

Engaging Beyond Our Walls: Libraries as Hubs for Making Neighborhood Games and Storytelling

American University (AU) requests a two-year \$249,896 grant to train libraries in 25 cities and towns to serve as hubs for making neighborhood games for community engagement. These low-tech games and interactive stories will include experiences like mural hunts, audio tours tied to local history, and texting-with-a-sculpture. The result: more than a hundred free local games and interactive stories will be created by community members, reaching thousands of players. All can support social distancing.

The games are made with *Hive Mechanic*, a new game engine for cities developed by American University. Our approach is based on successful installations with the DC Public Library (DCPL), the Smithsonian Anacostia Community Museum, and neighborhood cultural centers. DCPL in particular will be a core partner in co-designing the curricula and video training that is necessary for scale.

Equity is a priority: these are games and activities that can be played with ordinary cell phones, and typically without a fancy smartphone (we use text and multimedia messaging, which do not require data plans or wifi¹). We further seek to diversify participation in local storytelling by recruiting rural libraries, and by centering local voices in all game and story content. With this project, libraries will leverage their core strengths in media literacy and their roles as local information brokers, increasing access to game design and storytelling for neighborhood groups tied to community assets and values.

I. NATIONAL NEED

The crises of COVID-19 and systemic racism have redoubled the need to meet the public beyond library walls, with **support for social distancing**. The demand to **give voice to community history and local culture** has never been higher.

Local play offers a distinct pathway to civic engagement: research shows how local play can connect us more deeply to our physical streets and local history, and can provide an excuse to talk to neighbors we don't yet know.² When American University hosted "*Libraries, Games, and Play*," an IMLS-supported conference in 2019,³ we identified a striking finding that most libraries lack the capacity to engage with *game design*, especially for local community use. This project helps pave a new path for public libraries to be hubs for civic play, inspired by the long tradition of bookmobiles, the intergenerational play of *Pokémon GO*, and innovators like the Free Library of Philadelphia branches that remixed play to engage the public with local art.⁴

This project addresses three immediate needs currently lacking in public libraries: (1) **basic training** and curricula in game design for communities; (2) **access to templates** of successful community games to simplify design, and greatly reduce barriers to scale; and (3) **free authoring tools** like *Hive Mechanic* that are easy enough for non-technical users to create games. Budgets today are tighter than ever, and digital divides are growing. Wifi is not available in public space, but games with *Hive Mechanic* will work for text and multimedia messaging on basic phones. Just as importantly, the games in this project can be created and played for free, without any programming skills – but still provide a starting point for those seeking a STE(A)M trajectory.

¹ Text and multimedia messaging are increasingly unlimited for most phones, and are separate from data plans to access the internet.

² See our 2020 book from MIT Press: "*Locally Played: Real-World Games for Stronger Places and Communities*"

³ A total of seventy-five participants attended. The conference also included a showcase of exemplary library game projects, and keynotes from leading librarians and game designers. See: <http://librarygames.augamestudio.com/video-vignettes/>

⁴ See our 2018 report on the Philadelphia model: <https://playfulcity.net/go/pokemon-report/cities/philadelphia-libraries/>

Previously, game making in libraries has emphasized screen-based media, from Minecraft to Scratch, often focused on youth in STE(A)M initiatives⁵. By contrast, we insist on play and **engagement that is primarily outdoors** and features community assets and voices in public space. During the pandemic, for example, outdoor “story walks” have surged in popularity at libraries⁶, yet they are almost exclusively analog -- and not interactive. **Compared to museums, libraries lack basic resources** for interactivity in their public programming, especially outdoors in community spaces. Libraries are often the only civic institution at the neighborhood level with civic and community *content* -- especially across digital divides.

COVID-19 has only confirmed the importance of libraries meeting the public beyond their walls. Recent protests around systemic racism and reform are often profoundly local and most visible on public streets. Libraries are facing a high-priority gap in technology to engage the public beyond their walls, including to bring digital archives to wider audiences and to cross digital divides. As restrictions on social distancing ease, libraries are rethinking their outdoor programming -- and connecting the old and new. Murals and public art, for example, already reach different and wider audiences than many library events, and are visible at all hours of the day. It is time to empower our communities to tell interactive stories with our digital archives and resources that cross digital divides.

For libraries of the future, an “indoor only” strategy for engagement will be incomplete. So many stories of our communities, including racial justice and gentrification, demand to be told in the same public spaces they critique and address. How we empower our communities to tell these stories matters, and will affect local resilience, community decision-making and investment for years to come.

II. PROJECT DESIGN

The proposed grant will reach national scale through *three workshop cycles*. In the **first year**, five “exemplar libraries” in the Mid-Atlantic region (including rural and small libraries) will host workshops in their own libraries, and help to create our training videos around librarian needs and actual use. Our **second year will pivot to online** and asynchronous training. Each call for applicants will yield an additional ten cities/towns/tribal regions. We approach “*train the trainer*” with an incredibly light hand, so that librarians are ready to host workshops, in which residents with no technical training will make their own interactive stories using our *activity templates*. At the heart of each template is a structure for weaving in local archives and community voices. We will also provide each library with *materials and prepaid messaging accounts* to host their own public events and programming.




Our project is anchored by *Hive Mechanic*, a simple tool to create games and interactive stories for cities. *Hive Mechanic* allows anyone to make outdoor and mobile experiences without coding skills. Instead, the system prioritizes text messaging (including photos and video messages), branching audio hotlines, and embedding play in public space with QR codes, posters, and events like street festivals that can bring local history to life. The interface uses visual cards to show actions – like sending a historic photograph as a text response to a secret keyword. It is free and open source. The software was developed with seed funding from the Provost’s Office of American University and through collaborations with the Smithsonian, DC Office of Planning and DC Public Library. Details and photographs of recent projects are available on the *Hive Mechanic* website (hivemechanic.org).

⁵ For example, see the IMLS support in 2013 to recruit libraries and youth for the [National STEM Videogame Challenge](#).

