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Synthesis document-TORCH EU Work package on public engagement

This document presents the findings from the TORCH work package public engagement research, including the incentives and disincentives in stimulating public engagement at different levels, gaps, and recommendations to deliver potential impacts. It also discusses the role of Utrecht University in promoting public engagement in the Open Science agenda.

About TORCH and CHARM-EU

CHARM-EU is one of the first European University alliances funded by the European Union's Erasmus+ programme. One of its main achievements is the establishment of the first ever joint European Master's program run in CHARM-EU's five partner universities (https://www.charm-eu.eu/masters/globalchallenges). Utrecht University has a leading role in realising the transdisciplinary approach of the Master's with the coordination of the Capstone, the final phase of the program in which students and societal actors work together on sustainability challenges.

In addition to designing transdisciplinary education, CHARM-EU also developed a transdisciplinary research component called TORCH (Transforming Open Responsible Research and Innovation through CHARM). TORCH aims to develop a common Research & Innovation (R&I) agenda for the European universities' initiative.

As in the CHARM-EU alliance, TORCH is formed by the University of Barcelona (coordinator), Trinity College Dublin, Utrecht University, the University of Montpellier and Eötvös Loránd University Budapest. More information about TORCH and its partners can be found here: **https://www.charm-eu.eu**

TORCH Work package on public engagement

Utrecht University was the leader of the work package public engagement, with research conducted in and by the five partner universities. The Utrecht team comprised of Dr. Marjanneke Vijge (WP7 lead), Dr. Annisa Triyanti, Dr. Dries Hegger, Prof. Peter Driessen, and Dr. Kirsten Hollaender. The objectives of WP7 were 1**) to collect and share existing modalities and practices for stimulating co-creation of challenge-driven research and innovation with societal stakeholders and 2) to collect and share existing practices on how to balance mono-disciplinary, excellence-driven research and global challenge-driven research and innovation.**

Public engagement[1] are located at the heart of the Open Science movement. Open Science means providing access to scientific results and increasing the relevance of science for solving societal challenges. Engagement of the public, collaboration between different scientific disciplines and the non-academic world, and the co-production of science are important. However, one of the main challenges in conducting public engagement is stimulating participation and increasing the motivations of relevant actors, including researchers, universities, and societal actors. It is therefore vital to consider different interests, balance trade-offs and synergies, and optimise resources.

[1] We use mainly the term "public engagement" in this document. We position public engagement as a form of transdisciplinary science.

Against this background, WP7 focused on understanding incentives and disincentives in addressing the abovementioned challenges and stimulating public engagement in the five partner universities. Utrecht University took the lead in an inventory of good practices in public engagement. Based on this, we evaluated the underlying contexts and barriers to stimulate public engagement at the individual, university, societal stakeholders, and systemic levels. Data has been collected from 64 semi-structured interviews and ten focus group discussions with university and societal actors, including experts at the systemic level (national, regional, and international). Data was retrieved in each of the five partner universities, resulting in a collective synthesis of the findings.

Collective findings

The central collective findings show that structurally, most universities have to some extent incorporated public engagement as part of the broader Open Science agenda. However, not all universities have centralised or dedicated university policies and structures for fostering open science and public engagement. There is a wide range of good public engagement science practices within the five participating European universities, in the areas of research, education and their interface. These good practices are diverse in scales, from the individual/team levels to systemic levels (see Table 1).

Table 1. Selected list of good practices (non-exhaustive) based on a different level of incentives for public engagement

Different level of incentives	Selected list of good practices
Individual	Training and capacity building Transdisciplinary field guide (UU) MUSE training (UM)
University	Open science programme, multidisciplinary strategic themes (UU) Living Labs (TINLAB, ELTE) Inter-, and transdisciplinary educational programmes (community service programme, Star-bus Inclusion Intervention Programme, ELTE; UU-Thematic Interdisciplinary Challenge and community-engaged learning, lifelong learning/mixed classroom UU) Dedicated positions on public engagement International projects/consortium (CHARM-EU/TORCH) Rewards and recognition system (TRIPLE/MERIT (UU); Plan for academic dedication (UB))
Societal stakeholders	Citizen science (ALLINTERACT-UB, COASTSNAP UU) Projects that include the younger generations (school kids) (Star-bus inclusion intervention programme at ELTE, La UB divulga at UB); Industry (Sustainable Industry Lab, UU) Involving the marginalized ('Languag-E-Chance', ELTE) Science dissemination (Campus Engage, TCD)
Systemic	Regional and European funding calls (Horizon Europe) National funding calls for open science/stakeholder engagement (The Dutch National Research Agenda, Science Patronage Call, Hungary) Local funding calls (Seed funding UU, MUSE funding, UM)

Note: UU: Utrecht University; UM: University of Montpellier; ELTE: Eötvös Loránd University Budapest; UB: University of Barcelona; TCD: Trinity College Dublin.

