Establishing a National Network of Community Library GIS and Open Data Users

Abstract

Portland State University's Geography Department and the the Institute of Portland Metropolitan Studies (IPMS; a member of the National Neighborhood Indicators Partnership), in partnership with the Multnomah County Library (MCL), the Carnegie Library of Pittsburgh, ChickTech and the Urban and Regional Information Systems Association (URISA), will develop a collaborative Science, Technology, Engineering, Arts, and Math through Geographic Information Systems (STEAM-GIS) program with community libraries and data providers in order to better serve data users, democratize data and support equitable access to information. Following the 'Civic Switchboard' project model (recently funded by IMLS), this project will build the capacity of public libraries to serve as key partners in local open STEAM-GIS data ecosystems.

Making lasting connections with community libraries is at the center of this project, as they are a key driver for addressing the information needs and interests of the local communities that they serve. The primary objective for this year-long project is to develop a nationally reproducible framework and toolkit for sharing expertise in GIS and data management within an equitable and resilient library/academic/local community network. We will accomplish this by initially establishing a pilot working group, to include metropolitan community libraries, open data providers and GIS instructors, and interested community participants (e.g., local teachers, public library users, community activist groups, neighborhood associations, after-school program providers), working with a regional open data repository (in this case, PSU's Northwest Open Data Exchange). This working group will develop and pilot-test a series of three workshops that bring together community members consisting of library representatives, library partners, citizen users and STEAM-GIS data partners.

In addition, a significant output from this effort is the creation of an open-access toolkit and a model for other libraries that are interested in beginning or expanding their role around serving their community as a data information and analysis center. The toolkit will consist of resources aimed to help public libraries, including: an evidence-based method for developing and improving GIS services (including examples of successful STEAM-GIS data partnerships); outreach and marketing approaches for different stages of implementation (e.g., a how-to guide for hosting a GIS Day event); a web page template for guiding the public on GIS, mapping-related data and resources, information about multiple open-source GIS tools and software options, and an annotated bibliography of select resources--specifically data sets--aimed to help librarians interested in developing and building their GIS capabilities.

The project's outputs and findings will eventually be available to external partner library sites in other regions. The resulting toolkit and framework will be made widely available to libraries and partner groups that support the publication and use of STEAM-GIS open data.

This project is uniquely situated in that it actively seeks to elevate and support community-generated data and geospatial analysis. Our project collaborators believe that this broad and open agenda will serve as a critical factor in accelerating the way various data users co-discover knowledge and in unlocking our collective potential to solve big problems and make new discoveries.

Establishing a National Network of Community Library GIS and Open Data Users

Statement of National Need

Open data advocates have made great strides in expanding network accessibility in recent years to the broadest possible user base. The recently funded *Developing Public and Academic Libraries as Key Participants in Civic Open Data Ecosystems,*[1] along with its resulting *Civic Switchboard*[2] project, is an excellent example of this successful campaign. Rather than simply making data available, open data efforts such as these are actively expanding the web of connections between various data creators, providers, and end-users. Making connections with these same networks of community libraries, as well as evaluating their ability to facilitate geospatial data analysis using open-source tools, is central to our proposal.

Community libraries have always served as key drivers for addressing the information needs and interests of communities across the country. Robinson and Mather argue that community libraries are particularly situated to serve as "civic infomediaries," defined as, "…a person or organization that connects community members with open data so that public value can be derived from the data."[3] They go on to say:

> *The shift from open data provision (e.g., catalogs) to open data ecosystems necessitates a reconsideration of the roles played by different actors in open data efforts. The civic infomediary is an important actor in open data and open-government ecosystems that serve to engage ordinary people, and not just experts, in open data use.*[4]

In a 2017 interview, Eva Calcagno, the Director of Washington County Cooperative Library Services, explained that, *"the role of the public library in the community has really changed over the last few decades, as technology has changed both what we do and how we do it, and our communities have changed--we're not warehouses of books so much as we are a place for people to gather and investigate, learn, [and] experiment."* And in this capacity, libraries and librarians are well-suited to the responsibility of finding, curating, and sharing open data with their branch patrons. However, many library professionals may not have experience or training, however, is in the use of geographic information systems (GIS) software and geospatial data.

