Supporting Citizen Science in Research Performing Organisations: which institutional changes can facilitate this process and how can they be monitored?

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Citizen Science can contribute to the transformation and enrichment of existing research and innovation processes. Nevertheless, we see big differences in the institutional support of citizen science in research performing organizations (RPOs), like universities. Which institutional measures lead to a better and more effective involvement of citizens in research and innovation processes and how can these be supported?

TIME4CS[1] - a Horizon 2020 project - is dedicated to this question and examines both social and organizational aspects of implementing support for citizen science. The project has defined four intervention areas that, alone or in combination, can stimulate the necessary institutional changes to foster public engagement in Research & Innovation (R&I) activities. For each intervention area, a set of grounding actions are defined and considered as seeds to be sown, paving the way to institutional changes within research institutions. To find out if this works in very different contexts, the project collaborates with four RPOs operating in different academic contexts, research fields and geographical locations. These institutions implement the grounding actions and share their experiences throughout the evaluation process. Lessons learned from these practical implementations after the first 18 project months were presented at the 7th Austrian Citizen Science Conference and show that starting from very different points the four RPOs identified some common key challenges and potential solutions.

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[1] https://www.time4cs.eu/ (accessed on the 10th of September 2022)

1. Introduction to Institutional Changes that support Citizen Science in RPOs

TIME4CS aims at facilitating ways on how to strengthen the dialogue between science and society and raise the consideration of societal views in the scientific ecosystem. This aim should be reached by supporting Research Performing Organisations (RPOs) - i.e. research entities such as universities and research centres - in defining and implementing institutional changes that can lead to a better and more effective engagement of citizens in research and innovation.

TIME4CS follows the believe that institutional changes inside RPOs will entail transformation of their governance systems by taking into account both the social - mindset of people inside the organisation – and the organisational - norms, protocols, procedures, policy - aspects of RPOs [1]. To facilitate this process, TIME4CS has identified four intervention areas that alone or combined can stimulate the institutional changes necessary to promote public engagement in R&I activities:

1. Research
2. Education and Awareness
3. Support resources and Infrastructure
4. Policy and Assessment

For each intervention area, a set of grounding actions is defined and implemented in four RPOs, which are introduced below. Drawing on the lessons learned from this implementation process the project will elaborate a set of practical guidelines for other European RPOs on how to support citizen science via institutional changes.

The following chart (Figure 1) presents the four intervention areas and indicators for institutional changes that support citizen science, as defined by TIME4CS:

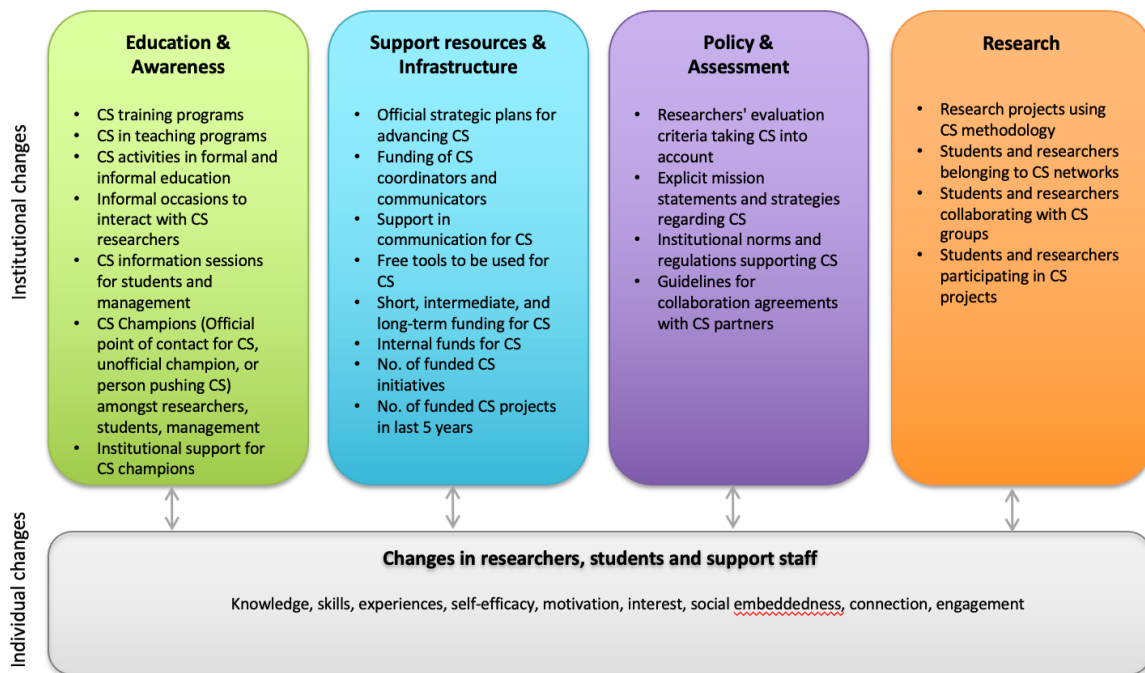## Indicators for Institutional Changes to support citizen science in RPOs

Figure 1: Indicators for Changes on institutional and individual level [2]

2. Starting the implementation of Grounding Actions in very different contexts

In TIME4CS four RPOs started to implement grounding actions from the four intervention areas. These four RPOs operate in different academic, cultural, and geographical contexts, which makes it interesting to observe, evaluate and learn from their implementation process.

