LAURA BUSH 21st CENTURY LIBRARIAN PROGRAM

Sample Application RE-259635-OLS-26
Project Category: Planning

Rochester Institute of Technology Libraries, The Wallace Center

Amount awarded by IMLS:	$132,700
Amount of cost share:	$0

Rochester Institute of Technology will address the documented need for library, archive, and museum professionals, especially in small and under-resourced institutions, to gain opportunities for hands-on training and sustainable pathways for implementing standards-aligned digitization. This need is documented through field surveys, prior institute data, and national workforce studies, and will be measured by baseline assessments of participant knowledge, expectations, and institutional context. The planning project will encompass a needs assessment, a student pilot, a summer institute, the development of openly licensed Open Educational Resources, and microcredentialing. As a result, library professionals nationwide will gain increased capacity to plan and sustain high quality, standards-based digitization programs, to better steward the irreplaceable community knowledge entrusted to them in historical and personal collections.

Attached are the following components excerpted from the original application.

- Narrative
- Schedule of Completion

When preparing an application for the next deadline, be sure to follow the instructions in the most recent Notice of Funding Opportunity for the grant program to which you are applying.

Building Workforce Capacity in Emerging Imaging Technologies for Library Professionals

LB21 Program Goal 2 Train and retain current library and archives professionals, faculty, and staff

Objective 2.1 Develop or enhance professional development and training programs to enable the library and archival workforce to meet the needs of their communities.

A. Introduction

Libraries, archives, and museums (LAMs) across the United States steward irreplaceable community knowledge embedded in historical photographs, local newspapers, maps, rare books, diaries, letters, manuscripts, and personal collections entrusted to them by individuals and families. These materials document everyday lives, local histories, civic engagement, and cultural traditions that support and enrich national narratives. Yet many institutions—especially small and under-resourced ones—lack access to specialized equipment, trained staff, and standards-aligned workflows needed to digitize these fragile, and many times unique, materials before they deteriorate or are lost. As a result, invaluable records of national and community memory and accomplishment remain out of reach, vulnerable to damage, or entirely unknown beyond their immediate custodians. While these collections are rooted in the past and may be threatened, the methods required to preserve and interpret them are increasingly future-facing and draw on cutting-edge advances in imaging; at Rochester Institute of Technology (RIT), innovative imaging technologies and technical expertise are intentionally put in service of historical library collections, creating a productive convergence where emerging methods enable new access to enduring community heritage. To address these national needs, RIT is seeking $132,700 to plan and develop a pilot program for a free, national, widely-available, microcredential badge program in heritage collection digitization centered on the Federal Agencies Digital Guidelines Initiative (FADGI) vital principles for imaging, digital preservation, and easy-to-adopt digital stewardship. In partnership with librarians, the program will create Open Educational Resources (OERs), administer a pilot Summer Institute for 12 participants, and evaluate how well it positions LAM professionals to plan, execute, and sustain digitization initiatives using best-practice methods. This project advances the Laura Bush 21st Century Librarian objective to develop and enhance professional development and training programs that strengthen the capacity of the library and archival workforce to effectively meet the evolving needs of their communities by preserving, interpreting, and sharing community-based collections, ensuring that community-held local, regional, and national treasures are safeguarded, discoverable, and available for future generations.

B. Project Justification

The IMLS characterizes the national landscape as comprising 123,000 libraries and 35,000 museums: “original” primary-source collections may be found across communities of every size. Heritage collections are preserved and shared through high-quality, discoverable digital assets: digitization has become central to how libraries, archives, and museums meet the needs of their communities. Yet, digitization embodies hidden labor that underwrites today’s access to heritage collections residing in libraries, archives, and museums (LAMs). While the complex work of creating these surrogates remains largely out of view, digitization is critical to sustaining access to local, regional, and national heritage. Across the United States, the scale and distribution of unique heritage collection holdings make localized digitization essential to learning, knowledge creation, and discoverability of our heritage collections. For instance, the America 250 milestone in 2026 and the national efforts committing to digitize millions of pages of documents for online access are some of the many initiatives that have intensified the demand for digitization capacity across the country.

While no single repository for digital collections exists, aggregate collections (spanning formats such as photographs, maps, news footage, oral histories, manuscript documents, and artwork) may be accessed through the Digital Public Library of America (DPLA) with 4,000 contributing institutions providing availability to more than 30 million items discoverable through a single search experience. DPLA’s “Browse by Partner” view further illustrates the magnitude of primary-source content contributed by major stewards, such as the National Archives and Records Administration (NARA) and the Smithsonian Institution (SI) among its partner streams.

