

Digital Engagement

The Role of Technology in Creating an Interactive and Engaging Experience at the Austin History Center



Figure 1 *View of Austin looking south with the 1933 Austin History Center in the foreground and the 1979 John Henry Faulk Central Library behind, circa 2010. Image: [Wikimedia Commons](#)*

Jeff Cohen, Executive Director Austin History Center Association,
Principal Investigator

Nancy K. Berlage, Ph. D, Internship Coordinator, Director, Public
History Program, Texas State University.

Consulting Advisors with the Austin History Center

Mike Miller – City and Managing Archivist, Austin History Center

Lee Cooke – President, Austin History Center Association; former Austin Mayor
1988-1991

Laura Fowler J.D. – Managing Partner, Fowler Law Firm; Project Benefactor

Candace Volz – Campus Expansion Committee Chair, Austin History Center
Association

Evan Taniguchi – Past President, longtime member of Campus Expansion
Committee, Austin History Center Association

Roosevelt Weeks – Director, Austin Public Library

Personnel

Courtney Stevens – Editor, Author, Research Specialist

Graduate Student, Public History Program, Texas State
University

Kyle L. Walker – Editor, Author, Research Specialist

Graduate Student, Public History Program, Texas State
University

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Part I:

Introduction

Introduction



Figure 2: *Austin History Center, located in the 1933 Renaissance Revival Library building with the 1979 Faulk Central Library building in the background. Image: metaph496719, [Austin History Center](#), Austin Public Library.*

The Austin History Center (AHC) represents the local history division of the Austin Public Library. One of the many archival institutions in the city of Austin, the AHC collects and preserves information about local governments; businesses; residents; civic groups and non-profits; schools; and neighborhoods so that future generations will have access to the city's collective history. The History Center is also home to the city of Austin's official archives. Nowhere else will you find the personal stories that highlight the contributions made by everyday Austin residents. Those stories are shared by way of exhibits and outreach events held throughout the city. The Austin History Center reaches far beyond its building at 9th and Guadalupe. Its exhibits and outreach events are held throughout the city, educating and connecting visitors, newcomers, and long-time residents.

Like the city itself, the material that reflects Austin's history is growing exponentially. The Austin History Center is over capacity, with about 50,000 square feet of materials housed in that depression-era building at 9th and Guadalupe. Each year, a quarter of a million items reflecting the city's growth and vibrancy are donated, processed and archived. To properly

archive what we already have and continue to collect and archive the history that's being made today, the History Center needs more space.

In 2008, as plans were being developed for construction of a new Austin Central Library building, the city council formally endorsed the idea of having the History Center operations expand into John Henry Faulk Central Library building, which is just across the parking lot from the History Center. Now that the new central library building is complete, the Faulk building is available, but it needs some general maintenance work as well as properly renovated for use as an archival repository by the Austin History Center. Under this plan, the current History Center building would be modified and converted into an Austin history-themed visitor's center.¹

This report analyses the use of interactive technology used in museum and archival settings to create engaging experiences for visitors. In creating these engaging experiences, these institutions, similar in scope and purpose to the AHC, attempt to reach a broad audience, attracting new visitors to their exhibitions and collections, while also making them more accessible to remote audiences who may not be able to visit these institutions in person. The purpose of this analysis is to demonstrate the potential of the AHC to create engaging experiences with an expanded campus. By utilizing space within the old Faulk Central Library building, either for public outreach programs, exhibition galleries or archival storage, the AHC will be poised to create a unique institution that not only serves as the city's archival repository, but as a city museum and heritage center. With an expanded space, the AHC would have the potential to become the premiere public archival institution/history center affiliated with its city's metropolitan library system in the state of Texas, while also rivaling many of the nation's premier private history centers/museums.

¹ Austin History Center Association, "You Are Austin's History," (2018).

