

D1.4: TIME4CS statement to encourage Institutional Changes to promote Citizen Science

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List of Abbreviations

AU	University of Aarhus, Front-Runner
APRE	Agenzia per la promozione della ricerca europea, Coordinator
CS	Citizen Science
CRG	Centre for Genomic Regulation, Implementer
ECSA	European Citizen Science Association
ESF	Fondation Européenne de la Science
GA	Grounding Action
IA	Intervention Area
KTU	Kaunas University of Technology, Implementer
LERU	League of European Research Universities
OS	Open Science
RFO	Research Funding Organisation
RPO	Research Performing Organisation
R&I	Research and Innovation
RRI	Responsible Research and Innovation
Tyndall	Tyndall National Institute University College Cork, Implementer
UCL	University College London, Front-Runner
UniSR	Università Vita Salute San Raffaele, Implementer
UZH CC-CS	Competence Center Citizen Science, University of Zurich, Front-Runner
WP	Work Package
ZSI	Zentrum für Soziale Innovation

Executive summary

The current document, titled 'TIME4CS statement to encourage Institutional Changes to promote Citizen Science', has been developed within the framework of the TIME4CS project which is funded by the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 101006201.

The purpose of this Deliverable is to introduce the TIME4CS statement to invite the research performing/funding organisations (RPO/RFO) to embrace citizen science (CS) at the institutional level. The statement is accompanied by a set of practical, adaptable and innovative recommendations for research organisations beyond the TIME4CS consortium that are willing to pursue Institutional Change on CS and would like to follow a validated approach. This statement is based on the outputs of mapping and analysis of institutional CS adoption, building the TIME4CS knowledge base framework, as well as on the experience of developing and implementing the tailor-made Institutional Roadmaps by the consortium Implementing institutions.

To this end, the document comprises four main parts:

1. Introduction explaining the process of the statement and the recommendations' co-creation as well as a relation of this document to other TIME4CS work packages.
2. TIME4CS statement with a subtitle "It is time for Citizen Science!" to encourage research institutions to adopt CS.
3. Recommendations for CS practitioners enriched by examples from the TIME4CS partner institutions' experiences presented around three main areas being at the heart of project discussions:
 - Boosting motivation of researchers and members of the public to initiate and participate in CS projects;
 - Ensuring funding for CS activities;
 - Defining tailored Institutional Roadmaps with concrete steps to follow.
4. Initiatives to promote TIME4CS statement and the recommendations

The document outlines successfully implemented actions and mechanisms leading to Institutional Change in the short, middle and long term. It expands the TIME4CS know-how to a larger audience and invites the research institutions to get inspired and learn from the TIME4CS experience on how to engage with CS at the institutional level and be in a better position when developing and promoting CS projects and applying for relevant funding opportunities.

1. Introduction

The TIME4CS (Supporting sustainable Institutional Changes to promote Citizen Science in Science and Technology) project aims to support sustainable Institutional Changes at research performing organisations (RPOs), to promote citizen science (CS) and public engagement in science and technology.

The project is built on the concept that RPOs willing to achieve Institutional Change can learn from organisations that have already gone through some similar, well-planned transformational process, such as the three TIME4CS ‘Front-Runner’ organisations (Aarhus University, Citizen Science Centre Zurich, University College London).

The RPOs seeking to implement change, known in the project as ‘Implementers’ (Tyndall National Institute, Kaunas University of Technology, Centre for Genomic Regulation, Vita-Salute San Raffaele University), gathered experiences from the Front-Runners and used this information to develop and follow Roadmaps for change centered around specific ‘Grounding Actions’ – concrete measures and actions favoring an Institutional change in the project period (2021-2023) and beyond. Each Implementer implemented at least one Grounding Action for each of four TIME4CS Intervention Areas (i.e. Research, Education & Awareness, Support Resources & Infrastructure, and Policy & Assessment) that have been identified as relevant to embedding CS and described in the Deliverable D1.3 “Lessons learnt repository of TIME4CS¹”.

The project consortium is composed of eleven partners from eight EU member States and one associated country. In addition to the four Implementers and three Front-Runners, there are four impact partners supporting the Institutional Change process, the knowledge transfer, the monitoring and evaluation, and the communication of the project outcomes (i.e. Agency for the Promotion of European Research, European Science Foundation, Centre for Social Innovation and Crowdhelix).

1.1 This document

The TIME4CS statement and the recommendations for CS practitioners are a result of an intense co-creation process including stakeholders external to the project.

Through the project lifecycle, good practices, key elements and drivers necessary for the transformation were collected, reviewed, discussed and analysed within the consortium to expand the knowledge related to the Intervention Areas mentioned above and possible Grounding Actions as well as to support the development and implementation of the Institutional Roadmaps tailored for each Implementer.