⁶ Libraries in 50 states have done a StoryWalk, according to the “Let’s Move in Libraries” project of UNC Greensboro, including more than 300 libraries since 2017; the model was created by Anne Ferguson in 2007. <https://letsmovelibraries.org/storywalk/>

Content focus: Local stories, community assets and unexpected history. All games need content, and local streets are ripe for storytelling around prominent landmarks, sculptures, and the hidden struggles and accomplishments of history. For rapidly creating games, it is also much easier to have content readily available (e.g., digitized photographs, archival text, video and more). Branch libraries are often the best institutions to provide access to archives that can be used for games. Our demonstration games make the case for play with local history, based on activities we have launched previously.

Game templates for ordinary residents. To greatly ease game creation, *Hive Mechanic* has a solid base of successful iterations to build on. Residents will first play one of these functioning games and then “mod” (i.e., modify⁷) them for their needs, using local content -- including from library archives. Some of our initial templates are included in the table below.

| Game Templates | Prior Iterations and Examples |
|--|---|
| <p>(a) Street Art Scavenger Hunt -- featuring activist murals, hidden treasures, and community assets</p> | <p>We successfully tested this model outdoors at the longest-running neighborhood festival in DC: Adams Morgan Day. Using SMS clues and photographs, we led players to iconic murals and recent activist street art as part of #BLM protests. Supporting social distancing during the pandemic and featuring DC Public Library archives content, the system had the ability to send players videos from library archives as clues, photographs of what locations used to look like, historic maps, and more. Team play can include giving players different pieces of a clue, spurring collaboration.</p>  |
| <p>(b) Text-with-a-Monument -- including to add fresh voices to a historical marker, or personify civil rights history</p> | <p>To accompany a 50-foot surrealist sculpture celebrating women artists in a grassy park in Reston, Virginia, we launched a mysterious “oracle” to engage with visitors by text message over a 5-year period. If you visit in person, the oracle sends annotated photographs (similar to polaroids) to visitors’ phones, revealing the steel fabrication and surrealist philosophy of the artwork. The unstated goal is to raise the profile of 20 overlooked female artists in the region. For each visitor, the oracle picks different “readings” of paired poetry and remixes images of the sculpture. Created in collaboration with local artist Sue Wrbican, the game features a new artist as “guest oracle” every few months.</p>  |
| <p>(c) Audio Tours with Photos and Listening Stations -- often featuring community historians, unexpected resident voices, and physical signs</p> | <p>Outdoor audio walks are very easy to create in <i>Hive Mechanic</i>, with a twist that we can also text the listener historic images and drawings as the audio unfolds. For a high-tech version, libraries with a makerspace can create something entirely different: “listening stations” for the front desk of a branch library. We installed several such stations at DC Public Library branches in 2019, featuring excerpts from oral histories from the Smithsonian Anacostia Community Museum. Each installation rested on a wooden box made with low-cost materials in the DIY spirit of library makerspaces. Residents could also dial in to our hotline from home to submit their own audio stories.</p>  |

⁷ Multiple studies have demonstrated benefits of providing learners access to directly modify working games to easily explore the impact of specific parameters and relationships. For example: Seif El-Nasr, Magy, and Brian Smith. "Learning through Game Modding." (2006). *Computers in Entertainment (CIE) - Theoretical and Practical Computer Applications in Entertainment*. 4(1). And: Gee, Elisabeth R., and Kelly M. Tran. "Video game making and modding." *Handbook of Research on the Societal Impact of Digital Media*, ed. by Barbara Guzzetti and Mellinee Lesley (Information Science Reference, 2016) (2015): 238-67.

Creating a story must be as easy as filling in the blanks, especially for broad accessibility to all residents. **The templates above are deliberately recognizable, simple and accessible.** They represent just three of the 8-10 games and interactive story models we will offer, not to mention new types of games that will be invented by local libraries at their own workshops. We have tested *Hive Mechanic* for many additional forms of interactivity, and the question is really what librarians see as most useful for their communities. One example that we expect will be popular: *group photo-mapping* of community space and social issues like gentrification and neighborhood change; we tested this with *Hive Mechanic* in 2020.⁸ To express their own voice on an issue, some residents may prefer to bring their own content or tell a more purely imaginative story, both of which are acceptable; we will not require them to use archival content.

Our goal: 1-2 hour workshops. The workshops are designed to take 1-2 hours, and empower 5-15 local residents to play, modify, and ultimately publish their own game for public use. We anticipate some teams will be inspired to add their own rich content afterward from home or using library computers (e.g., photographs of neighborhood landmarks, original artwork, audio clips from prominent elders). For each library we anticipate at least one team will launch a public game seeking a large public audience.

Our curricular approach is “Use/Modify/Create.” Our goal is to provide scaffolding for newcomers to almost immediately try our games and modify them. We want to avoid manuals and preachy training, and encourage doing. Instead, we use a popular approach called “*Use/Modify/Create*.”⁹ This three-part sequence involves: (1) immediately USE a game that works, after watching a demonstration video and playing a version yourself -- providing a very low entry threshold; (2) MODIFY game parameters, including for public use -- which provides a gradual increase in learning and challenge as skills develop, with some games that are ready for launch almost instantly; and (3) CREATE: some residents will create entirely new game or interactive story, and publish the template for other libraries to use in our encyclopedia of library games.

Prepaid text messaging and materials support. To support experimentation with materials, we will offer \$300 in materials to the participating libraries in 25 cities and towns. Some of this funding will cover the costs to prepay for local SMS messaging and phone number rentals.¹⁰ For some games, outdoor signage is essential; in this case, libraries may choose to print laminated posters from FedEx (or postcards with QR codes, etc.). Other libraries with makerspaces may choose to purchase hardware for outdoor “storytelling boxes” (see below). The exact allocation will be up to each library.

Train-the-Trainers. There is strong demand among libraries to host games like those described above, based on the early feedback of our advisory group (see project personnel section below). This enthusiasm will drive the applications for our 25 sites (with outreach through our advisory networks). Each library staff applicant will agree to one hour of training, in return for access to the \$300 in materials support -- and our full technology support. The training is strategic, ensuring that each site has thought about what digital archives and local

⁸ We launched our activity with the DC Architecture Center, inviting residents to “show us your alley” using ordinary camera-phones and *Hive Mechanic* (the city’s 246 miles of alley are a profound site of historical and racial displacement in Washington, DC). We received the photographs by text message, and gathered permissions and meta data without requiring fancy apps.

