiliency.
	Evidence	dashboard and results




Why is it suitable for upscaling?

- Several millions contributions to date across the world. At least 50K contributions per month.
- Reputable and financially solid lead. Long lasting.
- Data on Open Street Maps, i.e. ensured sustainability of access.
- Global focus and global by design.
- Fully open source and open data.
- Clear set of instructions and guidance material on how to undertake the tasks.

Next steps: aspects to be investigated further

- Explore future plans for the project.
- Explore other potential stakeholders to engage.

Fire Database

  	Project Vision	The Institute of Silviculture has created the web GIS platform "Fire Database", which is freely accessible and allows interested parties to query forest fire events and generate statistics or graphics.
	Project URL	https://fire.boku.ac.at/firedb/en/
	Mission	Smart Cities (Response and Resiliency to Extreme Events)
	Timeframe	2008 - Ongoing
	Lead	BOKU University
	Funding	No info
	Area of focus	Austria
	Participation tasks	Report fire episodes and consume content.
	Outputs	Open Data and platform (map with fire incidents) Mobile App available
	Impact	Increased resilience to forest fire events and more granular understanding of the effects.
	Evidence	Website news




Why is it suitable for upscaling?

- Ongoing for many years, it has proven effective in gaining more granular information about forest fire events and its effects.
- Open Data available from the platform.
- Relevant issue among many areas within the EU.

Next steps: aspects to be investigated further

- Explore potential solutions to make the system easier to use and navigate, i.e. to improve the user interface.
- Check if both the platform and the app are open source.
- Explore willingness to extend beyond Austria.
- Explore feasibility of integrating ground observations with satellite images.

DivAirCity

  	Project Vision	The project's scope is to support the Sustainable Development Goals, valuing diversity and social inclusion to achieve innovative, creative, culture driven, green and carbon neutral urban society.
	Project URL	https://divaircity.eu/
	Mission	Smart Cities (Healthy and Sustainable Lifestyles)
	Timeframe	2021 - Ongoing (2025)
	Lead	Universitat Politècnica de Valencia
	Funding	EU H2020: SOCIETAL CHALLENGES - Climate action, Environment, Resource Efficiency and Raw Materials
	Area of focus	Pilots in the EU: Arthus, Bucharest, Orvieto, Castellón, Postdam.
	Participation tasks	Primarily participate in workshops. Different activities depending on the specific actions.
	Outputs	Twinning Project, Tools
	Impact	Addressing the equation of social inequality, health conditions and air pollution in cities in workshops and panels.
	Evidence	Workshops and Panels



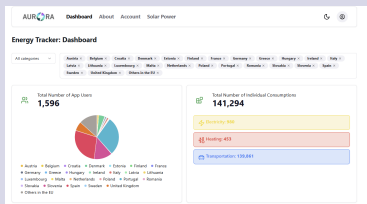
Why is it suitable for upscaling?

- Its suitability is mainly considered in terms of its potential to complement other projects focused on air quality.
- All tools and resources are openly available.
- Cities are already on board to ensure uptake and integration with policy processes.
- Twinning programs could be instrumental for upscaling other projects.

Next steps: aspects to be investigated further

- Explore further evidence of impact, and if/how they measure raised awareness beyond the number of workshops and participants.
- Explore whether the project (or its actions) produce open data and how it is made accessible.

Aurora

  	Project Vision	Participants monitor their own behavioural patterns of heating and cooling, transport and use of electricity. In return, they will receive tailored suggestions on how they can lower their energy demand and reduce their costs.
	Project URL	https://www.aurora-h2020.eu/
	Mission	Smart Cities (Energy)
	Timeframe	2021 - Ongoing (2025)
	Lead	Universidad Politecnica Madrid
	Funding	EU H2020: SOCIETAL CHALLENGES - Climate action, Environment, Resource Efficiency and Raw Materials
	Area of focus	Europe
	Participation tasks	Download the app and record energy behaviours as well as donate consumption data.
	Outputs	Mobile app consisting of personal energy/carbon tracking system Guidance Integrated Dashboard 150 citizen science energy ambassadors
	Impact	Energy savings, more sustainable use of heating, raised awareness
	Evidence	Reports and news from the website

Why is it suitable for upscaling?

- Full set of resources available as well as an integrated dashboard.
- Timing: the project is about to finish its public funded period (in 2025).
- Consistent with open science principles. All data is released as open data.
- Network of ambassadors that can potentially act as champions in the EU.

Next steps: aspects to be investigated further

- Explore further impact from data.
- Explore possibility to provide sustainability of the data donation through the emerging Data Altruism Organizations as established in the EU's Data Governance Act.
- Understand the level of active users (beyond the high number of total downloads of the app).

6 Restore our Ocean and Waters

The Restore Our Ocean and Water Mission¹⁰ aims to protect and regenerate the health of marine and freshwater environments, through research and innovation, citizen engagement and the so called blue investments. The mission takes an integrated approach, fostering cooperation among governments, industries, communities, and researchers. Its vision is to address the health of the ocean and waters as a key role in achieving climate neutrality and restoring nature. This Mission is arguably the most developed and articulated among all 5. It includes a portal as a one stop shop for all information and resources related to the Mission, such as access to funding, opportunity to engage with peers and other stakeholders, and monitor progress towards the Mission's objectives. The mission plays a vital role in advancing the European Green Deal and achieving its 2030 objectives, including protecting and restoring biodiversity, preventing and eliminating pollution, and transforming the blue economy to a carbon-neutral and circular model.

Consistent with the structure adopted, this chapter reports on the description of the sample reviewed and assessed (section 6.1); subsequently lessons learned, emerging insights, and common reasons for not inclusion in the selected projects are discussed (section 6.2); finally all selected projects are presented through the template adopted (section 6.3).

6.1 Overview of Projects Reviewed

In total, 119 projects have been identified, listed, and reviewed under the Restore our Ocean and Waters Mission. As with the other Missions, the projects have been grouped into thematic categories, each representing a different type of contribution to the Mission's objectives:

- First, the majority of projects focus on **mapping and monitoring marine biodiversity (n=65; i.e. 54.6%)**: These involve citizen science efforts focused on mapping various plants, corals, and animals of the marine food chain (e.g., coral reefs, seahorses, plankton, seagrass, etc.). The primary impact of this category lies in enhancing understanding of marine ecosystems, which in turn supports the implementation of effective preservation and conservation practices. Typically, participants in these projects are required to upload photos and/or specific data related to their observations. In some cases, they also use dedicated open-access materials to carry out their work. For example, in the [CoralWatch](#) project, volunteers use a simple tool to measure changes in coral colour linked to coral bleaching. This tool is

¹⁰

https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/restore-our-ocean-and-waters_en

openly available, translated into 12 languages, and can be downloaded and printed for free.

- A further class of projects tackle water and ocean pollution from various angles, and focus on generally **monitoring water ecology (n=20 i.e. 16.8%)**: Projects within this cluster typically carry out a wide range of activities addressing multiple aspects of seas and waters simultaneously. [WeSenseIT](#), for example, focuses on “real time situational awareness” and collects all possible variables about water related elements from different formats (e.g. measurements, pictures, messages from citizen scientists) and from mining social media content. Some projects also involve monitoring specific hydrological events, where participants collect data related to floods and droughts and biodiversity to improve the prediction and understanding of these phenomena (e.g., [CrowdWater](#)). Typically, projects included in this category include two or more of the other clusters defined within this Mission.
- A particular field where Citizen Science appear to be growing in this Mission is with respect to projects focused on addressing **Litter and Waste, often plastic and microplastic (n=20; 16.8%)**: as extensively explained in Deliverable 2.1, projects in this cluster cover one or more of a chain of activities:
 - Collect (action), i.e. engage citizens in waste collection campaigns and organised actions typically at seashores.
 - Monitor and Track (data input), as waste is collected, citizen scientists may engage in producing data about the waste encountered, e.g. through photos and observations or dedicated mobile apps.
 - (Open) Data Platform, sometimes the data generated from the waste collected is showcased in open data platforms. This data is meant to be used either for science or for policy and advocacy, or for both.

Not all projects cover all activities, but only a subset of these. Others tend to cover part of this spectrum. [Plastic Pirates](#) is the reference example of Citizen Science projects to address plastic pollution.

- **Monitoring water quality (n=8; i.e. 6.7%)** is a further cluster identified: the focus is on measuring and monitoring the health of water bodies, such as seas, rivers, lakes, streams, ponds, and wetlands with the goal of restoring freshwater resources. [FreshWaterWatch](#) is a reference Citizen Science project in this space. Water quality is sometimes measured with scientifically robust methods and kits (like in the case of FreshWaterWatch) and sometimes inferred by other types of observation and data submitted by citizens. For example, [Citclops](#) infers water quality from observations on sea water’s colour, transparency and fluorescence.

- A smaller number of projects are dedicated to **monitoring meteorological events (3 i.e. 2.5%)**: clearly these projects are strongly aligned with the Adaptation to Climate Change Mission and the Climate Neutral Smart Cities one. Those included here, have a focus on marine environments or coastal areas specifically. For example, [IceWatch](#) between 2019 and 2020 collected over 5600 contributions from citizens on sea ice and icebergs. This data is integrated in the Antarctic platform ASPeCt and complemented with data from the Copernicus Sentinels.
- **Sea Safety (n=1; i.e. 0.8%)**: one project, i.e. the [Beach Environmental Assessment, Communication & Health \(BEACH\)](#) project, focuses on monitoring the safety of saltwater swimming beaches. It engages citizens in reporting environmental issues and submitting observations through a live map that displays beach conditions and safety labels, thereby increasing public access to up-to-date information on beach safety.
- **Other (n=2; i.e. 2.5%)**: Projects whose focus does not fall within the clusters mentioned above include initiatives that engage citizens through art to promote awareness of water and ocean preservation, such as the [From Sea to Street](#) project. Another example is [Our Radioactive Ocean](#), which aims to support scientists in understanding the ongoing spread of radiation across the Pacific and its evolving impacts on the ocean following the Fukushima disaster.

A graphical representation of the distribution of projects considered in this review by cluster within this Mission is provided below.

Distribution by Cluster

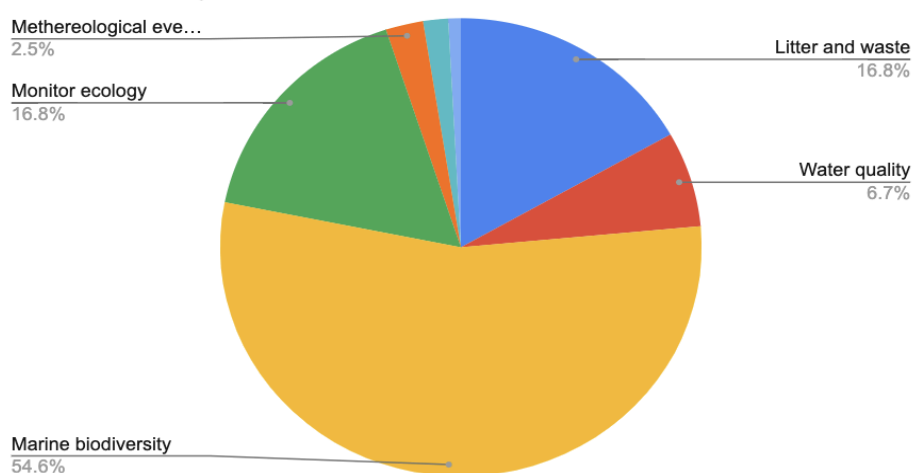


Figure 16: Water Mission - Distribution of Projects by Cluster

Out of the 119 projects examined as part of this Mission, 85 (68.9%) were active when this report was written, while 32 had already been completed. The status of 2 projects remained unknown. Funding information was accessible for about 90%

(i.e. 106 projects) of these projects. The majority received public funding (i.e. 48). Of these, 20 received funding from European schemes like Horizon 2020, Horizon Europe and LIFE. This was followed by projects supported through a combination of public and private sources, including research institutions, academia, foundations, donations, and occasionally, self-funding by the communities involved.

From this review, **20 projects** were identified as suitable for upscaling and have been selected to be considered further within this WP process. These projects collectively span four of the seven clusters identified and listed above.

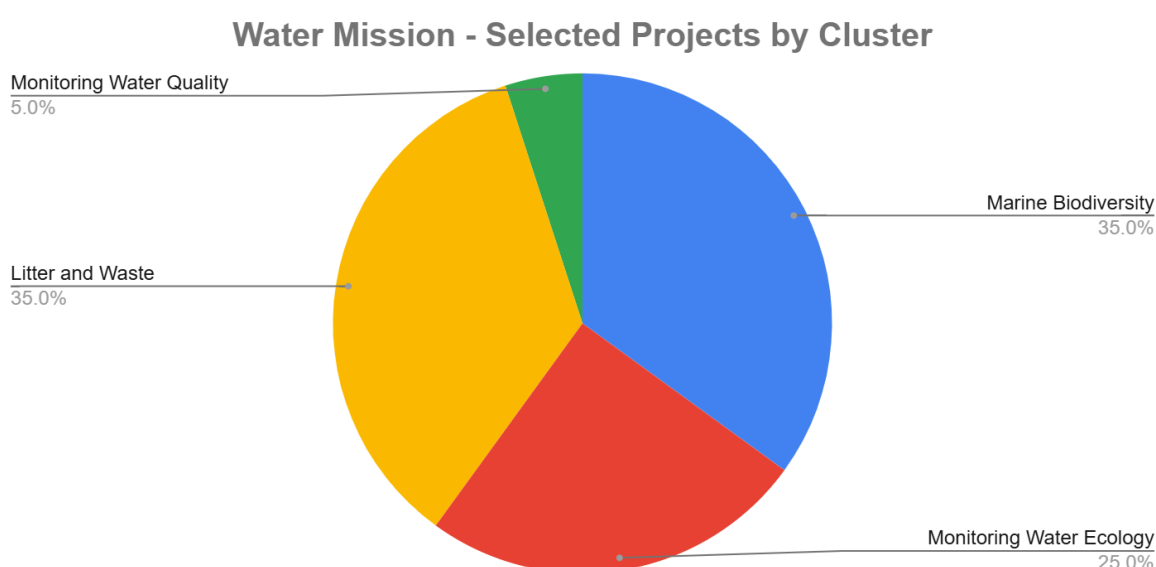


Figure 17: Water Mission - Distribution of Selected Projects by Cluster

6.2 Overall Insights and Reflections from the Review Process

- Restore Our Ocean and Waters is the mission with the highest number of selected projects from this review and assessment.** The conservation and restoration of marine environments is a matter of public interest, as it is closely connected to people's everyday experiences. Citizens living near marine areas (such as polluted beaches in Barcelona or rivers in the countryside areas of Germany e.g. in the [FLOW](#) project) are more likely to participate in clean-up events or even organize activities to educate others about protecting these environments. It is also common to find passionate people or sportsmen (surfers or divers) who are deeply engaged in their practices and simultaneously invested in preserving these ecosystems. Many contribute by taking photographs and collecting various types of data (such as location, water color, or kilograms/tonnes of waste among many others) which they typically upload to apps and/or open map

repositories. This helps generate granular information about the issues and improves understanding of the challenges related to ocean and water preservation.

- As for the other Missions, **lack of evidence of impact, lack of alignment with open science principles, and lack of information** remain the three main reasons for not considering projects further.
- **Training needed to ensure data quality.** In this Mission it is quite common to encounter projects that require citizens to undergo training before participating in citizen science activities. This is done to ensure the reliability and quality of the data collected. One example is the [Seasearch](#) project, which offers training courses for divers and snorkelers to help them accurately record observations in British and Irish waters. The project also provides advanced training for experienced participants to enhance the value of their contributions and offers mentoring for recorders at all levels. Another example is the [Coral Watch](#) project, educating participants around the world on how to assess coral bleaching to monitor coral reefs health and activate local conservation campaigns. Since data quality is one of the well-acknowledged issues preventing upscaling, these training programs should also be considered as antecedents for other Missions too involving data collection through observations.
- Some projects have not been considered further as from the review it became clear that in order for these to have an impact, a complex infrastructure needs to be in place. This is the case of [Smart Lagoon](#), which relies on an IoT infrastructure in this case already established in a coastal area of Spain. Another example is [Plankton Portal](#), a CS effort to classify plankton types from images taken by NASA. Clearly, upscaling the latter in the EU, where the network of cameras and images is not available, would be a challenge. [Orcasound](#), similarly, engages citizen scientists through a web app from where they can listen to the sounds of the oceans from microphones placed in the Seattle area to generate new knowledge about the ocean. Placing these microphones across the EU coastlines would constitute an important barrier for upscaling.
- Evidence shows that **support and endorsements from reputable institutions** can potentially play a key role in enabling project upscaling. For example, the [Marine Debris Tracker](#) **benefits from backing by National Geographic**. Partnerships like this help citizen science projects engage users by providing credibility and direct connections to public or private organizations that can utilize the data collected. In this case, the app is used to track litter in water bodies and nearby areas. [National Geographic](#) also acts as the trusted bridge between the citizen science project and potential end users of the data.
- **Local public authorities and governmental support** are also significant elements in citizen science projects to enhance their influence within this

mission (and others). For example, the [Ocean Conservancy](#) initiative, which is supported by government agencies, works to ensure that the ocean receives the necessary funding and attention. Their efforts range from securing funding to combat marine debris to promoting research on ocean acidification. This type of support facilitates projects in securing the necessary resources and funding needed to be able to upscale, and to enhance their influence on scientific research.


- **Tangible, clear, and visible impacts** have resulted from some projects. While most focus on “helping science,” others benefit from the visibility and demonstrability of their impact. This, in turn, is a strong driver for communicating and scaling up original interventions. A typical example in this mission is [OpenLitterMap](#) and the evidence provided through the litter collected. Also, [The Sea Cleaners](#), which develops technological innovation to clean the pollution from water surfaces and engages citizens on beach clean events. However, it’s not limited to this. Other measures involve policies such as establishing new or extended protected areas or implementing new fishing regulations that help preserve our seas and oceans.
- Connected to the previous point, interestingly more than one out of three projects within the category Litter and Waste are considered suitable for upscaling. We interpret this is due to several reasons: first, these cover issues that are particularly visible, impactful, and fully endorsed worldwide, i.e. a commonly shared matter of concern that creates a sense of urgency in both people and institutions. This is particularly strong with respect to plastic and microplastic. Second, impact is also usually quantifiable and relatively easy to demonstrate, e.g. pictures of litter or plastic collected and weight. Third, it appears to be relatively easier to have public sector agencies on board since managing waste is part of their remit. Fourth, there is a well established network of organizations, communities, NGOs, and other civic and non civic actors both locally and internationally that strongly support the diffusion of Citizen Science practices to address plastic and litter pollution in our seas and freshwaters.
- Projects in this Mission (especially those about Litter and Waste) can also be distinguished based on whether they are mostly **based on events with a local focus, or add on top scalable resources such as platforms or mobile applications**. For example, despite the proven impact on restoring the local wetlands, the Californian project [Amigos de Bolsa Chica](#) was not considered further as it is based on local events and actions without scalable resources to exploit for replication and upscaling.
- Some projects were not considered further because they tackle a specific emergency and they are designed and implemented for it (and not for emergency response more generally). For instance, [Our radioactive Ocean](#) leveraged citizen scientists to improve our understanding of the impact of

the Fukushima disaster on the Pacific Ocean. The uniqueness of this situation reduces its likelihood to upscale.


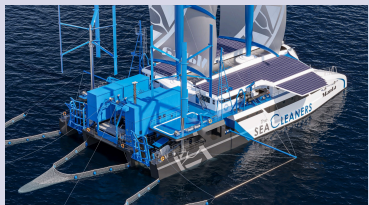


- A significant challenge for this analysis also lies in the **different levels of depth and breadth** across projects, especially those in the field of biodiversity monitoring. Some projects aim to monitor all possible variables related to e.g. a specific marine area. Others focus on specific species of animals (e.g. crabs, gelatinous organisms, whales, seals, sea lions etc.) or plants (kelp forests, algae, seaweed, seagrass etc.). An emerging trend seems to suggest that the former are more dedicated to developing local policies (e.g. safeguarded areas, fishing policies from the evidence collected). The latter are used primarily for scientific purposes and academic research on specific aspects of biodiversity or on wider protection policies.

6.3 Restore Our Ocean and Waters: Projects Considered Further

Next, we present the 20 Mission Ocean-related projects identified as suitable for upscaling.

Fresh Water Watch		
  	Project Vision	Measure and monitor the health of rivers, lakes, streams, ponds and wetlands. To restore freshwater resources.
	Project URL	https://www.freshwaterwatch.org/pages/about
	Mission	Restore our Ocean and Waters
	Timeframe	2012 - Ongoing
	Lead	Earthwatch
	Funding	Donations funding model
	Area of focus	Worldwide (UK main contributors)
	Participation tasks	Community groups monitor local waterbodies over the longer-term, taking monthly measurements and gathering water data to provide a scientific database. Individuals can also become regular freshwater watchers in the UK, or by participating in a waterBlitzer event.
	Outputs	<ul style="list-style-type: none"> - Methodology manual - Water quality toolkit - Data platform
	Impact	Enhancement of participants' awareness about water health. The data gathered has been used to do academic research and publications. Training is required for data collection (scientific relevance insurance).
	Evidence	58K datasets collected in June 2025. Metadata report . Academic Publications .
Why is it suitable for upscaling?		
<ul style="list-style-type: none"> - Issue relevant across EU water (ocean / rivers) ecosystems - Existing knowledge transfer resources - Financial stability by Earthwatch organization - Proven scientific relevance 		
Next steps: aspects to be investigated further		
<ul style="list-style-type: none"> - To what extent resources can be adopted. 		

The Sea Cleaners

   	Project Vision	Protection of the environment with the collection of floating waste
	Project URL	https://www.theseacleaners.org/news/citizen-science-against-plastic-pollution/
	Mission	Restore our Ocean and Waters
	Timeframe	2016 - Ongoing
	Lead	The Sea Cleaners
	Funding	Funded by Yvan Bourgnon
	Area of focus	Asia, Africa and South America
	Participation tasks	Waste collection actions
	Outputs	Introductory + awareness videos on how to collect plastic waste Data on Waste Collection Platform: https://www.zero-dechet-sauvage.org/
	Impact	The project has created open resources to learn how to collect and sort plastic waste, enhancing awareness about citizens' opportunities to combat plastic waste
	Evidence	More than 1K actions, and 40.000Kg of waste collected

Why is it suitable for upscaling?

- Global issue
- Existing knowledge transfer resources
- Financial stability

Next steps: aspects to be investigated further

- Understand how the data is used and by whom exactly
- Understand the collaboration with key stakeholders like the public / governmental institutions of the sea areas where the project takes place

Plastic Pirates

  	Project Vision	Prevent and eliminate plastic pollution in European seas and waters.
	Project URL	https://www.plastic-pirates.eu/en
	Mission	Restore our Ocean and Waters
	Timeframe	2016 - 2024
	Lead	DLR Projekttraeger
	Funding	Horizon Europe
	Area of focus	Portugal, Spain, France, Belgium, Germany, Austria, Slovenia, Italy, Hungary, Bulgaria, Greece, Lithuania, Latvia
	Participation tasks	Collection, sorting, analysis and reporting of waste on the beach
	Outputs	<ul style="list-style-type: none"> - Interactive database, - Results citizen science analysis, - Lessons learned from upscaling a citizen science initiative across europe report - Participation materials - Video documentation of the process
	Impact	The protocol has been replicated in different European contexts, the data gathered has been used to make scientific research
	Evidence	Scientific publications




Why is it suitable for upscaling?

- Global issue
- Active community support to engage other citizens in the project
- Knowledge sharing and transfer open materials
- Good narrative of the relevance of the topic

Next steps: aspects to be investigated further

- Check willingness of participants to upscale the project further
- Check shared governance of the participants in the project
- Check effort on translating materials to other languages,

Plastic Origins

  	Project Vision	A platform to collect, analyze and disseminate data on plastic pollution in rivers and encourage local authorities to take action.
	Project URL	https://www.plasticorigins.eu/
	Mission	Restore our Ocean and Waters
	Timeframe	2021 - Ongoing
	Lead	Surfrider Foundation
	Funding	Surfrider Foundation
	Area of focus	France
	Participation tasks	Trained volunteers collect information and images on plastic pollution with plastic origins app
	Outputs	<ul style="list-style-type: none"> - App - Map + data - Operational guide (in french) for local authorities committed to fighting aquatic waste - report on AI implementation to analyse waste in videos / pictures
	Impact	Impact proved in collaboration with local french authorities
	Evidence	News




Why is it suitable for upscaling?