Need, Challenge, Opportunity

National discovery platforms also clarify why digitization remains both urgent and incomplete. NARA explains that its holdings span from pre-Federal times to the present and include far more than textual records—microfilm, maps and charts, architectural and engineering plans, aerial photographs, motion picture reels, sound recordings, computer data sets, and still pictures—materials that require specialized capture, description, and delivery to become broadly usable. Even with substantial progress, NARA explicitly notes that

"not all records have been digitized and made available" online and that digitized pages represent only a small percentage of total holdings, meaning many significant records remain discoverable only at the description level or through in-person access. The Smithsonian similarly emphasizes the breadth of its museum, archives, and library materials by reporting over 18.5 million records in its Collections Search Center, including photographs, artworks, artifacts, scientific specimens, manuscripts, sound records, and transcripts—demonstrating both the range of materials and the continuing need to expand high-quality digitization for public access. Finally, while Founding-era records are frequently highlighted for public engagement, the same digitization gap applies to many foundational and early Federal-era documents beyond the most iconic items; where handwriting is faint, ink is degraded, or pages are damaged, advanced imaging methods can be decisive as multispectral imaging can recover information lost to fading or erasure and damage events such as flood or fire, strengthening both legibility and interpretive access.

Even as the workforce seeks to meet these digitization needs alongside the concurrent desires to preserve heritage, our review of current professional development has shown that librarians do not have access to appropriate training. In short, the field has not kept pace with the growing needs and expectations. Studies show that fewer than 40% of memory institutions report high levels of digital preservation expertise, while a majority identify skills as low or lacking, and nearly half report no in-house opportunities for professional development in this area. Moreover, training is often limited to short-form webinars or conference sessions, rather than sustained, hands-on instruction that can be integrated into daily workflows. While professional associations (American Library Association and Society of American Archivists among others, see Supportingdoc1.pdf) are strong on policy, project planning, and ethics, they currently do not provide a robust, ongoing, hands-on digitization curriculum. Most of their content is introductory, strategic, or collections-focused rather than technical and lab-based.

An even broader gap in training is evidenced in our review of 11 pathways for credentialing in heritage collection imaging – from ALA; SAA; various vendors, graduate programs, MOOCs, and coalitions, including Digital Preservation Coalition (see Table of Offerings in Supportingdoc1.pdf). These offerings demonstrate strong interest in digital preservation and collections in the absence of free, national, openly-available, integrated microcredential dedicated to any range of heritage collection imaging practices grounded in FADGI and aligned with LAM needs. Moreover, training is not equally distributed:

- Existing high-quality workshops (e.g., NEDCC, vendor-based training) are often cost-prohibitive and require long-distance travel.
- Professional associations (SAA, ALA, ACRL/RBMS) provide conceptual sessions but rarely offer hands-on, equipment-based training.
- Most smaller institutions lack the budget to purchase equipment solely for training or experimentation.
- Regional consortia offer occasional digitization webinars, but these are online only and cannot teach lighting, capture, or QC with real equipment.
- There is no standing national program providing hands-on, standards-based imaging training for small and mid-sized heritage collection institutions.

Thus persistent challenges prevail: institutions, especially those serving smaller communities, are the least likely to have the training that would allow them to create high-quality digital surrogates. To be clear, no free, integrated, FADGI-aligned imaging microcredential spanning digitization and newer forms of digital surrogacy and digital stewardship exists. Therefore, the breadth of "original" and locally distinctive content that lives outside mass printed monographs are withheld from digitization and imaging that would enable them to become searchable, shareable, and teachable across communities.

Libraries are not alone in their needs, however. Data shows that digitization, long-term stewardship, and education and training are lacking across professions. The National Digital Stewardship Alliance (NDSA) has noted "the work of digital preservation is distributed among multiple individuals…[it] is not coordinated on an organization-wide basis" (p. 4) With regard to training and access to professional development, NDSA's 2021 survey shows that nearly half of the respondents had not participated in internal digital preservation development opportunities over the last 3-5 years (44%). Fewer respondents have taken certificate or degree programs (21%) or participated in mentorships (12% as a mentor and 6% as a mentee) (p. 49-50).

Current professional practice further reveals structural differences in access to equipment, expertise, and mentoring, with advanced technical capacity concentrated in a small number of well-resourced institutions. National assessments, including the American Institute for Conservation and National Endowment for the Humanities' *Held in Trust* report (2023), identify underinvestment in essential technologies and specialized

practitioners, resulting in reliance on obsolete equipment and non-standardized workflows that cannot consistently meet best-practice imaging standards. While *Held in Trust* articulates collections care and needs of LAMs and conservation, the report identifies and further illuminates how LAM professionals face persistent gaps in equipment, skills, and sustainable funding.

Based upon field surveys, literature reviews, and examination of currently existing professional development, we have identified **three key issues facing library professionals and their abilities to carry out standards-aligned and informed digitization**, especially at smaller institutions:

- dependence on obsolete equipment;
- skills and workforce deficits; and
- episodic rather than sustained strategic efforts that are standards-aligned.

The result: institutions are often hardware-constrained and training-constrained, and FADGI implementation is highly uneven outside of large, well-funded digitization centers, such as NARA, SI, and the Library of Congress. The absence of structured, in-person training prevents many organizations from meeting digitization expectations or participating in regional or national digital access initiatives.