History of Austin

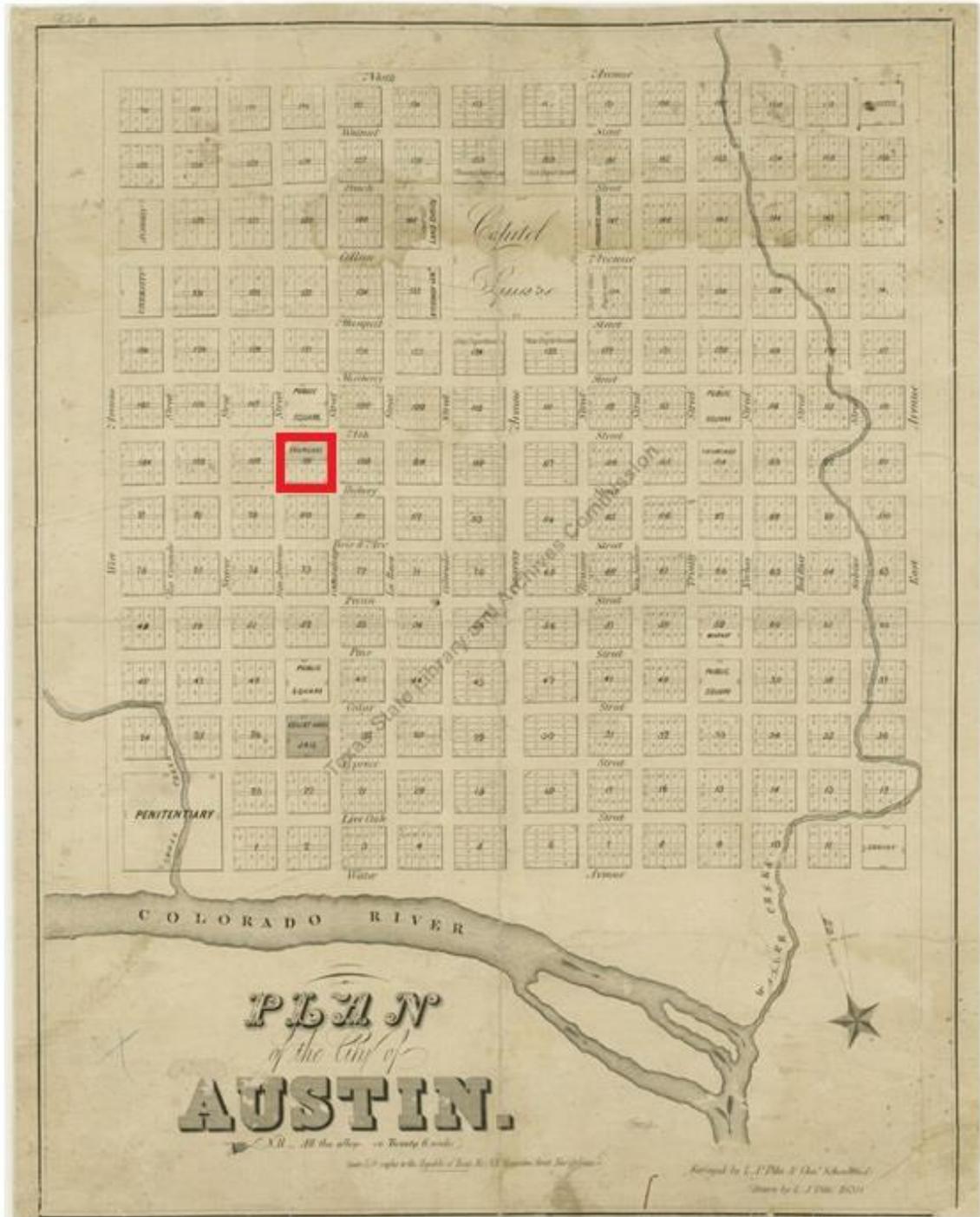


Figure 3: Plan for the City of Austin, 1839. Lithographed by Greene, New Orleans. Engraved by Fishbourne. Surveyed by L.J. Pille and Charles Schoolfield. Highlighted area represents the block where the Austin History Center and Faulk Library building are located. Image 00926d, courtesy of the [Texas State Library and Archives Commission](#).

Established by an act of Congress from the then three-year-old Republic of Texas, the city of Austin was founded in December of 1839 to serve as the new republic's permanent capital. At the instruction of Texas President Mirabeau B. Lamar, a site-selection commission chose the frontier outpost of Waterloo located on the banks of the Colorado River at the eastern edge of the Hill Country and the Edwards Plateau as the location for the new city. Though the little community of Waterloo was located on the edge of the frontier, far from the center of population at the time, the area offered a healthful climate, abundant natural beauty and the potential of a major economic hub for its central location along major north-south/east-west trade routes.²

Under the direction of Edwin Waller, surveyors chose a 640-acre site fronting on the Colorado River and nestled between what would be named Waller Creek on the east and Shoal Creek on the west.³ The plan was a grid, fourteen blocks square, bisected by a broad avenue extending northward from the Colorado River to "Capitol Square." As directed by Congress, Waller set aside a generous number of blocks for public purposes such as four public squares of which Wooldridge, Republic and Brush Square Parks remain.⁴ North-south streets were named after Texas rivers while east-west streets were named after Texas trees. The town plan included a hilltop site for a capitol building looking down toward the Colorado River from the head of the broad avenue soon named Congress Avenue. "The Avenue" and Pecan Street (now 6th Street) have remained Austin's principal business streets for the 180 years since.