- Global issue
- Active community support to engage other citizens in the project
- Knowledge sharing and transfer open materials to collaborate with local authorities (in french)
- Financial stability, project supported by a gibber network: Surfrider Foundation

Next steps: aspects to be investigated further

- Check the effort made to translate Operational Guide materials into English and other languages to scale up the project by replicating the guide in other European countries. Maybe scale up nationally in France?
- Examine the current collaboration dynamics with local authorities: how do they plan to activate the data collected with the app?

FLOW


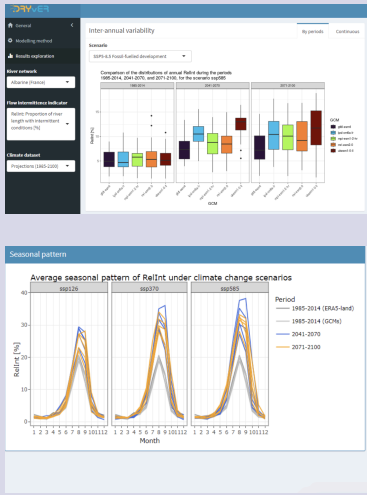
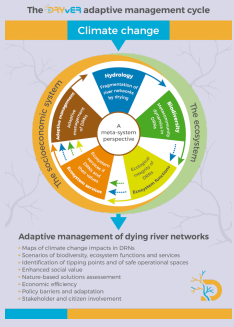
  	Project Vision	Collection of ecological status of small streams to complement official freshwater monitoring schemes, to enhance public awareness of the protection of rivers and streams.
	Project URL	https://www.flow-projekt.de/
	Mission	Restore our Ocean and Waters
	Timeframe	2021 - Ongoing
	Lead	Helmholtz Centre for Environmental Research (UFZ, Leipzig), German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig, Friedrich Schiller University Jena
	Funding	Deutsche Bundesstiftung Umwelt (DBU) - PhD scholarship for Julia von Gönner // Federal Ministry of Education and Research (BMBF)
	Area of focus	Germany
	Participation tasks	Gather data about the ecological status of small streams
	Outputs	<ul style="list-style-type: none"> - Record data platform, - Assessment of stream ecological status in accordance with the EU Water Framework Directive - Criteria for sample site selection
	Impact	National impact in Germany
	Evidence	Publications 1 , Publication 2 // 900 participants, 137 streams nationwide = show that the invertebrate fauna in 60 percent of the agricultural streams examined is affected by pesticide inputs

Why is it suitable for upscaling?

- Scientific relevance
- Possibility to plan a campaign and avail of the infrastructure (needs to be translated from german)

Next steps: aspects to be investigated further

- Check effort on translating materials to english and/or other languages

DRYvER		
  	Project Vision	DRYvER aims to collect, analyse and model data from nine drying river networks (DRN) in Europe and South America to investigate climate change impact on biodiversity, ecosystem functions and ecosystem services of DRNs.
	Project URL	https://www.dryver.eu/
	Mission	Restore our Ocean and Waters
	Timeframe	2020 - 2025
	Lead	INSTITUT NATIONAL DE RECHERCHE POUR (FR)
	Funding	EU Horizon 2020
	Area of focus	Regional in different countries (Czech Republic, Croatia, Finland, France, Hungary, Spain)
	Participation tasks	DRYvER app enables citizens to map and report drying cases in rivers and streams
	Outputs	<ul style="list-style-type: none"> - Metadata about user & spot statistics - Interactive app
	Impact	Explore the evolution of the spatio-temporal patterns of flow intermittence in the river networks under the past-present climate (1980-2021) and under climate change projections until 2100.
	Evidence	36 papers , 46 reports & other documents , 191 conference presentations




Why is it suitable for upscaling?

- Timing: the project is about to finish its public funded period (in 2025).
- Consistent with open science principles. All data is released as open data.
- Scientific relevance

Next steps: aspects to be investigated further

- Explore further evidence of impact, and if/how they measure raised awareness beyond the number of workshops and participants.

Sea Search

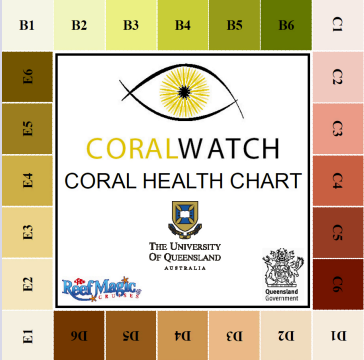

  	Project Vision	A network that collects information about the habitats, plants and animals that can be seen underwater, to track the health of the marine environments.
	Project URL	https://www.seasearch.org.uk/
	Mission	Restore our Ocean and Waters
	Timeframe	1980 - Ongoing
	Lead	Marine Conservation Society
	Funding	Private Marine Conservation Society
	Area of focus	England and Ireland
	Participation tasks	(1) Records or marine environments seen while diving; (2) Fill out the observation form that provides information on the main types of habitats and seabed cover found, (3) Survey form for more complete data collection.
	Outputs	<ul style="list-style-type: none"> - Dashboard with open data - Monitoring of plants and animals - Observations forms - Surveys - Guide materials - Training workshops - Updated communication of the project to engage new volunteers
	Impact	Increase understanding of the ecosystems underwater and monitor species in risk of extinction
	Evidence	800k records

Why is it suitable for upscaling?


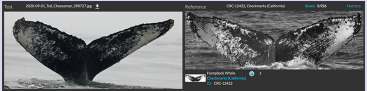
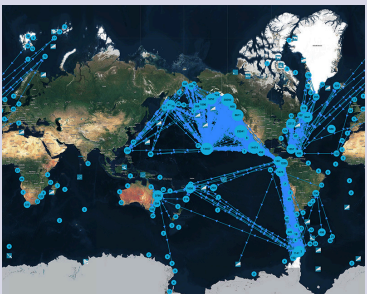
- Proven scientific impact
- Global issue
- Infrastructure of national project
- Financial stability since 1980
- Different levels of training are required to ensure the quality of the data

Next steps: aspects to be investigated further

- Check openness of the data
- Explore further the collaboration with key stakeholders such as local authorities

Coral Watch		
 CORALWATCH  	Project Vision	Monitoring of coral reefs bleaching.
	Project URL	https://coralwatch.org/
	Mission	Restore our Ocean and Waters
	Timeframe	2022 - Ongoing
	Lead	Coral Watch (Australia)
	Funding	Donations
	Area of focus	Worldwide
	Participation tasks	do-it yourself kit available in 12 languages to monitor coral bleaching
	Outputs	<ul style="list-style-type: none"> - Interactive map - Database instructions - Database reports - Free chart (12 languages) - Literacy about coral bleaching - Education resources
	Impact	Create public understanding of the value of reefs and provides opportunities to help save the reef through participation in scientific research and education
	Evidence	publications , active in 130 countries
Why is it suitable for upscaling?		
<ul style="list-style-type: none"> - Training materials available to engage citizens in the project worldwide - Open materials for citizen participation on coral bleaching monitoring 		
Next steps: aspects to be investigated further		
<ul style="list-style-type: none"> - Check further the training programs in schools - Check further the key stakeholders enabling the system - Check further reliability of the donations funding model 		

Happy Whale

  	Project Vision	A project established to record whale sightings and build a better understanding of these creatures.
	Project URL	https://happywhale.com/
	Mission	Restore our Ocean and Waters
	Timeframe	2015 - Ongoing
	Lead	Happy Whale
	Funding	Donations
	Area of focus	Worldwide
	Participation tasks	Pictures submitted and analysed and matched with whale types that are then tracked.
	Outputs	<ul style="list-style-type: none"> - Open map - Data inputs - Photo entry platform - Adopt a whale for ocean conservation
	Impact	Global understanding and caring for marine environments through creating high quality conservation science and education
	Evidence	publications

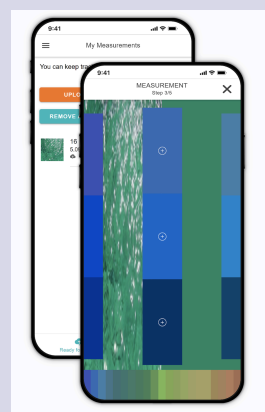
Why is it suitable for upscaling?

- Active community worldwide
- Open materials and knowledge transfer resources for adaptation to new environments
- Scientific relevance

Next steps: aspects to be investigated further

- Check citizen engagement programs: how can they engage a broader audience?

Eye on Water



Project Vision

The EyeOnWater colour app helps us to classify rivers, lakes, coastal waters, seas and oceans based on its colour (it can be used for both fresh and saline natural waters).

Project URL

<https://www.eyeonwater.org/>

Mission

Restore our Ocean and Waters

Timeframe

2016 - Ongoing

Lead

MARIS B.V.

Funding

Citclops

Area of focus

Worldwide

Participation tasks

Upload water color pictures in an open app

Outputs

- [App](#)
- [Observations](#)
- [Literacy about water health](#)

Impact

Enhance the public understanding of water health and its implications

Evidence

+1k downloads of the app and active use of it

Why is it suitable for upscaling?




- Open and user-friendly app available for larger use
- Global issue
- Financial stability, long term stability since 2016

Next steps: aspects to be investigated further

- Scientific relevance: Actual use of the data gathered in the project for scientific research
- Potential use of the app in academic or scholar environments to enhance awareness about the topic with a younger audience

Crowd Water		
	Project Vision	Investigating how the public can be involved in the collection of hydrological data, as well as what value the collected data can have for hydrological forecasts
	Project URL	https://crowdwater.ch/en/welcome-to-crowdwater/
	Mission	Restore our Ocean and Waters
	Timeframe	2016 - Ongoing
	Lead	University of Zurich (Department of Geography)
	Funding	University of Zurich (Department of Geography)
	Area of focus	Germany
	Participation tasks	Citizen scientists collect hydrological data in the categories of water level, temporary streams, soil moisture and plastic pollution
	Outputs	<ul style="list-style-type: none"> - App - Game to check the need of improvement water quality - Open data map - Training materials - Literacy
	Impact	Improvement of the prediction of hydrological events such as drought or flooding
	Evidence	publications
Why is it suitable for upscaling?		
<ul style="list-style-type: none"> - Open app and game to monitor water quality and understand when and how to improve its health - Financial stability since 2016 - Global issue - Collaboration with academic institution = scientific relevance 		
Next steps: aspects to be investigated further		
<ul style="list-style-type: none"> - Check further how the team is organized within the academic institution and if they collaborate with other academic organizations on doing research with the data gathered 		

Observadores del Mar

  	Project Vision	Develop a multi-function platform, through which any citizen can collaborate with research by contributing their knowledge and experience and submit observations from the sea.
	Project URL	https://www.observadoresdelmar.es/
	Mission	Restore our Ocean and Waters
	Timeframe	2014 - Ongoing
	Lead	Institut de Ciències del Mar (ICM)
	Funding	Mixed: EU, Spanish Gov, Foundations
	Area of focus	(Mainly) Mediterranean Sea
	Participation tasks	Register and submit observations either through web or mobile app. Chance to establish a project.
	Outputs	<ul style="list-style-type: none"> - Open Interactive Observations Map - 15 projects, 5K participants, 579 organization - Full comprehensive set of open resources
	Impact	Improve understanding of the sea ecosystems health
	Evidence	Scientific publications, local project impacts reported

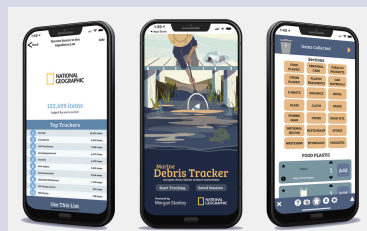
Why is it suitable for upscaling?

- Demonstrated impact and financial sustainability
- Global Design and Global Issue
- Infrastructuring of local project
- Openness
- Knowledge Transfer Resources
- Network of committed entities

Next steps: aspects to be investigated further

- Access to data, level of openness
- Stakeholders required
- Monitoring of (scientific) impact
- Other unique factors?

Marine Debris Tracker



Project Vision	Open platform for collecting data on plastic waste in inland and aquatic waters
Project URL	https://debristracker.org/
Mission	Restore our Ocean and Waters
Timeframe	2010 - Ongoing
Lead	Marine Debris Tracker
Funding	Morgan Stanley
Area of focus	Worldwide
Participation tasks	Upload images and data about the collection and observation of plastic waste
Outputs	<ul style="list-style-type: none"> - Open data map - Resources and literacy about plastic pollution - News & Events
Impact	Creating a bigger picture of the plastic pollution crisis and enhancing public awareness about its threats
Evidence	9k debris items collected, support of National Geographic

Why is it suitable for upscaling?


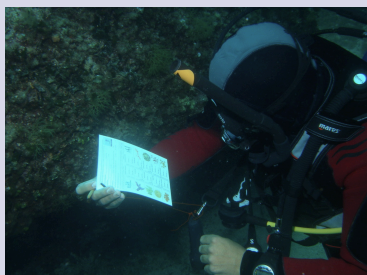
- Global focus and global issue
- Well established and financially sustainable non-for-profit initiative
- Reported as easy to use.

Next steps: aspects to be investigated further

- Learn more about the project's collaboration with National Geographic: How does NG support the project and how does this influence its performance?
- Learn more about our collaborations with other educational, non-profit, and scientific organizations.

iSeahorse		
  	Project Vision	Harness the power of community scientists to improve the understanding of seahorses and protect them from overfishing and other threats
	Project URL	https://projectseahorse.org/iseahorse/
	Mission	Restore our Ocean and Waters
	Timeframe	2001 - Ongoing
	Lead	Institute for Oceans and Fisheries (Canada)
	Funding	Donations
	Area of focus	Worldwide
	Participation tasks	Upload pictures of seahorses in iNaturalist page
	Outputs	<ul style="list-style-type: none"> - Literacy on threats - iNaturalist page - Observations
	Impact	Enhance understanding of seahorse ecosystems for their health and conservation
	Evidence	Collaboration with The University of British Columbia (UBC) in Canada and the Zoological Society of London (ZSL) in the UK. 176 people trained with skills in conservation of seahorse.
Why is it suitable for upscaling?		
<ul style="list-style-type: none"> - Scientific relevance - Global focus and global issue - Well established and financially sustainable non-for-profit initiative - Reported as easy to use. 		
Next steps: aspects to be investigated further		
<ul style="list-style-type: none"> - Check the step by step behind action campaigns and how to engage citizen scientists 		

Reef Check Mediterranean Sea


 	Project Vision	Empowering people to protect reefs and oceans
	Project URL	https://www.reefcheckmed.org/
	Mission	Restore our Ocean and Waters
	Timeframe	2008 - Ongoing
	Lead	Reef Check Foundation
	Funding	Dipartimento di Scienze della Vita e dell'Ambiente (DiSVA), Università Politecnica delle Marche, Via Brecce Bianche sn, 60131 Ancona (Italy)
	Area of focus	Mediterranean Sea
	Participation tasks	Follow a training for marine ecosystems monitoring and conservation
	Outputs	<ul style="list-style-type: none"> - Reef observations map - Upload data form - International workshop - Water temperature monitoring dashboard - Underwater monitoring protocols
	Impact	Monitoring
	Evidence	2.2K trained people, 1k contributions, 6.3k surveys, 64k observations

Why is it suitable for upscaling?

- Mediterranean focus and global issue
- Well established and financially sustainable initiative
- Scalable platform

Next steps: aspects to be investigated further

- Check further about the expansion of protocols in different countries and languages
- Check further the training resources

Seagrass spotter		
<div>   </div>	Project Vision	Martine conservation charity dedicated to ensuring that seagrass meadows are protected globally
	Project URL	https://seagrassspotter.org/
	Mission	Restore our Ocean and Waters
	Timeframe	2015 - Ongoing
	Lead	Cardiff University and Swansea University
	Funding	Donations
	Area of focus	Worldwide
	Participation tasks	Upload observations on the web portal
	Outputs	<ul style="list-style-type: none"> - Dashboard - Leaderboards - Literacy - App - Map
	Impact	Enhance the recognition, recovery and resilience of seagrass ecosystems globally
	Evidence	Project affiliated with Seagrass project

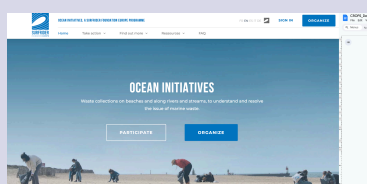
Why is it suitable for upscaling?

- Global focus and global issue
- Open materials and data
- Already embedding minor actions as a platform-based upscaling
- Scalable platform

Next steps: aspects to be investigated further

- Learn more about the project's involvement in the [seagrass project](#)
- Check further the training resources

Ocean Initiative



Project Vision

A platform to organize or find waste collection events focused on collecting and classifying pollution and waste from beaches.

Project URL

<https://www.initiativesoceanes.org/it/>

Mission

Restore our Ocean and Waters

Timeframe

2014 - Ongoing

Lead

Surfrider Foundation Europe

Funding

LIFE EU programme

Area of focus

Europe

Participation tasks

Join collection actions

Outputs

- Clean-up organizers kit
- Map with clean-up sessions to participate

Impact

Less litter on the beaches and increased awareness

Evidence

[annual reports](#)


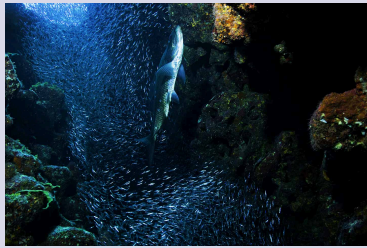
Why is it suitable for upscaling?

- EU focus and global issue
- Scalable platform: to participate and organize in clean-up sessions
- Platform translated to multiple languages (french, english, spanish, italian, and german)

Next steps: aspects to be investigated further

- Check further the activation of the campaigns to organize collection events

Ocean Conservancy's International Coastal Cleanup

 	Project Vision	The Coastal Cleanup Data platform collects and analyzes global data on ocean trash collected by volunteers. It helps guide solutions to reduce marine litter and improve coastal ecosystems
	Project URL	https://oceanconservancy.org/trash-free-seas/international-coastal-cleanup/
	Mission	Restore our Ocean and Waters
	Timeframe	1986b- Ongoing
	Lead	Ocean Conservancy NGO
	Funding	Donations
	Area of focus	Worldwide
	Participation tasks	Collection of plastic pollution in coasts, and download an app and add trash collection data
	Outputs	-
	Impact	By entering cleanup data, participants contribute to addressing ocean pollution and supporting sustainable ocean health
	Evidence	Trash Free Seas Alliance , Government relations




Why is it suitable for upscaling?

- Global focus and global issue
- The project has public/government support and collaborates with private organizations on raising funding for scientific research on the matter
- It has open data available on the pounds of trash collected around the world
- It has a global network of citizens contributing to trash collection and uploading the data in an open app

Next steps: aspects to be investigated further

- Check further collaboration with local authorities and governments

Open Litter Map

  	Project Vision	OpenLitterMap is a global citizen science platform that enables individuals to map and track litter locations, raising awareness about plastic pollution
	Project URL	https://openlittermap.com/
	Mission	Restore our Ocean and Waters
	Timeframe	2017 - Ongoing
	Lead	GeoTech Innovations Ltd (Ireland)
	Funding	Crowdfunding / Donations
	Area of focus	Worldwide
	Participation tasks	Citizen participation through cleanups and uploading information to an app. Citizens take a photo, tag the trash, and share the results on the app
	Outputs	<ul style="list-style-type: none"> - github repository - open dashboard - trash upload history - cleanups - community - state of the map in 2019
	Impact	Help inform cleanup initiatives and environmental policies through crowdsourced information
	Evidence	publication

Why is it suitable for upscaling?

- Scientific relevance
- Global focus and global issue
- Open materials and knowledge transfer resources

Next steps: aspects to be investigated further

- Check further annual reporting
- Check further application of the data and influence in policy

This chapter focused on the Restore our Ocean and Waters and, consistent with the other chapters, provided an overview of all selected projects, together with a description of the assessment process and the insights and patterns that emerged from these analyses. The complete information about all 119 projects is provided in Appendix 4.

7 Mission Cancer

The primary objective of EU Mission Cancer is to enhance the lives of over 3 million people by 2030, focusing on prevention, treatment, and improving the quality of life for those affected by cancer, including their families, so they can live longer and healthier lives¹¹.

Since the very first workshop ECSA and throughout the review and assessment process, it appears clear that the Cancer Mission is the least represented in the sample, and arguably the EU Mission where the presence of Citizen Science is less prominent and established.

7.1 Overview of Projects Reviewed

As extensively argued in Deliverable 2.1, the strategy employed for this Mission was the following. First, projects directly contributing to the Cancer Mission have been listed and assessed. Subsequently, additional projects from the healthcare domain more generally have been also included. The assumption is that these could be either instrumental for upscaling cancer-related projects, or could extend their area of intervention and include cancer-related situations. For example, [Patient Innovation](#) provides a platform for knowledge exchange, to share practices and experiences among cancer patients and their carers. In this review we also included similar Citizen Science platforms that serve the same purpose but not for cancer related diseases. According to the reasoning, the latter could be either instrumental to upscale the former, or could extend their focus to include cancer patients and carers. An example of these is the Irish [Neureka Project](#) developed in the context of brain health.

In total, 76 Citizen Science projects have been identified and considered for this Mission. Of these, 32 are directly linked to the Cancer Mission, while 44 belong to the wider healthcare category as discussed above.

As done for the other Missions, several diverse clusters of projects have been found in this sample. These were treated, reviewed, and analysed separately consistent with the methodology presented in Deliverable 2.1:

- **Game or Image Analysis for Collaborative Cancer Research (n=20; i.e. 26.3%):** the majority of projects considered under this Mission focuses on enabling and promoting citizen participation in cancer research through leveraging volunteers' analytical contributions. Typically, this happens through a gaming experience or image classification and analysis. Their focus is typically well defined within one type of cancer and participants

11

https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/eu-mission-cancer_en

usually contribute with individual tasks of image analysis, e.g. to spot stains, to reconstruct protein structures, to perform DNA analysis etc. Deliverable 2.1 presents a list of cancers collectively covered by these projects.

- **Care and Recovery (n=12; i.e. 15.8%):** while the direct beneficiaries of the previous cluster are scientists and researchers, projects in this category are aimed at cancer patients and their carers or important others. These typically take the form of knowledge exchange platforms, or dedicated social networks where people can share experiences and practices, but also connect to and support each other. In this way, projects can be further distinguished between those oriented to self-care (e.g. to help the recovery process) and self-screening (i.e. to help in the diagnosis phase). [MyPeBS \(My Personal Breast Cancer Screening\)](#) is an example of the latter.
- **Donate Health Data / Records / Samples (n=11; i.e. 14.5%):** as an alternative contribution to cancer research to the first cluster, 11 Citizen Science projects were found to contribute through personal health data sharing or through donating personal samples, e.g. blood in [CitieS-Health](#) or saliva in [Saca La Lengua](#). An important distinction is made between projects that involve donations of samples or records over time, and those where this action happens once. In both cases, the infrastructure (i.e. collection points, laboratories, sample preservation, etc.) required tends to be complex, articulated, and hard to replicate.
- Projects focused on **Advocacy (n=4; i.e. 5.3%):** these focus on organising and implementing advocacy actions, typically for more investments and attention to cancer related research and healthcare. The [Let's Cure Cancer](#) one is a typical example of these. None of the projects of this category has been selected further, since in general they rely more on local physical actions, rather than on (or producing as a result) scalable technologies or resources.
- **Monitoring of Incidence of Diseases and Actions (n=9; i.e. 11.8%):** in healthcare more generally, Citizen Science has proven valuable in mapping and monitoring the incidence of certain diseases as well as, in some more evolved cases, mapping useful spots for those affected by the illness at stake. These could include dedicated healthcare professionals, or even toilets or defibrillators in the public space for those that may experience an urgency related to their health conditions. The purpose was to assess the suitability of extending the scope of one or more of these platforms to cover cancer related diseases. The projects in this cluster collectively cover the following domains: flu, infectious diseases, COVID-19, pollen and related allergies, mosquitos related diseases, HIV, snakebites, and more general mapping of clinics.
- **Donating Computing Power (n=3; i.e. 3.9%):** three further projects involve participants donating unused computing power to feed into cloud analytics through an application. The two main ones are led by foundations

related to big corporations, namely Vodafone and IBM, [DreamLab](#) and [Mapping Cancer Markers](#) respectively. Although it can be argued that the level of engagement is low and passive, in the latter citizens can choose what cause or cancer research they want to contribute to. This gives them a higher degree of active engagement.