¹ <https://doi.org/10.5281/zenodo.6402091>

After three years of work on and with the Institutional Roadmaps, the Implementers acquired a better knowledge of the institutional arrangements, obstacles, resources, and best strategies to embrace Institutional Change in their specific contexts. Getting this knowledge contributed to a regular update of the Roadmaps throughout the lifetime of the project. It also resulted in a range of practical recommendations identified by TIME4CS partners on what works best and what rather not.

Collecting consortium members' views specifically for this statement was one of TIME4CS final year goals. The last formal revisions of the Roadmaps, final capacity-building activities, individual and collective reflections on sustainability plans, evaluation and impact assessment workshops supported the development and systematisation of the recommendations around three main areas constantly highlighted by project partner institutions: i) motivating researchers and members of the public to initiate and participate in CS projects; ii) getting funds for CS and iii) building Institutional Roadmaps with clear and concrete steps to follow.

The statement and the recommendations were validated and complemented by a wide range of external stakeholders (researchers, research support staff members, national policymakers, representatives of civil society).

While the main target of the TIME4CS statement are RPOs that are at early stages of the implementation of CS, it is also addressed to RFOs to encourage them to further support effective Institutional Change in RPOs by designing funding schemes and launching programmes specifically addressing CS and embedding it into existing funding schemes. It is crucial to inform funders and policymakers of bottom-up CS experiences and needs to allow CS to reach its full potential, including through enhanced financial and policy support. Therefore, the statement was discussed and validated at the joint TIME4CS - INCENTIVE policy roundtable organised at the European Research Executive Agency (European Commission) on 18 September 2023.

Moreover, the statement is also of interest to experts who are willing to spread the CS value as a research methodology outside their organisation, as well as stakeholders and members of the community who are interested to learn how to encourage their local University to open up its research.

1.2 Relation to other TIME4CS work packages

The overall TIME4CS project incorporates eight work packages (WPs), running from January 2021 to December 2023. WP1, for which the statement is a deliverable, aims at increasing knowledge on the actions leading to Institutional change in RPOs necessary to promote Public Engagement and CS in science and technology through a complete and up-to-date picture built upon the identification, mapping and analysis of ongoing practices.

The public deliverable [D1.3 "Lessons learnt repository of TIME4CS²"](#) gathers and summarises the learnings from [D1.2 "Best practices repository of TIME4CS Front Runners³"](#) and the results from the [D1.1 "Collection of case studies of institutional adoption of CS⁴"](#). These results served as an inspiration for the Implementers to identify the key elements, recommendations and factors necessary for successful and sustainable Institutional change as well as to reflect on their adaptability to their own baselines, needs and contexts.

The statement also builds on the work of WP2, that involves the definition and implementation of the Institutional Roadmaps by each Implementer. [The TIME4CS Reflection tool⁵](#), which is a practical guidance for TIME4CS Implementers (yet proven to be adaptable to any other potential Implementer in different occasions, dedicated interactive workshops and events held by TIME4CS) to start planning their Grounding Actions, was developed and distributed to complement a general Roadmap Framework. Subsequent first (year 2021)⁶, second (year 2022)⁷ and final (year 2023)⁸ versions of the Institutional Roadmaps, co-created by the Implementers with their local stakeholders together with the Front Runners and the facilitator partners, also comprise the overviews of partners' experiences and lessons learnt relevant to the statement, including sustainability reflection.

The statement also draws on WP3 which supports knowledge exchange between the Implementers and the Front Runners and WP5 which focuses on self-assessment of existing CS policies and practices at the Implementers' institutions as well as on developing the set of indicators to evaluate the activities undertaken and assess their impact at both institutional and individual (researchers, other targeted staff members, students) levels⁹. The evaluation workshops conducted in each Implementing institution at the end of the project, were particularly relevant to the statement development, as the Implementers reflected on their CS journey as a whole, their institutional contexts, needs, barriers, strategies and solutions.

In turn, the work on the statement is intended to support sustainability of WP4, which focuses on building capacity of the Implementers and external organisations to design, implement, support and evaluate CS projects. Valuable training materials have been developed within this WP and are mentioned in the statement to enhance their visibility, accessibility and reusability. In addition, as the statement is one of the main sustainable project outputs, it will be publicly shared at a bigger scale at the TIME4CS and external events as well as through the project disseminating channels within communications related WP6.

² <https://doi/10.5281/zenodo.6402090>

³ <https://doi/10.5281/zenodo.5017361>

⁴ <https://doi.org/10.5281/zenodo.6337769>

⁵ <https://doi.org/10.5281/zenodo.7022933>

⁶ <https://doi.org/10.5281/zenodo.5743299>

⁷ <https://doi.org/10.5281/zenodo.7491568>

⁸ Final version of the Institutional Roadmaps will be released by the end of December 2023.

