Attachment EB 12-12-2022
SCENARIO FOR CITIZEN SCIENCE AT UT, as presented to SB on 26-10-2023

Summary
The major societal challenges (e.g., climate change, (cyber) security, tensions in healthcare) require dynamic and open innovation with cooperation between universities, other knowledge institutes, companies, citizens and society. It is time for a fourth-generation university: a network university where impact is achieved through structural collaboration between researchers and citizens, as is done within the field of Citizen Science. With Open and Responsible Research Innovation and Entrepreneurship being part of UT's DNA, University of Twente has an excellent starting position in the Citizen Science-field. On top of that, being a technical university – the best one in the Netherlands - is of added value in the field of citizen science since not many other universities have this unique combination. The scenario proposed ensures that Citizen Science would be embedded in the University of Twente as a sustainable driver for impact within research, education and valorisation. The scenario makes use of existing infrastructure in terms of buildings and equipment; the intention is not to build a new physical entity.

The Shaping Expert Group Citizen Science (SEG CS) asks the EB for decision regarding the implementation of Citizen Science @ UT, starting January 1st 2023. From that day onwards the SEG CS sees itself as redundant. The preferred scenario by SEG CS is the impact one. To works towards this, the SEG CS asks the EB to support at least the basic scenario for 2023 and 2024 from the CSB budget (€370K).

The decision asked for by EB concerns the preferred scenario (basic, impact A or B).

Citizen Science as driver for impact

Societal challenges require collaboration with citizens, civil society organisations and companies – the quadruple helix - to develop new insights, applications and services. If UT wants to make a difference, collaboration with society and the wider community is critical in both research and education. Public engagement is an important way to strengthen the social impact as a higher education institution; Citizen Science would be a catalyst.

In its Strategy 2023-2026, NWO states that conducting 'open' research with the help of citizens is crucial. At a national level, the minister of Education, Culture & Science embraced the advice of AWTI (Advisory board for science, technology and innovation) to highlight the importance of societal-driven demands with a specific role for Citizen Science. Engagement with society and citizens receive more prominence, as will transdisciplinary research (at the level of NWO). To move beyond project funding, actively support by (local) communities in impact areas (e.g., health, climate and (cyber) security, like TOPFIT) is needed. This has been recognised by the province of Overijssel with a special grant for civic society.

At a European level, funding opportunities for Citizen Science and public engagement are

increasing. For example, the recent ERA Policy Agenda 2022-2024 emphasises the importance of involving citizens. The University of Twente is active at the European level in Citizen Science through various activities: through ECIU (and following on from this: SMART-ER), European projects (and the synergies between European projects, for example, in the working group Science with and for Society (SWAFs) Citizen Science) and active membership of the European Citizen Science Association (ECSA; including the establishment of the working group Citizen Science for Health). In collaboration with the Grants Office, suitable upcoming calls are considered, and lobbying Brussels is supported as it is important for agenda setting.

Citizen Science at UT

A wealth of knowledge and experience is already available at UT, and this can help UT distinguish itself in the field of Citizen Science. The faculties have indicated some of the following ongoing activities – this is not a comprehensive overview - and future ambitions on Citizen Science. All faculties have Citizen Science incorporated in their year plans.

For example, **ITC** faculty already has a global leadership position in Geo Citizen Science that is now being bundled into a Geo CS Hub. Furthermore, ITC has lab facilities for developing and testing augmented/virtual reality interfaces for improved human-computer interaction to lower the entrance barrier for citizens. ITC's ambition lies in the field of climate change and Citizen Science. As well as working at a global level, the focus in the coming years will be on a more regional and European level. There is also a need at ITC to link Citizen Science to the activities around Open Science.

In addition, **ET** faculty expects to create more impact, with and in society, through Citizen Science. Its main interests are involving societal stakeholders in Challenge-Based Learning and Lifelong Learning, formulating research questions together, and developing broadly supported solutions, as well as further concretising Citizen Science in 2023 and developing associated research strategies.

