

RESOURCES ON CITIZEN SCIENCE



INTRODUCTION

Citizen science is a collaborative approach that invites non-professional individuals to actively participate in scientific activities. Libraries are rapidly evolving into community hubs for citizen science, fostering engagement, learning, and community involvement. Whether your library is already involved in innovative citizen science programming or you're just beginning to explore this exciting field, this toolkit is here to assist you.

The toolkit aims to empower librarians with practical insights and resources for successful citizen science engagement. The toolkit includes over 150 open access resources in English, Estonian, Latvian, and Lithuanian languages. These resources cover a wide range of formats, from articles and manuals to videos and e-courses. Librarians can explore topics relevant to citizen science, empowering them to initiate or collaborate on impactful projects that bridge the gap between scientists and citizens.

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1

WHAT IS CITIZEN SCIENCE?

In this module you will find a wide range of resources for an overview of the definitions and terminology of citizen science, the place of citizen science in the classification of open science, the basic principles of citizen science, and the specificities of citizen science in the fields of the humanities, social sciences, and the natural sciences. You can find the short annotations describing each resource that would be helpful in choosing the right one.

ENGLISH



BOOKS

The Science of Citizen Science

The book discusses how citizen engagement in science is expected to address major challenges such as climate change and biodiversity loss, growing inequalities within and between societies, and sustainability issues. This book presents practices and scientific and societal results from a range of disciplines. It reflects the contribution of citizen science to societal development, education or innovation, and provides an overview of the field of actors as well as tools and guidelines. It is an introduction for anyone who wants to get involved in and learn more about citizen science.

Keywords: citizen engagement, climate change, sustainability, societal development, tools,

Citizen science for all. A guide for citizen science practitioners. English edition handbook

The book discusses how citizen engagement in science is expected to address major challenges such as climate change and biodiversity loss, growing inequalities within and between societies, and sustainability issues. This book presents practices and scientific and societal results from a range of disciplines. It reflects the contribution of citizen science to societal development, education or innovation, and provides an overview of the field of actors as well as tools and guidelines. It is an introduction for anyone who wants to get involved in and learn more about citizen science.

Keywords: practitioners, initiating citizen science project, citizen science and education

Scientific impacts and innovations of citizen science. Citizen Science: Innovation in Open Science, Society and Policy

This book identifies and explains the role of citizen science within innovation in science and society, and as a vibrant and productive science-policy interface. The scope of this volume is global, geared towards identifying solutions and lessons to be applied across science, practice and policy. The chapters consider the role of citizen science in the context of the wider agenda of open science and open innovation, and discuss progress towards responsible research and innovation, two of the most critical aspects of science today.

Keywords: citizen science, participation, public policy



Citizen science terminology matters: exploring key terms. *Citizen Science: Theory and Practice*

This article discusses key terms in the context of citizen science, giving examples of their use in practice.

Keywords: terminology; crowdsourcing; community-based participatory research; epistemology; public participation in science and research; ontology; participatory action research

Citizen science in the social sciences and humanities: the power of interdisciplinarity

The article explores how citizen science is practised in the so far less addressed social sciences and humanities fields by focusing on the role of the citizens, the goals and approaches of the projects, the tasks in which citizens are engaged and their gains across projects of diverse disciplinary background. The findings indicate that social sciences are gaining more acknowledgment within interdisciplinary citizen science projects by addressing 'wicked' problems of human behaviour and agency, while humanities are in quest of a better-defined locus in citizen science.

Keywords: social sciences, humanities, interdisciplinarity, Interdisciplinary synergies, citizen-generated data, methodological approaches

The Diversity of Participants in Environmental Citizen Science

The article focuses on the diversity of the participants in environmental citizen science. It highlights the benefits of participating in environmental citizen science such as data collection, knowledge acquisition, and influencing policy. Still the representativeness of citizen science participants remains uncertain. Uneven distribution of individual, societal, and environmental benefits raises questions. The study revealed the following demographic patterns: Men are more likely to participate than women, white ethnic groups participate more than those from minority ethnic groups, participation is highest among students and lowest among the unemployed. The article recommends that citizen science projects should aim for diverse participation, participants should be engaged through existing community networks, project managers should document and publish participant demographics to monitor diversity.

Keywords: diversity, demographics, recruitment, barriers

Global change and local solutions: Tapping the unrealized potential of citizen science for biodiversity research

The article provides the first quantitative review of biodiversity-related citizen science to determine whether data collected by these projects can be, and are currently being, effectively used in biodiversity research. There is strong evidence of the potential of citizen science: within projects the authors sampled ($n = 388$), ~1.3 million volunteers participate, contributing up to \$2.5 billion in-kind annually. However, only 12% of the 388 projects surveyed obviously provide data to peer-reviewed scientific articles, despite the fact that a third of these projects have verifiable, standardised data that are accessible online. Factors influencing publication included project spatial scale and longevity and having publicly available data, as well as one measure of scientific rigour (taxonomic identification training). Because of the low rate at which citizen science data reach publication, the large and growing citizen science movement is likely only realising a small portion of its potential impact on the scientific research community. Strengthening connections between professional and non-professional participants in the scientific process will enable this large data resource to be better harnessed to understand and address global change impacts on biodiversity.

Keywords: citizen science, potential, peer-review articles

Mapping citizen science contributions to the UN sustainable development goals

Data from citizen science represents one new source of data that could be used for SDG reporting and monitoring. However, information is still lacking regarding the current and potential contributions of citizen science to the SDG indicator framework. Through a systematic review of the metadata and work plans of the 244 SDG indicators, as well as the identification of past and ongoing citizen science initiatives that could directly or indirectly provide data for these indicators, this paper presents an overview of where citizen science is already contributing and could contribute data to the SDG indicator framework. The results demonstrate that citizen science is “already contributing” to the monitoring of 5 SDG indicators, and that citizen science “could contribute” to 76 indicators, which, together, equates to around 33%. The analysis also shows that the greatest inputs from citizen science to the SDG framework relate to SDG 15 Life on Land, SDG 11 Sustainable Cities and Communities, SDG 3 Good Health and Wellbeing, and SDG 6 Clean Water and Sanitation. Realising the full potential of citizen science requires demonstrating its value in the global data ecosystem, building partnerships around citizen science data to accelerate SDG progress, and leveraging investments to enhance its use and impact.

Keywords: citizen science, sustainable development goals (SDG)

Analysis of the evolution and collaboration networks of citizen science scientific publications

The aim of this article is to study citizen science publications in journals indexed by WoS, in particular how they have evolved in the last 20 years and the collaboration networks which have been created among the researchers in that time. It is necessary to consider new tools to parametrize a set of complementary properties. Thus, the authors address the study of the citizen science expansion and evolution in terms of the properties of the graphs which encode relations between scientists by studying co-authorship and the consequent networks of collaboration. This approach - not used until now in research on citizen science, as far as known - allows the authors to analyse the properties of these networks through graph theory, and complement the existing quantitative research. The results obtained lead mainly to: (a) a better understanding of the current state of citizen science in the international academic system-by countries, by areas of knowledge, by interdisciplinary communities-as an increasingly legitimate expanding methodology, and (b) a greater knowledge of collaborative networks and their evolution, within and between research communities, which allows a certain margin of predictability as well as the definition of better cooperation strategies.