Currently, users interested in GIS have very limited resources with which they can learn, experiment, and conduct analysis. For the general public, access to GIS software, data, and technical support is very difficult. GIS resources are typically found in the workplace or at universities, inaccessible to unaffiliated users. At the same time, open data efforts are overwhelmingly focused on "supply side" data provision, the one-way flow of data from government sources to end-users.[5] Researchers have noted the tendency of government open data

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[1] "Developing Public and Academic Libraries as Key Participants in Civic Open Data Ecosystems," n.d., 18.
[2] "Civic Switchboard," accessed February 19, 2019, https://civic-switchboard.github.io/.
[3] Pamela Robinson and Lisa Ward Mather, "Open Data Community Maturity: Libraries as Civic Infomediaries." *Journal of the Urban & Regional Information Systems Association* 28, no. 1 (2017).
[4] Robinson and Mather.
[5] Frank L. K. Ohemeng and Kwaku Ofosu-Adarkwa, "One Way Traffic: The Open Data Initiative Project and the Need for an Effective Demand Side Initiative in Ghana," *Government Information Quarterly* 32, no. 4 (October 1, 2015): 419–28, https://doi.org/10.1016/j.giq.2015.07.005.

initiatives to set lofty goals regarding the intended use for the data they provide--a sort of "build it and they will come" mentality--but the results rarely meet the desired benchmarks. According to Evans et al. (2013, p. 172):

> *...[t]his data-driven focus has not been proven to significantly increase citizen understanding of the complexities of issues and policies or their participation in relevant policy deliberations. If the primary goal of open government is to engage citizens, then current initiatives must be re-evaluated and new approaches explored—shifting beyond data delivery. Releasing volumes of data on a Web site without background on why and how it is collected, how it is organized, and its intended use, leaves citizens with herculean tasks of determining its relevance and reliability.*[6]

Similarly, describing early efforts to create a lasting community GIS program at Portland State University, Merrick (2003) explains:

> *...[w]e quickly became aware that building this capacity within many community-based organizations was problematic because of overworked staff and the fluidity of the adult volunteer workforce. If we were truly going to build the capacity to do GIS and asset mapping in, for, and by the community, the expertise would have to ... promote partnerships between community-based organizations and K-12 schools to explore community-based issues together.*[7]

To address these issues of data ambiguity and skill volatility, we are partnering with two national technology education organizations: the Urban and Regional Information Systems Association (URISA) and ChickTech. URISA is a non-profit geospatial professional association specializing in GIS training and policy issue advocacy,[8] while ChickTech engages in STEM-related technology education, mainly for girls and women.[9] Along with our NNIP associates and our regional library partners, URISA and ChickTech provide a nationwide reach and relevance for the GIS technology focus of the project.

We envision an open data ecosystem in which partnerships between local libraries and national organizations like URISA and ChickTech are central to the success of the project, and which facilitates regular public training in, and access to, geospatial data and GIS tools. Local library branches and digital librarians bring a place-based community knowledge and trust that few "higher"-level institutions can claim. Libraries already function as effective community gathering spaces, youth activity organizers, and digital access gateways for their neighborhoods, making them the optimal locations for bringing together students and other citizens to learn how to access, analyze, and contribute to the body of open data across the nation.

Project Design

This project seeks to examine the potential role that public libraries can play in offering geospatial and GIS services in a rapidly changing digital environment. Offering GIS services to

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[6] Angela M. Evans and Adriana Campos, "Open Government Initiatives: Challenges of Citizen Participation," *Journal of Policy Analysis and Management* 32, no. 1 (2013): 172–85, https://doi.org/10.1002/pam.21651.

[7] Meg Merrick, "Reflections on PPGIS: A View from the Trenches" 15 (2003): 8.

[8] "Meet URISA," accessed February 20, 2019, https://www.urisa.org/main/meet-urisa/.

[9] "ChickTech: About Us," ChickTech, accessed February 20, 2019, https://chicktech.org/about/.

patrons is still not as widespread in public libraries as it is in special libraries, such as academic and map libraries. As such, making connections with community libraries is at the center of this project, as they serve as a key driver for addressing the information needs and interests of the local communities that they serve. Our team fully recognizes how vital community is in GIS, especially in light of the exceptional growth of GIS in people's lives. GIS helps people better understand spatial patterns and relationships, make smarter decisions, work more efficiently, and gain deeper insights.

The primary objectives for this year-long pilot project are two-fold: (1) to facilitate the sharing of expertise and data in order to co-construct knowledge at the community-level; and (2) to support participating libraries in serving as a conduit between users and STEAM-GIS data and technologies. By developing a broad, evidence-based toolkit of resources and piloting a series of workshops (two in Portland, Oregon and one in Pittsburgh, Pennsylvania), our long-term goal is to establish a national network of community libraries, open-source data providers and interested learners (e.g., local teachers, public library users, community activist groups, neighborhood associations, after-school program providers). In addition to providing a model for other libraries that are interested in beginning or expanding their role around serving their community as a data information resource, a significant secondary end-product of this planning grant is the creation of a toolkit. The toolkit will consist of resources aimed to help public and other libraries, including: an evidence-based method for developing and improving GIS services (including examples of successful STEAM-GIS data partnerships); outreach and marketing approaches for different stages of implementation (e.g., a how-to guide for hosting a GIS Day event); a web page template for guiding the public on GIS, mapping-related data and resources, information about multiple open-source GIS tools and software options, and finally an annotated bibliography of select resources, specifically data sets, intended to help librarians interested in developing and building their GIS collection. The project's outputs and findings will be widely disseminated to libraries and partner groups that support the publication and use of STEAM-GIS open data.

