

The Public Laboratory

PROJECT	GRANTEE	INNOVATION	GRANT
The Public Laboratory	The Public Laboratory for Open Technology and Science	An online community and set of toolkits that enables citizens to gather environmental data about their own communities	\$500,000

The Public Laboratory (“Public Lab”) is a collaborative network that develops inexpensive and accessible do-it-yourself (DIY) scientific tools to engage citizens in solving local community challenges. Based on the success of its Grassroots Mapping project—in which volunteers mapped the Gulf Coast oil spill using helium-filled balloons and digital cameras—Public Lab won the Knight News Challenge to nurture and develop a community dedicated to expanding its set of DIY tools and promoting grassroots data gathering and research.

THE INNOVATION

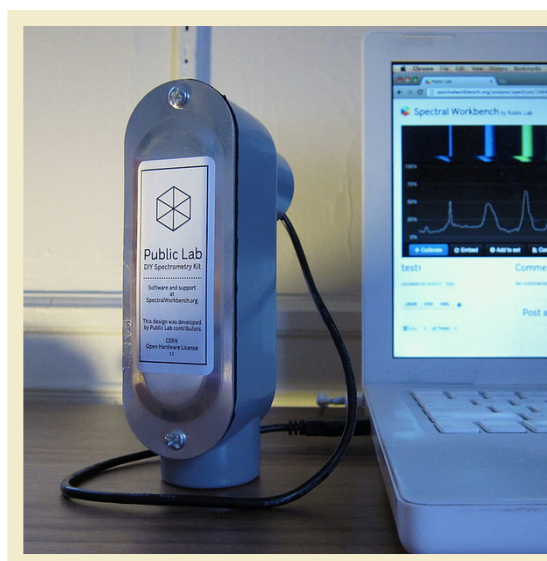
Public Lab designs and distributes kits of DIY tools with the goal of empowering citizens to investigate environmental issues in their local communities. Citizens without science backgrounds have previously lacked the money, skills, and technology to assess the environment around them, relying on government, corporate, and academic researchers to study and publicize matters of public and environmental health. Public Lab publishes instructions for building low-cost scientific instruments out of basic materials, enabling laypeople to collect crucial community data on their own. For a few hundred dollars or less, interested citizens can construct their own spectrometers for identifying oil contamination in water and soil, or near-infrared cameras for analyzing plant health. To reduce assembly time, they can also purchase kits for each tool from the Public Lab’s web store that include all the necessary materials. Public Lab provides detailed information on analyzing data from tools on its website, along with forums where community members can comment on tool

design and collaborate on potential improvements.

IMPLEMENTATION

Public Lab launched with the goal of creating a community around DIY environmental exploration. Prior to receiving Knight News Challenge funding, the Public Lab team launched publiclab.org in January 2011 as the community’s online home. After winning the News Challenge, they planned to develop and post a new tool to the site every three months. Thanks in large part to development work that predated the News Challenge grant, by the end of 2011, the site already hosted instructions for assembling nine different scientific tools, including near-infrared cameras, balloon mapping kits, and hydrogen sulfide sensors.

While tool development proceeded on schedule during the early months of the grant, the seven founders’ geographical separation led to human resources complications—for instance, health



care and workers' compensation were more costly given the distributed staffing model—and exacerbated the already steep challenge of aligning all of the founders' visions for Public Lab. To address this, the Knight Foundation funded a facilitator for the team's May 2012 in-person staff meeting, who helped the founders establish more effective strategies for collaborating at a distance.

