

Library Innovation Studios: Transforming Rural Communities Abstract

As lead applicant, the Nebraska Library Commission will work in partnership with the University of Nebraska-Lincoln, Nebraska Extension and Nebraska Innovation Studio; rural public libraries; and the Nebraska Regional Library Systems to meet the goals and measurable objectives of *Library Innovation Studios Transforming Rural Communities*. The goals of this project are to: 1) empower rural community residents with tools and guidance to explore, collaborate, create, learn, and invent; 2) prepare libraries to transform their rural communities through participatory learning spaces while establishing themselves as strong community anchors/catalysts for community change; and 3) provide libraries nationwide with a replicable model to transform their own communities.

The **premise of this project** is to provide rural libraries a tested model with a path to address the library field-wide challenge of establishing themselves as **community anchors that serve as catalysts for economic and community development**. The blending of the Maker movement (including human-centered design) and the participatory engagement model is essential to this project. This three-year project (July 2017 – June 2020) will provide a replicable and responsive library programming model for rural libraries, and demonstrate the role of rural libraries as community anchors through the use of community engagement methods, tools, training, and Makerspaces. In order to serve their communities effectively, rural libraries need to be enabled to assess community needs and then respond to those identified needs using 21st century methods and tools. Specifically this project will empower local communities to position themselves to share in the benefits of an up-to-date workforce, and to provide opportunities for local entrepreneurs and businesses to build and strengthen their presence in the community.

Building on related projects such as *Michigan's Makers* and Idaho's *Make It at Your Library*, four sets of Makerspace equipment will rotate between 30 rural Nebraska libraries. After the libraries have been selected and scheduled in one of seven Hosting Cycles and before their Studio components arrive, libraries will receive assistance and training to establish local Community Action Teams, work on community engagement, make choices for equipment based on local need and space, train on the equipment, recruit and train local trainers, schedule Open Houses and Maker events, plan programming, and initiate communication efforts. The physical presence of the Innovation Studios, the wrap-around support of local Community Action Teams leading to community buy-in, and the state and county-level assistance from project partners will stimulate local efforts for a community's own permanent Innovation Studio. The intentional organizational and sustainability structure of this project is designed to offer a community the best possible opportunity to accomplish this goal.

The learning activities (Community Action Team building, instruction, training, programming, and community engagement efforts) accomplished prior to and during the Studio's presence in the community will result in observable changes in each community, including improved community communication and cooperation among local participants working toward common goals, increases in 21st skills needed for workers in our economy, and increased confidence in the use of modern technology. The most important outcome of this project will be a tested, replicable model for use by other rural communities in Nebraska and for rural communities nationwide, demonstrating the role of the rural library as the heart of community vitality efforts. Given the structure of and proposed plans for this project, we feel confident of this outcome.

Library Innovation Studios: Transforming Rural Communities

Statement of Need

Rural communities in the United States are struggling. The challenges facing these communities are expressed by its residents who frequently report loss of local businesses; lack of entrepreneurial opportunities; the absence of non-sports, youth-centered activities; and feelings of disconnectedness.ⁱ The obstacles for rural libraries echo those of the communities they serve, including cutbacks by public social services and nonprofit entities.ⁱⁱ According to the U.S. Census Bureau, 60 million people live in rural America.ⁱⁱⁱ Nebraska is representative of U.S. rural areas as a whole, with 26 percent of its population and the overwhelming geographic area being rural.^{iv} Nebraska is diverse—geographically, socio-economically, and ethnically—with some rural communities having significant levels of Hispanic residents, as great as 70 percent.^v Despite adversity in rural America, there is wide-ranging optimism and an overwhelming desire to support and grow the local economy. As evidenced by research completed by the University of Nebraska, rural residents rate their community favorably with 74 percent saying it is friendly, 62 percent trusting, and 65 percent supportive.^{vi} In looking at U.S. rural migration patterns the Applied Population Lab found that “Often, social or economic quality of life indicators suggest these [rural areas] are good places to live, but many young people find them less appealing because of limited economic and social opportunities.”^{vii} Compared to urban areas, rural America has experienced slower population growth, higher poverty rates, and greater volatility in response to economic trends, according to the USDA. In addition, the rural-urban earnings gap was significant in every sector except agriculture and “rural areas have long been associated with lower skill, [and] less technically advanced operations . . .”^{viii}

Nationwide 45 percent of the public libraries in the U.S. are in rural areas.^{ix} In rural communities, libraries are among the few entities that are positioned to serve as community anchor organizations, but rural libraries often struggle to demonstrate their value to the communities they serve, often suffering from information poverty, low levels of information literacy, and inadequate technology.^x This is further evidenced by a study completed by the Association of Rural and Small Libraries (ARSL), reporting that the challenges facing rural libraries include “finding and retaining qualified library staff, dealing with dramatically reduced budgets, and countering the public perception that libraries no longer have a role in community life.”^{xi} Rural libraries also often suffer from disproportionate challenges (compared to urban areas) such as lack of community investment and government indifference, making them easy targets for reductions.^{xii} The **premise of this project** is to provide rural libraries a tested model with a path to address the library field-wide challenge of establishing themselves as **community anchors that serve as catalysts for economic and community development**. Nebraska is an ideal setting to develop a new, replicable, and responsive library programming model for rural libraries since 232 (88%) of its 264 public libraries serve fewer than 5,000 residents. According to IMLS, 81 percent of Nebraska libraries are rural and 71 percent are remote.^{xiii}

