



Cos4Cloud

**Co-designed Citizen Observatories Services for the
EOS-Cloud**

H2020 programme: Research and Innovation action

D8.5 Evaluation of project impact

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Type

R	Document, report excluding the periodic and final reports	X
DEM	Demonstrator, pilot, prototype, plan designs	
DEC	Websites, patents filing, press & media actions, videos, photos, etc.	
SOF	Software, technical diagram, etc.	
OTHER	Flyers, etc.	

Dissemination level		
PU	Public, fully open.	X
CO	Confidential, restricted under conditions set out in Model Grant Agreement	
CI	Classified	

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Executive Summary

Research impact is the effect that research has on society and the economy. It can take many forms, including advancements in knowledge, new technologies, policy changes, and public health and well-being improvements. Measuring research impact is important for several reasons, including assessing the return on investment for research funding, identifying areas for future research, and demonstrating the value of research to the public.

This deliverable evaluates the impact of the Cos4Cloud project considering societal, political, economical, environmental and scientific dimensions.

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1. Background

Cos4Cloud (Co-designed citizen observatories for the EOS-Cloud) is a project funded under H2020 by the European Commission. It has designed and developed 13 technological prototypes and implemented these services to improve citizen observatories (COs).

The project is carried out within the European Open Science Cloud (EOSC) framework, a virtual space aimed at European scientific staff. Therefore, once created, some of the services have been made available via the EOSC. By the end of the project the services [Pl@ntNet-API](#), [Cos4Bio](#), [MOBIS](#), [AI-GeoSpecies](#), [FASTCAT-Cloud](#) and [AUTHENIX](#) are registered in EOSC Marketplace; however, this will not guarantee their sustainability in the EOSC ecosystem. Cos4Cloud's ultimate goal is to render these platforms more global, sustainable and viable over time by integrating citizen science (CS) into the EOSC, and bringing citizen science projects as a service for both the scientific community and society at large.

The innovative services that aim to improve citizen science data quality have been designed, prototyped, and implemented using deep machine learning, automatic video recognition, advanced mobile app interfaces, and other cutting-edge technologies, based on data models and data protocols validated by traditional science. The new services provide mechanisms to ensure the visibility and recognition of data contributors, and the tools to improve networking between various stakeholders. The design of new services has been user-oriented and carried out within a broad spectrum of co-design and testing workshops, engaging a wide range of stakeholders from society, government, industry, academia, agencies and research, who have helped to co-design the service's requirements.

All the products, innovative methodologies and outputs generated throughout the project have been disseminated and communicated using different channels and actions depending on the target audience to ensure knowledge transfer. This deliverable describes Cos4Cloud's Knowledge Transfer plan, including the knowledge outputs identified by the project, the stakeholders, the channels used to transmit this knowledge, the actions and the evaluation after three years of implementation.

2. Introduction

In recent years, there has been a growing recognition of the need to improve how research impact is assessed. This has led to the development of several frameworks and declarations, such as the [Declaration on Research Assessment \(DORA\)](#), the [Leiden](#)

[Manifesto](#) and the [Coalition for Advancing Research Assessment \(CoARA\)](#). These initiatives aim to provide guidance and best practices for research assessment, focusing on promoting more meaningful and accurate measures of research impact.

The Declaration on Research Assessment (DORA) [1] was developed in 2013 as a response to concerns about the overreliance on metrics such as journal impact factor in research assessment. DORA seeks to promote a more holistic and inclusive approach to research evaluation, encouraging the use of multiple indicators to assess the quality and impact of research. Since its launch, thousands of individuals and organisations have signed the DORA declaration, including academic institutions, funding agencies, and publishers. The DORA declaration has led to increased awareness of the limitations of using journal impact factor as the sole measure of research quality, and has helped to stimulate the development of new metrics and evaluation practices.

The Leiden Manifesto [2], developed in 2015 by a group of scholars from the Centre for Science and Technology Studies (CWTS) at Leiden University in the Netherlands, offers a set of ten principles and guidelines for assessing research impact. The principles include a call for a more nuanced and context-specific assessment of impact, recognising the limitations of bibliometric indicators, and a need for transparency and open communication about impact assessment practices. The research community has widely adopted the Manifesto as a framework for responsible research assessment. Numerous organisations, including universities, research funding agencies, and scientific societies have endorsed it.

On the other hand, the Coalition for Advancing Research Assessment (CoARA) [3] was launched in 2022, focusing on developing practical strategies for implementing the principles outlined in DORA and the Leiden Manifesto. CoARA aims to foster collaboration and knowledge sharing among stakeholders in the research ecosystem, including funders, publishers, and researchers. CoARA aims to promote developing and adopting more comprehensive, transparent, and equitable research assessment practices. This includes using a range of indicators, such as data sharing, collaboration, and societal impact, and considering qualitative factors, such as peer review and expert judgement.

Together, these frameworks and declarations represent an important step towards improving research assessment practices and ensuring that impact is measured fairly, transparently, and accurately. By promoting a more nuanced and comprehensive approach to research evaluation, these initiatives can potentially drive positive change across the research ecosystem, benefiting researchers, funders, and society as a whole.

Cos4Cloud, as a EU funded project, has considered the principles and recommendations of the DORA declaration, the Leiden Manifesto and the CoARA when evaluating the impact of the project. By doing so, we can ensure that the evaluation is more comprehensive, fair, and reflective of the true impact of the Cos4Cloud project. In addition, this approach can

help to align Cos4Cloud with the global movement towards more open and transparent research practices, which can enhance the project's credibility and visibility.

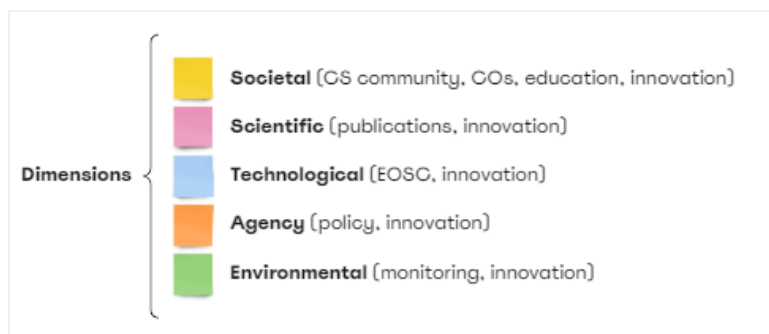
2.1. How does Cos4Cloud define impact?

Before evaluating the impact of the Cos4Cloud project, we need to define what we mean by impact. Building from the definition provided by Reed et al. in 2021 [4], in Cos4cloud we consider research impact as **the effect that research has on society, the economy, culture, policy-making, and the environment**. It encompasses both the academic impact, such as citations in peer-reviewed journals and the influence on the development of new knowledge, and the broader societal impact, such as the application of research findings to real-world problems, the development of policies, and the creation of economic or social value.

3. Main Cos4Cloud impacts according to the consortium

Following the co-design nature of Cos4Cloud, during the project final meeting with the consortium a co-design exercise was carried out to decide the project's greatest impacts.

The Cos4Cloud co-design team planned the workshop methodology and dynamised the activity. During the activity, the consortium was divided into six groups, where each group worked on prioritising the project's impacts in the following dimensions:



To do so, we used a methodology of concentric circles. The first phase consisted of a brainstorming session where each participant wrote as many Cos4Cloud impacts as they considered appropriate in sticky notes and placed them in the outer circle. Each of the colours of the sticky notes represented a different dimension. In the second phase, participants were asked to prioritise for each dimension one or two of the impacts detected in the previous phase (outer circle) and placed in the next concentric circle. Finally, in the third phase the prioritisation of the six groups was put together and a single impact per dimension was chosen and placed in the inner circle.



Cos4Cloud consortium during "Impact co-design workshop" organised in Cos4Cloud final meeting

As a result of the workshop, the impacts chosen by the consortium were:

- **Societal dimension:** Created the first national education community network merging citizen science with environmental education
- **Scientific dimension:** Set a precedent in the use of co-design in the context of citizen science and technology
- **Technological dimension:** Integrated co-design and Agile Methodologies to develop innovative citizen science services
- **Agency dimension:** Placed citizen science into the European Open Science Cloud (EOSC)
- **Environmental dimension:** Created new standardised, qualified, cost-effective citizen science datasets for environmental sustainability

Figures 1 and 2 show the results and process of the impact co-design workshop.



Figure 1. Results of the final meeting "Impact co-design workshop". Complete canvas.



Figure 2. Results of the final meeting "Impact co-design workshop". Divided canvas. Each part represents the working results of each group of the six created.

4. Cos4Cloud impact assessment framework

For assessing Cos4Cloud impact we have implemented an assessment framework that allows us to evaluate the project's impact across various dimensions: scientific, societal, economical, political and environmental impact. The Cos4Cloud impact assessment framework is aligned with the CoARA principles, the DORA declaration and the Leiden Manifesto, ensuring that the project's impact is measured transparently and responsibly. It also takes into account the [MICS \(Measuring Impact of Citizen Science\)](#) standardised impact assessment tool.

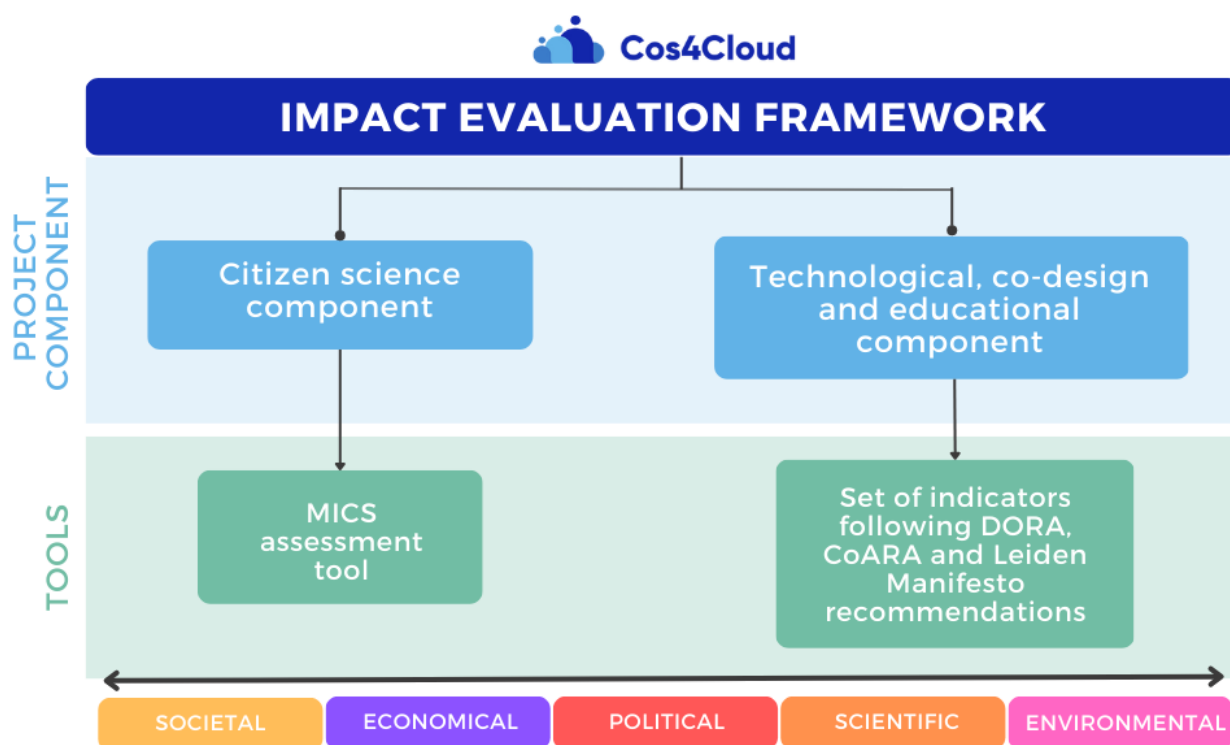


Figure 3. Impact assessment framework of the Cos4cloud project

Cos4Cloud is a multidisciplinary project that fosters collaboration between citizen scientists, researchers, and experts in computing to develop innovative solutions for preserving, managing, and disseminating environmental and biodiversity data. The project involves the development of several tools, platforms, and services for Citizen Observatories, but it also includes the organisation of BioBlitzes and other related citizen science activities, the organisation of co-design activities and an educational component. Cos4Cloud is then a project with several components and to evaluate its impact we wanted to create a framework that considers all the research activities performed and their impact into the scientific, societal, economic, political and environmental dimension (see Figure 3).

