







F0228



#DFFUvinter2019 #OS19DK









Citizen Science and Research Libraries

time for joining actions



Science and Society: Culture & Relationship



SOCIETY

SCIENCE

Drugs

Services

Hopes Meanings

Innovation Dreams Expectations

Policies

Education Knowledge .

Products

Treatments

Infrastructure

Science and Society: Culture & Relationship







why should we bother?



Citizen Science: a missed opportunity

We need data and collective intelligence that is orders of magnitude larger than what scientists could do alone.

The underuse of citizen science is a missed opportunity for science and society!



Citizen Science: What is it?



[...] citizens actively contribute to science, either with their intellectual effort or surrounding knowledge or with their tools and resources





Citizen Science can:

accelerate and sometimes even make possible the production of new scientific knowledge;

help policy-makers monitor implementation and compliance with regulations;

increase public awareness about science and feeling of ownership of policies

enable faster and evidence-informed reactions to events and better territorial coverage.





Citizen Science: Competence Areas

- Enhance Scientific Research
- Address Societal Needs
- Hands-on learning
- Connects members of the public directly to researchers' agendas.









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Before we go further...

Climate change related to egg-laying trends Humphrey Q. P. Crick & Timothy H. Sparks Nature volume 399, page 423 (03 June 1999) doi:10.1038/20839

Citations: 382

We have studied a data set spanning 57 years and find that laying date is related to temperature or rainfall for 31 of 36 species (86%), and that 53% of species show long-term trends in laying date over time, of which 37% can be statistically accounted for by changes in climate.



Before we go further...

The impact of climate change on birds

Humphrey Q. P. Crick

First published: 23 September 2004 https://doi.org/10.1111/j.1474-919X.2004.00327.x (Wiley)

International Journal of Avian Science

Volume146, Issues1, September 2004, Pages 48-56

Citations: 221

Probably the longest and largest scale dataset on the timing of breeding derives from the BTO's Nest Record Scheme (NRS; Crick et al. 2003).

Started in 1939, it currently collects c. 30 000 individual nest histories per annum for c. 120 species of birds from throughout the UK. Initial analysis of data for 65 species over a 25-year period (1971–95) showed that 20 exhibited statistically significant trends towards earlier laying and only one had become significantly later.



Before we go further...

Caren Cooper

Citizen Science: How Ordinary People are Changing the Face of Discovery

The British government, at negotiations to adopt the Kyoto Protocol to the UN Framework Control on Climate Change, refferred to the study (n.b. H.Q.P Crick) as evidence that real effects on wildelife were already occurring

Nature accepted the paper and published it in August 1997. [...]. For the 1999 paper he analyzed almost a million nest records

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Citizen Science: Where to use it?

PHYSICS

MATHEMATICS

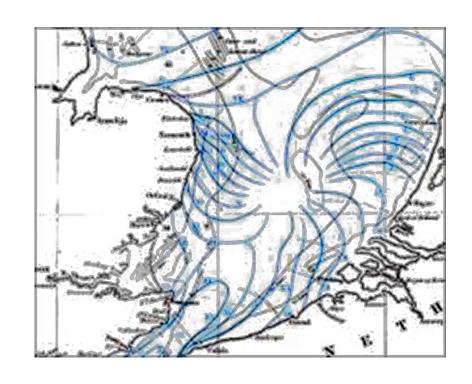
NEUROSCIENCE

GOVERNANCE

ENVIRONMENTAL STUDIES

DIGITAL HUMANITIES

... all fields





Curieuze Neuzen

52,626 Candidates. 20,000 selected.

90% of measurements passed the quality control
Started in April; final resulty in September 2018
Unique results like maps that identify the polution
canyons within the cities.



The newspaper De Standaard provides logistical support, organizing the distribution of the measurement kits, and leads the recruitment campaign and communication with the general public



Citizen Science: In Practice

UCL: Transcribe Bentham



Many hands make light work.

Many hands together make merry work.

