Mozilla Science Lab 2016 Mid-Year Report

Mozilla's mission is to ensure the Internet is a global public resource, open and accessible to all and the Foundation works to integrate these attributes of the Open Web into scientific practice. The Mozilla Science Lab believes scientific research is more efficient and reliable through the promotion of accessibility, openness, and interoperability. We supports this belief by empowering our community of researchers, developers, librarians, and others to lead a culture change in science through:

- working openly and collaboratively
- sharing and reusing data
- communicating research openly, and
- building a self-sustaining network of open science advocates.

We believe that building capacity of early-career researchers through training programs, mentorship and fellowships will lead to better adoption rates for open research, and mobilize communities on the ground to advance open, data-driven science.

In the last 6 months, we've made progress in these areas by:
- piloting a new training and mentorship model for open and collaborative research
- shipping working prototypes, courses and data sharing resources with our first class of Mozilla Fellows
- scaling our Global Sprint to deliver the largest, most participatory hackathon in the Science Lab's history
- furthering development of our Open Data training series;
- And onboarded 21 new mentors to build our "instructor" core beyond the Fellows.

Our focus last year was on in-depth learning about community needs, addressing the gaps that generate those needs, and developing scalable learning pathways for researchers. These experiences are greatly influencing our current phase of work. This year we have been thinking more critically about how we can make these opportunities and projects more innovative, more engaging, and more sustainable, not just across the Mozilla Science Lab community, but the Mozilla network as a whole.

To better serve our communities as a connected network, rather than as isolated groups, the Mozilla Foundation went through an internal restructuring process this Spring. The Foundation oversees several areas of support for the open web and this support is put into practice through our programs: learning and education, advocacy, the internet of things, women and web literacy, and, of course, science. These programs now make up what we refer to as the Mozilla Leadership Network. Under this umbrella, we now work more closely together to address common challenges, share sources of inspiration, and co-create models of support for the open

source movement and open educational resources. You can read more about these changes in Kaitilin Thaney's recent blog post on "What's Next for Mozilla Science Lab".

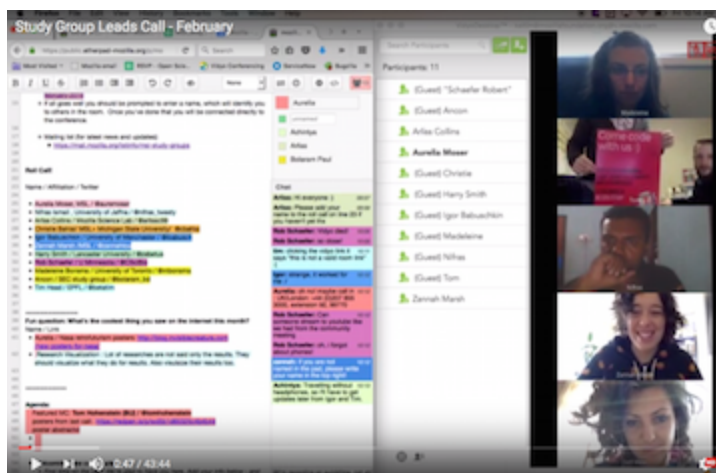Here's a more detailed look at the last six months and our plans for moving forward:

Building Communities of Practice

Study Group Program
Mozilla Liaisons: Aurelia Moser & Zannah Marsh

As of the end of June 2016, we have 39 Study Group Leaders around the world. Since the start of the year, they've run over 160 events worldwide in their local communities, and contributed 25 new lessons. We also relaunched our monthly Study Group Lead call with a more thematic focus, covering topics such as teaching R, GitHub, BioJulia, machine learning, geo resources, and open notebook science via the Jupyter notebook. These calls are facilitated and recorded by community members and made available through the Mozilla Science Lab YouTube channel.

What's next? Our Learning Strategist, Zannah Marsh, will be taking over the lead on the Study Group program and is developing a plan for orientation and mentoring of new Study Group Leads in a more systematic way. She's also working with colleagues in our Learning Program to see if we can link the Study Groups with their current Clubs structure. More on this below under *Education & Skills Training*.