⁹ The model was first refined for middle school girls as they learn computational thinking. See the *Storytelling Alice* project (Kelleher, Caitlin, Randy Pausch, and Sara Kiesler. “Storytelling Alice motivates middle school girls to learn computer programming.” *Proceedings of the SIGCHI conference on Human factors in computing systems*. ACM, 2007.)

¹⁰ Our SMS provider is Twilio, which charges \$1/month for phone number rentals, and \$0.0075 to send or receive an SMS, and \$0.02 to send a multimedia message. Based on our testing, each library workshop will cost approximately \$15 in telephony costs.

content (or community organizations) to bring to the workshop. The only technical training for librarians is how to approve *Hive Mechanic* accounts for residents; most of their support will be on archives content.

Honoraria for trainers/librarians/community leaders. For equity and access, we are committed to offering a modest \$150 honoraria for each of the 25 selected libraries. Not all library staff will be allowed by their institution to accept such honoraria, so it will be offered as an opt-in. We feel it is symbolically important to recognize the contributions of time -- especially in under-resourced libraries, and from historically marginalized groups. If a volunteer for the community is the primary organizer of the workshop or commits exceptional time supporting other community members in making their games, we are also happy to allow the library to nominate the community member for the honoraria in their stead.

Makerspaces as frequent hosts. Makerspaces are already a strength for many diverse libraries (according to IMLS-supported research¹¹), and places for all ages to make things with a DIY (do-it-yourself) attitude of self-empowerment and creativity. We anticipate libraries will choose to host approximately 15-30% of their workshops in makerspaces, for several reasons. One reason is to recruit within established event streams for makers and designers. For example, the new "crown jewel" of the DCPL is its renovated MLK Library, with a whole floor for maker space and media labs, including the "Memory Lab," a DIY digital preservation lab that is already a national model and network with IMLS support¹².

Storytelling boxes for makerspaces. For libraries with DIY technology and STE(A)M interests, we will offer a template for turning the popular \$50 Raspberry Pi computers¹³ into a "storytelling box." After plugging a box in, all content is selected using the exact same *Hive Mechanic* interface, and thus is easy for ordinary people to update and create. We have had considerable success installing similar "listening stations" at the front desk of several DCPL branch libraries, featuring oral histories from residents and the option to record new stories. Building the wooden boxes is fun, but pairing them with the media of *Hive Mechanic* brings the power of local history and stories into public view. In this way, we democratize the use of popular tools like "Museum in a Box" (an excellent service that uses the same Raspberry Pi computers, but the service costs hundreds of dollars and a recurring subscription fee).¹⁴ We have extensively tested the low-cost RFID stickers that allow the boxes to recognize physical objects.

Phase 1: Co-Create Curricula and Tools in the Mid-Atlantic (4-5 Cities/Towns)

In the first phase of the grant, we will co-create a streamlined curriculum with five anchor libraries in the Mid-Atlantic region. *The five libraries will include:*

- i) Urban: *DCPL's Central Library*, including the new makerspace, memory lab, and recording studio. This library will serve as the primary backdrop for our training videos, recruiting across 27 branches.
- ii) Urban: *The Philadelphia Free Library System in Pennsylvania* has agreed to select one library as a demonstration site. They are experts on games tied to neighborhood libraries, and served as a national model with funding from the Knight Foundation and Niantic (the makers of *Pokémon GO*).

¹¹ "MAKING+LEARNING in Museums and Libraries, a Practitioner's Guide and Framework" (2017), from IMLS and the Children's Museum of Pittsburgh. Supported by IMLS National Leadership Grant MG-00-14-0074-14.

¹² For more on the Memory Lab project, see: <https://www.ims.gov/grants/awarded/lg-95-17-0079-17-0>

¹³ The incredibly popular and cheap Raspberry Pi computers are ideal for library and hobbyist use. More than 30 million have been sold. They were developed to help teach computer science, and are produced by a foundation in the UK. A basic unit costs \$50. They are incredibly popular for makerspaces, very well documented, and available to hobbyists at US retailers like Best Buy.

¹⁴ Museum in a Box kits are detailed at: <https://museuminabox.org/makeyourown/>

- iii) Rural: *The Frederick County Library System in Maryland* has expressed interest in selecting one of their libraries to serve as a small/rural library site (under 10,000 residents).
- iv) Metro Area: *The Prince George's County Memorial Library System in Maryland* has expressed interest in selecting one of their libraries. They serve approximately 900,000 patrons.
- v) Exurban: *The Public Library in Falls Church, Virginia*, has expressed interest and serves 20,000.

Co-create the materials:

1. **Convening the 5 exemplar libraries** to see *Hive Mechanic* in action. This half-day event will allow them to playtest the games, and provide feedback on the current *Hive Mechanic* interface, and plan out the curriculum. Due to COVID-19, this event in the fall of 2021 may need to be held outdoors or via Zoom, depending on the standards set by DCPL and the participating libraries.
2. **Record demonstration videos and co-create basic curricula with DCPL.** For nationwide training online, we will create short videos (5-10 minutes in length) led by librarians featuring demonstrations of “what this looks like”/“why bother.” We will also update our template games to include guiding text to avoid the use of a manual whenever possible.
3. **Add a "tutorial mode" to *Hive Mechanic*** based on feedback from the 5 exemplar libraries. This mode includes a toggle switch at the top of the screen for “beginner/advanced” mode, which by default reveals explanatory text alongside each choice and fill-in-the-blank option to guide first-time users.

Workshop Series #1 (in person, spring 2022). *Activities:*

1. **Training the librarians to run workshops.** DCPL will convene librarians from the five anchor cities/towns at its central library. We expect the training will take 2 hours in person. We will observe in person and closely support, refining our curriculum along the way. After this brief training, the 5 exemplar libraries can draw on their \$300 materials budget.
2. **Workshops to make games in the 5 exemplar cities/towns.** We will travel to each of the 5 exemplar cities to observe and support their workshops with residents. The workshops will last approximately 90 minutes, and are themselves public programs. The format will center on the Use/Modify/Create approach outlined above. We will record some videos of willing groups to explain the process for future online training sessions. For any unexpected questions that arise, we will be on hand in person to answer questions immediately and to identify any gaps in our tutorial system and instructional guides. Additionally, we will help administer the 5-minute exit survey.
3. **Optional public programming in the 5 exemplar cities/towns (including by librarians).** Some libraries may choose to publicly host or launch one (or more) of the games created at their workshops. Some libraries may additionally create their own games to complement public programming, especially around local history and community engagement. We will advise and support all libraries with public programming, as necessary. Libraries can use some of their \$300 materials budget for events.