Keywords: citizen science, scientific publications, collaborative networks



REPORTS

Citizen Science Exploring its trends and its role in sustainable development

The document explores citizen science and its impact in Argentina. The United Nations Development Programme (UNDP) examines new data collection and analysis opportunities, innovations in recruitment, motivation, commitment, participation arrangements, and data quality, security, and ethics standards related to citizen science. Over 15 organisations and professionals in Argentina are actively engaged in citizen science. The analysis reveals three regional hubs: the Province of Buenos Aires, the Autonomous City of Buenos Aires, and the Province of Córdoba. The expansion of citizen science presents both potential threats (such as knowledge asymmetry and biases) and opportunities (such as creating new scientific profiles and informed policies through participatory evidence).

Keywords: citizen science trends, Argentina, sustainable development

White Paper on Citizen Science

This white paper delves into the realm of citizen science, which involves engaging the public in scientific research and data collection. It emphasises the importance of collaboration between scientists and citizens to address societal challenges. It presents the benefits of participating in citizen science such as wider participation, education and awareness. It also focuses on the challenges of ensuring quality control, ethical considerations, and ensuring diverse participation.

Keywords: citizen engagement, policy, guidelines

Mutual learning exercise - Citizen science initiatives - Policy and practice - Final report

Over the past decade, great advances have been made in applying innovative participatory and inclusive research practices across a wide range of domains. These have involved increasing numbers of citizens in monitoring, observing, and co-researching societal issues such as climate change impacts on the environment and public health, sustainable mobility, and plastic pollution in rivers and oceans. Important outcomes have been achieved, from fundamental scientific discoveries to data that support evidence-informed policy.

Keywords: citizen scientists, participation



WEBSITES

Open Science

The website of the European Commission on open science. It contains the basic information of EU open science policy, presents the 8 EU ambitions in the sphere of open science and provides the main policy documents.

Keywords: open science, policy, open data, metrics, scholarly communication

Citizen Science and Frontier Research

The webpage of the European Research Council presents citizen science projects and publications.

Keywords: European research Council, citizen science projects

10 Principles of Citizen Science

The statements contained in the document have been drafted by the European Citizen Science Association's Working Group on "Sharing Good Practice and Capacity Building", chaired by the Natural History Museum London, with input from many of the Association's members, in order to set out some of the key principles that our community believes underpin good practice in citizen science. The document is available in English, German, Latvian, Lithuanian, Estonian and other languages.

Keywords: citizen science, principles



E-COURSES

Citizen Science and Scientific Crowdsourcing: an Introduction

Free online course, registration required. Introduces the theory and practice of citizen science and scientific crowdsourcing. Explores the history, theoretical background and practical aspects of designing and running citizen science projects. Each topic will take approximately 3-4 hours to cover and will include two lectures, a practical session, the viewing of one or two videos and the reading of two or three texts, all of which are available online.

Keywords: open science, policy, open data, metrics, scholarly communication

Foundations of Citizen Science

The Foundations of Citizen Science module, a prerequisite for other SciStarter training modules, will help to learn the basics, participate in projects, and make the most of SciStarter. You will be eligible to move onto the second hour of training and earn professional development credits from the Medical Library Association. Details available upon completion of this module.

Keywords: training, participation

ORION MOOC for Open Science in the Life Sciences 2.0

An introductory course to the principles of open science in biomedicine, life sciences and other related research fields. It offers an introduction to a range of useful tools and research practices, as well as to open science principles and workflows in the biomedical and life sciences research cycle.

Keywords: open science, principles, life sciences, research cycle

Doing citizen science as open science: what, why, and how

This is a high-level, 1 hour 45 minutes course introducing the ethical imperative for conducting citizen science as open science, including what open science is and how its outputs and processes can be incorporated into all aspects of citizen science. In order to participate participants need to register on the website.

Keywords: open science, citizen science



VIDEOS

Watch: How do I become a citizen scientist?

A video about how and why to become a citizen scientist.

Keywords: citizen scientists



PICTURES

The relationship between citizen science and open science

A diagram showing CS as a component of Open Science.

Keywords: citizen science, open science

Citizen Science is Blooming (infographic)

A good example of infographic on how to explain citizen science.

Keywords: citizen science, open science

ESTONIAN



VIDEOS

TÜ raamatukogu vlog #6: Avatud teadus

Videoblog from Tartu University Library, Estonia. Topics presented: What is open science, should research data be OA, and how can librarians support scientists in OA publishing?

Keywords: open science, open access publishing



AUDIO

Labor. Harrastusteadus

The radio show focuses on the impact of citizen science on science and the society, and compares the attitude towards that subject in Estonia and other countries.

Keywords: citizen science and society, Estonia

LATVIAN



ARTICLES AND PAPERS

Citizen science – amatierzinātne, pilsoņzinātne vai... ?

In 2020, an excerpt from the 'Study on Open Science and the Development of a Policy Roadmap' commissioned by the Ministry of Education and Science was published, which examines the phenomenon of citizen science, the application and development of citizen science in the world and in Latvia. The author of the article is Janis Daugavietis, researcher at the Institute of Literature, Folklore and Art at the University of Latvia.

Keywords: citizen science, open science, EU science policy, Latvia



REPORTS

Informatīvais ziņojums “Latvijas atvērtās zinātnes stratēģija 2021.-2027. gadam”

An informative report “Latvian Open Science Strategy 2021-2027” prepared by the Ministry of Education and Science, which aims to ensure and promote access to scientific information and collaboration oriented scientific activity. The strategy includes general principles, explanations, roadmap and other useful information for researchers, citizen science initiators, citizen scientists, policy makers and others.

Strategy also available in English: <https://www.izm.gov.lv/lv/media/17072/download?attachment>.

Keywords: open science, strategy, citizen science



WEBSITES

10 Sabiedriskās zinātnes principi

The 10 Principles of Citizen Science were developed by a working group of the European Citizen Science Association. These principles represent a framework for good practice in citizen science. The Latvian translation was produced by the Institute for Environmental Solutions (ECSA member in Latvia).

Keywords: citizen science, principles

Latvijas iedzīvotāju zinātnes satura patēriņš un līdzdalība

A study on the consumption of scientific content and participation of Latvian citizens was carried out in 2022 commissioned by the Ministry of Culture. The aim of the study was to find out and describe the Latvian population's consumption of science content and involvement in participatory activities, as well as people's attitudes towards science, awareness of scientific achievements and other topics. The data were compared with the results of studies carried out in previous years. A presentation, a report of the results and the data are available.

Keywords: citizen participation, consumption of science content

Latvijas nacionālā atvērtās piekļuves dienesta tīmekļvietne

A section of the National Open Access Desk website for Latvia, which provides information on citizen science. Here you can find out what citizen science is, why it is important and links to additional resources.