The viability of rural communities and their libraries depends on the ability to operate in a global economy, support a workforce with up-to-date technology and STEM skills, energize local business, and provide support for sustainable local entrepreneurship. The resources to meet these needs are often underdeveloped in rural communities. Rural libraries could be at the center of needed community revitalization, but without models and guidebooks they can struggle to fill the role of strong community anchors that can enhance civic engagement, cultural opportunities, lifelong learning, and economic vitality.

The blending of the Maker movement (including human centered design) and the participatory engagement model is an essential part of our proposal. The maker movement includes elements of low-cost digital tools, community infrastructure, and the maker mindset (e.g. playful, asset and growth oriented, failure positive, and collaborative).^{xiv} Participatory engagement, often used in city and regional planning, “collects actionable information, empowers residents, and legitimizes official or institutional activities within communities.”^{xv}

Libraries and other informal learning environments are also important to this expansion of Making since they have the potential to reach students (and adult learners) that may not identify as Makers.^{xvi} The community infrastructure is vital because it enables engagement (through person-to-person interaction, workshops, and meetings) in a physical space, online resources, showcase events (Maker Showcases), and mentoring.^{xvii}

The need to improve and create communities that attract and retain people and businesses in rural areas is evidenced by the number of assistance efforts developed in recent years. For instance, USDA supports more than fifty financial assistance programs covering energy, infrastructure investment, business development, community development, and micro-entrepreneur assistance. Like many other states offering University and county-based extension services, Nebraska Extension has worked with the state's regions to develop and implement a collaborative economic development plan for action through its Strengthening Economies Together (SET) initiative. In addition, Nebraska Extension engages youth statewide with its Community Vitality Initiative (CVI) entrepreneurship program, encouraging young people to explore business and entrepreneurial career options. Many of these programs, however, operate independently of library programs and initiatives. Our project seeks to place the **rural library at the center** of these efforts, using the traditional role libraries play as “the people’s university” serving the needs of all people. Our project will utilize the existing structure of the library as a community anchor, expanding and strengthening it to enable the rural library to serve as a catalyst that drives economic and community development.

Youth participation is essential to the success of these efforts (and to the future of the communities). That involvement must be available to youth on all socio-economic levels as reiterated in 2015 by Secretary of Education Arne Duncan, “If the technology revolution only happens for families that already have money and education, then it’s not really a revolution.”^{xviii} Technology offers the promise of increased educational opportunity, but the technology divide remains apparent, especially among young people in rural areas. Enrichment spending by affluent families is more than 570 percent greater than that of the poorest families.^{xix} The development of youth relationships and the practice of collaborative problem-solving with peers and intergenerational groups will result in an increased chance of success in rural communities—and libraries have a long-standing reputation for functioning as equalizers (in both the technology and the economic divides).

The Maker model offers an opportunity that can enable rural libraries to address their communities’ needs, thereby solidifying their role as community anchors. The Maker movement, while not a new phenomenon, has been utilized infrequently in rural areas.^{xx} This project will expand upon other initiatives and will provide a replicable model of building community vitality with rural libraries at the center of the effort. We expect that the recent IMLS-funded project, *Small Libraries Create Smart Spaces* (OCLC), will create a guide for rural libraries to reconfigure their physical library spaces in response to specific community needs. We plan to use their templates to help fill the need for design assistance. Additionally, we note the importance and relevance of the public library small business tool kit being developed in connection with the recent IMLS-funded grant to rural areas in Tennessee.^{xxi} We also have examined and will build on the strategies and materials from related projects, including those in Idaho (Make it at Your Library), Michigan (Michigan Makers), Fayetteville, NY (Make @ FFL), the Ideas Box (Libraries without Borders), Do Space (Omaha, NE), and Makerspaces across Rural America (Rural Technology Fund). Customizing these approaches, while combining them with a community vitality process that utilizes participatory engagement, will offer a model that can be used successfully in rural communities around the country.

The competition to draw new businesses to communities has become intense, through tax incentives and other means. It is more likely that business growth will occur in a community when local entrepreneurs start new businesses there or when businesses already present in the community expand their operations.^{xxii} Rural economic development can be addressed by using local partners (including extension educators), human-centered design, the Maker mindset, and the local library. But many rural communities and their libraries have yet to effectively address local needs and challenges in this way. These approaches offer significant potential to

leverage and share community knowledge, innovation, and ideas. Rural libraries, which often feel isolated, need a guidebook to engage the community in vitality efforts. This project will **provide a model** containing the elements necessary to bring about community success and to allow libraries to initiate collective impact by leveraging the resources of other key community entities.