Technology gaps are compounded by skills and workforce deficits as a result of overstretched staff and a lack of usable and affordable quality professional development keyed to digitization and related practices. Staff frequently report limited training in workflows, FADGI-aligned quality control, digital preservation planning, and complex imaging techniques. Although the demand for digitization and digital preservation is increasing in LAMs, existing library and information sciences (LIS) and museum studies (MUSE) curricula rarely cover this level of technical practice, leaving emerging and established professionals to learn on the job, often without structured development pathways, credentials, or sufficient time. This underinvestment in people leads to workflow bottlenecks, inconsistent output, and under-utilization of existing equipment. Moreover, grants that support one-time purchases or short-term hiring rarely cover lifecycle needs: equipment replacement, continuous training, scalable storage, consistent file management, and delivery platforms that meet current web and accessibility standards. This results in digitization that is episodic rather than strategic, endangering not only learned skills but digital collections that risk becoming out of reach or obsolete.

These issues are further complicated because heritage collection imaging needs in the 21st century now extend beyond flat materials to include realia, archival materials, and special collections within academic libraries, public libraries, museums, historical societies, independent archives, and beyond. Thus, digital efforts must be forward-facing to include material beyond sheets, leaves, and folia. This expanded definition of materials means that *standard digitization* is not the only medium of digital access expected by communities nor best suited for the material collections and long-term preservation and access.

Therefore, a further, and substantial, gap exists in formal training for advanced heritage collection imaging methods like multispectral imaging (MSI), Reflectance Transformation Imaging (RTI), and 3D imaging. (All of these terms are fully defined below). Most professional development avenues offer only general or introductory content on digitization and digital preservation, with little or no hands-on technical instruction in these specialized imaging techniques. This gap in education and credentialing for librarians across a range of imaging emerging technologies leaves many library professionals ill-equipped to implement these emerging technologies. Advanced imaging expertise remains concentrated in a few well-resourced institutions, while smaller libraries and archives face persistent obstacles in training, equipment, and staff capacity. Each of these issues is interrelated and creates a widespread gap in the field which, in turn, diminishes access to digital collections. When labor is under-resourced, collections remain undigitized, undiscoverable, and at greater risk; when it is supported, the past becomes meaningfully available to all in the present through durable, standards-aligned digital stewardship. At present, however there is no clear sustainable pathway for implementing standards-aligned digitization that incorporates appropriate and usable equipment across multiple modalities; addresses skill deficits; and roadmaps strategic efforts.

Returning to this historical moment and the needs of America 250 that will extend beyond 2026, RIT seeks funding for this “Building Workforce Capacity in Emerging Imaging Technologies for Library Professionals” grant to plan and pilot a free, easy-to-adopt FADGI-centered microcredential to equip under-resourced LAM professionals to launch and sustain self-reliant and informed digitization that makes local, regional, and national treasures discoverable for future generations. The effort will address evidence in research and data collection which illuminate gaps in training, staffing, and workflows for standards-aligned digitization and digital preservation, particularly among small and mid-sized institutions.

The grant **will focus on four methods of emerging imaging technologies**. (see Definitions in Supportingdoc1.pdf). Each of these methods noted below will center the Federal Agencies Digital Guidelines Initiative (FADGI) vital principles for imaging, digital preservation, and openly-available digital stewardship. The program will result in the creation of Open Educational Resources (OERs); administer a pilot Summer Institute for 12 regional participants in collaboration with the Rochester Regional Library Council (see Letter of Support in Supportingdoc3.pdf) and will evaluate this effort at positioning LAM professionals to confidently plan, execute, and sustain digitization initiatives using future-facing best-practice methods, with an emphasis on empowering institutions without dedicated imaging staff or budgets. The effort involves innovative imaging technologies and technical expertise being put in the service of library collections to create a convergence where emerging methods enable new access to enduring community heritage. It offers a fuller, more comprehensive approach to digitization as method and output by empowering librarians as decision makers around the questions of how best to digitize the content entrusted to them. The four methods to be addressed in this planning grant include:

- **Digitization** involves the process of capturing, converting, and preserving tangible artifacts such as letters, documents, and other materials into digital formats. Across the U.S. given the gaps in equipment and staffing, methods may rely on aging cameras, unstable mounts, inconsistent lighting, and non-standardized workflows that fail to meet the **FADGI** Still Image standards (2023). For this grant project, an array of methods will be introduced, along with OERs and supporting hands-on experiences with **flatbed scanners** and **Bookeye self-service** systems as well as more sophisticated **overhead scanners** that enable manual control of camera-enabled features. **Cell phones** will also be discussed for their very real possibilities for workflow digitization (see Bibliography in Supportingdoc1.pdf, Burns and Williams, 2016).
- **Multispectral imaging (MSI)** involves a sequential capture of photos of an item taken under different wavelengths of light to produce a digital "stack" of images for analysis and enhancement. (Think *National Treasure,* the 2004 film involving a hidden message written in invisible ink made visible with lemon juice and heat!) The goal is the recovery of information that has been lost due to fading or erasure, flood, fire, and intentional redaction. Factors that have prohibited MSI's use (such as cost of commercially-available systems and complexity of software and data output), have been remedied by the co-PI of this grant and colleagues at RIT who developed **MISHA (Multispectral Imaging System for Historical Artifacts), as a result of NEH funding (PR-268783-20). This system is entirely open-source with low-cost equipment and free software** that can illuminate—literally and figuratively—documents and manuscript pages and can thereby enable librarians to unveil information and more fully understand these items. The MISHA System (which is an open source system and software) will be addressed in the Summer Institute, along with RIT's ongoing free loan program of full MISHA systems to libraries, archives, museums, and universities, established in 2021. (See Bibliography in Supportingdoc1.pdf, Decker et al).
- **Reflectance Transformation Imaging (RTI)** involves the use of a camera, illumination, and a dome to take multiple photos of an object in a fixed position before combining them into hyper-realistic digital surrogates that may be interactively controlled by the viewer. The process is fast, reliable, and produces a high-quality end result. The size of the subject that can be captured this way depends on the size of the dome available, but this approach is generally most suitable for medium-sized to very small objects. While high-end methods exist, they remain underused nationally due to a lack of training and usable, updated workflows. However, low-cost methods have emerged, will be introduced, and will be available for use by participants in the Summer Institute. (See Bibliography in Supportingdoc1.pdf, Kinsman).
- **3D imaging (3D)** involves creating accurate 3D models from overlapping 2D photographs of objects, artifacts, and other collections. Applications of this method are currently limited by high equipment costs and the need for significant storage and processing capabilities. High-end systems remain underused nationally due to their exorbitant cost, as well as a lack of training and easy-to-adopt and adapt, updated workflows. As with the three other methods noted above, low-cost methods have emerged that enable traditional scanning with handheld devices; photogrammetry; and app capture—all of which will be introduced and available for use by participants in the Summer Institute. (See Bibliography in Supportingdoc1.pdf).

NOTE: As part of our work, we will survey and evaluate the range of relevant technologies currently in use among our target cohort of participants during the pilot project to determine the interest in these modalities, and introduce easy-to-adopt methods of standards-compliant imaging practices (digitization, MSI, RTI, 3D).

The survey results from them, and the broader library field who will be solicited in the first phase of the project, will inform our training curriculum development and the creation of our OERs.

Who Will Benefit

Given the technical knowledge, equipment access, and standards gaps outlined above, a fourth gap also emerges: reach and sustainability. (See Tables in Supportingdoc1.pdf).

Thus, this grant effort will address all four gaps among the pilot cohort:

1. **Technical Knowledge Gap:** Librarians require guided, practical experience with copystand operation and stable imaging setups; FADGI target-based quality control; color management and RAW-to-TIFF workflows; and advanced imaging (multispectral, RTI, 3D imaging). *Written guidelines alone cannot teach these embodied technical skills. Guidelines plus OERs and application closes this gap. Moreover, microcredentialing through the badging with RIT Certified will create a community of practice among those who participate in the Summer Institute and future participants.*
2. **Equipment Access Gap:** Most institutions do not have: a fully compliant FADGI capture station; controlled lighting environments; MSI, RTI, or 3D imaging systems; nor access to training labs or imaging studios. *The pilot workshop with regional attendees will foster awareness that while high-end tools may achieve high-end standards, a lower-cost, practical approach to digitization across a range of modalities can yield appropriate levels of quality. Thus, a cellphone capture, informed by technical knowledge delivered in this Summer Institute, can produce FADGI 3-star imaging.*
3. **Standards Implementation Gap:** Even when institutions understand FADGI conceptually, they struggle to: translate guidelines into repeatable local workflows, conduct QC based on measurable performance; document technical metadata; and maintain consistency. *Hands-on training rooted in real equipment workflows is essential to operationalizing standards. Thus, a participant-devised project that they complete at their home institution post-Institute and guided by technical knowledge delivered in this Summer Institute, can develop application of knowledge and persistence in understanding.*
4. **Broad Reach and Sustainability Gaps:** Smaller institutions lack funding for travel to distant workshops; on-site consultation from imaging experts; and specialized equipment purchasing. *The pilot Summer Institute with regional attendees will aim to include a range of participants from varied organizational types and will enable the organizers to learn more about issues facing institutions, goals of librarians, and where gaps lie. Thus, the planning period will inform the development of an additional grant application for implementation of a scalable program that can enable the participation of library professionals nationwide in the national digital heritage collections ecosystem.*

RIT has the skills and capacity to plan and prototype opportunities for creating open access resources and, further, in creating a learning ecosystem and fostering communities of practice that center digitization and imaging practices geared toward library professionals. **The proposed grant effort aims to shift the discussion to center education and training that will be available through OERs that can, in turn, meet the needs of library professionals where they are and, ultimately, lead to a digital badge** (a mircocredential) **from RIT** in heritage collections digitization and the FADGI Federal Agencies Guidelines Initiative that articulates common sustainable practices and guidelines for digitized and born digital. This grant couples the two avenues with our combined expertise in prototyping workplans and developing and implementing onsite training with our university's experience with badge credentials. This outcome builds on RIT's demonstrated excellence in badge creation through their division RIT Certified (RITC), which offers badging through Credly. RITC has offered badges for 2 ½ years and have offered 44 different badges to date, totaling 700 learners that includes undergraduates through mid-career professionals.

