INCENTIVE
CITIZEN SCIENCE HUBS

D5.3

Second INCENTIVE Policy Brief

SDA Bocconi

January, 2024

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PROJECT INFORMATION

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DURATION	36 months
WEBSITE	www.incentive-project.eu
COORDINATOR	Universiteit Twente (DesignLab) *(NL)*
PROJECT OVERVIEW	INCENTIVE aims to demonstrate the potential of citizen science through the co-creation, establishment and assessment of Citizen Science Hubs in four EU Universities: University of Twente (NL), Autonomous University of Barcelona (ES), Aristotle University of Thessaloniki (EL) and Vilnius Gediminas Technical University (LT).

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D5.2: First INCENTIVE Policy Brief

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Table of abbreviations

Abbreviation	Meaning
CS	Citizen Science
CSH	Citizen Science Hub
M&E	Monitoring and Evaluation
MoC	Memorandum of Collaboration
NoI	Network of Interest
R&I	Research & Innovation
RPFO	Research Performing and Funding Organisation
RRI	Responsible Research and Innovation
SB	Stakeholder Board

1. INTRODUCTION

Box 1. The INCENTIVE Project

INCENTIVE has been **a cross-national 3-year long Coordination and Support Action** (01/02/2021- 31/01/2024), supported by the European Union within the framework of the Horizon 2020 programme.

It has aimed to **demonstrate the potential of Citizen Science (CS) through the co-creation, establishment and assessment of Citizen Science Hubs (CSH)** in **four European Research Performing and Funding Organisations (RPFOs)**:

- **University of Twente (the Netherlands)**
- **Autonomous University of Barcelona (Spain)**
- **Aristotle University of Thessaloniki (Greece)**
- **Vilnius Gediminas Technical University (Lithuania)**

By doing so, the project has **accelerated the transition of these institutions to more inclusive, open and democratic innovation and scientific governance**, under the principles of **Responsible Research and Innovation**.

Moreover, the project has been seeking to **deliver a legacy to European and international research institutes on how to create and operate their own CSH** with the aim to secure a democratic and collaborative way of designing, implementing and monitoring scientific progress and technological growth.

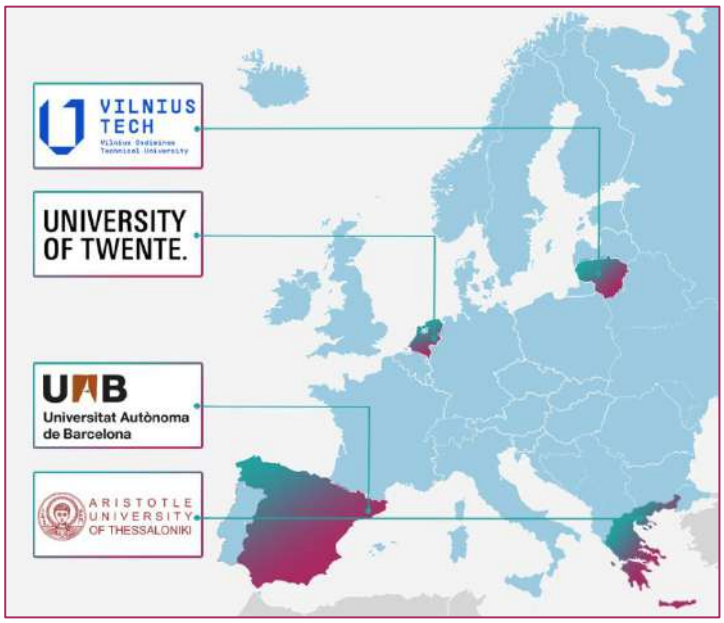


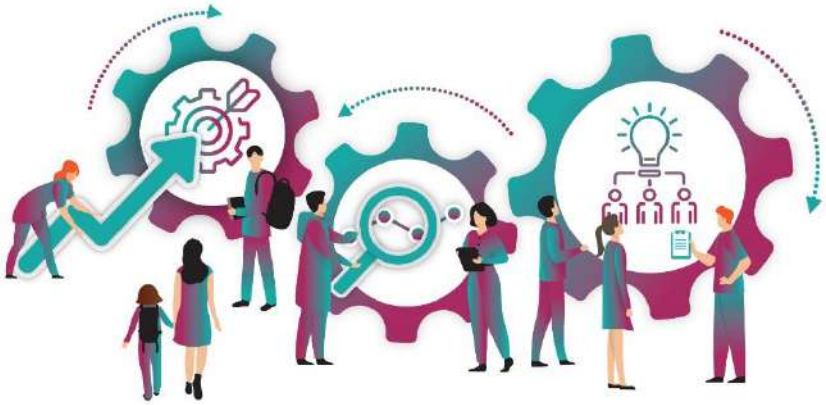
Figure 1 Pilot countries and locations of RPFOs