- Jeremy Bentham (philosopher and reformer)

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Citizen Science Sans Frontières





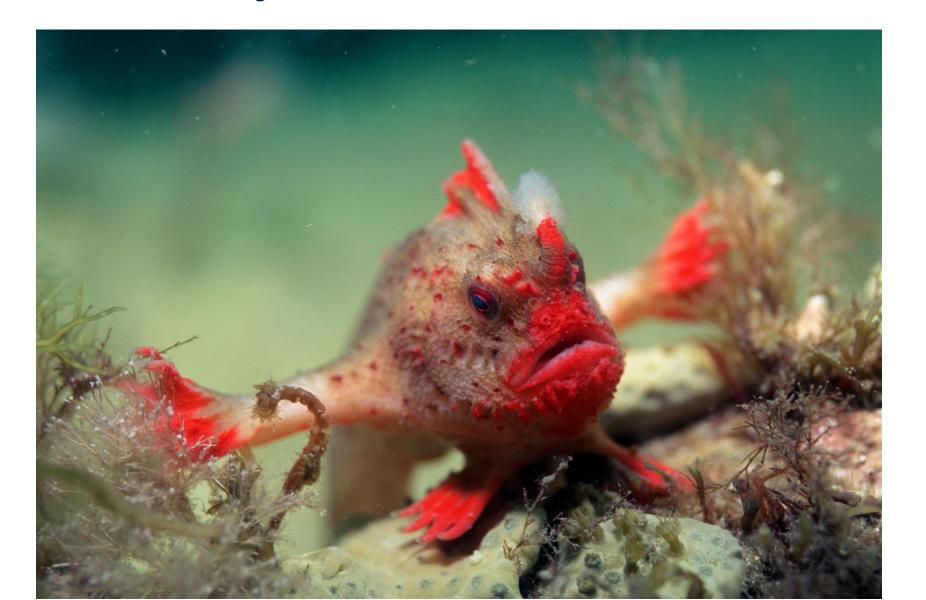
CoCoast

...a three year collaborative project that is bringing together a range of charities, universities and volunteers across the UK to investigate the fabulous diversity of marine life across British coastline.



SKS. Scientific Knowledge Services

Lost and found ... by amateurs





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A day of mixing pleasure with science





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Citizen Science and Networks

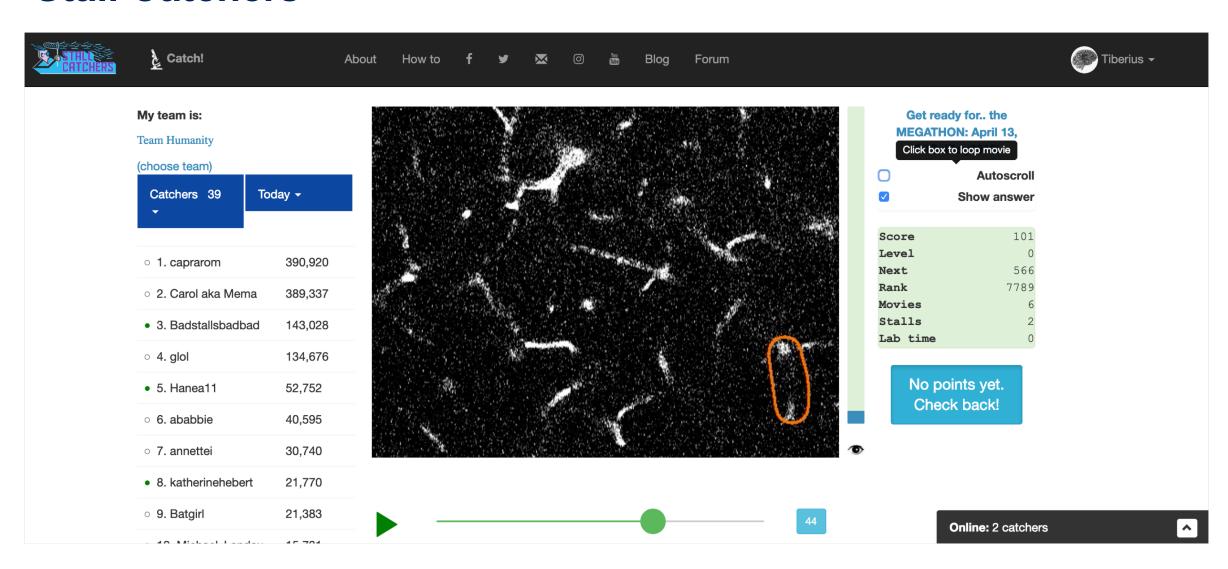


How can citizen science be used to communicate and provide data for social network analysis?