By the 1880s, Austin was quickly growing from a modest frontier town into a city. In 1888, a grand capitol building, advertised as the "7th largest building in the world," was completed on the site originally chosen in Waller's 1839 plan.⁵ In 1881 Austin emerged as the leading seat of education in the state. In a hotly contested statewide election, the city was chosen as the site for the new University of Texas, which began instruction two years later. Tillotson Collegiate and Normal Institute, founded by the American Missionary Association to provide educational opportunities for African Americans, opened its doors in 1881.⁶ Four years later St. Edward's School, founded by the Holy Cross Fathers and Brothers, was chartered as St. Edwards College. Thirty years earlier, the legislature established the Texas School for the Deaf and the Texas School for the Blind and Visually Impaired in the capital city in 1856.⁷

In 1893, the construction was completed on a granite dam on the Colorado River, marking another milestone in the city's growth. The dam stabilized the river and provided hydraulic power to generate electricity, which was intended to attract manufacturers and industry

² The Texas Capitol: A History of the Lone Star Statehouse, Seventh Edition, 1998, Published by the Research Division of the Texas Legislative Council Austin, Texas.

³ David C. Humphrey, *Austin: A History of the Capital City*, (Austin: Texas State Historical Association, 1997), 2.

⁴ Humphrey, Austin: A History of the Capital City, 3.

⁵ Biruta Celmins Kearl, "Brief History of Austin," Austin History Center, accessed October 20, 2020, <https://library.austintexas.gov/ahc/austin-history>.

⁶ David C. Humphrey, "Austin, TX (Travis County)," *Handbook of Texas Online*, accessed October 19, 2020, <https://www.tshaonline.org/handbook/entries/austin-tx-travis-county>.

⁷ Vivian Elizabeth Smyrl, "Texas School For the Deaf," James W. Markham and Paulette Delahoussaye, "Texas School For the Blind and Visually Impaired," *Handbook of Texas Online*, accessed October 19, 2020, <https://www.tshaonline.org/handbook/entries/texas-school-for-the-blind-and-visually-impaired>.

to the area. In 1938, the dam had been replaced by a series of seven U.S. government-funded dams reaching upstream from the city.⁸ Federal funding for the construction of these dams was gained due in part to the work of the young congressman Lyndon Baines Johnson, who got his start in government work in Austin. By the 1950s, several research laboratories and think tanks had been founded, and began to draw innovative thinkers and high-tech companies to the area—a trend that has continued to this day.

Austin's musical rebirth began in the 1970s, when the city became a refuge for a group of country and western musicians and songwriters seeking to escape the music industry's corporate domination of Nashville.⁹ The best-known artist in this group was Willie Nelson, who became an icon for what became the city's "alternate music industry"; another was Stevie Ray Vaughan. In 1975, *Austin City Limits* premiered on PBS, showcasing Austin's burgeoning music scene to the country.¹⁰ In the following years, Austin gained a reputation as a place where struggling musicians could launch their careers in informal live venues in front of receptive audiences. This ultimately led to the city's official motto, "The Live Music Capital of the World."

The last decades of the twentieth century were ones of profound change and growth for the capital city. Austin experienced dramatic growth during the 1990s, fueled mainly by high-technology industries. Initially, the technology industry was centered around larger, established companies such as IBM, however Dell Inc. grew considerably after its founding by Michael Dell in the previous decade.¹¹ SXSW, the annual conglomeration of film, interactive media, music festivals and conferences was first organized in 1987.¹² Austin-Bergstrom International Airport, previously Bergstrom Air Force Base, served its first passengers, replacing the old Robert Mueller Municipal Airport in 1999.¹³ In 2000, Austin became the center of an intense media focus as the headquarters of presidential candidate and Texas Governor George W. Bush. The Austin City Limits Music festival was first held at Zilker Park in the fall of 2002.¹⁴ The first high rise to be built in the new millennium, the Frost Bank Tower, opened in the downtown business district along Congress Avenue in 2004. At 515 feet, it was the tallest building in Austin at the time by a wide margin.¹⁵

In the second decade of the twenty-first century, Austin continued to rise in popularity and experience rapid growth. Residential high rises began to sprout from the blocks of the downtown grid. Major tech companies such as Apple, Google and Facebook opened up regional

⁸ Kearn, "Brief History of Austin," Austin History Center.

⁹ Kearn, "Brief History of Austin," Austin History Center.

¹⁰ Though the pilot was filmed in October of 1974, starring Willie Nelson, but was not aired until 1975. "What Is Austin City Limits?" accessed October 20, 2020, <https://acltv.com/history-of-acl/>.

¹¹ Jon Kutner, Jr., "Dell Computer Corporation," *Handbook of Texas Online*, accessed October 20, 2020, <https://www.tshaonline.org/handbook/entries/dell-computer-corporation>.

¹² Laurie E. Jasinski, "South by Southwest," *Handbook of Texas Online*, accessed October 20, 2020, <https://www.tshaonline.org/handbook/entries/south-by-southwest>.