- **Citizen Science to Feed AI in Healthcare (n=2; i.e. 2.6%):** two further projects were found to focus on promoting Citizen Science activities whose result is data to feed AI algorithms. These are [STRATUM](#) and [Dental Disease Detection](#) (the latter is from the wider healthcare domain). A specific reflection on these is provided in the next section.
- **Collaborative Health Research (n=10; i.e. 13.2%):** finally, the last category was defined from Citizen Science projects as a form of collaborative research in the wider health domain, i.e. beyond cancer. However, none of these 10 projects was considered further. A typical and popular example is the EU project [CitieS-Health](#). It employs Citizen Science to address environmental epidemiology issues. However, the project has been specifically designed for specific epidemiological issues, with a weak link to the Cancer Mission. For example, in Barcelona, CitieS-Health studied the relationship between mental health (level of concentration) and exposure to air pollution.
- **Other (n=5; i.e. 6.6%):** six of the projects reviewed did not belong to any of the other clusters. These include for example [Mark2Cure](#), a citizen science platform where volunteers read scientific literature and help categorize information related to diseases, including cancer. Others involve co-creation activities for new products or devices to be used in healthcare. An example is [Careables](#), a project joining makers, citizen science, and frugal innovation.

Consistent with the methodology of this assessment, these clusters became separate units of analysis. It is important to reflect on the different nature of these projects and a comparison among those clusters specifically related to the Cancer Mission showing the primary differences and related implications is provided in the table below.

This table clearly shows that a so-called “one strategy fits all” for upscaling all types of Cancer projects to the transnational level is not a viable option.

Cluster	Outcomes	Citizen Involvement
Game or Image Analysis for Collaborative Cancer Research	Typically for science, with some focus on users gaining awareness	Typically individual tasks. Flexible commitment
Care and Recovery	Typically for people (patients, carers, family), self care and/or self screening	Share practices and experiences with other users, consume content
Donate Health Data / Records / Samples	For science	Varies from donating samples once, to engage in longitudinal studies, answer surveys
Advocacy	For raising awareness and raise funding and/or commitments	That part in ad hoc actions / demonstrations
Donating Computing Power	For science, increased analytics potential	Download an app, and share computational power

Table 2: Comparison among clusters

The overall distribution of the 76 projects considered across these categories is depicted in the figure below.

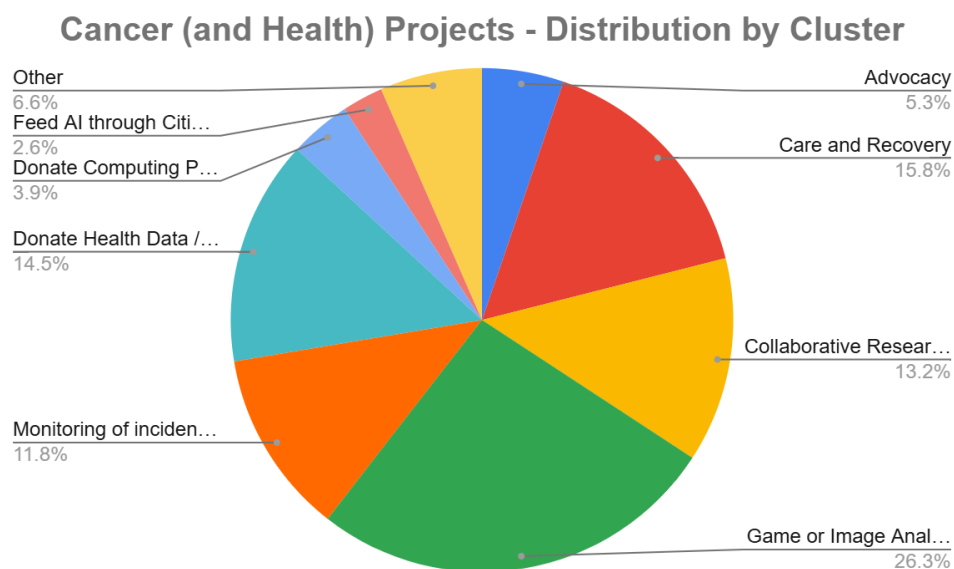


Figure 18: Cancer projects distribution by cluster of focus

In terms of general statistics, of the total of 76 projects considered (i.e. both from Cancer specifically and wider Healthcare domain), 46 appear to be active today (i.e. 60.5%), 29 completed (i.e. 38.2%), while seems active but hasn't published any update in the past two years. If we look at Cancer only, the percentages are similar with 17 projects currently active (i.e. 55%). For 67 of these projects, we were

able to retrieve the source of funding. This is public in 30 cases (i.e. 44.8%) which grows to 49 if also including research institutes and universities. The remaining is almost equally distributed among private entities, donations, foundations and other mechanisms.

Consistent with the structure of this document, the figure below shows the distribution of the projects selected as suitable for upscaling in this review by cluster.

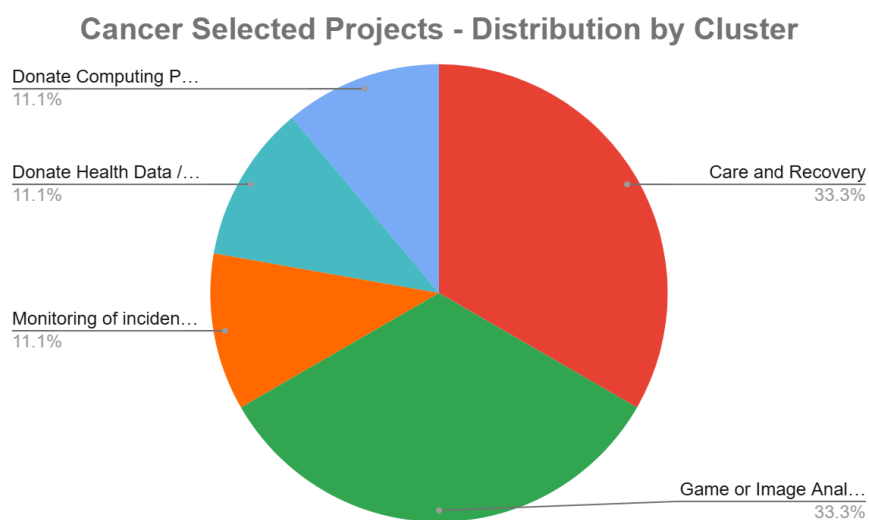


Figure 19: Cancer Selected Projects by Cluster of Focus

With respect to the categories directly related to the Cancer Mission, all are represented apart from Feed AI Through Citizen Science and Advocacy. Some dedicated reflections on these and on the overall assessment process are presented and discussed next.

7.2 Overall Insights and Reflections from the Review Process

Compared with the other Missions, a lower number of projects has been selected as suitable for upscaling in CROPS (i.e. 9). This is largely due to the peculiarities of the Mission. These are articulated in this section together with the most relevant emerging insights from the review and the assessment.

The very low number of projects selected further shows a well-known issue: the challenges in achieving open science principles in participatory cancer (or healthcare related) research. In other words, several projects considered in this Mission have significant issues, especially those already completed, of managing data in an appropriate manner to be able to publish it as open data. A consequence of this is that several projects do not comply with the criteria of open data and open science principles adopted in CROPS and in the Upscaling Framework. We interpret these issues can be traced back primarily to the

sensitive nature of the data collected and analysed, as well as the management of IPs in the context of medical research. The former also includes context specific, usually complex, ethical approval processes, that can vary substantially even from one institution to another. However, while our framework led us to select 9 projects, the emerging concepts of Data Altruism, the Common European Data Spaces (and specifically DG SANTE's Health Data Space¹²) are expected to address secure and fair data sharing in this context, thus, hopefully, augmenting the scalability potential of these valuable Citizen Science endeavours beyond single studies towards more generalizable ones across the EU.

A common characteristic was also found among purely scientific-oriented research projects, i.e. those clustered under Collaborative Research, Game or Image Analysis for Collaborative Research, and Donate Health Data / Records / Samples. Probably because of the scientific matters tackled, these studies tend to be particularly strict in terms of academic rigor. While this was somehow expected, this aspect has at least two main effects on this review and assessment.

- First, studies as a result are defined, articulated, and established to a great level of granularity. Methods are typically tailored and considered “scientifically valid” for the disease or particular branch of healthcare they are meant to cover. So are devices and tools. The main consequence is therefore the challenge in somehow extending the scopes of these projects. In turn, this limits the potential adaptation of these projects either to the Cancer Mission, or to transnational contexts.
- Second, the role of scientists and researchers (or medical practitioners) appears to be more prominent than the one of citizen scientists if generally compared with other EU Missions. The extent to which the involvement of citizens can be considered “conscious and active” (i.e. aligning with the definition adopted in CROPS) is arguably lower on average than in other Missions. For example, it could be argued that when citizen scientists play games and/or classify images (for e.g. help scientists find patterns within the myriad of protein unfolding combinations), what drives them to perform the task is the fun from the game rather than the research itself (which, on top, is often hidden from the public).

One consequence of the previous point is that often projects are at the limit to be considered Citizen Science. Given the peculiarity of this Mission and the fact that it was underrepresented in the overall review sample, some exceptions have been made and projects that may be argued as being more aligned with crowdsourcing practices, or more general participatory research have also been considered. In some other cases projects were clearly outside the scope of Citizen Science. These were excluded. Some of these are described as Citizen Science while in fact they are “traditional” pharmaceutical-business driven clinical trials.

¹² https://health.ec.europa.eu/ehealth-digital-health-and-care/european-health-data-space-regulation-ehds_en

These typically rely on patients' participation in terms of giving consent to share their health data and records. However, these are typically used by pharma companies for new drug discovery and for business opportunities, rather than open science.

Additional more specific insights emerging from the review process include:

- Similarly to other Missions, **lack of openness** is also often observed with respect to what happens to the data or contributions provided by citizen scientists. This too often appears as a black box, behind statements such as “your data is valuable for cancer research”. However, how this data is used, by whom, and with what results is often omitted in the material we have reviewed. This is often the case for projects that involve image analysis or gaming as a form of participatory research analysis process, e.g. in [Genigma](#), [Trailblazer](#), [Colony B](#), or [Brain Explorer](#). In turn, this creates tensions in this assessment since: (1) there is no clarity on how each endeavour contributes to the Mission beyond “improved research”; (2) as a consequence, there is lack of evidence of impact; and (3) these mechanisms raise questions about trust and transparency, seeking mechanisms that ensure that data is not misused, or used for purposes that are beyond science and research for the common good.
- Some projects have not been considered further simply given that the leaders **admittedly reported their failures**. For example, [Cell Sliders' project](#) was conceived as an experiment and the leaders acknowledged the limitations of the methods employed, i.e. the somewhat failure of the experiment itself. Similarly, in [Genes in Space](#) the CS data collected have not been found as useful as solid research required. In [Mark2Cure](#), the organizer posted a message on their current webpage stating “*Although we have collected enough data to better understand the ways our platform could be improved to address these challenges, we do not feel that we will be able to curate enough knowledge to uncover clues for identifying potential treatment strategies of NGLY1-deficiency (the ultimate goal for this phase of the project). As a result, we are no longer seeking contributions*”.
- As anticipated above, projects relying on **sample donations often require a very articulated, complex, and expensive infrastructure** to be undertaken appropriately. This often includes collection points instrumented with all the sophisticated material and devices to preserve the validity of the samples for research; a consistent logistic infrastructure to transfer the samples to the laboratories (e.g. ensuring these are kept at a certain temperature); the laboratories themselves and the required equipment. Often these infrastructures are established as hotspots for data collection and specifically implemented for a period of time to collect the number of required samples for a specific research to be deemed

scientifically valid. Upscaling these infrastructures is arguably considered as a challenge for upscaling, consistent with the CROPS Upscaling Framework.

- Within donating computing power, there were two active projects as anticipated in Deliverable 2.1: DreamLab led by Vodafone, and [World Community Grid - Mapping Cancer Markers](#) (Microsoft). The latter, among the two, has been found to be more aligned with the nature of Citizen Science and inclusivity. Differently from the former that is a black box where users donate computing power, the latter also allows new projects to be included and the choice to which project computing power is donated to. While this is not directly a Citizen Science project to be upscaled, it has been considered as a potential strong instrument for others to gain the computing power to operate at a bigger scale.

Overall, it could be argued that the level of participation in these projects in terms of number of participants is exceptionally high in general. This depicts a seemingly paradoxical situation whereby the participation is, if compared with other projects and Missions: (1) typically time consuming and not necessarily amusing (e.g. classify images, fold proteins through image analysis); (2) often involving sensitive data and topics (which would suggest more hesitation in, for example, sharing data); and (3) citizens are not typically actively involved in the research itself beyond donating or sharing data or their time. One way to interpret this may be the fact that Cancer is a well acknowledged and commonly shared priority, where the final goal (i.e. to cure cancer) motivates citizens to perform tasks and actions in a higher magnitude than in other domains and Missions.

As a final reflection, we observe a growing trend of leveraging Citizen Science to produce data that is used to feed AI algorithms.


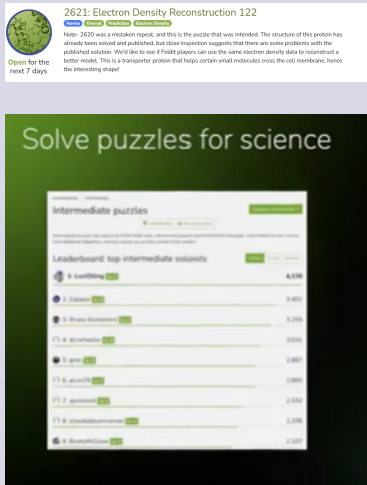
On the one hand, we argue that this is a positive aspect from the perspective of the highly advocated need for algorithms to be based on equal, diverse, and inclusive data. In other words, there is arguably a great role to play by the Citizen Science discipline to address some of the common pitfalls and biases that are ingrained in many of today's AI systems and that are creating growing pressure on policy makers and the EC in particular (see e.g. the AI Act).




On the other hand, this review shows that certain conditions for these projects should be established. We observed that often these algorithms are not only not open, but lack the most basic level of transparency with respect to aspects such as: who is behind them, what licenses will be applied and for what these future (or current?) systems will be used for, by whom, and under what conditions. All in all, we argue that while this is a promising future avenue for Citizen Science in the Cancer Mission, this should be built upon certain values and pillars like trusted institutions, open science, and transparency. [EUCanImage](#) is an emerging

example of this where, however, the current role of Citizen Science remains marginal and confined within tasks of consent giving.


7.3 Projects considered further

Next, we present the 9 projects identified as suitable for upscaling.

Foldit		
 	Project Vision	A game-like platform where citizens can help researchers by solving puzzles related to protein folding.
	Project URL	https://fold.it/
	Mission	Cancer (Collaborative Research - Game or image analysis for cancer research)
	Timeframe	2007 - Ongoing
	Lead	University of Washington
	Funding	Various, including: DARPA, NSF, NIH, HHMI, Amazon, Microsoft, Adobe, Boehringer Ingelheim, RosettaCommons.
	Area of focus	Global
	Participation tasks	Play a competitive online game to fold proteins.
	Outputs	Proteins folded through citizens playing games. Over 250K active players.
Impact		Correctly folded protein for cancer biology, project has contributed to breakthroughs in cancer research.
Evidence		See results in the news. including a nobel prize from using Foldit's data. More than 100 scientific publications.
Why is it suitable for upscaling?		
<ul style="list-style-type: none"> - Significant impact on cancer research. - Global focus and global issue. - Well established and financially sustainable non-for-profit initiative - reported as easy to use. 		
Next steps: aspects to be investigated further		
<ul style="list-style-type: none"> - Level of openness of data once registered. - Potential integration with Common EU Health Dataspace (DG SANTE). - Explore the process to start a new project on the platform. 		

Patient Innovation		
  <p>Cancer survivors create a children's book about the disease to destigmatize and normalize conversations about cancer</p> <p>● SOLUTION SHARED BY HPOKUN ON 2023-07-13 13:10</p>  <p>"Can-Can and the Adventure of Ming Island" is a children's book authored and illustrated by Carmen Monge and Heensah Pokun. It is the heartwarming tale of Can-Can the panda and his faithful friend Mopri, the sloth, as together they...</p>	Project Vision	Platform to connect patients, caregivers, and collaborators from all over the world, enabling the sharing of solutions, treatments, devices, and other relevant knowledge.
	Project URL	https://patient-innovation.com/
	Mission	Cancer (experience Sharing and Self Care), Health
	Timeframe	2014 - Ongoing
	Lead	Nova Medical School
	Funding	Mixed, various sources of funding over time
	Area of focus	Global
	Participation tasks	Share practices and experiences with other members of the community or consume content
	Outputs	Solutions catalogues and possibility to interact from the platform.
	Impact	Improved care and assistance to people dealing with cancer or carers.
	Evidence	Reports and News
Why is it suitable for upscaling?		
<ul style="list-style-type: none"> - Significant impact inferred from number of active users and participants. - Long lasting and financially sustainable. 		
Next steps: aspects to be investigated further		
<ul style="list-style-type: none"> - .Check to what extent new groups can be created independently on the platform. - Explore ways to measure more precisely the impact on the Mission. 		

EUCAIM

  	Project Vision	Cancer Image Europe provides a platform for researchers, clinicians, and innovators to access diverse cancer images, enabling the benchmarking, testing, and piloting of AI-driven technologies.
	Project URL	https://cancerimage.eu/
	Mission	Cancer (Collaborative Research - Game or image analysis for cancer research, Develop AI)
	Timeframe	2023 - Ongoing
	Lead	EU Consortium (95 partners)
	Funding	EU - DIGITAL Simple Grants
	Area of focus	Global
	Participation tasks	Classify images on the platform
	Outputs	Dashboard. Public catalogue
	Impact	Improved research to advance AI technologies for cancer detection. Usage of the data generated by 4 previous EU projects
	Evidence	Publications.


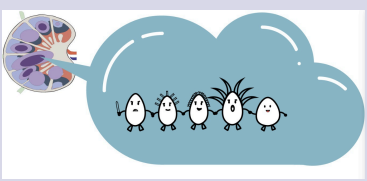
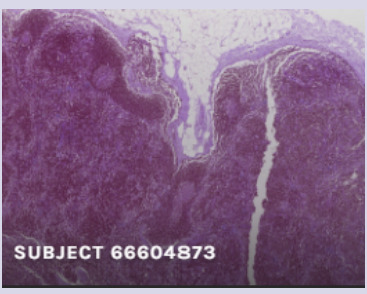
Why is it suitable for upscaling?

- Global focus for a global issue.
- Easy to use and understand, significant impact achieved to date.
- The platform and dashboards are public.

Next steps: aspects to be investigated further

- .Get more information about the AI algorithms being developed. Will these be open source? Who will be using these and for what specific purposes?
- Potential integration with Common EU Health Dataspace (DG SANTE).

Node Code Breakers: Looking For Patterns in Lymph Nodes

 <p>Node Code Breakers: looking for patterns in lymph nodes</p>  	Project Vision	Analyse images of lymph nodes from breast cancer patients to generate data that will be used to help improve our AI model performance.
	Project URL	https://www.zooniverse.org/projects/effeli/node-code-breakers-looking-for-patterns-in-lymph-nodes
	Mission	Cancer (Collaborative Research - Game or image analysis for cancer research, Develop AI)
	Timeframe	2012 - Ongoing
	Lead	King's College London
	Funding	Cancer Bioinformatics group at King's College London
	Area of focus	Global
	Participation tasks	Classify images of lymph nodes that were produced using whole slide image scanners (WSI scanner).
	Outputs	Scientific reports and publications
	Impact	Improved research to advance AI technologies for cancer detection.
	Evidence	Over 9500 contributions to date,



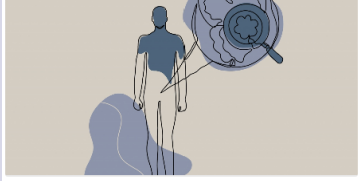
Why is it suitable for upscaling?

- Easy to use and understand.
- Impact, mainly estimated from the number of contributions and publications.
- Scalable platform.
- Global issue.

Next steps: aspects to be investigated further

- Level of openness of the data and the resulting AI algorithm. Who is going to use it? For what purposes?
- Process to obtain WSI scanner images.

Patio Patient Involvement in Oncology

  <p>diagnosis</p>  <p>Active Surveillance - probably the most counterintuitive treatment for prostate cancer</p>	Project Vision	The PATIO project empowers prostate cancer patients and caregivers by co-designing a digital tool to enhance daily life and treatment.
	Project URLs	https://www.patiospots.com/ https://www.citizen-science.at/en/projects/patio-746
	Mission	Cancer
	Timeframe	2020 - Ongoing
	Lead	Medical University of Vienna
	Funding	Ludwig Boltzmann Society, Open Innovation in Science Center
	Area of focus	Austria
	Participation tasks	Share data, analyse data, and brainstorm ideas / comments to enhance the app experience / be involved in public conversations about this topic
	Outputs	Mobile app Map of points of interest/need for care (e.g. toilet finder)
	Impact	Improve understanding of prostate cancer by collaborating with citizens affected by it, to develop knowledge on how to make their daily lives easier. Plat
	Evidence	Reports and News


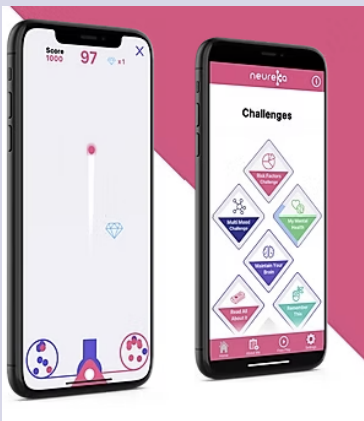
Why is it suitable for upscaling?

- Significant amount of contributions in Austria, a few beyond in the EU.
- Open map and open data freely available to everyone. Crowdsourced resources for patients and carers.
- Can be instrumental to create more bounded communities in other projects.

Next steps: aspects to be investigated further

- Investigate the level of openness of the research data.
- Explore funding necessary to extend the platform and the effort beyond Austria.
- Explore community recruitment strategy in Austria and level of replicability in other contexts.

The Neureka Project

 <p>HOW IT WORKS</p> <p>Become a Citizen Scientist</p> <p>01 At Neureka, we think that everyone should be able to participate in science. That's why we are taking research experiments out of the lab, and into your smartphone! We're looking for games and applications that contribute to brain health science. Download Neureka for free to become a "Citizen Scientist" and participate in one of the biggest neuroscience studies of all time!</p> <p>02 Unlock the Science Challenges</p> <p>Explore Science Challenges which contain combinations of games and questionnaires that help us bring about new insights into brain health and the world around you. Take part in the "Risk Factor" challenge to contribute to the science of ageing, depression, and Parkinson's disease. Or take part in the "Neuroscience of Depression" challenge to help us understand the neuroscience of depression. The more you play, the more we learn! Unlock challenges and games for your contribution to brain health science while learning how to keep your brain healthy!</p> <p>03 Play Games Daily</p> <p>With thousands of people already involved, this big data approach to brain health research helps us learn how to keep our brains healthy and prevent mental health problems at bay, and promoting resilience to late life cognitive decline. Every time you complete a science challenge in the Neureka app, help us move the needle forward in the global fight against brain health disorders. Join us and make a difference to science and to people here across the world. We can only make a difference with your help!</p> 	Project Vision	Neureka gathers data from users and also provides users with the latest in scientific findings relevant to brain health (dementia and mental health).
	Project URL	https://www.neureka.ie/
	Mission	Health More Generally - Cancer (Care and Recovery, Game and Image Analysis for Collaborative Research)
	Timeframe	2020 - Ongoing
	Lead	Trinity College Dublin
	Funding	Mix - Global Brain Health Institute (GBHI), Science Foundation Ireland and Adapt Centre
	Area of focus	Global
	Participation tasks	Participants play gamified cognitive tests, complete self-report modules encompassing demographic, lifestyle, family history, and clinical assessment, and participate in a series of "science challenges".
	Outputs	Mobile App Support Directory Scientific papers and reports (see evidence)
	Impact	Improved research on early detection of mental health disorders, and risk assessment. Improved self care.
	Evidence	News and Publications

Why is it suitable for upscaling?