In the following sections we assess the two main components of Cos4Cloud: the citizen science component and the technological, co-design and educational component.

4.1. Assessing the citizen science component of Cos4Cloud

To assess the impact of the citizen-science element of Cos4Cloud, we utilised the [MICS \(Measuring Impact of Citizen Science\)](#) standardised impact assessment tool. The impact-assessment process on the MICS platform includes over 200 questions, each with a pre-defined set of answers. These questions assess hundreds of indicators and are based on current impact-assessment methods and other frameworks, including the ECSA characteristics of citizen science. The answers to these questions – submitted by project coordinators – are analysed through a series of artificial-intelligence (AI) algorithms, which result in impact scores. “Alquimics” is the algorithm behind the MICS platform. It has been created through part handcrafting (a labour-intensive technique for programming that involves writing explicit rules and templates) and part machine learning (a type of AI that learns to perform a task by analysing patterns in data).

At the time of submitting this deliverable, the MICS algorithms are still in a “learning” phase of development, with the machine-learning scores attributed to the project subject to change based on further data input. However, the rule-based scores are calculated based on a set of rules which combine specific sets of impact metrics on the same theme into a single indicator and are therefore already useful to consider.

MICS Questions:

The approximately 200 questions included in the MICS platform relate to five domains defined by the MICS project – science and technology, society, governance, environment and economy – all of which are scored out of a **maximum of 42** points. All projects are assessed across the domains in the same way, regardless of whether they are a project focus or not. All domains are scored out of 42 regardless of the number of questions, and the overall score of the project – also out of 42 – is an average of the five domains.

A full list of questions is available at <https://about.mics.tools/questions> and the answers to these questions for the Cos4cloud project can be found in Annex 1.

MICS rule-based scores and recommendations:

The rule-based scores on the MICS platform combine specific sets of impact metrics on the same theme into a single indicator. Impact scores – out of 42 – are calculated based on a set of rules that considers these combinations. A higher score means the project is carrying out more activities related to the theme of the indicator, and is, therefore, more likely to

have a higher positive impact in this area. Figure 4 shows the scores obtained in Cos4Cloud after answering the MICS questions.

For example, the first indicator described below (Figure 4) is that of “activeness”. Three impact metrics are combined to formulate this indicator. These metrics are:

- How much responsibility is offered to the participants?
- Are the participants satisfied with the process of participation in the project?
- Are participants aware they are contributing to a research project?

A high score – in the case of Cos4Cloud, 34 – means that the project is carrying out more activities related to “activeness”. A full set of indicators, their formulas and recommendation score thresholds can be found here: <https://about.mics.tools/indicators>.

Impact Indicators		Impact score (max 42)	Average score (of projects on platform)
Society	Activeness	34	23
	Involvement	30	18
Governance	Policy	6	15
	Sustainable Development Goals	16	17
Economy	Economic productivity	42	14
	Financial sustainability	26	20
Environment	Environmental awareness	40	22
	Environmental footprint	32	12
Science	Scientific productivity	37	20
	Interdisciplinary science	33	21

Figure 4. Cos4Cloud impact scores according to the MICS assessment tool.

In response to these scores, the MICS platform provides recommendations on improving or maintaining a high impact. Figure 5 shows the recommendations issued for Cos4Cloud.

Society	Activeness	The activeness of participants within a project is an important aspect of citizen science, and this project has made great efforts to ensure participants are aware they are contributing to a research project, have responsibility in the project, and are satisfied with the process of participation. Great job!
	Involvement	The degree of involvement of participants in a project is an important aspect of citizen science, and this project goes to great lengths to ensure that participants are involved in multiple stages of the project. It is positive that participants are offered multiple project activities to take part in, and that they are offered different levels of involvement depending on their individual interests and availability. Good work!
Governance	Policy	It looks like policy influence might not be a priority for the project. Of course, not every project can affect policy and some projects have a large impact on governance without ever interacting with official policy. If you're interested in the idea of citizen science as a form of socio-technical governance you can read more in this paper . If the project is interested in influencing policy it could find inspiration from example projects in this report . It might not be a viable option if the project has already started, but citizen-science projects most often have success influencing policy when specific policies are considered in the design of the project and policy makers are engaged from the start of the project.
Economy	Economic productivity	It is great that the project has produced outputs that contribute to the economy through industry, commerce, innovation or technological development. If you haven't already, it might be worth considering any legal implications through a dedicated IPR plan.
	Financial sustainability	You are on the right path! It is clear that the project has considered its financial sustainability into the future. However, there could be more to do. If one does not already exist, an exploitation plan could help sustain project outputs, whilst considering open-source software and tools could reduce costs.
Environment	Environmental awareness	Congratulations! This project goes to great lengths not only to promote environmental awareness and educate participants on environmental challenges, but also to measure improvements in participants' environmental attitudes, behaviour and knowledge.
	Environmental footprint	This indicator considers the project's material footprint , polluting emissions , procurement policy , and pro-environmental actions for participants (such as litter picking). The project's score for this indicator shows that the project has considered some of these elements but to get a higher score the project needs to take measures to improve its environmental footprint in all these areas.
Science	Scientific productivity	Congratulations - in a world of "publish or perish", this project has high scientific productivity. With a large number of publications in high impact-factor journals, the project's research has been well cited, indicating outcomes have been widely shared.
	Interdisciplinary science	By working across multiple disciplines, this project is making efforts to promote interdisciplinary ways of working. There is evidence that interdisciplinarity is statistically significantly and positively associated with research impact (Okamura, 2019), largely through the engagement of a wider audience. Keep up the good work!

Figure 5. Cos4Cloud impact recommendations according to the MICS assessment tool.

Machine Learning Scores

MICS scores are generated using a statistically-driven machine-learning approach, a type of AI that learns to perform a task by analysing patterns in data. This is an experimental approach to citizen-science impact assessment, and the exact reasoning behind the scores is not explainable. The scores represent a best guess of the project's impact in each domain. The platform gives a common framework for impact assessment to use the scores: to see how the project's impact evolves over time; to compare the project with others; to report to participants; or for internal reporting.

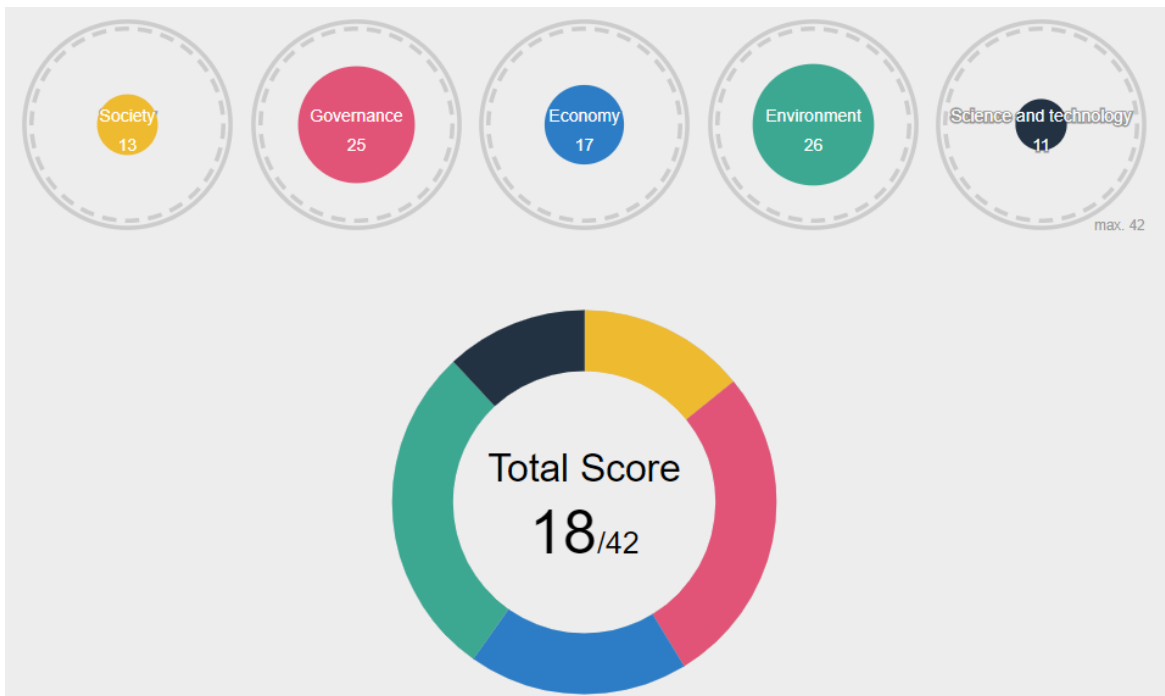


Figure 6. Cos4Cloud machine learning scores according to the MICS assessment tool.

4.2. Assessing the technological, co-design and educational component of Cos4Cloud

To assess the impact of the Cos4Cloud project – excluding the citizen science component which was assessed in the section above – , we have defined a series of Key Performance Indicators (KPIs) for each one of the impact dimensions: scientific, societal, policy, economic and environmental. For creating and defining these KPIs, we have followed the indications and recommendations of the DORA Declaration, the Leiden Manifesto and the CoARA. Besides, the impact co-design workshop results described in section 3 of this document were considered when designing the KPIs.

It's worth noting that evaluating the impact of a research project is a challenging and ongoing process. The impact of the Cos4Cloud project may not be immediately apparent, and it may take years or even decades to realise the full impact.

On the other hand, the deliverables 8.4 [6] and 6.4 [7] had a large number of KPIs that can also be indicators of the impact of the project.

The impact KPIs selected for Cos4Cloud are as follows:

1. SCIENTIFIC AND TECHNOLOGICAL IMPACT:

- **Peer-reviewed Publications and Citations:** The number of publications and citations of those publications can provide a traditional measure of research impact. However, it is important to consider alternative metrics beyond just journal impact factors, such as the number of citations per publication or the number of publications in open-access journals.
 - **KPIs:**
 - Number of peer-reviewed publications produced.
 - Number of citations of project publications.
 - Number of open access publications.
- **Altmetrics:** Altmetrics are alternative metrics that can provide a more comprehensive picture of the impact of research beyond just citations in scholarly publications. Altmetrics track online attention that research receives, including mentions in social media, news articles, blogs, and other online forums.
 - **KPIs:**
 - Altmetric score of project peer-reviewed publications.
 - Number of mentions of the project or its findings on social media platforms.
 - Number of blog posts or news articles that reference the project.
- **Non peer-reviewed Publications:** Cos4Cloud produced non-peer reviewed publications relevant for the project's impact, such as the Co-Design guide and the "Guia Participativa Marina del Barcelonès" (Barcelona Sea Participatory Guide) in the framework of the BioMARató.
 - **KPIs:**
 - Number of views in Zenodo.
 - Number of downloads in Zenodo.
- **Collaborations and Partnerships:** The number and quality of collaborations and partnerships that result from a research project can be an indicator of its impact.

Collaborations and partnerships can help disseminate research findings more widely, leading to further research and innovation.

■ **KPIs:**

- Number of research collaboration agreements established with other research institutions, industry partners, or government agencies as a result of the project.
- Number of new research projects or initiatives that have resulted from the project.
- Number of joint activities.

2. SOCIETAL IMPACT:

- **Public engagement:** Engaging the public with research could indicate a research project's impact, especially if co-design activities are performed such as in Cos4Cloud.

■ **KPIs:**

- Number of events, workshops and webinars.
- Number of popularised publications in external websites (blogs and articles).
- Media appearances related to the project.
- Social media reach.

- **Education community engagement:** Cos4Cloud has a strong educational component and the commitment of the communities of educators is a good indicator of the project's impact.