The most prominent incentives for conducting public engagement at the **individual/team level** are peer support and internal motivation. At the same time, disincentives are mostly related to a lack of capacity, rewards, and recognition for scientists pursuing their careers through public engagement.

At the **university level**, incentives include the existing structures and policies, such as university strategic visions on Open Science and ambitions to leverage the university's role to address societal problems. Existing infrastructures and pioneer institutions are leading the work on Open Science, and inter-and transdisciplinary science helps to promote public engagement. Meanwhile, disincentives at the university level range from a lack of: resources and physical spaces/infrastructures for collaboration, visibility of ranges of beneficial activities related to open science, operationalisation, in terms of how to practically implement the Open Science programme on the ground, and attention to vulnerable and marginalised groups.

Regarding **societal stakeholders**, the most significant incentives are the availability of networks, opportunities for lifelong learning and access to scientific information and financial support. Meanwhile, disincentives for societal stakeholders to be engaged in public engagement-related activities are the excessive bureaucracy of university of engaging diverse partners in both research and education activities, lack of interest from the university partners to deal with topics related to inclusiveness (e.g. engaging vulnerable/marginalised/disability groups) (as reported by ELTE, Hungary), lack of interest of societal stakeholders to be engaged in scientific discussions (as reported by UM, France), and a lack of long-term vision of collaboration due to funding limitations.

Finally, in terms of incentives at the **systemic level**, the existing funding mechanisms that include elements of public engagement are the most attractive incentives, including funding from the European Union. Several disincentives at the systemic level were reported, including the lack of quality assurance, especially related to the evaluation of "good" public engagement, competition across initiatives, the divergence of EU and national policies, and lack of national policies, lack of institutionalisation and the COVID-19 crisis.

Our findings echo the often-used adage that ‘open science’ is an essential building block of open societies. When WP7 started, the term "democratisation of science" was used in this respect. However, based on the findings we advise revisiting and making a clear definition of the concept of democratisation of science as it is prone to misunderstandings such as suggesting that public voting would determine the credibility of science and scientific truth. Along the road to promoting open science, more discussion under this term could refer to making science more inclusive, open and engaged (i.e., the objective of Open Science and RRI), and put the role and the objective of science forward, i.e., using science as evidence for determining appropriate public policy to solve societal challenges. On the one hand, scientific freedom and independence must be maintained and space for blue skies research ensured. On the other hand, open science in an open society requires science to be also mission-oriented and to pursue further on the path towards more public engagement.

Gaps, recommendations, and agenda to deliver potential impacts

The key question identified as a result of TORCH WP7's work is: ***How to harness Open Science, public engagement, especially to stimulate the involvement of the underprivileged in society?***

An exploration of how to **mainstream and track progress on achievements in promoting diversity and inclusiveness is needed.** Future research is also required to understand the potentials and challenges of enhancing the legitimacy of science through public engagement, in terms of which actors and what knowledge should be included in science.

WP7 also identified a need for deeper understanding of the most effective institutional models for mainstreaming public engagement within the larger Open Science movement, mainly related to top-down vs bottom-up approaches. The complex institutional structure of European universities served as a challenge, especially in coordinating efforts to build on existing initiatives and avoid reinventing the wheel.

WP7 showed that particularly relevant follow-up research focuses on the opportunities and challenges of involving marginalised groups of society in public engagement, groups that are generally more difficult to reach by scientists and who may have special needs and interests in research and education[2]. It is crucial to further explore the contentious issues of Open Science as a more significant movement, to realise the Open Science aspirations, including addressing the issue of power asymmetry in the production and utilisation of knowledge for addressing societal challenges. It was reported that universities sometimes could tend to avoid engaging marginalised groups as many topics related to minorities or disadvantaged groups are sensitive and may trigger conflicts or require more funding and efforts from scientists. In some cases, there is also a lack of interest of societal stakeholders to be engaged in scientific discussion as science is perceived to be reserved for the elite.