- Considered as a successful project in Care and Recovery Cluster from the wider Health domain with potential to be extended to cancer related research and actions.
- Significant participation to date and proven scientific impact.

Next steps: aspects to be investigated further

- Explore feasibility of data exchange with institutions dedicated to cancer research (or departments within Trinity College as a pilot).
- Explore potential integration in Health Data Space (DG SANTE).
- Explore openness of the data and usability and accessibility beyond the research team.

European Prospective Investigation into Cancer and Nutrition (EPIC)

EPIC-Europe study

EPIC-EUROPE in numbers

521,000
participants

10
European countries

+20
international research teams involved

+30
years of study and counting

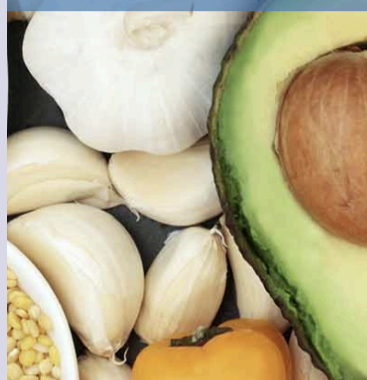
3,800,000
biological samples stored in the IARC Biobank

+3,000
scientific articles published using EPIC data

International Agency for Research on Cancer



ABOUT FUNDING CENTRES RESEARCH



Project Vision

Large-scale collaborative project that studies different populations from countries across Europe to investigate the relationships between diet, nutrition, lifestyle, and environmental factors, and the incidence of cancer and other chronic diseases.

Project URL

<https://epic.iarc.fr/>

Mission

Cancer (Sample donation for research)

Timeframe

1990 -Ongoing

Lead

EPIC (NGO) - WHO International Agency for Research on Cancer

Funding

Depends on the country: [Info on funding per country](#)

Area of focus

EU (10 western EU countries)

Participation tasks

Participants provide blood samples, have their body size and shape measured, and complete detailed dietary and lifestyle questionnaires, including smoking, alcohol consumption, medical history, physical activity, and other habits. From there, lifestyle and dietary assessments have been collected during follow-up to investigate exposure changes,

Outputs

Reports and academic papers

Impact

Improved understanding of and related scientific research on antecedents of cancer.

Evidence

[Research publications sorted by diseases tackled.](#)
500k + Participants across 10 countries in the EU.

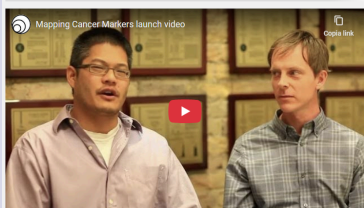
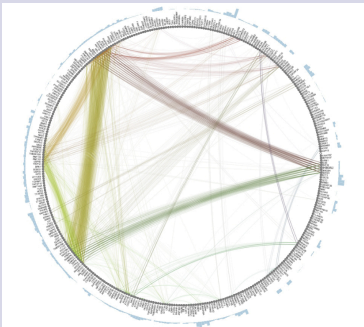
Why is it suitable for upscaling?

- demonstrated impact and upscaling potential.
- The project is now structured in different countries.
- Global issue and proven scientific impact.

Next steps: aspects to be investigated further

- .Consistency with open science principles.
- Explore study set up processes for engaging more stakeholders in new countries.

World Community Grid - Mapping Cancer Markers

<p>Mapping Cancer Markers</p>  	Project Vision	Mapping Cancer Markers on World Community Grid aims to identify the markers associated with various types of cancer. Part of a larger platform where people donate their computers' processing power
	Project URL	https://www.worldcommunitygrid.org/research/mcml/overview.s
	Mission	Cancer (Donate Computing Power)
	Timeframe	2004 - Ongoing
	Lead	University Health Network (UHN)
	Funding	IBM Corporate Social Responsibility
	Area of focus	Global
	Participation tasks	Volunteers donate their computers' spare capacity to carry out extensive analysis of cancer related data for research.
	Outputs	Study reports and publications.
	Impact	Improved research to advance understanding of cancer and other diseases
	Evidence	Publications


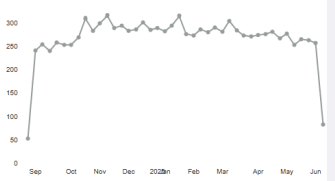
Why is it suitable for upscaling?

- Significant impact proven by a wide range of scientific publications.
- The project is long lasting and it is underpinned by solid companies.
- Easy task.

Next steps: aspects to be investigated further

- No open outputs can be found on the website.
- Who uses the service? Only the Krembil Research Institute? If so, do they publish their research data?
- Possibility to avail of the app in the EU.

InfluenzaNet

 <p>INFLUENZANET IS a Europe-wide community of volunteers</p> <p>Italy</p> <p>Data Source: influenza.net</p> <p>Active Users (weekly)</p> <p>2024-2025</p> 	Project Vision	Create a map of incidence and additional information about spread and details of seasonal flu. European volunteers in 12 countries help track these diseases by contributing data.
	Project URL	https://influenzanet.info/home
	Mission	Health More Generally (potentially adaptable to Cancer) - Monitoring Incidence of Diseases
	Timeframe	2009 - Ongoing
	Lead	ISI Foundation (Research Centre)
	Funding	No info
	Area of focus	12 EU countries have their respective subplatforms integrated in the main platform.
	Participation tasks	Volunteers self-report their health status every week. Primarily data input and fill surveys.
	Outputs	Open Data
	Impact	Improved understanding of impact of diseases and scientific discoveries.
	Evidence	Publications

Why is it suitable for upscaling?

- Long lasting and proven impact. Solid and financially sustainable project.
- Already established in 12 EU countries that have their own section in the platform.
- Already used for COVID as well. Proxy of its scalability beyond flu?
- Significant participation so far.

Next steps: aspects to be investigated further

- CONDITION FOR INCLUSION: leverage the same structure to map cancer occurrences and thus extend the scope of the platform to include cancer too.
- Explore the process for new "partners" to join from other EU countries.

8 Discussion, Conclusions and Next Steps

The previous chapters discussed and presented the findings with respect to each of the 5 EU Missions. In this chapter, we discuss insights emerging from the cross Mission analysis. These are divided consistently with the elements of the CROPS Upscaling Framework. First we reflect on Impact and Proof of Value (section 8.1); second we discuss generalizable findings on openness, including reflections on open science, open data and open technologies (software and hardware) (section 8.2); third, reflections on constructs related to the upscaling process are also proposed (section 8.3) before conclusions and future steps in this WP are outlined..

8.1 Outputs, Outcomes, and Impact on the Missions

The ultimate, overarching, goal of all CROPS activities, of the underlying EU call and therefore of its “sister project” ScienceUs, is to improve, extend, augment, upscale (...) the impact of Citizen Science on the 5 EU Missions.

Impact is therefore central in all CROPS activities. First, as extensively described in Deliverable 2.1, the element to be upscaled is the impact of Citizen Science projects to their respective EU Mission(s). The upscaling of its methodologies, technologies, communities, narratives (etc.) is considered instrumental for upscaling impact. Second, proof of impact is, according to the CROPS Upscaling Framework, the main predictor for upscaling. In other words, the fact that a project has demonstrated impact is the most relevant factor influencing its potential to upscale. On the contrary, Citizen Science projects that have not generated impact and/or can't demonstrate it have arguably less upscaling potential.

Yet, this extensive exercise showed that lack of demonstrated impact is the most commonly observed issue leading to today's issues with upscaling. Beyond this general reflection, this review also shows that impact and its demonstrability varies depending on the type of outcomes.

Providing evidence of **scientific impact** seems the most straightforward as it can be proven by scientific publications. Still, not all publications carry the same scientific impact but an assessment of this is beyond the scope of this review.

Impact on policies is also seemingly easy to demonstrate. New or changed policies are official matters and associated formal documentations serve as incontestable evidence of impact. However, here the issue revolves around the fact that often Citizen Science projects argue about a contribution to policy that does not result necessarily in new or improved ones. Rather this is often justified by advocacy reports submitted to regulatory authorities or policy makers, number and participation in society-policy dialogues, policy briefs or similar outputs (rather than outcomes). These typical situations make it very challenging to

evaluate whether an actual impact on policy has occurred and its extent and magnitude. In other cases, Citizen Science projects kickstart certain policy making related processes, providing either the input or complementary value to policy making. These cases are even more complex, since several additional variables come into play. As an example, D-Noses leveraged Citizen Science to develop odour pollution policies, a nascent policy area. The project developed an odour standard for two countries, as the first necessary step for creating new policies. However, this was “just” the first step which success will depend on several factors that are beyond the control and of the reach of D-Noses itself. These include aspects such as uptake at the regional and national level, subsequently by other countries and finally by the EU. These in turn are complex processes. In summary, not all projects operate in domains where new policies can be established within their budget and timeframes, thus providing solid evidence of impact. We observed in this review that these situations pose significant challenges for the discipline to argue and demonstrate its impact on policies.

Another common impact reported is **raising awareness** about a particular issue. While this is fully aligned with all the 5 EU Missions, and probably amongst the most relevant contributions of Citizen Science as a whole, it is also one of the hardest impacts to measure and demonstrate. This is often evaluated and measured through the number of participants in a given project, number of workshops, number of datasets produced, or percentage of maps covered by observations to mention a few examples. Once again the common issue is that these are all outputs rather than outcomes, and while they typically provide enabling conditions for impact to occur, these are not clear evidence of impact on the Missions.

Finally, a further class of impacts has been observed through the creation of **new or improved products or services**. Here, Citizen Science projects are mostly grounded in co-design and co-creation practices and participatory workshops. The actual impact from these products or services is sometimes demonstrated through their application in real contexts. In EU projects this typically happens through pilot demonstrators across a number of diverse socio technical contexts.

To add a further level of complexity to this analysis, the majority of projects argue that several or all of the previous impact areas are covered by their endeavours.

Finally, in some cases, Citizen Science is only one element of big programs or projects. Here it is sometimes challenging to understand the actual contribution of Citizen Science compared with the other elements of these larger projects. Some cases have not been considered in this review because the role of Citizen Science in these projects was minimal or marginal. In some extreme cases, we infer that Citizen Science is integrated in wider projects more for reputation purposes than for its actual contribution.

8.2 Open Science, Open Source, Open Data

According to the overall framework, openness is a key driver to enable upscaling, assuming that the more accessible the resources, technologies, data and underlying elements of a given project, the more the related project is scalable.

This is more relevant for upscaling mechanisms that involve forms of replication, i.e. where actors different from the original project leaders adopt and adapt their resources and technologies to implement the same project in their own contexts. Also, open science is considered in CROPS as one of the most important underlying values and principles when promoting and enabling upscaling of Citizen Science to the transnational level.

As highlighted throughout the Missions, lack of openness has been a common reason for not considering projects further in this assessment.

One element of openness is open data. Open data was originally defined by the Open Knowledge Foundation as data that can be freely accessed by anyone, for any purpose. Since, a considerable amount of academic studies as well as practitioners experience has been driving the debate towards the specific attributes that open data should possess for it to be reusable, i.e. useful. While these aspects are widely covered in CROPS' WP4, from this review we observe a trend of domains where open data is more or less mature. From the projects reviewed, several did not simply publish their data as open data. In the assessment we appreciated that in fields like Cancer and medicine (see section 7.2) the hassle to publish sensitive data, as well as the legal and technical skills required, may be seen as a motivation to not comply with this element of the framework. However, for other fields like several environmental phenomena such as air or noise pollution, the absence of open data is not justified. These latter projects were therefore not considered further. Overall, the evidence collected supports stating that open data seems more effective in those domains that are not sensitive nor strategic. A typical example is weather data, a mature field in the open data movement.

Even when open data exists and is provided with all its possible desirable attributes (i.e. quality, timeliness, accuracy, interoperability etc.), another challenge surrounds the open data discourse that links with reflections on impact and its evidence (see section 8.1). The concept is simple: it is hard to monitor use of open data. We propose here an example from open data for research. In some of these cases, what is known are the scientific publications that have been produced from these datasets within the same project or with associated researchers. These however, do not take into account other researchers around the globe that can still access and re-use these open datasets leaving a big gap in what we know about the final impact of this Citizen Science - generated open data. Similarly, companies or public sector agencies may integrate these data in their commercial or public services. Fishermen may consult Citizen Science maps and

resources to conduct their activities more sustainably (...). In all these cases, the final effects of open data are largely unknown.

Furthermore, several projects have not been considered further because of the difficulties foreseen in upscaling data that is not codified digitally, or in the wrong format. This goes beyond interoperability issues, as data is often generated in research as audio recordings, images, transcripts, and other qualitative data. However, nowadays solutions exist to largely solve this problem, e.g. NLP solutions, AI etc. The availability of these technologies will surely augment the upscaling potential as they become more mainstream and accessible.

The latter reflection raises another relevant dilemma: what is the most appropriate format? Certain advocates of open data strongly argue about the need for datasets to be machine readable and accessible through open APIs, i.e. to allow fast retrieval and integration in software-enabled services. However, this is considered true only in the case of open data reuse for service innovation. Reusing this data for other purposes, e.g. research, appears to be more challenging for at least two reasons: (1) different priorities and desirable data attributes: service innovators (e.g. developing a commercial service of environmental data mapping) tend to prioritise real time, machine readable, and interoperable data and, importantly, want to ensure continuous access to data in the future. Academic researchers may value more aspects like transparency of methods used to ensure scientific validity and integrity, and may need to access data once. Clearly, open data requirements differ substantially across these two examples; (2) Machine readable datasets may need substantial IT expertise to be accessed, understood and reused.

Similar observations can be made with respect to open source software and open hardware. Again, these are desirable characteristics, but often not sufficient for effective upscaling to occur. In many cases encountered, projects develop technologies (e.g. mobile apps), test them, and, once the funded period is over, tend to leave the open source code of these technologies openly available in online repositories like GitHub or similar. However, there is still a gap between these mechanisms and the final adoption by, e.g. authorities, to embed these solutions in public services. Wide initiatives like the EU's Next Generation Internet Program or the upcoming Open Internet Stack Europe are established to also address these challenges.

8.3 Upscaling process: Communication, Resources and Champions

As highlighted throughout the previous chapters, one of the main challenges (also consistent with the Communication and Dissemination construct of the CROPS Upscaling Framework) revolves around lack of information. Projects are not upscalable simply because their information is not accessible. This happens typically to projects that are completed. Their websites tend to be active for a

while, and then appear to be offline. The push for Citizen Science projects to plan for the legacy they intend to leave since the onset, resulted in the proliferation of platforms, such as [EU.CitizenScience](#), [SciStarter](#) (among others). These act as catalogues and repositories of current and past projects, typically providing brief descriptions and links to relevant resources. When these links are not active, these brief descriptions are the only data that can be gathered. These platforms did not always represent an effective source of information for this study.

Another element investigated according to our framework revolves around the availability of resources facilitating knowledge sharing and transfer. In general, the vast majority of projects seem to pay particular attention and effort in providing resources of two main types.

First, resources are typically provided to support the activities that participants have to conduct. These include for example field guides, “how to” guidelines, step-by-step guides on sensor installation, assembly or calibration, how to collect and store a particular sample etc. All in all these resources help participants in undertaking their tasks in the project.

Second, the vast majority of projects provide material for participants to gain the required underpinning knowledge to understand why they are asked to implement a specific task and why it is relevant. In the most evolved cases, these are provided through learning modules about the domain at stake (e.g. ranging from why tackling soil issues is important, to why mapping a particular animal in the sea is relevant for science and society). Those suitable for schools often include additional material for teachers.

In fewer cases, two further categories of resources have been identified: for project leaders, and for developers. The former typically refer to integrated toolkits for interested practitioners that aim at upscaling a Citizen Science project implemented elsewhere in their context. The latter, include manual and “how to” guidelines for developers to e.g. access the datasets produced by the specific project, contribute to the open source code of certain applications etc.

Clearly the availability, usability, openness, and clarity of these resources can play a great role in enabling others to autonomously replicate the original intervention, or to engage further citizens that can onboard in the project activities independently.

Regarding Champions, the framework postulates that their presence, as ambassadors of the projects to be upscaled or of its relevant domain, facilitates the upscaling process. In CROPS a specific work is dedicated to establishing a network of champions across the EU (see WP5).

Concluding, from an overall Missions perspective, Restore our Ocean and Waters and Adaptation to ClimateChange are the Missions under which most projects have been selected. This could be interpreted from the nature of the scope of the

missions themselves and the issues they tackle. These issues are typically global by nature, and therefore require global solutions, i.e. global networks of Citizen Science, i.e. upscaled Citizen Science projects.

8.4 Conclusions and Future Steps

This Deliverable complements Deliverable 2.1 and reported the extensive review and assessment of Citizen Science projects with respect to their upscaling potential.

This effort involved searching and ordering a total of 518 projects relevant to one or more of the 5 EU Missions. These projects have been reviewed with respect to 13 elements derived from the constructs defined in the CROPS Upscaling Framework.

A qualitative evaluation and assessment of these projects led to the identification of 76 projects as suitable for upscaling and thus for further consideration in this WP and project¹³. These have been presented in this document across the different missions. The selected projects have been presented together with lessons learned both from the evidence collected within each Mission (i.e. Mission specific) and across the Missions themselves (i.e. more generalisable for the Citizen Science discipline as a whole). Further evidence of all projects reviewed and a summary of the extracted data for each is provided in Appendices 1 to 5 for each Mission respectively.

In terms of next steps, Task 2.3 is currently ongoing (see Figure 1 in section 1). As part of this task, a more in-depth assessment is being undertaken with respect to the projects identified as the most suitable for upscaling. According to the proposal, we aim at undertaking approximately 20 semi-structured interviews. These interviews allow us to gather more granular qualitative data to serve multiple purposes. First, we explore those elements outlined for each selected project as “to be investigated further” (this varies from one project to another). Second, we investigate whether other relevant factors exist that may enable or inhibit upscaling of respective projects that may be either not considered in the framework, or that have to be clarified based on insufficient publicly available information. Third, we discuss the potential interest of the project leaders in actually upscaling their projects to a transnational level. We're doing this as it ensures that the selected projects are genuinely interested in scaling up and confident in their ability to meet participant needs and expectations while maintaining the quality of their scientific practices throughout the upscaling process. However, it is reminded that this is not a necessary condition for upscaling since others could adopt resources, methods, and technologies and replicate scalable projects in their own contexts. Fourth, we explore what

¹³ it is noted that an extensive reflection on the limitation of the methodology and approach employed is provided in Deliverable 2.1

stakeholders are instrumental for the project implementation and explore how this translates beyond their original contexts, i.e. at the transnational level.

Subsequently, Task 2.4 is set to start on M20. It consists of conducting one validation workshop per Mission. To do so, the support of the advisory board and, if possible, of the EU Joint Research Centre is being sought. The first of these workshops is scheduled in Prague on July 9th 2025.

Appendix 1: Soil Mission All Projects

Name of the project	Selected as beneficiary?	URL	Project focus	EU Resource	Grant EU Missions tracked	Active (Yes or No)	Start	End	Funded by	Co-funded by	Lead by	Co-lead by	Area of focus (EU Mission / Regional / Global / Other / Data project)	Outcomes (Impact on the mission)	Outcome (Impact on the mission)	Evidence of impact on the mission	Engagement of the project with the EU Mission	Participation tasks	Decision Resources	
AgriGenes del Norte	YES	https://agrigenesdelnorte.com/	Open knowledge on soil quality and attributes through citizen science	A Soil Deal for Europe	No	Yes	2023	Ongoing	Public	Public funding (national)	NA	NGO	National (Spain)	Science and agriculture	Increased knowledge of soil in Spain	NA	NA	Global	Yes	YES: Organise an early stage published together with open set of data contents
European SOILS for Education Module	YES	https://www.european-soils.com/	Volunteer based education on soil to students	A Soil Deal for Europe	No	Yes	2006	Ongoing	Public	Public US	US public led NGO	US public led NGO	Global	Raise awareness	Education	website for teachers	Global	For educational material and resources for primary schools	For educational material and resources for primary schools	
Soil Resilience (SMAAP)	NO	https://www.smaap.eu/	Complement specialist soil science with soil moisture measured and soil moisture monitoring	A Soil Deal for Europe	No	Yes	2014	Ongoing	Public	Public US	Public Agencies	NASA	Global	Raise awareness	Enter monitoring of soil moisture	https://www.smaap.eu/	Global	Yes	Conduct soil health measurements and data input into a web portal	
Soils for Science	NO	https://soilsfor.science/	Ready new activities needed to increase awareness of soil among resident science teachers	A Soil Deal for Europe	Climate Neutral Smart Cities	Yes	2020	Ongoing	Public	Public Australia	Research Institute / Universities	University of Queensland	Australia	Scientific discoveries	Improved research for activities for soil in Australia	https://soilsfor.science/	National	Yes	Download the app from the App or Google Play store. Collect soil samples with your kit. Add photos and location to the app. Send the sample back to the app. Wait for the results to be sent to you. Visit the app for more information. Check the app for updates. Share the app with your friends and family, and on social media.	
soil-codes: a citizen science project	NO	https://soil-codes.com/	Big11 Landowners engaged cores for a measurement campaign. Australia's State soils with their own monitoring and sampling network. A citizen science project designed to inform the community about soil health and its importance to the environment.	A Soil Deal for Europe	Climate Neutral Smart Cities	Yes	2019	2020	Public	Public Australia	Public Agencies	Landscapes Australia	South Australia	Raise awareness	Soil testing kit and a map to share results on soil health monitoring and mitigation.	NA	NA	Global	Yes	Landowners receive kit and instructions
SoilSalinity	NO	https://www.soilsalinity.com/	Volunteers are asked to take soil samples from their garden soil and send them to the project. The project is a citizen science project designed to inform the community about soil health and its importance to the environment.	A Soil Deal for Europe	Climate Neutral Smart Cities	Yes	2019	2020	Public	Public Australia	Public Agencies	Landscapes Australia	South Australia	Raise awareness	Soil testing kit and a map to share results on soil health monitoring and mitigation.	NA	NA	Global	Yes	Landowners receive kit and instructions
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**Funded by
the European Union**