Citizen Science (CS) has rapidly emerged to researchers', policymakers' and citizens' attention, becoming a mainstream way of grounding Responsible Research and Innovation (RRI) into society.

Many steps have been taken towards creating the necessary data infrastructure, institutional changes and implementation frameworks for CS establishment in Europe, thanks to the central role of the European Commission's Work Programme. However, these initial actions still require further development for CS' institutionalisation.

The second policy brief of INCENTIVE project aims to inform researchers, EU and national policymakers, and project managers working on CS. We provide recommendations on **policy actions to further advance CS's institutionalisation and relevance** in the local, national and EU context.

Box 2. Key concepts



In **Citizen Science (CS)**, **citizens and other society stakeholders are directly involved in different aspects of the Research and Innovation (R&I) process**, from agenda setting to realisation and evaluation.

Citizen Science Hubs (CSHs)'s scope is **to initiate, execute, promote and coordinate R&I with and for citizens,** co-creating knowledge**. They are (part of) a scientific organisation.**

This policy brief is based on the second reporting phase of the INCENTIVE initiative (2021-2024). The document builds on the first policy brief of INCENTIVE project and incorporates empirical lessons learnt and practical knowledge emerged from the pilot activities of Citizen Science Hubs. In particular, many insights were collected during **a series of policy-focused events** organised by INCENTIVE**: four national policy workshops,** hosted by each one of the four pilot RPFOs involving local stakeholders**, and an EU-wide Policy roundtable,** where participants discussed the project's findings and their potential impact on policy and policymaking at the EU, national, and local level.

The next sections of this document cover three main topics:

1. CSHs institutionalisation
2. CSHs standardisation
3. CSHs impact and sustainability

2. CITIZEN SCIENCE HUBS INSTITUTIONALISATION

The institutionalisation of CSHs is a long process, which started during INCENTIVE and that ultimately leads to their full incorporation in the RPFOs' structures. There are two main elements to be considered when discussing institutionalisation:

- **Mission and scope:** CS initiatives, in general, and CSHs, in particular, can pursue different missions and scopes. However, it is essential to identify similar grounding principles guiding their definition.
- **Governance and capacity:** CS projects' governance can take different forms, such as single organisation projects, governmental programmes, CS portals, or grassroot initiatives. However, regardless of the governance approach followed, they all require capacity support to ensure their sustainability.

During the INCENTIVE implementation phase, we collected relevant insights concerning the main enablers and challenges to the CSHs institutionalisation.

A crucial step in support to CS institutionalisation regards its **inclusion in the broad Open Science agenda**: indeed, the two concepts tend to be separated too often, but their association, which is only consequential of their many points of contact, could help further diffusing CS to society.

CS also requires the **incorporation of new research approaches** in RPFOs stressing the relevance of stakeholders' contribution, especially citizens, to the scientific dialogue.

Lastly, CS can be of great relevance towards the **valorisation of research results,** as the direct involvement of citizens could facilitate the transformation of scientific outcomes into products, services and social innovations relevant to society.

POLICY IMPLICATIONS AND RECOMMENDATIONS

Mission and scope

The value of CS policy impact: CS research results can potentially inform new policies in many society-relevant fields (e.g., healthcare, sustainability, biodiversity, etc.). This potential should be further developed, for example, by **integrating policy impact assessment as a standard practice for CS projects** or **using the data collected through CS initiatives to support case points in policy**.

CS to address territorial challenges: Conversely, the support of policymakers could help CS project leaders to identify challenges and topics especially relevant to citizens, thus addressing them in their projects and truly making **science with and for society**. This collaboration should be encouraged at all policy levels (local, regional, national and international), further stressing the connection between CS researchers and the community.
In addition, a **more direct involvement of CS researchers and practitioners in policymaking activity**, for example, including them in the consultation boards of municipalities, could further strengthen this collaboration.