Ongoing Mentorship
Mozilla Liaisons: Abby Cabunoc-Mayes & Aurelia Moser

This year, we invested more time in 1-on-1 mentorship for project leads and community members to help them build more prototypes and expand their contributorship base. This included piloting a new mentorship model we called the Open Leadership Cohort which followed our February Working Open Workshop (*see Education & Skills Training below*).   We tested a four-month follow-up plan for participants, including project mentorship, support to run a local event, and further training, building towards our Global Sprint in early June 2016. This program brought 21 new mentors and project leads to our community.
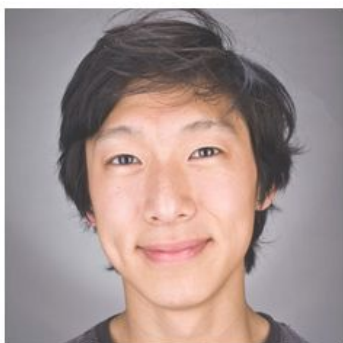
What's next? As part of her new role leading developer engagement, Abby Cabunoc-Mayes is taking the lessons learned from this first mentorship cohort experience and running a second pilot using 11 mentors developed through the Open Leadership Cohort and expanding

participation to 22 mentees across programs in the Mozilla Leadership Network. This second round of leadership training will be testing the Open Leadership Training Series material mentioned below under *Onboarding + Open Leadership Training.* Abby has also developed an online survey to investigate how we engage volunteers across all the MLN programs. More on that after the results come in and have been analyzed.

Mozilla Fellows for Science
Mozilla Liaison: Aurelia Moser

Our first class of [Mozilla Fellows for Science](#) spent the last six months piloting new courses on open and reproducible research methods, running trainings on computational skills, and developing prototypes to further demonstrate the power of openness. Highlights of this work include a new semester-long course on [Open and Reproducible Research](#), where students base their work on reusing data; a series of new trainings including a [Friendly Intro to GitHub](#) and computational training in the Sudan and Kenya; and an online command-line bootcamp interface for [Unix](#) and [GIS](#); and a [biomedical data sharing handbook](#) that chronicles the sharing patterns of leading biomedical research studies. For more details on their 10-month adventure, you can read their "meta-resumes": [Christie Bahlai](#), [Jason Bobe](#), [Joey Lee](#), & [Richard Smith-Unna](#).
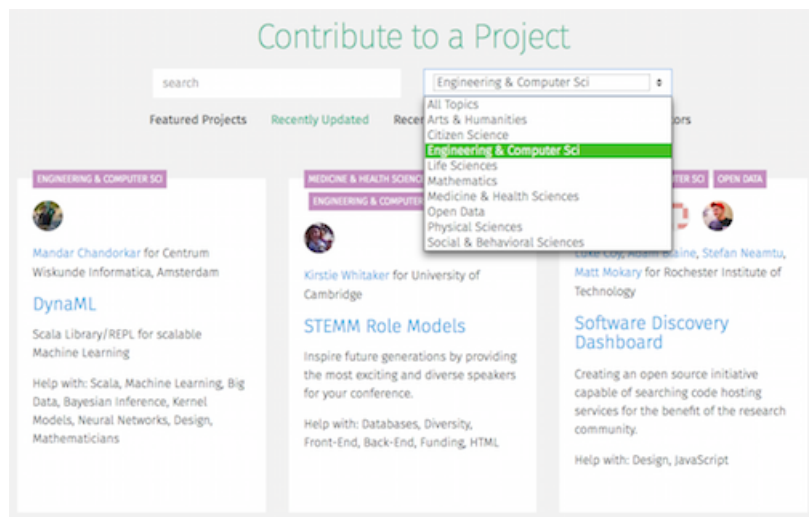

What's next? Thanks to the generous contributions of the [Helmsley Charitable Trust](#), we opened the call for our second year of Fellows in early June, extending the call for applications globally, as opposed to last year, which was only open to those based at research institutions in the UK, US and Canada. Watch our [website](#) for information regarding the new Fellows cohort to be announced in late August. This year our Community Manager, Aurelia Moser, has been working closely with our Advocacy colleagues to host a joint onboarding of the Fellows for Science and the [Open Web Fellows](#) to foster interaction and learning across Mozilla Fellows programs.

Technologies and Prototyping

Projects
Mozilla Liaison: Abby Cabunoc-Mayes

If you've visited our website recently, you will have noticed a distinct difference between what it looked like at the end of May and what it's looked like since early June. Thanks to our creative colleagues on the Design and Production teams at the Foundation, the Mozilla Science Lab website has been completely redesigned to better articulate what we do and the contributions of our community. Our site was the testbed for a new streamlined look and feel to be implemented across MLN. With this redesign came some new features for our Projects site including the ability to browse by topic, filter by most recently added and/or updated, as well as more easily identify where help is needed. There are currently 39 open projects on the site ready and waiting for new contributors to jump in.

What's next? As part of Abby's new role, she's been working with the MLN Software Team to develop a new way to surface new software, tools, curricula, campaigns from across our network. This new tool is called Network Pulse. It is still under development but you can take a look at the current prototype.