Keywords: citizen science, information resources



VIDEOS

Interaktīva sesija “Sabiedriskā zinātne – vai ikviens no mums var būt zinātnieks jau šodien?”

Recording of the interactive session "Citizen Science - can each of us be a scientist today?" which was organised as part of the conversation festival “LAMPA”. During the session, listeners themselves could get involved as citizen scientists, answering questions about climate change, as well as listen to an active discussion between citizen science practitioners and theorists and get answers to various questions.

Keywords: citizen scientists, climate change



AUDIO

Zināmais nezināmajā - “Citizen science” jeb sabiedriskā zinātne

A recording of a popular science radio magazine programme “The Known in the Unknown”, in which researchers explain the importance and opportunities of citizen science and talk about citizen science projects in Latvia and around the world.

Keywords: citizen science, projects, Latvia

LITHUANIAN



BOOKS

Piliečių mokslas kaip inovatyvi piliečių dalyvavimo forma kuriant gerovės visuomenę

In this monograph, the authors explore the potential of citizen science to empower citizens and communities to solve social problems themselves. It is the first scientific publication of its kind in Lithuanian to explore in more detail the concept of citizen science, the content, participants and process of the citizen science ecosystem in Lithuania, the potential of citizen science to address social problems, and the role of scientific institutions in enhancing citizen science.

Keywords: citizen science, definition, projects, Lithuania

Piliečių mokslas: taikymas ir geroji praktika

Methodology on citizen science approaches application into the science process.

Keywords: citizen science, methodology, good practice



WEBSITES

10 piliečių mokslo principų

ECSA Ten principles of citizen science in Lithuanian.

Keywords: citizen science, principles



Kas yra piliečių mokslas? Piliečių mokslas #1

The video introduces the "Science Soup" citizen science rubric. Speaks about how to collect relevant data & look after your environment and health, and teaches how to build a biohacking lab in your kitchen. With English subtitles.

Keywords: citizen science, data collection

Atvirasis mokslas - ateitis

In this video Lithuanian scientists are talking about open science and its impact on science and society. (With English subtitles).

Keywords: open science, impact

Ekstremalus piliečių mokslas: kai piliečiai žino daugiau už mokslininkus #6

"Science Soup" Online TV is a non-profit initiative by young people to promote science in society. In the 6th episode of the series that is dedicated to promoting citizen science, examples of extreme citizen science were presented.

Keywords: citizen science, citizen scientists, extreme citizen science



2

LIBRARIES AND CITIZEN SCIENCE

For libraries, citizen science holds importance by fostering heightened civic and research interests, promoting scientific publishing, and contributing to overall scientific progress. Libraries can help bridge the gap between researchers and the public. This chapter provides a comprehensive understanding of the ways in which citizen science can benefit libraries and how libraries can effectively utilise citizen science.

ENGLISH



BOOKS

The Librarian's Guide to Citizen Science

SciStarter's guide to understanding, planning, and sustaining ongoing engagement in citizen science at libraries.

Keywords: libraries, resources, templates, outreach

Citizen science skilling for the library staff, researchers, and the public

The guide is designed to be a practical toolbox to help run a CS project. It is put together by research libraries.

Keywords: libraries, citizen science, skills



ARTICLES AND PAPERS

LIBER Open Science Roadmap

LIBER's Open Science Roadmap outlines the specific actions libraries can take to champion Open Science, both within and beyond their own institutions. This document was written during spring 2018, when the Open Science Policy Platform (OSPP) produced integrated advice for the EC and key stakeholders. People from across the LIBER community translated the OSPP recommendations for libraries and combined them with suggestions drawn from their own expertise and experiences.

Keywords: open science, research libraries

Public libraries embrace citizen science: strengths and challenges

Can public libraries become citizen science centres? In line with the principles of citizen science, this question was answered in collaboration with librarians from the Barcelona Public Library Network, who carried out two practical exercises. One activity involved 30 librarians from 24 different libraries, who had the opportunity to envisage how to implement citizen science in each library. The other activity consisted of the co-design of a citizen social science project involving 40 library users, seven librarians from three different cities and professional researchers. The analysis takes into account the perspectives of librarians and users through participatory observation, surveys, and a focus group to identify strengths and challenges.

Keywords: public libraries, engagement, science education

Defining the role of libraries in the open science landscape: a reflection on current European practice

This paper explores how libraries can engage in and lead the open science movement. It is based on the results of an EU-funded research data management project carried out in European universities and their libraries.

Keywords: libraries, open science, data management

Merry work: libraries and citizen science

This article highlights important new opportunities for libraries by exploring the role they could play in citizen science projects.

Keywords: research libraries, citizen science, open science

Learning through making in public libraries: theories, practices, and tensions

This article explores learning and teaching in library makerspace applications. Given the recent trend for libraries and makerspaces to define themselves in terms of learning, the findings of this paper are particularly relevant to current initiatives.

Keywords: public libraries, makerspaces, communities of practice



E-COURSES

Libraries as Community Hubs for Citizen Science

This training module is designed to discover best practices and identify resources for involving library users in citizen science and lifelong learning. The “Libraries as Community Centres for Citizen Science” label is awarded to librarians and library staff who have demonstrated a commitment to citizen science and the necessary skills to develop research through community-oriented library programmes and services.

Keywords: libraries, citizen science



VIDEOS

LIBER's research librarians guide to CS

This presentation is part of the LIBER Citizen Science Working Group Workshop “Shaping the Role of Libraries”, held on 29 April 2021. Topics discussed: communication in CS projects, project management, research data management, and scientific literacy.

Keywords: citizen science, communication, project management, research data management



WEBINARS

Citizen Science At Universities: Trends, Guidelines and Recommendations

In this webinar, organised by LIBER's Citizen Science Working Group, four speakers share what they are doing to find the right solution using a three-pronged approach: Current trends in citizen science at universities; a template for a citizen science single point of contact that your institution could start to develop; an overview of the forthcoming Research Librarian's Guide to Citizen Science; and possible roles that research libraries could take on to move citizen science forward.

Keywords: citizen science, universities, research libraries

Introduction to Citizen Science in Libraries

A webinar hosted by SciStarter (online citizen science hub). The webinar introduced librarians to what CS is, how to help library users get involved, and to learn about CS and CS projects, CS kits, and promotional materials.

Keywords: citizen science, libraries, promotional materials

ESTONIAN



ARTICLES AND PAPERS

Kodanikuteadus: uued teenused raamatukogudesse, uued teadmised ja oskused raamatukogutöötajale

The article introduces citizen science and the new roles that libraries can have within it. Based on the online course made during the LibOCS project, it describes how to start with citizen science activities in libraries.

Keywords: citizen science, libraries, online course



3

TRAINING AND CAPACITY BUILDING

Academic librarians need to repurpose their current skills and acquire new ones to accommodate citizen science. They should engage in ongoing learning about the practice of citizen science, including understanding data collection methods, ethical considerations, and effective communication with citizen scientists. Well-trained librarians become catalysts for community engagement, empowering citizen scientists with their work.

