

DIGITAL TRANSFORMATION:

An Assessment of Grants Supporting Digital Staff in Museums

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Executive Summary

Knight Foundation believes that the digital space holds significant opportunities for cultural institutions, and in recent years has intensified its work to help organizations create valuable digital content. Museums that do not invest in digital capabilities and offerings will miss important connections with potential audiences. This deficiency also seems likely to erode the relevance of the arts in society as audiences spend increasing amounts of time online.¹

In early 2018, Knight Foundation approved \$970,000 in grants that aimed to raise the digital profiles of eight museums by supporting the costs of positions dedicated to digital and technology work. These digital positions would conceive, plan, and implement digital strategies that improve the visitor experience and expand audiences. Seven of the initial eight grantees proceeded to hire their digital positions; four of the museums' hires remain in their positions as of this writing.

The grant period presented a series of unprecedented challenges for museums and for society at large. The COVID-19 pandemic forced many museums to close their physical spaces, pivot to remote work and add more digital programming. The racial justice movement accelerated in 2020, which itself caused a reckoning with museums' histories of Eurocentrism and lack of staff and board diversity.

All seven grantees showed growth in digital capacity during the grant period. And, though the grantees differed significantly in their budget sizes and in the scope of their digital programs, several themes surfaced repeatedly during the research:

- **Size and capacity:** Neither the budget nor staff size of the museum was correlated with an increase in capacity or success in delivering high-impact public-facing initiatives.
- **Audience impact:** The grants supported the creation of audience-facing digital initiatives at all seven museums. Though this report includes examples of such projects, these projects should not overshadow the significant but less visible contributions to digital capacity made by the hires.
- **Strong hires:** The digital hires from this set of grants were universally capable, and all were adaptable to shifting responsibilities and requirements. All the hires reported that the positions provided opportunities for career growth.
- **Role-scoping:** The digital hires performed significant work not captured in their position descriptions.
- **Salary challenges:** Paying market-rate salaries for these positions was a struggle for all seven grantees, even with Knight's grant support. Each museum addressed the challenge in its own way.
- **Executive leadership:** Sustained digital capacity-building was correlated with

1 Andrew Perrin and Madhu Kumar, "About Three-in-Ten U.S. Adults Say They Are 'Almost Constantly' Online," Pew Research Center, July 25, 2019, <https://www.pewresearch.org/fact-tank/2019/07/25/Americans-going-online-almost-constantly/>; "Internet/Broadband Fact Sheet," Pew Research Center, June 12, 2019, <https://www.pewresearch.org/internet/fact-sheet/internet-broadband/>.



a highly involved executive leader and/or leadership team who were invested in the new hire's success.

- **Technical infrastructure:** A majority of the grantees' technical infrastructures were not adequate to support the stated goals of the hired positions. The need to address this infrastructure gap before pivoting to public-facing initiatives was not always well understood by the museums' leadership teams.

These themes led to a set of recommendations for investing in the digital capacity of museums. Highlights of these recommendations include:

Readiness

- **Assess the museum's current IT infrastructure on the front end of any investment in staffing.** This factor is critical to the consideration of whether a museum is likely to achieve its proposed digital goals.
- **Integrate and align digital strategy with organizational strategy.** Museums that saw the most significant and lasting change had clear goals and roadmaps aligned with overall organizational strategy and planning.

Resources

- **Create a scope of work and compensation plan that are aligned with available resources.** The pay scale disparity between the for-profit tech and museum sectors can create complications that will need to be accounted for. Armed with a clear sense of scope and purpose, a museum can avoid creating "unicorn" positions that combine heterogeneous skill sets.
- **Ensure that new digital hires have adequate resources to execute projects.** Digital initiatives require the commitment of resources beyond the hire's salary in order to be successful.

Strategy

- **Ensure executive vision and support for digital strategy.** Sustained digital capacity-building was correlated with a highly involved executive leader and/or leadership team who were invested in the new hire's success.
- **Communicate the purpose and responsibilities of the new position to museum staff.** Many hires described having to explain and justify the scope of their work to colleagues.
- **Focus on capabilities, not projects.** An overemphasis on project work generally hindered progress on foundational capacity-building initiatives.