■ **KPIs:**

- Number of educators participating in Cos4Cloud educational activities.
- Number of educators adopting Cos4Cloud educational scenarios.
- Members of the created Citizen Science Educational Network.

3. POLICY AND PRACTICE IMPACT:

Research that impacts policy or practice can lead to real-world behaviour, decision-making, or policy implementation changes. This impact can be measured through changes in policy or practice or through the uptake of research findings by policymakers or practitioners. **In the case of Cos4Cloud, two civil councils have adopted Cos4Cloud research outputs:** Bogotá (adopting the “AireCiudadano” Do-It-Yourself device for measuring air pollution) and Barcelona (adopting the results of the BioBlitzs as official data for the biodiversity atlas of the city).

- **KPIs:**
 - Number of policy briefs based on project research that have been published.
 - Number of government practice changes that have resulted from the project.

4. ECONOMIC IMPACT:

Research can have economic impacts, such as driving innovation in industry, but these results may take years to show. In the case of Cos4Cloud, one of the potential impacts of the project is the adoption of one of the 13 services developed in Cos4Cloudt by Citizen Observatories, companies, organisations, etc. This final number is difficult to calculate, since the services are open and institutions are not required to notify us of their use. For this reason, the following KPIs have been chosen to assess the project's economic impact.

- **KPIs:**
 - Number of new services created based on project research.
 - Number of views of the services pages on the Cos4Cloud website.
 - Number of services on the EOSC.
 - Percentage of participants in the testing activities that have expressed their interest in the use of the services in the future or that express they think the service is useful in its field of work.

5. ENVIRONMENTAL IMPACT:

Research can have an environmental impact, but in the case of Cos4Cloud this impact has been achieved mainly through citizen science related activities. Although the impact of the citizen science component has been evaluated with the MICS tool, some KPIs concerning the BioBlitzs organised are proposed here.

- **KPIs:**
 - Number of volunteers participating in the BioBlitzs.
 - Number of species detected in the BioBlitzs.
 - Number of observations recorded in the BioBlitzs.

Using a combination of these indicators and KPIs, we evaluate the impact of the Cos4Cloud project holistically. The results and reporting of these KPIs are shown in Figure 7 to 9.

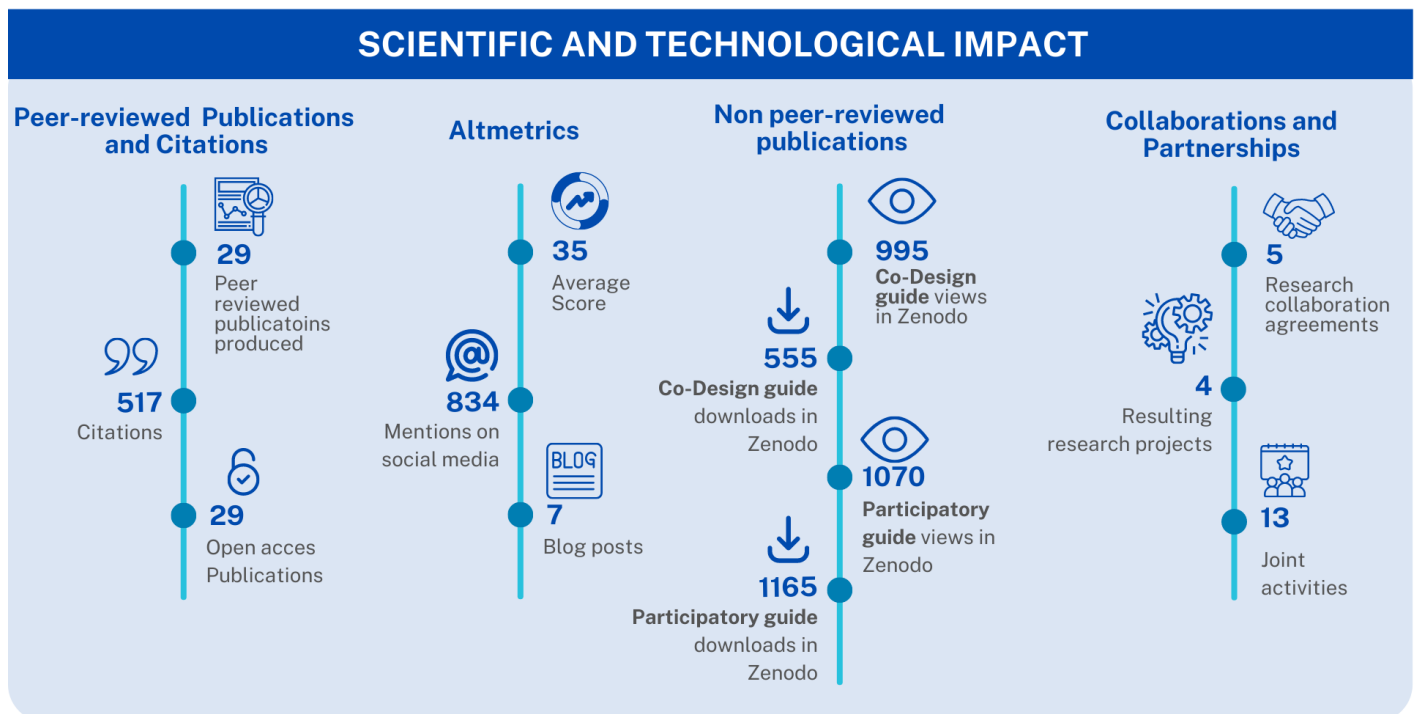


Figure 7. Impact KPIs on scientific and technological impact.

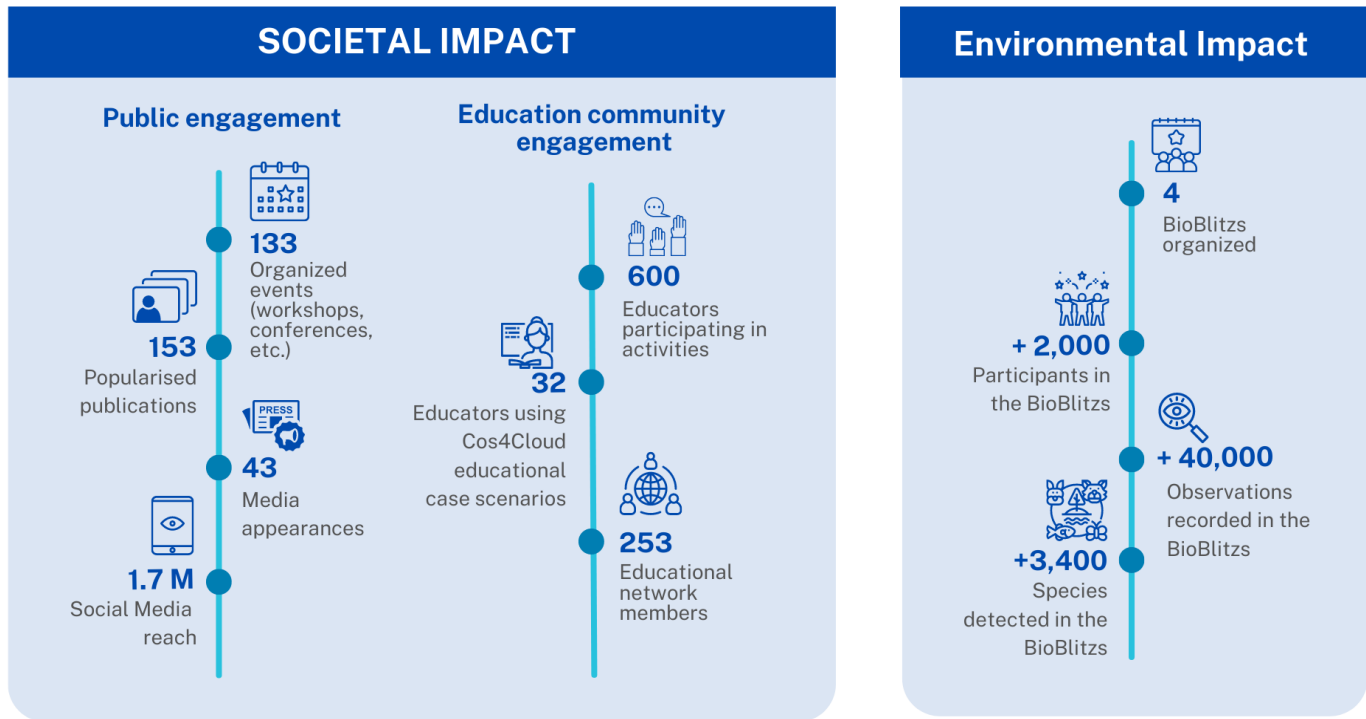


Figure 8. Impact KPIs on societal and environmental impact. Public engagement metrics were calculated using the tool Brand24.

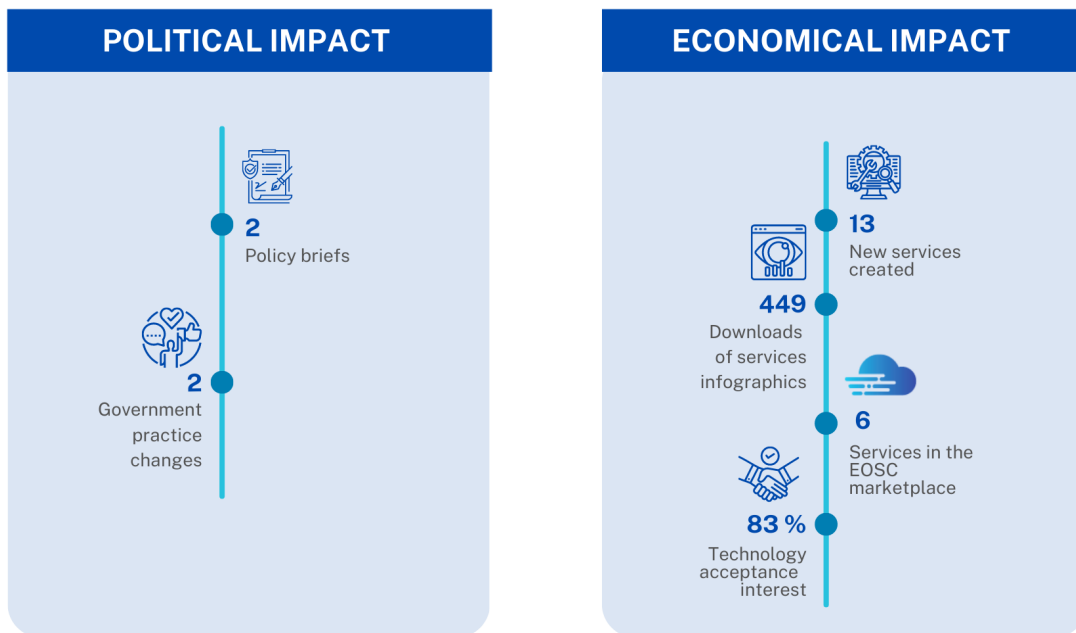


Figure 9. Impact KPIs on political and economical impact. Technology acceptance interest was calculated using an average of the answers to the question “Do you think [service] is suitable for its use in [your job or area expertise]?” realised to participants in the testing surveys

Conclusions

According to the MICS project, Cos4Cloud scored highest in the **Environment** domain; with scores of **40** for environmental awareness – the attitude regarding environmental consequences of human behaviour – and **32** for environmental footprint. The MICS platform notes that Cos4Cloud goes to great lengths to promote environmental awareness and educate participants on environmental challenges (through the sustained efforts of WP8 Communication, Outreach and Stakeholder Engagement); and to measure improvements in participants' environmental attitudes, behaviour and knowledge (as part of activities in WP5 COS4CLOUD services in practice, and WP6 Networking, Training and Capacity Building).

Cos4Cloud also scored highly in the **Science and Technology** domain, with **37** for scientific productivity and **33** for interdisciplinary science. This reflects the high number of peer-reviewed publications produced by the project, and the highly collaborative nature of the Cos4Cloud team; with technological developers working alongside social scientists and educators.