ENGLISH



BOOKS

Content of Training Material - ROSiE project

As part of the ROSiE project, a training material has been developed, which includes instructions for teachers, case studies and other supplementary materials. The material is designed for a two-day training for four different groups.

Keywords: training materials, case studies

Learning Through Citizen Science: Enhancing Opportunities by Design

The book discusses the potential of citizen science to support science learning and identifies promising practices and programmes that are examples of promising practices. It also sets out a research agenda that can fill gaps in the current understanding of how citizens can support science learning and improve science education.

Keywords: citizen science, science education, practices

Open Science Training Handbook

The Open Science Training Handbook has been developed by a team of 14 authors. It will be a key resource and a first step in the development of open access and open science curricula and andragogy. By supporting and connecting the emerging Open Science community willing to pass on their knowledge as disseminators, the Handbook will enrich teaching activities and unlock the full potential of the community.

Keywords: open science, training, curricula, andragogy

Guide to citizen science: developing, implementing and evaluating citizen science to study biodiversity and the environment in the UK

This guide aims to support people already involved in citizen science, and those new to it, within the UK. It is based on detailed information gathered and analysed as part of the UK-EOF funded project “Understanding Citizen Science & Environmental Monitoring”, which semi-systematically reviewed 234 projects and included 30 case studies (Roy et al., 2012). It will help you to design and implement a citizen science project relating to biodiversity or the environment.

Keywords: citizen science, project design, promotion

Citizen science, education, and learning: challenges and opportunities

This article identifies some of the dilemmas facing the field, from competing scientific objectives and learning outcomes, to different communication strategies, to conflicting values around advocacy and activism. While such challenges can be an obstacle to the successful integration of citizen science into mainstream education systems, they are also signposts of potential synergies and opportunities. One of the key recommendations is to align educational learning outcomes with the objectives of citizen science projects as early as the project planning stage, using co-design approaches, so that issues of accessibility and inclusion are central to the design and implementation of the project.

Keywords: citizen science, formal learning environments, informal learning environments, activism, educational practice

Recommendations on integrating OS (and CS) in HE curricula

This set of guidelines aims to help readers to integrate OS activities into higher education programmes and to normalise the process of institution development. Although it is aimed at integrating OS into HE curricula, it provides guidance on course design considerations, examples, etc.

Keywords: open science, citizen science, curriculum, course design

Cross Academia and Public Citizen Engagement for Developing Active Citizenship Competences

The paper explores the effect of the different open cross-university and public knowledge building activities on participants' active citizenship competencies through a survey. It points out that active citizenship competencies are better developed through collaborative knowledge building than in individual activities.

Keywords: public knowledge, universities, collaborative knowledge

Mutual learning exercise on citizen science initiatives : policy and practice. Second topic challenge paper

This Challenge Paper discusses the various variables that need to be taken into account for the success of citizen science initiatives throughout the implementation cycle, including the need to demonstrate their impact at different levels. It also discusses the support mechanisms that can be put in place at national level to engage civil society in the European Research Area and contribute to the sustainability of ongoing projects.

Keywords: citizen science, good practices, project implementation

Citizen science project characteristics: Connection to participants' gains in knowledge and skills

The authors look at the specific characteristics of biodiversity citizen science projects and how they can affect participants' learning. The following project characteristics were investigated from the perspective of project coordinators and participants: information and training provided to participants, social interaction between participants, contact between participants and staff, feedback and recognition for participants.

Keywords: citizen science, biodiversity, project characteristics



REPORTS

D7.3: Final TIME4CS Policy Brief (1.0)

Practical, adaptable, and innovative recommendations for research organisations willing to pursue Institutional Change to integrate Citizen Science and to follow a validated approach. The approach is based on map and analysis of institutional Citizen Science adoptions, the TIME4CS knowledge base framework, and the experience of developing and implementing tailor-made Institutional Roadmaps by TIME4CS partners.

Keywords: citizen science, research organisations, motivation, roadmap

D10.3 Policy Roadmap on Research infrastructures for citizens science in Europe

This document forms the policy roadmap for the institutionalisation of citizen science in large research infrastructures, developed within the REINFORCE project. It builds on results and evaluations from the demonstrator projects developed within REINFORCE, as well as on the engagement monitoring and assessment that has been undertaken. It examines policy gaps and provides a series of policy objectives, as well an examination of likely challenges, while also providing a set of recommendations for stakeholders.

Keywords: citizen science, research infrastructure, policy, stakeholders



E-COURSES

Responsible Open Science for Citizen Scientists - Training & Capacity - Building Resource

The ROSiE project has developed a learning resource which includes a module on responsible open science and citizen scientists. A variety of information is available, including videos and interactive exercises.

Keywords: citizen science, open science

Leading a “Train the Trainer” workshop

A free 1.5-hour Moodle course for citizen science practitioners who want to use the “train the trainer” approach in their project or activity. At the end of the course, learners will: understand what a “train the trainer” is and how it can benefit citizen science projects; know the main components of a TTT course; know how to plan the learning path for their own TTT course; and know the main things to consider if they want to apply the TTT approach.

Keywords: planning the learning, training

Teaching in Higher Education with Citizen Science

In this online self-guided module, participants will learn about some of the benefits of integrating citizen science into undergraduate studies, practical strategies and opportunities for networking and professional development. Upon completion of this module and related activities, participants will receive detailed information on how to obtain the badge.

Keywords: citizen science, curriculum

Framework for Open and Reproducible Research Training. Lesson Plans

The FORRT community has developed open educational resources that can be integrated into courses “instantly”. As creating or modifying course content can be complex and time-consuming, the aim has been to make evidence-based, high-quality lesson plans and activities available to lecturers, thus reducing the efforts required for the development and implementation of open scholarly content.

Keywords: research training, lesson plans

Citizen science in the (digital) arts and humanities

This module will explore the diversity of ‘citizen science’ practices, how humanist researchers can start working with citizens, what problems they might face and how research infrastructures can support them.

Keywords: citizen science, humanities



WEBINARS

A practical guide to citizen science for citizens and researchers

The webinar provides insights into the benefits and methods of involving citizens in research projects, and recommendations on how to start a citizen science project from scratch, including useful tools and resources. It also discusses the role citizens can play in science, the ways in which they can get involved and the benefits of citizen participation.

Keywords: citizen involvement, participation types



TOOLKITS

Citizen science toolkit

This toolkit is designed to help educators integrate citizen science projects into classroom curricula or extra-curricular programmes. It provides resources, including lessons, readings and worksheets, to help students discover the value of citizen science and to help them develop a sense of ownership and impact in their research.

Keywords: curriculum, lessons, readings, worksheets

EUTOPIA Citizen Science Starter Kit

The citizen science starter kit defines what is citizen science and provides guidelines, tips and tricks.

