



Museums for America Grants

Sample Application MA-245812-OMS-20
Project Category: Collections Stewardship and Public Access

University of Wisconsin System (UW Geology Museum)

Amount awarded by IMLS:	\$250,000
Amount of cost share:	\$322,155

The project description can be viewed in the IMLS Awarded Grants Search:
<https://www.ims.gov/grants/awarded/ma-245812-oms-20>

Attached are the following components excerpted from the original application.

- Narrative
- Schedule of Completion

Please note that the instructions for preparing applications for the FY2021 Museums for America grant program differ from those that guided the preparation of FY2020 applications. Be sure to use the instructions in the Notice of Funding Opportunity for the grant program and project category to which you are applying.

PROJECT JUSTIFICATION

Our Most Pressing Need

After more than 170 years of growing and pruning its collection, the University of Wisconsin Geology Museum (UWGM) is in dire need of additional specimen storage that meets current industry standards. We are requesting \$250,000 to help purchase and install compactor shelving in one of our two repositories. If funded, this project will drastically improve the storage environments for much of our collection and allow for its future growth.

The new system, designed with specimen conservation in mind, will include 972 powder-coated steel drawers and open-faced racks with gasket closures (see Supporting Document 1). To accommodate the installation of this shelving, roughly 7,200 geological and paleontological specimens will be transferred from the repository to a temporary holding room in the same building, and then incorporated back into the new compact shelving. As part of this project we will also install a key card system so we can log repository usage going forward and limit access to authorized personnel. These changes will significantly improve the storage, security, and longevity of our collection.

Our Conservation Assessment in 1998 states “storage is an immediate concern for the Geology Museum. The collection is overflowing from its current storage areas”. At that time efforts to improve storage were hampered by a lack of funding and limited staffing. In the last decade, the UWGM has made collections preservation a top priority, securing funds to hire permanent staff, including our Museum Curator (2009) and Museum Scientist (2012). To further this commitment, the UWGM completed another Conservation Assessment in 2017 in which, not surprisingly, collections storage was once again characterized as a shortfall by both our building and collections assessors (see Supporting Document 3). This proposal seeks to finally remedy this longstanding problem.

Project Context

The museum’s primary repository is shared with Department of Geoscience faculty and has nearly reached capacity. Currently, 93% of UWGM specimens are stored in wooden compact shelving in this shared repository. Another 7,200 specimens, including 392 oversized minerals and fossils, are housed in a separate area (Room AB55). In 2004, the Department of Geoscience built Room AB55 to increase space for faculty specimen storage. Recessed rails for steel compact shelving were installed in the floor, but due to budget constraints, shelving itself was not purchased. This room is already outfitted with HVAC/climate control and a concrete pad that can handle 300 pounds of live load per square foot, both of which are appropriate for collections storage.

Room AB55 has since been reassigned to the UWGM. In the absence of the planned compactor shelving, the UWGM has utilized, as a last resort, enamel-coated steel pallet racking and a variety of steel and wood cabinets to house rock and mineral specimens, as well as oversized objects, such as vertebrate fossils in plaster field jackets. The largest specimens (some of which weigh 500+ pounds) are stored on open shelves or on raised pallets on the floor (see Supporting Document 2). These storage units are inadequate in many regards from a conservation standpoint.

Collections stored in AB55 include Mesozoic vertebrates (including fossil bones from the site which yielded our museum’s *Edmontosaurus* skeleton – the first dinosaur to be put on display in Wisconsin), rock samples from every lithologic unit in southern Wisconsin, and the most valuable collection of minerals ever donated to the museum (over 700 specimens). While some specimens housed in AB55 are fully cataloged and imaged, most are not due in large part to how difficult it is to access them. Although our proposed project will improve how these objects are stored and accessed, an ancillary benefit is that we will then be well-poised to focus our efforts on fully digitizing them in the coming years.