1. Background and Introduction

In early 2018, Knight Foundation approved eight three-year grants that were intended to help museum recipients to conceive, plan and implement digital strategies that would improve the visitor experience and expand audiences.² Though not designed as either a cohort-based or other more formal grant program, the grants were all made at the same time and for this same purpose. They partially funded a new staff position at each museum, supporting an individual who could focus on digital work, specifically audience-facing experiences enabled by technology.

Without museum staff focused on digital programming, museums may not understand the steps necessary to reach and engage digital audiences. Further, even in cases where museums have staff members working in this area, Knight observed that they were not always well-connected to the organization's leadership or its strategic vision and were often limited to IT- or marketing-focused roles. Thus, these grants aimed to build digital capacity at the grantee museums by supporting the creation of a new permanent full-time position devoted to the development of audience-facing digital engagement.

Knight selected the grantees by inviting multiple museums in its geographies to apply, and interviewing promising applicants before making final decisions. During the review process, Knight looked for leadership support of the new position, an understanding of the digital role as being separate from IT and a sense that the new position would be sustainable at the end of the grant period. Among the grantees selected, each museum had different digital needs and different starting points. Each crafted its own position description and goals, in consultation with Knight. The position descriptions were confirmed before the grantees signed their grant agreements.

Grant funds were structured so that the grantee organizations were responsible for an increasing portion of the position's salary in each of the three years. Knight provided approximately half of the amount of wages and benefits over the three-year period, with Knight generally providing 75 percent of the position cost in the first year, then 50 percent, then 25 percent in the subsequent years. The grant amounts differed across the museums and ranged from \$71,482 to \$179,401,³ with all the grants totaling \$970,000.

Grantees and the original job titles for the positions supported are as follows:

- Detroit Institute of Arts: Digital Experience Designer
- Harvey B. Gantt Center for African-American Arts + Culture, Charlotte, NC: Director of Technology Innovation

² One of the original grantees, the Fabric Workshop and Museum in Philadelphia, canceled the grant in early 2020 because of leadership changes. The grant-funded position was never filled at that museum, and we therefore were not able to study any results from that museum.

³ This range does not include the grant to the Fabric Workshop and Museum, which ended early after funding totaling \$34,320.



- Lowe Art Museum, University of Miami: Director for Digital Engagement Strategies
- Museum of Contemporary Art Detroit: Tech + New Media Curator
- Pennsylvania Academy of the Fine Arts, Philadelphia: Director of Museum Technology
- San Jose Museum of Art: Manager of Interactive Technology
- The Wolfsonian–Florida International University, Miami Beach: Digital Projects & Community Organizer

Knight Foundation subsequently engaged 8 Bridges Workshop, a St. Paul, Minnesota-based firm, and Austin, Texas-based collaborator Koven J. Smith to evaluate the early impact of the museum tech staffing grants. Between August and October 2020, consultants researched the grantees' work through document review, interviews with key personnel and review of digital outputs such as websites, archived video of streamed programming and social media content. Consultants assessed digital capacity growth for individual grantees and for the group.

The year 2020 has presented a series of unprecedented challenges for society at large. These challenges form the backdrop to Knight's digital capacity-building grants and should be taken into account as progress is assessed. Two primary societal themes are especially important to note: the COVID-19 pandemic, unfolding since March, which forced the public closure of all seven museums, and the racial justice movement that has accelerated since the killing of George Floyd in May.

Both developments have had cascading impacts on the seven museums. All had to close their physical spaces and pivot to working remotely, while at the same time increase their responsiveness to events in their local communities and around the world. Further, the pandemic offered museums the opportunity to respond to local shutdowns by continuing to serve the public with creative digital programming. Museums fashioned their responses differently.

Museums across the United States have also faced a turbulent reckoning in 2020 with respect to perceived Eurocentrism, staff and board diversity and the pace of change in response to these issues. This has resulted in increased demands for public accountability for museums and their leadership. Digital hires were in some cases caught in the middle of this, and the scope of their responsibilities changed suddenly as a result. Several of the hires were faced with continuing to deliver their work amid volatile leadership changes or emerging public pressure on multiple staff members to urgently address inequities.