University of Leiden in cooperation with the Applied Mathematics department at Eindhoven University of Technology and with funding from the NWO gravity ('zwaartekracht') program NETWORKS.

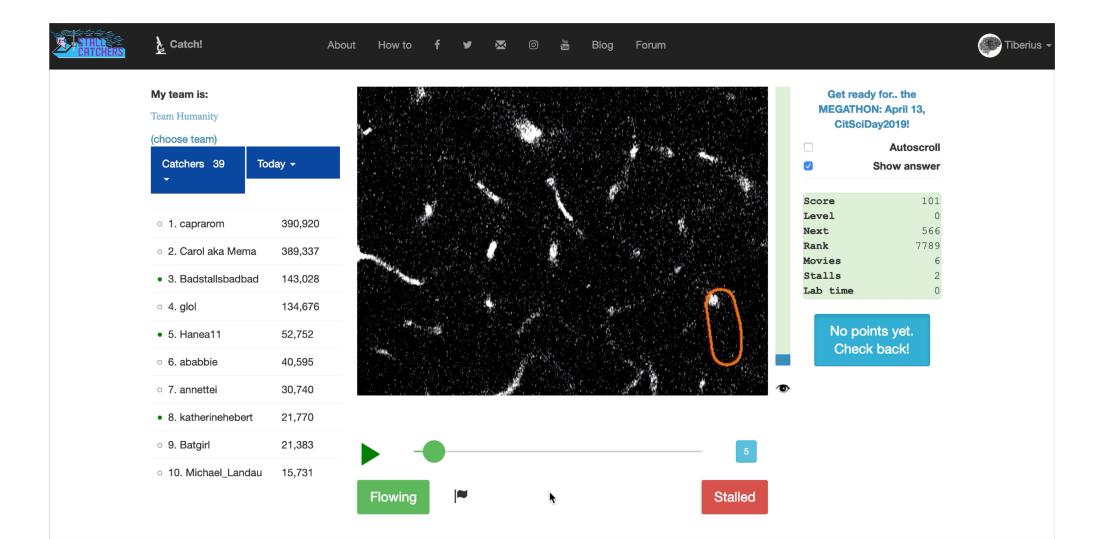


Stall Catchers





Megathon: 13 April 2019, Citizen Science Day, USA Goal: 1 year Work-Lab to be achieved in 1 hour





Serious-ification: Citizen Science for Serious Gamers

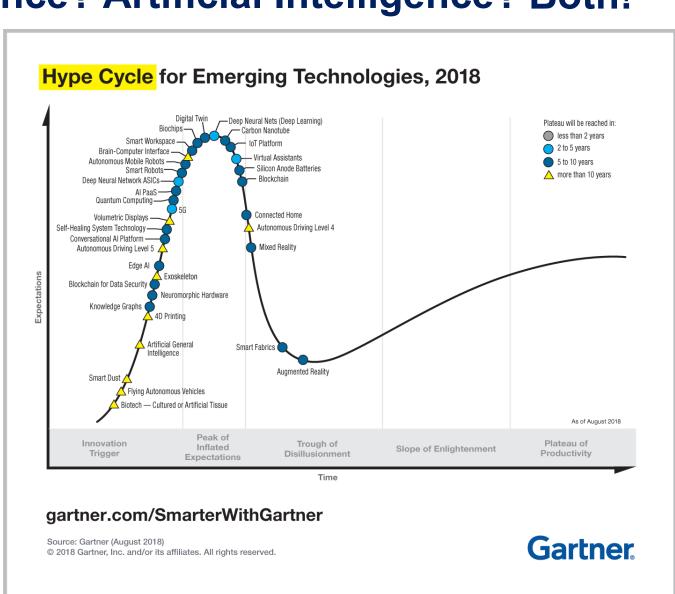
THE HUMAN PROTEIN ATLAS





300.000 citizen scientists generated more that 33 million image classifications

Citizen Science? Artificial Intelligence? Both!