In addition to the role of universities to explore ways to engage more public and conduct transdisciplinary science, universities should also lead the effort in finding the right balance in providing spaces for a broader range of engagements. Finally, there is a great demand for universities to take a more prominent role in bridging science with marginalised and disadvantaged citizens to contribute to leaving no one behind; becoming a testbed for innovation on public engagement and actively promoting the open science agenda in different avenues.

We argue that equality, diversity and inclusiveness should be on top of the agenda in strengthening public engagement as part of the broader Open Science movement. These steps would help accelerate the effort to balance excellence-driven science with public engagement and transdisciplinary science.

Role of UU to promote public engagement in the Open Science agenda

Regarding Utrecht University, the research findings confirmed that public engagement is centrally located at the heart of the Open Science programme[3]. **The strategic plans of Utrecht University[4], including the establishment of multidisciplinary strategic themes and their hubs, are structural**

[2] To cater to this need for further research, members of WP7 and others have developed a research proposal under WP4 called 'Designing better universities to fight against inequalities', which focuses on the role of universities in promoting or decreasing inequalities in society.
[3] https://www.uu.nl/en/research/open-science
[4] https://www.uu.nl/en/organisation/strategic-plan-2025/strategy#5

drivers of public engagement. However, bottom-up initiatives from university actors at all levels also keep the discussion alive and enrich ways to make Open Science practically feasible [5]

Several gaps still exist at the individual/team level and university level. At the individual/team level, the most common problem is lack of capacity, both in terms of time availability and skills. Our recommendations are to improve incentive systems for scientists through the institutionalisation and operationalisation of the rewards and recognition system (MERIT/TRIPLE) that has clear implications for scientists and university staff[6]. Furthermore, to deal with the problem of lack of time and capacity, hiring new people could be a strategy to free up time for scientists, who want to be more active in doing public engagement, to conduct more creative work on public engagement-related activities. However, this has to be accompanied with a conscious hiring strategy to determine how and whom to hire and what criteria to use. Capacity can also be increased by establishing **dedicated public engagement officers at the faculty and department levels.** In addition, an enabling environment should be created to cater diverse skill sets and groups of staffs, including those with a more non-academic or diverse background. This means that rewards and recognition is not only important for Open Science, but also for diversity and inclusion. Capacity-building through trainings (e.g. specific courses for public engagement and transdisciplinary science) and practical guidance for researchers who are interested in public engagement can also help. At the university level, we recommend to mainstream public engagement at all levels, in research, education as well as the interface between research and education.

Finally, aligned with the collective findings of TORCH WP7, Utrecht University should consider exploring **mechanisms to increase inclusiveness, engage the unusual suspects such as marginalised groups and diversify (international) geographical representation and societal stakeholders.**

Also, in the broader context of CHARM-EU, Utrecht University will continue to foster transdisciplinary education and science. CHARM-EU recently acquired funding for the next 4-6 years, expanding with three partners in Europe and a focus on all levels of transdisciplinary education: Bachelor, Master, PhD, professional training and lifelong learning (see https://www.charm-eu.eu/charm-eu-secures-funding-expand-and-implement-its-innovative-vision). Utrecht University co-leads several work packages on transdisciplinary education, including through expanding and consolidating CHARM-EU's worldwide non-academic stakeholder network. Utrecht University continues to co-develop CHARM-EU as a testbed university for innovation on public engagement and transdisciplinary science and the Open Science agenda in Europe and beyond.

More information about the deliverables of TORCH WP7 on public engagement and transdisciplinary science: *https://www.charm-eu.eu/torch/workpackages (under the WP7: Public Engagement)*

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[5] See also the report on Open Science & Stakeholder Engagement: Why, how, and what could be improved by Boon et al. (2021) accessed from https://www.uu.nl/sites/default/files/Open%20Science%20Stakeholder%20Engagement%20-%20exploratory%20study%20report.pdf

[6] https://www.uu.nl/en/research/open-science/tracks/recognition-and-rewards