Project Beneficiaries

The proposed storage system will provide a net gain of ~1,000 drawers and ~4,800 cubic feet of various styles of shelving. This accommodates many years of growth and allows us to eventually move portions of our collection from an older, shared repository to one that is more secure and better equipped. In addition to the obvious benefits to UWGM specimens, this project will have a significant impact beyond the objects themselves. Each semester, museum staff mentor numerous graduate and undergraduate students in fossil preparation as well as the care and conservation of geological collections. Not only will these students gain valuable hands-on experience from assisting with a major collections rehousing, but the upgraded repository will also serve as a vehicle for teaching curatorial best practices for years to come. Furthermore, our collection is utilized regularly by researchers from our campus and beyond (~20 visits per year). The processing countertop with cabinetry envisioned in this proposal will provide a much needed secure work area for students and researchers alike.

Our lack of appropriate collections storage space also has had regrettable impacts on our exhibits, and consequently, on our visitors. The UWGM has just over 1,000 specimens on display – none of which have dedicated storage space. Rotating exhibit specimens not only generates interest and encourages repeat visits to the museum, but it also aids in protecting objects for the long term. By expanding our storage capacity, this project will also increase our ability to rotate specimens on and off display as well as properly store new acquisitions. Such improvements will greatly enhance the experiences of our visitors.

Advancing Institutional Collections Care

This project directly addresses the goals of the IMLS MFA program because it will strengthen our custodianship of America's natural history heritage. This project is the culmination of a concerted effort begun in 2005 to enhance the quality of collections care and management at the UWGM. Progress we have made so far includes:

- developing and implementing the museum's first ever collections management policy, written with the guidance of Bill Tompkins, Director of the National Collections Program at the Smithsonian Institution
- obtaining a 968-square-foot specimen storage room (the focus of this proposal)
- consolidating collections from five locations (four on-site and one off-site) into two on-site repositories
- establishing a 464-square-foot Collections Workroom
- hiring permanent, full-time staff: a Museum Curator and a Museum Scientist
- adopting Axiell's EMu collections management software for use in cataloging and research

To demonstrate our commitment to these specimens and this project, we will be covering 56% of the project costs for a cost share of more than \$320,000. This includes \$70,000 in gift funds, the largest outlay of its kind for any project in our museum's history. This initiative is not just our top collections-related priority, it is the highest of all museum priorities.

PROJECT WORK PLAN

Project Activities

The UWGM will be using Trello, a task management application that utilizes the Kanban system. We have successfully used Trello in the past to keep other complex projects on schedule including a new exhibition on astrobiology, the renovation of our fossil preparation lab, and logistical support for our summer field expeditions.

The first phase of this project focuses on removing the specimens and fixed storage units that currently are in AB55. The majority of specimens in this room are housed in boxes or specimen trays and are ready for transport to a temporary storage area (B152) within the department, roughly 200 feet away. The remaining specimens are oversized and will be moved to temporary high-capacity pallet racking installed in B152. This 1,431 square foot room is secure and contains enough space to store all of the displaced fixed cabinetry (134 drawers worth) and oversized specimens. A moving inventory will be kept to track all objects during this process. Oversized specimens and wooden specimen cabinets will be wrapped in plastic sheeting to help shield them and their contents from dust.

Once the compactor shelving has been installed, UWGM staff and volunteers will begin a systematic transfer of the roughly 7,200 specimens from B152 into the new shelving units in AB55. Oversized specimens will be placed on open racks. All of the specimens that had been kept in wooden and steel cabinets will be transferred to drawers in the mobile shelving. Based on project planning surveys, roughly 10% of the drawer-compatible objects (about 700 specimens) need, and will get, upgrades in specimen trays and/or Ethafoam padding.

Since 2012, most of the large fossil bones that have been prepared and are stored in our new repository have received plaster-and-fiberglass support jackets following the design of Jabo et al., 2006. These authors trained our Museum Scientist, David Lovelace, who now has seven years of experience with crafting storage jackets. There are an additional 20-30 large bones that would benefit from a support jacket, and they will get one during this project.

Project Maturity

The project outlined in this proposal is a mature one because it will integrate the industry's best practices and employ proven techniques. To select appropriate storage equipment and design the repository's layout, the UWGM has been working with John Butler of Axiom, Inc. (formerly Storage Systems Midwest). In the pursuit of additional insights and advice, Carrie Eaton, our Museum Curator, has toured facilities at the Denver Museum of Nature and Science, the Smithsonian Museum of Natural History, the Field Museum, and the Milwaukee Public Museum and consulted with their curators. The current design (see Supporting Documents 1 and 2) is drafted specifically to meet the needs of our collection based on a current inventory, projected areas of growth, recommendations from our CAP assessments, and input from leaders in the museum field.