Phase 2: National Scaling (online)

As national outreach begins, we will shift to online workshop training and support. *Activities include:*

1. **Convene our advisory group.** Our advisory group includes a prominent group of national leaders and organizations (described below) as key stakeholders and intermediaries in the field, chosen for their interest in national scale. They will review the curriculum and the preliminary impact report to help our team set the agenda for revising our materials, and telling the story of impact in a way that will resonate with librarians -- especially those with limited time and resources.

Workshop Series #2 (fall of 2022):

2. **Launch online training materials.** Video-centered, with tutorials and guides for several additional game templates, based on successful games made at libraries in the prior round
3. **Applications open for 10 new cities/towns** (seeking 40% rural or tribal). As part of the application process, we will ask libraries to propose what local history or community archive content they might be able to provide at their branch for a game and interactive storytelling workshop.
4. **Training sessions for librarians** in the 10 selected cities/towns (1 hour on Zoom, optional follow-ups)
5. **Workshops are hosted** by the 10 libraries to make games with residents.
6. **Public programming** in the 10 cities/towns (optional), including by librarians
7. **Refine training materials** (goal: reduce training to under an hour for a librarian to prepare a workshop)

Phase 3: National Scaling with Increasing Openness (summer 2023)

We conclude in the summer of 2023 with an additional set of 10 cities/towns. We will also introduce webinars and guides for funding your own local games and sustaining design, in collaboration with OCLC/WebJunction.

1. **The advisory group for scaling convenes again**, reviewing workshop outcomes and materials.
2. **Workshop Series #3.** We will repeat the online approach above, after making revisions to incorporate all the lessons learned. Most steps will be quite similar: *call for applicants* (select 10 different cities/libraries; 50% rural/tribal; open use); *training librarians* in the 10 newly selected cities/towns (1 hour by Zoom, spring 2023); *libraries host the workshops* in their cities nationwide; and *optional public programming* in the 10 cities/towns, including by librarians.

Additional features for this final workshop series:

3. **Webinars for sustainability and growth.** The final workshop series will include 2-3 webinars in the final three months of the grant. They will focus on sustaining and securing local funding for additional community games (with OCLC)
4. **“Open use” for Hive Mechanic** (summer 2023). We will formally launch the training materials for open use in conjunction with the final workshop series. This shift means we will encourage anyone to use the materials and install their own copy of *Hive Mechanic*. Additional library types are expected to join in, including *university libraries, private libraries, and family/youth programs*. Our focus (and all our funds for local libraries) will emphasize public libraries. However, we will make the tool and all materials freely available online. One of the reasons we embrace makerspaces is that their audience is relatively multi-age and encourages DIY making. There are many additional library audiences.

Indicators for success and evaluation

Our assessment will be led by the *AU Center for Media and Social Impact* (CMSI), a national leader in evaluating media-based projects on social issues and for community change. **Case studies** will be developed for each of the 25 participating libraries. Over the two-year period, project staff will visit 7-8 of the sites in person to document the community workshops and the finished games, including at public events.

Surveys of the 25 libraries and the workshop attendees (pre and post) will track measurable progress in:

- **Attitude shifts: confidence in the community’s ability to tell their own story** with interactive media (i.e., self-efficacy beliefs)
- **Knowledge gains: including how place-based storytelling can strengthen community** (e.g., how interactivity can help to introduce neighbors (social capital), or spark conversation across groups)
- **Behavior change: including shifts in how often libraries report acting as catalysts to bring residents together** for community asset mapping, story co-creation, and co-design of digital engagements.

Qualitative interviews: To dive deeper into community change and social equity, we will conduct follow-up interviews with approximately 15 librarians. Local libraries often have the best understanding of the equity gaps in their communities, and will speak to which uses of *Hive Mechanic* had the most significant impact to cross digital divides. Our goal is also to elicit stories and testimony that will help future workshop leaders to understand the community benefits to interactive storytelling by residents, and tradeoffs like how libraries are balancing accessibility with story depth.

For **midpoint adjustments**, we will pause after the first round of workshops (9 months in) to review the initial survey data and conduct a first round of interviews; we will then issue a preliminary report. The goal includes identifying where library staff are seeing the “most significant change” (see MSC methodologies¹⁵).

Our findings will be published as a **National Report**, inspired by the influential white paper of IMLS on “Making and Learning” with the Children’s Museum of Pittsburgh¹⁶. The report will feature profiles on many of the 25 participating cities/towns, and will serve as a roadmap for future libraries, additional research, and more local funders who seek similar engagement with resident voices and civic storytelling in their own communities.

Project Personnel

The project will be directed by **Benjamin Stokes**, who is the founder of the Playful City Lab at American University. Benjamin is the chief architect of *Hive Mechanic*, a game design professor, and a community-based artist. His community designs have appeared in exhibitions at the Smithsonian and Guggenheim, as well as with community groups and libraries from Los Angeles to Atlanta. In 2020, he published the book “Locally Played” with MIT Press, tracing the impact of play on strong neighborhoods. He is also an original co-founder of Games for Change, the most prominent festival of civic games in the world.

The **DC Public Library** (DCPL) is the primary library anchor for this project. They have committed three staff members who will be involved on a weekly basis: (1) **Kerrie Cotten Williams** will serve as project lead on local history and digital collections; she currently manages the People’s Archive (the history department for DCPL), and specializes in African American Studies, Comparative Women’s History and LGBTQ Studies. (2) **Victor Benitez** is the project lead on library technology and the DIY culture of makerspaces; he manages the Fabrication Lab, which serves as DCPL’s Makerspace; Memory Lab, a DIY digital preservation lab; and Recording Studios; and (3) **David Quick** is the project lead for embedding games in public programming; he is currently the Adult Services Coordinator for DCPL, where he supports services across 26 branch libraries; he has a background in oral history and a passion for community storytelling.

Our technical lead for the project is **Chris Karr** of Audacious Software. He previously wrote and published the open-source code for *Hive Mechanic* and has supported all of our successful games with library and museum partners. Chris is an expert in text message systems for public engagement.