The project scored well in both the **Economy** and **Society** domains. Cos4Cloud scored an impressive **42** for economic productivity, indicating an explicit improvement in economic productivity through “diversification, technological upgrading and innovation”; specifically, the creation of thirteen new services for citizen observatories. The project scores **26** for financial sustainability, due to a combination of positive aspects – the use of an exploitation plan, for example – and less positive economic aspects, such as the need for recurring investments in the technology developed. Cos4Cloud scored **34** and **30** for activeness – the level of cognitive engagement in participating citizen scientists – and involvement – the degree of participation in different stages of a process – respectively. This reflects the highly collaborative co-design and testing process that formed part of the development of the thirteen services, and their incorporation into citizen observatories.

Cos4Cloud scored lower in the **Governance domain**, with a score of **16** for the Sustainable Development Goal (SDG) indicator and **6** for the policy indicator. In terms of the currently low score for policy, it is likely that with further dissemination of the two policy briefs produced in the final month of the project, that Cos4Cloud’s impact on policy will increase over time.

In summary, the citizen science element of Cos4Cloud has made a positive impact across multiple MICS domains, with particularly high scores in scientific and economic productivity, reflecting the thirteen innovative services developed within the project. The potential for policy briefs and further publications beyond the lifetime of the project suggests that Cos4Cloud could have a more impactful legacy than at present.

Regarding the impact assessment of the rest of Cos4Cloud component, we can highlight in the societal dimension the creation of the first national education community network merging citizen science with environmental education, **a network with more than 500 at the time of writing this deliverable.**

In the scientific and technological dimension, Cos4Cloud has set a precedent in using co-design in the context of citizen science and technology, as well as **integrating co-design and Agile Methodologies to develop innovative citizen science services.** This impact has been demonstrated to practice in the co-design of the Cos4Cloud services and with the the almost 1,000 views of the co-design guide in Zenodo and the almost 500 downloads of the infographics on the Cos4Cloud website.

Cos4Cloud is the first project to place Citizen Science into the European Open Science Cloud (EOSC). Having currently **six services in the EOSC marketplace and two city councils using Cos4Cloud research results** shows the valuable impact of Cos4cloud in the agency dimension.

Finally, in the environmental dimension of impact, Cos4Cloud has help to record more than 40,000 observations and created **new standarised, qualified, cost-effective citizen science datasets for environmental sustainability.**

In summary, Cos4Cloud has positively impacted society, science and technology, policies, encomic, and environmental dimensions. All indicators and impact products show that the project meets all the requirements for its impact to continue growing beyond the project's lifetime.

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Annex I

#	GENERAL: Question text and answer options
1 (001)	<p>What forms of knowledge does the project as a whole create?</p> <ul style="list-style-type: none"><input checked="" type="checkbox"/> New data (quantitative or qualitative)<input checked="" type="checkbox"/> New analyses (including existing approaches applied to new data)<input checked="" type="checkbox"/> New methodologies (e.g. for data collection, participant engagement, education)<input checked="" type="checkbox"/> New concepts or theories<input type="checkbox"/> None of the above<input type="checkbox"/> I don't know
2 (004)	<p>What is the expected duration of the project?</p> <ul style="list-style-type: none"><input type="checkbox"/> Less than 1 year<input type="checkbox"/> 1-2 years<input checked="" type="checkbox"/> 3-4 years<input type="checkbox"/> 5 years or more<input type="checkbox"/> I don't know
3 (005)	<p>Are participants currently able to contribute to the project's citizen-science activities?</p> <ul style="list-style-type: none"><input checked="" type="checkbox"/> Yes<input type="checkbox"/> No<input type="checkbox"/> I don't know
4 (008)	<p>How many observations have been collected so far?</p> <ul style="list-style-type: none"><input type="checkbox"/> 0-300<input type="checkbox"/> 301-3000<input type="checkbox"/> 3001-30,000<input checked="" type="checkbox"/> 30,001-300,000<input type="checkbox"/> More than 300,000<input type="checkbox"/> I have no idea about how many observations have been collected<input type="checkbox"/> I don't really know what observations are<input type="checkbox"/> Observations are not a significant element of the project and quantifying them is not important

5 (009)	How many observations are collected in a typical recent year of active project? (If the project has been running for less than a year you can estimate the number.) <input type="checkbox"/> 0-300 <input type="checkbox"/> 301-3000 <input type="checkbox"/> 3001-30,000 <input checked="" type="checkbox"/> 30,001-300-000 <input type="checkbox"/> More than 300,000 <input type="checkbox"/> Too difficult to estimate
6 (010)	What is the scope of the citizen-science project? (The project, for example, studies plastic pollution globally.) <input type="checkbox"/> National <input checked="" type="checkbox"/> Multinational <input type="checkbox"/> Global <input type="checkbox"/> Galactic <input type="checkbox"/> I don't know
7 (013)	How many participants have contributed to the project's citizen-science activities so far? <input type="checkbox"/> 0-30 <input type="checkbox"/> 31-300 <input checked="" type="checkbox"/> 301-3000 <input type="checkbox"/> 3001-30,000 <input type="checkbox"/> More than 30,000 <input type="checkbox"/> Too difficult to estimate <input type="checkbox"/> Participants are not a significant element of the project and quantifying them is not important
8 (014)	How many participants contribute to citizen science activities in a typical year of active project? (If the project has been running for less than a year you can estimate the number.) <input type="checkbox"/> 0-30 <input checked="" type="checkbox"/> 31-300 <input type="checkbox"/> 301-3000 <input type="checkbox"/> 3001-30,000 <input type="checkbox"/> More than 30,000 <input type="checkbox"/> Too difficult to estimate

9 (015)	How many people have been directly engaged by the project (including participants who have contributed to the citizen science activities)? <input type="checkbox"/> 0-300 <input checked="" type="checkbox"/> 301-3000 <input type="checkbox"/> 3001-30,000 <input type="checkbox"/> 30,001-300,000 <input type="checkbox"/> More than 300,000 <input type="checkbox"/> I don't know
10 (018)	What is the total external funding received by the project (in €, £ GBP, or \$ USD)? <input type="checkbox"/> 0-300 <input type="checkbox"/> 301-3000 <input type="checkbox"/> 3001-30,000 <input type="checkbox"/> 30,001-300,000 <input type="checkbox"/> 300,001-3,000,000 <input checked="" type="checkbox"/> More than 3,000,000 <input type="checkbox"/> The project did not receive external funding <input type="checkbox"/> I don't know
11 (021)	What is the total financial investment in the project, including internal funding (in €, £ GBP, or \$ USD)? <input type="checkbox"/> 0-300 <input type="checkbox"/> 301-3000 <input type="checkbox"/> 3001-30,000 <input type="checkbox"/> 30,001-300,000 <input type="checkbox"/> 300,001-3,000,000 <input checked="" type="checkbox"/> More than 3,000,000 <input type="checkbox"/> The project did not use internal funding <input type="checkbox"/> I don't know
12 (022)	Is the project focused on one or more of the following five domains? <input checked="" type="checkbox"/> Society <input type="checkbox"/> Governance <input type="checkbox"/> Economy <input checked="" type="checkbox"/> Science and technology <input checked="" type="checkbox"/> Environment <input type="checkbox"/> None of the above <input type="checkbox"/> I don't know

#	SOCIETY: Question text and answer options
1 (101)	<p>In which phases of the project do participants play a role?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Background research <input type="checkbox"/> Identifying a research question <input type="checkbox"/> Grant proposal writing <input type="checkbox"/> Project initiation <input type="checkbox"/> Definition of project activities <input checked="" type="checkbox"/> Design and development of technology and equipment for the project <input checked="" type="checkbox"/> Collecting data <input checked="" type="checkbox"/> Analysing data <input type="checkbox"/> Monitoring in ways other than collecting data <input type="checkbox"/> Passive participation (for example, contributing computer resources or social media information which is harvested by the project) <input type="checkbox"/> Recruiting or engaging other participants <input type="checkbox"/> Training other participants <input checked="" type="checkbox"/> Sharing of outputs (including publications and arranging project events) <input type="checkbox"/> Assessment of project impacts <input type="checkbox"/> Acting on the results of the project <input type="checkbox"/> Closure or handover of the project <input type="checkbox"/> None of the above <input type="checkbox"/> I don't know
2 (102)	<p>Are participants offered multiple project activities which they can take part in?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No; participants only have one activity they can take part in <input type="checkbox"/> I don't know
3 (103)	<p>Are participants offered different levels of involvement in each project activity depending on their interest, availability and knowledge?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
4 (104)	<p>How much responsibility is offered to the participants (with options depending on interests, availability and knowledge)?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Not much, no single participant is relied on to carry out a specific task <input type="checkbox"/> A lot, the project depends on specific individuals to carry out certain tasks <input checked="" type="checkbox"/> Something in the middle <input type="checkbox"/> I don't know

5 (105)	<p>What type of citizen science is the project according to the following categories?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Contractual projects, where communities ask professional researchers to conduct a specific scientific investigation and report on the results <input type="checkbox"/> Contributory projects, which are generally designed by scientists and for which members of the public primarily contribute data <input checked="" type="checkbox"/> Collaborative projects, which are generally designed by scientists and for which members of the public contribute data but also help to refine project design, analyse data, or disseminate findings <input type="checkbox"/> Co-created projects, which are designed by scientists and members of the public working together and for which at least some of the public participants are actively involved in most aspects of the research process <input type="checkbox"/> Collegial projects, where non-credentialed individuals conduct research independently with varying degrees of expected recognition by institutionalised science or professionals <input type="checkbox"/> The project doesn't fit any of these categories. <input type="checkbox"/> I don't know
6 (106)	<p>Are participants equal partners in the knowledge generation with the project organizers?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes <input type="checkbox"/> No; participants lead the knowledge generation (This is very unlikely; please, double check before selecting this answer) <input checked="" type="checkbox"/> No; the project organisers lead the knowledge generation <input type="checkbox"/> I don't know
7 (107)	<p>Does the project explicitly foster co-ownership of the project among participants and other stakeholders?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input type="checkbox"/> No <input type="checkbox"/> I don't know
8 (108)	<p>Are the participants satisfied with the process of participation in the project?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input type="checkbox"/> No <input type="checkbox"/> I don't know
9 (109)	<p>Do the goals of the project align to the demands of the participants?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input type="checkbox"/> No <input type="checkbox"/> I don't know
10 (110)	<p>Are participants satisfied with the results of the project?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input type="checkbox"/> No <input type="checkbox"/> I don't know

11 (111)	Is participation in the project voluntary or non-voluntary? <input checked="" type="checkbox"/> Voluntary <input type="checkbox"/> Non-voluntary (for example, pupils who have to participate as part of school activities) <input type="checkbox"/> Both <input type="checkbox"/> I don't know
12 (112)	Are participants aware they are contributing to a citizen-science project? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
13 (113)	Are participants the focus of the research? <input type="checkbox"/> They are the focus of the citizen-science research (This might be the case, for example, in health and medical research) <input type="checkbox"/> They are the focus of the broader project research (This might be the case, for example, if the project lead is investigating motivation in citizen-science projects) <input checked="" type="checkbox"/> They are not the focus of the research <input type="checkbox"/> I don't know
14 (114)	Do changes in participants' values, perspectives, opinions and attitudes occur as a consequence of actions carried out in the project? <input type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
15 (115)	Does the project contribute to personal change in behaviour? <input type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
16 (116)	Do participants self-organize to carry out additional activities beyond the original scope of the project? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> I don't know
17 (117)	Are participants involved in similar activities outside of the project as a consequence of being involved in the project? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> I don't know