Project Design

The proposed project uses Makerspaces, community engagement tools, and training to develop a model for rural libraries to expand their role as community anchor organizations that drive economic and community development. This multi-faceted effort will 1) establish local Community Action Teams in 30 rural communities; 2) purchase equipment and related materials for four rotating Innovation Studios; 3) develop instructional materials and equipment certification processes; 4) employ intentional sustainability strategies for permanent studios; 5) provide training on the use of the equipment, including Train the Trainer strategies; 6) assist with local marketing efforts and programming/events, including Open Houses and Maker Showcases; 7) host annual Inventors Showcases in Lincoln, 8) disseminate information to enable national replication; and 9) conduct formative, summative, and outcome-based evaluation. The infusion of the Maker culture into rural areas will increase community buoyancy by strengthening services and facilitating local economic development and entrepreneurship. For a visual representation of the project, see the Logic Model in Attachment 1. A Glossary (Attachment 2) is also included to clarify relevant terminology.

Financial resources needed to carry out the project include the requested IMLS grant funds, \$530,731, and match provided by UNL (\$236,777) and NLC (\$301,012), which is arrived at primarily by redirecting current staff salaries and benefits to carry out the project over the three-year period.

Project Partners and Team Members include the Nebraska Library Commission; University of Nebraska-Lincoln, Nebraska Extension and Nebraska Innovation Studio; Nebraska Regional Library Systems; and public libraries throughout Nebraska. The University of Nebraska-Lincoln (UNL) (both Nebraska Extension and the Nebraska Innovation Studio) is a “Subawardee” and a critical partner because of their presence throughout the state, their premiere studio facility in Lincoln, and their track record on previous collaborative projects. See Attachment 3 for UNL’s Statement of Work associated with this project.

The Nebraska Library Commission (NLC), as the state library agency, administers the federal Library Services and Technology Act (LSTA) state program in Nebraska to support library programs and services. The NLC mission is statewide promotion, development, and coordination of library and information services. NLC serves as an advocate for the library and information service needs of all Nebraskans. NLC provides financial support for Nebraska’s four non-profit Regional Library Systems by contracting for regional library services to help achieve the NLC mission. The Systems promote cooperation among all types of libraries and media centers through communication, training, consulting, and planning assistance (Organizational Profile, Attachment 4).

Nebraska Extension is one of three legs of the University of Nebraska-Lincoln’s land-grant mission. It is a dynamic educational organization that puts research to work in local communities, businesses, and individuals’ lives. Its programs have high public value and help improve the lives of individuals. Extension professionals are recognized for their subject matter competence, excellent teaching skills, and community presence. They live and work in Nebraska communities across the state and engage with local and state partners in educational program delivery to address critical issues identified by constituents. Program delivery is multimodal and includes use of technology, online applications, and face-to-face. The critical issues that Nebraska Extension is currently focused on that complement the proposed project include community environment, community vitality, 4-H youth development, and the learning child.

The Nebraska Innovation Studio (NIS)—the UNL Makerspace—is the creative and collaborative hub of UNL’s Nebraska Innovation Campus, where Makers and builders team up to conceptualize, prototype, and iterate projects that solve problems and influence change. The primary focus is on creativity, interdisciplinary collaboration, entrepreneurship, and education. The Nebraska Innovation Studio will be a center of activity for this project. One of the two new grant-funded staff will office at the Studio and will use the facility for in-person, video-based, and online training and trouble shooting. It will also host the Train the Trainer sessions (held prior to each Hosting Cycle) and the three annual Inventors Showcases. The Studio will act as a hub, with the 30 Library Innovation Studios serving as the spokes. The Studio is currently equipped with extensive relevant equipment and tools used for Making (<http://innovationstudio.unl.edu/>).

JoAnn McManus, Project Manager, will coordinate the project. For more information about skills, experiences, and roles of the personnel needed to carry out the project, see Key Project Staff, Attachment 5; staff resumes, Attachment 6; and job descriptions for the two new grant-funded positions, Attachment 7.

An **Advisory Panel** will contribute to the project’s success, offering guidance and support throughout the project period in the areas of project design, partner engagement, sustainability, dissemination, and other processes including continuous improvement strategies. Currently ten highly qualified individuals have committed to serving on the panel, representing a cross-section of areas important to the project’s success—economic development, entrepreneurship, education, business, Makerspaces, rural libraries, and library organizations. See Advisory Panel, Attachment 8, for letters of commitment and information about all members, including Mary Soucie, North Dakota State Librarian and Association for Rural and Small Libraries board member, and Sue Walker, Idaho Commission for Libraries and Idaho’s “Make It at the Library” co-developer.