Our project team includes representatives from a public library system, an academic GIS research and analysis center, a regional open data portal, and two national membership organizations that engage GIS and geospatial professionals throughout their careers. This team believes that every American citizen should have the ability to access information and is, therefore, committed to finding ways to lower the barrier to entry for all people who want to engage with open STEAM-GIS data. Public libraries are the go-to places for all life-long learners, regardless of education, income or any other life circumstance. Curious citizens looking for community information include people left homeless by a natural disaster needing access to relief information; attentive parents wanting to know more about school or education trends; active commuters seeking out transportation data; new immigrants wanting to connect with local resources; or motivated teens interested in preparing themselves for success in high school, college, and the workforce. And, as the economic, social, and technological aspects of our society change, America’s libraries must continue to transform themselves in order to keep pace.

The project design has the following main components that will take place over its one- year timeline. More specific information about the timing and sequence of these components can be found in the separate Schedule of Completion.

Landscape Analysis and Needs Assessment

We recognize that the implementation of STEAM-GIS services in public libraries will have a higher chance of success if users of many types, including non-professionals, are made central to the development process. As such, we see our role as facilitators of a collaborative community effort -- one that explores how new information and technology can be used to collaborate across domains and how to provide access to STEAM-GIS resources to a wider audience (e.g., minorities and citizen scientists). When we consider who the public libraries serve, it is clear that they are key to reaching these wider audiences.

To help facilitate the access to geospatial data to the public and to understand what variety of services public libraries can offer to their users, our approach will begin with an exploratory survey with our public library partners. The goal of the survey is to assess GIS offerings and usage in public libraries and the potential impact of services in the community. More specifically, this inquiry process will allow librarians to describe their library's resources, including their local geospatial services and data ecosystem; articulate their prior or current engagement with regional STEAM-GIS data initiatives; and share their perspective on the role of libraries in STEAM-GIS data initiatives.

The project team will also provide the opportunity for community members to be engaged in the development process by providing participating libraries with a needs assessment survey template to help them understand and respond to their communities' ongoing and emerging needs. We will encourage our library partners to conduct a needs assessment survey so they can learn more about what people are curious about, the questions they have, and the possibilities they want to open up as it relates to STEAM-GIS data initiatives. The survey is intended to be short with a few basic questions that assess needs for data services in the community. This can also be an opportunity for patrons to express their interest in attending a STEAM-GIS workshop. Ultimately, our hope is to encourage a holistic and approachable conversation among stakeholders throughout the process. As such, instead of or in addition to the survey, librarians might want to conduct informal interviews with potential GIS users from their existing contacts and user community. This type of discussion will allow them to find out what GIS is being used for, what types of software they are using, what analysis they are doing, and other targeted questions that help them assess how prevalent geospatial methods are in the library's user community. Once the library has discovered the existing geospatial uses and knows what sort of needs exist, librarians can then turn towards education and outreach. For this stage, partnerships and collaboration are key. For example, geospatial experts in geography and public planning departments are often looking for novel applications in areas like business and the humanities.

This landscape analysis and needs assessment process is meant to provide guidance to librarians who are interested in incorporating geospatial services into their public libraries. We do not expect that all libraries will feel the need to develop geospatial services at this time. Through the process of conducting a needs assessment and landscape analysis of resources, the library may find that existing users are being served very well by the services given by other organizations. Additionally, there may not be a large enough interest in the library's user group to warrant additional effort into education and outreach. As public libraries look for areas to expand their specialized resources, geospatial services are just one area that could be considered and

expanded based on the needs of the library. Doing a needs assessment is by no means a commitment to or promise of service, but rather the exploration of new choices and options in 21st century libraries. However, for the purposes of our pilot project, the project team will partner with libraries that are interested in expanding their geospatial services to host a series of community workshops that facilitate content and resource development along with implementation.

Create initial draft toolkit

The project manager will work with project partners, drawing on both local partnerships with data publishers and user groups, as well as their involvement in national communities of practice, to create an initial draft and structure for the toolkit. The resources in the toolkit will be drafted in an open platform that supports versioning, comments and contributions from project team members and invited contributors (e.g. Google Docs/Drive, Slack, etc.). The content will be structured to provide guidance and models around core aspects of GIS open data, with a focus on opportunities for libraries' participation. The core aspects of/resources in the toolkit will include:

- Information on types of expertise and skills needed to effectively work with GIS users and a list of outlets for geospatial professional development services (i.e., where to find trainings, workshops or webinars). For example, ESRI offers training modules on ArcGIS and several professional organizations offer related online courses.
- A sample survey (template) for assessing the local landscape (see above)
- An evidence-based method for developing and improving GIS services (including examples of successful STEAM-GIS data partnerships)
- Outreach and marketing approaches for different stages of implementation (e.g., a how-to guide for hosting a GIS Day event)
- A one-page guide for public understanding of “What is GIS?”
- An annotated bibliography of select resources, especially geospatial datasets, aimed to help librarians interested in developing and building their GIS capability
- A component on how to make connections with local GIS expertise and organizations (e.g., community colleges, extension services, federal agencies)
- Module on how to generate place-based data
- A list of useful geospatial products that libraries can purchase (e.g., SimplyMap, ESRI Online), potentially at reduced rates if vendors offer education or non-profit pricing
- Mapping-related data and resource guide, to include information about multiple open-source GIS tools and software options, as well as digital libraries which offer various tools, including open systems that can be used in order to organize and accommodate the retrieval of a variety of geospatial data. We will also present a case study demonstrating how a local, public library in Portland worked with PSU’s Northwest Open Data Exchange (NODE) -- a cloud-based, locally administered open data portal based on the open source Comprehensive Knowledge Archive Network (CKAN) platform (ckan.org). NOTE: Case studies will be added during later phases of the project.

Design and conduct workshops; establish participant communications

To build relationships between libraries and other non-library data interests, and to gather additional information for the toolkit, the project team will conduct three workshops that bring together community members consisting of library representatives, library partners, citizen users and STEAM-GIS data partners. The first workshop will take place at a Multnomah County (Portland, Oregon) library in fall 2019 and will serve as a pilot. Once the workshop curriculum is refined, a second and third workshop will be replicated in Portland and Chicago, respectively, in 2020. Workshops will be subsidized by the project budget. As part of the final workshop curriculum, we will encourage further strengthening of partnerships and cross-pollination among the learning communities.

The project's program manager and graduate student will conduct and facilitate the two Portland-based workshops, and all members of the project team will contribute to their design. The third workshop (based in Chicago) will be conducted by a library professional to test the workshop curriculum and the toolkit resources in a setting uncontrolled by the project team.

The primary goal for workshops conducted during this project is a reproducible collaborative relationship between library staff and GIS training organizations. All of the workshops are intended to introduce the themes of the toolkit to participants, solicit input and discussion, and give participants concrete actions that they can take in their local contexts. In addition, the workshops will provide a forum for participants to learn about one another's work, areas of expertise, and needs; to identify opportunities for collaboration; and to demonstrate the structural forms that local partnerships may take. The project team will use these workshops to test the draft toolbox resources and gather additional examples of STEAM-GIS data partnerships. Finally, initial determinations will be made concerning appropriateness of long-term hosting and expansion of the project by national partner organizations.

To effectively cultivate these learning communities, team members will take active roles in establishing communication pathways by maintaining a contact list, offering monthly open conference calls, regularly monitoring and responding to online discussions, and soliciting and working with participant contributions for reporting purposes. And, while the pilot project workshops will emphasize ongoing communication and sharing after the events, in the long-term we seek to reach a wider audience and provide broader opportunities for participation. In addition to the communication infrastructure described above, project team and advisory members will also serve as ambassadors within their networks of practice (e.g., NNIP, URISA, ALA) by informing other members of our public library collaboration opportunities and outcomes.

Create revised version of toolkit

The project team will use notes and materials generated during the workshops along with feedback provided by workshop participants, partners, and supporting organizations to revise (as needed) the toolkit resources. At this stage, specific examples and case studies will be incorporated, as well. The case studies will be featured in the guide to illustrate the variety of library roles in STEAM-GIS data partnerships. The final version of the toolkit will be archived

on NODE, but prior to that working document will be hosted in a collaboration platform to be determined (e.g., Slack, Google Docs, Github).

Disseminate findings, arrange transfer of toolkit responsibility

The project's outputs and findings will be widely disseminated to libraries and partner groups that support the publication and use of STEAM-GIS open data. Project partners and supporters will promote the initial work and help identify other STEAM-GIS data partnerships that the team can recruit to participate in the workshops and further contributions to the toolkit. Although the project's toolkit will be open and available during the course of the project, and a great deal of communication and outreach is built into the project plan already described, project team members will also make special efforts to publicize a summary of the project work and findings. Project members are also planning to conduct a presentation or workshop (if accepted) at the American Library Association conference in Chicago (June 2020) for this purpose. At the end of the project, team members will work with supporters to seek an organizational or institutional host to take responsibility for ongoing promotion and maintenance of the guide after the conclusion of the project. Examples of desirable homes include URISA and ChickTech; these organizations' national scope and focus on GIS and technology training, as well as their likely relationships with academic entities, particularly situate them to maintain energized and active networks with library communities across the nation.