Advisory group on scaling and dissemination: Six organizations will help with outreach and concrete feedback on our training materials to scale the program. They will meet twice annually. We have enthusiastic letters of support to help with distribution from the **Association of Rural and Small Libraries** (ARSL), with its powerful member network of libraries, including tribal libraries; **OCLC/WebJunction**, which has agreed to help with Webinars on sustaining local games, including micro-fundraising for games tied to public history and civic engagement; the **Digital Public Library of America** (DPLA) for location-specific content for rural and under-resourced libraries that have limited digital collections; and the **Chief Officers of State Library Agencies** (COSLA) for outreach. Our advisory will also include a representative from the **Free Library of Philadelphia**, based on their leadership in crafting neighborhood games for libraries in collaboration with the

¹⁵ Dart, J., & Davies, R. (2003). A dialogical, story-based evaluation tool: The most significant change technique. *American Journal of Evaluation*, 24(2), 137–155.

¹⁶ “MAKING+LEARNING in Museums and Libraries, a Practitioner’s Guide and Framework” (2017)

Knight Foundation and Niantic (the company behind *Pokémon GO*). Finally, DCPL's own **Memory Lab Network** will continue to advise the project on the pragmatics of scaling with a diverse range of libraries, given their own IMLS-supported work to scale up a national model for personal digitization and public engagement.

III DIVERSITY PLAN

There are multiple diversity goals for the project. Most immediately, the project will strengthen the capacity of public librarianship as a field to cross the digital divide with technology for storytelling in public space. The premise of *Hive Mechanic* is to democratize access to the tools of design, without requiring computer science skills. Access is also a priority for the resulting games and stories, and *Hive Mechanic* is specifically designed to address the equity gaps around popular commercial products that require expensive data plans and high-end phones like iPhones (e.g., *Pokémon GO*). To be more inclusive, *Hive Mechanic* primarily involves text and photo messaging, which are much more widely accessible and used in low-income communities.

Philosophically and technically, the design of *Hive Mechanic* was greatly inspired by Dr. Stokes' prior work in Los Angeles with undocumented day laborers using SMS for community storytelling.¹⁷

A diversity of perspectives in the project is a priority, and we embrace the ability of local communities to define their own opportunities and challenges in content and public programming. First, the training materials will be co-designed with five libraries in the first year, including at least one rural library. More fundamentally, the actual games will be created by local residents, who will bring their own voices and diverse perspectives to whatever content they wish to highlight in the game. Our advisory group, including organizations like the Association of Rural and Small Libraries (ARSL), will help ensure our approach works well for rural libraries alongside urban systems. Simply navigating digital collections can provide a barrier in some libraries and for first-time users, and so the advisory will help us create some umbrella guides (especially the Digital Public Library of America, which is interested in providing "local content" to small and under-resourced libraries nationally). Specific accessibility goals are also possible with *Hive Mechanic*, such as creating audio-based games to support those with visual impairment.

IV NATIONAL IMPACT

This grant will establish a new role for public libraries as community catalysts, and specifically position the library as a hub for making neighborhood games and storytelling. In the process, libraries will reach new audiences beyond their walls, and significantly increase the voice of residents in telling interactive stories for community streets -- especially as tied to local history and community archives. This project builds directly on the momentum of our national 2019 IMLS forum, "Libraries, Games, and Play."

Again, the need for place-based storytelling is immediate. Especially for neighborhoods facing gentrification and racial tension on top of COVID-19, this project offers a way to tap into the power of games and interactive storytelling for public space. The call to *give voice to community history and local culture* has never been higher. Local engagement increasingly involves technology, and libraries are frequently the best, and often the only, neighborhood institution to provide access to neighborhood history, promote digital inclusion, carve out space for marginalized voices.

Until now, few libraries have the capacity to engage with **game design for community use**, especially with **low-cost tools**. Currently, most low-cost tools for interactivity presume computer science training that intimidates library staff and many residents. To empower residents and librarians, *Hive Mechanic* provides a "no coding" interface and pre-packaged game templates to serve *all* community members.

¹⁷ The project is detailed in: "[Mobile Voices](#): Design as a method to explore the possibilities and limitations of community participation," published December 2017 in *Mobile Media and Communication* by Melissa Brough and colleagues.

This project will have a national impact, and establish a national model for libraries, by building the following three capacities:

(1) Public libraries will gain sustained **access to scalable training** and curricula in game design for communities. Our final training materials will be published for on-demand use by any interested library. In less than an hour, any librarian can learn how to run a successful workshop. Most importantly, the videos will begin with “success stories” featuring librarians describing their own community impact, and describing how much effort was required. The public evaluation will address the major evidence-based claims of impact. Additional guides will be published for library makerspaces. For reach and sustainability, we will publish selected training materials with OCLC/WebJunction and raise awareness with our distribution advisory (including the Association of Rural and Small Libraries, ARSL). Our FAQ (Frequently Asked Questions) will be honed to answer most inquiries encountered during our scaling effort. And our free listserv for “Q&A by users” -- a product of this grant -- will provide a community of practice for those using our tools.

(2) Residents will have sustained **access to game templates** of successful community projects. National scale requires simplifying the design process with easy-to-modify templates, and diversifying participation beyond those who identify as computer programmers. In fact, our model transforms how game design is positioned in the library, and treats it more like photography where *anyone* can start taking photos (and build skills later if they choose). This grant adds significant capacity to libraries and communities by offering very polished templates for several basic models of outdoor stories, including text-with-public-art, scavenger hunts around community assets/history, walking audio tours, and playful asset mapping by teams. All of these models have high appeal and are adaptable to local content; the grant will support polishing and publishing them as free templates, based on the “Use/Modify/Create” approach to informal learning. Dissemination will not only be through the library workshops, but in the publicity cities receive when games are played on their streets. We will also target both “game maker” and “makerspace” national communities with the templates, including through the ongoing presence of the AU Game Center and DCPL in both communities.

(3) The field will gain **free and accessible authoring tools**, and new pathways into library archives that may help broaden their equitable use. Our core software (*Hive Mechanic*) will be available for free. Just as importantly, the code is open-source, which means that other libraries and funders can invest in the approach and customize it (e.g., for university libraries or community museums). We will continue to disseminate the open-source code.