Governance and capacity

Support CSH's institutionalisation: Creating a CS research ecosystem is vital for completing the institutionalisation process of CS initiatives, such as CSHs. Therefore, **it is crucial to pay more attention and support these "infrastructural" initiatives, primarily through their active promotion at the local, regional, national and EU level**.

Leadership definition: CSHs, and similar initiatives, need a solid leadership to guide them beyond the project phase to become an established reality. Therefore, we suggest that **defining a structured leadership approach,** to be developed with the support of all stakeholders, is an essential step towards CS initiatives' institutionalisation.

CITIZEN SCIENCE HUBS STANDARDISATION

The standardisation of CSHs requires their full inclusion in the respective RPFO's operations. All the elements depicted in this policy brief can be seen as "ingredients", all playing a role towards this final goal and towards making CS a "new normal". For instance, addressing territorial challenges can reinforce the connection of the CSHs with their territory, "localising" them and furthering their position as physical and/or virtual points of contact between local actors and researchers.

A particularly crucial "ingredient" to CSHs routinisation is stakeholders' engagement. Indeed, it is well known that CS places stakeholders, and particularly citizens, at its core: without their continuous participation, CS cannot develop from isolated and often fragmented initiatives into an established routine.

Thus, one of CS' most important challenges concerns **ensuring constant stakeholders' participation, while at the same time fostering a fruitful collaboration with researchers**. To that end, the establishment and routinisation of a CSH can support long-term and meaningful stakeholder participation.

During the policy workshops that were implemented in the context of INCENTIVE project, participants discussed **the tools, elements and aspects of a CS project that ensure its meaningfulness to participants**, thus increasing the likelihood of their active contribution. These necessary "ingredients", essential for any CS project manager, can be summarised as:

- **Exosystemic structure and support**: constant networking and connection between CS initiatives is focal in the building of a CS European and global infrastructure;
- **Active listening** of researchers towards stakeholders, especially citizens, constantly avoiding "lecturing" them in favour of a more involved approach;
- **A continuous relationship between researchers and citizens**, ensuring that participants maintain their connection to CS beyond a single project;
- **Effective engagement strategies**: indeed, INCENTIVE findings show that some specific engagement tools (online participation through a digital platform, continuous training and some form of incentivisation to attendance) facilitate citizens' involvement regardless of differences among countries. Engagement strategies should always be tailored to the CSH's specific context, since it can have an impact on tools' effectiveness;
- **Addressing real, local problems**: citizens, and stakeholders in general, would be more willing to get involved in a project if it allows them to tackle a real problem they experience in their daily lives;
- **Sound research methodologies**: indeed, addressing themes perceived as highly relevant or politically polarising (e.g., climate change, fake news, etc.) may cause a strong emotional response from participants, which, if left unmanaged, may impact the scientific relevance of results. Therefore, a solid scientific method is crucial to ensure the quality of the evidence collected in CS projects;
- **Expectations management**, as citizens should always be aware that CS projects may not have the anticipated impact;
- **Clear scope definition** to better channel the CS project's efforts.
- **Sound CS focal concepts definition** to ensure all participants are well aware of the core principles of research being covered.
- **Use of clear terminology**, explaining difficult concepts, like RRI principles, in a plain and simple manner that can make them easier to understand by the general public


ENGAGEMENT + CO-CREATION WORKSHOP
Ofcourse it's challenging..
But at least citizens and scientists are reaching out to eachother..
even digitally...
Really taking responsibility might be the biggest challenge
....
VdPoL