Name of the project	Selected as suitable?	URL	Project focus	EU Mission	Share EU Mission on social media	Start	End	Funded by	Facilitated by	Call if relevant	Lead by	Area of focus / Research / Policy / Innovation / Other (from 2024)	Main Outputs (during the mission)	Outcomes (from the mission)	Outcomes (Impact for the mission)	Indicators of impact on the mission	Alignment of the project with the Science and Innovation Programme / Regional / National / Local (in the EU)	Participation tasks	Decision Rationale	
Dispersive Soil Biodiversity in a Grassland (DAB)	YES	https://www.biodiversity-eu.eu/	The DAB project is a participatory citizen science project that provides biodiversity monitoring and encourages farmers to participate in monitoring biodiversity on their farms. It involves collecting data on soil biodiversity, including soil health, soil structure, and soil organisms. The project aims to improve soil health and biodiversity, and to raise awareness of the importance of soil biodiversity. The project involves a participatory approach by farmers, who are encouraged to collect data on soil biodiversity and to share their findings with the project team. The project also involves a series of workshops and training sessions for farmers, which are designed to help them understand the importance of soil biodiversity and to learn how to monitor and improve soil health. The project is funded by the European Union and the French Ministry of Agriculture.	A Soil Deal for Europe	No	Yes	2009	Ongoing	Public	French Ministry of Agriculture	NA	National Museum of Natural History	Data part of the Scientific Observatories : 1000+ set of indicators for each activity	Science and Awareness	Mapping and better and more sustainable farming practices	Results by year , available here	Global	Yes	Conduct one or more of the required activities following the clear guidelines	YES: At open and supported by competent resources. It has been ongoing for many years.
	LogoCon	NO	https://logocon.eu/	LogoCon is a participatory citizen science project that aims to improve soil health and biodiversity. It involves collecting data on soil biodiversity, including soil health, soil structure, and soil organisms. The project aims to improve soil health and biodiversity, and to raise awareness of the importance of soil biodiversity. The project involves a participatory approach by farmers, who are encouraged to collect data on soil biodiversity and to share their findings with the project team. The project also involves a series of workshops and training sessions for farmers, which are designed to help them understand the importance of soil biodiversity and to learn how to monitor and improve soil health. The project is funded by the European Union and the French Ministry of Agriculture.	A Soil Deal for Europe	No	To be checked	2021	Unknown	Public	Foundation for Science and Innovation 2022-2023-2024	NA	CATOLICA Bioscience Porto	Webinars	Raise awareness	Related awareness, improved agricultural practices	None	Global	Yes	Participate in planning activities but not in the field (no open data)
Ephysis	NO	https://ephecon.eu/	Ephysis is a participatory citizen science project that aims to improve soil health and biodiversity. It involves collecting data on soil biodiversity, including soil health, soil structure, and soil organisms. The project aims to improve soil health and biodiversity, and to raise awareness of the importance of soil biodiversity. The project involves a participatory approach by farmers, who are encouraged to collect data on soil biodiversity and to share their findings with the project team. The project also involves a series of workshops and training sessions for farmers, which are designed to help them understand the importance of soil biodiversity and to learn how to monitor and improve soil health. The project is funded by the European Union and the French Ministry of Agriculture.	A Soil Deal for Europe	Adaptation to Climate Change	Yes	Unknown	Ongoing	Public	Research Institute for Food and Environment	NA	INRAE	New set of indicators and a data access tool of educational resources	Science and Awareness	Informed research on soil biodiversity	Index	Global	Yes	Submit soil biodiversity observations	NO: Integrated in Science for Environment also lack of open data and principles
Indo-European Open	NO	https://indoeu.eu/	The Indo-European Open project is a participatory citizen science project that aims to improve soil health and biodiversity. It involves collecting data on soil biodiversity, including soil health, soil structure, and soil organisms. The project aims to improve soil health and biodiversity, and to raise awareness of the importance of soil biodiversity. The project involves a participatory approach by farmers, who are encouraged to collect data on soil biodiversity and to share their findings with the project team. The project also involves a series of workshops and training sessions for farmers, which are designed to help them understand the importance of soil biodiversity and to learn how to monitor and improve soil health. The project is funded by the European Union and the French Ministry of Agriculture.	A Soil Deal for Europe	Adaptation to Climate Change	Yes	2015	Ongoing	No info	NA	NA	Netherlands Institute of Ecology	Main and Data	Science and Awareness	Informed research on soil biodiversity	None	Global	Yes	Participate in the annual citizen science day	POSSIBLY FOR SCHOOLS: NO: a questionnaire based tool to inform about soil biodiversity and its importance beyond the (fili) data available
500 EU Biodiversity	NO	https://500eu.eu/	The 500 EU Biodiversity project is a participatory citizen science project that aims to improve soil health and biodiversity. It involves collecting data on soil biodiversity, including soil health, soil structure, and soil organisms. The project aims to improve soil health and biodiversity, and to raise awareness of the importance of soil biodiversity. The project involves a participatory approach by farmers, who are encouraged to collect data on soil biodiversity and to share their findings with the project team. The project also involves a series of workshops and training sessions for farmers, which are designed to help them understand the importance of soil biodiversity and to learn how to monitor and improve soil health. The project is funded by the European Union and the French Ministry of Agriculture.	A Soil Deal for Europe	Adaptation to Climate Change	Yes	2011	Ongoing	No info	NA	NA	National Museum of Natural History	Observation and report for science	Science and Awareness	Monitoring of Earthworms in the field	Results portal , Data access , Results	Global	Yes	Unstar	NO: very marginal role of citizen science
ADROX	NO	https://adrox.eu/	ADROX is a European project that aims to improve soil health and biodiversity. It involves collecting data on soil biodiversity, including soil health, soil structure, and soil organisms. The project aims to improve soil health and biodiversity, and to raise awareness of the importance of soil biodiversity. The project involves a participatory approach by farmers, who are encouraged to collect data on soil biodiversity and to share their findings with the project team. The project also involves a series of workshops and training sessions for farmers, which are designed to help them understand the importance of soil biodiversity and to learn how to monitor and improve soil health. The project is funded by the European Union and the French Ministry of Agriculture.	A Soil Deal for Europe	Adaptation to Climate Change	No	2020	2024	Public	EU	SOCIETAL CHALLENGES: sustainable agriculture and food security, and the bioeconomy	Conveny University	Knowledge hub , Data access , Results	Science and Awareness	Improved understanding of agroecology system and improved understanding of soil biodiversity	Publications	Global	Yes	Farmers participate in activities	NO: very marginal role of citizen science
Resilient Urban Soils (RUS)	YES	https://rus-eu.eu/	The RUS project is a participatory citizen science project that aims to improve soil health and biodiversity. It involves collecting data on soil biodiversity, including soil health, soil structure, and soil organisms. The project aims to improve soil health and biodiversity, and to raise awareness of the importance of soil biodiversity. The project involves a participatory approach by farmers, who are encouraged to collect data on soil biodiversity and to share their findings with the project team. The project also involves a series of workshops and training sessions for farmers, which are designed to help them understand the importance of soil biodiversity and to learn how to monitor and improve soil health. The project is funded by the European Union and the French Ministry of Agriculture.	A Soil Deal for Europe	Adaptation to Climate Change	No	2021	2022	Public	Swiss Government	NA	University of Zurich	Map of observations and samples , Data access , Results	Science and Awareness	Related awareness, data and improved understanding of soil biodiversity	Data and results , Results , Results	Global	Yes	Download an app and complete the required data platform	Maybe: good idea and easy to implement. To be seen the effort required to do so, no the data platform
Soil Biodiversity in a Grassland (SDBG)	NO	https://sdbg-eu.eu/	The SDBG project is a participatory citizen science project that aims to improve soil health and biodiversity. It involves collecting data on soil biodiversity, including soil health, soil structure, and soil organisms. The project aims to improve soil health and biodiversity, and to raise awareness of the importance of soil biodiversity. The project involves a participatory approach by farmers, who are encouraged to collect data on soil biodiversity and to share their findings with the project team. The project also involves a series of workshops and training sessions for farmers, which are designed to help them understand the importance of soil biodiversity and to learn how to monitor and improve soil health. The project is funded by the European Union and the French Ministry of Agriculture.	A Soil Deal for Europe	Adaptation to Climate Change	No	2021	2022	No info	NA	NA	University of Antwerp	Sensors data	Science and Awareness	Data on soil humidity and microbial diversity and fungi	Publications	Global	Yes	Typical citizen science activity	NO: very hard to access data, no info on the data platform, no the data platform
QURS	Participatory	https://qurs-eu.eu/	The QURS project is a participatory citizen science project that aims to improve soil health and biodiversity. It involves collecting data on soil biodiversity, including soil health, soil structure, and soil organisms. The project aims to improve soil health and biodiversity, and to raise awareness of the importance of soil biodiversity. The project involves a participatory approach by farmers, who are encouraged to collect data on soil biodiversity and to share their findings with the project team. The project also involves a series of workshops and training sessions for farmers, which are designed to help them understand the importance of soil biodiversity and to learn how to monitor and improve soil health. The project is funded by the European Union and the French Ministry of Agriculture.	A Soil Deal for Europe	Adaptation to Climate Change	Yes	2022	Ongoing	Public	French Government	NA	National Museum of Natural History	Observations submitted by citizen scientists , Data access , Results	Science and Awareness	Improved understanding of soils and related awareness	None	Global	Yes	Submit soil observations through entering the data platform on the website	Maybe: to be seen the actual impact so far, NO: contained the wider QURS project
Soil Biodiversity in a Grassland (SDBG)	NO	https://sdbg-eu.eu/	The SDBG project is a participatory citizen science project that aims to improve soil health and biodiversity. It involves collecting data on soil biodiversity, including soil health, soil structure, and soil organisms. The project aims to improve soil health and biodiversity, and to raise awareness of the importance of soil biodiversity. The project involves a participatory approach by farmers, who are encouraged to collect data on soil biodiversity and to share their findings with the project team. The project also involves a series of workshops and training sessions for farmers, which are designed to help them understand the importance of soil biodiversity and to learn how to monitor and improve soil health. The project is funded by the European Union and the French Ministry of Agriculture.	A Soil Deal for Europe	Adaptation to Climate Change	No	2015	2022	Public	Swedish Research	NA	University of Antwerp	New and old	Science and Awareness	Improved understanding of soil biodiversity	Publications	Global	Yes	Participate in the annual citizen science day	SUITABLE FOR SCHOOLS : same as SDBG, but with a focus on the data platform. NO: contained in wider project but not in the data platform

Name of the project	Selected as a finalist?	URL	Project focus	EU Mission	Given EU funding	Active (no)	Start	End	Enabled by	Call for interest	Lead by	Area of focus (National/Regional/Global)	Min. Outputs (Agency)	Outcome (Impact on the mission)	Evidence of impact (mission)	Incidence of the issue (Local/Regional/Global)	Alignment of target (Local/Regional/Global)	Participation tasks	Decision Rationale
Open Soil Atlas	NO	https://www.opensoilatlas.eu/	The Open Soil Atlas project aims to generate a bioactive, self-sustaining soil data atlas, enabling farmers to make informed decisions on soil health and the EU's Farm to Fork strategy.	A Soil Deal for Europe	Adaptation to Climate Change	No	2021	2021	Public	ACTION	Research Universities	Unknown	One paper: https://www.opensoilatlas.eu/	Improved understanding of soil	None	Global	Yes	Unclear	NO: very little information, a single interview by some researchers.
Soil Care	NO	https://www.soilcare.eu/	SoilCare aims to identify and address the most pressing soil health challenges across Europe, enhancing agricultural sustainability and resilience through a network of experts and stakeholders, promoting open diversity practices for long-term productivity.	A Soil Deal for Europe	No	No	2018	2021	Public	SOCIETY CHALLENGES	Research Universities	Europe	Outputs: https://www.soilcare.eu/	Scientific discoveries and fostering agricultural practices	Scientific Publications	Global	Yes	Unclear	NO: integrated and further use of citizen science
PeptideSoil	NO	https://www.peptidesoil.eu/	PeptideSoil was an international consortium of researchers from various countries, including the UK, Germany, and the Netherlands, working on the production of peptides for the protection of soil at the legislative level within the Horizon Europe framework.	A Soil Deal for Europe	No	No	2018	2017	Foundation	NA	Independent Institute	Unknown	Unknown	Unknown	Unknown	Global	Yes	Unclear	NO: no specific information as it was reported as a concept. Website not active. Not clear role of citizen science.
Warm Microbial Lab	NO	https://www.warmmicrobiallab.eu/	Warm Microbial Lab was a citizen science project where scientists identify egg-laying behavior. The project aims to improve soil health and resilience through a network of experts and stakeholders, promoting open diversity practices for long-term productivity.	A Soil Deal for Europe	No	No	Unknown	Unknown	Public	NA	Public Agencies	Unknown	Unknown	Unknown	Unknown	Global	Yes	Unclear	NO: no specific information as it was reported as a concept. Website not active. Not clear role of citizen science.
SoilSavers	NO	https://www.soilsavers.eu/	SoilSavers promotes soil conservation and encourages farmers and local actors to improve soil health. The project focuses on soil health and resilience through a network of experts and stakeholders, promoting open diversity practices for long-term productivity.	A Soil Deal for Europe	No	No	2019	2021	No info	NA	NGO	France	Open source soil indicator	Improved sustainable practices	Unknown	Global	Yes	Only for farmers	NO: very little information, more a collaborative project with farmers. No evidence of impact.
SOLO	NO	https://www.solo.eu/	The SOLO project provides a sustainable and integrated approach to soil health, focusing on soil health and resilience through a network of experts and stakeholders, promoting open diversity practices for long-term productivity.	A Soil Deal for Europe	No	Yes	Unknown	Ongoing	Public	Massen Soil	Research Universities	Europe	Readings and Think Tanks	Improved knowledge on soil mission objectives	Publications	Global	Yes	Unclear	NO: unclear role of citizen science. No specific information as it was reported as a concept. Website not active. Not clear role of citizen science.
SOIL innovation	NO	https://www.soilinnovation.eu/	The SOIL innovation project provides a sustainable and integrated approach to soil health, focusing on soil health and resilience through a network of experts and stakeholders, promoting open diversity practices for long-term productivity.	A Soil Deal for Europe	No	Yes	Unknown	Ongoing	No info	NA	NGO	Scotland	None	Scientific discoveries and fostering agricultural practices	Scientific Publications	Global	Yes	Join one of the existing campaigns	NO: very little information as it was reported as a concept. Website not active. Not clear role of citizen science.
ISQUAR-Is	YES	https://www.isquar-is.eu/	The ISQUAR-Is project provides a sustainable and integrated approach to soil health, focusing on soil health and resilience through a network of experts and stakeholders, promoting open diversity practices for long-term productivity.	A Soil Deal for Europe	Adaptation to Climate Change	No	2015	2020	Public	SOCIETY CHALLENGES	Research Universities	Europe and China	Readings and Think Tanks	Improved knowledge on soil mission objectives	Publications	Global	Yes	Download the app and contribute data from personal observations	Maybe: to be included the level of openness of data and the app which is not clear. It is not clear if it is a part of resources specifically for citizen science. Further openness of data as a result in potential interview.
Soil4G4H	NO	https://www.soil4g4h.eu/	The Soil4G4H project provides a sustainable and integrated approach to soil health, focusing on soil health and resilience through a network of experts and stakeholders, promoting open diversity practices for long-term productivity.	A Soil Deal for Europe	No	No	Unknown	2020	No info	NA	Research Universities	Global	Map with soil attributes from existing data and integration through machine learning	Improved understanding of soil	None	Global	Yes	Unclear	NO: other than a citizen science project, it is not clear if it is a part of resources specifically for citizen science. Further openness of data as a result in potential interview.
SoilSCAN	NO	https://www.soilscan.eu/	The SoilSCAN project provides a sustainable and integrated approach to soil health, focusing on soil health and resilience through a network of experts and stakeholders, promoting open diversity practices for long-term productivity.	A Soil Deal for Europe	No	No	2020	2020	Public	NA	Research Universities	Global	None open	Improved knowledge on soil mission objectives	Publications	Global	Yes	Take part of community actions	NO: specific project of a university. No specific information as it was reported as a concept. Website not active. Not clear role of citizen science.
Bridge4	NO	https://www.bridge4.eu/	The Bridge4 project provides a sustainable and integrated approach to soil health, focusing on soil health and resilience through a network of experts and stakeholders, promoting open diversity practices for long-term productivity.	A Soil Deal for Europe	No	No	2021	2023	Foundation	NA	Research Universities	Italy	App for maps for recording observations	Improved knowledge on soil mission objectives	Publications	Global	Yes	Download the app, bury and monitor a litter bag	NO: equipment financed, leakage is not clear. It is not clear if it is a part of resources specifically for citizen science. Further openness of data as a result in potential interview.

Integrated with other Tea Bags experiments, suitable for schools with a related section on the website

Name of the project	Selected as a subproject?	URL	Project focus	EU Mission	Other EU funded	Active (ongoing)	Start	End	Funded by	Call relevant	Led by	Area of focus (local / national / global) / (from 2024)	Min. Outputs (report)	Outcomes (Impact on the mission)	Evidence of Impact on the mission	Indicators of the issue (Regional / Global)	Alignment of Legal / Policy (in the EU)	Participation tasks	Decision Rationale
Expedition Earthcare	NO	https://expeditionearthcare.eu/	The 'Expedition Earthcare' project, launched in January 2020, engaged citizen scientists in monitoring soil health using scientific methods and citizen science. It related research efforts, citizen science, and citizen science to environmental health and soil health. The project aims to observe soil health by analyzing soil samples and citizen science data to understand the impact of environmental health and soil health on human health.	A Soil Deal for Europe	No	No	2020	2021	Public Agencies	NA	Public Agencies	Germany	https://expeditionearthcare.eu/	Data for an expedition and more characteristics in Germany	https://expeditionearthcare.eu/	Global	Yes	engage in sampling and submitting information on soils	No evidence of impact compared to other open resources or protocols.
TestTimeApp	NO	https://www.testtimeapp.eu/	The 'Test Time' online initiative promotes soil health by providing a platform for citizen science. It aims to improve soil health by providing a platform for citizen science. The project aims to improve soil health by providing a platform for citizen science.	A Soil Deal for Europe	No	Yes	2019	Ongoing	Public Agencies	NA	Public Agencies	Global	https://www.testtimeapp.eu/	Improved understanding of soil health	https://www.testtimeapp.eu/	Global	Yes	Participants buy test kits and track soil health	NO integrated in the flag index
Soil Year Initiative	NO	https://www.soilyear.eu/	The 'Soil Year' initiative aims to measure soil health and promote soil health. It aims to improve soil health by providing a platform for citizen science. The project aims to improve soil health by providing a platform for citizen science.	A Soil Deal for Europe	No	No	2021	2021	University of New England	NA	Research Institutes / Universities	Australia	https://www.soilyear.eu/	20th observation submitted. Used in research / Under	None	Global	Yes	Apply a receive a self including cotton underwear and instructions	NO compared with other similar ones less resources and heavy result in application to UAE
Plaine ton slip	NO	https://www.plaine-ton-slip.eu/	The 'Plaine ton slip' is a citizen science initiative promoting soil health by providing a platform for citizen science. It aims to improve soil health by providing a platform for citizen science. The project aims to improve soil health by providing a platform for citizen science.	A Soil Deal for Europe	No	No	2020	2020	Ademe French Government	NA	Public Agencies	France	No info on website	No info	None	Global	Yes	Under	NO no information available. Similar to others with much more information
Ardenne 44	NO	https://www.ardenne44.eu/	The 'Ardenne 44' project is a citizen science initiative promoting soil health by providing a platform for citizen science. It aims to improve soil health by providing a platform for citizen science. The project aims to improve soil health by providing a platform for citizen science.	A Soil Deal for Europe	No	No	2021	2021	Hungarian National Development and Innovation Office	NA	Research Institutes / Universities	Hungary	https://www.ardenne44.eu/	Information on the level to which citizen material has been submitted and the level of satisfaction.	https://www.ardenne44.eu/	Global	Yes	Under	Ardenne 44 project is a citizen science initiative promoting soil health by providing a platform for citizen science. It aims to improve soil health by providing a platform for citizen science. The project aims to improve soil health by providing a platform for citizen science.
Ardenne 44	NO	https://www.ardenne44.eu/	The 'Ardenne 44' project is a citizen science initiative promoting soil health by providing a platform for citizen science. It aims to improve soil health by providing a platform for citizen science. The project aims to improve soil health by providing a platform for citizen science.	A Soil Deal for Europe	No	Yes	2021	Ongoing	Marion County Department	NA	Public Agencies	US, Indiana	https://www.ardenne44.eu/	Improved research on soil contamination in soils	No evidence of impact on the mission	Global	Yes	Under way of sample taking	NO very little information and resources, e.g. no sampling kit, no information on the EU
SoilSafe Ardenne	NO	https://www.soilsafe.eu/	The 'SoilSafe Ardenne' project is a citizen science initiative promoting soil health by providing a platform for citizen science. It aims to improve soil health by providing a platform for citizen science. The project aims to improve soil health by providing a platform for citizen science.	A Soil Deal for Europe	No	Yes	2021	Ongoing	University of Auckland	NA	Research Institutes / Universities	NZ	https://www.soilsafe.eu/	Improved research on soil contamination in soils	No evidence of impact on the mission	Global	Yes	Apply for a kit, receive a kit and conduct sampling and submit observations	NO relying on local distribution of sampling kit, no information on the mission
Larrieux Valley Dust Research	NO	https://www.larrieuxvalleydustresearch.eu/	The Larrieux Valley Dust Research project engages the community in monitoring dust levels and improving air quality. Citizens collect data to help improve air quality.	A Soil Deal for Europe	Adaptation to Climate Change	No	2018	2020	EPA, Victoria, AU	NA	Public Agencies	Larrieux Valley, Australia	https://www.larrieuxvalleydustresearch.eu/	will below the gaps and expectations	None	Global	Yes	submit samples collected and submitted	NO activity not conclusive from a scientific standpoint, 'significant' conclusion is not drawn from the results (website)
Observations Biologiques des Sols (OBS)	NO	https://www.obs-bio.eu/	The OBS project is a citizen science initiative promoting soil health by providing a platform for citizen science. It aims to improve soil health by providing a platform for citizen science. The project aims to improve soil health by providing a platform for citizen science.	A Soil Deal for Europe	Adaptation to Climate Change	Yes	2022	Ongoing	National Museum of Natural History, Paris	NA	Public Agencies	France	https://www.obs-bio.eu/	Improved understanding and research on worms and soils	https://www.obs-bio.eu/	Global	Yes	Take pictures and share using a well defined protocol	TBC, to be seen the level of openness of the platform, and the potential for citizen science to be considered in its next version.
MINAGIS	NO	https://www.minagis.eu/	The MINAGIS project is a citizen science initiative promoting soil health by providing a platform for citizen science. It aims to improve soil health by providing a platform for citizen science. The project aims to improve soil health by providing a platform for citizen science.	A Soil Deal for Europe	Adaptation to Climate Change	Yes	2021	Ongoing	Wageningen University	NA	Research Institutes / Universities	Europe	https://www.minagis.eu/	Improved and more sustainable understanding of microplastic in soils	https://www.minagis.eu/	Global	Yes	Under	NO marginal and unclear role of CS in soil health research, and they have engaged occasionally some farmers
Expedition Boden	NO	https://www.expeditionboden.eu/	The Expedition Boden project engages citizens in soil exploration and soil health monitoring. It aims to improve soil health by providing a platform for citizen science. The project aims to improve soil health by providing a platform for citizen science.	A Soil Deal for Europe	Adaptation to Climate Change	No	2023	2024	Carl Zeiss Stiftung, Max Planck Society, German Research Foundation, etc.	NA	Research Institutes / Universities	Thuringia, Germany	https://www.expeditionboden.eu/	Research on soil and in a new soil report for citizen scientists	https://www.expeditionboden.eu/	Global	Yes	Send soil samples	NO an internal research project that is not open to the public and general and mostly no open anyone protocol.
CALDNA	YES	https://www.caldna.eu/	The CALDNA project uses environmental DNA (eDNA) to monitor biodiversity. It aims to improve biodiversity by providing a platform for citizen science. The project aims to improve biodiversity by providing a platform for citizen science.	A Soil Deal for Europe	Adaptation to Climate Change	Yes	2017	Ongoing	USC, University of California, etc.	NA	Research Institutes / Universities	California, US	https://www.caldna.eu/	Improved understanding and mapping of biodiversity in soils	https://www.caldna.eu/	Global	Yes	Process including registration, training, and data management	TBC, very low level of open hardware of the kit, YES, potential interview of the kit as everything is about 1. if easy to get and open anyone, they report to grow further.