Several of the museums reported large increases in participation in their online programming, with audiences coming to digital programming from across the United States and around the globe. The timing of Knight's support for a digital hire was particularly fortuitous, as it helped position the more nimble museums in the group to take advantage of the increased public interest in online cultural experiences brought about by shutdowns in 2020.



2. Capacity Growth: Patterns and Themes

Each of the seven museums showed improvement in digital capacity during the grant period. The improvements represent a range of progress, as calculated as the change between a museum's initial and final Readiness scores using the model found in the [Digital Readiness and Innovation in Museums](#) report. The model was developed with input from several consultants and field experts. Note that the measurement methodology valued the increase in each museum's capacity; it did not compare one museum's total capacity against another's. Some museums started with lower absolute capacity but improved significantly, while others had stronger baselines but showed less improvement.

Taken as a whole, the museums' progress—and the obstacles they faced—revealed patterns that are highlighted in this section. These patterns have implications for both grantmakers and museum leaders who seek to build digital capacity effectively. The patterns can broadly be grouped into themes that arose while the museums were defining and hiring the position; themes encountered while the digital hire was performing the work; and themes that were revealed through this evaluation.

Patterns in hiring

Museums were able to attract dynamic talent.

Despite the difficulties in job definition and salary levels detailed below, museums were able to attract dynamic new talent to their organizations. All the digital hires interviewed were capable leaders who were able to diagnose their respective situations and push their museums in helpful and in some cases innovative ways. For their part, the digital hires described their positions as equal parts challenging, rewarding and frustrating. Many of the hires were given leadership opportunities, and almost all were regarded as leaders by colleagues. This impressive group of individuals seems likely to see rising careers in the museum tech field (indeed, one of the hires has already moved to a prominent position at the Smithsonian, and another has been promoted to a deputy director position). The group is exceptional.

Museums placed the digital hires differently in their organizational structures.

None of the museums had a large and robust digital department for the hire to join, so the placement of the position in the organizational chart was different in each instance. The lack of an obvious “digital hierarchy” in these museums created continuity problems for some of the hires—three of the seven museums changed the hire's reporting structure at least once during the review period.

Initially, the hires reported to an executive director or equivalent (three museums); to curatorial department leadership (two museums); to a deputy director (one museum); and to audience and engagement departments (one museum). Uniformly better growth in capacity did not correlate with any particular reporting relationship, but all the digital hires reported that it was necessary to have meaningful and consistent access to museum leadership.



Museums had difficulty paying market-rate salaries for tech positions.

Digital hires and their hiring supervisors shared that they had difficulty recruiting talent for the Knight-funded positions given the available salary dollars. In instances where money was particularly tight, museums could not increase their salary offers because they simply didn't have the funds to do so. In more than one instance, a strong candidate could not accept the position at the salary offered. In other instances, museums spent all available dollars to accommodate a higher salary, but then had little left to support the work of the position—development costs, software licenses and critical hardware were left unfunded.

This was a particular challenge for the university-affiliated institutions, as the positions were often required to fit existing HR categories with corresponding salary ranges, even when additional funds for the positions were available. At least one institution worked around this limitation by expanding the definition of the position to include interpretive and executive duties, which provided access to an additional range of job categories with higher corresponding salary ranges.

The disparity between salaries in the museum and tech sectors complicates this further. More than one hiring manager expressed surprise that some candidates for the positions were expecting salaries even higher than that of the executive director. Museums addressed this problem in unique ways, but this will remain a factor for any program seeking to fund tech staff in museums.

Patterns in the work

Accrued technical debt hindered progress with both capacity-building and audience-facing digital initiatives.

Technical debt—the result of years of delayed decisions to update or implement critical software, hardware and training—often had to be addressed before significant audience-facing work could move forward. Technical debt also manifested in a lack of digital literacy on the part of staff members; several of the hires reported difficulty with transitioning staff to remote work due to a lack of familiarity with basic calendaring and communications tools. While the hires for the most part did excellent work addressing this deficit, they also expressed frustration because this was not the work they were hired to do, nor necessarily the work for which they were most qualified. Hires who came to their museums expecting to create new digital initiatives instead found themselves needing to first replace 15-year-old desktop computers. Museum leadership did not always appreciate the need to address technical infrastructure before proceeding with other projects; several hires were told to work *exclusively* on audience-facing initiatives, despite the available technology not being up to the task.

