

# Open Innovation Steering Committee

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## How Open Innovation Can Help Move Our Mission Forward

In a bureau with a mission as big and as important as ours, it's critical for us to capitalize on every opportunity we have to conduct research and gather data in more efficient and cost-effective ways. Crowdsourcing, citizen science, and civic hacking — all forms of open innovation — empower our scientists by leveraging the public as a valuable resource. As the USGS's Innovation Specialist, Sophia B. Liu works to help scientists understand the value of open innovation and participatory science. She currently serves as co-chair of the Federal Community of Practice for Crowdsourcing and Citizen Science (CCS), and has been nominated as the CCS Agency Coordinator for USGS and the Department of the Interior (DOI), in response to the 2015 White House Office of Science and Technology Policy memo "[Addressing Societal and Scientific Challenges through Citizen Science and Crowdsourcing](#)." In the post below, Sophia makes the case for why scientists across the Bureau should consider crowdsourcing, citizen science, and civic hacking.

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## Have You Tried Crowdsourcing, Citizen Science, or Civic Hacking?

Imagine having thousands or even millions of volunteers collect and analyze your data, validate and visualize your models, or be your human sensors. Through crowdsourcing and citizen science, this is possible. The ubiquity of internet access, mobile devices, and low-cost sensors have provided more opportunities than ever before to gather scientific data from the public. By tapping into this emerging network of volunteers, on the ground and online, we can enhance our scientific research, address societal needs, and increase scientific literacy at much broader scales.

## What is Crowdsourcing, Citizen Science, and Civic Hacking?

Crowdsourcing and citizen science are participatory approaches for gathering ideas, content, or services by soliciting contributions from a large group of people with relevant skills, resources, and/or experiences. The USGS has been a leading federal agency in implementing projects that engage the public to conduct surveys, provide observations, and monitor changes, notably with the [Breeding Bird Survey](#), [Did You Feel It?](#), [The National Map Corps](#), and [Nature's Notebook](#). We also mobilize citizens to participate in other parts of the scientific process, such as collecting or analyzing ground-truth data to validate our scientific models, as in the case with [iCoast - Did the Coast Change?](#) and [Adopt-a-Pixel](#). For the [Grand Canyon Insect Monitoring](#) program, we target youth river guides to help collect insects during their year-round river trips along the Colorado river, which is a huge cost savings to the USGS.

Civic hacking, or "hacking for good" (which is different from cyber attacks), is a creative and collaborative approach to problem solving. Typically, hackathons are gatherings that encourage meaningful engagement between technology developers, designers, data scientists, subject matter experts, civil society, and other relevant stakeholders, making them great places to understand our users and recruit new talent. The goal is to produce quick and creative solutions, learn new tools and skills, and meet new people. We hosted our first [USGS Hackathon](#) with the Federation of Earth Science Information Partners in April 2016 to learn how to produce machine-readable open data using open-source software. We also hosted the first [USGS Mapathon](#) in Reston on July 7 to celebrate and contribute to USGS open mapping efforts, like [The National Map Corps](#). The overwhelming feedback from these events was to regularly host more of them at our different science centers across the Nation.

Challenges and prize competitions engage the public by directly offering incentives in the form of money or other prizes to motivate public participation in contests that advance our agency's mission. This creates a competitive venue to solicit innovative solutions and fresh ideas from the public in an accelerated fashion. There is a growing interest in storytelling with data visualizations across the USGS to innovate how we analyze our big data and communicate our science. Challenges can be a way to engage more with our current and potential users to ensure our scientific products are actionable, accessible, and understandable. Last year's [Visualizing Nutrients Challenge](#) awarded \$15,000 for compelling visualizations on nutrient pollution in local waterways. You can learn more about developing federal competitions at [Challenge.gov](#) and the 2010 White House Office of Management and Budget memo "[Guidance on the Use of Challenges and Prizes to Promote Open Government](#)."

## Can I Trust Data from the Public?

People often raise concerns about the quality of data from the public compared to trained scientists. However, many CCS projects use rigorous procedures to ensure data quality, such as checking for agreement from multiple volunteers. The key is strategically tapping into crowds with pertinent skills, resources, and experiences. Sometimes, crowdsourcing might be the only way to ground truth our scientific models or even obtain ground-truth data. In fact, volunteers are often retired experts who are as dedicated and dependable as our trained summer interns. Engaging pertinent crowds ensures our science is relevant and reliable in a changing world with increasingly wicked problems.

## How Do I Get Started?

Are you interested in or working on developing a crowdsourcing or citizen science project and need resources to get started? Check out [citizensci](#)

[ence.gov](#), a portal to three key resources for helping federal agencies accelerate innovation through public participation. It contains a [catalog](#) of federally supported CCS projects (including the 42 projects sponsored by USGS in collaboration with 11 other agencies), a [toolkit](#) to assist with designing and maintaining federal CCS projects, and a gateway to the [Federal Community of Practice for Crowdsourcing and Citizen Science](#). Also, watch the recent American Chemical Society congressional briefing on [Citizen Science: Empowering a Robust National Effort](#) and some of the videos from [The Crowd & The Cloud](#), a new public television series about citizen science.

## Call for Open Innovation Committee Members

If you have an interest in joining an open innovation steering committee, we are looking for representatives from different mission areas, regions, and science support offices at the USGS and other DOI bureaus. This is an opportunity to learn about emerging CCS projects from across the bureau and department, as well as work on the following tasks to sustain and institutionalize these participatory efforts:

- Updating the [Federal CCS Catalog](#) to promote new CCS projects at the USGS and DOI,
- Creating a DOI Generic Information Collection Request (ICR) for CCS projects similar to [EPA's Generic ICR Clearance](#) to reduce administrative and policy barriers, and
- Developing participatory events like hackathons, mapathons, and appathons for each of the [State of the USGS Priorities](#) with the first being the [Mapping Innovation Series](#) kicking off on August 16.

I will help lead this open innovation steering committee to strengthen the coordination, support, and capacity for participatory science and innovation within USGS, DOI, and other DOI bureaus. If you are interested in being a steering committee member, are working on a new citizen science project, or have any questions about participatory science and innovation, contact me at [sophialiu@usgs.gov](mailto:sophialiu@usgs.gov). Also, consider answering [this short poll on open innovation](#).

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