¹³ "History of the Airport," Austin-Bergstrom International Airport, accessed October 20, 2020, <https://www.austintexas.gov/department/history-airport>.

¹⁴ Bob Garcia-Buckalew, "ACL Music Festival: From humble beginnings, a musical powerhouse," (KVUE.com: Oct 4, 2019), accessed October 20, 2020, <https://www.kvue.com/article/entertainment/acl-music-festival-history-from-humble-beginnings-a-musical-powerhouse/269-fb8fac71-9b9e-40d5-9a6a-7153644a4b7a>.

¹⁵ "Frost Bank Tower," Frost Bank, accessed October 20, 2020, <https://frostbanktoweraustin.com>.

offices in the city. The city saw a massive influx of new residents drawn in part by its relatively strong economy, alternative culture, and its relatively low housing costs compared to the coastal regions of the country. Today, Austin is known as much for its cultural life and high-tech innovations as it is for the senators and schoolteachers who shaped its beginnings. As we enter the 2020's and as Austin completes its transformation from town to city to metro area, the city and its people face decisions on how the city will preserve its past, and how we will allow that past to shape our future.

History of the Austin History Center, Austin Public Library and the Austin History Center Association



Figure 4: North entrance to the historic 1933 central library building, now the Austin History Center. Image courtesy of the [Austin Public Library](#).

In 1955, the Austin Public Library established a small file devoted to local history called the Austin-Travis County Collection. Through the hard work of Helen Swanson and the collection's first curator, Katherine Drake Hart, the Austin-Travis County Collection grew from a single file folder into a separate section of the Austin Public Library's Reference department. After the opening of the new John Henry Faulk Central Library in 1979 and due to the efforts of the second curator of the Austin History Center, Audray Bateman Randle, along with community leaders such as Sue McBee, then-Mayor Carole McClellan, and members of the Austin History Center Association, the original central Austin Public Library building became the Austin History Center.¹⁶

The refurbished building opened in 1983 as the Austin History Center, headquarters for the local history division of the Austin Public Library.¹⁷ Today, the Center features a reading room that draws more than 45,000 visitors a year – mostly researchers such as authors, genealogists, documentary producers, news reporters, and scholars. The History Center also

¹⁶ “AHC History,” Austin History Center, accessed October 20, 2020, <https://library.austintexas.gov/ahc/ahc-history>

¹⁷ “How We Got Here, Where We’re Going,” *Austin History Center Association*, accessed October 20, 2020, <http://austinhistory.net/history/>

hosts community meetings, exhibits, and dozens of free events each year featuring speakers that put a focus on Austin history.

Now, as the Central Library looks to its new “library in the future” at 710 W. Cesar Chavez Street in Seaholm District, the Austin History Center plans to expand into the vacated Faulk facility. More than one million documents of Austin history will be transferred into the renovated Faulk building, dating from before the city’s founding in 1839, to present. Items include 12,500 biographies on residents who influenced the community, and more than 1 million historic photographs.¹⁸ At its present location, the Austin History Center occupies a prime location in the historic downtown grid of Austin Texas. Located on the south front of Wooldridge Square park, and along the major transit corridor of Guadalupe Street, the AHC is surrounded by many historic structures and sites of significance not just to local but also state history. Within walking distance from the AHC are several historic districts which are of significance to the development of the city and the very neighborhood surrounding the AHC and Faulk campus is steeped in history. By utilizing space within the old Faulk Central Library building the AHC will be poised to create a unique institution that not only serves as the city’s archival repository, but as a city museum and heritage center.

Founded in 1980, the Austin History Center Association (AHCA) was dedicated to help the Austin community value its past and build a better future, by supporting the Austin History Center to achieve excellence in its efforts to serve as the collective memory of Austin and Travis County. The Association is a non-profit that supports the Austin History Center in its mission to procure, preserve, and share the historical materials that make up Austin’s unique story. Currently, the AHCA is working to ensure the city’s heritage is more visible throughout downtown Austin, from installing interpretive signs in Republic and Wooldridge Squares, to digital tours, to putting together events and programs that celebrate *Our Austin Story*, a program that documents the stories of the people and places who shaped important civic spaces in the city and offers an important framework for celebrating Austin’s diverse heritage.¹⁹

¹⁸ “AHC History,” Austin History Center, accessed October 20, 2020, <https://library.austintexas.gov/ahc/ahc-history>

¹⁹ “Our Austin Story: Telling the Story of Austin Through the Lens of Historic Squares and First-Person Perspectives,” Downtown Austin Alliance, accessed October 20, 2020, <https://downtownaustin.com/what-we-do/current-projects/our-austin-story/>

Texas Institutions



Figure 5: *Rosenberg Library, home to the Galveston History Center. Photo courtesy of Kyle Walker.*

Our goal of exploring historical archives scattered across the state was to place into context the mission, scope and future aspirations of the Austin History Center (AHC) in comparison to similar institutions in neighboring cities across Texas. The focus for this study was limited to the archival divisions of metropolitan public libraries that share the same designation of “history center” like the AHC, or which are primarily dedicated to the preservation and interpretation of their respective city’s history. Cities included in this part of the study were limited to the largest population centers in the state and include Dallas, Fort Worth, Houston, San Antonio and El Paso.