Project Risks

The primary risks are 1) project delays in cabinet delivery and installation, 2) project coordination around the active professional schedules of museum personnel, and 3) potential damage to specimens during transport.

With regards to possible delays and staff coordination, the entire UWGM staff already holds weekly meetings to coordinate museum activities. These will be lengthened as needed to discuss the ongoing project and mitigate any potential scheduling conflicts. To further ensure that the project remains on schedule, all staff members will be able to track tasks and progress through a collaborative board using Trello software. We also have included some extra time in the project schedule for contingencies. The museum staff operate year-round and experience few schedule changes due to the university's academic calendar.

We will address object handling risks by training all staff and students with proper techniques and by using dedicated moving carts with proper object supports. During this training, personnel will also learn the standards associated with using a moving inventory and the arrangement of objects in both temporary and final storage areas.

Project activities will occur in basement level storage areas and have no negative effects on tours, educational programs, or other museum operations. Although 7,200 specimens will be relocated to a temporary holding area and will in essence be inaccessible while stored there, the remaining ~113,000 collections objects will still be available for research and education.

Project Team and Timeline

This proposed storage expansion and collections rehousing project will be completed over the span of eighteen months (September 2020 – February 2022). All four members of the UWGM staff will be involved. The Museum Curator will serve as Project Director, overseeing and implementing the bulk of this project with assistance and guidance from the Museum Director. The Museum Director will be chiefly responsible for the project's budget and oversight. He will also fill in on managing the project when the Museum Curator is unavailable. The Museum Scientist will spearhead the stabilization of large vertebrate fossils and provide support for moving them safely. This will include teaching students how to make plaster support jackets and supervising their work in our fossil preparation lab. The Assistant Director will take the lead in disseminating the progress and results of the project to the general public through outreach events, newsletters to members, and the museum's website and social media.

To assist with the project and ultimately ensure that normal museum operations are not impeded, we will use 950 hours of paid student work and a minimum of 500 volunteer hours from student interns, all of whom will have received hands-on training in collections care. During the fall semesters of 2020 and 2021, this will include two student interns from a museum studies course taught on campus (see Supporting Document 4a).

This project will also benefit from regular consultation with the UW Natural History Museums Council, a group that fosters collaboration among the university's five natural history collections (Anthropology, Entomology, Geology, Herbarium, and Zoology). Collectively, the curators at these institutions have spent more than two centuries managing over 11 million specimens. Moreover, staff at the Wisconsin State Herbarium and the UW Zoological Museum have recently overseen major relocation and rehousing projects. Throughout this project, UWGM personnel will have access to the curatorial wisdom of this group and will keep them updated and engaged (see Supporting Document 4b).

Key Personnel

Carrie Eaton joined the UWGM in July of 2009 as its Museum Curator. She will dedicate 60% of her monthly effort and serve as Project Director, overseeing the relocation of objects, the installation of the compact shelving, and the rehousing of the temporarily displaced collections. Carrie also will train and supervise the student workers and Museum Studies interns. She has over eleven years of experience in collection management and sixteen years of experience in earth science education. During her time at the UWGM, she has curated and installed multiple permanent and travelling exhibits, secured external funding for collections support, directed graduate and undergraduate students, and facilitated use of the permanent collection for education and research. Since 2017, she has also served on the Best Practices Committee for the Society for the Preservation of Natural History Collections.

Richard Slaughter, the Museum Director, will dedicate 20% of his monthly effort to this project. Richard has over twenty years of museum experience, most of which was gained at the UWGM. In recognition of his leadership, Richard earned the 2007 UW Early Career Academic Staff Excellence Award and was honored with a Distinguished Chair in 2015. Richard also spearheaded the second largest relocation of specimens in UWGM history. Following recommendations in our 1998 Conservation Assessment Program (CAP) report, he coordinated the emptying of an

off-site storage space and consolidated the museum’s on-site collections. Due to these efforts, all of the UWGM collection is now stored in two repositories on-site.