Citizen Science? Artificial Intelligence? Both!

"People tend to

overstate

the short-term potential of new technologies and

understate

their long-term consequences."

- Paul Saffo
- Ray Amara, "Amara's Law"





The Economic Value of Citizen Science

Researchers at the University of Washington analyzed 338 citizen science biodiversity projects (1930-2012).

The estimated in-kind contributions of 1.3-2.3 million citizen science volunteers to biodiversity research have an economic value of up to \$2.5 billion per year.









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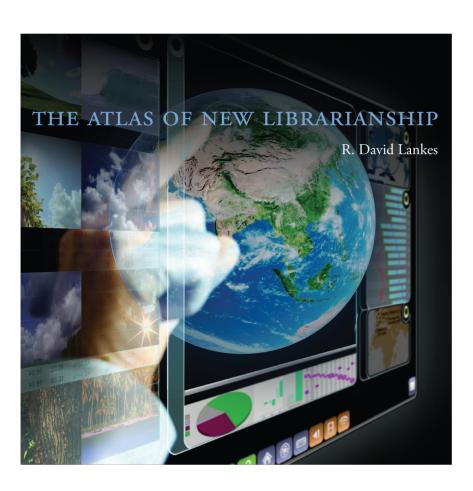
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Is Citizen Science a new role for libraries?



Libraries to enrich, capture, store, and disseminate the conversations of their communities

R. David Lankes, *The Atlas of New Librarianship*, 2012



Is Citizen Science a new role for libraries?

A cultural change to Libraries of Knowledge, Meanings and Learning.

Knowledge and meaning through conversation.

Learning through participation.



Is Citizen Science a new role for libraries?

...a great library inspires, challenges, provokes and respects the community it serves. The library of the future is about knowledge creation and sharing. Libraries and librarians that take a proactive approach by working with their communities to identify the aspirations and dreams of their citizens will thrive. Expect libraries to evolve into advocates for their communities in our complex digital world; centers of learning and innovation; and places that help communities create and distribute knowledge.

- R. David Lankes, The Atlas of New Librarianship, 2012



Citizen Science in LIBER's Open Science Roadmap

Citizen Science, or the participation of the general public in the scientific research process, is an important element in establishing new links between science and society. It is thus essential to implementing Open Science, can contribute to innovation tailored to the needs of society, lead to reciprocal learning and foster a scientific culture across society as a whole.



Recommendations

- Promote the library as an active partner in Citizen Science and develop the necessary infrastructure to effectively support public researchers in their work.
- Use the **library's role as an organising and managing body** to ensure that responsible conduct and good scholarly practice are respected when participating in Citizen Science.
- Develop a set of guidelines including methodologies and policies for Citizen Science activities involving the library
- **Develop the necessary skills** to be a strong and active partner in Citizen Science, including skills in the areas of scientific communication, information technologies and project management. These skills should be attained not only internally in libraries but in collaboration with researchers and the public.





Citizen Science in LIBER's Open Science Roadmap





The Topics:

Emerging initiatives

Citizen science and public engagement
Copyright and legal matters
Information ethics
Open Science, including Open Access
Linked open data and semantic interoperability
Digital humanities and digital cultural heritage
The future of collections
Bibliometrics





Citizen Science in EC's OSPP Advice



• Public

The control of the co

OSPP-REC

Open Science Policy Platform Recommendations

Recommendations:

- Publicly funded Citizen Science projects (as part of FP9 projects) should actively apply the principles of Open Science (including openness and reuse of all research outputs, data and publications).
- Research-performing organisations (RPOs) are encouraged to promote infrastructures and human capacity to create a **supportive and open environment for Citizen Science**, which can further strengthen the outreach of RPOs to society. **Research libraries are well placed**, amongst others, to contribute actively to the necessary **coordination and communication infrastructures as well as relevant training**, fostering skills such as community management, co-production of knowledge, Open Science standards and social diversity. Appropriate funding and incentives need to be put in place to support this endeavour.
- The EC must support an online toolkit for Citizen Science in Europe. This tool must promote Citizen Science as a European asset, offering an entry point and mutual learning space, interconnecting with existing activities and infrastructures at the European, national and local level. It should highlight particular achievements and best practices, and promote a clear set of principles, guidelines & quality criteria for Citizen Science.
- **Funding for Citizen Science** projects should be flexible, long-term and allow for small or experimental projects in collaboration with key stakeholders to be funded. A small section of FP9 should be set aside for citizens to propose research topics or projects. These should be chosen on the basis that they are high risk, beyond traditional research fields and conform to the rigorous standards expected of other projects. Successful proposers will need to work with compliant institutions.



Citizen Science in EC's OSPP Advice







Citizen Science in LERU Open Science Roadmap





LERU recommends that universities:

- Recognise citizen science as an evolving set of research methods, as well as its societal and educational benefits.
- Consider creating, where viable, a single point of contact for citizen science within the institution.
- Raise awareness amongst researchers of criteria for successful citizen science and ensure compliance with ethical, legal and privacy regulations.
- Develop ways of assessing citizen science contributions and adapt research evaluation and reputation systems accordingly.
- Ensure that proposals to granting bodies for citizen science projects include long-term commitment for infrastructures and data repositories.



Citizen Science in LERU Open Science Roadmap



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Emerging policies and recommendations





- Citizen Science receives the well deserved recognition
- Strong support at European level
- Research organisations, libraries are expected to act together towards existing and new citizen science intiatives
- Guidelines for next steps: building skills, methodologies, toolkits.
- Time to act: now!

Scientific Knowledge Services

Is Citizen Science a new role for libraries?



The Librarian's Guide to Citizen Science

Understanding, planning, and sustaining ongoing engagement in citizen science at your library.





Practical recommendations

A toolkit for citizen science would be a useful instrument to support the creation of the aforementioned engagement.

Research libraries and public libraries across Europe and the world should seize the opportunity to develop joint services in the area of citizen science at local and international levels.









- Citizen Science receives the well deserved recognition
- Strong support at European level
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- Guidelines for next steps: building skills, methodologies, toolkits.
- Time to act: now!









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Designing Citizen Science services at Research Support Organisations









Designing Citizen Science services at Research Support Organisations (P.1)

Setting Citizen Science General Infrastructure

Develop organisation's Citizen Science single point of contact

Maintain responsibilities to keep the organisation's CS policy up to date

Position your institution as a CS-friendly institution. Marketing for RSO, etc.

Organise CS events in library and coordinate for the region

Develop collections of protocols; enrich with metadata and persisten identifiers

Develop collections of data forms: enrich with metadata and persistent identifiers

Develop collections of case studies, best practices, reports and research articles

Facilitate training for authors to CS projects (writing skills, dissemination skills, impact skills)

Organise Science Café

Facilitate community-review systems

Organise and maintain a makers' corner

Library of field tools



Designing Citizen Science services at Research Support Organisations (P.2)

Setting Citizen Science support for [Preparation]

Research phases

- Protocol Development
- * Participant recruitment
- Participant training

Examples

Maintain a collection of protocols and protocol templates.

Interview protocols. Data protocols. Graphs protocols

Dissemination protocols

Social Media protocols

Build (adapt) the specific recruitment programme together with scientists and

CS communities.

Seriousification (gaming)

Build with scientists a training programme..

Data training, protocol training, communication training, etc



Designing Citizen Science services at Research Support Organisations (P.3)

Setting Citizen Science support for [Lab Work]

Research phases

- * Data collection
- * Data entry

Examples

Support social interaction among participants

Disseminate data forms

Build collection and preserve data forms

Build and preserve collections of tools (sensors, lens, etc) to be landed to

volunteers.