The **Community Action Teams** will be composed of library staff/board members, extension educators, chamber of commerce and economic development leaders, educators, ethnically-diverse community leaders, representatives of target audiences, and other stakeholders/volunteers/mentors with specific interests and talents. The project design and the community engagement process (see page 6) is designed to garner input, build consensus, and get buy-in from the Community Action Teams and local partners—all of which are integral to community engagement to encourage local community support and ensure sustainability.

The **Project’s Rural Target Audiences** are segmented based on the residents of the communities in the service areas of the 30 participating libraries. The target audiences within these communities—generally under population 5,000—will vary from one community to another. It is likely that some communities will have a significant number of Hispanic residents and some communities will have significant low income/economically disadvantaged populations. The project team will work with the community team to increase participation within those targets and serve the needs of the audiences.

The **goals and measurable outcomes** for this project are:

Goal: Rural community residents will be empowered with the tools and guidance to explore, collaborate, create, learn, and invent.

Libraries will:

- Engage their community to plan, implement, and sustain the Library Innovation Studio.
- Be better able to use technology to support engaging experiences.
- Be better prepared to provide programs and services to meet community needs.
- Be better able to engage the community.

Libraries/local teams will:

- Engage diverse communities (ethnically, socioeconomically, and geographically) to explore, collaborate, create, learn, and invent.

- Encourage users to collaborate by designing space that supports social connections.
- Stimulate individual and group innovation through participatory and intergenerational learning.

Rural community residents will:

- Participate in active learning and attend activities/events in the library Maker space (e.g., Open Houses and Maker Showcases)—and will rate them favorably.
- Use tools and guidance to leverage new knowledge/skills into products and business opportunities.
- Demonstrate increased awareness of STEM learning and computational thought processes.
- Articulate how these experiences make a difference in their lives.

Goal: Libraries will transform their rural communities through participatory learning spaces while establishing themselves as strong community anchors/catalysts for community change.

Libraries will:

- Be better able to make more efficient and targeted decisions about investments (space allocation, staff training, equipment procurement, etc.) to transform library space into a participatory learning space.
- Be better able to engage their communities.
- Be better prepared to develop and maintain ongoing relationships with community partners.
- Be better prepared to share knowledge and resources and to serve as active contributors to problem solving in their communities.
- Revitalize their communities by fostering economic development and nurturing creative entrepreneurial activities while enhancing their role as strong community anchors.

Libraries/ local teams will:

- Build/strengthen community partnerships and demonstrate effective partner collaboration.
- Cultivate a learning culture that enhances communities with lifelong learning.
- View the library as an active contributor to problem solving in the community.
- View the library as an entity that offers programs, services, or resources that addresses community need.
- Demonstrate skills in community outreach, particularly for underserved populations.

Rural community residents will:

- View the library as a strong community anchor that serves as a catalyst for local initiatives and addresses the lifelong learning needs of the community.
- View the library as an essential partner in community vitality efforts.

Goal: Libraries nationwide will have access to a replicable model, enabling more libraries to transform their communities.

Libraries/local teams/project partners will:

- Contribute to case studies and evaluation activities, leading to continuous improvement throughout the project period and to the refinement of disseminated materials that have been field-tested and evaluated during seven Hosting Cycles.
- Test and disseminate a programming and local engagement model that can be used, scaled, and replicated by states, communities, and rural libraries across the country.

NLC staff, with the assistance of the Regional Library System Directors, will implement an application process in the spring of 2017 to **select thirty Nebraska accredited, rural public libraries** to host Library Innovation Studios. The process will specify selection criteria, expectations, library and community commitments, and facility minimums. Communication will be via email listserv, *NCompass Live* webinar, and postcard reminder.

The selection and hiring process will take place in June and the two new staff will be hired and in place by July 1, or shortly thereafter. In July-October 2017 local community engagement activities involving the libraries/communities in the first Hosting Cycle will commence, equipment and supplies will be purchased,

training materials will be prepared, and community engagement tools and processes will be further refined. During each Hosting Cycle space will be prepared for the Library Innovation Studio, key library staff/volunteers will attend Train the Trainer sessions in Lincoln, the equipment will be installed in the Library Innovation Studio, secondary local trainers will be trained, the libraries will hold Open Houses, programming will take place at the studio, and a local Maker Showcase will be held (see Page 6 for more detail and Attachment 9 for Schedule of Completion/Timeline).

NLC staff will **purchase and compile the studio components** including equipment, materials, and consumables. Each studio collection will have components in the following categories:

- 1) Digital fabrication (3-D printing/scanning/copying, laser cutting, CNC router),
- 2) Electronics (prototype kits, microcontrollers, robotics),
- 3) Textiles (soft circuits, wearable technologies, computerized sewing/embroidery, vinyl cutting),
- 4) Digital media creation (filmmaking/digital photography),
- 5) Music technology,
- 6) Specialized software and subscriptions, and
- 7) Basic hand tools and other accessories.

