

## European Space University for Earth and Humanity

*UNIVERSEH is an alliance of five European universities established to develop a new way of collaboration in the field of Space, within the “European Universities” initiative.*

*The alliance aims to create new higher education interactive experiences for the university community, teachers and students, and for the benefit of society as a whole. Such initiatives will enable broadminded, informed and conscientious European citizens to capture and create new knowledge and become smart actors of European innovation, valorisation and societal dissemination within the Space sector, from science, engineering, liberal arts to culture.*

*In Beyond UNIVERSEH, the alliance will develop the research and innovation dimension. By creating a research policy roadmap for 2035 and a vision for 2050 within the space sector, the alliance expects to notably transform the future Space and New Space research landscape, as well to enhance the links between education and research.*

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## List of Abbreviations

AGH	University of Science and Technology Kraków
ECSA	European Citizen Science Association
HHU	Heinrich Heine University Düsseldorf
LTU	Luleå University of Technology
PO	Program Officer
UDUS	Heinrich Heine University Düsseldorf
Uni.lu	University of Luxembourg
UNIVERSEH	European Space University for Earth and Humanity
UT	University de Toulouse
UT2	Université Toulouse - Jean Jaurés
WP5	Work Package Five

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## 1 Introduction

With a growing number of citizen science activities, infrastructures such as mobile apps, gamification, and platforms are constantly growing and increasingly important to support citizen science activities. As WP5 of Beyond UNIVERSEH aims to strengthen the links between the UNIVERSEH research community and European society, it is working to develop strong communication towards and with the general public by establishing channels of communication between citizens and space science. To meet this goal, WP5 is developing an online platform for citizen science projects to bring together students, researchers, and citizens and allow for an exchange of views, perspectives, and needs on selected topics of space science. Citizen science actively involves non-scientists in the scientific research process and therefore fosters public engagement. Citizen science platforms are important tools used to share knowledge about citizen science, facilitate learning and collaboration, “get inspiration, integrate existing citizen science activities, develop new citizen science initiatives and standards, and create social impact in science and society” (Liu et al. 2021, p. 441).

This report provides the specifications of the Citizen’s UNIVERSEH platform developed by WP5 of Beyond UNIVERSEH. This WP consists of members from the AGH University of Science and Technology, the Heinrich Heine University Duesseldorf, the Luleå University of Technology, the Université Fédérale Toulouse Midi-Pyrénées, and the Université du Luxembourg. The report is structured into 4 sections. This first section provides an introduction to the project. The second section gives an overview of the platform and describes its overall purpose, target groups, and goals. The third section focuses on the structure and features of the platform, how and where it will be presented, and what features it will contain. The fourth section describes the implementation phase and maintenance of the platform following its launch.

### Acknowledgment

We would like to thank all those who participated in creating the “Citizen’s UNIVERSEH” platform. Special thanks go to our partners in Luxembourg for sharing their knowledge of web development with us and setting up the subpage.

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## 2 Overview, Purpose, and Goals of the Platform

Citizen science platforms can be defined as “web-based infrastructures with one single entrance point that contain one or several [...] functionalities” (Liu et al. 2021, p. 440). According to Liu et al. (2021), the functionalities include presenting citizen science projects, displaying citizen science data and information, providing guidelines and tools to support citizen science activities, presenting good practice examples and lessons learned, and/or offering scientific outcomes. Citizen science platforms also allow citizens to take part in scientific research by hosting projects (Sprinks et al. 2015), storing data, and allowing participants to interact by sharing and/or mapping data (Sturm et al. 2018). They also offer resources to researchers interested in conducting such a project (Lichten et al. 2018). The platforms can be categorized into five types: commercial platforms, platforms for specific projects, platforms for specific scientific topics, national platforms and international/European platforms (Liu et al. 2021).