Organise or be involved in "-thons" (incl. datathons)

Offer infrastructure for data entries (broadband, spaces, platforms)

Training for Data Entry

Make FAIR Data

Test and assess solutions for automatization

Implement security and preservation options for data



Designing Citizen Science services at Research Support Organisations (P.4)

Setting Citizen Science support for [Data Work]

Research phases

- Coding / Programming
- * Analysis
- * Dissemination

Examples

Contribute to data verfication

Facilitate reputation- and contribution-based data work

Organise or be involved in "-thons" (ex. heckathons)

Facilitate projects that combine or merge existing data sets

Build and maintain an index of experts (volunteers) in specific research fields

Diseminate research outputs in both scholarly communication and pop science

Encourage lay summaries

Promote activities that increase readership

Maintain communication channels

Create storytelling events

Insights - 31, 2018 Merry work | Tiberius Ignat et al.



Merry work: libraries and citizen science

This article highlights important new opportunities for libraries by analysing the roles they could potentially play in citizen science projects. Citizen science is one of the eight pillars of open science entified by the Open Science Policy Platform, an EC Working Group. The authors of the article suggest that roles for libraries wishing to support or engage in citizen science could include contributing to specific skills development; building and maintaining collections of protocols, data forms and educational materials; contributing to making data FAIR; supporting new communication roles; participating in recruitment and helping volunteers to participate in projects; participating in marketing activities; building further advocacy and developing or implementing a toolkit for citizen science projects. Several of these roles are illustrated by contributing authors in case studies from their institutions, where citizen science has already been embraced: University College London, the University of Barcelona, the University of Southern Denmark and Qatar National Library. This article thus presents a snapshot of what libraries have so far achieved in this sphere and the challenges and opportunities which remain.

Citizen science; University College London; University of Barcelona; Qatar National Library; University of Southern Denmark; research libraries; open science



Scientific Knowledge

Library Director

University of Southern



Pro-Vice-Provos (UCI Library Sorvicos) University College



Hand Office for the Dissemination of



Director, Digital Content 6. Engagement Qatar National Library



University of Southern



Hoad of External Projects, Faculty of University of Souther



DE GRUYTER

Open Information Science 2018; 2: 1-22

Review Article

Paul Ayris*, Tiberius Ignat

Defining the role of libraries in the Open Science landscape: a reflection on current **European practice**

https://doi.org/10.1515/opis-2018-0001

Received October 27, 2017; accepted December 23, 2017

Abstract: This collaborative paper looks at how libraries can engage with and offer leadership in the Open Science movement. It is based on case studies and the results of an EU-funded research project on Research Data Management taken from European research-led universities and their libraries. It begins by analysing three recent trends in Science, and then links component parts of the research process to aspects of Open Science. The paper then looks in detail at four areas and identifies roles for libraries: Open Access and Open Access publishing, Research Data Management, E-Infrastructures (especially the European Open Science Cloud), and Citizen Science. The paper ends in suggesting a model for how libraries, by using a 4-step test,

recomment with Onen Coinner This teston test is based on lessons during from



www.focusopenscience.org

Promote the concept of, values and best practices in the Open Science to European communities







Focus on Open Science

Home About Current Future Past Blog News

We are happy to announce that we come close to finalise our 2019 series of Focus on Open Science.

We will take this year a journey to:

Krosør (Denmark - 28.02),

Turin (07.05), Rome (09.05), Lovran (Croatia - 16.05), London (23.05), Madrid (28.05),

Budapest (17.09)

Gdansk (8.10), Paris (14.10), Kaunas (Lithuania - 29.10),

Graz (8.11 TBC)



www.focusopenscience.org



Jump start? What about 2019 Citizen Science Day (USA, April 13th)