The hires performed “other duties as assigned” not captured in the original position descriptions.

Apart from IT and infrastructure work, the digital hires mentioned other tasks that diverged from their roles as initially defined, but which they nevertheless viewed as important to their success. More than one worked to raise funds to support the digital projects they were tasked with developing. At one museum, the digital hire created a



physical meeting room for museum staff, which raised the overall awareness of digital initiatives. At another, the hire was tasked with refurbishing an auditorium space.

Most museums developed external partnerships in order to execute digital projects.

Six of the seven museums developed or expanded partnerships with outside entities in order to execute digital projects. These partnerships were in some cases transactional (for instance, one hire leveraged a personal relationship with another museum to acquire their unused equipment), but in other cases were more future-focused (two academic museums partnered with university faculty for digital humanities initiatives). Because most of the hires were the only technology positions in their museums, these external partnerships were critical to delivering new projects.

Patterns in outcomes

Cross-departmental planning and digital integration improved across all museums.

All seven museums made significant strides toward involving multiple departments and roles in planning and executing digital projects. This resulted in a better integration of digital across departments, with initiatives that touched a majority of departments in each museum. Virtually all the hires were members of cross-functional teams, and in some cases they were responsible for creating those teams. The cross-functional approach sometimes enabled faster and more effective digital “pivots” in response to COVID-19; one museum was able to leverage the hire’s technical skills and access to leadership to form a quick-response digital team that had several new initiatives up and running within weeks of the beginning of quarantine.

Audience research and outcomes tracking remained weak points for most museums.

There was some improvement here, with all museums making some effort to better assess audience impact, but four of the museums studied showed no increase in capacity in this area. (This reflects a trend in the wider field; only 16 percent of art museums in the [Digital Readiness and Innovation in Museums](#) report took a proactive and careful approach to data collection,⁴ and 68 percent of art museums gathered only anecdotal or basic audience feedback.⁵) Very few of the museums tracked specific outcomes or had predefined metrics of success for their digital initiatives, which made objective evaluation of the success of any one initiative difficult.

Important work did not always result in immediate audience-facing outcomes.

Though audience-facing projects were an important indicator of digital progress for many of these museums, more durable capacity-building work did not always result in a visible project. Museums spent time investing in infrastructure that will build the capacity to expand audience-facing projects in the future, or addressing long-standing technical debt that

4 *Digital Readiness and Innovation in Museums: A Baseline National Survey*, Knight Foundation (October 2020), 21.

5 *Digital Readiness and Innovation in Museums*, 25.



is foundational to the organization's efforts. One museum upgraded its IT vendor; several installed WiFi in public spaces and two museums upgraded A/V components in their public spaces. These improvements had high impact, but were not always visible to the public.

3. Recommendations

Knight's initial grant program reflects a promising approach to increasing digital capacity in museums by developing in-house expertise. Every museum increased its digital capability, some by leaps. During a year of unprecedented challenges, digital capability was urgently needed and Knight-funded digital staff were in a position to help their museums respond creatively and effectively. Leaders gained new perspectives on the human resource requirements for digital engagement; talented digital hires had the opportunity to rise to challenging new assignments.

While the overarching finding is that investment in new positions—people who can contribute new digital skills and knowledge—is an effective approach to strengthening digital capacity, dollars invested did not always produce sustainable change. The question for museums and those who support them financially is how to determine readiness for a capacity-building investment, to be sure that the organization will be able to benefit from this kind of funding boost. Consider these steps to improve the likelihood of success:

Accurately assess technical debt before defining a new position.

The museums in this group that made the most significant and lasting capacity improvements were those that assessed and addressed their technical debt. An independent assessment of a museum's current technical status and capabilities and an assessment of its overall digital literacy may be warranted before proceeding to supporting a new position.

Integrate digital strategy with organizational strategy.

Developing a digital strategy, methodology or roadmap is a key step toward creating sustainable capacity improvements. While an explicit and stand-alone digital strategy is not necessarily required, the museums that saw the most significant and lasting change all had clear goals and roadmaps, a mandate for integration of digital strategy across departments and executive directors who were invested in both the outcomes and the tactics for achieving their goals.