[Zooniverse](#), the first citizen science platform, was introduced in 2007 and has developed into the world's most popular people-powered research platform. Since then other platforms such as [SciSarter](#) (USA), [Citizens Create Knowledge](#) (Germany), [Österreich forscht](#) (Austria), [Schweiz forscht](#) (Switzerland) [OPEN](#) (France), [Science ensemble](#) (France), and [Eu-Citizen.Science](#) on the European level have emerged leading to a significant increase in the number of national and international citizen science platforms (Liu et al.). A list of popular citizen science platforms can be found in the annex. As shown in the annex, the already existing citizen science platforms are quite elaborate and offer a good overview of current citizen science projects as well as a wide range of training modules, free tools, blogs, podcasts, services, and further information.

With this in mind and considering the fact that a European platform ([Eu-Citizen.Science](#), funded by Horizon 2020) already exists and that maintaining such a platform with limited financial resources would be an expense, WP5 decided to create a subpage on the UNIVERSEH website instead of creating a new platform. The subpage will become part of UNIVERSEH's outreach website and will thus be easier for an external audience to find. Additionally, all UNIVERSEH's citizen science projects will be presented on other European citizen science platforms to increase their visibility and connect with citizen science actors within Europe.

The purpose of creating this Citizen's Platform (subpage), is to provide interested citizens with information on how they can become involved in the alliance's research, hence in citizen science projects organized by WP5 and the alliance partner universities. All the required information can be found on the UNIVERSEH subpage. Further, it increases the visibility of Beyond UNIVERSEH's citizen science activities concerning space science and gives

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researchers conducting citizen science projects the opportunity to promote their activities and exchange ideas with students, researchers, and citizens, the platform's targeted audience.

The platform's goal is to create a reciprocal relationship between citizens, students, and researchers, that is, to increase the public's knowledge of space science, raise awareness of its chances and opportunities, and provide students and researchers of space science citizen-based knowledge. By providing society and scientists with communication channels, WP5 not only promotes the dissemination mission of the project but integrates the perspectives of society in Beyond UNIVERSEH, making it a key element of the strategy with and in society.

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### 3 Content Structure and Features of the Citizens' UNIVERSEH Platform

To fulfill its purpose of providing citizens with the information needed to participate in citizen science projects and of promoting exchange between citizens, students, and researchers as laid out in chapter 2, the Citizens' UNIVERSEH Platform will contain the following features:

- Information concerning citizen science projects in space science (organized by WP5 and taking place at the alliance partner universities).
- Section for citizens in which they can contribute their project ideas.
- Section for researchers to propose their projects and search for allied researchers.
- Link to live streaming on the UNIVERSEHs YouTube channel demonstrating and explaining scientific research in the lab to interested viewers.

These features are reflected in the platform's structure (figure 1).

Figure 1: Sitemap of the Citizens' UNIVERSEH Platform



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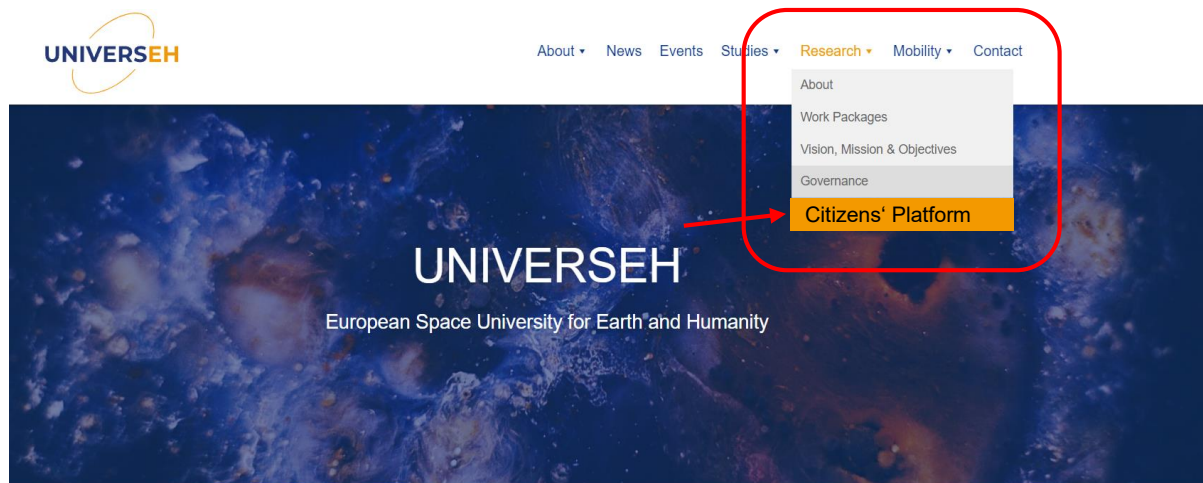
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To create the Citizens' UNIVERSEH platform a subpage titled "Citizens' Platform" will be added to the "Research" menu of the UNIVERSEH website (figure 2). The Citizens' UNIVERSEH Platform will be available in English.