POLICY IMPLICATIONS AND RECOMMENDATIONS

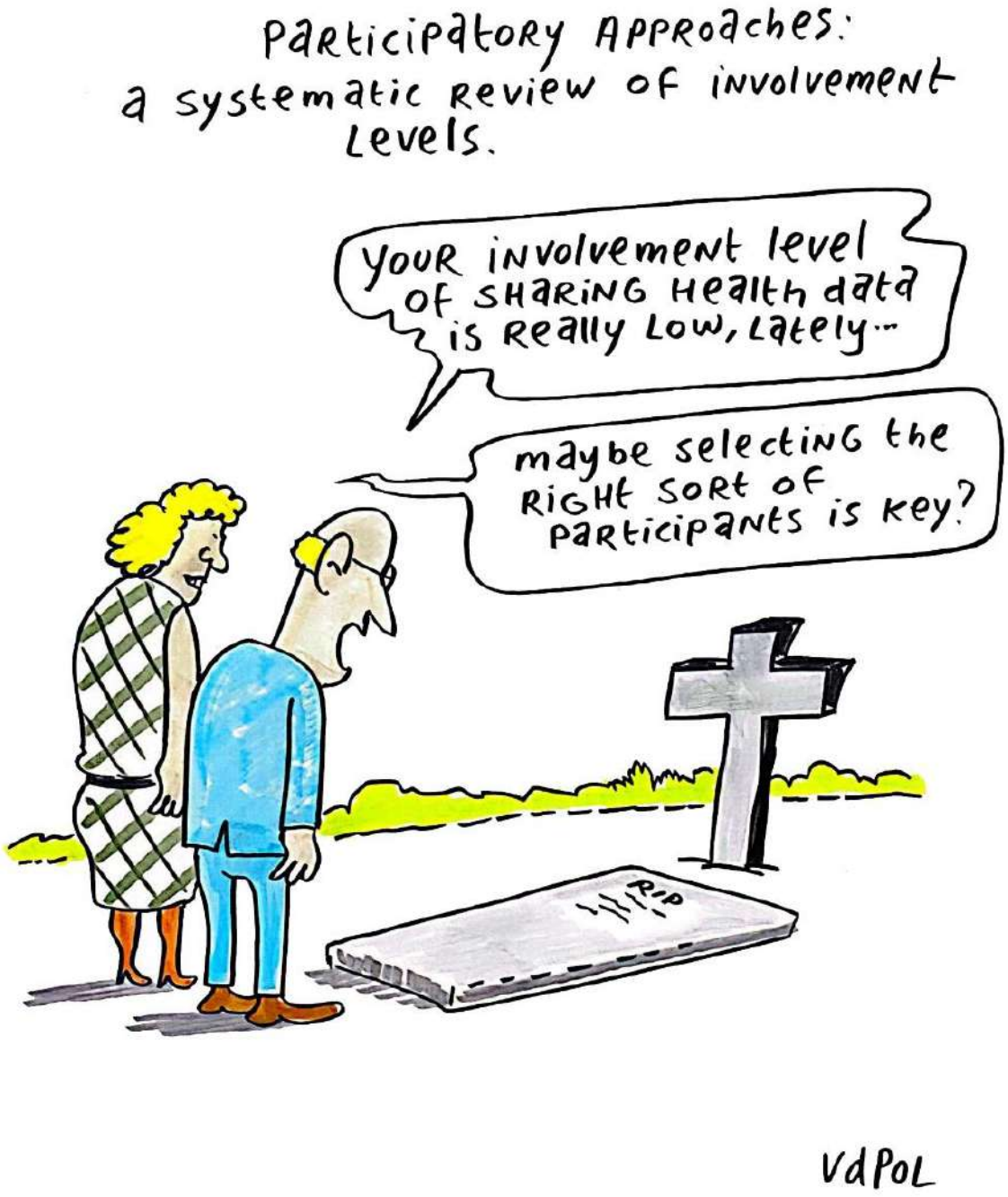
Stakeholders' engagement

A comprehensive engagement strategy: Given the centrality of stakeholders in CS, researchers and policymakers should try to **develop a complete engagement strategy, even at the national level,** that goes beyond increasing citizens' participation to a single project. This way CSHs can build an extensive relation with citizens, thus strengthening their role in the local community.

Communication is key: Not only involving citizens, but also effectively **communicating research value** is crucial, especially for CS projects. Thus, researchers and policymakers should collaborate towards identifying the right target audience and drafting an effective communication strategy for each project. The language of CS should be kept plain and simple, avoiding "gatekeeping" research and further involving the general public in research.

New criteria for research evaluation: Currently, researchers' performance assessment and career criteria don't consider CS and its potential impact on society. Therefore, we suggest that national and international funding bodies, research institutions and policymakers, should **encourage CS and Open Science in general, including their principles in defining research quality and excellence**. It could also be beneficial to **introduce new criteria for researchers' performance evaluation, considering their projects' social impact**.