Keywords: training material, case studies, further reading, templates, checklists

Step Change project’s Training Materials: Ready to Use Materials for Citizen Science Initiatives

Training material for those interested in developing CS projects. It presents the material used in the project, highlights the challenges of developing CS projects, gives useful strategies to address these challenges and a set of ready-made exercises. The focus is on presenting different methods of engaging people with different backgrounds in CS initiative sessions. Some of the material is behind the presentation links in the text. It would be useful to provide a list of sources at the end. The document works best when downloaded.

Keywords: citizen science projects, engaging the participants, communication

PRESENTATIONS

CeOS_SE train-the-trainer workshop – 13 July 2022

Presentations from the first CeOS_SE Project train-the-trainer workshop to learn about the fundamentals of Citizen Science, discover best practices from across Europe and beyond and pose questions to experts in the field.

Keywords: citizen science, best practices

ESTONIAN

PRESENTATIONS

Kodanikuteadus ülikoolides ja mäluasutustes -INOS projekti näitel

A presentation at the Memory Institutions' Winter Seminar 2022 about citizen science in universities and memory institutions.

Keywords: citizen science, universities, memory institutions

LATVIAN

BOOKS

Novadpētnieka rokasgrāmata

A handbook for regional history researchers, written by various specialists, including historians, teachers, local history museum staff, archivists and restorers. It is a collection of reference materials and a methodological tool for quality work of regional history. It is useful for every researcher when exploring his/her region, city or family.

Keywords: methodology, history researchers

Garamantas.lv izstrādātie ieteikumi materiāli šifrēšanai

An example from the garamantas.lv initiative, which has developed guidelines for participants to correctly and accurately transcribe scanned text.

Keywords: transcription

Apvidvārdu talka

An example of instructing participants and using the platform within apvidvardi.lu.lv.

Keywords: instruction

VIDEOS

Digitālās līdzdalības metodes

A short video on methods of digital crowdsourcing and co-creation. It shows how the already existing platform garamantas.lv works, why it is relevant and why get involved. With English subtitles.

Keywords: digital crowdsourcing, involvement



WEBSITES

Portāla "dabas dati" instrukcijas dalībniekiem

An example of how to instruct participants to add a nature observation to portal dabasdati.lv. Step by step instructions on how to fill in the observation questionnaire.

Keywords: participants, questionnaires, instructions

LITHUANIAN



VIDEOS

Moksliniai tyrimai tavo kišenėje. Piliečių mokslas #2

Explains how to use a smartphone for citizen science projects through examples.

Keywords: citizen science, smart phones

Išmanusis telefonas - raktas į mokslo pasaulį. Piliečių mokslas #3

The video explains how to monitor the environment with the help of smart apps, while contributing to international scientific research.

Keywords: citizen science, smart phones



4

CITIZEN-GENERATED DATA AND ITS MANAGEMENT

Citizen science is largely based on data gathered by volunteers. This section provides information about the ways research data can be collected, how it should be managed, and what are the possible issues in that area.

ENGLISH



BOOKS

ICTs, data and vulnerable people: a guide for citizens

The document provides valuable insights into the intersection of information and communication technologies (ICTs), personal data, and the challenges faced by vulnerable individuals. The guide focuses on the ethical and legal aspects of ICTs, digital rights, data privacy, and online security. It aims to support vulnerable groups in navigating the digital world and exercising their rights. It is a resource for vulnerable individuals, those working with them, and citizens at large. The guide provides information on where vulnerable individuals can find support. It emphasises the need for greater assistance to ensure vulnerable people can fully participate in the digital realm.

Keywords: Informations and communication technologies, personal data, vulnerable people, data privacy

9 things to make citizen science data FAIR. A research librarian's guide

This guide aims to support research librarians who serve citizen science projects. The four elements, Findable, Accessible, Interoperable, and Reusable are designed to help lower barriers to accessing generated research and to facilitate potential new findings by promoting the availability and reuse of data. The 9 things are structured with the FAIR elements in focus, highlighting practical aspects and benefits of FAIR data in citizen science projects.

Keywords: FAIR data, citizen science projects, research librarians



ARTICLES AND PAPERS

Cost-benefit analysis for FAIR research data: cost of not having FAIR research data

FAIR research data encompasses the way to create, store and publish research data in a way that they are findable, accessible, interoperable and reusable. In order to be FAIR, research data published should meet certain criteria described by the FAIR principles. FAIR originated from the current patchy data management practices in the EU, which are not optimal yet. Several local initiatives, as well as global ones, are making the move towards an infrastructure supporting the FAIR principles in order to get the most of research data. This report aims to estimate the cost of not having FAIR research data for the EU economy based on a series of measurable indicators, which were defined based on existing studies and interviews with subject matter experts.

Keywords: FAIR research data, cost-benefit analysis, innovation



E-COURSES

Research Data Management and Publishing

A course for PhD students, developed in collaboration with the Natural History Museum of the University of Tartu and the data management platform PlutoF. This course provides information on open science and open access publishing. Participants will learn how to create a data management plan and how to search for data in different open data repositories. The second part of the course teaches how to turn research data into machine-readable FAIR data. The course is available in English and Estonian languages.

Keywords: open science, open access publishing, data management plan, data repositories, FAIR data

Building Data Literacy Through Community and Citizen Science

The programme provides learners with the knowledge and skills to contribute to and interpret data through community and citizen science projects, and to learn how data literacy can be applied in everyday situations. Learners will be able to use free resources to introduce others to data literacy concepts.

Keywords: data literacy, citizen science



VIDEOS

The usefulness of FAIR data

In this video researcher Christian Skov talks about the citizen science project Fangstjournalen and how research data management, data sharing, and adherence to the FAIR principles for research data can increase the impact and value of research, even beyond the project. This video was produced by four Danish universities as part of a project funded by DEFF. The aim of the project is to identify the role of Danish research libraries in disseminating and supporting citizen science.

Keywords: research data management, FAIR principles



WEBINARS

Make Your Citizen Science Project Count: Strategies to Produce Quality Data

The webinar explores how citizen science groups have successfully integrated quality assurance approaches into their projects to help answer community environmental and public health questions.

Keywords: citizen science, quality assurance

ESTONIAN



THESES

Elurikkuse teemalise harrastusteaduse andmete kasutus Eestis: võimalused ja probleematika

This master's thesis studies the practical use of citizen science data in Estonia based on the Nature Observation's Database, eBiodiversity portal that consolidates Estonian biodiversity, and the garden bird observations organised by the Estonian Ornithological Society.

Keywords: citizen science, data use

Quantifying online citizen science: Dynamics and demographics of public participation in science

The paper presents the largest quantitative study of participation in citizen science based on online accounts of more than 14 million participants over two decades. It finds that the trend of broad rapid growth in online citizen science participation observed in the early 2000s has since diverged by mode of participation, with consistent growth observed in nature sensing, but a decline seen in crowdsourcing and distributed computing. Most citizen science projects, except for nature sensing, are heavily dominated by men, and the vast majority of participants, male and female, have a background in science. The analysis presented provides, for the first time, a robust 'baseline' to describe global trends in online citizen science participation. These results highlight current challenges and the future potential of citizen science. Beyond presenting the analysis of the collated data, the work identifies multiple metrics for robust examination of public participation in science and, more generally, online crowds. It also points to the limits of quantitative studies in capturing the personal, societal, and historical significance of citizen science.