Global Sprint
Mozilla Liaison: Arliss Collins

In early June, we hosted our third - as well as largest and most active - Global Sprint. Over 320 community members came together in more than 36 cities around the world for over 53 consecutive hours of collaboration on tools, lesson materials, and resources for open science. The Global Sprint has become one of our flagship events, serving as a way to introduce community members to one another as well as spur innovation on tools and learning resources. This year, we also saw an increase in the number of projects and project leadership as well as activity, with over 40 leads joining us, and over 330 meaningful code contributions made (measured through pull requests on projects) in the course of two days (up from 100 last year). The sprint also saw a jump in participation, growing from

170 participants last year to over 300 this year, with the largest representation yet for cities worldwide, with over 36 physical sites (an increase from 30 last year).

What's next? With three years of Global Sprints under our belt and testing out some non-coding projects this year, we are beginning conversations with the other programs across MLN to see if we can harness that experience and expand the reach of the Global Sprint to other communities in ways that are beneficial to those audiences. Imagine a sprint engaging our Mozilla network around prototyping devices for the Internet of Things or resources for Web Literacy. We're excited to see what can happen!

Education and Skills Training
Mozilla Liaison: Zannah Marsh

Working Open Workshop
In February, we ran our first "Working Open Workshop" (WOW) in Berlin. The event brought together over 40 participants, ranging in discipline, professional status and skill level, from four continents. The workshop and accompanying curriculum was centered around training on how to open source researchers' projects and data, as well as provide community and project management support necessary to foster contributorship and sustain engagement for open science projects. The workshop also followed a Fellows workweek, to help test a new train-the-trainers model where the Fellows would be trained on the materials earlier in the week and then help facilitate the main event for the community. The curriculum has been modified and re-used by participants to present "mini-WOWs" in their local communities.

What's next? We will continue to tweak and run these workshops in 2017. We are also working with other MLN programs (ex. Hive New York) and other communities to empower members to share this curriculum across their networks by providing support and training to extend the ability to teach others how to work openly.

Open Data Curriculum
Former Open Data Training Lead, Stephanie Wright has been working closely with Zannah on development of our Open Data Training series. The series consists of primers and instructor guides with accompanying handouts and exercises. The curriculum was one of our non-coding projects in this year's Global Sprint with several substantive contributions from community members across the globe. Pieces of this curriculum have shown up in the Open Science and

[Reproducibility Research course](#) developed by Science Fellow Christie Bahlai, as well as at our [Working Open Workshop](#) in Berlin.

What's next? We plan to have 5 primers and instructor guides completed this November with trial runs of the full curriculum in front of a couple audiences before shipping it at the end of 2016.
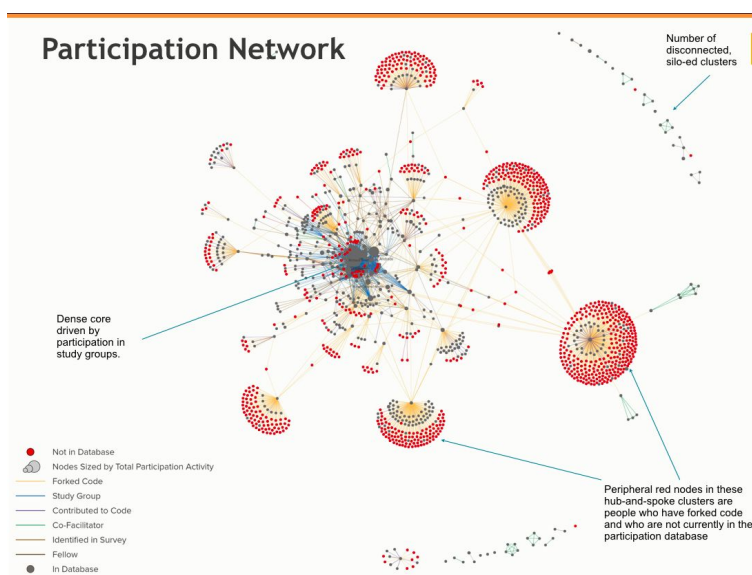
Onboarding + Open Leadership Training
[Study Groups](#) are volunteer-led groups hosted at institutions around the world. To provide some consistency in training and leadership across Study Groups, Zannah has been developing new Study Group Lead Orientation curriculum. The curriculum will be made available to Study Group Leads this Fall with a full run through of the modules with the Study Group Leads in early 2017.

What's next? Based off our success with the Working Open Workshop materials and to streamline new leader orientation and training across Mozilla programs, Zannah has collaborated with Mozilla's Curriculum Developer Chad Sansing to develop the Open Leadership Training Series (OLTS). This series is designed to teach working open strategies and best practices to members of Mozilla's Leadership Network, and ensure the success of their open projects. It will be made available on our [Teachable](#) site later this year. We've also been having conversations with our colleagues across several MLN Programs as well as Mozilla Corporation who have complementary "club" programs similar to Study Groups and we are looking into creating shared documentation and training (drawing on sections of the OLTS and the Study Group Orientation) so as to make these programs more efficient, interoperable, and sustainable.