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COMBATE

Name of the project	Selected as suitable?	URL	Project Focus	EU Mission	Climate Change locked	Adverse Impact (no)	Start	End	Enabled by	Facilitated by	Call for Interest	Let by	Area of focus (Global / Regional / Local) / from 2024	Main Outputs (Project)	Outcomes (Impact on the mission)	Outcomes (Impact on the mission)	Relevance of the mission	Incidence of the issue (Local / Regional / Global)	Alignment (Targeted / Not Targeted)	Participation tasks	Decision Rationale
LUCAS Soil	NO	https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&code=sdg-12-6-2	LUCAS is a European wide survey providing detailed data on environmental parameters, helping to monitor and assess the impact of climate change on the environment.	Adaptation to Climate Change	No	No	2009	2018	Public	EU	No call	Public Agencies	Europe	Survey	Scientific discoveries	Unclear	None	Occasional	Yes	Responded the survey	NO: obsolete survey; no information on the impact of climate change happens to it since 2018
Soil Ben	YES	https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&code=sdg-12-6-2	The Soil Ben focuses on innovative, assessing soil animal biodiversity globally in a bottom-up approach, and on soil health and soil security.	Adaptation to Climate Change	Yes	NA	2021	Ongoing	Various	Various	NA	Citizen Communities	Global	Cooperation with scientists and monitoring of soil health	Scientific discoveries	Improved awareness on soil biodiversity	Publications	Occasional	Yes	Conduct national and international surveys among the available data	YES: relevant for the mission; long-term monitoring of soil health and soil security; no information on the impact of climate change happens to it since 2018
BeneSoil Project	NO	https://www.bene-soil.eu/	BeneSoil is a European project that aims to improve soil health and soil security through innovative practices and research. It promotes sustainable land use and soil management, and aims to improve soil health and soil security through innovative practices and research.	Adaptation to Climate Change	No	No	2018	2022	Public	EU	Public	Private Companies	Europe	An example of supporting tools and factbooks	Science and Awareness	Increased awareness on soil health and soil security	None	Occasional	Yes	Unclear	NO: unclear or marginal role of CS in the mission; no information on the impact of climate change happens to it since 2018
UK-SCALE Project	NO	https://www.uk-scale.ac.uk/	The UK-SCALE project is a UK-wide environmental monitoring program that aims to improve soil health and soil security through innovative practices and research. It promotes sustainable land use and soil management, and aims to improve soil health and soil security through innovative practices and research.	Adaptation to Climate Change	Yes	Yes	2018	2024	Public	EU	Public	Research Universities	Europe	Publications and data	Scientific discoveries	Improved awareness on soil health and soil security	Publications	Occasional	Yes	Join the network and engage with others	NO: no clear impact; more a knowledge exchange platform; unclear CS component
UK-SCALE Project	NO	https://www.uk-scale.ac.uk/	The UK-SCALE project is a UK-wide environmental monitoring program that aims to improve soil health and soil security through innovative practices and research. It promotes sustainable land use and soil management, and aims to improve soil health and soil security through innovative practices and research.	Adaptation to Climate Change	No	No	2018	2023	Public	EU	Public	Research Universities	UK	Publications and data	Scientific discoveries	Improved awareness on soil health and soil security	Publications	Occasional	Yes	Unclear; responding a survey only?	NO: participation is simply intended as an experiment; a survey is not a mission; no information on the impact of climate change happens to it since 2018
LIFE mySoil	NO	https://www.life-mysoil.eu/	The LIFE mySoil project is a UK-wide environmental monitoring program that aims to improve soil health and soil security through innovative practices and research. It promotes sustainable land use and soil management, and aims to improve soil health and soil security through innovative practices and research.	Adaptation to Climate Change	No	No	2021	2024	Public	EU	Public	Research Universities	Europe	Publications and data	Scientific discoveries	Improved awareness on soil health and soil security	Publications	Occasional	Yes	Unclear	NO: while their pilot interests are relevant, the project is not a mission; no information on the impact of climate change happens to it since 2018
Soil Health Benchmarks	NO	https://www.soilhealth.ac.uk/	The Soil Health Benchmarks project is a UK-wide environmental monitoring program that aims to improve soil health and soil security through innovative practices and research. It promotes sustainable land use and soil management, and aims to improve soil health and soil security through innovative practices and research.	Adaptation to Climate Change	No	Yes	2023	Ongoing	Public	EU	Public	Research Universities	Europe	Publications and data	Scientific discoveries	Improved awareness on soil health and soil security	Publications	Occasional	Yes	Involved in the co-creation of the tool, not users	NO: CS component is about the co-design of the tool, i.e. something that is not a mission; no information on the impact of climate change happens to it since 2018
H4MUS	NO	https://www.h4mus.eu/	The H4MUS project is a UK-wide environmental monitoring program that aims to improve soil health and soil security through innovative practices and research. It promotes sustainable land use and soil management, and aims to improve soil health and soil security through innovative practices and research.	Adaptation to Climate Change	No	Yes	2023	Ongoing	Public	EU	Public	Research Universities	Europe	Publications and data	Scientific discoveries	Improved awareness on soil health and soil security	Publications	Occasional	Yes	Unclear	NO: it is more of a funding scheme that involves CS, rather than a mission; no information on the impact of climate change happens to it since 2018
LOESS	NO	https://www.loess.eu/	The LOESS project is a UK-wide environmental monitoring program that aims to improve soil health and soil security through innovative practices and research. It promotes sustainable land use and soil management, and aims to improve soil health and soil security through innovative practices and research.	Adaptation to Climate Change	Yes	Yes	2023	Ongoing	Public	EU	Public	Research Universities	Europe	Publications and data	Scientific discoveries	Improved awareness on soil health and soil security	Publications	Occasional	Yes	Participate in education sessions	Publications and data; no information on the impact of climate change happens to it since 2018
NBSOL	NO	https://www.nbsol.eu/	The NBSOL project is a UK-wide environmental monitoring program that aims to improve soil health and soil security through innovative practices and research. It promotes sustainable land use and soil management, and aims to improve soil health and soil security through innovative practices and research.	Adaptation to Climate Change	Yes	Yes	2022	Ongoing	Public	EU	Public	Research Universities	Europe	Publications and data	Scientific discoveries	Improved awareness on soil health and soil security	Publications	Occasional	Yes	Participate in education and sign up to become an advisor	Publications and data; no information on the impact of climate change happens to it since 2018
ORCA-Soil Impact4Soil	NO	https://www.orca-soil.eu/	The ORCA-Soil project is a UK-wide environmental monitoring program that aims to improve soil health and soil security through innovative practices and research. It promotes sustainable land use and soil management, and aims to improve soil health and soil security through innovative practices and research.	Adaptation to Climate Change	Yes	Yes	2022	Ongoing	Public	EU	Public	Research Universities	Europe	Publications and data	Scientific discoveries	Improved awareness on soil health and soil security	Publications	Occasional	Yes	Unclear	NO: there is no sign of how and 2. no information on the impact of climate change happens to it since 2018
AI4Soil Health	NO	https://www.ai4soil.eu/	The AI4Soil project is a UK-wide environmental monitoring program that aims to improve soil health and soil security through innovative practices and research. It promotes sustainable land use and soil management, and aims to improve soil health and soil security through innovative practices and research.	Adaptation to Climate Change	Yes	Yes	2023	Ongoing	Public	EU	Public	Research Universities	Europe	Publications and data	Scientific discoveries	Improved awareness on soil health and soil security	Publications	Occasional	Yes	More users of the system, intended more for farmers	NO: lay people (in this case farmers) are more open to users, rather than professionals; no information on the impact of climate change happens to it since 2018

Name of the project	Selected as subproject?	URL	Project focus	EU Mission	Other EU Mission ticked	Article 187 covered (no)	Start	End	Funded by	Co-funded by	Call if relevant	Led by	Area of focus (Region/ Global scale) From 2024	Main Outputs (Report)	Outcomes (Impact of the mission)	Outcome (Impact of the mission)	Relevance of impact on the mission	Relevance of the issue to the Horizon Europe Global	Alignment with the Mission (in the EU)	Participation tasks	Decision Rationale
Prepoll	YES	https://www.prepoll.eu/	The PREPOL project focuses on developing effective strategies for land restoration, enhancing soil health, and improving water management and crop yield. It addresses the challenges of climate change and land degradation.	A Soil Deal for Europe	No	Yes	2022	Ongoing	Public	EU	Food, Bioeconomy/Nature, Resource, Environment and Environment	Research Universities	AMNUS UNIVERSITY	Research Universities	Knowledge on soil	None awareness	Knowledge on soil	Relevant, EU	Global	Join a community and organise the LLA	YES, complete and comprehensive set of adaptation resources including a committee of practice establishing a champion (not selected) for students (not selected) #2020202

Appendix 2: Adaptation to Climate Change All Projects

Name of the project	Related literature	URL	Project focus	EU Mission	Other EU Business Initiatives	Active (ongoing)	Start	End	Feasibility	Feasibility	Call for research	Lead by	Lead by	Area of action (Region or Global area)	Main Outputs (expected)	Outcomes (expected)	Expected impact on the environment (expected)	Alignment of project with the EU Mission	Participation tasks	Decision Rationale	
Freight Co	NO	https://www.ec.europa.eu/transport/transport-topics/freight-co_en	Collect evidence of how safety initiatives in a transport sector could impact on the social and economic aspects of the sector.	Adaptation to Climate Change	A 50% Deal for Europe	No	2018	Unknown	Public	National policy	MA	Research Universities	National Institute	National Institute Europe	APC / Challenge	Scientific documents	Planned around 200 cases at a range of locations across Europe	https://www.ec.europa.eu/transport/transport-topics/freight-co_en	Good	Submit pictures through the app	The app is expected to be available by the end of 2023. The project is expected to have a significant impact on the transport sector, particularly in the area of safety and security. The project is expected to be a significant step towards a more sustainable and secure transport system.
iChange	YES	https://www.ec.europa.eu/transport/transport-topics/ichange_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	2025	Public	EU funding	EU funding	NCO	NCO	EUROPEAN COMMISSION	Challenge 2.1	None	Applying the concept on 8 pilot cities	https://www.ec.europa.eu/transport/transport-topics/ichange_en	Good	Participate in activities	IC4 is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Green Smart	NO	https://www.ec.europa.eu/transport/transport-topics/green-smart_en	Reduce and improve the impact of the transport sector on the environment. The project will focus on the transport sector, and on the impact of the transport sector on the environment.	Adaptation to Climate Change	No	Yes	2022	2024	Public	EU funding	EU funding	Research Universities	University of Valencia	University of Valencia	Comprehensive framework with a focus on the transport sector	None	Implemented in several pilot experiments	https://www.ec.europa.eu/transport/transport-topics/green-smart_en	Good	Active participation in activities	Green Smart is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
X-Poll	NO	https://www.ec.europa.eu/transport/transport-topics/x-poll_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Unknown	Public	UK Public and National Geographic	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/x-poll_en	Good	Unclear	X-Poll is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
LETS safe	NO	https://www.ec.europa.eu/transport/transport-topics/lets-safe_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	A 50% Deal for Europe	No	2026	Unknown	Public	EU funding	MA	NCO	NCO	EUROPEAN COMMISSION	Challenge 2.1	None	Applying the concept on 8 pilot cities	https://www.ec.europa.eu/transport/transport-topics/lets-safe_en	Good	Participate in activities	LETS safe is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
UP4Sustainable	NO	https://www.ec.europa.eu/transport/transport-topics/up4sustainable_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2019	2023	Public	EU funding	EU funding	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/up4sustainable_en	Good	Unclear	UP4Sustainable is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
SPRING	NO	https://www.ec.europa.eu/transport/transport-topics/spring_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	No	Yes	2021	2023	Public	EU funding	EU funding	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/spring_en	Good	Unclear	SPRING is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
RESEARCHING	NO	https://www.ec.europa.eu/transport/transport-topics/researching_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	No	Yes	2018	Ongoing	Public	EU funding	EU funding	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/researching_en	Good	Unclear	RESEARCHING is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
EUROPEAN COMMISSION	YES	https://www.ec.europa.eu/transport/transport-topics/european-commission_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2011	Ongoing	Public	EU funding	EU funding	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/european-commission_en	Good	Unclear	EUROPEAN COMMISSION is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
BRISA	NO	https://www.ec.europa.eu/transport/transport-topics/brisa_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	Yes	Unknown	Ongoing	Public	EU funding	EU funding	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/brisa_en	Good	Unclear	BRISA is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Amal	NO	https://www.ec.europa.eu/transport/transport-topics/amal_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Other	Yes	2021	Ongoing	Public	EU funding	EU funding	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/amal_en	Good	Unclear	Amal is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Climax	YES	https://www.ec.europa.eu/transport/transport-topics/climax_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	Yes	2023	Ongoing	Public	EU funding	EU funding	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/climax_en	Good	Unclear	Climax is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Cell-Scale	NO	https://www.ec.europa.eu/transport/transport-topics/cell-scale_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	No	No	2022	2024	Public	EU funding	EU funding	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/cell-scale_en	Good	Unclear	Cell-Scale is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Agrius	YES	https://www.ec.europa.eu/transport/transport-topics/agrius_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	Yes	2023	2025	Public	EU funding	EU funding	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/agrius_en	Good	Unclear	Agrius is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	Yes	2023	Ongoing	Public	National funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	A 50% Deal for Europe	Yes	2020	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No	2021	Ongoing	Public	EU funding	MA	Research Universities	University of Valencia	University of Valencia	None open	None	Long term ecological research	https://www.ec.europa.eu/transport/transport-topics/briss_en	Good	Unclear	Briss is a digital platform for the transport sector. It is a platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.
Briss	NO	https://www.ec.europa.eu/transport/transport-topics/briss_en	Develop a digital platform for the transport sector to improve the way it manages its data and information. The platform will be used to collect and analyse data on the transport sector, and to provide a range of services to the transport sector.	Adaptation to Climate Change	Climate Change	No															

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Name of the project	Selected indicator	URL	Project focus	EU Mission	Other EU Mission	Active (year 2020)	Start	End	Financed by	Financed by	Lead by	Area of focus (Region / Global / Sub-Global)	Main Outputs (Project / Report)	Outcome (Impact on the mission)	Evidence of impact on the mission	Alignment of Large Norms (Article 17)	Repercussion data	Decision Rationale
Terrifica	NO	https://www.terrifica.eu/	Terrestrial Resilient Research and Innovation Action contributes to achieving the effects of climate change by supporting a wide range of climate change adaptation and mitigation projects.	Adaptation to Climate Change	No	No	2019	2022	Public	EU Funding	EU Consortium	Germany, Poland and Spain	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	Global	Yes	NO: do not meet the criteria in the mission (NO: evidence is not accessible any longer)
INHER	NO	https://www.inher-project.eu/	Local communities in the Sahel are the main actors in the fight against climate change. The project aims to support them in their efforts to adapt to climate change and to build resilience.	Adaptation to Climate Change	No	No	2017	2023	Public	National Funding	Research Institute / University	Central and Eastern Europe	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	National	Yes	NO: very little info beyond general descriptions. Works no longer accessible
Pearl Letters	NO	https://www.pearlletters.eu/	A collective action to preserve the Pearl Letters, a unique heritage of the University of Coimbra, and to promote its use in the fight against climate change.	Adaptation to Climate Change	Other	No	2020	Unknown	Public	EU Funding	Research Institute / University	Portugal	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	Regional	Yes	NO: this is about branding data, not about the project itself. Some project data is available, but not the full picture.
LandGreen	YES	https://www.landgreen.eu/	Connecting citizens with satellite imagery to transform current approaches to land use planning and management.	Adaptation to Climate Change	No	No	2016	2020	Public	EU Funding	Research Institute / University	Europe	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	Global	Yes	Set of indicators for a report but not for the mission itself.
Flower	NO	https://www.flower-project.eu/	Citizens register the flowers they see in their gardens and parks, creating a large database of plant species.	Adaptation to Climate Change	No	Yes	1998	Ongoing	Public	Dutch Government	Research Institute / University	Netherlands	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	National	Yes	NO: no evidence of impact. The project is not yet in the mission.
Majestic Charge	NO	https://www.majesticcharge.eu/	Researching how the cities of Rome on the Tiber have adapted to climate change and how they can do so in the future.	Adaptation to Climate Change	No	Yes	2016	Unknown	Public	EU Funding	Research Institute / University	Europe	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	Global	Yes	NO: no evidence of impact. The project is not yet in the mission.
Forest Atmospheres	NO	https://www.forestatmospheres.eu/	An action research project to explore the role of forests in the fight against climate change and to build resilience.	Adaptation to Climate Change	No	Yes	2019	Ongoing	Public	EU Funding	Research Institute / University	Europe	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	Global	Yes	NO: no evidence of impact. The project is not yet in the mission.
Alerts Forestal	NO	https://www.alertsforestal.eu/	Alerts Forestal is a project to develop a system of alerts for forest fires, based on satellite imagery and ground data.	Adaptation to Climate Change	No	Yes	2017	Ongoing	Public	EU Funding	Research Institute / University	Europe	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	Global	Yes	NO: no evidence of impact. The project is not yet in the mission.
CEM4 Atmos	NO	https://www.cem4atmos.eu/	CEM4 Atmos is a project to develop a system of alerts for forest fires, based on satellite imagery and ground data.	Adaptation to Climate Change	No	Yes	2021	2024	Public	EU Funding	Research Institute / University	Europe	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	Global	Yes	NO: no evidence of impact. The project is not yet in the mission.
River Meas	NO	https://www.rivermeas.eu/	River Meas is a project to develop a system of alerts for forest fires, based on satellite imagery and ground data.	Adaptation to Climate Change	No	Yes	2022	Ongoing	Public	EU Funding	Research Institute / University	Europe	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	Global	Yes	NO: no evidence of impact. The project is not yet in the mission.
Schools and Barriers	NO	https://www.schoolsandbarriers.eu/	Schools and Barriers is a project to develop a system of alerts for forest fires, based on satellite imagery and ground data.	Adaptation to Climate Change	No	No	2020	2020	Donations	EU Funding	Research Institute / University	Europe	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	Global	Yes	NO: no evidence of impact. The project is not yet in the mission.
Climateing	NO	https://www.climateing.eu/	Climateing is a project to develop a system of alerts for forest fires, based on satellite imagery and ground data.	Adaptation to Climate Change	Other	Yes	2020	Ongoing	Private	EU Funding	Private Organization	Europe	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	Global	Yes	NO: no evidence of impact. The project is not yet in the mission.
Adaptive Barrier With Barrier	NO	https://www.adaptivebarrierwithbarrier.eu/	Adaptive Barrier With Barrier is a project to develop a system of alerts for forest fires, based on satellite imagery and ground data.	Adaptation to Climate Change	Other	Yes	2014	Ongoing	Public	EU Funding	Research Institute / University	Europe	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	Global	Yes	NO: no evidence of impact. The project is not yet in the mission.
Report	NO	https://www.report-project.eu/	Report is a project to develop a system of alerts for forest fires, based on satellite imagery and ground data.	Adaptation to Climate Change	No	Yes	2009	Ongoing	Public	EU Funding	Research Institute / University	Europe	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	Global	Yes	NO: no evidence of impact. The project is not yet in the mission.
ECFCLM	YES	https://www.ecfclm.eu/	ECFCLM is a project to develop a system of alerts for forest fires, based on satellite imagery and ground data.	Adaptation to Climate Change	Smart Cities	Yes	2021	2025	Public	EU Funding	Research Institute / University	Europe	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	Global	Yes	NO: no evidence of impact. The project is not yet in the mission.
SafeGuard	NO	https://www.safeguard-project.eu/	SafeGuard is a project to develop a system of alerts for forest fires, based on satellite imagery and ground data.	Adaptation to Climate Change	No	Yes	2021	2025	Public	EU Funding	Research Institute / University	Europe	EUROPEAN COMMISSION	EUROPEAN COMMISSION	EUROPEAN COMMISSION	Global	Yes	NO: no evidence of impact. The project is not yet in the mission.

Name of the project	Selected inventory	URL	Project focus	EU Mission	Grant EU Mission	Active (last year)	Start	End	Financed by	Co-funded by	Call for research	Lead by	Last by	Age of focus Region/Global area (year 2024)	Main Outputs (year 2024)	Outcomes (reported on the mission)	Outcome (reported on the mission)	Evidence of impact on the mission	Incidence of the focus Region/Global area (year 2024)	Alignment of Legal Norms (year 2024)	Participation tasks	Decision Remarks
Collapsa	NO	https://www.collapsa.eu/	A project to explore adaptation to climate change through qualitative and quantitative research in the context of the European Green Deal.	Adaptation to Climate Change	No	No	2010	2019	Research Institute	MA	MA	Research Universities	Research Universities	Brazil & Chile	MA, Multimedia (video), MA, Multimedia (video)	Science and Awareness	Science and Awareness	Collaboration with local communities to co-create knowledge on climate change and to co-create a set of guidelines for climate change adaptation in various ways: science, policy, and management. This gives a new perspective on climate change adaptation and its role in the future.	Produce publications	Local	Yes	NO: this is a research in study in a specific context.
Vulnerability	NO	https://www.vulnerability.eu/	The goal of this project is to work with stakeholders to identify and address the vulnerability of European cities to climate change.	Adaptation to Climate Change	No	Yes	1981	Ongoing	Public	MA	MA	NGO	NGO	Networks	MA, Multimedia (video), MA, Multimedia (video)	Science and Awareness	Science and Awareness	Collaboration with local communities to co-create knowledge on climate change and to co-create a set of guidelines for climate change adaptation in various ways: science, policy, and management. This gives a new perspective on climate change adaptation and its role in the future.	Produce publications	National	Yes	NO: this is a research in study in a specific context.
Envision	NO	https://www.envision.eu/	The goal of this project is to work with stakeholders to identify and address the vulnerability of European cities to climate change.	Adaptation to Climate Change	No	No	2020	2024	Public	MA	MA	Research Universities	Research Universities	Europe	MA, Multimedia (video), MA, Multimedia (video)	Science and Awareness	Science and Awareness	Collaboration with local communities to co-create knowledge on climate change and to co-create a set of guidelines for climate change adaptation in various ways: science, policy, and management. This gives a new perspective on climate change adaptation and its role in the future.	Produce publications	Europe	Yes	NO: this is a research in study in a specific context.
Profilis	NO	https://www.profilis.eu/	The project supports healthy life and sustainable development through knowledge and innovation in the field of climate change.	Adaptation to Climate Change	No	Yes	2018	Ongoing	Public	MA	MA	Research Universities	Research Universities	Europe	MA, Multimedia (video), MA, Multimedia (video)	Science and Awareness	Science and Awareness	Collaboration with local communities to co-create knowledge on climate change and to co-create a set of guidelines for climate change adaptation in various ways: science, policy, and management. This gives a new perspective on climate change adaptation and its role in the future.	Produce publications	Europe	Yes	NO: this is a research in study in a specific context.
Biodiversity Genetics Edge	NO	https://www.biodiversitygeneticsedge.eu/	Accelerate the use of genomic science to address biodiversity loss and genetic erosion in the field of climate change.	Adaptation to Climate Change	No	Yes	2022	Ongoing	Public	MA	MA	Research Universities	Research Universities	Europe	MA, Multimedia (video), MA, Multimedia (video)	Science and Awareness	Science and Awareness	Collaboration with local communities to co-create knowledge on climate change and to co-create a set of guidelines for climate change adaptation in various ways: science, policy, and management. This gives a new perspective on climate change adaptation and its role in the future.	Produce publications	Europe	Yes	NO: this is a research in study in a specific context.
The Natural History Curriculum	NO	https://www.naturalhistorycurriculum.eu/	Providing citizen science through the use of natural history in the field of climate change.	Adaptation to Climate Change	No	Yes	2018	Ongoing	Public	MA	MA	Research Universities	Research Universities	Europe	MA, Multimedia (video), MA, Multimedia (video)	Science and Awareness	Science and Awareness	Collaboration with local communities to co-create knowledge on climate change and to co-create a set of guidelines for climate change adaptation in various ways: science, policy, and management. This gives a new perspective on climate change adaptation and its role in the future.	Produce publications	Europe	Yes	NO: this is a research in study in a specific context.
biohub	NO	https://www.biohub.eu/	Providing citizen science through the use of natural history in the field of climate change.	Adaptation to Climate Change	No	Yes	2018	Ongoing	Public	MA	MA	Research Universities	Research Universities	Europe	MA, Multimedia (video), MA, Multimedia (video)	Science and Awareness	Science and Awareness	Collaboration with local communities to co-create knowledge on climate change and to co-create a set of guidelines for climate change adaptation in various ways: science, policy, and management. This gives a new perspective on climate change adaptation and its role in the future.	Produce publications	Europe	Yes	NO: this is a research in study in a specific context.
SPR-CITY	YES	https://www.spr-city.eu/	Providing citizen science through the use of natural history in the field of climate change.	Adaptation to Climate Change	No	Yes	2019	Ongoing	Public	MA	MA	Research Universities	Research Universities	Europe	MA, Multimedia (video), MA, Multimedia (video)	Science and Awareness	Science and Awareness	Collaboration with local communities to co-create knowledge on climate change and to co-create a set of guidelines for climate change adaptation in various ways: science, policy, and management. This gives a new perspective on climate change adaptation and its role in the future.	Produce publications	Europe	Yes	NO: this is a research in study in a specific context.
Report the Spiders	NO	https://www.reportthespiders.eu/	Providing citizen science through the use of natural history in the field of climate change.	Adaptation to Climate Change	No	Yes	2007	Ongoing	Public	MA	MA	Research Universities	Research Universities	Europe	MA, Multimedia (video), MA, Multimedia (video)	Science and Awareness	Science and Awareness	Collaboration with local communities to co-create knowledge on climate change and to co-create a set of guidelines for climate change adaptation in various ways: science, policy, and management. This gives a new perspective on climate change adaptation and its role in the future.	Produce publications	Europe	Yes	NO: this is a research in study in a specific context.
Mammals	NO	https://www.mammals.eu/	Providing citizen science through the use of natural history in the field of climate change.	Adaptation to Climate Change	No	Yes	2021	Ongoing	Public	MA	MA	Research Universities	Research Universities	Europe	MA, Multimedia (video), MA, Multimedia (video)	Science and Awareness	Science and Awareness	Collaboration with local communities to co-create knowledge on climate change and to co-create a set of guidelines for climate change adaptation in various ways: science, policy, and management. This gives a new perspective on climate change adaptation and its role in the future.	Produce publications	Europe	Yes	NO: this is a research in study in a specific context.
Nature's Kitchen	NO	https://www.natureskitchen.eu/	Providing citizen science through the use of natural history in the field of climate change.	Adaptation to Climate Change	No	Yes	2008	Ongoing	Public	MA	MA	Research Universities	Research Universities	Europe	MA, Multimedia (video), MA, Multimedia (video)	Science and Awareness	Science and Awareness	Collaboration with local communities to co-create knowledge on climate change and to co-create a set of guidelines for climate change adaptation in various ways: science, policy, and management. This gives a new perspective on climate change adaptation and its role in the future.	Produce publications	Europe	Yes	NO: this is a research in study in a specific context.
Orchid Observers	NO	https://www.orchidobservers.eu/	Providing citizen science through the use of natural history in the field of climate change.	Adaptation to Climate Change	No	Yes	2015	Ongoing	Public	MA	MA	Research Universities	Research Universities	Europe	MA, Multimedia (video), MA, Multimedia (video)	Science and Awareness	Science and Awareness	Collaboration with local communities to co-create knowledge on climate change and to co-create a set of guidelines for climate change adaptation in various ways: science, policy, and management. This gives a new perspective on climate change adaptation and its role in the future.	Produce publications	Europe	Yes	NO: this is a research in study in a specific context.
Crick Tales	NO	https://www.cricktales.eu/	Providing citizen science through the use of natural history in the field of climate change.	Adaptation to Climate Change	No	Yes	2015	Ongoing	Public	MA	MA	Research Universities	Research Universities	Europe	MA, Multimedia (video), MA, Multimedia (video)	Science and Awareness	Science and Awareness	Collaboration with local communities to co-create knowledge on climate change and to co-create a set of guidelines for climate change adaptation in various ways: science, policy, and management. This gives a new perspective on climate change adaptation and its role in the future.	Produce publications	Europe	Yes	NO: this is a research in study in a specific context.
The Cyprus Herp Atlas	NO	https://www.cyprusherp.atlas.eu/	Providing citizen science through the use of natural history in the field of climate change.	Adaptation to Climate Change	No	Yes	2022	Ongoing	Public	MA	MA	Research Universities	Research Universities	Europe	MA, Multimedia (video), MA, Multimedia (video)	Science and Awareness	Science and Awareness	Collaboration with local communities to co-create knowledge on climate change and to co-create a set of guidelines for climate change adaptation in various ways: science, policy, and management. This gives a new perspective on climate change adaptation and its role in the future.	Produce publications	Europe	Yes	NO: this is a research in study in a specific context.
Expansor	NO	https://www.expansor.eu/	Providing citizen science through the use of natural history in the field of climate change.	Adaptation to Climate Change	No	Yes	2022	Ongoing	Public	MA	MA	Research Universities	Research Universities	Europe	MA, Multimedia (video), MA, Multimedia (video)	Science and Awareness	Science and Awareness	Collaboration with local communities to co-create knowledge on climate change and to co-create a set of guidelines for climate change adaptation in various ways: science, policy, and management. This gives a new perspective on climate change adaptation and its role in the future.	Produce publications	Europe	Yes	NO: this is a research in study in a specific context.