Keywords: citizen science, participation, online citizen science projects



E-COURSES

Engaging the Public in Responsible Research and Innovation course

The course will help understand and justify the importance of public engagement as a key dimension of responsible research and innovation and open science. It provides tools to design, implement and assess a public engagement strategy within research funding and performing organisations.

Keywords: open science, public engagement, engagement strategy

Volunteer engagement, management and care

This is a free course of approximately 1 hour 45 minutes. It is designed for anyone who spends a lot of time interacting with citizen scientists, for example by recruiting people to participate in your project, writing blogs, working as a group leader or moderating a discussion forum. Participants will need to be familiar with citizen science, but no detailed knowledge is required.

Keywords: citizen science, volunteers, recruitment



REPORTS

Public report on current methods in CS Engagement

This project report is based on a research literature review for project "Citizen scientists investigating cookies and app GDPR compliance". It focuses on the skills and learning opportunities of citizen scientists during participation in projects and investigates what motivates participants to volunteer in projects.

Keywords: citizen science, engagement, motivation, impact

Guidelines for Diverse Citizen Science Recruitment

This project report includes guidelines written during the project "Citizen scientists investigating cookies and app GDPR compliance". It explores the means that have been adopted to achieve balanced and diverse participation in citizen science, taking into consideration gender, socio-economic and geographic factors.

Keywords: citizen science, recruitment, diversity of participants

Enabling open science and societal engagement in research

This report presents insights and recommendations from a workshop held on 1 July 2021 attended by beneficiaries of the Science with and for Society (SwafS) Responsible Research and Innovation institutional change portfolio of projects funded under Horizon 2020 and the initial group of European University Alliances under the European Universities Initiative that received funding under the SwafS programme. Participants discussed how open science and societal engagement could be enabled to become the norm in research performing organisations across the European Research Area, with a particular focus on universities.

Keywords: open science, societal engagement, universities, good practices



BLOG POSTS

How many citizen scientists in the world?

The blog post by Muki Haklay explores the realm of citizen science. It discusses the engagement of non-professional individuals (citizens) in scientific research, data collection, and analysis. The post likely delves into the benefits, challenges, and potential impact of citizen science on understanding the world around us. It presents 7 levels of engagement.

Keywords: citizen scientists, engagement, data collection



WEBINARS

Wide Angle Lens of Volunteer Engagement with UMN Extension

Citizen Science Association webinar. The session will present a model that describes the full cycle of a volunteer's experience throughout their volunteering period, and puts the training in the context of the other core components of the programme.

Keywords: citizen science, volunteers

LATVIAN



PRESENTATIONS

Sabiedriskā zinātne Latvijā: konferences prezentācijas

Presentations of the conference "Citizen science at Latvia". Presentations touch on different areas of research and engagement, including sharing experiences on citizen engagement practices.

Keywords: citizen science, engagement



REPORTS

Līdzdalības māksla: kopienas mākslas iniciatīvas vietējo kopienu stiprināšanai. Labās prakses piemēri Latvijā

The material explains the concepts, main directions and meaning of participatory and community art. It covers organisational aspects such as building community partnerships, working with artists, developing the project concept and project management. At the end, examples of good practice in Latvia are also provided. The material has been produced within the framework of the project "Participative Arts", implemented by "CultureLab" (NGO).

Keywords: participation, community, partnership



VIDEOS

UNESCO Pasaules zinātnes dienas diskusija: Kā jauniešiem iesaistīties

UNESCO World Science Day discussion on "How can young people get involved in science?", with a panel of citizen science practitioners discussing how young people can get involved in citizen science initiatives and how the data and work they contribute adds value to the research. Several examples of citizen science initiatives are also mentioned in the discussion.

Keywords: citizen science, young people engagement

LITHUANIAN



REPORTS

Viešosios politikos pasiūlymai kaip skatinti piliečių įsitraukimą į mokslinių tyrimų procesus siekiant spręsti socialinės gerovės problemas ir kuriant viešąją vertę

Recommendations for policymakers how to enhance citizen engagement into science with the purpose to solve social problems and create public value.

Keywords: citizen engagement, recommendations, social problems, public value



6

LEGAL AND ETHICAL CONSIDERATIONS

The resources in this chapter discuss privacy and confidentiality when collecting data and explain the importance of informed consent for participants, both equally important when working with citizen science projects.

ENGLISH



REPORTS

Ethics Framework and Guidelines for Participatory Processes in the Activities of Research Funding Organizations

The authors developed a framework that focuses on the activities of research funding organisations (RFOs), including participation in strategy development and agenda setting, call topic definition and formulation, (project and proposal) evaluation processes, and R&I projects. The framework addresses the contexts, resources, and needs that affect decisions on how to conduct participatory processes in an ethical manner. It also provides guidance to ensure stakeholder participation follows the values of fairness, transparency, equality, and privacy.

Keywords: ethics, fairness, transparency



E-COURSES

Data Ethics for Practitioners

This course is aimed at developers and managers of participatory science projects, including citizen and community science projects. The course will help you to ‘think like an ethicist’ by identifying important ethical responsibilities, tensions and issues that may arise in a CS project and use them to inform your decision-making. The tutorial is designed to help you understand the unique obligations associated with the collection, management and dissemination of project data in a way that promotes trust among practitioners, participants and partners.

Keywords: data collection, data management, data ethics

Basic regulations and ethics for citizen science

A free 1-hour course that provides a basic understanding of the rights and responsibilities of citizen scientists in collecting data, analysing data and co-authoring scientific articles. Particular attention is paid to the handling of sensitive data (e.g. medical or personal data) and the ethical requirements for collecting information. Registration on the EU-Citizen.Science Moodle platform is required.

Keywords: citizen scientists, responsibilities, sensitive data, ethical requirements



7

PROMOTION AND OUTREACH STRATEGIES

The resources in this section offer ideas for citizen science promotion, organising workshops, webinars, and citizen science-themed events. It also explores coworking partnerships with schools, universities, and community organisations.

ENGLISH



BOOKS

Guide to Using Social Media for Citizen Science Projects

The guide brings out the importance of using digital media effectively in CS projects and provides information on what channels to use and how to include the community. Includes 7 case examples.

Keywords: citizen science, communication, social media



WEBINARS

Libraries and the Valorisation & Dissemination of Citizen Science Results

The LIBER Citizen Science Working Group's and SciStarter's third joint webinar focusing on Citizen Science engagement and best practices. The webinar highlighted how academic libraries can play an important role in sharing and emphasising the reliability of Citizen Science research outputs.