C. Project Work Plan (See Supportingdoc2.pdf)

Activities & Sequence They Will Occur, With Involvement of Stakeholders and Input

The grant activities will occur on campus at RIT, primarily in the RIT Libraries' Digitization Lab which has several higher-end digitization systems, including: Digital Transitions system – Phase One iXH 150mp camera; Epson 12000XL and 13000XL flatbed scanners; and Nikon D810 and D5500 DSLRs – Kaiser RSD copy stand. These systems require the updated software and color targets listed to ensure and instruct participants on FADGI compliance, including software for a 3D scanner that employs and demonstrates Artificial Intelligence processes in digitization and photogrammetry. However, less costly technologies (BookEye and Artec 3D scanner, see Budget.pdf) are ideal to instruct users in the basic principles and skills of digitization and can

display the breadth and functional range of processes when determining projects and scalability. With these resources, over a two-year period, the project will plan, prototype, and assess a pilot Summer Institute and a suite of Open Educational Resources (OERs) focused on standards-aligned digitization, multispectral imaging (MSI), reflectance transformation imaging (RTI), and 3D imaging. (See Supportingdoc2.pdf)

Grant activities are described below, indicating the involvement of stakeholders and input with specific tasks are outlined below. (See Supportingdoc5.pdf, a bulleted list that gives further detail.)

Recurring Activities: In Year 1 & 2, monthly meetings among the PI and Co-Project Directors will compare the scope and content of draft data sets and OERs with survey data, while quarterly meetings with the Educational Evaluator (who serves as this project's External Reviewer) and Summer Institute instructors will ensure alignment with target-group needs. At four points as noted on the Schedule of Completion (months 1-2; 5-8; 11; 21-22), the Project Team will gather quantitative and qualitative data from the target audience of library professionals and the pilot population of Summer Institute participants through surveys, questionnaires, observations, opinions, and feedback focused on emerging imaging technologies for library professionals including digitization and FADGI guidelines. Each quarter, the PI and Co-Project Directors will meet to compare all grant activities against the schedule of completion. Each quarter, the PI and Co-Project Directors will submit a templated report to our External Reviewer showing their progress on meeting the milestones.

Months 1-11: In Year 1, at the beginning, middle, and end of the Student Pilot at RIT (a preview of pilot Summer Institute), the Project Team will administer quantitative and qualitative surveys of expectations and how well the activities met the expectations of this group. During the pilot Summer Institute with librarians from the region, daily qualitative surveys will be administered by the External Reviewer (What did you learn? What remains unclear? How well are the activities meeting your expectations?) to assess the effectiveness, efficiency, quality, and timelines of the Summer Institute. Participants in the pilot Summer Institute will demonstrate their ability to evaluate multiple digitization systems using provided OERs, equipment, and FADGI guidelines. At the end of Year 1, the External Reviewer will present findings from quantitative and qualitative surveys and observation-based evaluation.

Months 12-22: In Year 2, Summer Institute participants will implement digitization projects at their home institutions using the OERs, training materials, and the FADGI Summer Institute Imaging Toolkit that includes a frame that can be used for all forms of the imaging methods introduced, along with additional teaching and instructional tools and the information for replenishing these at home (i.e., how to 3D print or color print items rather than ordering materials online or purchasing higher-end solutions from vendors). (See Supportingdoc4.pdf & Budgetjustification.pdf). The project team will track hours spent using the OERs to assess their ongoing value, conduct summative evaluation, and award digital badges. At the close of the grant period, all data sources will be synthesized to calculate cost-per-item for each OER, demonstrating decreasing cost over time and sustained value.

At the end of Year 1 and 2, the PI and Co-Project Directors will gather metrics from RIT's Open Access Repository which will host the course materials (including a training data set discoverable through their original MARC bibliographic records, technical and descriptive metadata) to demonstrate use of the OERs for use beyond the communities of the student pilot at RIT and the pilot Summer Institute participants to include anyone with access to the internet.

Planning, Implementing, and Managing the Project

As an institution, RIT is uniquely positioned to execute this grant due to our:

- established **expertise in digitization and imaging technologies, museum studies, and heritage collection stewardship** that bridges technical imaging with ethical and community-centered practice;
- **facilities offering a range of capabilities** to model FADGI-compliant imaging setups and serving as demonstration sites for copystand, MSI, RTI, and 3D workflows;
- **strong regional, national, and international partnerships** with libraries, archives, and museums which provide opportunities to work with an array of materials during the Summer Institute while leveraging our extensive examples of use cases focused on real collections, community needs, and pilot implementation sites, particularly of the MISHA System; and
- **proven track record in onsite education, microcredentials, and professional training** which have already demonstrated scalable reach, particularly of the MISHA System.

The entire Project Team is positioned to plan a compelling, exciting, and needs-focused pilot program as well as the draft versions of OERs to support it. Building upon **PI G. Decker's** 20+ years' experience in technical

services, digital initiatives, and metadata at a range of academic libraries, from a small liberal arts college to an R1, the planning project leverages G. Decker's interdepartmental project planning and coordination; resource allocation; oversight of digital repositories and DAMs; training of staff in metadata application and data management; as well as coordination with ITS for support and infrastructure.