Develop a plan for adequate compensation.

Know ahead of time that even a salary at the high end of a museum's pay scale may be low for a candidate coming from the for-profit tech sector. Museums hiring digital talent will need to have a strategy in place for addressing possible salary complications and should be prepared to negotiate to hire first-choice candidates, provide training for candidates with less experience or otherwise adapt to market contexts.



Ensure that new digital hires have adequate resources to execute projects.

Several of the museums in the group expected that most of their hoped-for projects could be realized by leveraging external partners or free software. Unfortunately, this translated in some instances to an assumption that there was not a need for a budget line to support digital development. As a result, dollars were simply not available for prototyping, software licensing, media production, hardware purchases and the like. This, more than any other single factor, held back a number of promising audience-facing initiatives.

Provide professional development opportunities for hires.

Especially when hires are siloed as single-person departments, connections with other digital staff in similar roles at other institutions can be helpful, as can their involvement in professional organizations such as Museum Computer Network or other field-wide learning and networking opportunities.

Ensure executive vision and support for digital strategy.

Sustained digital capacity-building was correlated with a highly involved executive leader and/or leadership team who were invested in the new hire's success. A leader who understands digital within the museum's overall strategic context can have a significant impact on a digital hire's success.

Communicate the purpose and responsibilities of the new position to the wider staff.

All seven hires spoke of having to explain the scope of their work to colleagues when they arrived or were moved into the new roles. Because other staff members didn't always understand the purpose of the new digital position, the hires often ended up performing support/IT duties. Executive directors should take an active role in explaining the hire's role to other staff members.

Focus on capabilities, not projects.

The development of public-facing projects was not an accurate predictor of capacity growth in the cohort, and in some cases an overemphasis on project work seemed to hinder other capacity-building initiatives. Audience-facing initiatives had the greatest impact when they were realized as components of organizational strategy rather than as ends on their own.



Examples of New Audience-Facing Digital Capability



The Gantt Center's Unmasked series

Before the pandemic, the Gantt Center hosted a series of in-gallery discussion panels called Talk About It Tuesday. These programs were enhanced by the digital role; the museum installed WiFi in the gallery with a captive portal and live polling capability, so that panelists could see real-time audience responses. Following the museum's closure due to COVID-19, the Gantt Center turned this program into the virtual series Unmasked. The Unmasked events are live-streamed on [YouTube](#) and include audience chat and interaction. Recent topics include [We Can't Breathe](#), [Redefining Protect and Serve](#), and [Change from the Inside](#). The Gantt Center reported a significant increase in audience size with participants coming to the program from across the United States and several foreign countries.



The Wolfsonian's Miami Beach Deco Walk

Early in the grant period, the Wolfsonian's hire created a walking tour that takes a visitor through the Miami Beach Art Deco historic district. The visitor can take the self-guided tour either through a [text guide](#) or an app that was developed by the digital hire. The guide draws parallels between specific Art Deco buildings and objects in the museum's collection. Initial user testing was favorable.



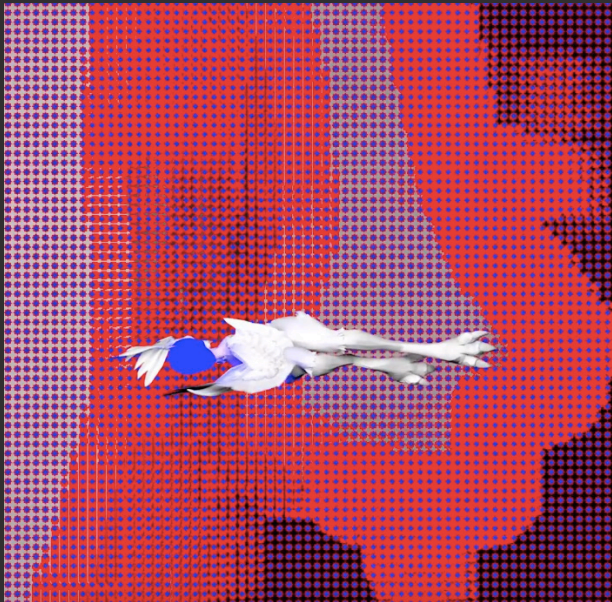
San Jose Museum of Art's digital publication *50X50: Stories of Visionary Artists from the Collection*

50X50 is a digital publication released to coincide with the San Jose Museum of Art's 50th anniversary. It was released during the pandemic, but it was conceived of as digital-based publication before the onset of COVID-19. *50X50* features profiles of fifty artists from the museum's permanent collection, along with images of their work, video interviews, and explanatory texts. Interviews highlighted this publication as a major milestone in the museum's digital programming capacity.