18 (118)	<p>What is the balance between engagement and research in the project? (We know that many of you would be tempted to say they are equal in the project but we want to force you to choose one!)</p> <ul style="list-style-type: none"><input type="checkbox"/> Mostly engagement<input type="checkbox"/> More engagement, but balanced<input checked="" type="checkbox"/> More research, but balanced<input type="checkbox"/> Mostly research<input type="checkbox"/> I don't know
19 (119)	<p>What engagement approaches does the project use?</p> <ul style="list-style-type: none"><input type="checkbox"/> Gamification<input checked="" type="checkbox"/> Real-time validation on observation/data submission<input checked="" type="checkbox"/> Notification of updates to contributed observations<input type="checkbox"/> Tips of the day<input type="checkbox"/> Personalised recommendations<input checked="" type="checkbox"/> Feedback on data quality<input checked="" type="checkbox"/> Active and responsive social-media presence ("responsive" in the sense that questions from participants are responded to)<input type="checkbox"/> Storytelling or exchanging of experiences<input checked="" type="checkbox"/> Invitation to or suggestion of events<input checked="" type="checkbox"/> Workshops<input checked="" type="checkbox"/> Measurement campaigns<input type="checkbox"/> Active and responsive pilot / case study presence ("responsive" in the sense that questions from participants are responded to)<input checked="" type="checkbox"/> A forum, or other platform on a website<input type="checkbox"/> Awareness raising (ad-hoc demonstrations, meetings and appearances from partners)<input type="checkbox"/> Photo contests<input type="checkbox"/> Social events not included in previous options<input type="checkbox"/> Creation of champions, ambassadors or leaders<input type="checkbox"/> Spontaneous conversation<input type="checkbox"/> None of the above<input type="checkbox"/> I don't know

20 (120)	<p>Does the project offer any incentives for participation?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Financial incentives <input type="checkbox"/> Merchandise <input type="checkbox"/> Vouchers <input type="checkbox"/> General equipment, such as bird-boxes <input type="checkbox"/> Scientific equipment, such as sensors <input type="checkbox"/> Access to media and special events <input type="checkbox"/> Volunteering hours (for students or inmates) <input type="checkbox"/> Co-authorship <input type="checkbox"/> Food <input checked="" type="checkbox"/> Education, knowledge or skills <input type="checkbox"/> Increased sense of community <input type="checkbox"/> Socialisation (the activity of mixing socially with others) <input type="checkbox"/> A good excuse to avoid lockdown restrictions <input type="checkbox"/> The project does not offer incentives for participation <input type="checkbox"/> I don't know
21 (121)	<p>Does the project work with other organisations to involve specific target groups or individuals?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
22 (122)	<p>Does the project have a formal engagement strategy?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
23 (123)	<p>Is the engagement strategy shared with participants?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
24 (124)	<p>How does the project communicate with participants?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Online meetings <input checked="" type="checkbox"/> In person <input type="checkbox"/> In print <input checked="" type="checkbox"/> Online social media (e.g. Facebook, Twitter, WhatsApp, LinkedIn, Instagram, TikTok, Truth Social) <input checked="" type="checkbox"/> Blogs <input type="checkbox"/> A forum <input checked="" type="checkbox"/> Newsletter or email update <input checked="" type="checkbox"/> Project website <input checked="" type="checkbox"/> Video platforms (for example, YouTube) <input type="checkbox"/> None of the above <input type="checkbox"/> I don't know

<p>25 (125)</p>	<p>Does the project include any of the following communication activities?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Hands-on experiences (for example, an interactive exhibit) <input type="checkbox"/> Multi-directional communication (for example, a forum where all stakeholders can have a voice) <input type="checkbox"/> Innovative means of communication (for example, TikTok) <input checked="" type="checkbox"/> Collaboration with science-communication professionals <input type="checkbox"/> None of the above <input type="checkbox"/> I don't know
<p>26 (126)</p>	<p>How are the project outcomes shared?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Scholarly outputs e.g. peer-review publications, open data sets <input checked="" type="checkbox"/> Grey literature e.g. reports, working papers, policy briefs <input checked="" type="checkbox"/> Popular media e.g. social media, magazine or newspaper articles, TV or radio, newsletters, leaflets <input checked="" type="checkbox"/> Events e.g. conferences, community talks lectures, workshops, fairs, seminars or webinars <input type="checkbox"/> None of the above <input type="checkbox"/> I don't know
<p>27 (127)</p>	<p>Does the project have specific communication plans for specific target groups?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> The project has only one target group <input type="checkbox"/> I don't know
<p>28 (128)</p>	<p>Does the project create a positive change in how stakeholders communicate with one another?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
<p>29 (129)</p>	<p>As a result of this project, are channels available for participants and other stakeholders to communicate without the project?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
<p>30 (130)</p>	<p>Are there plans for sustaining the collaboration between citizen scientists and other stakeholders (for example, scientists or public authorities) beyond the project activities?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> There is no collaboration between citizens and other stakeholders in the project <input type="checkbox"/> I don't know

31 (131)	<p>Which socially-relevant issues are directly addressed by the project? (We'll ask details about each issue later.)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Poverty <input type="checkbox"/> Hunger and nutrition <input type="checkbox"/> Health and wellbeing <input checked="" type="checkbox"/> Education <input type="checkbox"/> Reduced inequalities <input type="checkbox"/> Gender equality <input type="checkbox"/> Decent work and economic growth <input type="checkbox"/> Industry, innovation and infrastructure <input type="checkbox"/> Responsible consumption and production <input type="checkbox"/> Peace, justice and strong institutions <input type="checkbox"/> None of the above <input type="checkbox"/> I don't know
32 (132)	<p>Does the project relate to human physical health (directly or indirectly)?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
33 (133)	<p>Does the project aid in the investigation of diseases?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes, directly as part of the project activities <input type="checkbox"/> Yes, indirectly from the project activities <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
34 (134)	<p>Does the project aid in the research and development of vaccines and medical interventions?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes, directly as part of the project activities <input type="checkbox"/> Yes, indirectly from the project activities <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
35 (135)	<p>Does the project explicitly investigate the link between pollution and health?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes, air pollution <input type="checkbox"/> Yes, water pollution <input type="checkbox"/> Yes, some other kind of pollution <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
36 (136)	<p>Does the project have a positive impact on the physical health of participants?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input type="checkbox"/> No <input checked="" type="checkbox"/> I don't know

<p>37 (137)</p>	<p>Does the project directly research mental health concerns?</p> <p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
<p>38 (138)</p>	<p>Does the project actively raise motivation amongst participants?</p> <p><input checked="" type="checkbox"/> Yes, and it has been measured</p> <p><input type="checkbox"/> Yes, but it has not been measured</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
<p>39 (139)</p>	<p>Does the project increase the self-efficacy of participants?</p> <p><input checked="" type="checkbox"/> Yes, and it has been measured</p> <p><input type="checkbox"/> Yes, but it has not been measured</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
<p>40 (140)</p>	<p>Does the project have a positive impact on the mental health of participants?</p> <p><input type="checkbox"/> Yes, and it has been measured</p> <p><input type="checkbox"/> Yes, but it has not been measured</p> <p><input type="checkbox"/> No</p> <p><input checked="" type="checkbox"/> I don't know</p>
<p>41 (141)</p>	<p>Does the project investigate the social or psychological needs of non-human animals?</p> <p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> I'm too old for this question</p> <p><input type="checkbox"/> I don't know</p>
<p>42 (142)</p>	<p>What kind of specific training does the project provide to participants?</p> <p><input checked="" type="checkbox"/> Written instructions</p> <p><input checked="" type="checkbox"/> Training video</p> <p><input checked="" type="checkbox"/> In-person training</p> <p><input checked="" type="checkbox"/> Online training</p> <p><input type="checkbox"/> Training is not required</p> <p><input type="checkbox"/> None of the above</p> <p><input type="checkbox"/> I don't know</p>
<p>43 (143)</p>	<p>At what level does the project contribute to the formal education of participants (for example, by working with schools)?</p> <p><input type="checkbox"/> Pre-primary-level education to children</p> <p><input type="checkbox"/> Primary-level education to pupils</p> <p><input checked="" type="checkbox"/> Secondary-level education to pupils (middle and high school)</p> <p><input checked="" type="checkbox"/> Tertiary education to students (university, college and vocational courses)</p> <p><input type="checkbox"/> Adult education or life-long learning</p> <p><input type="checkbox"/> The project does not contribute to the formal education of participants</p> <p><input type="checkbox"/> I don't know</p>

<p>44 (144)</p>	<p>What support is provided to educational institutions by the project?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> In-person sessions run by the project <input type="checkbox"/> Lesson plans <input checked="" type="checkbox"/> Educational resources (for example, work sheets or classroom activities) <input type="checkbox"/> Explicit links to the institution's curriculum <input type="checkbox"/> None of the above <input type="checkbox"/> I don't know
<p>45 (145)</p>	<p>Do participants gain new knowledge from taking part in the project?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input type="checkbox"/> No <input type="checkbox"/> I don't know
<p>46 (146)</p>	<p>Do participants gain new skills from taking part in the project?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input type="checkbox"/> No <input type="checkbox"/> I don't know
<p>47 (147)</p>	<p>Do participants gain new competencies from taking part in the project?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input type="checkbox"/> No <input type="checkbox"/> I don't know
<p>48 (148)</p>	<p>Is specific equipment or infrastructure required for participants to be able to contribute to project activities?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
<p>49 (149)</p>	<p>Are specific knowledge and skills required for individuals to participate in the project activities? For example, do participants need to be trained before they can take part?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
<p>50 (150)</p>	<p>Are support and training adapted to all relevant participant groups (e.g. participants' age or language)?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
<p>51 (151)</p>	<p>Has consideration been given to enable citizen participants to participate in the project given other demands and responsibilities?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know

52 (152)	Has the project been designed to give access, where possible, to all participants, including those with "functional diversity"? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
53 (153)	Which age groups are the participants in the project? <input type="checkbox"/> 0-10 <input checked="" type="checkbox"/> 11-20 <input checked="" type="checkbox"/> 21-40 <input checked="" type="checkbox"/> 41-60 <input checked="" type="checkbox"/> 61+ <input type="checkbox"/> I don't know
54 (154)	Does the project explicitly promote diversity and inclusion among all relevant participant groups? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
55 (155)	Does the project involve a socio-economically diverse pool of participants? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Participants are from the same socio-economical group <input checked="" type="checkbox"/> I don't know
56 (156)	Does the project actively engage participants from disadvantaged or historically marginalised backgrounds? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
57 (157)	Does the project make sure that minorities and those who usually have less power are among those who are able to influence the project? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No or not yet <input type="checkbox"/> I don't know
58 (158)	Does the project incorporate traditional or local knowledge? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
59 (159)	Does the project explicitly contribute to gender equality? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know

60 (160)	<p>What proportion of participants are cisgender men?</p> <p><input type="checkbox"/> 0-20%</p> <p><input type="checkbox"/> 21-40%</p> <p><input checked="" type="checkbox"/> 41-60%</p> <p><input type="checkbox"/> 61-80%</p> <p><input type="checkbox"/> 81-100%</p> <p><input type="checkbox"/> I don't know</p>
61 (161)	<p>Are there relevant stakeholders which the project was not able to engage?</p> <p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
62 (162)	<p>Does the project include objectives to protect or enhance cultural heritage components?</p> <p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
63 (163)	<p>Does the project help to strengthen adaptive capacity to respond to natural disasters or other hazards?</p> <p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
64 (164)	<p>Does the project contribute to social innovation?</p> <p><input type="checkbox"/> Yes, and it has been measured</p> <p><input checked="" type="checkbox"/> Yes, but it has not been measured</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
65 (165)	<p>Does the project foster resilience (potentially by fostering learning and adaptation which then leads to resilience)?</p> <p><input type="checkbox"/> Yes, and it has been measured</p> <p><input type="checkbox"/> Yes, but it has not been measured</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> After five minutes, I still don't understand the question</p> <p><input checked="" type="checkbox"/> I don't know</p>
66 (166)	<p>Does the project foster social capital?</p> <p><input type="checkbox"/> Yes, and it has been measured</p> <p><input checked="" type="checkbox"/> Yes, but it has not been measured</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
67 (167)	<p>Does the project lead to an increased level of trust among participants and other stakeholders?</p> <p><input type="checkbox"/> Yes, and it has been measured</p> <p><input checked="" type="checkbox"/> Yes, but it has not been measured</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>