David Lovelace, the Museum Scientist, is a vertebrate paleontologist specializing in Triassic-aged rocks of the Rocky Mountain West. He joined the UWGM team as a research scientist in 2012. David was previously the director of the Big Horn Basin Foundation, a non-profit educational organization focusing on outreach and collection management at the Wyoming Dinosaur Center. During his tenure there, David oversaw the construction and renovation of a pallet racking system where all large field jackets were stored as well as oversized fossils that had been prepared and cataloged. David was also the project manager and lead scientist/artist for constructing a full skeletal mount of *Supersaurus*, the longest known dinosaur. Over his fifteen-year career in vertebrate paleontology, David has mounted fifteen dinosaur skeletons, four of which were huge sauropods. David will spend 20% of his monthly effort assisting with the moving of large objects as well as spearheading the creation of storage supports for large vertebrate fossils.

Brooke Norsted is the UWGM’s Assistant Director and oversees our education and public outreach programs. Brooke has worked at the UWGM for fifteen years and is also the primary author of its collections management policy. She will spend 10% of her monthly effort sharing this project with the general public and the UWGM’s support organization, the Friends of the Geology Museum. She will post updates on the project via the museum’s social media accounts and website. Project news will also be shared with the Friends of the Geology Museum through quarterly newsletters and annual events such as the Behind the Scenes Night and Winter Workshop.

Sequence of Activities

Task	Person(s) Responsible	Description
Preparation	Museum Curator Museum Director	Meet with John Butler of Axiom, Inc. to finalize design and order shelving units; Order supplemental supplies.
Hiring and Training	Museum Curator	Recruit and hire students; Host training sessions on object handling, moving inventories, and storage supports.
Relocation	Museum Curator Museum Director Museum Scientist Student Assistants	Transfer the following to room B152 (nearby in the same building): a) large vertebrate fossils and other oversized specimens, b) specimens from cabinet drawers, and c) all fixed cabinets; Cover all items in the temporary holding area with plastic sheeting to help protect them against dust/damage.
Delivery and Installation	Spacesaver and Axiom, Inc. Personnel UW Facilities Planning & Management Museum Curator	Deliver and install the mobile storage units and other new shelving in the now emptied repository; Install key card entry system.
Rehousing Large Specimens	Museum Curator Museum Scientist Student Assistants	Move large vertebrate fossils and other oversized specimens from the temporary holding area (B152) to the new open-faced compactor units; Create storage supports for these specimens as needed (either form-fitted padded fiberglass and plaster supports or custom cavity mounts with a rigid base).

Rehousing Drawer-Compatible Specimens	Museum Curator Student Assistants	Move, unpack, and rehouse specimens from the old cabinets into the new drawers of the mobile shelving while also updating roughly 10% of trays and Ethafoam inserts.
Report Progress and Results with Museum and Scientific Communities	Museum Curator	Project progress will be shared with department faculty at meetings twice a year, as well as scientists and geoinformaticists at the 2021 Geological Society of America meeting, and to museum colleagues at the 2021 Wisconsin Federation of Museums meeting.
Share Project Progress with General Public	Assistant Director	Share project progress via monthly social media posts, UWGM Open House and Wisconsin Science Festival, Friends of the Geology Museum events, and by working with UW Communications.

Project Resources

As part of ongoing efforts to improve the quality of its collections care and management, the UWGM will dedicate significant financial assets and personnel time to support this project. The UWGM is requesting \$250,000 to help purchase compactor shelving and other storage units. Based on a preliminary bid from Axiom Inc., the estimated cost of the desired storage system is \$305,449. The UWGM will provide over \$70,000 from its gift funds, which will be used in part to cover the remaining cost of the shelving. The budget also includes \$2,910 for supplies – namely supplemental specimen trays, Ethafoam, plastic sheeting, and four 1000-pound load capacity dollies for moving large specimens. A total of \$1,900 is allocated for travel to regional and national conferences. In addition, the UWGM will dedicate staff time and student hourly labor worth \$184,256 in salaries and fringe benefits. Lastly, the indirect costs of this project to UW- Madison are \$73,441 and these were included in the cost-share amount. In total, the museum will provide \$322,155 representing more than 56% of the overall project cost.

Tracking Progress

In addition to the weekly museum staff meetings already in place, the Museum Curator and Museum Director will meet twice monthly to specifically assess project benchmarks. Trello, our project management software, will provide all staff members a visual overview of tasks and their status along with access to the moving inventory. The Museum Curator will coordinate with the shelving installers to ensure that this portion of the project remains on schedule. Additional time has been planned into both moving phases as well as the installation phase to account for unexpected setbacks and contingencies.