BMS faculty indicated that they already conduct research on Citizen Science; they are involved in several Citizen Science projects at both regional (rural) and national levels in the domains of health, sustainability and public infrastructures. Also, Citizen Science-related education is given in minors and as part of RESTS education. BMS has supporting facilities, such as the BMS Lab and the ExperiVan that can be applied to Citizen Science initiatives. BMS is focusing on researching learning communities and is interested in professional learning in the field of Citizen Science. One of their focus points is the Future of Work and Jobs, and researching this in collaboration with citizens.

EEMCS faculty is already working on a digital infrastructure called Sport Data Valley, which can be made suitable for Citizen Science projects to facilitate communication and data exchange for scientists, citizens and students. For example, privacy and ethical aspects are considered using dynamic consent for example. Such a platform makes UT an interesting partner for research projects, as there is currently minimal supporting technology for Citizen Science and associated research. EEMCS is also active around biodiversity with the ARISE project. A dialogue with National Platform Open Science (NPOS) is ongoing to support

specifically the digital infrastructure development from the resources available for Open Science, pillar Citizen Science.

Finally, **TNW** faculty highlights that their science has continually expanding Citizen Science aspects to it. They increasingly work with social organisations. The faculty has plans for a new building and they are considering space for an outreach centre and citizen engagement. This is something that can be developed in collaboration with the other faculties. Under the TNW faculty/TechMed umbrella, with EEMCS and BMS, UT has taken a leading role in Citizen Science and Health with the extensive regional TOPFIT CitizenLab. CitizenLab expires at the end of December 2022 and continuity in this area is required. UT already has a strong profile already in the field of Citizen Science for Health.

In addition, here are a few examples of UT-wide activities in the field of Citizen Science:
• The EU project INCENTIVE, involving researchers from BMS, ET and TNW, is running within DesignLab under the umbrella of UT. The aim of INCENTIVE is to set up four Citizen Science Hubs at European universities, including UT;
• Together with the Province of Overijssel, a Civic & Citizen Science collaboration is being developed;
• Cross-over with SEG Sustainability, collaboration with Mesa+, DesignLab, LiLa on Sustainability and Citizen Science;
• Within ECIU, work is being done to link Citizen Science initiatives, such as through pilots within SMART-er.

Though the list of activities may suggest Citizen Science is well established at the University of Twente. **However, its continuity and efficiency are not secured, and the investments in engagement with society and of societal stakeholders is at stake.** To build up Citizen Science at UT as a coherent structure, and to reach the ambitions of UT in the field of Citizen Science, investments need to be made. Given the funding landscape internationally and nationally, and the interest of potential stakeholders, the Citizen Science activities at UT are expected to be largely self-supporting in the end.

Proposed scenarios

In general, the aim of Citizen Science at UT is:
- to ensure that Citizen Science is a recognisable, well-developed research and teaching practice at our university;
- to help increase the impact of research and teaching through a well-developed network of citizen organisations, social and public organisations; and offer continuity;
- to contribute to the quality of Challenge Based Research & Learning and Lifelong Learning.

To implement Citizen Science activities in a profound manner and reach the aim, the SEG CS advise the establishment of a core team Citizen Science at UT. A core team to implement Citizen Science at UT would be accommodated at DesignLab, collaborating with representatives from faculties and institutes. As such, DesignLab is sharing and expanding its expertise of co-shaping societal challenges and designing the future, together with and for the benefit of all faculties and institutes, with and for society.

The proposed scenarios are based on the results of a survey held recently by the Shaping Expert Group Citizen Science. The UT research and student community were canvassed and these results show that there is a strong need for coordination, facilitation and communication. The goal of Citizen Science at UT is to work across projects and faculties in a transdisciplinary manner. It will bring together knowledge domains, methodologies, services, tools, facilities and communities. Citizen Science at UT can be seen to support the challenges that are being taken up by UT staff to increase societal impact and applying the Citizen Science approach.

All scenario's make use of existing infrastructure in terms of buildings and equipment; the intention is not to build a new physical entity.

Basic vs Impact scenarios
A 'basic' scenario supports Citizen Science in general terms for a period of two years (see attachment: table). In Scenario Basic, Citizen Science is conducted by individual researchers already active in the field. Through 'Citizen Science at UT' activities, the university would offer support to link different initiatives and connect existing internal and external communities. No (digital) infrastructure would be adapted or developed to specifically support researchers in Citizen Science. A coordinator would function as linking pin for Citizen Science activities, and networking, and a community manager would be in charge of supporting the existing communities, mainly inside the university, with little scope to expand.