⁹ <https://doi.org/10.5281/zenodo.5805863>; <https://doi.org/10.5281/zenodo.7486206>

2. TIME4CS statement: It is Time for Citizen Science!

In today's rapidly changing scientific landscape, research performing organisations (RPOs) must adapt and evolve to meet the demands of an increasingly complex world. One powerful approach that can help achieve this goal is the integration of Citizen Science into the scientific research process. **It is time for Citizen Science**, and research institutions are urged to embrace this methodology and make the necessary Institutional Changes to facilitate its implementation.

The benefits of adopting Citizen Science are not only scientific but also societal. It empowers citizens to become active participants in the scientific process and fosters a sense of ownership over the knowledge generated. Moreover, it enhances transparency and accountability in research, aligning with the principles of Open Science and data sharing, and democratising science. Participation in Citizen Science projects facilitates the societal acceptance of innovations and new technologies, but also a better understanding of science-based policies. As we face complex global challenges, it is crucial that research institutions seize the opportunity and make Institutional Changes to adopt Citizen Science. The TIME4CS project's methodology and recommendations offer a valuable starting point to embark on this transformative journey.

The adoption of CS in RPOs requires a culture of change, and a combination of the two common approaches to Institutional Change needs to be considered: the social approach and the organisational approach. The social approach looks at social patterns that are modified, requiring a personal commitment of people to change their own mindsets, views and behaviors. In the organisational approach instead, internal organisational structures such as procedures and norms are modified. In this case the role of governance is important, as while the social approach rather works on bottom-up basis, the organisational approach is implemented mostly top-down. To be sustainable, these Changes should be irreversible, inclusive, comprehensive and contextualised.

Four drivers of successful Institutional Changes in support of Citizen Science were identified: i) a considerable number of established Citizen Science projects; ii) different types of local, national and international networks for reinforcing collaborations between different actors; iii) Citizen Science champions at different levels at the institution; and iv) the existence of a strategic plan in support of Citizen Science activities. The identification of indicators for changes supporting Citizen Science and the development of a general Roadmap framework also significantly contributed to creating the TIME4CS knowledge base. These results are linked to tangible examples of success and implementation of tailored and flexible Institutional Roadmaps with concrete actions triggering long term changes in project partner RPOs.

It is time for Citizen Science! Research institutions have a unique opportunity to leverage the power of engaged members of the public to advance scientific knowledge, increase success in securing funding opportunities and address pressing societal issues by fostering community engagement, and contributing to a more inclusive scientific community. It is time to transform the research ecosystem to embrace Citizen Science and take the path of innovation and collaboration that benefits both science and society.

3. Recommendations on how to successfully embrace Citizen Science at the institutional level

The recommendations for Citizen Science (CS) practitioners are presented around three main areas arising from the TIME4CS partners' needs and questions emerged during the project lifetime: i) boosting motivation of researchers and members of the public to work together on CS projects; ii) ensuring funding for CS activities, and iii) developing and implementing the Institutional Roadmaps for Institutional Change. These practical recommendations complement the statement and are enriched by the TIME4CS partner institutions' experiences.

3.1. Boosting motivation of researchers and members of the public to initiate and participate in Citizen Science projects

This section mainly comprises the recommendations for RPOs and professional scientists. However, some recommendations on boosting interest of the members of the public for doing CS, are also given.

3.1.1 RPO and professional scientists

- **Explain the benefits of CS through communication campaigns both inside and outside your institution.**

Three main factors influencing researchers' decision to participate in CS projects are:

- They need to be aware the opportunity exists;
- The opportunity needs to be appropriate for them;
- They need to be interested and motivated. People often want to learn new things, they would like to meet new people and communicate, they might wish to improve themselves personally through CS work or hope to gain experience that will benefit their future careers.

Share success stories from TIME4CS and other relevant initiatives in a bid to show the benefits of the CS methodology (gathering different points of view, individual and mutual learning, strengthening local communities, possibility of mass data collection due to use of internet and apps, etc.) and link the possibility of taking up CS with people's skills, individual interests, and local needs.

Università Vita-Salute San-Raffaele (UniSR) launched a monthly newsletter, entitled 'Bits of Citizen Science', dedicated to San Raffaele researchers and administrative staff. The issues produced so far introduced key concepts of CS, presented a cycle of seminars ('Science and Society') for students, researchers, and physicians. Elements of CS were inserted in the syllabi of several courses for PhD and

Master's students. UniSR also promoted online events on CS and discussed the role of CS as a groundbreaking research methodology.

- **Find out the best way to collect feedback and opinions from researchers.**

Surveys, individual conversations with researchers, as well as with students and support staff, internal information seminars, trainings, amongst other techniques. Sometimes a personal e-mail or a personal invitation can be especially effective!