Detroit Institute of Art's mobile tour with Lumin

Detroit Institute of Art was the first art museum to use Google's Tango technology to create a mobile tour called **Lumin**. Lumin uses 3D mapping and smartphone augmented reality technology so that visitors can explore the museum while seeing augmented images and information on their own phones. Technological complications currently prevent the museum from using and expanding Lumin, but the development of Lumin was cited as a breakthrough project that helped museum leaders understand the potential of virtual visiting capability.



Museum of Contemporary Art Detroit's Daily Rush platform

Museum of Contemporary Art Detroit launched a new media platform called **Daily Rush**. The museum's digital hire spent the early part of his tenure successfully applying for an additional grant to support this work. Daily Rush presents the work of visual artists and filmmakers, structured as "seasons" organized around emerging ideas in digital technology and culture.



4. Conclusion

This study documents significant progress among Knight Foundation's museum tech staffing grantees toward building greater digital capacities in their organizations. Digital hires funded with Knight dollars were critical to making this growth possible.

Research also documented the obstacles to digital capacity-building in the museum environment. Lack of technical infrastructure, insufficient digital knowledge among museum leaders, staffing changes and lack of resources all meant that the museums faced an uphill climb when it came to realizing innovative audience-facing digital programming.

The research team strongly recommends similar funding efforts, and encourages grantmakers to add elements that these learnings show will increase the likelihood for success. Knight is one of a small number of grantmakers nationally that has demonstrated interest not only in helping museums with digital capacity-building but also in helping the field as a whole to advance. Learnings from the Knight digital tech staffing initiative should be shared widely, to encourage other grantmakers to learn about ways to help the cultural sector not only remain relevant, but flourish in our digital age.



Appendix I: List of Interviewees

Detroit Institute of Arts

Nina Holden, Senior Vice President and Chief Development Officer
Andrea Montiel de Shuman, former Digital Experience Designer
Salvador Salort-Pons, Director, President, and CEO
Richard Scott, Director of Information Technology

Harvey B. Gantt Center for African-American Arts + Culture

Herman Marigny IV, former Director of Technology Innovation
Witnie Martinez, Vice President of Institutional Advancement
David R. Taylor, President and CEO

Lowe Art Museum

Jill Deupi, Director and Chief Curator
Mark Osterman, Director of Digital Experience and Head of Education

Museum of Contemporary Art Detroit

Pat Elifritz, Curator of New Media and Technology
Allison Ribick, Manager of Grants and Foundation Relations

Pennsylvania Academy of the Fine Arts

Aaron Billheimer, former Museum Technologist
Brooke Davis Anderson, Director

San Jose Museum of Art

Susan Sayre Batton, Executive Director
Amanda Helton, Manager of Interactive Technology
Karen M. Rapp, Assistant Director, Strategic Initiatives
Holly Shen, Deputy Director

The Wolfsonian—FIU

Yucef Merhi, Curator of Digital Collections
Casey Steadman, Acting Director



Appendix II: Research Methodology

Consultants and Knight Foundation designed the research to explore these questions:

- ***How were the positions defined and structured?***
The research team sought to understand the process of creating position descriptions for the new roles, including the skills identified as necessary for the position and the key opportunities described to emphasize the position's importance. In addition to the job description, this path of questioning included the recruitment and hiring process, as well as challenges encountered in the hiring and onboarding processes.
- ***How well have the new roles played out for the grantee organizations?***
The research team investigated how each organization expected to structure the work: where the new hire reported, which internal teams they joined and how they were involved in overall strategy development. The research team looked at the projects and activities each organization was able to accomplish during the grant period, the role the digital hire played and the ways in which the organization described and quantified success. The research team wanted to understand which activities were most successful and which involved unexpected challenges. This path of questioning necessarily included a discussion of events in 2020 such as the COVID-19 pandemic and the increased activities of the racial justice movement.
- ***How has the grant-funded position changed the organizations?***
The research team asked whether organizational perspectives on digital capabilities have changed, and whether the organization has shifted any of its ways of working. Though some of the original hires are no longer in their positions, the research team wanted to assess the longer-term impact of the positions, and what the organizations thought might happen next.
- ***What learnings will be of interest to the wider field?***
The key questions with field-wide implications included best practices for recruitment; the changes in programming necessitated by COVID-19; whether leaders viewed the position as having created better organizational adaptability or resilience; and whether the position resulted in more productive collaborations between internal stakeholders and vendors/developers.

To answer these questions, the consultants' research included:

- Initial conversations with Knight Foundation staff about the program;
- A review of each organization's grant files and available website and social media content;
- Interviews with key personnel using interview protocols. These interviews included at least the digital hire and the executive director of the museum, or the equivalent, and sometimes the digital hire's supervisor or the manager of the grant. A copy of the interviewee list is in Appendix I.



While considering the information gleaned from interviews in a qualitative manner, the research team also quantified their observations using the **Digital Readiness and Innovation in Museums** report, which includes a rubric for assessing a museum's digital readiness and capabilities. The rubric defines three levels of digital capability—Untapped, Emergent and Realized—across the five categories of Strategy, People, Practices, Audience and Partnerships. By assigning scores of 0, 1, and 2 to the ratings of Untapped, Emergent and Realized, the research team assessed museums both before the grant and in their current status, and calculated the difference between the two resulting numbers. (See rubric at the end of this appendix.)

Consultants applied findings to this rubric by establishing each organization's starting point and the progress described in interviews, as follows:

- First, assigning numerical scores of 0, 1, and 2 to each of the capability levels, so that a museum that had achieved a Realized digital capability across every one of the 11 subcomponents within the five broad categories would receive 22 points, and a museum at the Untapped stage in each category would receive 0 points.
- Then, assigning each museum's starting point on the rubric, assessing its readiness and capacity at the time the grant was approved. This assessment was based both on grant documents and on the information gathered from interviews.
- Assessing each museum's current status along the same 11 subcomponents, based on interview conversations, evidence of digital work completed (websites, videos and other program elements) and any quantitative reports grantees provided.
- Each museum could then be "scored" by looking at the number of categories with demonstrated progress, and the growth achieved.

By applying and quantifying the rubric in this way, consultants could see which museums advanced in the largest number of categories, and which categories showed greatest progress across the group of museums.

The rubric is below, for reference.