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Appendix 3: Climate Neutral Smart Cities All Projects

Name of the project	URL	Project focus	EU Mission	Other EU Mission	Active (ongoing)	Start	End	Funded by	Call for proposal	Lead by	Main Outputs (short-term)	Outcome (Impact of the project)	Evidence of impact on the mission	Indicator of success (short-term)	Alignment of the project with the EU Mission	Participation levels	Decision Rationale
Tesam	https://tesam.es/2020/02/05/tesam-01-01-2020/	Monitoring traffic data of vehicles, cyclists, pedestrians, and more from a city's perspective	Climate Neutral Smart Cities	No	Yes	2019	Ongoing	Private company (Tesam)	MA 42220-Supercities 2020-21	Private Organizations	Inform public policies	Data for traffic-related policies	Local (Spain, EU, and in Spain)	Cool	Yes	Purchase, install, and maintain a sensor	TBC: proven impact but to be checked in the future. The sensor is associated with the sensor and the platform. No 70 open data
MOAC	https://moac.eu/	CS for reducing CO2 emissions in cities	Climate Neutral Smart Cities	Adaptation to Climate Change	No	2021	2023	EU	2020-21	Private Organizations	Inform public policies	More and data on energy in two cities in the EU	Local (Spain, EU, and in Spain)	Cool	Yes		TBC: to verify the extent of impact and no evidence of impact. Only the process.
Beaconcamp Research	https://beaconcamp.com/	CS for reducing CO2 emissions in cities	Climate Neutral Smart Cities	Adaptation to Climate Change	Yes	2019	Ongoing	Private Funding / Investors	MA 42220-Supercities 2020-21	Private Organizations	Scientific documents	Preservation of biodiversity	Local (Spain, EU, and in Spain)	Cool	Yes		NO marginal use of CS. Under construction of CS
Scalable-EE	https://scalable-ee.eu/	Monitoring air quality in cities to provide information to citizens	Climate Neutral Smart Cities	Adaptation to Climate Change	No	2022	2024	EU Funding	EU 42220-Supercities 2020-21	Private and Public Organizations	Portable air quality sensors	NA	NA	Regional	Yes	Schools join the measurement campaigns	NO no evidence of impact after end of the project no signs of impact on the platform. (Only having sensors)
Urban Relief	https://urbanrelief.eu/	Monitoring air quality in cities to provide information to citizens	Climate Neutral Smart Cities	Adaptation to Climate Change	Yes	2023	Ongoing	EU and UK	not found	Research Universities	Policy, CO2 policy for city	Science documents	Local (Spain, EU, and in Spain)	Cool	Yes	Various depending on the pilot	Check with MA. Some data is available from the Mission. Check impact with them
Opent	https://opent.eu/	Biometric, scientific, community monitoring of the general public as a member of the project for urban environment	Climate Neutral Smart Cities	Adaptation to Climate Change	Yes	2022	Ongoing	EU (EDP) and with European Research Promotion Agency	EU 42220-Supercities 2020-21	Research Universities	Inform public policies	NA	NA	Cool	Yes	Unclear	NO no evidence of evidence or results
Berry Blue You Eat	https://berryblueyoueat.com/	Health patterns with personalized recommendations for healthy eating and lifestyle	Climate Neutral Smart Cities	Adaptation to Climate Change	No	2023	2023	Public	EU (MAE) US Cal	Research Universities	Mapping air quality and health	Healthy aging	Local (Spain, EU, and in Spain)	Cool	Yes	Take photos and send voice notes	NO no availability of technology and data
The Acoustic Assistant	https://theacousticassistant.com/	AI-powered assistant for citizens to report noise and air quality issues	Climate Neutral Smart Cities	Adaptation to Climate Change	No	2019	2020	Private	MA 42220-Supercities 2020-21	Research Universities	Mapping air quality and health	NA	NA	Cool	Yes		NO no 10% available beyond in academic paper. Impact on the mission
Citizen Science	https://citizenscience.eu/	Community in cities to report noise and air quality issues	Climate Neutral Smart Cities	Adaptation to Climate Change	No	2019	2020	Private	MA 42220-Supercities 2020-21	Research Universities	Mapping air quality and health	NA	NA	Cool	Yes		NO no 10% available beyond in academic paper. Impact on the mission
Health City	https://healthcity.eu/	Community in cities to report noise and air quality issues	Climate Neutral Smart Cities	Adaptation to Climate Change	Yes	2019	Ongoing	Self-funded by the community	EU 42220-Supercities 2020-21	Research Universities	Mapping air quality and health	NA	NA	Cool	Yes		NO no 10% available beyond in academic paper. Impact on the mission
Diverse	https://diverse.eu/	Monitoring air quality in cities to provide information to citizens	Climate Neutral Smart Cities	Adaptation to Climate Change	No	2018	2021	EU	EU 42220-Supercities 2020-21	Research Universities	Mapping air quality and health	NA	NA	Cool	Yes		YES proven impact in different domains and in the mission. No evidence of impact
MO NO Grass	https://monograss.com/	Measuring air quality in cities to provide information to citizens	Climate Neutral Smart Cities	Adaptation to Climate Change	Yes	2020	Ongoing	Private + Public	EU 42220-Supercities 2020-21	Research Universities	Mapping air quality and health	NA	NA	Cool	Yes		YES proven impact in different domains and in the mission. No evidence of impact
Beaconcamp	https://beaconcamp.com/	CS for reducing CO2 emissions in cities	Climate Neutral Smart Cities	Adaptation to Climate Change	Yes	2019	Ongoing	Private	EU 42220-Supercities 2020-21	Private Organizations	Inform public policies	More and data on energy in two cities in the EU	Local (Spain, EU, and in Spain)	Cool	Yes		YES proven impact in different domains and in the mission. No evidence of impact
Guide at Night	https://guideatnight.com/	Collaborative platform for citizens to report noise and air quality issues	Climate Neutral Smart Cities	Adaptation to Climate Change	Yes	2020	Ongoing	Private + Public	EU 42220-Supercities 2020-21	Research Universities	Mapping air quality and health	NA	NA	Cool	Yes		YES proven impact in different domains and in the mission. No evidence of impact
BioZen	https://biozen.com/	Collaborative platform for citizens to report noise and air quality issues	Climate Neutral Smart Cities	Adaptation to Climate Change	No	2022	Ongoing	Private	EU 42220-Supercities 2020-21	Research Universities	Mapping air quality and health	NA	NA	Cool	Yes		YES proven impact in different domains and in the mission. No evidence of impact
PE Lifestyle	https://pelifestyle.com/	Collaborative platform for citizens to report noise and air quality issues	Climate Neutral Smart Cities	Adaptation to Climate Change	Yes	2021	Ongoing	Private	EU 42220-Supercities 2020-21	Research Universities	Mapping air quality and health	NA	NA	Cool	Yes		YES proven impact in different domains and in the mission. No evidence of impact



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Appendix 4: Restore our Ocean and Waters All Projects

Name of the project	Selected delivery	ICL	Project focus	EU Mission	Other EU Missions tackled	Active (Y/N or No)	Start	End	Funded by	Call if relevant	Let by	Let by	Area of focus (Regional/Global/Local)	Main Outputs (Impact)	Outcomes (Impact on the mission)	Evidence of impact on the mission	Incidence of the impact on the mission	Alignment of the impact on the mission	Participation tasks	Decision Rationale
Mares Llobregat	NO	https://www.maresllobregat.cat/	Monitoring information with an app to inform citizens about the state of the water and encourage them to report any issues related to water quality.	Restore our Oceans and Waters	Other	No	2014	2023	Public	NA	NGO	EEA	Europe	An app to monitor plastic waste in the Llobregat river and its tributaries.	Water quality and plastic waste reduction.	https://www.maresllobregat.cat/	Global	Yes	Create a community and encourage citizens to report any issues related to water quality.	NO evidence of impact on the mission.
Fraser Water	YES	https://www.fraserwater.co.uk/	Monitor and maintain the health of rivers, streams, ponds and wetlands, ensuring freshwater resources.	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2012	Ongoing	Foundation	NA	NGO	Earthwatch	Global	Monitoring water quality and water levels.	Water quality and water levels.	https://www.fraserwater.co.uk/	Global	Yes	Severely affected by climate change.	YES: solid citizen method, infrastructure of project, water quality and water levels.
The Sea Changers	YES	https://www.seachangers.org/	Waste collection action in the UK, focusing on coastal areas and encouraging citizens to report any issues related to water quality.	Restore our Oceans and Waters	No	Yes	2018	Ongoing	Public	NA	EU Consortium	National & International	National & International	Water quality and plastic waste reduction.	Water quality and plastic waste reduction.	https://www.seachangers.org/	Global	Yes	Join waste collection actions.	YES: proven impact and full set of resources.
Smart Lagoon	NO	https://www.smartlagoon.com/	Waste collection action in the UK, focusing on coastal areas and encouraging citizens to report any issues related to water quality.	Restore our Oceans and Waters	Adaptation to Climate Change	No	2021	2024	Public	EU funding	Research Universities	FUNDACION UNED (Spain)	National (Spain)	Water quality and plastic waste reduction.	Water quality and plastic waste reduction.	https://www.smartlagoon.com/	Local	Yes	Submit data and report on the state of the lagoon.	NO need for IoT sensing on the lagoon.
Plastic Pirates	YES	https://www.plasticpirates.eu/	Waste collection action in the UK, focusing on coastal areas and encouraging citizens to report any issues related to water quality.	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2022	2024	Public	EU funding	EU Consortium	EU Consortium	Europe	Water quality and plastic waste reduction.	Water quality and plastic waste reduction.	https://www.plasticpirates.eu/	Global	Yes	Measure, collect and submit data.	YES: reference project for reporting, impact on the mission.
Plastic Origins	YES	https://www.plasticorigins.com/	Waste collection action in the UK, focusing on coastal areas and encouraging citizens to report any issues related to water quality.	Restore our Oceans and Waters	No	Yes	2021	Ongoing	Foundation	NA	NGO	Non-profit	Europe	Water quality and plastic waste reduction.	Water quality and plastic waste reduction.	https://www.plasticorigins.com/	Global	Yes	Download the app and report on the state of the lagoon.	YES: proven impact, commitment to the mission.
CD Rivers	NO	https://www.cd-rivers.com/	Waste collection action in the UK, focusing on coastal areas and encouraging citizens to report any issues related to water quality.	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2023	Ongoing	Public	Private (EU)	Research Universities	Universitat de Girona	National (Spain)	Water quality and plastic waste reduction.	Water quality and plastic waste reduction.	https://www.cd-rivers.com/	Local	Yes	Participate in water sampling events.	NO: no evidence of impact on the mission.
Galathea	NO	https://www.galathea.eu/	Monitoring gulfstream organisms along the Atlantic Portuguese coast, focusing on coastal areas and encouraging citizens to report any issues related to water quality.	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2018	Ongoing	Public	NA	Public Agencies	National (Portugal)	National (Portugal)	Water quality and plastic waste reduction.	Water quality and plastic waste reduction.	https://www.galathea.eu/	Global	Yes	Download the app and report on the state of the lagoon.	NO: no open results.
FLOW	YES	https://www.flow-eu.com/	Ecological monitoring of small rivers, focusing on coastal areas and encouraging citizens to report any issues related to water quality.	Restore our Oceans and Waters	No	Yes	2021	Ongoing	Public	NA	Research Universities	National (Germany)	National (Germany)	Water quality and plastic waste reduction.	Water quality and plastic waste reduction.	https://www.flow-eu.com/	Global	Yes	Enter data in the web app.	YES: proven impact, commitment to the mission.
DRIVER	YES	https://www.driver-eu.com/	Waste collection action in the UK, focusing on coastal areas and encouraging citizens to report any issues related to water quality.	Restore our Oceans and Waters	Adaptation to Climate Change	No	2020	2025	Public	EU funding	Research Universities	Universitat de Girona	National (Spain)	Water quality and plastic waste reduction.	Water quality and plastic waste reduction.	https://www.driver-eu.com/	Global	Yes	Participate in water sampling events.	NO: no open results.
Liier Intelligence	NO	https://www.liier-intelligence.com/	Waste collection action in the UK, focusing on coastal areas and encouraging citizens to report any issues related to water quality.	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2018	Ongoing	Public + Private	NA	NGO	Non-profit	Europe	Water quality and plastic waste reduction.	Water quality and plastic waste reduction.	https://www.liier-intelligence.com/	Global	Yes	Download the app and report on the state of the lagoon.	YES: proven impact, commitment to the mission.
Watershed	NO	https://www.watershed-eu.com/	Waste collection action in the UK, focusing on coastal areas and encouraging citizens to report any issues related to water quality.	Restore our Oceans and Waters	Adaptation to Climate Change	No	2012	2016	Public	EU funding	Research Universities	The University of Sheffield	National (UK)	Water quality and plastic waste reduction.	Water quality and plastic waste reduction.	https://www.watershed-eu.com/	Global	Yes	Download the app and report on the state of the lagoon.	NO: no open results.
Ice Watch	NO	https://www.ice-watch.com/	Waste collection action in the UK, focusing on coastal areas and encouraging citizens to report any issues related to water quality.	Restore our Oceans and Waters	Adaptation to Climate Change	No	2019	2020	Public	NA	Public Agencies	National (Portugal)	National (Portugal)	Water quality and plastic waste reduction.	Water quality and plastic waste reduction.	https://www.ice-watch.com/	Global	Yes	Download the app and report on the state of the lagoon.	NO: no open results.
Pearl Angon	NO	https://www.pearl-angon.com/	Waste collection action in the UK, focusing on coastal areas and encouraging citizens to report any issues related to water quality.	Restore our Oceans and Waters	Adaptation to Climate Change	No	2022	2023	Public	EU funding	Research Universities	Universitat de Girona	National (Spain)	Water quality and plastic waste reduction.	Water quality and plastic waste reduction.	https://www.pearl-angon.com/	Global	Yes	Download the app and report on the state of the lagoon.	NO: no open results.
Adaptation	NO	https://www.adaptation-eu.com/	Waste collection action in the UK, focusing on coastal areas and encouraging citizens to report any issues related to water quality.	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2021	Ongoing	Public	NA	Research Universities	Universitat de Girona	National (Spain)	Water quality and plastic waste reduction.	Water quality and plastic waste reduction.	https://www.adaptation-eu.com/	Global	Yes	Download the app and report on the state of the lagoon.	NO: no open results.
Observation	NO	https://www.observation-eu.com/	Waste collection action in the UK, focusing on coastal areas and encouraging citizens to report any issues related to water quality.	Restore our Oceans and Waters	Adaptation to Climate Change	No	2020	2021	Public	EU funding	Research Universities	Universitat de Girona	National (Spain)	Water quality and plastic waste reduction.	Water quality and plastic waste reduction.	https://www.observation-eu.com/	Global	Yes	Download the app and report on the state of the lagoon.	NO: no open results.
Schools and	NO	https://www.schools-and.com/	Waste collection action in the UK, focusing on coastal areas and encouraging citizens to report any issues related to water quality.	Restore our Oceans and Waters	Adaptation to Climate Change	No	2020	2020	Public	NA	Research Universities	Universitat de Girona	National (Spain)	Water quality and plastic waste reduction.	Water quality and plastic waste reduction.	https://www.schools-and.com/	Global	Yes	Download the app and report on the state of the lagoon.	NO: no open results.

Name of the project	Selected further?	URL	Project focus	EU Mission	Online EU funded	Active (yes or no)	Start	End	Funded by	Funded by	Call if relevant	Lead by	Area of focus (Region/Global)	Main Outputs (Key)	Outcome (Impact on the mission)	Evidence of impact (in the EU)	Instances of the issue (Region/Global)	Participation tasks	Decision Rationale	
Seaturtle	NO	https://seaturtle.org/	Support the research and conservation community	Restore our Oceans and Waters	Adaptation to Climate Change	No	1998	2013	Public	seaturtle	NA	NGO	seaturtle	centralized database management system to help conserve sea turtles through satellite tracking and analysis	Scientific discoveries	Create data and management systems for marine communities	https://seaturtle.org/	Global	Yes	NO: obsolete methods, most information is not up to date. NO: no open results, no recent information available
Secret Ark	NO	https://www.secretark.org/	Open source hardware and an application to collect and store data in the sea	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2012	Ongoing	Foundation	The Secret Ark Foundation (UK)	NA	NGO	Worldwide	Open source hardware + free app with data + map	Scientific discoveries	Paper: Satellite citizen scientist ocean transparency data as a response to climate change	https://www.secretark.org/	Global	Yes	NO: no open results, no recent information available. NO: no open results, no recent information available
Plankton Portal	NO	https://www.planktonportal.org/	The plankton portal allows scientists to share and discover data on plankton and understand their life and function in the marine environment	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2013	Ongoing	Private	Plankton Portal	NA	Private Organizations	USA	Map of identified images	Scientific discoveries	Blog	https://www.planktonportal.org/	Global	Yes	NO: the main website are not up to date. NO: the main website are not up to date
Seasearch	YES	https://www.seasearch.org/	A network that collects information about the habitats, plants and animals in the sea and underwater, to track the health of the marine environment	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	1980	Ongoing	Private	Marine Conservation Society	NA	Private Organizations	UK and Ireland	A Database with the data and images shared on the website	Scientific discoveries	Reports	https://www.seasearch.org/	National	Yes	YES: wide scope and scale of the project. YES: wide scope and scale of the project
Coast Watch	YES	https://www.coastwatch.org/	Create public understanding of the value of the sea and provide opportunities to see and hear the sea	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2002	Ongoing	Private	Many private organizations	NA	NGO	Global	Open Web - Open Data Map - Coast Watch - Coast Watch - Coast Watch	Scientific discoveries	Parents and citizens	https://www.coastwatch.org/	Global	Yes	YES: wide scope and scale of the project. YES: wide scope and scale of the project
Jelly Watch	NO	https://www.jellywatch.org/	A global public database for jellyfish sightings, about jellyfish watching, and facts, sound and indicators of ocean health	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2009	Ongoing	Private	Monterey Bay Aquarium Research Institute	NA	Private Organizations	Worldwide	Open pictures database	Scientific discoveries	Report scientific research on the health of the marine food chain	https://www.jellywatch.org/	Global	Yes	NO: to be considered further. NO: to be considered further
Happy Whale	YES	https://www.happywhale.org/	A project established to record sightings of whales and dolphins and understand their behavior and habitat with whale types that are then tracked	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2015	Ongoing	Public + Private	Chacabá Research Institute	NA	NGO	Worldwide	Database + App	Raise awareness	Support citizen awareness and scientific research	https://www.happywhale.org/	Global	Yes	YES: wide scope and scale of the project. YES: wide scope and scale of the project
Earthline	NO	https://www.earthline.org/	A project established to record sightings of whales and dolphins and understand their behavior and habitat with whale types that are then tracked	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2003	Ongoing	Private	Chris Long	NA	NGO	Worldwide	Database + App	Raise awareness	Support citizen awareness and scientific research	https://www.earthline.org/	Global	Yes	YES: wide scope and scale of the project. YES: wide scope and scale of the project
Shark Trust	NO	https://www.sharktrust.org/	A project established to record sightings of sharks and understand their behavior and habitat with shark types that are then tracked	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	1987	Ongoing	Donations	Shark Trust	NA	NGO	Worldwide	Shark Trust	Inform public policies	Support for public policies through events and awareness materials	https://www.sharktrust.org/	Global	Yes	YES: wide scope and scale of the project. YES: wide scope and scale of the project
Eye on Water	YES	https://www.eyeonwater.org/	The Eye on Water colour app helps us to classify rivers, seas, coastal waters and inland waters (freshwater and saltwater)	Restore our Oceans and Waters	Adaptation to Climate Change	Yes, but no news for more than 2 years	2018	Ongoing	Public + Private	Stated as EU FP7 the support	NA	Private Organizations	Global	App	Scientific discoveries	Improved research and water monitoring	https://www.eyeonwater.org/	Global	Yes	YES: App available, not clear what is the use of data
Marine Mammals in Belgium	NO	https://www.marinemammalsinbelgium.org/	A project established to record sightings of marine mammals and understand their behavior and habitat with whale types that are then tracked	Restore our Oceans and Waters	Adaptation to Climate Change	Yes, but no news for more than 2 years	2019	Ongoing	Public	Royal Belgian Institute of Natural Sciences (RIN)	NA	Research Universities	Belgium and France	Database + App	Scientific discoveries	Improved research and monitoring of marine mammals	https://www.marinemammalsinbelgium.org/	All coastal marine areas	Yes	NO: inactive for more than 2 years
Biodiversity 400 Project	NO	https://www.biodiversity400project.org/	A long-term program of research, conservation and education across Europe and worldwide	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2002	Ongoing	Public	Marine Conservation Society	NA	NGO	Worldwide	Database + App	Scientific discoveries	Improved research and monitoring of marine mammals	https://www.biodiversity400project.org/	All coastal marine areas	Yes	NO: pay to become a member, NO: pay to become a member
From Sea to Street	NO	https://www.fromseatostreet.org/	A project established to record sightings of marine mammals and understand their behavior and habitat with whale types that are then tracked	Restore our Oceans and Waters	Adaptation to Climate Change	No	2003	2023	Public	Public Supply - EU	MPETUS call	Research Universities	Global	Research studies	Raise awareness	"Create a stronger relationship and awareness about the sea"	https://www.fromseatostreet.org/	Global	Yes	NO: weak link with Mission. NO: weak link with Mission