Our **final report** will be disseminated through our scaling partners, including WebJunction/OCLC (which has agreed to provide longer-term hosting of our lesson plans and librarian guides), the Association of Small and Rural Libraries (ARSL), the Digital Public Library of America (DPLA), Chief Officers of State Library Agencies (COSLA) and more. We hope to turn the report findings and success stories into a **trade book** as well, depending on publisher interest. The book is not part of this grant, but an indicator of our desired trajectory for telling the story of library-based games for community engagement.

With this grant, we will scale up a national model for libraries as hubs for community engagement with local content. Games and storytelling are increasingly going beyond digital screens. For libraries of the future, engagement will only be complete if it goes beyond library walls and empowers the local community to tell its own stories. Our project will create a national showcase with libraries at the center of diversifying storytelling for our communities and catalyzing engagement with communities at the intersection of physical streets, digital resources and community voices.

Schedule of Completion

| MAJOR ACTIVITIES/SUB-TASKS | Year 1: 2021-2022 | | | | Year 2: 2022-2023 | | | |
|---|-------------------|-----|-----|-----|-------------------|-----|-----|-----|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| | Sep | Dec | Mar | Jun | Sep | Dec | Mar | Jun |
| Phase 1: Co-Create Curricula and Tools with 4-5 Cities/Towns (in person*) | | | | | | | | |
| Convene 5 exemplar libraries to playtest our template games and see Hive Mechanic | ■ | | | | | | | |
| Record demonstration videos featuring librarians and co-create basic curricula with DCPL | ■ | | | | | | | |
| Add "tutorial mode" to Hive Mechanic interface (with embedded help) based on co-design | ■ | | | | | | | |
| Formal training for librarians for the 5 exemplar cities/towns (2 hours, in person at DCPL) | | ■ | ■ | | | | | |
| Workshops (#1) in the 5 exemplar cities/towns to make games with residents (90 mins) | | | ■ | | | | | |
| Optional public programming in exemplar cities/towns, including by librarians | | | ■ | | | | | |
| Preliminary impact shared in blog posts (also with advisory for mid-course corrections) | | | | ■ | | | | |
| Phase 2: National Scaling, Fall 2022 (online) | | | | | | | | |
| Advisory group on scaling convenes (via Zoom) to review workshop outcomes/materials | | | | ■ | | | | |
| Launch of online training materials, videos, guides | | | | | ■ | | | |
| Applications open for 10 new cities/towns (seeking 40% rural or tribal) | | | | ■ | | | | |
| Training sessions for librarians in the 10 selected cities/towns (1 hour on Zoom+follow-up) | | | | | ■ | | | |
| Workshops (#2) are hosted by the 10 libraries to make games with residents | | | | | ■ | | | |
| Optional public programming in the 10 cities/towns, including by librarians | | | | | | ■ | | |
| Refine training materials (goal: under an hour of training per library site) | | | | | | ■ | | |
| Phase 3: National Scaling, Summer 2023 (semi-open) | | | | | | | | |
| Advisory group for scaling convenes again to review workshop outcomes/materials | | | | | | ■ | | ■ |
| Second call for applicants (select 10 different cities/libraries; 50% rural/tribal; open use) | | | | | | ■ | | |
| Training librarians in the 10 newly selected cities/towns (1 hour by Zoom, spring 2023) | | | | | | | ■ | |
| Workshops #3 to make games are hosted by the 10 additional cities/towns nationally | | | | | | | ■ | ■ |
| Optional public programming in the 10 cities/towns, including by librarians | | | | | | | | ■ |
| Webinars on securing local funding for additional community games (with OCLC) | | | | | | | | ■ |
| National impact report released (along with free templates, guides, open-source code, etc.) | | | | | | | | ■ |
| * = Depending on COVID-19 conditions, 2021 design meetings at DCPL may be via Zoom | | | | | | | | |



DIGITAL PRODUCT FORM

INTRODUCTION

The Institute of Museum and Library Services (IMLS) is committed to expanding public access to digital products that are created using federal funds. This includes (1) digitized and born-digital content, resources, or assets; (2) software; and (3) research data (see below for more specific examples). Excluded are preliminary analyses, drafts of papers, plans for future research, peer-review assessments, and communications with colleagues.

The digital products you create with IMLS funding require effective stewardship to protect and enhance their value, and they should be freely and readily available for use and reuse 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

If you propose to create digital products in the course of your IMLS-funded project, you must first provide answers to the questions in **SECTION I: INTELLECTUAL PROPERTY RIGHTS AND PERMISSIONS**. Then consider which of the following types of digital products you will create in your project, and complete each section of the form that is applicable.

SECTION II: DIGITAL CONTENT, RESOURCES, OR ASSETS

Complete this section if your project will create digital content, resources, or assets. These include both digitized and born-digital products created by individuals, project teams, or through community gatherings during your project. Examples include, but are not limited to, still images, audio files, moving images, microfilm, object inventories, object catalogs, artworks, books, posters, curricula, field books, maps, notebooks, scientific labels, metadata schema, charts, tables, drawings, workflows, and teacher toolkits. Your project may involve making these materials available through public or access-controlled websites, kiosks, or live or recorded programs.

SECTION III: SOFTWARE

Complete this section if your project will create software, including any source code, algorithms, applications, and digital tools plus the accompanying documentation created by you during your project.

SECTION IV: RESEARCH DATA

Complete this section if your project will create research data, including recorded factual information and supporting documentation, commonly accepted as relevant to validating research findings and to supporting scholarly publications.

SECTION I: INTELLECTUAL PROPERTY RIGHTS AND PERMISSIONS

A.1 We expect applicants seeking federal funds for developing or creating digital products to release these files under open-source licenses to maximize access and promote reuse. What will be the intellectual property status of the digital products (i.e., digital content, resources, or assets; software; research data) you intend to create? What ownership rights will your organization assert over the files you intend to create, and what conditions will you impose on their access and use? Who will hold the copyright(s)? Explain and justify your licensing selections. Identify and explain the license under which you will release the files (e.g., a non-restrictive license such as BSD, GNU, MIT, Creative Commons licenses; RightsStatements.org statements). 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.