Figure 2: Subpage "Citizens' Platform"



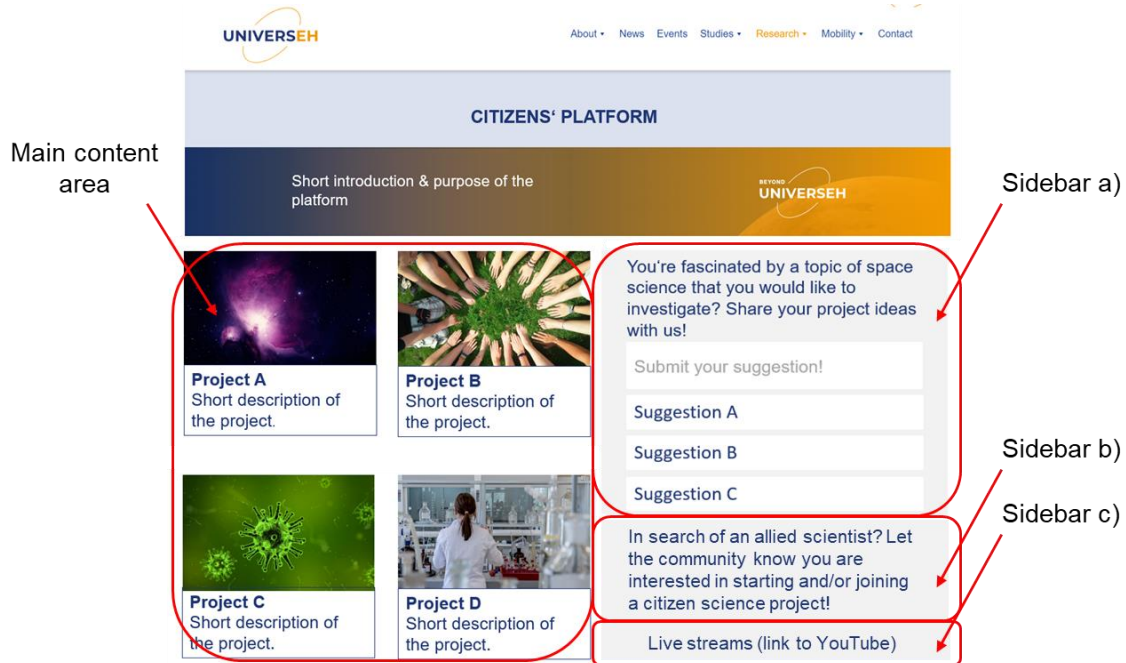
The Citizens' Platform landing page (figure 3) will contain a header with Beyond UNIVERSEHs' logo and a short introduction stating the purpose of the platform. The main content area will display tiles including the title and a short description of the active citizen science projects. Each tile is linked to a project page, where interested users can learn more about the citizen science projects. The sidebar will contain a) an idea corner in which citizens can contribute their project ideas. Users enter their project idea in a simple form and admit it to the idea corner. To avoid any inappropriate content, the entry is sent to WP5 at HHU upon submission, where its content will be checked and then published in the idea corner. The sidebar includes b) a search for allied researchers which will most likely be linked to a LinkedIn group, to avoid GDPR issues and the collection of personal data. And c) a link to UNIVERSEH's YouTube channel playlist and live streaming videos in which scientists demonstrate and explain their research in the lab to viewers.