Co-PI J. Decker has offered more than 50 trainings and international presentations on heritage collection imaging, particularly multispectral imaging and organized three professional-oriented events held in 2022, 2025, and 2026 (forthcoming) geared toward librarians, archivists, and cognate collections professionals. A full professor in History and Co-Director of RIT's Imaging Lab, J. Decker's research agenda frames materiality and meaning around LAMs and imaging practices and includes grant-funded, low-cost, and usable heritage collection imaging solutions, notably the MISHA Project (NEH PR-268783-20 & NEH PE-303737-25).

As RIT Libraries Librarian/Digital Initiatives Specialist, **Co-Project Director Nick Paulus** hires and trains all digitization student assistants in use, standards, and compliance; repairs, maintains, and facilitates the upkeep of all digitization equipment; develops project assignments and workplans for all digitization initiatives; meets with special collections librarians, archivists, and curators to facilitate projects; instructs on material handling; coordinates delivery and return of items from regional collections to be digitized as a service by the libraries; and manages storage of digital assets. In addition, he supports the ongoing learning by librarians, collections professionals, and conservators who visit RIT Libraries for heritage collection imaging training in other capacities and are interested in seeing the work in the Lab.

As Affiliate Professor of Practice in Museum Studies, **Co-Project Director Tom Rieger** has five decades of experience in heritage collection imaging, most recently as Chief of the Collections Digitization Division of the U.S. Library of Congress where he was given a succession of responsibilities beginning with establishing a new direction for the Still Image Working Group of the Federal Agencies Digitization Guideline Initiative (FADGI) writing the Second Edition (2016) of the FADGI Still Imaging Guidelines, and leading the team that produced the Third Edition (2023). He has consulted in the design of ICC profiling targets, software, and workflow systems and is responsible for numerous advances in the art and science of imaging.

The combined experience of the Co-PIs and Co-Project Directors across a range of institutions from a small, liberal arts college in Kentucky to R1s to the Library of Congress, has delivered numerous workshops, demos, and other hands-on learning opportunities that share their knowledge and facility with methods. Rounding out their expertise and leadership are Project Staff **Lisa Wright** and **Mike Buffalin** who have thorough understandings of Reflectance Transformation Imaging (RTI), photogrammetry, and object photography imaging and 3D imaging applications for heritage collections, respectively. As Digitization Specialist at the University of Rochester, **Wright** has more than 15 years of experience developing standards-aligned imaging workflows for academic and heritage collections with expertise in FADGI-compliant capture, digital asset lifecycle management, computational photography, and workforce development. Wright's demonstrated leadership in organization-level policy development, cross-disciplinary collaboration, and sustainable initiatives aligned with best practices enhances the participant experience at the Summer Institute, as does **Buffalin**'s. As Director of the SHED Makerspace at RIT, Buffalin oversees the operations, maintenance, and technical support for 3D printing and 3D imaging, alongside general digital fabrication tools within the SHED, a 120,000 square-foot state-of-the-art facility. His experience in training every age level (from K-12, university students, and beyond) as well as every comfort level will engage participants in 3D imaging utilizing extant equipment at RIT and the budgeted Artec EVA 3D scanner as counters to the web-based platforms that will be addressed in the Summer Institute and OERs. Buffalin will also offer insight on safe and effective use of additive manufacturing technologies related to a 3D digital asset's lifecycle.

How We Have Involved Stakeholders Overall: Guiding Principles for Our Work

At RIT, in the spaces where the Project Team works in the RIT Libraries and the Imaging Lab, **we emphasize the notion of the lab as a classroom:** hands-on and practical experience; openness, generosity, and support from organizers/instructors/student assistants; a collaborative and welcoming environment; and ease of application; as well as opportunities for learning and growth. This ethos has been externalized through the offering of numerous workshops and hands-on experiences since 2021. Two of these (in 2022 and 2025) were free, public professional development events keyed to LAM professionals. These hands-on learning experiences, described below, have informed the framing for this grant project. (See Supportingdoc2.pdf)

In the summer of 2022, Co-PI J. Decker organized a regional conference called CHIPR which presented the research occurring at RIT that combined heritage collections and technology, and demoed the

technologies available at RIT. The event was organized by the Imaging Lab (which the co-PI co-directs) and had 70 regional attendees. The summative survey reflected an astounding 100% of the respondents feeling that: that this was “a worthwhile opportunity”; that “It is important for universities like RIT to provide opportunities for learning in museums, archives, libraries, and other cultural organizations”; and that this kind of one-day event “enrich our professional community.”