We already keep metrics on collections visits and use. Similarly, we will maintain metrics on the numbers of specimens moved and rehoused during the relocation and rehousing phases as well as how the project impacts regular collections access and use. This kind of data is incredibly valuable not only for our own long-term planning, but also to our museum colleagues who are contemplating or developing similar projects.

Sharing Project Progress

The UWGM’s Assistant Director will work with UW Communications to share news of the project both on and off campus. She will also incorporate features of the storage expansion and collections move into several public events throughout the project such as our annual Open House, Wisconsin Science Festival, Behind the Scenes Night and Winter Workshop. We will use these events as opportunities to showcase the essential museum work that is done behind the scenes and highlight the importance of collections care and preservation. Photos and project highlights

will also be shared on our website and through monthly posts on our social media accounts (Facebook, Instagram, and Twitter).

As the UWGM shares the building with the Geoscience Department, the Museum Curator will present at faculty meetings to keep them up to date on project progress. She will also share project updates with the UW Madison Natural History Museums Council throughout the timeline as well as scientists and geoinformaticists at the Geological Society of America meeting (October 2021), and to other museum colleagues at the Wisconsin Federation of Museums meeting (November 2021). Following project completion, Carrie will of course share our final results at a future Society for the Preservation of Natural History Collections meeting.

PROJECT RESULTS

This storage expansion and rehousing project will (1) transform the storage environment for thousands of minerals and vertebrate fossils, which will dramatically improve their long-term preservation; (2) increase collection security while also providing improved access for researchers, museum staff and students; (3) decompress our collection, further protecting our specimens; (4) build more storage capacity, which is essential for accommodating future growth and ultimately keeping our museum vibrant; and (5) provide storage space to facilitate the rotation of objects on exhibit.

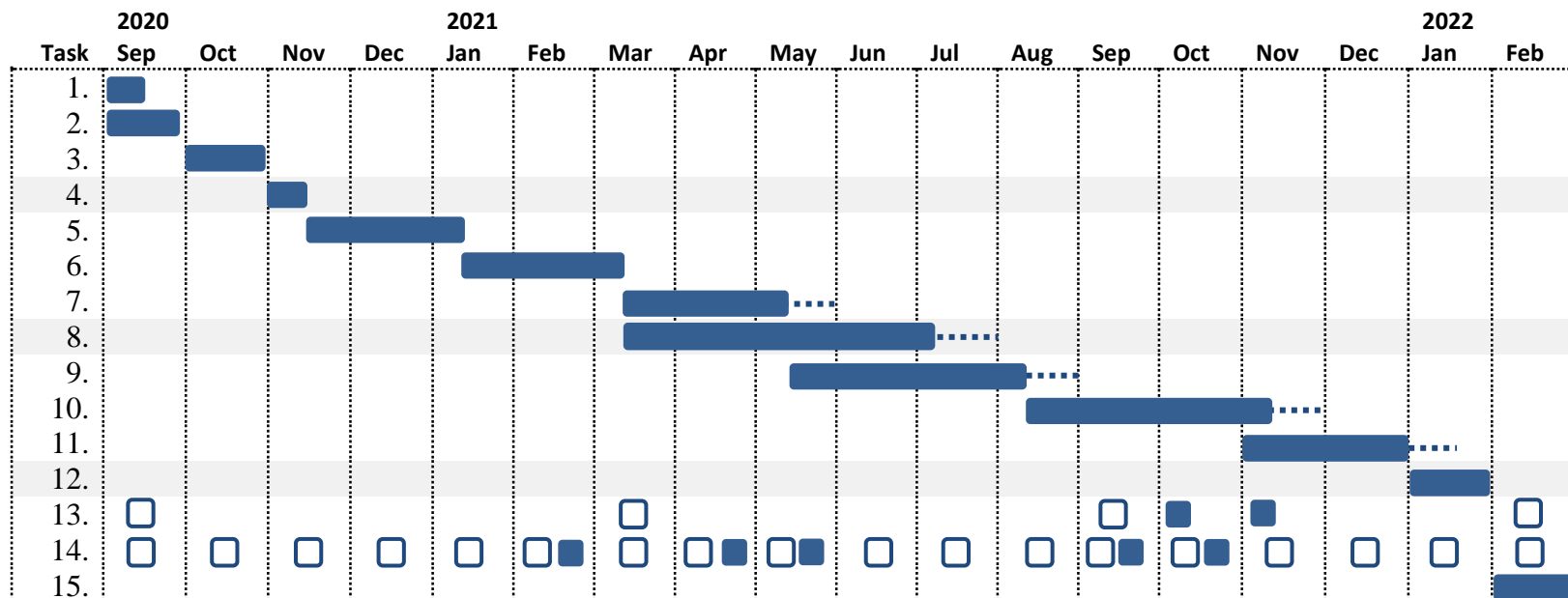
During the project we will collect data on the number of specimens relocated and rehoused (and the time it takes to do so), the number of permanent staff, student, and volunteer hours needed to complete the project, and the accuracy of our moving inventory as a tracking tool. This information will be shared as tangible products in public talks, conference presentations, donor reports, and our final report to the IMLS.