Open data as the new norm: data availability is a central topic in CS. Therefore, **promoting data interoperability and adopting open data policies** could be highly beneficial.


Participatory Approaches:
a systematic review of involvement levels.
your involvement level of sharing health data is really low, lately...
maybe selecting the right sort of participants is key?
RIP
VdPoL

3. CITIZEN SCIENCE HUBS IMPACT AND SUSTAINABILITY

CS surely has the potential to be very impactful on society, but this type of research faces many **challenges in demonstrating its impact on society**; this of course limits CS diffusion and the sustainability of CS initiatives in the long run.

In this respect, initiatives like the CSHs are particularly relevant, serving as core infrastructures in the already mentioned transformation towards a systemic approach.

A CS ecosystem will indeed be central in widening CS impact, granting constant collaboration with stakeholders beyond the end of a single project, promoting CS at the national and international level and instructing the next generation of CS researchers, through ad-hoc courses, workshops and seminars.

CSHs represent a go-to place *for citizens* with societal questions requiring scientific methods and/or wanting to contribute to evidence-based research in a systematic way and *for researchers* wishing to produce academic research with societal stakeholders and societal impact.

Even though context matters – and many country-specific and RPFO-specific elements emerged – there are some key commonalities to all the pilot CSHs of INCENTIVE project:

- **The CSHs' activities**: All four CSHs focus on (I) **research** (promotion and support to CS initiatives), (ii) **awareness and engagement** (awareness campaigns, stakeholder engagement and partnerships), and (iii) **education** (continuous training, especially to young researchers). These three activities clusters allow stakeholders' involvement in every aspect of knowledge creation, from agenda setting to realisation.
- **A common monitoring and evaluation (M&E) framework**: Constructed as a modular information system, this common framework includes more than 100 indicators, allowing monitoring and comparing CSHs' performances. It directly involves citizens and stakeholders through feedback questionnaires and interviews.
- **The use of a Memorandum of Collaboration (MoC)**, a tool securing the commitment of internal and external stakeholders to the CSHs beyond the project. Each of the CSHs signed an internal MoC, renewing the key internal stakeholders' support beyond the end of INCENTIVE, and the four CSHs also signed the Vilnius Agreement, a joint promise to continue collaborating in the following years.
- **A global Network of Interest (NoI),** which secures the CSHs access to resources, tools and connections to remain operational beyond the INCENTIVE project. This is crucial toward the reinforcement of a CS ecosystem in Europe, with the CSHs as focal points

Box 3. Brief identity of the four INCENTIVE CSHs

Aristotle University of Thessaloniki (AUTh), Greece

AUTh CSH aims to contribute to high-quality services to connect science with society, including infrastructures and digital applications, and to expand and share CS knowledge. The CSH also strives for inspiring innovation (e.g., support start-ups) and promoting research through public and community engagement.

It offers opportunities and resources for learning, research, and innovation (e.g. development of new specific courses), as well as raise awareness on how CS benefits science, society, the economy, and the environment. The CSH also supporst participatory practices between academia and civil society, facilitates the development of new competencies and skills, and finally ensures improved transfer of knowledge and technology.

The main societal challenges AUTh addresses through the CSH are: air pollution, urban transport, lack of green spaces, and homelessness. You can find more information here.

Autonomous University of Barcelona (UAB), Spain

The UAB CSH is building upon existing CS initiatives and resources, which when coordinated, can facilitate the development of CS at the University to promote the contribution to societal challenges.

The CSH aims to tackle societal challenges in the territory with the participation of the quadruple helix by developing new models of teaching, doing research, and promoting innovation. The general objective of the UAB CSH is to increase the role of UAB in tackling challenges from the territory using citizen science. Operational objectives are the following:

- To create a single point of contact for citizen science at UAB
- To consolidate and expand the CS Community at UAB
- To enhance the knowledge of CS within and outside the UAB Community

The main societal challenges UAB addressed through the CSH are: transport and mobility, energy and sustainability, circular economy promotion, community resilience. You can find more information here.