#	GOVERNANCE: Question text and answer options
1 (201)	<p>How is the project managed?</p> <ul style="list-style-type: none"> <input type="checkbox"/> The project is run by a single organisation <input checked="" type="checkbox"/> The project is run by a group of organisations but led by a single organisation <input type="checkbox"/> The project is run by a group of organisations who lead equally <input type="checkbox"/> The project is run by citizens <input type="checkbox"/> An Artificial Intelligence is running the project <input type="checkbox"/> Some other management structure <input type="checkbox"/> I don't know
2 (202)	<p>What type of organisation leads the project?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Public bodies (including governments and municipalities) <input type="checkbox"/> Non-governmental organisations (NGOs), charities, and community-based organisations <input checked="" type="checkbox"/> Research-performing organisations (including universities) <input type="checkbox"/> Business and industry (including private corporations, institutions, firms, and associations) <input type="checkbox"/> Some other kind of organisation <input type="checkbox"/> I don't know
3 (203)	<p>What types of organisations are partners in running the project?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Public bodies (including governments and municipalities) <input type="checkbox"/> Non-governmental organisations (NGOs), charities, and community-based organisations <input checked="" type="checkbox"/> Research-performing organisations (including uiniversities) <input type="checkbox"/> Business and industry (including private corporations, institutions, firms, and associations) <input checked="" type="checkbox"/> Some other kind of organisation <input type="checkbox"/> I don't know
4 (204)	<p>What types of organisations are involved with the project (but don't help to manage the project)?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Public bodies (including governments and municipalities) <input checked="" type="checkbox"/> Non-governmental organisations (NGOs), charities, and community-based organisations <input checked="" type="checkbox"/> Research-performing organisations (including universities) <input checked="" type="checkbox"/> Business and industry (including private corporations, institutions, firms, and associations) <input type="checkbox"/> Some other kind of organisation <input type="checkbox"/> No other organisations are involved with the project <input type="checkbox"/> I don't know
5 (205)	<p>Does the project have explicit links with public authorities?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know

6 (206)	<p>Does the project explicitly foster new relationships among different stakeholders (not including those between citizens and scientists; so, for example, between public bodies and commercial organisations)?</p> <p><input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know</p>
7 (207)	<p>Does the project collaborate with other initiatives to enhance mutual learning?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know</p>
8 (208)	<p>Which resources does the project directly share with other initiatives?</p> <p><input checked="" type="checkbox"/> Data <input checked="" type="checkbox"/> Learnings <input checked="" type="checkbox"/> Participants <input type="checkbox"/> Instruments (for example, measuring kits) <input type="checkbox"/> Methodologies <input type="checkbox"/> Resources on the theory and practice of citizen science <input checked="" type="checkbox"/> Communication channels <input type="checkbox"/> Other resources <input type="checkbox"/> The project does not share resources with other initiatives <input type="checkbox"/> I don't know</p>
9 (209)	<p>Among which of the following dimensions does the project create institutional change (within the organisations associated with the project)?</p> <p><input checked="" type="checkbox"/> Open access/data: for example, development of an organisational Data Management Plan <input type="checkbox"/> Ethics: for example, creation of an ethics board, or employment of a quality assurance officer <input type="checkbox"/> Gender equality: for example, development of an organisational Gender Equality Plan <input checked="" type="checkbox"/> Public engagement <input checked="" type="checkbox"/> Science education <input type="checkbox"/> Responsible research and innovation: for example, development of organisational practices that enhance social responsibility, inclusiveness or sustainability of research and innovation processes and products <input type="checkbox"/> The project does not create institutional change among these dimensions <input type="checkbox"/> I don't know</p>
10 (210)	<p>Are the outputs generated by the project open access?</p> <p><input type="checkbox"/> Yes, all outputs <input checked="" type="checkbox"/> Yes, some outputs <input type="checkbox"/> No <input type="checkbox"/> I don't know</p>
11 (211)	<p>How can the outputs generated by the project be used by external parties?</p> <p><input checked="" type="checkbox"/> Outputs can be shared <input checked="" type="checkbox"/> Outputs can be edited or combined with other material to produce a new work <input checked="" type="checkbox"/> Outputs can be used for commercial purposes</p>

	<input type="checkbox"/> Outputs can be used without attribution to the author <input type="checkbox"/> I don't know
12 (212)	<p>Does the project have a data management plan?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
13 (213)	<p>The following four questions focus on the 'FAIR Guiding Principles for scientific data management and stewardship'. They focus on the data generated by the project, rather than on other outputs. Are the data generated by the project findable?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
14 (214)	<p>Are the data generated by the project accessible?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
15 (215)	<p>Are the data generated by the project interoperable?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
16 (216)	<p>Are the data generated by the project reusable?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
17 (217)	<p>Whilst the FAIR Guiding Principles are highly specific in their definition, there are other ways to consider the project's data. For example... Are data access rights clear and transparent?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
18 (218)	<p>Do other stakeholders have more access to project data than participants (for example, access to raw data)?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
19 (219)	<p>Are participants informed about where the data collected by the project are stored?</p> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know

20 (220)	Are participants informed about how the data collected and analysed by the project are used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
21 (221)	Are participants informed about whether the data collected by the project are shared? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
22 (222)	Does the project explicitly state which procedures it follows to ensure all data are collected and processed lawfully? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> The project doesn't need to ensure the data are collected lawfully <input type="checkbox"/> I don't know
23 (223)	Does the project involve the collection of personal data of the participants? <input checked="" type="checkbox"/> Yes, at least sometimes <input type="checkbox"/> No <input type="checkbox"/> I don't know
24 (224)	Do participants have to explicitly give consent (for example, signing a consent form) to take part in the project? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
25 (225)	Does the project have a code of ethics? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
26 (226)	Is the code of ethics made available to participants? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
27 (227)	Does the project include opportunities for project leaders and participants to discuss the ethical and political dimensions of the science involved? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
28 (228)	Does the project have explicit health and safety procedures in place? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> I don't know

29 (229)	Does the project have a risk management plan? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
30 (230)	Have the organisations involved in the project increased their commitment to, or investment in, citizen science as a result of being involved in the project? <input type="checkbox"/> Yes, they have made a formal commitment <input checked="" type="checkbox"/> Yes, but not as a formal commitment <input type="checkbox"/> No <input type="checkbox"/> I don't know
31 (231)	Does the project lead to an increase in the commitment of organizations to public participation in decision making? <input type="checkbox"/> Yes, they have made a formal commitment <input type="checkbox"/> Yes, but not as a formal commitment <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
32 (232)	Does the project help organisations to increase their capacity for public participation in decision making? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
33 (233)	Are participants more actively involved in political processes as a result of taking part in the project? <input type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
34 (234)	Have the project's results or findings supported authorities in enforcing existing regulations, laws, or policies? <input type="checkbox"/> Yes <input type="checkbox"/> Not yet <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
35 (244)	Have the project's results or findings been used as evidence in court (for example, for demonstrating environmental harm)? <input type="checkbox"/> Yes <input type="checkbox"/> Not yet <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know

36 (235)	Which policy frameworks does the project consider? <input checked="" type="checkbox"/> Organisational frameworks <input type="checkbox"/> Local frameworks <input checked="" type="checkbox"/> Regional frameworks <input type="checkbox"/> National frameworks <input type="checkbox"/> Global frameworks <input type="checkbox"/> The project does not consider any policy frameworks <input type="checkbox"/> I don't know
37 (236)	Does the project explicitly inform any governmental policy process? <input checked="" type="checkbox"/> Yes, at the local level <input type="checkbox"/> Yes, at the regional level <input type="checkbox"/> Yes, at the national level <input type="checkbox"/> Yes, at the international level <input type="checkbox"/> No <input type="checkbox"/> I don't know
38 (237)	Does the project have any explicit impact on external organisational policy? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
39 (238)	Is the project team aware of what the Sustainable Development Goals (SDGs) are? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
40 (239)	Is the project at all related to the Sustainable Development Goals (SDGs)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know

41 (240)	<p>Which of the following Sustainable Development Goals (SDGs) is the project related to?</p> <ul style="list-style-type: none"><input type="checkbox"/> No Poverty<input type="checkbox"/> Zero Hunger<input type="checkbox"/> Good Health and Well-being<input checked="" type="checkbox"/> Quality Education<input type="checkbox"/> Gender Equality<input type="checkbox"/> Clean Water and Sanitation<input type="checkbox"/> Affordable and Clean Energy<input type="checkbox"/> Decent Work and Economic Growth<input type="checkbox"/> Industry, Innovation and Infrastructure<input type="checkbox"/> Reducing Inequality<input checked="" type="checkbox"/> Sustainable Cities and Communities<input type="checkbox"/> Responsible Consumption and Production<input checked="" type="checkbox"/> Climate Action<input checked="" type="checkbox"/> Life Below Water<input checked="" type="checkbox"/> Life On Land<input type="checkbox"/> Peace, Justice, and Strong Institutions<input type="checkbox"/> Partnerships for the Goals
42 (241)	<p>Does the project involve data which match a specific indicator of a Sustainable Development Goal (SDG)?</p> <ul style="list-style-type: none"><input type="checkbox"/> Yes<input checked="" type="checkbox"/> No<input type="checkbox"/> I don't know
43 (243)	<p>Does the project contribute data to the official reporting for a Sustainable Development Goal (SDG) indicator?</p> <ul style="list-style-type: none"><input type="checkbox"/> Yes<input checked="" type="checkbox"/> No<input type="checkbox"/> I don't know

1 (301)	How has the project been funded? <input type="checkbox"/> Internal funding of the coordinating organisation(s) <input type="checkbox"/> Micro funding <input type="checkbox"/> Crowdfunding <input type="checkbox"/> Private foundations or non-governmental organisations <input type="checkbox"/> Corporate sponsors / funders <input type="checkbox"/> Government funding or appropriation <input type="checkbox"/> Other national sponsors / funders <input checked="" type="checkbox"/> European Union (for example, via Horizon 2020 or Horizon Europe) <input type="checkbox"/> Other international sponsors / funders <input type="checkbox"/> The project does not require funding <input type="checkbox"/> None of the above <input type="checkbox"/> I don't know
2 (302)	Did the project generate related new projects? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> It's in progress (for example, a project proposal has been written) <input type="checkbox"/> No <input type="checkbox"/> I don't know
3 (303)	In total, how much external funding has been received for these new projects? (in €, £ GBP, or \$ USD) <input type="checkbox"/> 0 - 3000 <input type="checkbox"/> 3001 - 30 000 <input type="checkbox"/> 30 001 - 300 000 <input type="checkbox"/> 300 001 - 3 000 000 <input checked="" type="checkbox"/> More than 3 000 000 <input type="checkbox"/> I don't know
4 (304)	Does the project create any competitive advantage for the organisations involved with the project? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
5 (305)	Does the project generate new jobs among the organisations running the project? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not applicable, the nature of the project would not allow for the generation of new jobs (e.g. it is entirely community run) <input type="checkbox"/> I don't know
6 (306)	Does the project involve commercial activities related to industry or academia? <input checked="" type="checkbox"/> Yes (for example, commercialisation of tools or technology developed within the project) <input type="checkbox"/> No <input type="checkbox"/> I don't know

7 (307)	<p>Does the project explicitly promote the formation and growth of micro-, small- or medium-sized enterprises / businesses?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know</p>
8 (308)	<p>Does the project generate new jobs in organisations external to those running the project?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know</p>
9 (309)	<p>Does the project increase demand for the sustainable services of any organisation, internal or external to the project (for example, by promoting sustainable tourism or by promoting clean energy)?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> I don't know</p>
10 (310)	<p>Does the project have a positive impact on the livelihoods of participants?</p> <p><input type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know</p>
11 (311)	<p>Does the project have any economic potential to be exploited in the future (for example, new intellectual property with economic value, or new sensors with a clear market)?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know</p>
12 (312)	<p>Does the project have an explicit exploitation plan?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know</p>
13 (313)	<p>Does the project have any concrete cooperation in place for the exploitation of results?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know</p>
14 (314)	<p>Does the project have an intellectual property rights (IPR) strategy?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know</p>
15 (315)	<p>Does the project have explicit plans to sustain its activities after the current funding received has ended?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know</p>