Keywords: libraries, citizen science, promotion



E-COURSES

Science Communication

A free interactive online course explaining why science communication is important and what it looks like in practice. It also teaches the basic concepts and essential skills needed to master science communication. You will learn how to read, watch videos and complete assignments.

Keywords: science communication, creative writing, storytelling

ESTONIAN



THESES

Kommunikatsiooni tõhususe hindamine üleeuroopalise harrastusteaduse projekti "Euroopa otsib nurmenukke" põhjal

This bachelor's thesis tries to establish the factors affecting the effectiveness of communication in the citizen science project "Looking for Cowslips", specifically focusing on non-governmental organisations to give recommendations for better organisation of communication in similar projects.

Keywords: citizen science, communication, non-governmental organisations



8

GOOD PRACTICES, EXAMPLES AND RECOMMENDATIONS

The resources in this section provide insight to the good practices that have been tested in citizen science projects as well as ample real-life examples and recommendations from specialists in the field.

ENGLISH



ARTICLES AND PAPERS

Adopting Citizen Science as a Tool to Enhance Monitoring for an Environment Agency

The article details how the the Australian Office of Environment and Heritage (OEH) achieved support and endorsement for its citizen science program. The authors describe pilot studies implemented to demonstrate how citizen science can augment environmental monitoring and enhance the way OEH interacts with its citizen science community. It outlines organisational challenges that the staff encountered when establishing a citizen science program as well as the steps undertaken to address these challenges.

Keywords: government, citizen science, decision-making, barriers

Citizen science: a developing tool for expanding science knowledge and scientific literacy

This paper describes a model for designing and running citizen science projects that has been developed with the help of specialists from different fields at the Cornell Lab of Ornithology over the last two decades. The article focuses on and describes the nine stages of project development, supplemented by practical examples.

Keywords: citizen science, project development, practical examples

Whitepaper on Co-evaluation of Citizen Social Science

This publication is based on the experiences collected over the course of 30 months while implementing participatory evaluation practices in the European funded research project CoAct. This citizen social science project's primary goal was to address social concerns such as youth employment, mental healthcare, environmental justice and gender equality in the context of local citizen social science initiatives.

Keywords: social sciences, social concerns, impact evaluation

Assessing the value of citizen scientist observations in tracking the abundance of marine fishes

The results of the article suggest that citizen scientists can be effective sentinels of ecological change, and that there may be substantial value in leveraging their observations to monitor otherwise data-limited marine species.

Keywords: citizen scientists, observations, marine fish

 **VIDEOS**

How to host a CS project on PlutoF

Short Video demonstration presenting platform PlutoF and how to use it. PlutoF provides online services to manage biological data fully integrated and ready for analyses or publishing.

Keywords: citizen science, data publishing, platform

Opportunities and Challenges with Citizen Science

Blog post by Alexander Refsum Jensenius, Humanities Researcher and member of the EUA Open Science/Science 2.0 Expert Group. The author provides an insight into his presentation at the webinar “Citizen Science in an Institutional Context” organised by OpenAIRE and EUA. The author gives his views and shares his knowledge on the definition, opportunities and challenges of citizen science and presents two projects: Hjernelæring and MusicLab.

Keywords: citizen science, universities, citizen science associations, projects, good practices

 **AUDIO**

How to craft a research project with non-academic collaborators

Podcast organised by Nature Careers and Nature Index where researchers and representatives of different projects share their experience about team science.

Keywords: team science, project design

Methodologies & Evaluation: Setting up Youth Citizen Social Science

Dr Claire Murray from ECSA presents at the second webinar on Youth Civic Social Science. This formed one part of a full webinar where the community discussed methodologies and evaluation.

Keywords: citizen science, methodologies

ESTONIAN **ARTICLES AND PAPERS**

Kotkaurija: harrastusteadus võiks sagedamini teadustööks vormuda

In this article, a senior researcher at the Estonian University of Life Sciences speaks about how the data collected in Internet forums by people who were watching bird nest camera feeds can be used in ecological research.

Keywords: data collection, ecological research

Waterlands

At the end of 2021, the spectacular WaterLANDS project started in Estonia and 13 other European countries, within the framework of which it is planned to restore a total of 10,500 hectares of damaged wetlands in many parts of Europe. The project wants to create good restoration practices that can be used to restore other wetlands in the future. They work closely with local people, companies, municipal governments and other interest groups so that the restoration of wetlands not only improves the natural environment but also creates social and economic support for communities.

Keywords: project, wetlands, communities

Liivi lahes võetakse luubi alla uppunud kalavõrgud

The newspaper article speaks about the Re:Fish project, which is not directly a citizen science project, but the sub-theme and output of one of the work packages is citizen science and the involvement of people to collect data and contribute to the results of the project.

Keywords: people involvement, data collection

Citizen science: Inspiring examples of societal engagement for Horizon Europe/ Ühiskonna kaasamise innustavad näited programmis „Euroopa horisont“

This Results Pack showcases 12 EU-funded projects that are developing good practices as well as building the capacities and networks needed to foster successful collaborations with citizens across Europe. Available in several languages.

Keywords: citizen science, good practices, collaboration

Harrastusteaduse projektid Loodusveebi lehel

List of CS projects (mainly natural sciences) in Estonia.

Keywords: citizen science, projects, Estonia



THESES

Harrastusteaduse roll Euroopa loomaaedade ja akvaariumide tegevuses

The aim of the bachelor's thesis is to provide an overview of the nature and development of citizen science and to find out whether and how European zoos have used its methods in scientific, nature conservation or nature education activities, that is, whether they have involved the general public in addition to scientists to achieve their goals.

Keywords: citizen science, engagement, zoo, nature conservation

LATVIAN



ARTICLES AND PAPERS

Priekšnoteikumi kopienas mākslas projektu veiksmīgai īstenošanai

The material "Preconditions for the successful implementation of community art projects" was created as part of the "Participative Art" project, implemented by the "CultureLab" (NGO). The material includes such preconditions as "project center - community", "developed partnerships", etc. For each precondition, a description is available, the meaning is explained, and tips for successful implementation are provided.

Keywords: community, partnership

Latvijas bibliotēku novadpētniecības darba rokasgrāmata

A guide on Latvian libraries' regional history research prepared by the Library Development Centre of the National Library of Latvia. It provides information on the fundamental issues, principles, processes and methods of regional history research practices, with examples. One of the topics is cooperation, partnership, coordination, which also includes public involvement in the regional history research process.

Keywords: cooperation, partnership, public involvement



WEBINARS

Līdzdalības pētījumi: Kā sabiedrības iesaiste zinātnē palīdz sabiedrībai

As part of the "Connect to Science" series, a webinar on "Participatory Research: How Public Engagement in Science Helps Society?" Thomas Egli, founder of the international non-governmental organisation "Objectif Science International" and consultant to the UN Economic and Social Council, shared his experience on citizen science and participatory research. Event was organised by the Ministry of Education and Science in cooperation with the French Institute in Latvia. In English with Latvian subtitles.