Name of the project	Selected further?	URL	Project focus	EU Mission	Online EU Mission linked?	Active (yes or no)	Start	End	Funded by	Call if relevant?	Led by	Area of focus (Country/Region/Global)	Main Outputs (Impact)	Outcome (Impact on the mission)	Evidence of mission (in the EU)	Incidence of the issue (Local/Regional/Global)	Alignment of the project with the EU Mission	Participation tasks	Decision Rationale
OSPARTO	NO	https://osparto.eu/	A program to understand about the problem of water pollution through a citizen science project. The project involves the world of police investigation and the world of science. The project aims to help police investigators and scientists to work together to solve water pollution problems.	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2021	Ongoing	French Office of the Environment + OCEANIC Foundation	NA	Independent individual	France	Resources to learn how to make sampling + Audio history	Raise awareness	enhance the awareness of society about water pollution and the role of police investigators and scientists in solving water pollution problems.	Global	Yes	NO - limited level of openness. Needs involvement of general public. The project is not open to all. The project is not open to all. The project is not open to all.	
Observations del mar	YES	https://www.observacionesdelmar.es/	With research by contributing their own observations from the sea.	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2014	Ongoing	Mix including Spanish and EU	NA	Research Universities	Global	Observation Maps and data	Scientific discoveries	Improved marine research	NA	Yes	Regular and submit observations online, set of researchers and citizen scientists.	
Deltas Tracker	YES	https://deltatracker.org/	Map delta pollution. When the focus is specifically on oceans, data from land is also collected as it is an important part of the delta system.	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2010	Ongoing	Margaret Stanley, University of Georgia, 11th Nov 2019	NA	Research Universities	Global	Observation Maps and data	Science and Awareness	Improved gulf knowledge and understanding of delta pollution	Global	Yes	Submit observations through a dedicated app.	
Monitor Water	NO	https://www.monitorwater.org/	Build a global youth movement to protect and restore our coastal planet.	Restore our Oceans and Waters	No	Yes	2003	Ongoing	Monitor Water	NA	NGO	Global	Water science program	Raise awareness	Yearly Reports on the impact created within the program	Global	Yes	YES: significant success in the field. Evidence of impact. Full participation of young people. TEC to be checked and adapted to the needs of the communities and the world. The project is not open to all. The project is not open to all. The project is not open to all.	
Smart Fisheries - i-FORE	NO	https://www.smartfisheries.org/	Activities to engage students and citizens in water science and smart fishing and related SDG activities.	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2023	Ongoing	Public Entity - EU	NA	Research Universities	Europe	NA	Raise awareness	Yearly reports on the impact created within the program	Global	Yes	Participate in events mediated and enabled by smart fishing.	
Water Sentinels	NO	https://www.water-sentinels.org/	A project for engaging citizens on collecting water samples and related SDG activities.	Restore our Oceans and Waters	No	No	2021	2021	EU Consortium	NA	Research Universities	Portugal	NA	Raise awareness	Improved public awareness on the importance of water and the role of citizens in protecting and restoring the environment.	Local	Yes	No open results. Data seems to be lost into a wider national platform but can't be found.	
National PlasticWitch	NO	https://www.nationalplasticwitch.org/	Citizens report later to help the project team to monitor and clean up the environment.	Restore our Oceans and Waters	No	No	2020	2020	Public	NA	Research Universities	Netherlands	Collaborative Monitoring report	Science and Awareness	Collection of hydrological data to improve the prediction of coastal erosion and flooding.	Global	Yes	NO - no info found. Website not updated. EU level considered in this review.	
Crowd Water	YES	https://www.crowdwater.org/	CrowdWater sends for an international network of citizens for monitoring of floods and related SDG activities.	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2016	2024	Research Universities	NA	Research Universities	Global	Dashboard App, online data	Science and Awareness	Collection of hydrological data to improve the prediction of coastal erosion and flooding.	Global	Yes	NO - not open science and not open data.	
B.C. Cerecan Waters Network	NO	https://www.bccerecanwaters.org/	Network BCCSN collects springs waters surrounding French Alps and related SDG activities.	Restore our Oceans and Waters	Adaptation to Climate Change	No	Unknown	2020	Public	NA	Public Agencies	France, Spain, Colombia	NA	Science and Awareness	Increased information on beach safety	Regional	Yes	Record and submit observations.	
Beach Environmental Assessment, Ditch & Health	NO	https://www.beachenvironmentalassessment.org/	The BEACH Program monitors the health of the beach and related SDG activities.	Restore our Oceans and Waters	No	Yes	Unknown	Ongoing	Public	NA	Public Agencies	Washington State, US	Live map of beaches and safety alerts. Detailed protocols for beach safety.	Raise awareness	Increased information on beach safety	Global	Yes	NO - need for support of local authorities. No open science and not open data.	
Beach Watch	NO	https://www.beachwatch.org/	Volunteers collect data on live and dead species of birds and marine life. They also report violations, detect of pollution, and collect of samples.	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	1993	Ongoing	Public	NA	Public Agencies	Washington State, US	Report 2019, 2020, Map, data	Science and Awareness	Increased understanding of the patterns of change in the UK.	Global	Yes	NO - no open science and not open data.	
Big Seaweed search	NO	https://www.bigseaweedsearch.org/	monitor the effects of environmental changes on seaweed and related SDG activities.	Restore our Oceans and Waters	Adaptation to Climate Change	Yes	2009	Ongoing	Public	NA	Public Agencies	UK	Report 2019, 2020, Map, data	Science and Awareness	Increased understanding of the patterns of change in the UK.	Global	Yes	NO - no open science and not open data.	
Blackeye Bay Drift Card Study	NO	https://www.blackeyebaydriftcardstudy.org/	The "Blackeye Bay" are citizen scientists, surfers, divers, and photographers who work together to map out the extent of the global coast branding.	Restore our Oceans and Waters	Adaptation to Climate Change	No	2016	2016	Public	NA	Public Agencies	US, Florida	Map, data	Science and Awareness	Increased understanding of the patterns of change in the US.	Global	Yes	NO - no open science and not open data.	



Name of the project	Selected further?	URL	Project focus	EU Mission	Other EU funded	Active (yes/no)	Start	End	Funded by	Facilitated by	Call (if relevant)	Lead by	Area of focus (Regional/Global/Both)	Main Outputs (Report)	Outcomes (Impact on the mission)	Evidence of impact on mission	Incidence of the issue (Local/Regional/Global)	Programs of support (in the EU)	Participation tasks	Decision Rationale
Floating Forests	NO	https://www.floatingforests.org/	Restore our Oceans and Waters	Adaptation to Climate Change	Adaptation to Climate Change	No	Unknown	2022	Public	NASA	Earth Systems (CESM)	Public Agencies	Global	302a,302b,302c,302d,302e,302f,302g,302h,302i,302j,302k,302l,302m,302n,302o,302p,302q,302r,302s,302t,302u,302v,302w,302x,302y,302z,303a,303b,303c,303d,303e,303f,303g,303h,303i,303j,303k,303l,303m,303n,303o,303p,303q,303r,303s,303t,303u,303v,303w,303x,303y,303z,304a,304b,304c,304d,304e,304f,304g,304h,304i,304j,304k,304l,304m,304n,304o,304p,304q,304r,304s,304t,304u,304v,304w,304x,304y,304z,305a,305b,305c,305d,305e,305f,305g,305h,305i,305j,305k,305l,305m,305n,305o,305p,305q,305r,305s,305t,305u,305v,305w,305x,305y,305z,306a,306b,306c,306d,306e,306f,306g,306h,306i,306j,306k,306l,306m,306n,306o,306p,306q,306r,306s,306t,306u,306v,306w,306x,306y,306z,307a,307b,307c,307d,307e,307f,307g,307h,307i,307j,307k,307l,307m,307n,307o,307p,307q,307r,307s,307t,307u,307v,307w,307x,307y,307z,308a,308b,308c,308d,308e,308f,308g,308h,308i,308j,308k,308l,308m,308n,308o,308p,308q,308r,308s,308t,308u,308v,308w,308x,308y,308z,309a,309b,309c,309d,309e,309f,309g,309h,309i,309j,309k,309l,309m,309n,309o,309p,309q,309r,309s,309t,309u,309v,309w,309x,309y,309z,310a,310b,310c,310d,310e,310f,310g,310h,310i,310j,310k,310l,310m,310n,310o,310p,310q,310r,310s,310t,310u,310v,310w,310x,310y,310z,311a,311b,311c,311d,311e,311f,311g,311h,311i,311j,311k,311l,311m,311n,311o,311p,311q,311r,311s,311t,311u,311v,311w,311x,311y,311z,312a,312b,312c,312d,312e,312f,312g,312h,312i,312j,312k,312l,312m,312n,312o,312p,312q,312r,312s,312t,312u,312v,312w,312x,312y,312z,313a,313b,313c,313d,313e,313f,313g,313h,313i,313j,313k,313l,313m,313n,313o,313p,313q,313r,313s,313t,313u,313v,313w,313x,313y,313z,314a,314b,314c,314d,314e,314f,314g,314h,314i,314j,314k,314l,314m,314n,314o,314p,314q,314r,314s,314t,314u,314v,314w,314x,314y,314z,315a,315b,315c,315d,315e,315f,315g,315h,315i,315j,315k,315l,315m,315n,315o,315p,315q,315r,315s,315t,315u,315v,315w,315x,315y,315z,316a,316b,316c,316d,316e,316f,316g,316h,316i,316j,316k,316l,316m,316n,316o,316p,316q,316r,316s,316t,316u,316v,316w,316x,316y,316z,317a,317b,317c,317d,317e,317f,317g,317h,317i,317j,317k,317l,317m,317n,317o,317p,317q,317r,317s,317t,317u,317v,317w,317x,317y,317z,318a,318b,318c,318d,318e,318f,318g,318h,318i,318j,318k,318l,318m,318n,318o,318p,318q,318r,318s,318t,318u,318v,318w,318x,318y,318z,319a,319b,319c,319d,319e,319f,319g,319h,319i,319j,319k,319l,319m,319n,319o,319p,319q,319r,319s,319t,319u,319v,319w,319x,319y,319z,320a,320b,320c,320d,320e,320f,320g,320h,320i,320j,320k,320l,320m,320n,320o,320p,320q,320r,320s,320t,320u,320v,320w,320x,320y,320z,321a,321b,321c,321d,321e,321f,321g,321h,321i,321j,321k,321l,321m,321n,321o,321p,321q,321r,321s,321t,321u,321v,321w,321x,321y,321z,322a,322b,322c,322d,322e,322f,322g,322h,322i,322j,322k,322l,322m,322n,322o,322p,322q,322r,322s,322t,322u,322v,322w,322x,322y,322z,323a,323b,323c,323d,323e,323f,323g,323h,323i,323j,323k,323l,323m,323n,323o,323p,323q,323r,323s,323t,323u,323v,323w,323x,323y,323z,324a,324b,324c,324d,324e,324f,324g,324h,324i,324j,324k,324l,324m,324n,324o,324p,324q,324r,324s,324t,324u,324v,324w,324x,324y,324z,325a,325b,325c,325d,325e,325f,325g,325h,325i,325j,325k,325l,325m,325n,325o,325p,325q,325r,325s,325t,325u,325v,325w,325x,325y,325z,326a,326b,326c,326d,326e,326f,326g,326h,326i,326j,326k,326l,326m,326n,326o,326p,326q,326r,326s,326t,326u,326v,326w,326x,326y,326z,327a,327b,327c,327d,327e,327f,327g,327h,327i,327j,327k,327l,327m,327n,327o,327p,327q,327r,327s,327t,327u,327v,327w,327x,327y,327z,328a,328b,328c,328d,328e,328f,328g,328h,328i,328j,328k,328l,328m,328n,328o,328p,328q,328r,328s,328t,328u,328v,328w,328x,328y,328z,329a,329b,329c,329d,329e,329f,329g,329h,329i,329j,329k,329l,329m,329n,329o,329p,329q,329r,329s,329t,329u,329v,329w,329x,329y,329z,330a,330b,330c,330d,330e,330f,330g,330h,330i,330j,330k,330l,330m,330n,330o,330p,330q,330r,330s,330t,330u,330v,330w,330x,330y,330z,331a,331b,331c,331d,331e,331f,331g,331h,331i,331j,331k,331l,331m,331n,331o,331p,331q,331r,331s,331t,331u,331v,331w,331x,331y,331z,332a,332b,332c,332d,332e,332f,332g,332h,332i,332j,332k,332l,332m,332n,332o,332p,332q,332r,332s,332t,332u,332v,332w,332x,332y,332z,333a,333b,333c,333d,333e,333f,333g,333h,333i,333j,333k,333l,333m,333n,333o,333p,333q,333r,333s,333t,333u,333v,333w,333x,333y,333z,334a,334b,334c,334d,334e,334f,334g,334h,334i,334j,334k,334l,334m,334n,334o,334p,334q,334r,334s,334t,334u,334v,334w,334x,334y,334z,335a,335b,335c,335d,335e,335f,335g,335h,335i,335j,335k,335l,335m,335n,335o,335p,335q,335r,335s,335t,335u,335v,335w,335x,335y,335z,336a,336b,336c,336d,336e,336f,336g,336h,336i,336j,336k,336l,336m,336n,336o,336p,336q,336r,336s,336t,336u,336v,336w,336x,336y,336z,337a,337b,337c,337d,337e,337f,337g,337h,337i,337j,337k,337l,337m,337n,337o,337p,337q,337r,337s,337t,337u,337v,337w,337x,337y,337z,338a,338b,338c,338d,338e,338f,338g,338h,338i,338j,338k,338l,338m,338n,338o,338p,338q,338r,338s,338t,338u,338v,338w,338x,338y,338z,339a,339b,339c,339d,339e,339f,339g,339h,339i,339j,339k,339l,339m,339n,339o,339p,339q,339r,339s,339t,339u,339v,339w,339x,339y,339z,340a,340b,340c,340d,340e,340f,340g,340h,340i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Appendix 5: Mission Cancer All Projects

[illegible]

Name of the project	Selected summary	URL	Short description	EU Mission	Other EU Missions	Active (yes or no)	Start	End	Financed by	Service to the public	Call for research	Lead by	Area of focus (National / Global / Europe)	Main Outputs (Project on the mission)	Outcomes (Project on the mission)	Evidence of impact on the mission	Integration of the mission (National / Global / Europe)	Participations/ tests	Decision Rationale
Project	NO	https://www.euro-cancer-observatory.eu/	Research on genetics and cancer for effective drug development and personalized medicine. The project aims to identify new biomarkers and therapeutic targets for cancer treatment.	Health more generally	Cancer	No	2020	2020	Public	Research Institute for Cancer Research (ICR)	NA	ICR	Global	People developed computing platform	Scientific, economic, awareness	NA	Global	Done completing power through research in cancer	NO: no open outside and no open inside
REAPING	NO	https://www.reaping.eu/	Address the issue of late cancer diagnosis by using artificial intelligence (AI) to analyze medical data and identify early signs of cancer.	Health more generally	Cancer	Yes	2022	Ongoing	Public	ICR, University of Cambridge, other national and international	NA	ICR, University of Cambridge	Global	AI platform for cancer diagnosis	Scientific, economic, awareness	https://www.reaping.eu/	Global	The REAPING questionnaire is used for early diagnosis of cancer and for better understanding of cancer	NO: no open outside. Weak link with cancer
Colony B	NO	https://colonyb.eu/	Colon cancer genome atlas: genome-wide analysis of colon cancer genomes to identify new biomarkers and therapeutic targets.	Health more generally	Cancer	No	2018	2023	Public	Colony B consortium	NA	Colony B consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game app not available in 2023	NO: no open outside and no open inside
Brain Explorer	NO	https://brainexplorer.eu/	Brain Explorer: a platform for brain cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Health more generally	Cancer	Yes	2020	Ongoing	Public	Brain Explorer consortium	NA	Brain Explorer consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
STANUM	NO	https://www.stanum.eu/	STANUM: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Health more generally	Cancer	Yes	2023	Ongoing	Public	STANUM consortium	NA	STANUM consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
Citizen health	NO	https://www.citizenhealth.eu/	Citizen health: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Health more generally	Cancer	Yes	2023	Ongoing	Public	Citizen health consortium	NA	Citizen health consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
Myriad (Myriad Bioscience Research)	NO	https://www.myriadbioscience.com/	Myriad: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Health more generally	Cancer	No	2018	Ongoing	Public	Myriad Bioscience	NA	Myriad Bioscience	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
ICR	NO	https://www.icr.ac.uk/	ICR: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Health more generally	Cancer	Yes	2018	Ongoing	Public	ICR	NA	ICR	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
Rea Cancer	NO	https://www.reacancer.eu/	Rea Cancer: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Health more generally	Cancer	Yes	2018	Ongoing	Public	Rea Cancer consortium	NA	Rea Cancer consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
All of US	NO	https://www.all-of-us.org/	All of US: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Health more generally	Cancer	Yes	2018	Ongoing	Public	All of US consortium	NA	All of US consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
Cancer Endo	NO	https://www.cancerendo.eu/	Cancer Endo: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Health more generally	Cancer	Yes	2018	Ongoing	Public	Cancer Endo consortium	NA	Cancer Endo consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
EUCLIM	YES	https://www.euclim.eu/	EUCLIM: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Cancer	Health more generally	Yes	2023	Ongoing	Public	EUCLIM consortium	NA	EUCLIM consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
Real Code	YES	https://www.realcode.eu/	Real Code: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Cancer	Health more generally	Yes	2021	Ongoing	Public	Real Code consortium	NA	Real Code consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
Genes in Sport	NO	https://www.genesinsport.eu/	Genes in Sport: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Cancer	Health more generally	No	2019	2021	Public	Genes in Sport consortium	NA	Genes in Sport consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
Reverses The Odds	NO	https://www.reverses-the-odds.eu/	Reverses The Odds: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Cancer	Health more generally	No	2019	2021	Public	Reverses The Odds consortium	NA	Reverses The Odds consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
The Impossible Line	NO	https://www.impossible-line.eu/	The Impossible Line: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Cancer	Health more generally	No	2017	2018	Public	The Impossible Line consortium	NA	The Impossible Line consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
Eyefix	NO	https://www.eyefix.eu/	Eyefix: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Cancer	Health more generally	No	2017	2018	Public	Eyefix consortium	NA	Eyefix consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
Get Infect	NO	https://www.getinfect.eu/	Get Infect: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Cancer	Health more generally	No	2016	2017	Public	Get Infect consortium	NA	Get Infect consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
MediCore	NO	https://www.medicore.eu/	MediCore: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Cancer	Health more generally	No	2018	2019	Public	MediCore consortium	NA	MediCore consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
FORE	YES	https://www.fore.eu/	FORE: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Cancer	Health more generally	Yes	2007	Ongoing	Public	FORE consortium	NA	FORE consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside
CrashLab	NO	https://www.crashlab.eu/	CrashLab: a platform for cancer research, focusing on the identification of new biomarkers and therapeutic targets.	Cancer	Health more generally	Yes	2019	Ongoing	Public	CrashLab consortium	NA	CrashLab consortium	Global	App and reports	Scientific, economic, awareness	NA	Global	Play a game	YES: no open outside and no open inside

Project Name	Project Summary	URL	Project focus	EU Mission	Other EU Mission	Active or in progress	Start	End	Funded by	Co-funded by	Lead by	Lead by	Area of Impact / National or Regional Strategy	Outcome / Impact / Policy	Objectives / Impact / Policy	Evidence of impact on the population	Involvement of Stakeholders / Impact / Policy	Agreement of Stakeholders / Impact / Policy	Decision Rationale
Healthcare for the Elderly	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.healthcarefortheelderly.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	Yes	2004	Ongoing	Private	EU Corporate Responsibility	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	TBC: long activity, accessibility to all, no need for data analysis, no need for data analysis, no need for data analysis.
European Commission	Coalition of cancer patients can take action part	https://www.europeancommission.eu/	Coalition of cancer patients can take action part	Cancer	Health more generally	Yes	Unknown	Unknown	Donations	EU Corporate Responsibility	NGO	NGO	EU	Advocacy, awareness and policy	Increased awareness and advocacy	None	Global	Yes	Participate in advocacy campaigns
EU Cancer	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.eu-cancer.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	No	2020	2024	Public	EU Corporate Responsibility	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	Participate in advocacy campaigns
Patent Incentives	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.patentincentives.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	Yes	2014	Ongoing	Public + Private	EU Corporate Responsibility	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	Participate in advocacy campaigns
Diagnostic	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.diagnostic.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	No	2014	2018	No info	No info	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	Participate in advocacy campaigns
European Projective Initiative for Cancer and Life's Cure	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.europeanprojectiveinitiativeforcancerandlifescure.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	Yes	1990	Ongoing	Public + Private	EU Corporate Responsibility	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	Participate in advocacy campaigns
Diagnosis	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.diagnosis.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	No	Unknown	Unknown	Public + Private	EU Corporate Responsibility	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	Participate in advocacy campaigns
Cancer	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.cancer.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	Yes	Unknown	Ongoing	Public + Private	EU Corporate Responsibility	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	Participate in advocacy campaigns
Machine Spot	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.machine-spot.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	No	2012	Ongoing	Public + Private	EU Corporate Responsibility	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	Participate in advocacy campaigns
Phyto	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.phyto.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	Yes	Unknown	Unknown	Public + Private	EU Corporate Responsibility	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	Participate in advocacy campaigns
The Cure	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.the-cure.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	No	2013	Unknown	Public + Private	EU Corporate Responsibility	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	Participate in advocacy campaigns
The Cure	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.the-cure.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	Yes	Unknown	Unknown	Public + Private	EU Corporate Responsibility	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	Participate in advocacy campaigns
GetFit	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.getfit.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	Yes	2017	Ongoing	Public + Private	EU Corporate Responsibility	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	Participate in advocacy campaigns
Safe Centers	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.safe-centers.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	Yes	2015	Ongoing	Public + Private	EU Corporate Responsibility	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	Participate in advocacy campaigns
Safe Centers	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.safe-centers.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	No	2015	2018	Public + Private	EU Corporate Responsibility	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	Participate in advocacy campaigns
Hero	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.hero.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	No	Unknown	Unknown	Public + Private	EU Corporate Responsibility	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	Participate in advocacy campaigns
Kid's Health	Part of a larger platform where people create their own digital health records and share them with their family and friends.	https://www.kids-health.eu/	Part of a larger platform where people create their own digital health records and share them with their family and friends.	Cancer	Health more generally	No	2024	Ongoing	Public + Private	EU Corporate Responsibility	Research Universities	Research Universities	Global	Scientific, awareness and policy	Improved research to better understand cancer and other diseases	None	Global	Yes	Participate in advocacy campaigns