UniSR conducted an internal survey to better understand the level of researchers' awareness of CS, their interest, needs and doubts.

- **Choose your audience amongst researchers.**

At least at the beginning, it might be useful to focus more on PhD students and early career researchers, usually very enthusiastic to discover new methodologies. A nice solution is also to involve former PhD students who have moved into diverse careers as citizen scientists.

CRG organised different trainings, addressed to the scientific community and relevant research support staff: a session for newcomer PhDs, a workshop for the scientific community in general and a workshop for Primary Investigators, scientific project managers and grants specialists.

One of the inspiring practices from University College London (UCL), a TIME4CS Front Runner institution, is its full graduate level course on CS which is also available freely online on the remote learning platform UCL eXtend¹⁰. Its first postgraduate programme on CS was launched in 2022, while elements of CS were also included in a PhD course.

Another TIME4CS Front Runner institution, University of Zurich (UZH CC-CS), runs a Master-level CS course and offers supervision for students specialising in CS. It is also responsible for teaching Research Integrity and Responsible Research and Innovation to all PhD students at the Faculty of Natural Sciences, also supported by other Faculties.

- **Learn by doing!**

Here are some main steps of developing a CS project:

¹⁰ <https://www.ucl.ac.uk/isd/services/learning-teaching/learning-teaching-services/online-learning-and-short-courses/ucl-extend>

- Start with an issue that both citizens and researchers care about.
- Develop a pitch for a CS project by answering the following questions:
 - What is the context of this research? (*Why does it matter?*)
 - What is the significance of this research? (*How much does it matter?*)
 - What are the goals of this research? (*What do you wish to achieve?*)
 - What is needed to achieve this? (*Do you need specific skills or any other resources?*)
- Know who you would like to have participating and plan ways to reach them. Advertise, create together (co-create) and give decisions to citizens.
 - Make sure the project is well organised with clear expectations, clear communication and meaningful tasks.
- Plan the CS project and data collection, develop tasks that appeal to different motivations, and act to drive changes.
- Provide regular feedback to the participants to let them know their time is well spent, talk to them to find out if they want to change their role or participate in an alternative task (e.g. due to available time or skills) and give them opportunities to interact with each other. Be ready for their feedback, learn from it, and adapt or change the project, if appropriate.

During the mentoring visits to the Implementers, partners from Aarhus University ran workshops for researchers about different aspects of CS, including interactive sessions for exploring opportunities within on-going research using CS methodologies. Each group brainstormed and presented concrete ideas for CS projects. Some of these ideas may soon become CS initiatives.

- **Start with small contributory projects.**

There is no need to start with complex co-designed CS projects. In fact, if you are at the beginning of your CS journey, it is better to start with projects that are easier to deploy. Start small, talk to other researchers, students and local communities, try to enrich already ongoing activities with a CS methodology first. Look around in your institutions for participatory projects, including interdisciplinary ones and expertise in participatory activities.

Aim for projects that ask participants for a very specific action or completion of specific task. This way, the organisational, technical, and societal aspects can be explored and adapted to the needs of the organisation and the participants. New opportunities will progressively arise.

- **Get inspired by the TIME4CS training programme.**

Capacity-building activities for institutional integration of CS developed by TIME4CS are very diverse. From knowledge transfer, mentoring and co-creation events set up for project partners, to a series of webinars and a free online course (MOOC) encompassing **4 training modules available for everyone**. Explore them, adapt to your needs and re-use.

Multiple trainings on CS, including interactive workshops and train-the-trainer formats for cascade learning and spreading knowledge, were developed by TIME4CS. Concrete ideas for each module, such as audience, learning goals, content, activities and outcomes for participants are available on our TIME4CS Community on Zenodo¹¹. Topics and skills training cover all the core needs: from basic understanding of CS, planning CS projects, recruiting and retaining volunteers to funding, effective communication, ethical and legal aspects of CS, creating CS institutional contact points and much more. Explore our MOOC on the EU-citizen.science platform.¹²

10 webinars presenting experiences and good practices on institutional adoption of CS are available on the TIME4CS website¹³, as well as on the EU-citizen.science platform¹⁴ to maximise their dissemination and sustainability. E-meet our speakers, both from the project and outside, to learn more about CS practicalities and benefits from their exchanges with online participants!

- **Find and liaise with CS champions in the institution or its network.**

After developing CS projects for a while, there might emerge people in your institution recognised as CS champions. This is something that takes time, but the example and work of committed researchers can be very helpful. Find and nurture CS champions both at the management and at researcher/student levels, so that they can be influenced by their peers.