University of Twente (UT), the Netherlands

UT builds a visible, inclusive, and publicly accessible CSH that builds upon existing initiatives (e.g. TOPFIT CitizenLab, EnschedeLab, Science shop SMART. For more information visit: https://www.utwente.nl/en/) and is competitive on an (inter)national level with CS knowledge and skills.

UT aims to support a CS movement within the university while providing (improved) CS methods. The CSH starts CS research projects and initiates CS modules. It is also building a CS infrastructure (data, ethics, legal aspects and establish consortia) and maintaining a vibrant CS community.

The main societal challenges UT addresses through the CSH are: brain drain and low-educated workforce, urbanisation, geographic accessibility. You can find more information here.

Vilnius Gediminas Technical University (VGTU), Lithuania

The central mission of the CSH is to provide high-quality resources, training, and services to the community and partners of Vilnius Tech to promote active engagement of civil society in the R&I process based on RRI principles.

The CSH aims to raise awareness about the benefits of Open Science, CS, and principles of RRI while preparing training resources in the local language. It also seeks to promote the implementation of RRI, CS, and Open Science principles into different stages of the research process.

Moreover, the CSH aims to create networking opportunities for community members willing to participate in co-creative research and to facilitate the development of new competencies and skills in Vilnius Tech.

The main societal challenges VGTU addresses through the CSH are: migration loss, income disparity and environmental sustainability You can find more information here.

POLICY IMPLICATIONS AND RECOMMENDATIONS

Impact and sustainability

Standardised Monitoring & Evaluation guidelines: Monitoring & Evaluation (M&E) is critical in providing evidence of what works and what does not in a CS project. Therefore, we suggest **defining standardised M&E guidelines at the national and international level and promoting the development of activity-tailored M&E frameworks for CS projects**, for example, explicitly incorporating them as a requirement in future calls for projects.

Promoting cultural change: The most significant challenges to CS institutionalisation are the changes in knowledge production approaches and culture it requires. To achieve them, policymakers' collaboration is essential, for example, through the promotion of **training sessions, awareness-raising campaigns**, or **sharing successful stories in CS projects**, or through **the joint development of institutional guidelines for CS and Open Science**.

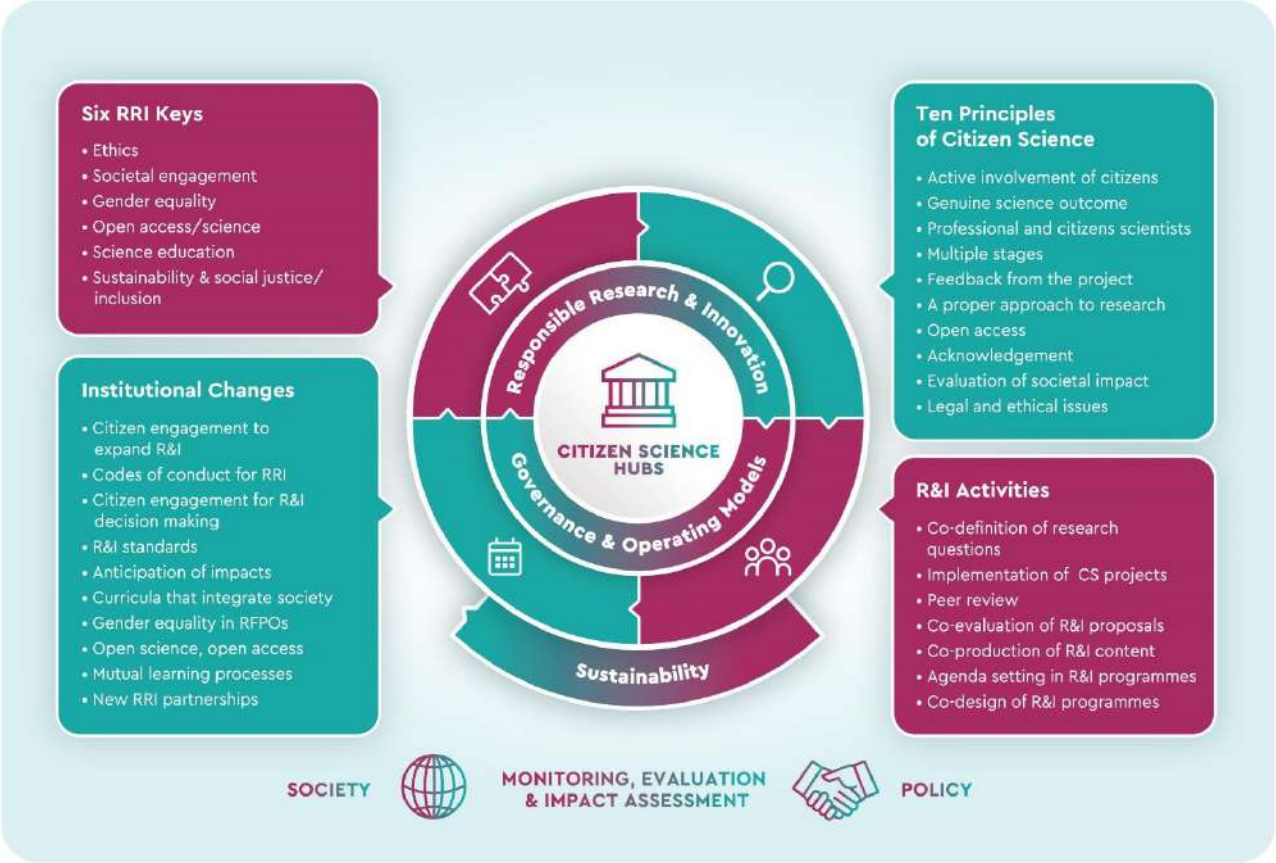
4. THE FUTURE OF THE CITIZEN SCIENCE HUBS