Kaunas University of Technology (KTU)[2] in Lithuania is one of the largest technical universities in the Baltic States. The university has a faculty related to social sciences, arts and humanities with two strong citizen science champions. These champions have established links to the national and international citizen science community and are responsible for the successful acquisition of seven citizen science projects. At national level, Lithuania is still in the early adoption phase of the development of citizen science strategies and support. Starting from the initial success in KTU, the main aim in the TIME4CS project is to spread awareness and knowledge about citizen science across different faculties, to address researchers and the non-academic communities, and create a dedicated contact point as well as guidelines for citizen science to be fostered and more largely applied in KTU.

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[2] https://en.ktu.edu/ (accessed on the 10th of September 2022)

The Centre for Genomic Regulation (CRG)[3] is an international biomedical research institute in Spain. In CRG we find two successful citizen science projects and some researchers who have experience in citizen science. Still, citizen science is not a commonly used approach in this institution due to the complexity of linking biomedical research with participatory activities. CRG has a dedicated citizen science facilitator whose job description is to support other researchers in writing proposals and in engaging citizens in research. The facilitator has established connections to the ECSA, the European Citizen Science Association, and national citizen science actors in Spain. However, no sustainable funding for this position is in place. Thus, it is key for CRG to create a clearer understanding amongst researchers how citizen science can be of use in their specific context, have a sustainable funding for the citizen science facilitator and create the institutional guidelines and policies to support citizen science projects to take shape.

Comparable to CRG, **UniSR (Vita-Salute San Raffaele University)[4]** in Italy is involved in research topics that do not link easily to citizen science approaches. UniSR has a focus on biomedical research, and the process and steps of how citizens can become active partners in clinical research activities is a delicate aspect that needs careful considerations. There are no citizen science projects implemented yet in this institution, nor are there any trainings, citizen science champions or a contact point for citizen science. However, UniSR has participatory projects with "expert patients" which can serve as an interesting starting point for awareness raising within the organization. The main goal of the TIME4CS project at UniSR is to actively engage researchers by introducing them to the concept of citizen science and how it can become a powerful approach to enhance their research and increase societal participation. Training and informal get-togethers are key in this regard.

Finally, **Tyndall[5]** is a leading European research centre in integrated ICT in Ireland, specialized in research on electronics and photonics. As these research topics make it a challenge to actively involve citizens in research there are no citizen science projects in Tyndall yet, neither have researchers specific knowledge and experiences in citizen science. However, Tyndall is embedded in the organisational structures of the University of Cork (UCC), where we already find established citizen science projects, researchers and infrastructures that support the active public engagement. Thus, the aim for Tyndall is to benefit from the experiences of UCC, increase awareness and knowledge for citizen science amongst Tyndall researchers, raise the interest for potential citizen science funding opportunities, and promote submissions that incorporate the citizen science dimensions to have first good practice examples in Tyndall.

3.   Conclusions and lessons learned from the implementation of Grounding Actions

At the time of writing the proceedings for the 7th Austrian Citizen Science Conference, we were in the middle of the project's first grounding actions that were implemented in the very different contexts as described above. From the continuous reflection process with the four implementing organisations some key challenges can be identified so far:

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[3] https://www.crg.eu/ (accessed on the 10th of September 2022)
[4] https://www.unisr.it (accessed on the 10th of September 2022)
[5] https://www.tyndall.ie/ (accessed on the 10th of Sepember 2022)

As citizen science is strongly supported in new funding calls of the European Commission, it is often perceived as being triggered from "top to down" by researchers on the ground. It is an "on-top" activity for researchers in an extremely competitive environment, requiring "on-top" skills and knowledge to communicate with citizens or to deal with the data handling and quality assurance etc. Many scientists do neither have the skills nor the time to acquire them. For many researchers citizen science is still difficult to differentiate from concepts like science communication and other participatory research approaches. Thus, greater awareness for citizen science also requires a better understanding of its value for research, more insights on successful projects and good practice from related fields of research.

In addition, institutional changes need a context that allows change to happen. This context should ideally be characterised by an open culture of communication and learning, as well as strong internal communication tools. An early engagement of the management is key to success if institutional changes should be triggered and formal procedures need to be adhered to when establishing e.g., policies, guidelines, contact points etc. Also, it is important to allow researchers getting engaged in first citizen science initiatives and overcoming their pre-judices against this participatory research approach.

We are eager to learn from the more and more concrete experiences and lessons learned of our implementer organisations and are happy to share these insights with the interested citizen science community soon.

Acknowledgements

References

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[2] Schäfer, T., Fabian, C.M., & B. Kieslinger. (2021). D5.1: Evaluation and Impact Assessment Plan (1.0). Zenodo. https://doi.org/10.5281/zenodo.5805863