For UCL, a key element for achieving many CS champions has to do with the high support that UCL has placed in promoting and funding Public Engagement in research, providing the arena for CS champions to grow and multiply their efforts with the students and citizen scientists.

- **Make your CS initiative inclusive.**

Depending on your field of research, engage a variety of actors through local campaigns and dialogue, work with authorities, schools, and associations. CS is a powerful way to involve underrepresented groups (such as migrants, for example, to help better integration into a local community), but this also requires time,

¹¹ <https://doi.org/10.5281/zenodo.7560973>

¹² https://eu-citizen.science/training_resources?keywords=TIME4CS

¹³ <https://www.time4cs.eu/>

¹⁴ https://eu-citizen.science/training_resources?keywords=time4cs

careful consideration and trust-building with those groups. A good way to approach this is the organisation of local workshops led by citizens themselves.

Kaunas University of Technology (KTU) organised workshops with local schools and pupils to talk about CS with the local community and invite children to become young citizen scientists.

- **Take advantage of the existing networks of practitioners to provide inspiring examples.**

Join the European Citizen Science Association (ECSA) or your national CS association if it exists, or at least be aware of their resources and activities. There is also a Global Citizen Science Partnership¹⁵. Visit existing platforms that feature all kinds of existing projects (such as Zooniverse¹⁶). Try to make connections between existing networks.

Join the [Citizen Science Helix](#) community - open innovation platform, making it easier for researchers to engage with citizens, industry experts, ambitious investors and future-orientated policymakers.

- **Organise roundtables, debates, interviews with top scientists to promote CS**

Reach out to the public with attractive and clear material utilising media types they use (such as printed material, websites, newsletters, video media, social media) and the events that are appealing to attend. Without interest from researchers and citizens there is no CS.

KTU organized a roundtable on 'Citizen science and institutional changes' that brought together researchers representing several flagship initiatives promoting CS in Lithuania: (INCENTIVE, the ERASMUS+ Partnership Programme, LibCOS: University libraries strengthening the academia-society connection through citizen science in the Baltics, BRIDGE: 'Bridging Integrity in Higher Education, Business and Society'). The discussions were organised around whether and why universities would need CS projects, what the benefits are of engaging with society, how top scientists can be more involved in CS, and whether the Lithuanian context is open to CS projects. The discussions also covered data quality and research ethics challenges related to CS.

- **Think about reward mechanisms for doing CS.**

Some examples could be institutional grants, including CS activities as part of researchers' evaluations, formal and informal recognition through newsletters, events, and promoting the visibility of researchers, citizens and their projects.

¹⁵ <http://citizenscienceglobal.org/>

¹⁶ <https://www.zooniverse.org/>

As the current criteria for the evaluation of researchers are based mainly on traditional bibliometric indicators which include closed and proprietary data and number of publications in high ranked journals, the process for opening up science through Open Science (OS) practices is slow. However, there is an exciting movement. UniSR has already integrated OS practices within the evaluation criteria for researchers. The objective now is to achieve wider results, including specific references to CS as a scientific practice in the evaluation criteria.

3.1.2 Citizen scientists

Some recommendations listed above are also relevant to attract members of the public to do CS, but from a different angle, taking the specific needs of potential citizen scientists, into account.

- **Explore different formats for CS activities**

Depending on the desirable level of engagement¹⁷, explore different formats for volunteers' participation in the scientific project, from data collection to problem definition and analysis of the results. Gamification through Foldit¹⁸, Genigma¹⁹ and other tools, after-work expeditions and other appealing activities, as well as clear communication, feasible tasks, regular feedback and recognition could increase participation.

- **Training opportunities for citizen scientists**

To ensure that volunteers could participate in CS projects on a continuous basis, it is important to offer them accessible and suitable training, coaching and mentoring opportunities from experienced citizen scientists, researchers and possibly other relevant actors.

- **Reward mechanisms for citizen scientists are also much appreciated**

CS activities can engage a wide range of participants and members of the public. These can include, among others, visitors of museums, ecotourists, activists and amateur experts in their free time. Providing incentives such as long service badges, volunteer discount cards for stores or cafés, organization of social events, monetary award, could be nice solutions to recognise and celebrate citizen scientists' work.

¹⁷ M. Haklay has defined a framework to categorise volunteers based on their level of participation. He has defined four categories, which go from first level where citizens contribute only as data collectors or sensors to the highest level, called "Extreme CS", where they are involved in the project as scientific collaborators (Level 4). For more details: https://link.springer.com/chapter/10.1007/978-94-007-4587-2_7

¹⁸ <https://fold.it/>

¹⁹ <https://genigma.app/en/>

3.2. Ensuring funding for Citizen Science activities

Organising CS research initiatives and information events, providing trainings, developing and spreading communication materials as well as other related CS activities require funds. This section addresses this question.