In the summer of 2025, co-PI J. Decker organized a week-long summer seminar (MISHA Summer Seminar) for 25 participants that focused on multispectral imaging that yielded the following data point, among many: 88.2% strongly agree; 11.8% agree that “As a result of this week, I learned about the ways that technology can positively contribute to preservation, access, and discoverability of collections through this MISHA Summer Seminar.” All attendees further praised our learning ecosystem at RIT where we emphasize hands-on and practical experience; openness, generosity, and support from organizers/ instructors/student assistants; a collaborative and welcoming environment; and ease of application; as well as opportunities for learning and growth. In short, the seminar allowed participants to gain information regardless of previous knowledge, learn something very new, practice more creativity and flexibility, and unlearn rigid expectations about heritage collections imaging. (An additional seminar, focused on multispectral imaging only, will be offered in June 2026; with the third planned for August 2027).

This current grant will enable us to plan a similarly-designed weeklong seminar with a wider aperture to address multiple forms of heritage imaging. The Guiding Principles outlined above are how we devise, organize, and implement our education and training. We will do so with this grant effort, as well, to showcase the wider array of digitization practices, as well as FADGI-aligned principles. Information about our previous and current workshops and curricula for LAM professionals may be found in Supportingdoc2.pdf.

How We Will Evaluate and Demonstrate Impact

The grant will be measured by performance indicators of effectiveness, efficiency, quality, and timeliness in accordance to the performance indicators, targets, baseline data, and data collection noted in the Performance Plan. (See Perfmeasurement.pdf) In devising our scope for this planning grant effort, the Project Team has considered equipment needs and praxis informed by Federal Agencies Digital Guidelines Initiative (FADGI) standards, professional education, and emerging imaging technologies, and interested in sustainable, FADGI-informed practices.

D. Project Results

The project will benefit library professionals regionally, through this pilot—and with continued efforts, ultimately nationwide—by strengthening workforce capacity in emerging imaging technologies. Results will be disseminated through open-access OERs, professional networks, and reports, with success measured through surveys, observations, implementation outcomes, and cost-effectiveness analysis.

Intended Results and Deliverables

"Building Workforce Capacity in Emerging Imaging Technologies for Library Professionals" will plan scalable, standards-aligned training, OERs, and microcredentials in digitization. Through needs assessment, pilots, and rigorous evaluation, the project addresses uneven access to imaging training, advancing Laura Bush 21st Century workforce development objectives nationwide. The project advances the capacity of libraries, archives, and museums—especially small and under-resourced institutions—to produce, manage, and sustain high-quality digital surrogates of heritage collections. The grant deliverables are keyed to the 5 phases of the grant detailed in Supportingdoc5.pdf and as noted above. They include:

- Cohort profile and needs assessment summary; draft curriculum modules; equipment plan; workshop pilot plan;
- Analysis of profile and needs assessment summary with curriculum; revised curriculum modules; recruitment of 12 participants with responsibility for digital collections or data stewardship; finalized workshop content;
- Analysis of profile and needs assessment summary with curriculum; summative evaluation information;
- Digitization Plans from 12 Institute Participants, keyed to Summer Institute content and aligned with their organization-level needs and resources; and
- Final impact report; recommendations for implementation and scalable grant effort.

Through a combination of hands-on training through the Summer Institute, open-access resources, and take-home resources to inform the participants' application of knowledge, the project provides practitioners with the knowledge, skills, and tools needed to meet emerging standards such as FADGI, while strengthening broad access to digitization expertise across the field. These efforts and their outputs build workforce capacity in emerging imaging technologies and position librarians as future-ready.

Addressing the Need Identified

This planning project responds directly to a national capacity gap: many libraries, archives, and museums (LAMs) lack specialized equipment, trained staff, and standards-aligned workflows needed to digitize fragile and unique materials before they deteriorate or are lost. By planning and developing a prototype for a free, microcredential badge program centered on the Federal Agencies Digital Guidelines Initiative (FADGI) vital principles for imaging, digital preservation, and usable digital stewardship, the project targets the documented mismatch between increasing digitization expectations and uneven access to sustained, hands-on instruction. **The project is designed to address the interrelated issues identified above—dependence on obsolete equipment, skills and workforce deficits, and digitization efforts that are episodic rather than strategic and standards-aligned—by equipping practitioners with knowledge they can apply in repeatable local workflows.**

Project results are structured around deliverables that translate standards into practice: the creation of Open Educational Resources (OERs), administration of a pilot Summer Institute for 12 participants, and evaluation of how effectively the program positions LAM professionals to plan, execute, and sustain digitization initiatives using best-practice methods—particularly for institutions without dedicated imaging staff or budgets. Training content spans four imaging modalities—digitization, multispectral (MSI), reflectance transformation (RTI), and 3D—because the needs of heritage collection imaging now extend beyond flat materials and require forward-facing approaches that can support a broader range of collections and community expectations. The project explicitly addresses constraints noted for each method (e.g., limited hands-on opportunities, costs and complexity, and uneven standards implementation), while **reinforcing the proposal's theory of change: when practitioners receive targeted instruction on FADGI requirements and imaging modalities beyond digitization, they develop the foundational knowledge needed to evaluate and improve local imaging workflows through "informed digitization."** (See Supportingdoc1.pdf and Supportingdoc2.pdf)

The theory of change outlines how project activities lead to measurable improvements in practitioner proficiency, organization-level workflows, and the overall quality of digitized collections. By expanding practitioner training, providing broad access to specialized knowledge, and disseminating open educational resources, this project strengthens the regional digitization ecosystem and, when scaled, the national digitization ecosystem. The result of this project planning grant is a glimpse at a more skilled workforce, improved imaging quality across institutions, and enhanced long-term preservation and accessibility of heritage collections.