Assessment
Mozilla Liaison: Arliss Collins

Network Mapping: In the second quarter of the year, Mozilla Science Lab entered an agreement with [Network Impact](#) to review and analyze MSL's community participation and survey data. The goal of this work was to conduct a social network analysis and provide a network mapping baseline of the community in order to examine how the Mozilla Science Lab team can continue to strengthen and leverage network connections among community members and foster involvement in program activities to develop leaders, strengthen identification with the network, and improve individual and community-wide outcomes. The final report provided many valuable recommendations that will be considered within MSL and across Mozilla.

What's next ?

We will continue to gather data related to our community through current and new members. Lessons learned from Network Impact's report will be reviewed and where applicable applied to help design and develop standard data collection processes. Arliss and Stephanie will be meeting in early September to discuss additional work and solicit recommendations for community growth and prototyping for tracking engagement and retention across MLN and Mozilla-wide.

How to Get Involved

Mozilla Science Lab provides several opportunities to get engaged with the open science community.

- [Community calls](#) are open for everyone to join and take place the second Thursday of every other month. The [next one will take place October 13th](#), 8a PT / 11a ET / 4p GMT
- Find learning materials and resources to grow your skills and those of your community. Our [Resources](#) page has all sorts of materials from handbooks to how-to guides.
- If you're located at an academic institution, you can join a [Study Group](#) to share skills, experiences, and ideas around open science, open source, code, and community in research. Don't see one at your institution? [Start one](#)! Study Group calls are monthly calls used as opportunities to network and are open to everyone, so feel free to [join a call](#) to see what it's like before jumping in.
- Want to dig in on some open science projects? Check out a curated list of [projects](#) from our community members. Most open source projects provide README and CONTRIBUTING files that detail how to get started as a contributor.
- Follow us on social media! Our [blog](#) and [Twitter](#) feeds will keep you up-to-date on other events as they come up such as our Global Sprint, Fellowship calls, and in-person or online learning opportunities. You can also subscribe to [our monthly newsletter](#) with news from the open source and scientific community.
- Curious about all the different activities across the Mozilla Leadership Network? Check out our [Timeline](#) for more information on achievements and happenings.

PRESENTATIONS / PUBLICATIONS

2015 FELLOWS ACCOMPLISHMENTS
Christie Bahlai: https://github.com/mozillascience/fellows-class-2015/blob/master/_christie/resume_bahlai.md
Jason Bobe: https://github.com/jasonbobe/fellows-class-2015/blob/master/resume.md
Joey Lee: https://github.com/mozillascience/fellows-class-2015/blob/master/_joey/MSL-resume-JLEE-2016.md
Richard Smith-Unna: https://github.com/blahah/mozilla_science_fellowship/blob/master/README.md

PRESENTATIONS
[Working Open Workshop](#) (Feb 4-6, Berlin) Mozilla Science Lab
SxSW: "[Mapping Spacetime: Time travel via Timeless Maps](#)" (Mar 12, Austin, TX) Aurelia Moser
[Making Friends with GitHub](#) (Mar 8, University of British Columbia) Joey Lee & Stephanie Wright

Strata Conf: "[Mapping the Matrix: Open Cartography with Scientific and Spatial Data](#)" (Mar 28, Santa Clara, CA) Aurelia Moser

[Data Camp for Science Hack Day](#) (Apr 23, Brooklyn, NY) Aurelia Moser

[SpaceApps](#) + [Science Hack Day](#) (Apr 23-24, Brooklyn, NY) Aurelia Moser

[This is Not a Map: Building Interactive Maps with CSVs, Creative Themes, and Curious Geometries](#) (May 4, csv,conf,v2, Berlin) Aurelia Moser

[Data-Enabled Scientific Discovery and Learning](#) (May 12, West Big Data Innovation Hub All-Hands, UC Berkeley) Stephanie Wright

[Data Advocacy: Creating a Community of Champions](#) [video, requires Flash] (May 18, CLIR/DLF eResearch Network [online]) Stephanie Wright

"Mozilla. Science Lab. Open Data" (May 24, University of Michigan) Stephanie Wright

[Workshop in Geospatial Science](#) at [Institute for Pure and Applied Math](#) - (May 30, UCLA) Aurelia Moser

SELECT GLOBAL SPRINT POSTS

[Mozilla Science Lab Global Sprint 2016 – getting started with analysis](#), 16 May 2016, Innovations in Scholarly Communication Blog

[UQ to host Brisbane's Mozilla Science Lab Global Sprint](#), 19 May 2016, University of Queensland

[Mozilla Science Lab Global Sprint 2016](#), 20 May 2016, Agrobits