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Figure 3: Citizens' Platform Landing Page



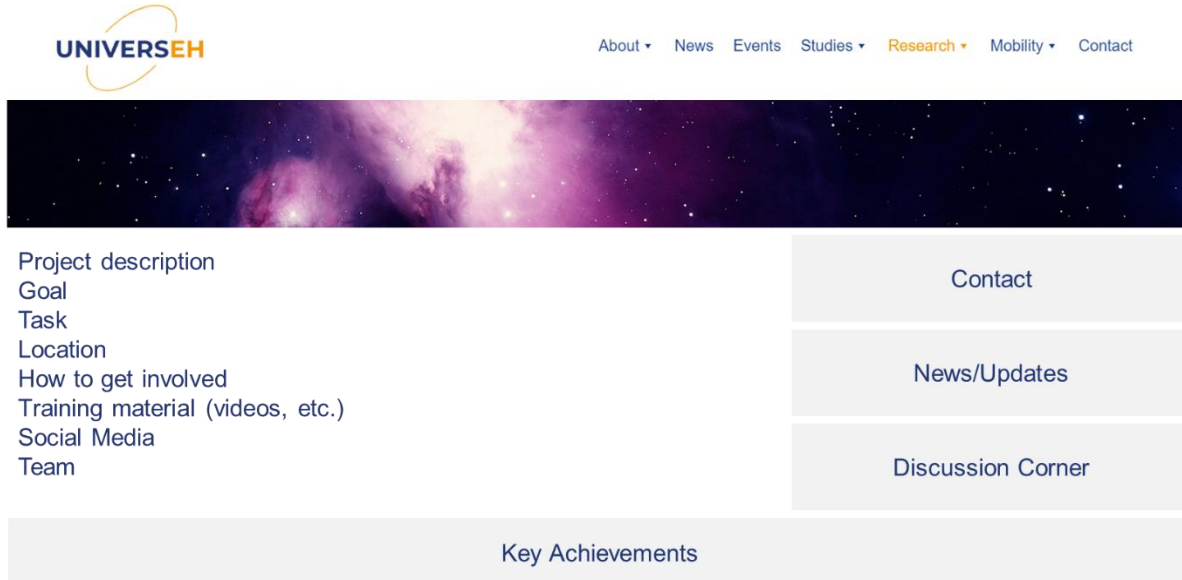
When clicking on a citizen science project, users are directed to the respective project subpage (figure 4). The main content area of each project page contains a description of the project including its goals and tasks, informs interested users where the project is taking or is to take place, how they can become involved, and, if applicable, provides training materials such as videos, etc. It provides the user with links to the project's social media channels and introduces the project's team. The sidebar offers contact information and a "news section" is also included to promote events and inform users about the project's progress. In addition, a discussion corner can be included in the sidebar to allow for discussion between citizen scientists, students, and scientists. The footer displays the key achievements of the project.

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Figure 4: Project Page



The platform not only features citizen science projects organized and conducted within the UNIVERSEH alliance, but also projects developed at the five partner universities, giving citizens additional opportunities to become involved in space science. To ensure the quality of the projects, the projects listed on the platform must meet the criteria for good citizen science established by the European Citizen Science Association (ECSA) in 2015. These best practice principles include aspects such as (1) actively involving citizens in scientific endeavors, (2) generating genuine scientific outcomes, (3) ensuring that both scientists and citizen scientists benefit from taking part in the project, (4) enabling the participation of citizen scientists in multiple stages of the scientific process, (5) giving citizen scientists feedback, (6) considering and controlling limitations and biases as would be done in other research approaches, (7) making citizen science project data and meta-data publicly available and publishing in an open access format if possible, (8) acknowledging citizen scientists contribution in project results and publications, (9) evaluating citizen science activities on their scientific output, data quality, the participants' experience and wider societal or policy impact, (10) taking copyright, intellectual property, data sharing agreements, confidentiality, attribution, and the environmental impact of any activities into consideration (ECSA 2015). The level of citizen scientists' participation in a project is not relevant to be listed on the platform.