While many metropolitan library systems across the state maintain an archive dedicated to preserving the official records and history of their communities, only Austin and Houston maintain separate facilities for their archival collections and research purposes. In some of these cities, historical archives have been entrusted to private history societies or local university archival collections. Based on our research, it appears that few of these institutions produce

onsite exhibitions or maintain a separate exhibition hall/space. The Galveston History Center maintains an exhibition space on the fourth floor of the historic Rosenberg Library, outside of the center's reading room.²⁰ The Rosenberg Library building also has separate exhibition spaces which can be utilized throughout the historic structure.²¹ However, these exhibitions rarely contain interactive elements and are usually designed as traditional static exhibitions.

The Houston Metropolitan Research Center (HMRC) was created in 1976 with the goal of preserving and maintaining Houston's history for generations to come.²² Like its Austin counterpart, the HMRC is housed in a historic and protected structure, the Julia Ideson Building. Dedicated in 1926, the building served as the city of Houston's first central library until the larger, Jesse Jones building was completed next door in 1976. The Julia Ideson building not only houses the archives, an exhibit space, and also the largest installation of murals by the Works Progress Administration after the Depression in the city of Houston. Since the HMRC and AHC are housed historic structures dating to the early twentieth century, it is not surprising that the HMRC has also faced issues with of space and modern equipment to properly maintain its climate control needs. Between 2007 and 2011, the HMRC underwent a massive restoration to modernize and preserve the historic structure for archival needs, making it a prime example the AHC can seek to emulate.²³

Although the HMRC is not an official city of Houston repository they do operate to collect and preserve the history of the city. Specifically, the HMRC strives to maintain collections in photographs, architectural histories, Hispanic heritage and histories, oral histories, and sound recordings and moving images. As well, the HMRC also operates three special collections: the Texas and Local History Collection, Culbertson Adult Special Collections, and the Norma Meldrum Juvenile Special Collections.²⁴ Unlike the AHC, the HMRC does not appear to produce onsite exhibits pertaining to subjects of the city's history. What items from its collections that are displayed in the Julia Ideson Building appear to be nothing more than traditional library displays highlighting rare artifacts and holdings from the institution's collections. Despite the lack of onsite exhibitions, the HMRC has produced a virtual tour which is available online.²⁵ However, the virtual tour is limited to a webpage featuring historic photographs, accompanying text and optional audio narration. Also available through the HMRC's website are a series of games and activities that users can complete online or print out and complete at home.²⁶

²⁰ "Explore Galveston's History," Galveston & Texas History Center, galvestonhistorycenter.org, accessed September 17, 2020, <https://www.galvestonhistorycenter.org/>.

²¹ "History Center & Library Museum," Rosenberg Library, accessed September 17, 2020, <https://rosenberg-library.org/services/special-collections/>.

²² "Houston Metropolitan Research Center," Houston Public Library, accessed September 22, 2020, <https://houstonlibrary.org/research/special-collections/houston-metropolitan-research-center>.

²³ "About the Julia Ideson Building," Houston Public Library, accessed September 22, 2020, <https://houstonlibrary.org/research/special-collections/about-julia-ideson-building>

²⁴ "About HMRC and its Collections," Houston Public Library, accessed September 8, 2020, <https://houstonlibrary.org/research/special-collections/houston-metropolitan-research-center/about-hmrc-and-its-collections#Archival>

²⁵ "Virtual Tour," Houston Metropolitan Research Center, Houston Public Library, accessed September 8, 2020, <https://hmrc.oncell.com/en/index.html>.

²⁶ "HMRC Games & Activities," Houston Public Library, accessed September 8, 2020, <https://houstonlibrary.org/hmrc-games-activities>.

In some cities, such as El Paso or San Antonio , there are separate museums dedicated to exhibiting the history and culture of their communities. El Paso is home to a variety of museums dedicated to the history of the region which are operated by the city such as the El Paso Museum of History and the El Paso Museum of Archaeology.²⁷ Bearing close resemblance to the AHC, the El Paso Public Library maintains a historical archive called the Border Heritage Center.²⁸ The Border Heritage Center was formed in 1995 by combining three major collections: Southwest, Genealogy, and Raza, into one area of the Main Library. The center collects and preserves information about the history and culture of the residents of El Paso, Ciudad Juarez, and the surrounding region.²⁹ Though the Border Heritage Center resembles the AHC in terms of scope and mission, it appears to lack the exhibition aspect that the AHC currently possesses and seeks to expand.