The components to be featured in the studios have been selected for their durability, affordability, range of features, and ease of use. The machines are beginner-friendly devices that allow users/entrepreneurs to develop new skills using specifically selected Maker components. Acquiring these new skills will prepare them for new opportunities in their communities and workplaces. For information about component features and cost, see Equipment Specification, Attachment 10 and Budget Justification, Attachment 11.

The model to be created and tested in this project goes beyond the materials and equipment that will be featured in the temporary studios. **The Community Action Teams and the community engagement process** to be tested is key to the success of the twenty-week Hosting Period and will serve as a model for replicability. NLC will take the lead in fine-tuning community participatory engagement training, team building, and local programming. **Training will build new skills and reinforce existing skills**, including scanning community assets to identify opportunities, understanding needs to be addressed, planning to co-create a vision, forging partnerships to collaborate, engaging in informal learning, facilitating civic dialog, and creating a climate where residents are engaged as part of a greater whole. Existing training materials will be gathered and refined to meet the needs of library staff and team members. Additional materials will be created to fill identified gaps.

Several months before the library hosts the Library Innovation Studio, project and partner staff will assist in the community engagement process. They will facilitate local training and the use of community engagement tools. Templates will be used to build the skills to strengthen and grow the local coalition they activated when they applied to be a Studio host community. Training templates will include: networking tools and suggestions for participants/team members (e.g., bankers, chamber and economic development leaders, educators, students, library board members, ethnically-diverse community leaders, representatives of target audiences, and other stakeholders/volunteers with specific interests and talents); a menu of organizational topics for discussion and resolution (e.g., planning the studio space, setting the training schedule, etc.); and a process to encourage local assessment, goal setting, activity planning, team building, implementation, communication, and evaluation.

Nebraska Extension and Regional Library System staff will be instrumental in helping the library convene the community stakeholders that are necessary for a successful partnership planning effort and to achieve sustainability. The success of the effort will depend on assessment and deployment of existing local talents and connections, and on identifying untapped talents and connections expected to emerge through the community engagement process. This process will gather, build, and engage the local Community Action Team to serve local target populations with a focus on Making and to address many purposes (e.g., engaging residents in

STEM learning environments, demonstrating the library role as a community anchor for lifelong learning and business and entrepreneurship development, creating new opportunities, and improving quality of life).

The Action Team will schedule and host a local Library Innovation Studio Open House to generate interest in the temporary studio, to gather additional consumables through a donation drive, and to generate interest and support for a permanent community innovation studio. The Action Team will schedule open studio hours, local training and certification sessions, and regular weekly programming hours to feature particular content areas (e.g., textiles, robotics, etc.) in order to encourage customers to visit the studio with others interested in specific content areas. We expect this to encourage groups to work together to promote learning, collaboration, and human-centered design solutions. A local Maker Showcase (open to the public) will take place near the end of the temporary studio's duration at the library. This event will feature projects initiated and completed at the studio including inventions, product improvements/alterations, art/textile pieces, audio/video creations, etc. It will facilitate collecting stories/case studies about how STEM (Making) activities changed lives in the community and is expected to generate interest in a permanent studio. Local teams from future studio host libraries will be invited to attend to learn and be inspired in preparation for the studio's visit to their community.

Community Action Teams will continue to meet following the temporary studio Hosting Period to assist with evaluation, helping assess success from the local perspective and suggesting ways to improve the experience for future communities. These teams will continue to brainstorm ideas and other planning/implementation activities to work towards sustainability—investing in and maintaining a permanent studio that meets the needs of the community. Communities that use the experience and momentum of the project to invest in a permanent working studio at the library will help solidify their library's role as a community anchor.

Since the community objective is to house a permanent studio at the rural library, layout and **design of the Library Innovation Studio** is vital. We plan to use templates and guidance from the recently-funded IMLS project, *Small Libraries Create Smart Spaces* (OCLC), to assist rural libraries in planning and reconfiguring their library spaces. Although we do not expect host libraries to rearrange their entire library for the Innovation Studio, we believe that a successful experience will be facilitated by planning a space that is arranged to allow for collaborative work areas (Collaboration Stations) and that provides access to related equipment and consumable materials. Safety and security issues will also be considered when planning the studio space. Space that is inviting and conducive to Maker activities during the Hosting Period will make it easier for community and library leadership to envision a permanent studio at the library and to generate community support during the learning events, the Open House, and the local Maker Showcase. Project staff will work with the Community Action Teams prior to their Hosting Period to provide templates, advice, and recommendations for space needs for the equipment and collaboration stations. Project staff and partners will work with the local team to ensure that the space will be available and prepared before the Installation/Training team arrives.