3.2.1 RPO perspective

- **Encourage the setup of pilots/tests. If possible, provide small grants to facilitate adoption.**

Researchers often struggle with finding financial support for their projects, even more so in the case of experimenting with innovative methodologies. While big initiatives involving multiple research groups and partners can request grants at national or EU level, small size exploratory projects have few options. Providing funds for such initiatives, typically in the form of small grants, can be vital for them.

At Aarhus University (AU), the AU Research Foundation provides funding for research and research network activities. Also, the EarlyCash programme managed by The Kitchen (an AU open public space and café to facilitate collaboration) offers seed money for various activities with external actors.

University College London (UCL) provides funds for CS activities via different grant schemes. Via 'Train and Engage' at the Public Engagement Unit, UCL provides postgraduate research students with public engagement workshops alongside the opportunity to apply for funding of up to £1000 to run projects. The Beacon Bursaries fund is available to UCL staff and postgraduate research students, with awards of up to £2,000 to advance the practice and culture of public and community engagement within UCL. Grand Challenges supports interdisciplinary programmes in specific areas. They include small grants for grass-roots cross-disciplinary collaborations and small grants (up to £2,000) for PhD students from different faculties for societally relevant, cross-disciplinary projects.

University of Zurich (UZH CC-CS), also supports a limited number of 'Seed Grants' projects financially as well as with know-how and tools.

- **Explore local and national foundations and organisations for additional support.**

Identify the national research funding organisation(s) in your country. Check calls for proposals' topics and requirements. Sometimes regional and local organisations also provide funding opportunities for CS projects. Often CS is not mentioned explicitly, so also explore options by searching for other key terms, such as 'participatory' or 'public engagement'.

A local Swiss Foundation (Mercator Foundation²⁰) allows giving out seed grants for a maximum of 50 000 CHF /project.

Among possible funding opportunities discussed at CRG, there was Barcelona City Council, in collaboration with the 'La Caixa' Foundation, that supports scientific research in the city, including collaborations between science and civil society for 18-months projects and budgets up to €150 000²¹. This is a case where 'citizen science' is not specifically mentioned, but it is still a viable option to apply for with CS projects.

- **Write a winning grant!**

During the TIME4CS mentoring visits, the following methodology²² was suggested to the students and researchers at implementing organisations:

- Scoping, pitching, writing and rewriting
 - Do your research. Note differences in the scope of different funding instruments, but also success rates, frequency of calls, expected timelines, international collaborators, assessment criteria, etc.
 - Pitch your proposal. Contact funding organisations, but also connect your research problems to broader issues and your own background.
 - Write in plain and correct English. Connect to your audience: applies especially to the abstract and introduction.
- Allocate enough time for preparations. Include time for rewriting, proofreading and commentary.
- Seek feedback.
 - Request feedback from your colleagues, but also from other people, like friends or family members.
 - Negative feedback can be one of the best learning experiences.
- Seek assistance from research support units.
 - These units might be helpful for scoping, writing and submission process.

- **Consider crowdfunding opportunities for CS projects.**

²⁰ <https://www.fundraiso.com/en/organisations/stiftung-mercator-schweiz>

²¹ <https://www.barcelona.cat/barcelonaciencia/en/subsidies-research-and-innovation-projects-collaboration-la-caixa-foundation>

²² <https://www.nature.com/articles/d41586-019-03914-5>

The concept of crowdfunding was also presented to TIME4CS Implementing institutions in terms of CS projects. It is relatively simple - a researcher pitches a research proposal online and gathers funds from interested people. Explore some platforms for crowdfunding, such as Experiment²³, SciFundChallenge²⁴ and others to learn more about this type of funding instrument and connections between science crowdfunding and science outreach. The number of researchers engaging in crowdfunding is growing. Give it a try too!

- **Look for partnerships and collaboration.**

Participate in national CS projects, or join EU consortia, if possible, as they provide unique experience, connections and knowledge.

Among collaborative projects TIME4CS partners take part in, there are the EU-funded projects: PATTERN²⁵ (includes development and piloting of innovative trainings on CS aimed at researchers at all career levels), European Citizen Science (building capacity for CS in Europe)²⁶, INCENTIVE²⁷ (creation of CS hubs), and CROWD4SDG²⁸ (exploring potential of CS data to monitor the UN Sustainable Development Goals).

3.2.1 RFO perspective

Even if TIME4CS was centred on RPOs, it is helpful to address some recommendations to research funders as well, not only because funding is necessary for CS projects themselves, but it also enables the institutions to adopt structural measures (e.g. financing CS institutional contact points) to build long-term capacity beneficial for all.