The San Antonio Public Library is unique among public library systems in Texas for having no discernable archival collection dedicated to preserving the city's history.³⁰ What the library appears to hold instead are books pertaining to the city's history and finding aids to other archives located throughout the metropolitan area. Archival collections pertaining to the history of the city are spread among a wide variety of institutions, from museums (both public and private, to municipal, state and federal), to private non-profit conservation/genealogy societies, to the archival collections of the city's many universities. San Antonio has many museums located throughout the community, operated by a diverse variety of entities, which produce exhibitions that tell the history of the city. Such institutions include the museums located within or near the historic Alamo compound (one operated by the state of Texas, others privately operated), the San Antonio Missions National Historical Park museum located at Mission San Jose (operated by the National Parks Service), the Wittie Museum (operated by the city) or the Institute for Texas Cultures (operated by the University of Texas at San Antonio). Since the city has a wealth of history/heritage institutions and archival collections held at many local universities, the San Antonio public library system does not maintain a separate history center such as the AHC.

The Dallas Public Library maintains one of the largest collections of its kind in the nation with holdings spanning many aspects of the diverse history of Dallas, the surrounding area, and Texas. Despite its vast holdings, the Dallas History & Archives Division is located on the 7th floor of the Central Library, rather than in a separate facility like the AHC.³¹ Despite the central library's significant size, it does not appear that the Dallas History & Archives Division produces

²⁷ "Museums," El Paso Museums and Cultural Affairs Department, accessed September 17, 2020, <http://mcad.elpasotexas.gov/museums>.

²⁸ "Border Heritage Section," El Paso Public Libraries, accessed September 17, 2020, <http://www.elpasolibrary.org/research/border-heritage-section>.

²⁹ "Border Heritage Center-Online Collections," El Paso Public Libraries, accessed September 17, 2020, <http://www.elpasolibrary.org/research/archives>.

³⁰ "Local History," San Antonio Public Library Texana/Genealogy Department, accessed September 17, 2020, <https://guides.mysapl.org/localhistory>.

³¹ "About our Collections," The Dallas History & Archives Division, accessed September 17, 2020, <https://dallaslibrary2.org/dallashistory/dallashistory.php>.

its own traditional exhibitions located onsite, nor maintain a separate exhibition space dedicated solely to the city's history. Rather, items on display throughout the building appear to be limited to artwork or items from the library's Fine Books Division.³² However, the Dallas History & Archives Division does maintain a significant number of online exhibitions dedicated to the history of the city and surrounding region.³³ Similar to San Antonio, Dallas history is often exhibited at local history/heritage institutions such as the Old Red Museum located in the historic 1892 courthouse and at the open-air Dallas Heritage Village.

In neighboring Fort Worth, The Fort Worth Public Library maintains a Genealogy, History & Archives Unit located in the lower level of the Central Library.³⁴ The unit collects primary and secondary materials on the history of Fort Worth, its institutions, organizations, and people and serves as the official municipal archives for the City of Fort Worth. The primary focus of the unit appears to be its genealogy holdings of which it has a large collection of family history data including federal census, books, periodicals and online databases. While it does not appear that the Genealogy, History & Archive Unit of the Fort Worth Public library produces any exhibitions, both digital and onsite, they do maintain a user-friendly digital archive website where digitized materials from the collection can be easily accessed.³⁵ Fort Worth is unique among Texas cities for having a federal records repository of the National Archives (not attached to a presidential library) located within the city.³⁶ Though the center primarily contains permanent records created by Federal agencies and courts in Arkansas, Louisiana, Oklahoma and Texas, it does hold significant genealogy and historic records for the surrounding region which are accessible to researchers.³⁷ Fort Worth is also home to several history/heritage museums which exhibit the city's and region's history such as the Fort Worth Museum of Science and History, Fort Worth Stockyards and the Texas Civil War Museum.

Among the public library systems in the large metropolitan centers across the state, the Austin History Center stands apart as unique in both its current iteration and future aspirations. In the state of Texas, only Houston and Austin maintain a separate facility for the archival and history division of their public library systems. All other major cities in the state either house their history division or municipal archives within their central library or rely on other institutions, such as local universities and museums (both public and private), as the primary history-based archival institutions for their respective cities. Only the Austin and Galveston history centers appear to produce exhibitions highlighting the history of their respective cities

³² "Exhibits," Fine Books Division: Dallas Public Library, accessed September 17, 2020, <https://dallaslibrary2.org/dallashistory/finebooks/exhibits.php>.

³³ "Online Exhibits," Dallas History & Archives Division, accessed September 17, 2020, <https://dallaslibrary2.org/dallashistory/exhibits.php>.

³⁴ "Genealogy, History, Archives," cityoffortworth.org, accessed September 17, 2020, <http://cctfortworth.org/library/genealogy/>.