The content published on the platform will be created by WP5 in cooperation with the citizen science projects displayed on the platform.

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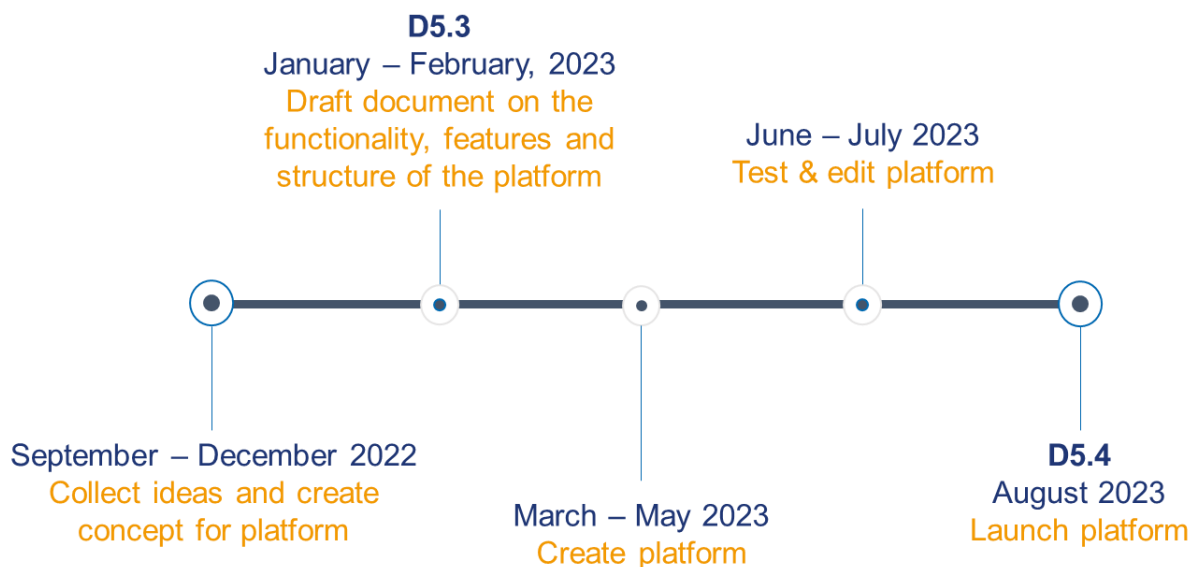
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## 4 Implementation Phases & Maintenance of the Platform

The development and creation of the Citizens' UNIVERSEH Platform will be implemented by the HHU/WP5 in five phases. The first phase entails collecting ideas for the platform and creating a concept. Here the HHU/WP5 have been working in close cooperation with the uni.lu, which is responsible for the alliance's website. The second phase involves drafting this document describing the functionalities, features, and structure of the platform. The creation of the platform and its content will take place again in close cooperation with the uni.lu in the third phase. The uni.lu is responsible for creating a landing page and template for the project page, adding new menu items when the pages are completed, and providing HHU access to pertinent pages. The HHU/WP5 have the task of creating the platform's content and integrating it into WordPress. Testing and editing of the platform will take place in phase four. The platform is scheduled to launch in August 2023, phase five. Figure 5 shows the timetable and deadlines for developing and realizing the "Citizens' UNIVERSEH" platform.