- **Recognise, facilitate and promote the use of CS as a research methodology by designing of funding schemes and launching programmes specific to CS and adapting research funding schemes**

Research funders should launch or expand specific funding instruments for projects and further open up existing funding schemes to CS for more efficient use of public resources. This involves recognising the high startup costs of CS, rewarding participatory methods, and developing more long-term funding schemes. Make sure to adapt the funding to the cycle of requirements on CS, where usually more time and therefore funding is needed at the start of the project.

- **At national level, include CS into research funding schemes.**

²³ <https://experiment.com/>

²⁴ <https://scifundchallenge.org/>

²⁵ <https://pattern-project.eu/>

²⁶ <https://eu-citizen.science/>

²⁷ <https://incentive-project.eu/>

²⁸ <https://crowd4sdg.eu/>

This can be a specific call on CS, or by making CS part of regular calls. Reflect on linking CS to other priority areas of Open Science and RRI, such as inclusion, data management, and research ethics.

- **Explore possibilities to make funding more accessible for non-university actors, award both scientists and civil society organisations.**

It may encourage citizens and citizens' associations to reach out to their local universities and research centres proactively and explore ways to facilitate their participation in research projects.

3.3. Developing and implementing tailored Institutional Roadmaps

The **Institutional Roadmaps** are flexible, adaptable, living documents describing detailed and individual action plans for organisations interested in adopting CS²⁹.

They help to unify **Grounding Actions** – any concrete actions or measures aimed at enhancing or embedding CS at the institution – and put them into a common strategy and timeline. Based on the recommendations of the League of European Research Universities³⁰ (LERU) and outputs of the TIME4CS project³¹, four 'Intervention Areas', as fields requiring some actions to trigger an Institutional Change to promote CS, were identified:

- Research;
- Education & Awareness;
- Support Resources & Infrastructure;
- Policy & Assessment.

- **Keen to know how to start building your own roadmap? Get some inspiration!**

To build and expand your knowledge on adopting CS, check the TIME4CS [know-how](#):

- A good practices repository gathered the successful initiatives/programmes implemented by the TIME4CS expert institutions³²;

²⁹ Explore TIME4CS Implementers' Roadmaps on Zenodo: <https://doi/10.5281/zenodo.5743298>

³⁰ The paper "Citizen Science at universities: Trends, guidelines and recommendations" looks at the state-of-the-art of CS, highlighting recent developments and identifying common trends. After listing some important success factors common to many existing CS projects, it provides a set of guidelines for professional scientists planning CS projects at universities, and a set of recommendations for universities, for RFOs, and for policy making bodies (<https://www.leru.org/files/Citizen-Science-at-Universities-Trends-Guidelines-and-Recommendations-Full-paper.pdf>). The paper "Open Science and its role in universities: a roadmap for cultural change" looks at the pillars of OS and recognizes CS as one of them, inviting universities to adopt the methodology (<https://www.leru.org/publications/open-science-and-its-role-in-universities-a-roadmap-for-cultural-change>)

³¹ <https://doi.org/10.5281/zenodo.6402091>

³² <https://zenodo.org/doi/10.5281/zenodo.5017361>

- Collection of 38 case studies on institutional adoption of CS provided examples from around the world³³;
- TIME4CS lessons learned repository³⁴;
- Institutional Roadmap framework and compilation of the TIME4CS implementers' Institutional Roadmaps³⁵.

Here are some examples of the Grounding Actions:

Research: to develop research projects using CS methodology from scratch; to expand running research projects using CS methodologies; establish/belong to a CS network.

Education and Awareness: to set up trainings for researchers and citizen scientists; to organise debates or public events to promote CS.

Support resources and Infrastructure: to identify an institutional contact point for CS; to foresee funds for CS activities.

Policy and Assessment: to adopt explicit mission statements and strategies; to adopt evaluation criteria for researchers' evaluation that take CS into account.

Explore all 24 types of the Grounding Actions suggested and see how you could adapt any of them to the needs and resources of your institution!

- **Set your baseline. Know what you have and what you need!**

To start, it is crucial to identify **the core team (and maybe an extended team)** that will play a key role in the discussion, design of activities and their implementation. One of the first tasks of the team is a self-assessment through a **stock-taking** exercise that will help you understand the state-of-the-art of your institution's activities in terms of CS and already existing support structures. Make a list of the current activities, resources, infrastructure, or trainings that could support CS, or even more broadly, Public Engagement and Open Science activities. This will be useful for the following steps!

A stock-taking exercise at Kaunas University of Technology (KTU) at the beginning of the TIME4CS project revealed that there were seven projects carrying out some form of CS in the institution, a selection of journal articles by KTU academics were published, two CS champions existed, and Open Science supported, but no specific CS trainings or infrastructures were available.