In order to maximize dissemination and reuse of project resources, all project resources will be assigned a Creative Commons Attribution License (CC BY), allowing anyone else to distribute, remix, tweak, and build upon the work as long as they credit DCPL's original creation. The project team is committed to making all materials and resources available free of payment and access restrictions according to the terms of the CC license. Resources will first be made available through the project website, hosted by American University. Selected resources will be republished by project partners, including the WebJunction site hosted by OCLC (a global library cooperative). The software for Hive Mechanic is and will continue to be published as open-source code on GitHub for free reuse and modification; the most current branch is available at: <https://github.com/bdcheck/Hive-Mechanic-Django>

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.

There will be no restrictions to access to and use of any digital content created by the project (aside from the attribution requirement of the CC BY license). All project results, products, and documentation will be posted publicly online for public access and use with clear information about the license and its attribution requirement.

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.

Webinars will be created as part of project training and will be saved and posted on the project website for public access and use. All webinar presenters and participants will be required to sign a release form before recording begins, consenting to the recording and publication of the video. Interviews and surveys will also be conducted with project participants as part of the project evaluation. Permission to record and publish individuals' comments will be obtained at the outset of information gathering, in order to preserve individual privacy.

Text messaging services are essential for crossing the digital divide and the games made with Hive Mechanic. Text messaging reveals the phone number of the user/player to the server software (just as sending an email reveals your email address). However, we do not give resident game makers access to these phone numbers, which helps to ensure the privacy of players from citizen game makers. In addition, the phone numbers are never associated with names or other personal information, and thus they are simply a list of phone numbers that have sent a text message to a specific game. This is a higher level of privacy than is the norm in most urban text messaging services, including those of city government and civic organization services. We go further by ensuring that there is no master list of player phone numbers, since each library installation of Hive Mechanic is isolated and cannot be connected together. Finally, we ensure that each library uses a different account to pay for the telephony via Twilio (the largest US provider of cloud telephony), and so the hosting also is kept separate and cannot be used to compile a master list of phone numbers. No other privacy concerns or culturally sensitive activities are anticipated in the project.

SECTION II: 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.

All digital content created will be published on a project website, using an open-source platform such as WordPress. The website will include a project blog and will centralize links to existing tools for making local games, as well as the project products, including the recorded webinars, the project white paper, assessment tools, and training documents. Recordings of the webinars will be retained and derivatives will be embedded in the project website. All documents, including the white paper and other project products, will be posted on the website as PDF documents.

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

All products will be created by project staff and partners. The website will be created using open online web editing tools and platforms, such as WordPress. Standard

document creation software such as Microsoft Word will be used to create all project documentation. Project webinars will be recorded using American University video recording equipment or DC Public Library video recording equipment or remote presenter-supplied equipment, such as a laptop, and a webinar platform such as Zoom or WebEx or GoToMeeting.

A.3 List all the digital file formats (e.g., XML, TIFF, MPEG, OBJ, DOC, PDF) you plan to use. If digitizing content, describe the quality standards (e.g., resolution, sampling rate, pixel dimensions) you will use for the files you will create.

Project products will be created in open source or well-supported formats, such as PDF-A and MOV. Digital video quality will be dependent on the webinar platform, which will be selected with high-quality video as a priority, and all video will be recorded and retained at the highest resolution available.

Workflow and Asset Maintenance/Preservation

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

Webinar software will be tested thoroughly before the first webinar for quality of broadcasting and recording, and a workflow for creating, saving, and sharing the recording will be created. The website will undergo thorough usability testing during its creation. The usability of the Hive Mechanic tool is a primary goal for this grant, and will be significantly improved throughout the grant period. After being added to the website, all videos and documents will be downloaded, opened, and/or played to ensure accessibility.

B.2 Describe your plan for preserving and maintaining digital assets during and after the award period. Your plan should 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).

As they are created, all digital assets, including a copy of the project website, will be backed up on American University network drives. American University will host the project website and its content for at least five years, but we expect to support access to the project resources indefinitely, in part through the commitments to share the free materials of our partners including WebJunction/OCLC. The project website will also be crawled and included in the Internet Archive.

Metadata

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

Descriptive metadata will also be added to project materials following the institutional Dublin Core-based schema.

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

For project publications and training material PDFs, metadata will be stored in the D.C. Public Library digital repository, which is backed up on geographically distributed cloud servers, and all files and data are regularly checked for integrity and authenticity.

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).

Our primary library partner, DC Public Library (DCPL), is in the process of creating a Digital Public Library of America (DPLA) hub for Washington, D.C., with local partners. The D.C. hub is expected to be live by the time of project completion and any appropriate digital products from the project will be included in DCPL digital resources aggregated by DPLA. Materials aggregated by DPLA generally see a significant increase in their discovery and use.

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, delivery enabled by IIIF specifications).

The project products will be most findable through the project website, in the full context of the project, which will be accessible using a standard web browser. The website will incorporate search engine optimization strategies to maximize its audience. However, all project products will also be published and searchable by their descriptive metadata, through an institutional repository public web interface.

D.2. Provide the name(s) and URL(s) (Universal Resource Locator), DOI (Digital Object Identifier), or other persistent identifier for any examples of previous digital content, resources, or assets your organization has created.

The open-source code for the Hive Mechanic engine (which we will also use in the proposed grant) is available on GitHub: <https://github.com/bdcheck/Hive-Mechanic-Django>

From our primary partner library (DCPL): *DC By The Book*, a crowdsourced project aimed at geolocating literature set in Washington, D.C. - <http://www.dcbythebook.org/>

SECTION III: SOFTWARE

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.

This project will further the development of *Hive Mechanic*, a free tool for cities to make their own local games, including scavenger hunts, audio tours, and interactive experiences like “text-with-a-statue.” The primary user audience is residents and librarians who wish to make their own games using a web interface. Once those games are published by users, the software of Hive Mechanic allows the general public to play specific games using mobile phones, primarily through text and multimedia messaging.

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

We do not know of another tool like Hive Mechanic, especially one that is designed for ordinary citizens (rather than expert software programmers). Most game making tools focus on graphical content for computer screens (e.g., Scratch and Minecraft), and do not support the more universal access of SMS and MMS (text and multimedia messaging) that is so important for play in city and town streets and in public space.