The 'Impact' scenarios ensures that Citizen Science is embedded in UT as a driver for impact within research, education and valorisation, and also invest in the development of a digital infrastructure to support CS, which would make UT a interesting partner in consortia cause this technological component is still lacking (also taking into account the ethical, legal and social consequences of such a platform). Impact B puts more emphasis on developing this digital infrastructure to support e.g. citizen science data storage, analysis, reuse and the estimated budget is there for higher.

In Scenario Impact, the UT choses to be a frontrunner in the domain of Citizen Science supported by technology, to have impact for and in society:
- Citizen Science is developed to add substantially to (societal) impact by the university and will be linked to the further implementation of Open Science and innovation;
- The university would be embedded, or even leading, in a broad network of citizens, communities, private sector and public organisations;
- Within the university, 'Citizen Science at UT' would support researchers and students in conducting Citizen Science and also develop teaching modules (e.g., supports lecturers who want to integrate Citizen Science in Challenge-Based Learning or in Lifelong Learning modules;.
- This would be done by providing access to the network, an infrastructure for communication with stakeholders and citizen scientists, (digital) toolkits for citizen science research and data management, and methodologies, and teaching practices in the field of Citizen Science;
- The UT is open for society, and actively present in society;
- Citizen Science at UT is linked to ECIU and its activities and the Citizen Science core team

would serve as a contact point for ECIU-activities in this field.
- A regional, national and international network would be built with similar initiatives worldwide (e.g., excellence centres CS, contact points CS, other CS Hubs) and we also propose engaging internationally prominent public experts, researchers and organisations as members of the sounding board group.

Sustainability of Citizen Science
Citizen Science at UT would also provide continuity for citizens and stakeholder organisations, develop educational modules in line with Recognition & Appreciation, and strengthen the thematic approach of Citizen Science such as (TOPFIT) Citizenlab for Health & Wellbeing. It will act as a uniting force, both internally and externally. It would be advisable to appoint (scientific) Ambassadors (*theme leads*) on faculty and institute level who are experts in their field and who would form, as liaisons, the link between the faculties and Citizen Science at UT.

The position of Citizen Science at UT can be strengthened through – amongst others - increased coordination, knowledge exchange (e.g., learn from each other's experiences), capacity building, communication and providing a continuing platform internally and externally. A central approach would provide continuity to Citizen Science participation in the research world and create (social) impact. It realises the ambition 'Outside-In' from Shaping 2030, designed through a Citizen Science Movement. This would be done, as befits a technical university, through digital support and inclusivity, as described in the UT Research Strategy 2030. Therefore, a central core of Citizen Science activities at UT is required to reach these ambitions. This is also the wish expressed in the inventories and activities, conducted by the members of the Shaping Expert Group Citizen Science.

UT, being a technical university, has an outstanding profile for specifically applying technology in the field of Citizen Science. Since Citizen Science needs to be facilitated through an (open) infrastructure and expertise to support a lively community with researchers, citizens and social partners, we advise investing in customising digital infrastructure (such as the Sport Data Valley platform) to support Citizen Science activities.

When it comes to organising Citizen Science at UT, we don't start from scratch and are building on existing foundations within UT and we are also mindful of similar initiatives from which we can learn. As an example, the Citizen Science Center Zurich – which started in 2017 as Competence Center - Citizen Science (CC-CS) by University of Zurich (UZH) and ETH Zurich (ETHZ) - aims to support Swiss research institutions in multi-institutional partnerships and to pool expertise. Within the INCENTIVE project, there is close contact with such entities to learn and to determine the best approaches and methods for UT.

Coordination of the network and communities is important. Researchers, lecturers, students and citizens will be facilitated in the development and implementation of Citizen Science, and the profile and position of UT in the field of Citizen Science must be communicated in such a way that UT is 'discovered' as an outstanding partner in future collaborations between research and society, offering technological support, with the aim of achieving (social) impacts.