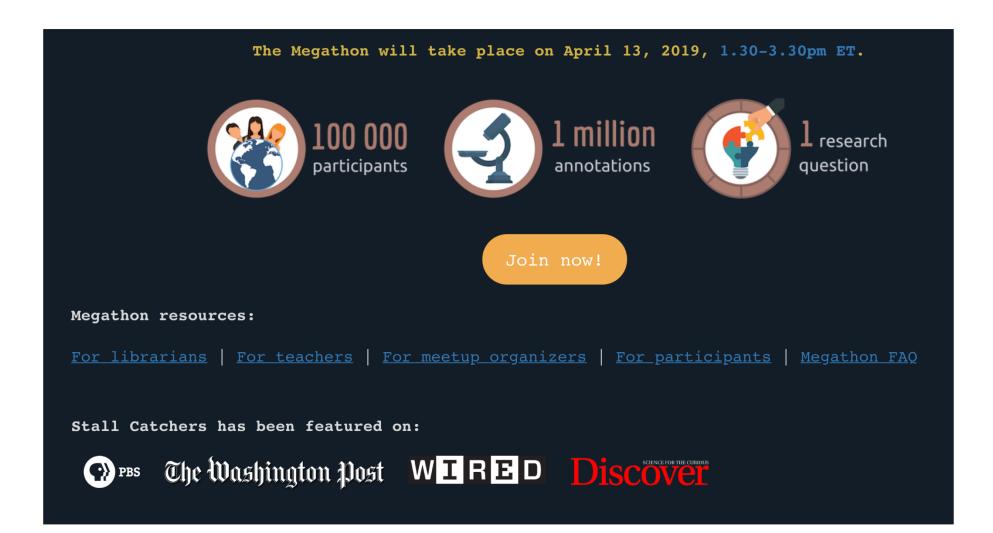
Citizen Science Day: Interest Form	
Thank you for your interest in Citizen Science Day 2019, presented by SciStarter and the Citizen Science Association! Hundreds of events will take place around the word on April 13, 2019, in celebration of citizen science. There are many ways to celebrate! A signature event this year is the Stall Catchers Megathon, where people will meet-up in libraries to participate in a fun, intergenerational online citizen science project to advance research on Alzheimer's. This project is ideal for libraries where computers are accessible.	
Whether you are interested in hosting a Megathon or celebrating Citizen Science Day through other activities, please complete this form. Filling out this form does not indicate a commitment to host a Citizen Science Day Celebration; rather, it shows your interest and allows us to contact you with more information. Email CarolineN@SciStarter.com with any questions.	
*Required	
Email address *	
Your email	
First and last name *	
Your answer	
Phone number	
Your answer	
What type of event space, if any, can you provide?	
Your answer	

 Megathon BioBlitz Citizen Science fair/expo Subject Matter Expert speakers Related reading program General promotions/awareness campaign (displays, posters, fliers, communications) Embed SciStarter's Project Finder on website or library's computers Host community programs about citizen science Other: Anyone interested will be invited to join open planning calls, held weekly on Wednesday at 4 PM EST. We'll provide support and guidance on how to access free resources during these calls and help facilitate knowledge sharing among participants. Tuning into these calls indicates your interest, and does not commit you to hosting a celebration. We will contact you with the dial-in information. * I plan to join the calls 	What type of Citizen Science Day activity are you interested in hosting? (select all that apply) *
Citizen Science fair/expo Subject Matter Expert speakers Related reading program General promotions/awareness campaign (displays, posters, fliers, communications) Embed SciStarter's Project Finder on website or library's computers Host community programs about citizen science Other: Anyone interested will be invited to join open planning calls, held weekly on Wednesday at 4 PM EST. We'll provide support and guidance on how to access free resources during these calls and help facilitate knowledge sharing among participants. Tuning into these calls indicates your interest, and does not commit you to hosting a celebration. We will contact you with the dial-in information. ★ I plan to join the calls	Megathon
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Related reading program General promotions/awareness campaign (displays, posters, fliers, communications) Embed SciStarter's Project Finder on website or library's computers Host community programs about citizen science Other: Anyone interested will be invited to join open planning calls, held weekly on Wednesday at 4 PM EST. We'll provide support and guidance on how to access free resources during these calls and help facilitate knowledge sharing among participants. Tuning into these calls indicates your interest, and does not commit you to hosting a celebration. We will contact you with the dial-in information. *	Citizen Science fair/expo
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	I plan to join the calls
I don't plan to join any calls	I don't plan to join any calls



Jump start?

Be part of Megathon and transform 1 year lab-work in 1 hour of fun!





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