16 (316)	<p>Does the project explicitly improve economic productivity through diversification, technological upgrading or innovation?</p> <p><input type="checkbox"/> Yes, the project doubled the GDP of a country</p> <p><input checked="" type="checkbox"/> Yes, but it wasn't as successful as that!</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
17 (317)	<p>Is the citizen science used in the project more cost-efficient than using experts and traditional scientific methods?</p> <p><input type="checkbox"/> It has not been estimated</p> <p><input type="checkbox"/> It has been estimated and there is no clear winner from the economic point of view</p> <p><input checked="" type="checkbox"/> Citizen science clearly produces savings in comparison with using experts or traditional scientific methods</p> <p><input type="checkbox"/> We know that it can be awkward to admit that citizen science is more expensive or less efficient than traditional methods, but here is the option to do so</p> <p><input type="checkbox"/> I don't know</p>
18 (318)	<p>By engaging citizen scientists, is the project able to cover a larger sample size (i.e., to collect or analyse a larger amount of data) than a project with equivalent resources involving only professional scientists?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Not relevant for the project</p> <p><input type="checkbox"/> Too difficult to say</p> <p><input type="checkbox"/> I don't know</p>
19 (319)	<p>Does the project explicitly contribute to the reduction of government expenditure?</p> <p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
20 (320)	<p>Does the project explicitly contribute to the reduction of costs for other external organisations?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
21 (321)	<p>What are the estimated, typical, annual project staff costs (in €, £ GBP, or \$ USD)?</p> <p><input type="checkbox"/> Less than 3000</p> <p><input type="checkbox"/> 3000-30,000</p> <p><input checked="" type="checkbox"/> 30,000-300,000</p> <p><input type="checkbox"/> More than 300,000</p> <p><input type="checkbox"/> I don't know</p>
22 (322)	<p>What are the estimated, typical, annual costs of IT systems for data collection and management (in €, £ GBP, or \$ USD) (for example for the use of cloud-computing services or software licenses)?</p> <p><input checked="" type="checkbox"/> Less than 300</p> <p><input type="checkbox"/> 300-3000</p> <p><input type="checkbox"/> 3000-30,000</p> <p><input type="checkbox"/> More than 30,000</p>

	<input type="checkbox"/> I don't know
23 (323)	<p>What are the estimated, typical, annual equipment costs (in €, £ GBP, or \$ USD)?</p> <input checked="" type="checkbox"/> Less than 300 <input type="checkbox"/> 300-3000 <input type="checkbox"/> 3000-30,000 <input type="checkbox"/> More than 30,000 <input type="checkbox"/> I don't know
24 (324)	<p>Does the project require recurring investments in technology (for example, software licences or app/platform maintenance) that affect its long-term sustainability?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
25 (325)	<p>What is the estimated, approximate cost per observation (in €, £ GBP, or \$ USD) (observations as defined by the project)?</p> <input type="checkbox"/> Observations are not a significant element of the project and quantifying their cost is not important. <input type="checkbox"/> Less than 2 (Just for comparison, this is the income per day of one seventh of the world population.) <input type="checkbox"/> 2-8 (Just for comparison, this is the income per day of three sevenths of the world population.) <input type="checkbox"/> 9-32 (Just for curiosity, this is the income per day of two sevenths of the world population.) <input type="checkbox"/> More than 32 (Just for curiosity, this is the income per day of one seventh of the world population.) <input checked="" type="checkbox"/> I don't know
26 (326)	<p>How much time is invested by the project in training citizens in a typical recent year?</p> <input type="checkbox"/> The project does not train participants <input type="checkbox"/> Not much (hours) <input checked="" type="checkbox"/> Some (days) <input type="checkbox"/> A lot (there are one or more people, or a work package, explicitly dedicated to training citizens) <input type="checkbox"/> Too difficult to quantify <input type="checkbox"/> I don't know
27 (327)	<p>On average, how many hours does a participant dedicate to the project in a typical recent year?</p> <input type="checkbox"/> Less than 3 <input checked="" type="checkbox"/> 3-30 <input type="checkbox"/> More than 30 <input type="checkbox"/> The project has no participants <input type="checkbox"/> I don't know
28 (328)	<p>On average, how long do participants have to travel to take part in the citizen science activities?</p> <input checked="" type="checkbox"/> Participants do not have to travel <input type="checkbox"/> Less than 10 minutes <input type="checkbox"/> 10 - 30 minutes <input type="checkbox"/> 30 minutes - 1 hour

	<input type="checkbox"/> More than 1 hour <input type="checkbox"/> I don't know
29 (329)	Do participants have to pay to take part in the project? <input type="checkbox"/> Yes, at least in some cases <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
30 (330)	What is this payment used for? General support to an organisation Equipment or services given to the participants Training given to the participants None of the above I don't know
31 (331)	Can participants make a voluntary financial contribution to the project? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know

#	ENVIRONMENT: Question text and answer options
1 (401)	Does the project take measures to decrease its material footprint? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
2 (402)	Does the project take measures to reduce its polluting emissions? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
3 (403)	Does the project have a procurement policy that is environmentally sustainable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
4 (404)	Does the project explicitly share information on sustainable development or lifestyles? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
5 (405)	Does the project educate participants on environmental challenges? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know

6 (406)	Does the project explicitly contribute to a higher awareness of, or positive attitude towards, the natural environment, on this planet or others? <input checked="" type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input type="checkbox"/> No <input type="checkbox"/> I don't know
7 (407)	Does the project lead to an increased stewardship of the natural environment among participants? <input type="checkbox"/> Yes, and it has been measured <input checked="" type="checkbox"/> Yes, but it has not been measured <input type="checkbox"/> No <input type="checkbox"/> I don't know
8 (408)	Does the project collaborate with external companies to enable the adoption of sustainable practices? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
9 (409)	Do the project activities include pro-environmental actions e.g. litter picking? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
10 (410)	Does the project include objectives to protect or enhance natural resources? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
11 (411)	Does the project help to identify the location of specific issues related to environmental challenges? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
12 (412)	Does the project inform how a natural resource or ecosystem is managed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
13 (413)	Does the project monitor ecosystem services? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know

<p>14 (414)</p>	<p>Which environmental challenges are related to the aims of the project? (We'll ask details about each issue later.)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sustainable agriculture <input checked="" type="checkbox"/> Freshwater <input type="checkbox"/> Affordable and clean energy <input checked="" type="checkbox"/> Sustainable cities and communities <input checked="" type="checkbox"/> Air quality <input type="checkbox"/> Responsible consumption and production (including food waste and chemical pollution) <input checked="" type="checkbox"/> Climate action <input checked="" type="checkbox"/> Marine water <input checked="" type="checkbox"/> Life on land <input type="checkbox"/> None of the above <input type="checkbox"/> I don't know
<p>15 (415)</p>	<p>How does the project contribute to sustainable agriculture?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Researching sustainable agriculture <input type="checkbox"/> Increasing the proportion of agricultural area being managed sustainably <input type="checkbox"/> Increasing investment in rural infrastructure, agricultural research and technology development <input type="checkbox"/> Increasing agricultural productivity <input checked="" type="checkbox"/> None of the above <input type="checkbox"/> I don't know
<p>16 (416)</p>	<p>With regards to freshwater, which of the following does the project monitor?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Ambient water quality or pollution <input checked="" type="checkbox"/> Water-related ecosystems and biodiversity <input type="checkbox"/> Water-use efficiency <input type="checkbox"/> Water stress or water scarcity <input type="checkbox"/> Correct treatment of wastewater <input type="checkbox"/> River restoration <input type="checkbox"/> Physical quality or engineering and land use pressures <input type="checkbox"/> None of the above <input type="checkbox"/> I don't know
<p>17 (417)</p>	<p>With regards to freshwater, which of the following does the project have a demonstrable positive impact on?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Ambient water quality or pollution <input type="checkbox"/> Water-related ecosystems and biodiversity <input type="checkbox"/> Water-use efficiency <input type="checkbox"/> Water stress or water scarcity <input type="checkbox"/> Correct treatment of wastewater <input type="checkbox"/> River restoration <input type="checkbox"/> Physical quality or engineering and land use pressures <input type="checkbox"/> Involving local communities in water management <input checked="" type="checkbox"/> None of the above <input type="checkbox"/> I don't know

<p>18 (418)</p>	<p>How does the project contribute to affordable and clean energy?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Researching clean energy <input type="checkbox"/> Increasing the share of clean energy in the energy mix <input type="checkbox"/> Increasing energy efficiency <input checked="" type="checkbox"/> None of the above <input type="checkbox"/> I don't know
<p>19 (419)</p>	<p>With regards to sustainable cities and communities, which of the following does the project monitor?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Correct collection and treatment of solid waste <input checked="" type="checkbox"/> Green/blue public spaces <input type="checkbox"/> None of the above <input type="checkbox"/> I don't know
<p>20 (420)</p>	<p>With regards to sustainable cities and communities, which of the following does the project have a demonstrable positive impact on?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Involving local communities in urban planning and management <input type="checkbox"/> Correct collection and treatment of solid waste <input type="checkbox"/> Green/blue public spaces <input checked="" type="checkbox"/> None of the above <input type="checkbox"/> I don't know
<p>21 (421)</p>	<p>Does the project monitor ambient air quality or pollution?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
<p>22 (422)</p>	<p>With regards to air quality, which of the following does the project have a demonstrable positive impact on?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Involving local communities in air quality management <input checked="" type="checkbox"/> Ambient air quality and pollution (including fine particulate matter e.g. PM2.5 and PM10) <input type="checkbox"/> None of the above <input type="checkbox"/> I don't know
<p>23 (423)</p>	<p>With regards to responsible consumption and production, which of the following does the project monitor?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Food waste <input type="checkbox"/> Harmful chemicals in the air <input type="checkbox"/> Harmful chemicals in the water <input type="checkbox"/> Harmful chemicals in the soil <input type="checkbox"/> Waste generation and management (including prevention, reduction, recycling and reuse) <input checked="" type="checkbox"/> None of the above <input type="checkbox"/> I don't know

24 (424)	With regards to responsible consumption and production, which of the following does the project have a demonstrable positive impact on? <input type="checkbox"/> Food waste <input type="checkbox"/> Harmful chemicals in the air <input type="checkbox"/> Harmful chemicals in the water <input type="checkbox"/> Harmful chemicals in the soil <input type="checkbox"/> Waste generation and management (including prevention, reduction, recycling and reuse) <input checked="" type="checkbox"/> None of the above <input type="checkbox"/> I don't know
25 (425)	With regards to marine water, which of the following does the project monitor? <input type="checkbox"/> Marine nutrient pollution <input type="checkbox"/> Marine plastic pollution <input type="checkbox"/> Ocean acidification <input type="checkbox"/> Marine protected areas <input type="checkbox"/> Overfishing <input type="checkbox"/> Marine technology <input checked="" type="checkbox"/> None of the above <input type="checkbox"/> I don't know
26 (426)	With regards to marine water, which of the following does the project have a demonstrable positive impact on? <input type="checkbox"/> Marine nutrient pollution <input type="checkbox"/> Marine plastic pollution <input type="checkbox"/> Ocean acidification <input type="checkbox"/> Marine protected areas <input type="checkbox"/> Overfishing <input type="checkbox"/> Marine technology <input checked="" type="checkbox"/> None of the above <input type="checkbox"/> I don't know
27 (427)	With regards to life on land, which of the following does the project monitor? <input type="checkbox"/> Sustainable management of forests <input type="checkbox"/> Desertification or land degradation <input type="checkbox"/> Mountain ecosystems <input type="checkbox"/> Other terrestrial ecosystems <input checked="" type="checkbox"/> Biodiversity <input type="checkbox"/> Species extinction <input checked="" type="checkbox"/> Invasive alien species <input type="checkbox"/> Wildlife poaching or trafficking <input type="checkbox"/> Animal behaviour <input type="checkbox"/> None of the above <input type="checkbox"/> I don't know