Figure 5: Timeline for the Creation of the Citizens' Platform



To ensure that the platform provides citizens, students, and researchers with up-to-date information on active citizen science projects within the Beyond UNIVERSEH alliance, the

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Citizens' Platform content must be updated regularly. Once the platform is launched, it will be maintained, updated, and modified by HHU/WP5. The maintenance of the landing page includes updating the tiles with the titles of all projects monthly as well as reviewing and releasing citizens' contributions to the idea corner. The link for searching allied researchers using LinkedIn must also be maintained by sharing up-to-date information, publishing posts, liking and commenting, and connecting with other LinkedIn accounts. Additionally, each project subpage must be updated regularly, especially the sections "news and updates", discussion corner, and key achievements.

HHU/WP5 will be responsible for maintaining and updating the Citizens' Platform's content.

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## Annex – Overview of popular citizen science platforms across the globe

Platform	Country/Region	Background Information	Purpose	Functionalities
<a href="#">Artportalen</a>	Sweden	<ul style="list-style-type: none"> <li>• Artportalen is a citizen observatory that reports observations on Swedish biodiversity.</li> <li>• Developed and operated by the SLU Swedish Species Information Centre on behalf of the Swedish Environmental Protection Agency.</li> <li>• Funded by the Swedish Environmental Protection Agency and the Swedish University of Agricultural Sciences (SLU).</li> </ul>	<ul style="list-style-type: none"> <li>• Citizen scientists collect high-quality data from an extensive area feeding the platform with observations of nature.</li> <li>• Manage biodiversity and environmental issues.</li> <li>• Provide the Swedish authorities with data concerning biodiversity.</li> </ul>	<ul style="list-style-type: none"> <li>• Enables citizens to report observations to the observatory by using a computer desktop or mobile device. Apps such as Mobile Reporting or Seglaren allow for an easy and immediate flow of data.</li> </ul>
<a href="#">Eu-Citizen.Science</a>	Europe	<ul style="list-style-type: none"> <li>• The EU-Citizen.Science Consortium consists of 14 partners and 9 third parties from across 14 European member</li> </ul>	<ul style="list-style-type: none"> <li>• Share knowledge, know-how, tools, resources, training, and experience with those interested in citizen science.</li> </ul>	<ul style="list-style-type: none"> <li>• Presents citizen science projects.</li> <li>• Offers resources &amp; online training modules (MOOCs).</li> </ul>

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Platform	Country/ Region	Background Information	Purpose	Functionalities
		<p>states, as well as other project supporters.</p> <ul style="list-style-type: none"> <li>Established in 2020</li> <li>Funded by the European Union's Horizon 2020 Framework Programme for Research and Innovation.</li> </ul>	<ul style="list-style-type: none"> <li>Support the sharing of knowledge, know-how, and experience with anyone doing or wanting to do citizen science.</li> </ul>	<ul style="list-style-type: none"> <li>Maintains a blog and forum.</li> </ul>
<a href="#">Österreich forscht</a>	Austria	<ul style="list-style-type: none"> <li>Joint project of the Citizen Science Network Austria.</li> <li>Established in 2014</li> <li>Funded by the University of Natural Resources and Life Sciences, Vienna.</li> </ul>	<ul style="list-style-type: none"> <li>Further establish citizen science in Austria.</li> <li>Promote Austria's quality of citizen science.</li> <li>Strengthen Austria's profile of citizen science.</li> </ul>	<ul style="list-style-type: none"> <li>Presents Austria's citizen science projects.</li> <li>Provides general information on citizen science.</li> <li>Connects citizen science working groups.</li> </ul>
<a href="#">Observatoires participatifs des espèces et de la nature</a>	France	<ul style="list-style-type: none"> <li>Established by the Museum of National History and the University Sorbonne in 2018.</li> </ul>	<ul style="list-style-type: none"> <li>Provide information on all the French projects that enable citizens to participate in the observation of biodiversity.</li> </ul>	<ul style="list-style-type: none"> <li>Provides access to all the citizen science projects.</li> <li>Makes it possible to select projects by geographical region, theme, specie, level</li> </ul>