Following the INCENTIVE piloting phase, the four RPFOs identified the main challenges that CSHs will need to address in the future:

- Creating more synergies and collaborations with other EU projects and with new stakeholders, furthering their role of CS ecosystem-builders;
- Gathering more institutional support and additional resources after the end of the INCENTIVE Grant Agreement, to continue implementing awareness raising, capacity building, mutual learning and networking activities and to address the needs of researchers and the Quadruple Helix actors involved in Citizen Science projects.

The pilot CSHs have already taken many steps towards their sustainability beyond INCENTIVE. In particular, we can cite among the most crucial actions conducted:

- The creation and operation of a **Global Network of Interest**, to keep synergising with other projects in the European CS community and beyond.
- The signing of internal MoCs in each RPFO, a further testimony of the institutional support towards the CSHs.
- The signing of the Vilnius Agreement, a joint MoC between the four CSHs formalising the mutual support and collaboration.
- The creation of local synergies with regional and national initiatives, further "localising" the CSHs.


Six RRI Keys
• Ethics
• Societal engagement
• Gender equality
• Open access/science
• Science education
• Sustainability & social justice/ inclusion
Institutional Changes
• Citizen engagement to expand R&I
• Codes of conduct for RRI
• Citizen engagement for R&I decision making
• R&I standards
• Anticipation of impacts
• Curricula that integrate society
• Gender equality in RFPOs
• Open science, open access
• Mutual learning processes
• New RRI partnerships
Responsible Research & Innovation
CITIZEN SCIENCE HUBS
Governance & Operating Models
Sustainability
Ten Principles of Citizen Science
• Active involvement of citizens
• Genuine science outcome
• Professional and citizens scientists
• Multiple stages
• Feedback from the project
• A proper approach to research
• Open access
• Acknowledgement
• Evaluation of societal impact
• Legal and ethical issues
R&I Activities
• Co-definition of research questions
• Implementation of CS projects
• Peer review
• Co-evaluation of R&I proposals
• Co-production of R&I content
• Agenda setting in R&I programmes
• Co-design of R&I programmes
SOCIETY
MONITORING, EVALUATION & IMPACT ASSESSMENT
POLICY

ABOUT THE PROJECT

INCENTIVE aims to demonstrate the potential of citizen science through the co-creation, establishment and assessment of Citizen Science Hubs in four EU Universities: University of Twente (NL), Autonomous University of Barcelona (ES), Aristotle University of Thessaloniki (EL) and Vilnius Gediminas Technical University (LT).

By doing so, the project accelerates the transition of these institutions to more inclusive, open and democratic innovation and scientific governance, under the principles of Responsible Research and Innovation. The project seeks to deliver a legacy to European and international research institutes on how to create and operate their own Hub with the aim to secure a sustainable future.

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UNIVERSITEIT TWENTE (DesignLab)

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