National Impact

As cities across the country embrace open civic data, the concurrent development of "smart city" initiatives utilizing "big data" sources complicates public relationships to this data. Though, according to Shelton, et al., municipal policy technologists may envision a civic landscape *"[d]ominated by visions of technology-enabled urban revitalization, economic development, community engagement, and improved citizen well-being, smart city efforts have instead operated as a way for private and corporate interests to further interject themselves into urban governance and development processes in a top-down manner."*[10]

Simply offering the public a plethora of online data catalogs does nothing to significantly empower local citizen participation and agency. However, recent IMLS-funded work by national organizations linking data intermediaries and libraries has shown the potential for reaching out to the public through local library branches.[11]

Following the Civic Switchboard framework, one of the next significant hurdles in equitable, open data-based citizen empowerment is geospatial data analysis. This is important because, as Ghose and Welcenbach explain *"...knowledge of GIS confers power, as representations of space and place are critical in the constitution of power relations. Equitable access to geospatial data and technologies is thus crucial in challenging power relations."*[12]

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[10] Shelton, Taylor, and Thomas Lodato. "Actually existing smart citizens: Expertise and (non) participation in the making of the smart city." *City* (2019): 1-18.

[11] https://civic-switchboard.github.io/, accessed 3/5/19.

[12] Ghose, Rina, and Tom Welcenbach. ""Power to the people": Contesting urban poverty and power inequities through open GIS." *The Canadian Geographer/Le Géographe canadien*62.1 (2018): 67-80.

By building a national network of volunteer GIS instructors in partnership with local libraries, this project seeks to convene concerned public individuals and groups and introduce them to powerful mapping and analysis techniques. This project especially seeks to empower groups and individuals who might not otherwise engage with data and GIS for reasons such as access, training, or economic/political disenfranchisement (e.g., communities of color, kids, women, etc.). This project will meet the selected IMLS program goal of strengthening libraries as essential partners in addressing the needs of their communities, by:

- Evaluating partnerships and methodologies through in-person workshops consisting of least three (3) regional venues to become closer and more effective participants in their local civic data ecosystems, as well as to facilitate public access and analytical use of open data;
- Producing a guide and toolkit, incorporating a variety of regional experiences, that will enable libraries nationwide to better understand GIS data analysis, to contribute libraries' expertise and resources to local open data analysis activities; and to more effectively partner with other libraries and data intermediaries while doing so. It is intended that this project output will help libraries towards specific actions that will benefit both geospatial data publishers and users in their local context;
- Growing a nationwide network of praxis for communities working with open geospatial data that can be sustained by partners after the project's funded term.

Future Vision for the Program

Open data is only useful to the public if other key elements are in place (e.g., equitable access to technology and opportunities for learning). Our team believes it is critical that we do not create greater digital inequities by assuming that everyone and every organization will have the same time, skills, and resources to invest in learning how to find and use open GIS data. At the same time, we aim to ensure that everyone has the opportunity to participate in the benefits that open data creates. If this pilot program is successful, our future efforts will be designed to increase data literacy regardless of past experience. As such, we will keep digital inclusion top of mind, particularly considering the advanced skills people need to leverage GIS technology. We will do this by working together with diverse partners, including public librarians, technology services agencies, and GIS users and experts across the United States. Together, we will fine-tune our introductory series of workshops. We envision a train-the-trainer approach for professional librarians to enable them to develop the skills they need to help patrons find and use relevant local, regional, state and national open data resources. The content addressed during these trainings will help participants learn what open data is, how to find it, easy ways to use it, how to leverage existing tools and where to find potential partners that they can contact if they need help analyzing or visualizing data in different ways. We believe this will serve as an ideal opportunity for libraries to reinforce core data concepts and to, ultimately, help residents overcome barriers to using open data.

Throughout the project and afterwards, we will make the modules publicly available for librarians to share, reuse or personalize for their needs. As such, our long-term plan before finalizing the toolkit for public librarians across the country to access, we would test the version of the toolkit developed in this planning grant at a National Neighborhood Indicators Partnership

(NNIP) meeting in order to get feedback from other practitioners who may want to facilitate trainings in their communities. The training materials will ultimately serve as a collection of up-to-date, co-constructed resources which libraries can incorporate into their existing data literacy programs. The project team will also plan to work with open data publishers to implement changes based on user feedback from early cohorts that use this curriculum. In addition, if the funding is available, we hope to channel resources to fund implementation grants to libraries using our resources.

Conclusion

Given that public librarians are the only group of information science professionals consistently embedded in urban and rural, large and small communities across the country, and that the public considers libraries to be trusted institutions, it only makes sense to integrate open data training and knowledge in these important community institutions. By empowering librarians with the knowledge to find and use open GIS data, along with creating tools for libraries to teach everyone in their community to find and use this data, this project builds the foundation for communities in which everyone -- not just a select few who are already knowledgeable and skilled -- shares in the benefit and promise of open data.