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Platform	Country/ Region	Background Information	Purpose	Functionalities
			<ul style="list-style-type: none"> <li>Strengthen the collaborations between the various observatories in France.</li> </ul>	<ul style="list-style-type: none"> <li>of expertise, and keywords.</li> <li>Provide information on ongoing projects.</li> </ul>
<a href="#">Citizens Create Knowledge</a>	Germany	<ul style="list-style-type: none"> <li>Joint project of the Wissenschaft im Dialog and Museum für Naturkunde Berlin.</li> <li>Established in 2013</li> <li>Funded by the German Ministry of Education and Research (BMBF).</li> </ul>	<ul style="list-style-type: none"> <li>Provide an overview of citizen science projects.</li> <li>Further develop the landscape of citizen science.</li> <li>Increase its visibility within the German public discourse.</li> </ul>	<ul style="list-style-type: none"> <li>Presents citizen science projects.</li> <li>Provides information about citizen science.</li> <li>Connects and supports citizen science projects through workshops and an annual conference.</li> <li>Maintains a blog on citizen science projects and current developments in research.</li> </ul>
<a href="#">Schweiz forscht</a>	Switzerland	<ul style="list-style-type: none"> <li>Operated by the project leaders of the Science et Cité Foundation.</li> <li>Established in 2015.</li> </ul>	<ul style="list-style-type: none"> <li>Increase recognition and visibility of citizen science and its activities such as projects, seminars,</li> </ul>	<ul style="list-style-type: none"> <li>Presents citizen science projects in Switzerland.</li> <li>Provides general information</li> </ul>

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Platform	Country/ Region	Background Information	Purpose	Functionalities
			<p>and publications in Switzerland.</p> <ul style="list-style-type: none"> <li>• Support mutual learning and networking.</li> <li>• Participate in the organization of conferences.</li> <li>• Cooperate with partners in neighboring countries (monitoring).</li> </ul>	<p>on citizen science.</p> <ul style="list-style-type: none"> <li>• Organizes working groups and the CitSciHelvetia conference.</li> </ul>
<a href="#">SciSarter</a>	USA, Global	<ul style="list-style-type: none"> <li>• Operated by SciStarter and Arizona State University.</li> <li>• Established in 2018</li> <li>• Funded by grants from the National Science Foundation, the Institute for Museum and Library Services, Schmidt Futures, NASA, the National Library of Medicine, and through</li> </ul>	<ul style="list-style-type: none"> <li>• Enable people to learn about, participate in, and contribute to science.</li> <li>• Promote a better understanding of science.</li> <li>• Create a shared space where scientists can communicate with citizens interested in their research projects.</li> </ul>	<ul style="list-style-type: none"> <li>• Provides one of the largest online databases of searchable citizen science projects.</li> <li>• Offers a project finder.</li> <li>• Operates a syndicated blog network, and produces a podcast.</li> <li>• Offers online training modules and provides free tools.</li> </ul>

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Platform	Country/ Region	Background Information	Purpose	Functionalities
		service contracts.		
<a href="#">Zooniverse</a>	One of the largest and most popular global platforms for people-powered research	<ul style="list-style-type: none"> <li>• Collaboration between the University of Oxford and the Adler Planetarium.</li> <li>• Established in 2009</li> <li>• Funded by private foundations and government grants.</li> </ul>	<ul style="list-style-type: none"> <li>• Enable research that would otherwise not be possible or practical.</li> <li>• Make it easy for anyone to contribute to academic research at their convenience.</li> </ul>	<ul style="list-style-type: none"> <li>• Presents citizen science projects.</li> <li>• Offers a Zooniverse project builder and discussion board.</li> <li>• Provides a mobile app.</li> <li>• Operates a <a href="#">blog</a>.</li> </ul>

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