Keywords: citizen science, participatory research

Zinātne ārpus laboratorijas telpām (Part in English and part in Latvian)

The seminar "Science beyond the laboratory", organised by the Ministry of Education and Science, provides an opportunity to learn about international and national good practices in citizen engagement in science, to learn from the experience of the seminar participants, and to discuss various ideas, including the development of citizen science initiatives. Reflections from the seminar have also been used in various policy planning documents.

Keywords: citizen science, engagement, policy

Timekļsemināra ieraksts - Sabiedriskā zinātne (Citizen science): pētnieku un sabiedrības mijiedarbība pētniecības procesā

A webinar recording that was organised in the framework of the Open Access Week 2023 at the Library of the University of Latvia, where researchers, library staff and others were introduced to the phenomenon, opportunities and examples of citizen science in Latvia, including the LibOCS project.

Keywords: citizen science, library staff



AUDIO

Zinātnieki izmanto datorspēļu fanu aizrautību pētījumiem

A recording of a popular science radio magazine programme "The Known in the Unknown", in which citizen science in the context of computer games is discussed by Leo Seņģis (UL professor of the Faculty of Computer Science) and Elviss Strazdiņš (founder of Latvian Game Developers Association). They answer questions on how playing computer games can get people interested in science, how people can contribute to research in this way as well as identify fields of science where computer games can be more successfully applied, etc.

Keywords: citizen science, computer games, engagement



PRESENTATIONS

Prezentācija - Sabiedriskā zinātne (Citizen science): pētnieku un sabiedrības mijiedarbība pētniecības procesā

Presentation from the Open Access Week 2023 webinar organised by the Library of the University of Latvia. The presentation looks at the phenomenon, opportunities and examples of citizen science, including the LibOCS project. At the end of the presentation there are other relevant resources about the topic.

Keywords: citizen science, examples

LITHUANIAN



VIDEOS

BOINC: ar kartu galime sukurti superkompiuterį?. Piliečių mokslas #4

An interview with the creator of BOINC, a computer program created in 2002 at the University of California, Berkeley, designed to connect thousands of consumer computers and smartphones into one extremely powerful "supercomputer". Explains how it could be used to get involved in citizen science and thus contribute to real scientific research.

Keywords: citizen science, shared resources, computers, smartphones

Sakuros - ne tik pavasario, bet ir globalių klimato pokyčių pranašai. Piliečių mokslas #5

The video tells how observations of cherry blossoms over 1,000 years, recorded in the annals of Japan, are helping modern scientists to understand how temperature and climate have changed. It also highlights the citizen science project "Cherry blossom blitz", in which participants record the onset of cherry blossom in different regions. The data collected helps monitor climate change.

Keywords: citizen science, climate change, data collection

The GLOBE citizen science program in Lithuania!

The video introduces GLOBE citizen science program and local student involvement in Lithuania.

Keywords: citizen science, students, involvement

Drinkable Rivers citizen science in Lithuania

Technarium hackerspace in Vilnius is one of the "Drinkable Rivers" citizen science hubs. It shows how people can rent a water quality testing kit, and check their local river. The data is uploaded to an international database for anyone to use.

More about the international project: drinkablerivers.org.

Keywords: citizen science, projects, databases



9

POLICIES

The resources in this chapter describe the aspects that have to be kept in mind when compiling policies and documents that govern citizen science activities.

ENGLISH



ARTICLES AND PAPERS

D5.7: Policy Recommendations

The document describes policy recommendations developed during the INCENTIVE project. It suggests how policymakers can create favourable framework conditions, for example, through regulations, legislations, support schemes, etc., for the institutionalisation of CS within RPOs.

Keywords: citizen science, regulations

Very Large Research Infrastructures: Policy issues and options

This policy report identifies and analyses good practices and presents a series of lessons learned regarding the establishment of Very Large Research Institutions (VLRIs), options for improving their use and operation, as well as more strategic considerations that VLRI managers, funders and decision-makers should take into consideration.

Keywords: very large research infrastructures, policy



REPORTS

Roadmap 2021 - Strategy Report on Research Infrastructures

This document is a comprehensive strategic plan outlining research infrastructure priorities in Europe. It covers various fields like energy, environment, health, and social sciences. The roadmap is crucial for coordinating and developing research facilities across European countries, ensuring optimal resources and collaboration.

Keywords: research infrastructures

ESTONIAN

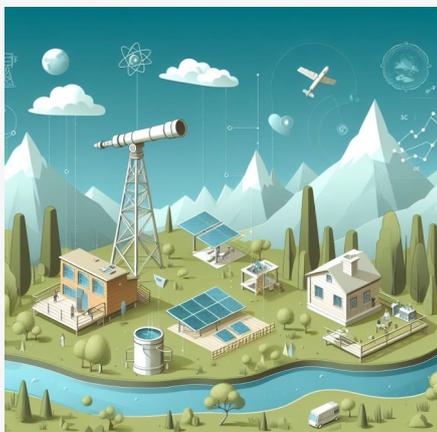


THESES

Eesti keskkonnavaldkonna avalike teenistujate suhtumine harrastusteadusesse keskkonnakorralduses

The aim of this master's thesis is to explore the different viewpoints held by public servants in the field of the environment on citizen science in environmental management in Estonia.

Keywords: citizen science, Estonia, environmental policy



10

INFRASTRUCTURES

The resources in this chapter give an overview of the research infrastructure that is needed for citizen science activities, including digital platforms.

ENGLISH



ARTICLES AND PAPERS

Open Access Research Infrastructures are Critical for Improving the Accessibility and Utility of Citizen Science: A Case Study of Australia's National Biodiversity Infrastructure, the Atlas of Living Australia (ALA)

A case study of how biodiversity research infrastructure (RI), the Atlas of Living Australia (ALA) has supported the growth of citizen science over the past decade by improving access to and utility of citizen science data and products. It discusses how RI, like the ALA, supports common citizen science data challenges. The findings demonstrate the importance of investment in open access research infrastructure to support and augment the scientific value of the citizen science movement.

Keywords: citizen science, research infrastructure, environmental monitoring

A Novel Model for Building Digital Infrastructure for Biodiversity Studies

This research proposes a novel way to build a digital infrastructure for conducting Biodiversity studies. The proposed system allows citizens and professionals to come together and work on a common platform. It is a collaborative system where discussion on identification and validation of the organisms can be done through seamless integration with third party applications.

Keywords: research infrastructure, biodiversity studies, collaborative systems

Astro 2020 'Infrastructure Activity' White Paper: Citizen Science as a Core Component of Research Infrastructure

The Zooniverse model of an open platform, available to researchers for free, has been instrumental in enabling projects to apply a citizen science approach to data analysis. In integrating machine learning into the citizen science system, the authors have learned that humans and machines working in combination addresses the classification problem with greater facility than machines alone.

European charter of access for research infrastructures – Principles and guidelines for access and related services

The article describes how research infrastructures are at the core of the knowledge triangle of education, research and innovation by offering high quality services and helping in structuring the scientific community.

Keywords: research infrastructures, open science, development

ABOUT

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LICENSING

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