³⁵ "Digital Archives," Fort Worth Public Library, accessed September 17, 2020, <http://www.fortworthtexasarchives.org/>.

³⁶ "The National Archives at Fort Worth," National Archives, accessed September 17, 2020, <https://www.archives.gov/fort-worth>.

³⁷ "Genealogy and Historical Research at Fort Worth," The National Archives at Fort Worth, accessed September 17, 2020, <https://www.archives.gov/fort-worth/research>.

onsite, while the majority of the history divisions in other cities tend to merely exhibit artwork or unique holdings from their library's collection.

If given the opportunity to expand into the old Faulk Central Library building, the AHC would only be rivaled by the Houston Metropolitan Research Center in terms of a research facility and the Old Red Museum in Dallas in terms of a city/county museum.³⁸ At present, the AHC already stands out as one of the leading archival collections in the state of Texas, dedicated to collecting and preserving the history of its metropolitan area, based on its facilities and scope of work. If allowed to expand into a renovated space within the old Faulk building, the AHC would be represent one of the premiere archival institutions in Texas dedicated to metropolitan history with the opportunity to be the premier metro archive maintaining a first-class exhibition space.

³⁸ Old Red Museum of Dallas County History & Culture, [oldred.org](https://www.oldred.org/), accessed September 17, 2020, <https://www.oldred.org/>.

National Institutions

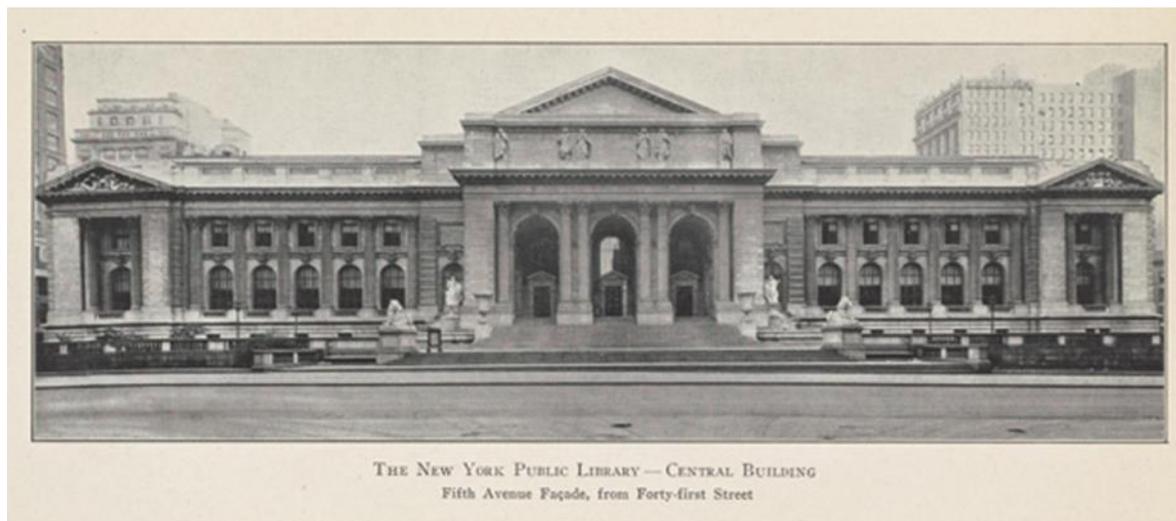


Figure 6: *New York Public Library-Central Building, Fifth Avenue Façade from Forty-first Street. Image courtesy of the [New York Public Library](#).*

Out of the many institutions we included in our research for this report, we were surprised to find that few resembled the Austin History Center in origin or organization. While many metropolitan library systems in major cities across the country contain archival divisions dedicated to preserving the history of their city’s development, few if any included a separate or significant exhibition space, and even fewer included any public engagement initiatives beyond an online presence. In many of the country’s largest cities, the collection and preservation of the city’s history is often split between the archives of the metropolitan public library and private non-profit preservation institutions/societies. While these institutions may not serve as the ideal model that the AHC seeks to emulate by expanding into the Falk building, they do contain programs or practices that are worthy of note in this report.

While the New York Public Library (NYPL) does not contain a separate center dedicated solely to managing an archive of the city’s history, it does hold an extensive archival collection used for research purposes.³⁹ Like many archival institutions and public libraries in major metropolitan cities during the COVID-19 Pandemic, the NYPL has created a public outreach program dedicated to preserving the perspectives and stories of the citizens of its community during the pandemic. *History Now: The Pandemic Diaries Project*, is essentially an oral history project which invites users to submit, via an online forum, audio recordings of telling personal stories about life amid the COVID-19 pandemic.⁴⁰ While the NYPL contains a vast archive of the city’s history, much of the exhibition of that history is left to the Museum of the City of New York (MCNY).⁴¹ The museum is a private non-profit organization which receives government

³⁹ “Research,” New York Public Library, accessed September 14, 2020, <https://www.nypl.org/research>.