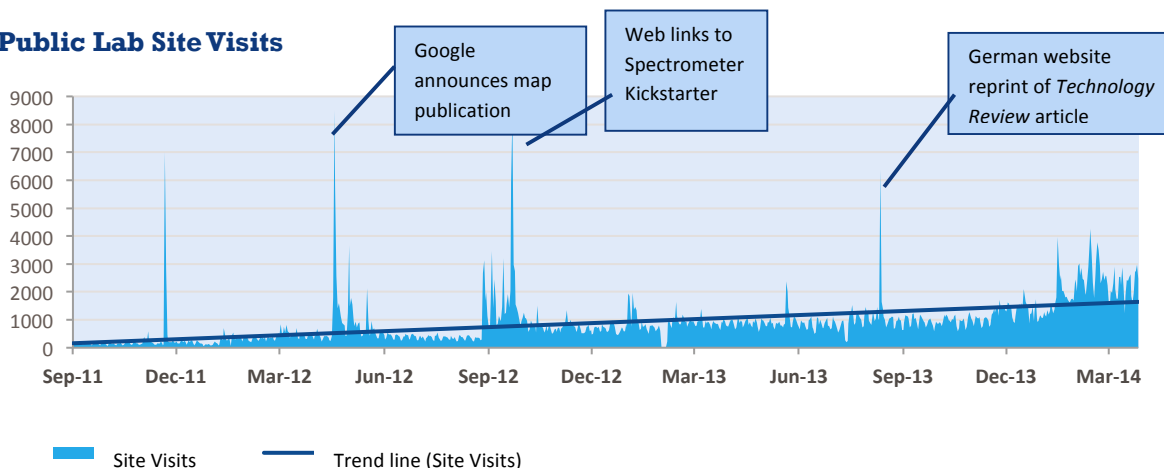
Funding became a larger challenge for Public Lab in its second year. The founders had assumed that Public Lab would attract additional support beyond the News Challenge grant, but that support failed to materialize. The fundraising difficulties were largely due to a lack of staff capacity—the Public Lab team spent more time than they had anticipated in their first year building organizational infrastructure instead of nurturing long-term funding relationships. Recognizing the need for greater attention to funding, Public Lab hired a director of development, and initiated Kickstarter campaigns to sell and distribute retail kits of its scientific tools. The Kickstarter campaigns proved effective for introducing the project to technologically interested experimenters and early adopters, and succeeded far beyond staff expectations, with the balloon mapping kit and spectrometer kit combined generating over \$150,000 in sales in 2012.

REACH AND OUTCOMES

Public Lab has built a substantial community around grassroots scientific tool-building and data collection. As of February 2014, publiclab.org had received over 540,000 unique visitors since the start of the Knight Foundation grant on September 1, 2011, and is averaging over 1,800 unique visitors a day in 2014. The more than 1,200 registered users of the site are notably active, having posted over 1,500 research notes and created over 600 wiki pages since the site's launch. Public Lab has also garnered significant media attention, with mentions in *The New York Times*, *The Boston Globe*, *Popular Mechanics*, *Wired.com*, *TechCrunch*, *Fast Company*, and many other outlets.

The most deeply engaged community members are the Public Lab organizers, a group of 45 leaders who coordinate Public Lab activities in their local communities and tend to be the most frequent contributors to the site. Organizers have played an invaluable role in expanding the visibility of Public Lab in locations with no staff presence and in generating sign-ups for the organization's 11 region-specific mailing lists. Public Lab's team credited the geographic spread of its founders for this presence, and believed it allowed various regional groups to arise that would not have, otherwise.

Public Lab Site Visits



Enthusiasm within the Public Lab community has assisted staff in forming partnerships with organizations from the Gulf Restoration Network to the National Affordable Housing Network to the University of Massachusetts Amherst.

In accordance with its mission, Public Lab has strived to make its community as accessible as possible. Its site has a reputation as one of the friendliest open source communities on the web, and includes tool-building instructions in eight languages and counting. Offline, staff lead workshops to introduce the group's data-collection methodologies to community members who don't have internet access. Public Lab has also hosted three annual "Barnraisings"—conferences where participants gather to collaborate on new tools, research

directions, and projects. Fifty members attended the most recent November 2013 barn raising in New Orleans.

Public Lab was successful at fostering an engaged and involved community, but struggled with internal capacity issues early on in the grant, causing a backlog of new tools that the team was unable to launch. Despite this, Public Lab's Kickstarter retail sales and Kits Initiative have helped to increase the size of their community, providing both a way to incubate projects and an additional source of funding for Public Lab's newly approved 501(c)(3) nonprofit. The project has continued its growth well into 2014, hiring two new fulltime staff members and securing over \$800,000 in funding, including another Knight News Challenge award in 2014 and federal funding from the Environmental Protection Agency (EPA).