Technical Information

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

The underlying code for Hive Mechanic is written for and within Django, a Python-based

free and open-source web framework that is maintained by the Django Software Foundation (DSF), an American independent organization established as a 501(c)(3) non-profit. Some well-known sites that use Django include Public Broadcasting Service (PBS), Instagram, Mozilla, and Nextdoor. Python consistently ranks as one of the most popular programming languages.

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

See above regarding Django, which we extend and, to a small extent, contribute to directly.

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

The underlying telephony infrastructure for Hive Mechanic is provided by Twilio, which is the largest cloud telephony provider in the United States, and serves as the invisible backbone of most government and civic uses of text messaging.

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

Our software development process for Hive Mechanic uses Agile methodologies to communicate within our team, extensive documentation within the back-end code, and an open-source publication approach to the code using GitHub that will ensure the code is transparently offered to other developers. It can also be maintained or “forked” into new projects, in case others want to create their own version of Hive Mechanic. A fundamental goal of our team is to create a tool that can be repurposed and help to democratize the process of game design, so we are committed to widely documenting our code and making the resulting tools accessible.

B.5 Provide the name(s), URL(s), and/or code repository locations for examples of any previous software your organization has created.

The open-source code for the Hive Mechanic engine (which we will also use in the proposed grant) is available on GitHub: <https://github.com/bdcheck/Hive-Mechanic-Django>

Access and Use

C.1 Describe how you will make the software and source code available to the public and/or its intended users.

The source code is already publicly accessible via GitHub (see above), and will continue to be so. Use of the software itself requires installing it on a server. Currently we do a separate installation for each interested library. As part of this grant, we are creating tools to streamline this process so that we become closer to offering a “one-click” installation for major web hosts like DreamHost, so that non-technical website administrators can install the software.

C.2 Identify where you will deposit the source code for the software you intend to develop:

Name of publicly accessible source code repository: Hive Mechanic Django

URL: <https://github.com/bdcheck/Hive-Mechanic-Django>

SECTION IV: RESEARCH DATA

As part of the federal government’s commitment to increase access to federally funded research data, Section IV represents the Data Management Plan (DMP) for research proposals and should reflect data management, dissemination, and preservation best practices in the applicant’s area of research appropriate to the data that the project will generate.

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

For our impact evaluation, we plan to survey all 25 library leaders who host workshops with Hive Mechanic to ask what they did, and to describe the impact it had. We also plan to conduct follow-up telephone interviews with approximately half (i.e., 12-13) library leaders to better understand how the workshops went and what the impact of the games were on local engagement, catalyzing community participation, sharing local history, etc. We will follow up with these library leaders as they complete their workshops, i.e., in three rounds: toward the end of year one, at the midpoint of year two, and at the end of year two. We will also document some of the workshops (approximately 10) in person using film and conducting audio interviews, after receiving permission from workshop participants.

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?

Yes, the proposed data collection will require IRB approval by American University. This is a routine process for basic survey and interview data, especially since the questions constitute standard program evaluation, are highly unlikely to yield any personal

information or pose any risks to the participants, and offer significant value to the public (and even some value to the interview subjects themselves). Our plan is to secure this IRB approval in the time between grant approval and the start of the project.

A.3 Will you collect any sensitive information? This may include personally identifiable information (PII), confidential information (e.g., trade secrets), or proprietary information. If so, detail the specific steps you will take to protect the information while you prepare it for public release (e.g., anonymizing individual identifiers, data aggregation). If the data will not be released publicly, explain why the data cannot be shared due to the protection of privacy, confidentiality, security, intellectual property, and other rights or requirements.

The only PII we plan to gather in our interviews is the name of the site leader. We will offer each interviewee the right to not use their name, or to use their name (since some site leaders will appreciate the opportunity for publicity). We will only quote individuals in our final report by name after showing them the quote and receiving their permission. We plan to store the anonymized interview transcripts for 10 years to allow for ongoing program evaluation in the public interest, given that the interview topics are not likely to be personal but rather traditional program evaluation.

A.4 What technical (hardware and/or software) requirements or dependencies would be necessary for understanding retrieving, displaying, processing, or otherwise reusing the data?

The raw evaluation data in the form of interview transcripts and survey response data will not be publicly shared, but will be privately shared with our institutional partners at the D.C. Public Library. We plan to analyze the interview transcripts using NVivo, a widely-used analysis software for qualitative coding.

A.5 What documentation (e.g., consent agreements, data documentation, codebooks, metadata, and analytical and procedural information) will you capture or create along with the data? Where will the documentation be stored and in what format(s)? How will you permanently associate and manage the documentation with the data it describes to enable future reuse?

We will document approximately 10 of the library workshops for this grant in person, including with video and audio interviews, after receiving permission from workshop participants using standard consent agreements. This raw multimedia data will be stored on secure servers at American University and kept for five years as part of project documentation. Some portion of the raw multimedia files will be edited into public videos and widely disseminated to meet the project goals of sharing success models and providing tutorials to the public. For our transcript analysis, the codebooks created in NVivo will be stored on American University secure servers for approximately 10 years, but will not be kept permanently in the interests of subject privacy.

A.6 What is your plan for managing, disseminating, and preserving data after the completion of the award-funded project?

The raw program evaluation data will be stored on American University secure servers as detailed above, and kept for no longer than 10 years. We do not seek to disseminate the raw data out of respect for the privacy of participants, but rather will widely disseminate the white paper summarizing the impact and lessons learned.

A.7 Identify where you will deposit the data:

Name of repository: N/A

A.8 When and how frequently will you review this data management plan? How will the implementation be monitored?

This data management plan will be reviewed at the beginning of the grant period, 12 months in, and 24 months in. Changes will then be made if needed. Of course, the plan will be consulted more frequently as staff are hired and work begins on new elements of the grant; overall, we estimate that the data plan will be consulted every two months. Implementation will be monitored using the protocols in place at American University for faculty oversight, including by Institutional Review Board (IRB) staff, technology experts at American university in charge of shared drives, and under the guidance of best practices organizations on campus like the Center for Teaching, Research, and Learning (CTRL) which provides free consulting to faculty on data analysis and management. In addition, the expertise of our close collaborators at the DC Public Library will be invaluable in revising and monitoring our approach to data management, since many of the grant products will be co-branded with them and thus, they have a strong interest in ensuring the entire project follows the data management quality and practices of the D.C. Public Library and its archives.