Curriculum development and a certification process for Studio equipment are integral to the project. Under the direction of Shane Farritor and Bradley Barker (UNL project partners), new staff and partner team members will identify/develop/refine instructional materials. In-person, video-based, and online training and equipment certification processes will be used throughout the project period. Where instructional materials are already available, those materials will be used or modified as needed. The curriculum development process will include:

- 1) Set up the equipment and materials in a designated "Transforming Rural Communities" area within the UNL Nebraska Innovation Studio.
- 2) Become familiar with all of the features of each piece of equipment.
- 3) Produce instructional videos on how to set up, use, and troubleshoot each piece of equipment.
- 4) Develop a certification process to ensure the safe and appropriate use of selected equipment, including the steps for users to become certified.
- 5) Compile written operating instructions to accompany the videos.
- 6) Develop and/or identify curricula and related materials for face-to-face instruction of trainers.

All training, curricula, templates, and programming will be developed to meet the needs of library staff, volunteers, mentors, and residents/target audiences. Select materials will be provided in Spanish for use in those rural areas with a significant number of Hispanic residents.

Train the Trainer sessions will be held at the Nebraska Innovation Studio in Lincoln under the direction of UNL project partners. The individual hired to fill the newly created grant position at UNL is key to the training process. The initial session will train the project team and partners so that the training can be refined and improved. Sessions for up to 150 key local trainers will take place in Lincoln prior to the seven Hosting Cycles. Up to 150 secondary local trainers will be trained at local Studios.

The local teams will identify two to five individuals (key local trainers) to participate in the Lincoln Train the Trainer sessions prior to the Studio's arrival. They will identify additional individuals (secondary local trainers) to be instructed locally by the key local trainers after the Studio's arrival and installation. Local trainers will include library staff, the local Extension Educator, and other community residents (some of whom will be representative of the identified target audiences).

NLC will distribute **equipment** to host libraries. Deliveries and installations will follow the Train the Trainer session attended by that cycle's group of host libraries. Studio components will be picked up from one library and delivered directly to the next library by project staff. The set of components closest to Lincoln will make a brief stop in Lincoln, to be used for the Train the Trainer session held at Nebraska Innovation Studio to kick off the next cycle. Logistics, contingencies for damage, and working with libraries with limited space have been taken into consideration. We anticipate two Hosting Cycles will include an additional library so libraries with limited space can each host half of the components at a time (with project staff swapping components mid-cycle). Project staff housed at Nebraska Innovation Studio will **trouble-shoot equipment** via an electronic conferencing system (e.g., Zoom, Skype, GotoWebinar). However, project staff will also travel to the host libraries to trouble-shoot more difficult issues that may arise during the Hosting Period.

Local libraries will **develop and implement a Marketing/Outreach** plan aimed at their target audience(s), working with local partners as communication intermediaries. NLC will work in collaboration with UNL to provide customizable marketing planning templates (based on examples of existing marketing plans and marketing materials). This marketing strategy relies upon building local team skills in using customizable tools to plan and conduct a local marketing campaign geared specifically to the target audiences. Mary Jo Ryan with NLC will lead the effort to design and prepare marketing materials so that local teams can develop a marketing plan and communicate with individuals and groups. It is anticipated that this will result in increased responsiveness of the local Library Innovation Studio, as well as increased usage of the studio.

Project staff will build and maintain a website and utilize social media vehicles (primarily Facebook, Twitter, and Pinterest) to communicate about the Studios and to assist partners, trainers, local teams, users, and other libraries and organizations in using or replicating the varied aspects of the project. The project partners will also assist with local communication efforts to support local programming and events including Open Houses and Maker Showcases.

The project team will design and prepare merchandising materials to be prominently displayed at each Library Innovation Studio. This will ensure that community members can easily see information about each component—including costs—to encourage donations of money or equipment for a permanent collection. These merchandising materials will provide a visual prompt, supporting local leaders and volunteers in their work towards establishing a permanent Library Innovation Studio.

UNL will host **three annual Inventors Showcases** at the Nebraska Innovation Studio (NIS) in Lincoln that will feature inventions, products, and items made at the Library Innovation Studios across the state during the

previous year. The Grant Project Manager, Extension Educators, and new NLC and NIS grant staff will work closely with NIS staff to ensure the success of these events. Each of the three Inventors Showcases will be held back-to-back with a Train the Trainer session to encourage libraries that will soon host studios to take ideas back to their communities and be inspired about what can be accomplished.

UNL will lead **Evaluation Activities** and use its research expertise to design and implement formative and outcome-based evaluation strategies, including data collection instruments (surveys and participant and focus group interviews conducted at each site). The Likert scale survey data, qualitative interview narratives, and related data patterns will be summarized and reviewed by the project team. The participating libraries, Extension Educators, and Nebraska Library Commission and Regional Library System staff will assist with data collection. Formative evaluation will be implemented throughout the project's seven Hosting Cycles so that the project team can make adjustments and improvements throughout the three-year grant period.