Adaptable, Generalizable, and Usable

The project is **designed for broad reuse** by building outputs that are modular, open, and grounded in widely recognized standards. Curriculum development is described as customizable—covering copystand imaging, FADGI quality control, MSI, RTI, and 3D—so that institutions can adopt the components that align with their staffing, equipment, and collections rather than needing to replicate a single high-resource model. The OERs and course materials will be made openly available through an open access repository, and the project team will gather repository-based metrics to demonstrate use beyond the initial student pilot and Summer Institute cohort, explicitly supporting access for "anyone with access to the internet." This approach supports generalizability not by assuming uniform conditions across institutions, but by ensuring that core guidance (FADGI targets, measurable QC workflows, documentation practices, and repeatable processes) can be translated into local, resource-appropriate implementations.

Adaptability is further reinforced through **participant-centered scaling and iterative refinement**. The Summer Institute preparation includes a pre-workshop survey that captures baseline knowledge and context, including an inventory of home-institution technologies so participants can scale take-home projects realistically. Throughout the planning and pilot stages, the project incorporates structured feedback loops—surveys, daily qualitative check-ins during the Institute, observations, and external review—to refine OERs and instructional design based on practitioner needs, thereby improving usability across varied organization types

and community contexts. Finally, the project foregrounds easy-to-adopt approaches alongside higher-end systems, including open-source and low-cost options such as the MISHA multispectral imaging system (described as open-source with low-cost equipment and free software), which supports replication and reduces obstacles for institutions with limited budgets.

Dissemination to Reach the Intended Beneficiaries

The intended beneficiaries are the initial cohort of librarians accepted into the Summer Institute defined above. All participants will have access to all OERs, as will all survey participants who respond to our initial front-end evaluation. Dissemination will also leverage established regional partners and their communication infrastructure. The Rochester Regional Library Council (RRLC) will support outreach, communication, and participant support for the 12-person Summer Institute cohort, and will circulate announcements and project updates through its member networks and regular communications to libraries and heritage collection organizations across the five-county region. In parallel, Rochester Public Library will amplify calls for participation and share links to the open educational resources (OERs) and microcredential pathway with public library staff, local history partners, and community-facing programs. We will also distribute materials through our online communities that we established and run concomitantly:

- Since 2016, we have coordinated the bi-weekly online community **R-CHIVE** (Rochester Imaging, Visualization, and Education) that serves as a forum for the discussion of advances in the field. Its regular attendees include scientists and scholars spread over 12 time zones, from Hawaii to central Europe, with registrants at more than 200 participants.
- Established in 2024, the **MISHA Google Group**, with more than 175 members, facilitates conversation among MISHA users internationally.
- Established in 2025, the **MISHA Summer Seminar Group**, with 25 participants who have learned MSI from us and continue to grow in their professional development and simultaneously serve as ambassadors for emerging heritage collection imaging practices.

We will also distribute awareness of materials and their open-access to relevant listservs and professional groups and other venues (library systems, archives, museum and digitization communities), directing recipients to the open-access repository where the OER modules, workflows, and evaluation findings will be freely available. Together, these channels ensure broad visibility for recruitment, timely sharing of results, and sustained reuse of project outputs by practitioners beyond the pilot cohort. (See Supportingdoc3.pdf).

Sustain the Benefits

Sustainability is built into the project's infrastructure, credentialing strategy, and post-training implementation pathway. First, long-term benefit is supported through persistent open access: the OERs and course materials will remain available in university-level open access repository, enabling ongoing reuse for self-paced learning and for training new staff or student workers after the grant period ends. Second, the project embeds a durable professional incentive and recognition mechanism through microcredential badging (developed during the planning period and awarded based on completion of the Summer Institute and attempts to implement a proposed digitization plan), aligning skills development with a credential that can travel with participants beyond the project timeline. Third, sustainability is strengthened through applied follow-through at participants' home institutions. In Year 2, participants implement digitization projects locally, with the project team tracking engagement with OERs and conducting summative evaluation; follow-up interviews/surveys and analysis of workflow adoption and FADGI implementation are used to document ongoing organization-level change.

How Results & Deliverables Will Inform Future Work

Our ongoing work will assure continued access to capacity-building resources—most notably, the OERs which are open-access and can be used and re-mixed by anyone and the RIT Imaging Lab's ongoing free MISHA loan program—as mechanisms that can extend information and equipment access beyond the Institute itself. Finally, the project's sustainability strategy is explicitly future-facing: summative evaluation at the end of the grant period is positioned to inform a subsequent implementation grant application and recommendations for scaling, providing a clear pathway to extend benefits beyond the period of performance.

Applicant Name: Rochester Institute of Technology | **Schedule of Completion**

Project Title: Building Workforce Capacity in Emerging Imaging Technologies for Library Professionals