Whereas our exhibits and educational programs are highly visible to the university community and the general public, our collections and the work that goes into their care and management are less so. This storage expansion and specimen rehousing project will provide us with a great opportunity to showcase the essential museum work that is done behind the scenes and educate faculty, students, and the general public about the importance of collections care and preservation.

This project will also help us train the next generation of museum specialists by converting a makeshift repository into a professional one. UWGM students and volunteers often go on to enroll in Museum Studies graduate programs and graduate programs in vertebrate paleontology. Many others gain employment in the conservation of our public lands or work in well-known natural history and science museums. As a museum in a university setting, it is crucial for the UWGM to be an ambassador of best curatorial practices and to share those ethics and ideals with the museum professionals of the future.

If this project is funded, it will enable us to move beyond the long-standing storage problems that have plagued our museum. We at last will be able to tackle other collections-related projects which simply cannot be resolved until our need for shelving is met. At one level this project is the culmination of a long-standing initiative to enhance collections care and management at the UWGM. From another perspective, however, this project represents the beginning of a new era, one in which the University of Wisconsin Geology Museum will finally have the infrastructure needed to fully meet its curatorial responsibilities. This new, more efficient storage space will enable the UWGM to have a vibrant collection for many years to come, one which can continue to grow in a healthy and responsible manner.

Schedule of Completion for *Transforming Collections Storage at the University of Wisconsin Geology Museum*



..... Dashed lines represent allowances for possible contingencies

1. Confirm final design and place order for compact and fixed shelving units and supplementary curatorial supplies.
2. Interview, hire, and onboard student workers.
3. Hold training workshops for all project personnel on the moving inventory, object handling, etc.
4. Install high-capacity pallet racking in the secure temporary storage area (B152) for the large collections objects.
5. Transfer boxed specimens and drawer-compatible objects into secure temporary storage area (B152); wrap items in plastic sheeting.
6. Transfer large vertebrate fossils and oversized mineral specimens to secure holding area; wrap items in plastic sheeting.
7. Deliver and install compact shelving in the emptied repository; install key card entry system.
8. Create new fiberglass and plaster storage cradles for the large Mesozoic vertebrate bones as needed; build storage mounts for oversized minerals. (This work will occur in the UWGM Fossil Preparation Lab.)
9. Transfer boxed specimens and drawer-compatible objects into the new drawer units in the mobile shelving, replacing and rehousing roughly 15% of these drawer-sized specimens in new trays with ethafoam linings.
10. Transfer large vertebrate fossils and oversize mineral specimens into mobile open-face shelving.
11. Create new cabinet and shelf labels; update object locations in the new collections management system, Axiell's EMu.
12. Evaluate the moving inventory, project outcomes, and other measures of success.
13. Disseminate project updates to department via faculty meetings two times each year (□), to researchers and geoinformaticists at Geological Society of America meeting (Oct 2021), and colleagues at Wisconsin Federation of Museums meeting (Nov 2021).
14. Disseminate project updates to the public through monthly social media posts (□), coordination with UW Communications, UWGM public events, and Friends of the Geology Museum events.
15. Prepare final reports for IMLS, The Friends of the Geology Museum, and university stakeholders.