Evaluation and Research Process: The Library Innovation Studios project will use a developmental evaluation approach^{xxiii} that is designed to flexibly support innovations while guiding and enhancing the formative adaptation of the innovations in complex environments, such as new educational interventions. Within the dynamic mobile Maker setting of the project, the three research questions will be used as researchable foundations for the formative and summative evaluation process and will also help to consistently guide the project and focus refinements on creating generalizable impacts. (See Evaluation Plan, Attachment 12) The synergistic evaluation and research contexts of the three questions are:

Question 1: Can the innovation studios model enhance rural communities through the creation of learning spaces and by serving as community anchors/catalysts for change?

Question 2: Utilizing the innovation studios model, can rural community residents creatively collaborate, problem-solve, and innovate through Making activities that would otherwise not be possible due to geographic distance?

Question 3: Will providing libraries nationwide with access to a replicable model enable more libraries to transform their communities?

NLC will develop and implement **Intentional Sustainability Strategies** that can be used on the local level to help Community Action Teams work toward establishing permanent studios to add to their communities' assets. Nebraska Extension and Regional Library Systems are key partners working directly with the local teams to encourage their progress and provide guidance. These sustainability strategies are "intentional" because every phase of the project is designed to move toward sustainability. Examples include the composition of the Community Action Teams, the project team's support of the local teams for twelve months, the use of Collaboration Stations, the training and use of local trainers, the inclusion of Open Houses and local Maker Showcases, the design assistance to configure the local space, the connection to technical support via telecommunications, the annual statewide Inventors Showcase, locating the training for Key Local Trainers at the Nebraska Innovation Studio, and the strong connection of the local teams to Extension Educators and economic development organizations that serve their communities. All of these add to local expertise, demonstrate how the community can tap into outside resources when needed, provide a view of how a Makerspace can make a difference in the community, present a model for replication, build a local team around a realistic vision for success, and/or demonstrate how the library can serve as a practical space within the community to house a Makerspace that can fill a variety of needs (from participatory STEM learning, to entrepreneurship, to business/community development).

Although there may be **risks** associated with any project, we believe that our project design minimizes those risks. Because this project involves seven Hosting Cycles and 30 libraries, if we encounter issues with any of the sites we anticipate we would still have time to revise the model to accomplish our goals. If it should take longer to prepare for the first Train the Trainer session, we have the flexibility to reduce each cycle by one or

two weeks without affecting outcomes. It is possible that new staff might resign, as experienced in past grant-funded projects. We have a strong team of existing staff that will pick up the slack if we have to rehire.

All partners will collaborate on **Dissemination of Information** to enable national replication. **Products resulting from the project** will include a national webinar series, replicable guidebooks, community templates, training materials, equipment testing/certification templates, curriculum guides, marketing materials, a White Paper or published article, video case studies, and individual design notebooks. We will disseminate through print, online, social media, and other library communication outlets. University channels will be employed, including those of UNL's Nebraska Innovation Studio and *eXtension.org* (a digital platform managed by a team of Cooperative Extension professionals working virtually across the nation to provide national access to research-based knowledge from land-grant universities). We will target communication to national library and Makerspace groups. The project's products will be widely disseminated to advance the role of rural libraries as community anchors that provide civic and cultural engagement, facilitate lifelong learning, and support economic vitality through programming and services.