		Untapped	Emergent	Realized
STRATEGY	Strategy creation and dissemination	<ul style="list-style-type: none"> No digital strategy yet, may be considering one 	<ul style="list-style-type: none"> Digital strategy may be developed but not broadly shared 	<ul style="list-style-type: none"> Digital strategy shared broadly across museum, may be included within overall strategic plan
	Goals development and outcomes tracking	<ul style="list-style-type: none"> Do not have defined goals or KPIs (Key Performance Indicators) and/or do not measure the outcomes 	<ul style="list-style-type: none"> Some defined goals or KPIs and some measured outcomes 	<ul style="list-style-type: none"> Regularly track against goals and KPIs with real-time integrated data
	Cross-institutional planning of digital projects	<ul style="list-style-type: none"> Little to no planning for digital, primarily reactive 	<ul style="list-style-type: none"> Planning by individuals or individual departments and centered on specific projects 	<ul style="list-style-type: none"> Multiple groups or individuals feed into the planning and prioritization of digital
PEOPLE	Internal expertise	<ul style="list-style-type: none"> No dedicated technology positions, or positions that mostly provide maintenance 	<ul style="list-style-type: none"> Growing internal digital technology positions 	<ul style="list-style-type: none"> Digital software and technology development teams in-house
	Leadership support	<ul style="list-style-type: none"> Leadership is fairly uninformed about digital project uses, but open to potential 	<ul style="list-style-type: none"> Leadership is mostly knowledgeable and supportive of digital projects 	<ul style="list-style-type: none"> Digital leaders are part of senior leadership team and proactively advocate for digital projects
	Silos	<ul style="list-style-type: none"> Digital projects are primarily the work of a single individual 	<ul style="list-style-type: none"> Many departments are involved with digital projects 	<ul style="list-style-type: none"> Digital software and technology development teams in-house
PRACTICES	Integration of digital	<ul style="list-style-type: none"> Digital projects are scattered around the organization 	<ul style="list-style-type: none"> Completed successful museum-wide digital initiatives that are in use 	<ul style="list-style-type: none"> Robust digital teams that have sufficient budgets and can support full product lifecycles
	Project managers	<ul style="list-style-type: none"> Little to no formalized project management practices or project manager roles 	<ul style="list-style-type: none"> Some dedicated project managers for digital projects 	<ul style="list-style-type: none"> Multiple project managers focused on digital throughout the organization
	Innovation processes	<ul style="list-style-type: none"> Not using innovation processes; may be aware of these tools but rarely use them 	<ul style="list-style-type: none"> Some common practices, including agile experiments and some user-centered design 	<ul style="list-style-type: none"> Regularly use innovation processes as part of work flows
AUDIENCE	Audience research	<ul style="list-style-type: none"> No audience evaluation at any stage 	<ul style="list-style-type: none"> Gathers basic demographics Incorporates at least one of the following: community-focused listening, iterative evaluation or strategic evaluation 	<ul style="list-style-type: none"> Gathers basic demographics Incorporates a mix of the following: community-focused listening, iterative evaluation or strategic evaluation Regular impact evaluation
PARTNERSHIPS	External partnerships	<ul style="list-style-type: none"> No external partnerships 	<ul style="list-style-type: none"> A few external partnerships on specific one-off digital projects 	<ul style="list-style-type: none"> Enduring external partnerships with multiple organizations that support both strategic and operational objectives





Appendix III: Consultant Backgrounds

Sarah Lutman is principal at 8 Bridges Workshop. Over the past eight years, she has built 8 Bridges to become a leading consulting firm nationally, producing a body of influential projects, including strategic plans, program evaluations and field-building reports.

Prior to founding 8 Bridges Workshop, Lutman served as president and managing director of the Saint Paul Chamber Orchestra (SPCO), where accomplishments included expansion of free media offerings on digital platforms and innovative approaches to audience development such as the SPCO's unique concert membership program (now adopted by many other performing arts organizations). Lutman was previously senior vice president for content and media at American Public Media, where she was responsible for all broadcast, digital and live event programming, including Minnesota Public Radio's regional network of 42 news, classical music and rock and roll radio stations and APM's national news and cultural program portfolio.

Lutman worked for 16 years in philanthropy, first as executive director of the Fleishhacker Foundation in San Francisco and then as senior program officer at the Bush Foundation in St. Paul. Lutman's responsibilities included program development, assessment and evaluation in pre-collegiate education, public broadcasting, civic engagement, the environment and the arts and culture. She is a widely published journalist and author.

Koven J. Smith is a digital strategy consultant for museums and non-profits. His work includes 20 years of managing digital projects in leadership positions at the Metropolitan Museum of Art, New York; the Denver Art Museum; and the Blanton Museum of Art, Austin, Texas, and as a consultant working with the Smithsonian, the Louvre Abu Dhabi, the Amon Carter Museum of American Art, Fort Worth, and many others. He has also performed sector-wide research on behalf of the Knight Foundation, the Texas Association of Museums, the Kress Foundation and the Doris Duke Charitable Foundation. Smith has served as adjunct faculty in the Arts Administration program at New York University and the Museum Studies program at Johns Hopkins University. He has been a principal investigator on the Horizon Report Museum Edition, a conference co-chair of the Museum Computer Network and a board member for the American Composers' Forum, the AmeriCorps Program in Cultural Technology, ArtStor, ConservationSpace and the Foundation for the American Institute of Conservation's "Landscape" project.

Greta Rudolph is an associate at 8 Bridges Workshop, where she focuses on evaluation, research and project management. She holds a J.D. from the University of Minnesota and a B.A. in Greek and Classical Civilizations. Rudolph is also a practicing artist and has been a board member for the Midwest Morris Ale and COMPAS.