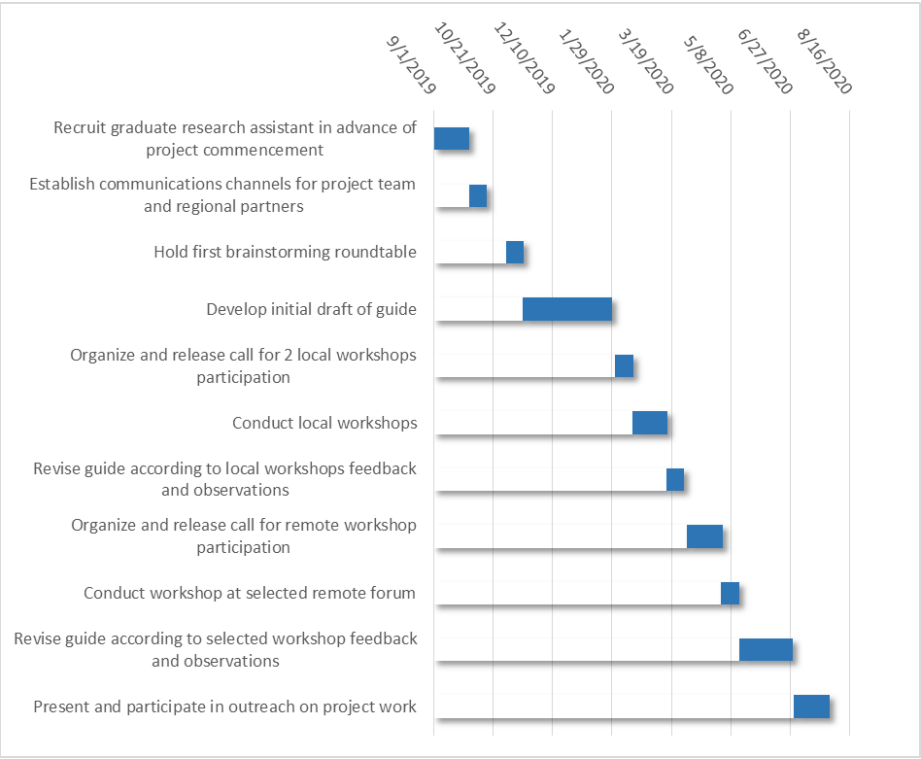
Geographic Information Systems (GIS) services in libraries offer a holistic learning environment. The potential opportunities to integrate GIS and geospatial visualization tools into information literacy instruction and library services, generally, are immense. Libraries are already doing exciting things with these technologies (e.g., finding new ways to interact with historical maps, lending GPS units, curating and preserving geospatial data). This project aims to help the number of other libraries interested in integrating GIS and geospatial visualization into their instruction and services, by providing training and expanding the resources of libraries so that they can help their patrons understand the vast benefits of open data -- a natural extension of the decades-long commitment by libraries to increase digital equity.

As a result of this pilot project, we will assemble three case studies of public libraries engaging in innovative STEAM-GIS services. We anticipate that these case studies can serve as models at the national level, which we feel must be done by capturing a wide variety of successful local practices. At the same time, we fully recognize that the importance of local context and the variety of local STEAM-GIS data landscapes mean that no single model can be made to fit every location. As such, the project team members recognize that this project will provide just a few examples of library participation in the local STEAM-GIS data ecosystem.

The longer-term goal for this project is to grow a national network of shared practice and organizational capacity. Through such a network, participating librarians can provide encouragement and mentorship to others looking to become involved in their STEAM-GIS data ecosystems. The design of the workshops, in particular their connection to established professional communities of practice, are intended to directly support this growth.

Schedule of Completion

Task Description	Start Date	End Date
Recruit graduate research assistant in advance of project commencement	9/1/2019	9/30/2019
Establish communications channels for project team and regional partners	10/1/2019	11/1/2019
Hold first brainstorming roundtable	11/1/2019	11/15/2019
Develop initial draft of guide	11/15/2019	2/1/2020
Organize and release call for 2 local workshops participation	2/1/2020	2/15/2020
Conduct local workshops	2/15/2020	3/15/2020
Revise guide according to local workshops feedback and observations	3/15/2020	4/1/2020
Organize and release call for remote workshop participation	4/1/2020	4/30/2020
Conduct workshop at selected remote forum	4/30/2020	5/15/2020
Revise guide according to selected workshop feedback and observations	5/15/2020	6/30/2020
Present and participate in outreach on project work	6/30/2020	7/1/2020



DIGITAL PRODUCT FORM

Introduction

The Institute of Museum and Library Services (IMLS) is committed to expanding public access to federally funded digital products (e.g., digital content, resources, assets, software, and datasets). The products you create with IMLS funding require careful stewardship to protect and enhance their value, and they should be freely and readily available for use and re-use by libraries, archives, museums, and the public. Because technology is dynamic and because we do not want to inhibit innovation, we do not want to prescribe set standards and practices that could become quickly outdated. Instead, we ask that you answer questions that address specific aspects of creating and managing digital products. Like all components of your IMLS application, your answers will be used by IMLS staff and by expert peer reviewers to evaluate your application, and they will be important in determining whether your project will be funded.

Instructions

All applications must include a Digital Product Form.

☐ Please check here if you have reviewed Parts I, II, III, and IV below and you have determined that your proposal does NOT involve the creation of digital products (i.e., digital content, resources, assets, software, or datasets). You must still submit this Digital Product Form with your proposal even if you check this box, because this Digital Product Form is a Required Document.