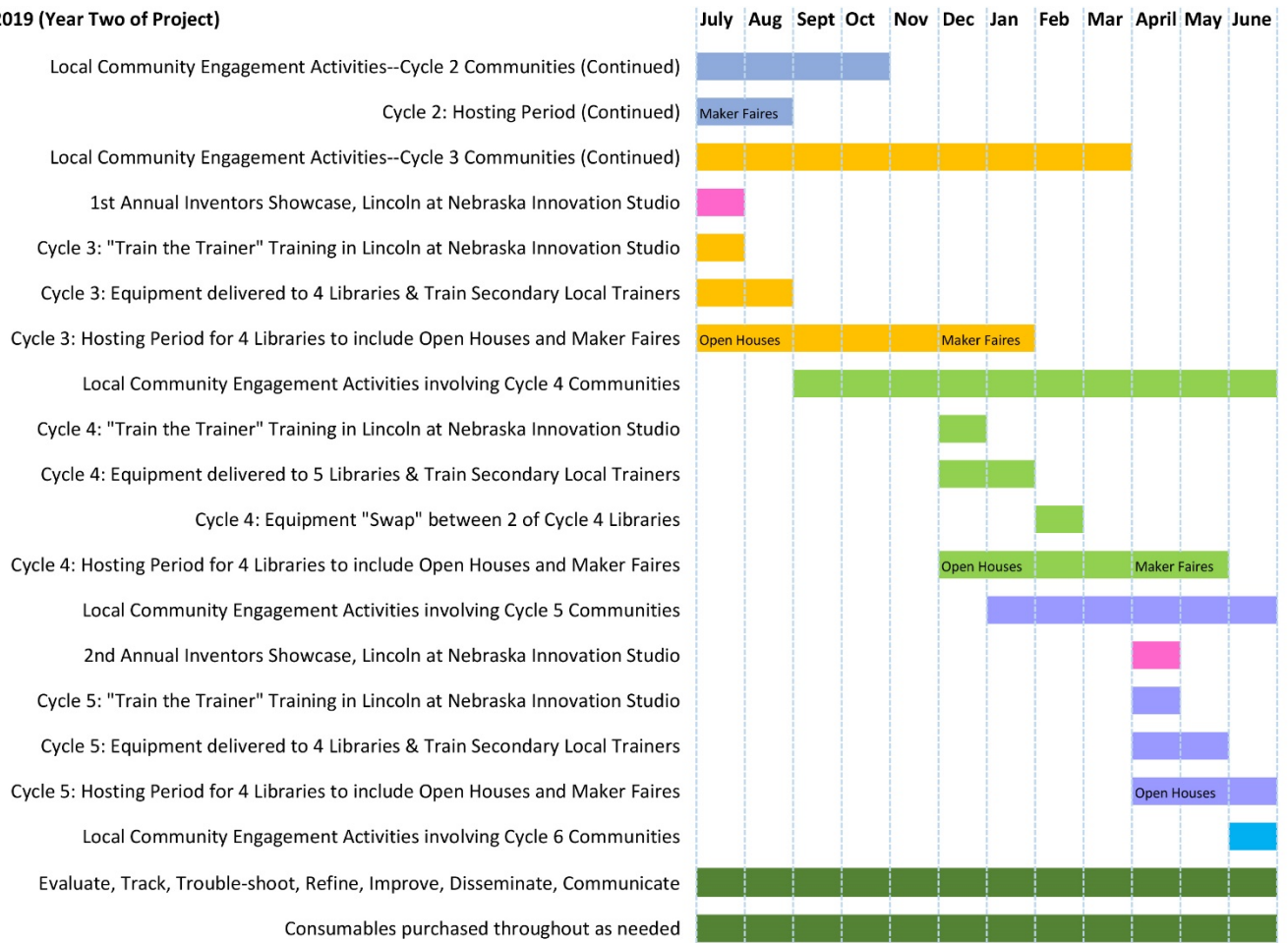
National Impact

The project's extensive evaluation plan, intentional sustainability strategies, and dissemination tactics (as detailed above) are expected to combine to produce a significant national impact. The project will culminate in a model—refined through several cycles and tested by thirty communities—that advances national practice and that can be employed by other rural communities. We anticipate the project will also produce successful experiences in the participating communities while the model is being tested, refined, and improved. The benefits of examining past efforts, the use of both formative and summative project evaluation, and the development of easily replicable materials and processes will support the success of this project and its adoption by rural libraries throughout the U.S. The findings of the project will undoubtedly prove valuable since the intention is to share information as the project progresses and as conclusions are learned—whether the findings align with the initial expectations or not.

In general, rural libraries across the U.S. need a guide and a road map to help them infuse community engagement strategies into library-based Makerspace programming and equipment. It is essential that rural America become more entrepreneurial, but current “development policy and programs continue to be rooted in urban models and based upon industrial development strategies, neither of which work very well in Rural America.”^{xxiv} The structure and knowledge base leveraged in this proposal recognize these differences in rural America. This project proposes to identify what is needed for success and present a model to bring these components together, providing a paradigm that can be followed, replicated, and customized. The entities involved in the proposal include the UNL Innovation Studio (the Maker hub), local rural libraries (the Maker spokes), local communities (economic developers, local government officials, entrepreneurs, and small business), the state library administrative agency (facilitator, promoter, and potential funding source), the Regional Library Systems (the connection to local library staff to encourage their progress and provide guidance), and local Nebraska Extension offices (the connection between the rural community and other relevant organizations). The necessary elements required to bring about significant change are present in rural areas throughout the U.S. Depending upon the state and locale, the mix of components may be slightly different, but the library leadership and synergy demonstrated by our proposed project are essential ingredients.

Program materials (community engagement guidebooks, policies and procedures, training materials, recommendations for specific equipment, assessment tools, and evaluation tools) will be freely available and distributed electronically. Additionally, these materials will be promoted by NLC through its weekly webinar series (*NCompass Live*), and presentations will be proposed for meetings and conferences of COSLA, ARSL, NLA/NSLA (Nebraska), and ALA. We look forward to partnering with IMLS on this National Leadership project to demonstrate the role of rural libraries as the heart of community vitality efforts.

2018-2019 (Year Two of Project)



DIGITAL PRODUCT FORM

Introduction

The Institute of Museum and Library Services (IMLS) is committed to expanding public access to federally funded digital products (i.e., 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. However, applying these principles to the development and management of digital products can be challenging. 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

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.

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.

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.

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 format you will use.

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.

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).

B. Workflow and Asset Maintenance/Preservation

B.1 Describe your quality control plan (i.e., how you will monitor and evaluate your workflow and products).

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).

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).

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

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).

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).

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.

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.

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.

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?

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).

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.

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).

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?

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

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

Name of repository:

URL:

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