28 (428)	<p>With regards to life on land, which of the following does the project have a demonstrable positive impact on?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sustainable management of forests <input type="checkbox"/> Desertification or land degradation <input type="checkbox"/> Mountain ecosystems <input type="checkbox"/> Other terrestrial ecosystems <input type="checkbox"/> Biodiversity <input type="checkbox"/> Species extinction <input checked="" type="checkbox"/> Invasive alien species <input type="checkbox"/> Wildlife poaching or trafficking <input type="checkbox"/> None of the above <input type="checkbox"/> I don't know
29 (429)	<p>Does the project help to classify local breeds or species at risk of extinction?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
30 (430)	<p>Does the project contribute to secure plant and animal genetic resources in either medium- or long-term conservation facilities?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know

#	SCIENCE AND TECHNOLOGY: Question text and answer options
1 (501)	<p>Which disciplines are the focus of the project?</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Citizen science (if you don't select this one, you are in trouble) <input type="checkbox"/> Agricultural and veterinary sciences (including, forestry sciences, fisheries sciences, and land and farm management) <input type="checkbox"/> Art theory and criticism <input type="checkbox"/> Biological sciences (including ecology, zoology, genetics, and biodiversity) <input type="checkbox"/> Chemical sciences (including medicinal and biomolecular chemistry) <input type="checkbox"/> Earth sciences (including geology, atmospheric sciences, and oceanography) <input type="checkbox"/> Engineering (including food sciences, environmental engineering, and biomedical engineering) <input type="checkbox"/> Environmental sciences (including ecological applications, environmental management, and soil sciences) <input checked="" type="checkbox"/> Information and computing sciences (including artificial intelligence and image processing, distributed computing, and computer software) <input type="checkbox"/> Language, communication and culture (including linguistics, and literary studies) <input type="checkbox"/> Law and legal studies <input type="checkbox"/> Mathematical sciences and statistics

	<input type="checkbox"/> Medical and health sciences (including neurosciences, public health and health services, nutrition and dietetics, and human movement and sports science) <input type="checkbox"/> Philosophy and religious studies (including applied ethics, and history and philosophy of specific fields) <input type="checkbox"/> Physical sciences (including astronomical and space sciences, atomic, molecular, nuclear, particle and plasma physics, and quantum physics) <input type="checkbox"/> Psychology and cognitive sciences <input type="checkbox"/> Studies in human society (including human geography, history, archaeology, policy and administration, sociology, and education) <input checked="" type="checkbox"/> Technology (including communications technologies, and computer hardware) <input type="checkbox"/> None of the above <input type="checkbox"/> I don't know
2 (502)	<p>Does the project explicitly promote interdisciplinary ways of working?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
3 (503)	<p>Is the project's citizen science basic or applied?</p> <input type="checkbox"/> Basic <input checked="" type="checkbox"/> Applied <input type="checkbox"/> Both <input type="checkbox"/> Too difficult to distinguish <input type="checkbox"/> I don't know
4 (504)	<p>Is the purpose of the project's research to put existing theories to the test (deductive), or is it about gathering information and developing knowledge from this information (inductive)?</p> <input checked="" type="checkbox"/> Inductive <input type="checkbox"/> Deductive <input type="checkbox"/> Both <input type="checkbox"/> Too difficult to distinguish <input type="checkbox"/> I don't know
5 (505)	<p>Do participants take part in systematic or convenience data-collection?</p> <input type="checkbox"/> Systematic data-collection <input checked="" type="checkbox"/> Convenience data-collection <input type="checkbox"/> Both <input type="checkbox"/> Data collection is not a significant element of the project <input type="checkbox"/> I do not know
6 (506)	<p>Does the project formally build on existing citizen-science expertise in the specific field of research?</p> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No, because this is the first citizen-science project in the specific field of research <input type="checkbox"/> I don't know

7 (507)	Is new knowledge developed regarding how best to incorporate citizens into research design? <input checked="" type="checkbox"/> Yes, and formally documented <input type="checkbox"/> Yes, but not formally documented <input type="checkbox"/> No <input type="checkbox"/> I don't know
8 (508)	Does the project use a code of research or a research integrity policy? (See, for example [https://ukrio.org/publications/code-of-practice-for-research/]) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
9 (509)	Does the project have a formal dissemination strategy? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No, but it does have an informal dissemination strategy <input type="checkbox"/> No, the project does not have a dissemination strategy <input type="checkbox"/> I don't know
10 (510)	How many publications, indexed by Google Scholar, resulted from the project? <input type="checkbox"/> The project has not produced any publications <input type="checkbox"/> Less than 3 <input checked="" type="checkbox"/> 3-30 <input type="checkbox"/> More than 30 <input type="checkbox"/> I don't know
11 (511)	How many open-access publications, indexed by Google Scholar, resulted from the project? <input type="checkbox"/> The project has not produced any open-access publications <input type="checkbox"/> Less than 3 <input checked="" type="checkbox"/> 3-30 <input type="checkbox"/> More than 30 <input type="checkbox"/> I don't know
12 (512)	How many citations have the publications produced by the project received, in total (according to Google scholar)? <input type="checkbox"/> Less than 3 <input checked="" type="checkbox"/> 3-30 <input type="checkbox"/> 31-300 <input type="checkbox"/> More than 300 <input type="checkbox"/> I don't know
13 (513)	What is the highest impact-factor (or impact-index) of the publications produced by the project? <input type="checkbox"/> Less than 2 <input type="checkbox"/> 2-5 <input checked="" type="checkbox"/> More than 5 <input type="checkbox"/> I don't know

14 (514)	<p>How is the involvement of participants formally recognised in publications?</p> <p><input type="checkbox"/> Individual authorship</p> <p><input type="checkbox"/> Group pseudonym as (co-)author</p> <p><input type="checkbox"/> Individuals acknowledged by name</p> <p><input checked="" type="checkbox"/> Group of participants collectively acknowledged</p> <p><input type="checkbox"/> Participants are not formally recognised in publications</p> <p><input type="checkbox"/> I don't know</p>
15 (515)	<p>Has the project supported student's dissertations or theses?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> It's in progress</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
16 (516)	<p>How many stakeholders have shown an active interest in the results of the project (for example, downloaded results from the project website)?</p> <p><input type="checkbox"/> Less than 3</p> <p><input type="checkbox"/> 3-30</p> <p><input checked="" type="checkbox"/> 31-300</p> <p><input type="checkbox"/> 301-3000</p> <p><input type="checkbox"/> More than 3000</p> <p><input type="checkbox"/> I don't know</p>
17 (517)	<p>Does the project provide data visualisations such as graphs, maps and animations?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
18 (518)	<p>Are the project data used in models or forecasting?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
19 (519)	<p>What processes are defined in the project to guarantee high data-quality?</p> <p><input type="checkbox"/> Validated methodology - Carefully designed data collection methodology which is easy to carry out at a high level of accuracy.</p> <p><input type="checkbox"/> High-quality equipment - Equipment that has been vigorously tested to ensure that it provide high data-quality</p> <p><input checked="" type="checkbox"/> Training - Sufficient training provided to allow participants to collect data which has been tested to ensure participants reach the required skill level</p> <p><input type="checkbox"/> Data profiling - Initially assessing the data to understand their current state, often including value distributions</p> <p><input checked="" type="checkbox"/> Data standardization - Ensuring that data conform to standards</p> <p><input type="checkbox"/> Data monitoring - Keeping track of data quality over time and reporting variations in the quality of data</p> <p><input checked="" type="checkbox"/> Peer-to-peer validation - More-expert participants validating observations by less-expert participants</p>

	<input checked="" type="checkbox"/> Expert validation – Professionals validating observations by participants <input type="checkbox"/> Automated strategies: Matching or linking - A way to compare data so that similar but slightly different records can be aligned <input checked="" type="checkbox"/> Automated strategies: Artificial intelligence - For example, improving image or audio classification by using computer vision or computer hearing <input type="checkbox"/> None of the above I don't know
20 (520)	Are project data available through APIs? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
21 (521)	What technology does the project use a pre-existing version of? <input checked="" type="checkbox"/> Apps <input checked="" type="checkbox"/> Sensors <input checked="" type="checkbox"/> Artificial intelligence <input checked="" type="checkbox"/> Platforms (a range of services available on the Internet including marketplaces, search engines and social media) <input checked="" type="checkbox"/> Digital solutions (digitalising old methodologies, processes or technology: e.g. Trello is a project management solution; Slack is a communication solution) <input checked="" type="checkbox"/> Websites <input type="checkbox"/> The project does not use technology <input type="checkbox"/> I don't know
22 (539)	What technology does the project develop? <input checked="" type="checkbox"/> Apps <input checked="" type="checkbox"/> Sensors <input checked="" type="checkbox"/> Artificial intelligence <input checked="" type="checkbox"/> Platforms (a range of services available on the Internet including marketplaces, search engines and social media) <input checked="" type="checkbox"/> Digital solutions (digitalising old methodologies, processes or technology: e.g. Trello is a project management solution; Slack is a communication solution) <input checked="" type="checkbox"/> Websites <input type="checkbox"/> The project does not develop technology <input type="checkbox"/> I don't know
23 (522)	Does the project explicitly develop, transfer or disseminate information about environmentally-sound technologies? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know
24 (523)	Does the project use mobile phones as a primary tool (for example, using an app to collect observations)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> I don't know

25 (524)	<p>Is participation possible without a phone connected to the internet?</p> <p><input checked="" type="checkbox"/> Yes, participation is possible without a phone or a computer connected to the internet.</p> <p><input type="checkbox"/> Yes, participation is possible without a phone, but a computer connected to the internet is necessary.</p> <p><input type="checkbox"/> No, it's nearly impossible</p> <p><input type="checkbox"/> I don't know</p>
26 (525)	<p>Does the project provide technical support to participants?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
27 (526)	<p>Does the project use enabling technology, in particular information and communications technology, to promote the empowerment of women?</p> <p><input type="checkbox"/> Yes</p> <p><input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
28 (527)	<p>Does the project enhance international cooperation on science, technology or innovation?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
29 (528)	<p>Does the project provide participants with easy and explicit access to pertinent research findings or important literature used to inform the project (i.e. not produced by the project itself) before participants begin their research activities?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
30 (529)	<p>Are participants exposed to steps in the scientific process in a systematic manner?</p> <p><input type="checkbox"/> Yes, mostly</p> <p><input checked="" type="checkbox"/> Yes, partially</p> <p><input type="checkbox"/> No, it has not been considered</p> <p><input type="checkbox"/> No, it would not be appropriate for this project</p> <p><input type="checkbox"/> I don't know</p>
31 (530)	<p>Are participants explicitly encouraged to reflect on or discuss current values, perspectives, opinions and attitudes relating to science concepts?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>
32 (531)	<p>Does participation in the project increase participants' scientific literacy?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> I don't know</p>

33 (532)	Does the project positively influence the attitudes of participants regarding science? <input checked="" type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input type="checkbox"/> No <input type="checkbox"/> I don't know
34 (533)	Does the project increase the interest of participants in the topic of the research? <input checked="" type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input type="checkbox"/> No <input type="checkbox"/> I don't know
35 (534)	Are participants explicitly exposed to various careers in science through the project? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> I don't know
36 (535)	Are participants more likely to consider a scientific career having participated in the project? <input type="checkbox"/> Yes, and it has been measured <input type="checkbox"/> Yes, but it has not been measured <input type="checkbox"/> No <input checked="" type="checkbox"/> I don't know
37 (536)	Does the project link participants to experts (often researchers)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
38 (537)	Are participants able to challenge the project's methodologies? <input checked="" type="checkbox"/> Yes, at any time during the project, and this could result in methodologies changing <input type="checkbox"/> Yes, but only during a pilot / testing phase, and this could result in methodologies changing <input type="checkbox"/> Yes, but this could not result in methodologies changing <input type="checkbox"/> No <input type="checkbox"/> I don't know
39 (538)	Are professionals involved in organising the project (coordinators or researchers, for example) challenged to consider novel connections between their own careers and research, and the context of participating citizens? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know