If you ARE creating digital products, you must provide answers to the questions in Part I. In addition, you must also complete at least one of the subsequent sections. If you intend to create or collect digital content, resources, or assets, complete Part II. If you intend to develop software, complete Part III. If you intend to create a dataset, complete Part IV.

Part I: Intellectual Property Rights and Permissions

A.1 What will be the intellectual property status of the digital products (content, resources, assets, software, or datasets) you intend to create? Who will hold the copyright(s)? How will you explain property rights and permissions to potential users (for example, by assigning a non-restrictive license such as BSD, GNU, MIT, or Creative Commons to the product)? Explain and justify your licensing selections.

This output of this project, a guide to assist libraries in facilitating community GIS open data partnerships, is designed to be freely used. We will assign the guide a Creative Commons license, specifically a "CC By" license, which is described as the "most accommodating" license and would support "maximum dissemination and use" of the guide

A.2 What ownership rights will your organization assert over the new digital products and what conditions will you impose on access and use? Explain and justify any terms of access and conditions of use and detail how you will notify potential users about relevant terms or conditions.

The "CC By" license will encourage free sharing and use of the guide. The guide will be marked by the "CC By" license, which will notify users that they have permission to share and adapt the guide freely on the condition that they provide attribution to the original. No limitations will be placed on the guide based on the copyright of the project team members.

A. 3 If you will create any products that may involve privacy concerns, require obtaining permissions or rights, or raise any cultural sensitivities, describe the issues and how you plan to address them.

There are no privacy concerns associated with this guide. We will inform and request permission to feature from regional libraries and civic data intermediates in the guide as case studies of models for civic data partnerships.

Part II: Projects Creating or Collecting Digital Content, Resources, or Assets

A. Creating or Collecting New Digital Content, Resources, or Assets

A.1 Describe the digital content, resources, or assets you will create or collect, the quantities of each type, and the format(s) you will use.

The primary digital output that we will produce is an open resource toolkit. One resource toolkit, continually updated and accessible during the life of the project, will be created. The project team will keep digital notes from workshops and team meetings.

A.2 List the equipment, software, and supplies that you will use to create the content, resources, or assets, or the name of the service provider that will perform the work.

We plan to use an open and versionable platform like GitHub repository for the creation of the digital toolkit. The project team will use a collaborative file sharing tool like Google Docs to record project team notes, including observations from the library workshops.

A.3 List all the digital file formats (e.g., XML, TIFF, MPEG) you plan to use, along with the relevant information about the appropriate quality standards (e.g., resolution, sampling rate, or pixel dimensions).

Git managed text files written with Markdown syntax

B. Workflow and Asset Maintenance/Preservation

B.1 Describe your quality control plan. How will you monitor and evaluate your workflow and products?

The project team will meet bi-monthly as a full group to track overall project activities against the schedule of completion. The project design is based on an iterative model of development with explicit components that focus on revising and adjusting our primary product. The entire project team will make use of web-based task tracking tools and file sharing platforms with which they have existing experience.

B.2 Describe your plan for preserving and maintaining digital assets during and after the award period of performance. Your plan may address storage systems, shared repositories, technical documentation, migration planning, and commitment of organizational funding for these purposes. Please note: You may charge the federal award before closeout for the costs of publication or sharing of research results if the costs are not incurred during the period of performance of the federal award (see 2 C.F.R. § 200.461).

The open platform selected for the toolkit will accommodate copying and web harvesting. NODE allows the final digital product to be hosted and exported as a pdf. For preservation purposes, we will deposit a PDF version of the toolkit, with a clear capture date, in PDXScholar, Portland State University's institutional repository. Also, during any follow-on expansion grant, the project team will work with its supporters to seek an organizational or institutional host to take responsibility for ongoing promotion and maintenance of the toolkit after the conclusion of the project.

C. Metadata

C.1 Describe how you will produce any and all technical, descriptive, administrative, or preservation metadata. Specify which standards you will use for the metadata structure (e.g., MARC, Dublin Core, Encoded Archival Description, PBCore, PREMIS) and metadata content (e.g., thesauri).

The metadata associated with the version deposited in PDXScholar will clearly indicate the date for the version. Metadata for the toolkit that lives the open platform (possibly GitHub) will include elements such as title, date of last update and date of first publication, authors and contributors, license, and description.

C.2 Explain your strategy for preserving and maintaining metadata created or collected during and after the award period of performance.

The metadata that we will maintain is basic descriptive metadata that will live beside the toolkit. The project team will be developing a sustainability plan for the stewardship of the toolkit, which will include the maintenance of associated metadata.

C.3 Explain what metadata sharing and/or other strategies you will use to facilitate widespread discovery and use of the digital content, resources, or assets created during your project (e.g., an API [Application Programming Interface], contributions to a digital platform, or other ways you might enable batch queries and retrieval of metadata).