³³ <https://doi.org/10.5281/zenodo.6337769>

³⁴ <https://doi.org/10.5281/zenodo.6402091>

³⁵ <https://doi.org/10.5281/zenodo.7560973>

- **Reflect on your Action plan and make a strategy.**

The definition, selection and planning of Grounding Actions for change in the TIME4CS was supported by a [Reflection Tool](#) developed by the European Science Foundation (ESF) based on the [GRACE](#) project. **This tool is very practical guidance**, helpful for defining institutional needs, short-, medium- and long-term achievable goals, relevant actors, potential obstacles and necessary resources for each of the Grounding Actions (*Figure 1. Steps for defining a Grounding Action*).

Reflect and decide on a strategy for your institution, define impact on internal guidelines and procedures. Compile your Grounding Actions with your goals, success criteria, implementation plan, obstacles and resources into a Roadmap with a timeline. It is your turn to embed CS in your institution!



Figure 1 - Steps for defining a Grounding Action

- **Co-create with your stakeholders.**

Identify everyone who may be impacted by or should have influence on your decisions, such as in government, industry, academia, and cultural and civil society, and organise co-creation meetings for further adjustment of your Institutional Roadmap. It can be useful to think about how to involve stakeholders (ways/formats for doing so) not only in the process of developing, but also at implementation and evaluation stages.

Tyndall National Institute (T-UCC) created concrete ways in which co-creation and co-development could take place with researchers and community representatives. Key to achieving this was to develop strong collaboration with the university community officer.

- **How will you measure success?**

It is useful to reflect on the indicators and success criteria from the very beginning as they can differ in the RPOs depending on their own needs, goals and priorities.

Think about your own indicators at both institutional level (e.g. CS training programs, CS in teaching programs, CS in formal and informal education, CS information sessions for management, staff and local communities, etc.) and individual level of students, researchers and support staff (skills, experience, motivation, interest, connection, engagement).

T-UCC set indicators of success at multiple levels, from creating modules on CS for students and training programmes for researchers at the institution to supporting individual researchers and projects which are interested in pursuing CS but lacked information or experience (for example through community officers)

- **Ready, Steady, Implement.**

Go through the [Compilation of roadmaps and Grounding Actions for the Implementers](#) to get inspiration for fine-tuning your own path towards cultural and institutional changes for CS and for defining and implementing the activities needed to achieve your goals. Time to act!

- **Think sustainability.**

From the very beginning of discussions within your institution, it is important to think how an approach to CS will be consolidated in the longer term to sustain the outcomes that will be achieved, as well as what new activities could be envisaged in your institution in 3-5 years.

How will governmental and societal links operating at local or national levels be reinforced to attract new resources, better embed your institution in the local economic and social development process as well as to achieve better scientific and participant impacts? How can these stakeholders be further mobilised to expand the potential of co-creation and CS? What could be a realistic timeline for different sustainability-related activities?

KTU created a **virtual CS Hub** and established a **specific contact point to facilitate engagement with CS in the institution.**

At Università Vita-Salute San-Raffaele (UniSR), a **dedicated email address** was made to give any interested researchers or students a contact with whom they could pose and discuss ideas or learn more about how to begin their CS journey. UniSR also put other measures in place to sustain and promote engagement in citizen science including membership of the European Citizen Science Association (ECSA), the creation of a **multidisciplinary 'core team'** who maximise CS integration and support researchers, the continuation of **communication and dissemination channels** (including social media and newsletters) as well as the **active organisation of CS research activities, debates and public events.**

4. Initiatives to promote the TIME4CS statement and recommendations

The TIME4CS statement and recommendations will be disseminated through diverse channels in order to maximise its reach and assure its sustainability. For this, an additional infographic document entitled “TIME4CS statement: It is time for Citizen Science and Overview of key recommendations to research institutions on the adoption of Citizen Science”, will be produced as the excerpt of this deliverable for wide dissemination. The document will be designed to ensure visibility, accessibility and sustainability of this project output and will include a QR code towards the deliverable for interested readers. The infographic will be shared on the project social media accounts, the partner institutions, TIME4CS sister projects and CS-related mailing lists and associations (e.g. ECSA).

The TIME4CS statement and recommendations will also be presented at meetings, including for members of the quadruple helix. A first version of the statement and recommendations was presented at the project final event co-organised with the sister project INCENTIVE on 1 November 2023 at the University of Twente, NL. Moreover, an online [Citizen Science Helix event](#) devoted to the presentation of the statement will be organised on 30 November 2023 to encourage research institutions and individuals at the institutions to initiate and expand their engagement with Citizen Science.

The TIME4CS partner institutions will also promote the statement and the recommendations through their own dissemination channels. Furthermore, the statement and the recommendations will be part of the TIME4CS MOOC available at relevant online platforms (such as [EU-Citizen Science](#), future [PATTERN](#) platform, etc.).