The primary digital content is the toolkit itself; library project partners, along with URISA and ChickTech, will help promote the initial work and help identify other civic data partnerships that the team will recruit to participate in the workshops and further contributions to the toolkit.

D. Access and Use

D.1 Describe how you will make the digital content, resources, or assets available to the public. Include details such as the delivery strategy (e.g., openly available online, available to specified audiences) and underlying hardware/software platforms and infrastructure (e.g., specific digital repository software or leased services, accessibility via standard web browsers, requirements for special software tools in order to use the content).

The toolkit will be openly available online, using a repository with a static site overlay.

D.2 Provide the name(s) and URL(s) (Uniform Resource Locator) for any examples of previous digital content, resources, or assets your organization has created.

Northwest Open Data Exchange https://opendata.imspdx.org/; Neighborhood Pulse https://neighborhoodpulse.imspdx.org/; https://gpphousing.imspdx.org/;Center for Geographic Education in Oregon Digital Teaching Materials https://www.pdx.edu/geography-education/instructional-materials-0

Part III. Projects Developing Software

A. General Information

A.1 Describe the software you intend to create, including a summary of the major functions it will perform and the intended primary audience(s) it will serve.

Part III is not applicable as no software will be created during the course of this project.

A.2 List other existing software that wholly or partially performs the same functions, and explain how the software you intend to create is different, and justify why those differences are significant and necessary.

B. Technical Information

B.1 List the programming languages, platforms, software, or other applications you will use to create your software and explain why you chose them.

B.2 Describe how the software you intend to create will extend or interoperate with relevant existing software.

B.3 Describe any underlying additional software or system dependencies necessary to run the software you intend to create.

B.4 Describe the processes you will use for development, documentation, and for maintaining and updating documentation for users of the software.

B.5 Provide the name(s) and URL(s) for examples of any previous software your organization has created.

C. Access and Use

C.1 We expect applicants seeking federal funds for software to develop and release these products under open-source licenses to maximize access and promote reuse. What ownership rights will your organization assert over the software you intend to create, and what conditions will you impose on its access and use? Identify and explain the license under which you will release source code for the software you develop (e.g., BSD, GNU, or MIT software licenses). Explain and justify any prohibitive terms or conditions of use or access and detail how you will notify potential users about relevant terms and conditions.

C.2 Describe how you will make the software and source code available to the public and/or its intended users.

C.3 Identify where you will deposit the source code for the software you intend to develop:

Name of publicly accessible source code repository:

URL:

Part IV: Projects Creating Datasets

A.1 Identify the type of data you plan to collect or generate, and the purpose or intended use to which you expect it to be put. Describe the method(s) you will use and the approximate dates or intervals at which you will collect or generate it.

The workshops will generate qualitative data artifacts. Findings from those data will be incorporated into the toolkit. The data themselves are not considered a product of this project.

A.2 Does the proposed data collection or research activity require approval by any internal review panel or institutional review board (IRB)? If so, has the proposed research activity been approved? If not, what is your plan for securing approval?

This project will not be studying human subjects, but rather organizations and organizational structures.

A.3 Will you collect any personally identifiable information (PII), confidential information (e.g., trade secrets), or proprietary information? If so, detail the specific steps you will take to protect such information while you prepare the data files for public release (e.g., data anonymization, data suppression PII, or synthetic data).

No, this project is focused on organizations and models for community GIS open data partnerships rather than on individuals. We will not collect any trade secrets or proprietary information during the course of the project. We will obtain permission to disseminate any potential case studies in writing, and will avoid recording information that may be sensitive.

A.4 If you will collect additional documentation, such as consent agreements, along with the data, describe plans for preserving the documentation and ensuring that its relationship to the collected data is maintained.

The project team will complete any Portland State University paperwork that is necessary for disbursement of funds. The agreement between the University and any disbursement recipient will be submitted to and maintained by Portland State University's Grants Service Department.

A.5 What methods will you use to collect or generate the data? Provide details about any technical requirements or dependencies that would be necessary for understanding, retrieving, displaying, or processing the dataset(s).

The workshops will produce observational data, recorded by a project team member.

A.6 What documentation (e.g., data documentation, codebooks) will you capture or create along with the dataset(s)? Where will the documentation be stored and in what format(s)? How will you permanently associate and manage the documentation with the dataset(s) it describes?

The toolkit report will provide observational qualitative data from workshops at participating libraries. We will document the structure of the workshop and corresponding observations using Google Docs.

A.7 What is your plan for archiving, managing, and disseminating data after the completion of the award-funded project?

The qualitative observations will be incorporated as findings in the digital toolkit.

A.8 Identify where you will deposit the dataset(s):

Name of repository:

N/A

URL:

N/A

A.9 When and how frequently will you review this data management plan? How will the implementation be monitored?

The file management approach for this project will be reviewed on a biannual basis to ensure that all project team members are comfortable and aware of its contents.