⁴⁰ “History Now: the Pandemic Diaries Project,” accessed September 14, 2020, <https://www.nypl.org/pandemic-diaries>.

⁴¹ “About,” Museum of the City of New York, accessed September 14, 2020, <https://www.mcny.org/about>.

support as a member of New York City's Cultural Institutions Group, commonly known as "CIG"s.⁴²

The cultural institutions of Chicago bear close resemblance to the cultural institutions of New York City in that the metropolitan library holds an extensive collection of archival materials but does not maintain much along the lines of exhibit space. Whereas New York has their Cultural Institutions Group (CIGs), the city of Chicago has the Chicago Collections, a consortium of libraries, museums and other institutions with archives that collaborate to preserve and share the history and culture of the region.⁴³ Composed of not-for-profit institutions with collections chronicling the history of the city, the collaboration is led by a board of directors drawn from participating institutions, with a focus on enhancing public access to participating institutions collections. The organization maintains an interactive website where users can access subjects and digitized material from the various participating institutions. The Chicago Collections also maintain several digital exhibitions, drawing on archival material from the many participating institutions.

Participating institutions in the Chicago Collections of interest to our study include the Chicago Public Library and the Chicago History Museum. The Chicago Public Library (CPL), much like the New York Public Library, contains a vast archive of material pertaining to the history of the city. The Chicago Public Library Archives are housed in the Special Collections and Preservation Division at Harold Washington Library Center. The Digital Collections of the CPL are digitized materials of some of the smaller collections of the archive. While it does not appear that the CPL produces exhibits for display within their central library, the library does maintain a blog used for public outreach online. This blog contains a separate filter specifically for posts on Chicago history.⁴⁴

For a city steeped in history such as Boston, there exists no central history center or museum that serves as a predominate archival repository for the region's history. This is not surprising considering the number of world class universities in the city, each with their own archival collections, the numerous historic sited and historical societies in the area, as well as the historic and well-funded Boston Public Library system. While the Boston Public Library does not maintain a separate history division for their archival collections, the central library still holds an extensive collection of historical documents, artwork and artifacts that are available for research purposes. Having visited the library myself in 2016, I can testify that the majority of the historical artifacts from the library's collections are used for display within the historic central library building as decorative pieces rather than in larger exhibitions. Since the archival collections of the library are predominately used for research purposes, the library's website has been designed to assist with the research process remotely. Rather than producing digital exhibitions on the library's website, the Boston Public Library has partnered with other institutions within Massachusetts to create the Digital Commonwealth: Massachusetts Collections Online, similar to the Portal to Texas History, to make historical material available online for research and exhibition purposes.

⁴² "About: A Unique Partnership," New York City Cultural Institutions Groups, accessed September 14, 2020, <https://www.cignyc.org/>.

⁴³ "About Us," Chicago Collections, accessed September 14, 2020, <https://chicagocollections.org/about/consortium-mission-vision/>.

⁴⁴ "CPL Blogs", Chicago Public Library, accessed September 14, 2020, <https://www.chipublib.org/blogs/>.

Of the major metropolitan library archives, the San Francisco History Center (SFHC) bears close resemblance to the organizational structure and operations of the Austin History Center. Formed in 1964 as the California Collection, the current San Francisco History Center holds a comprehensive, non-circulating research collection covering all aspects of San Francisco history (and, to a lesser extent, California and Western history) from the time of the area's earliest habitation to the present day. The archival materials shed light on many aspects of the City's history, geography, architecture, politics, government, the lives of citizens, and the many ethnic and cultural groups that have shaped the city's unique character. Located on the 6th floor of the Main Library, the SFHC contains a wealth of primary and secondary source materials in print, manuscript, audio-visual, and digital formats. These include books, periodicals, pamphlets, ephemera; newspapers and news clippings; maps; photographs and slides; microfilm and fiche, videos, DVDs, and recordings; posters and broadsides; archives and manuscripts, scrapbooks, oral histories; ephemera & realia. Users can explore and conduct research online using digitized items from the history center's collection. Unlike the AHC, it appears that the SFHC does not produce any onsite exhibitions or any exhibitions that would employ interactive and engaging technologies. The main outreach program of the SFHC appears to be a blog operated by the history center which acts as a digital exhibition platform for the center.

Though the Los Angeles Public Library (LAPL) does not appear to have a separate archival center, the central library is home to an extensive archive of historic materials. In the historic art-deco central library building there is a separate wing dedicated for exhibition space of art and other items from the library's collections. The LAPL has an extensive digital collection accessible on their website containing thousands of digitized items from the library's collections. What the LAPL may lack in physical exhibitions it makes up for with digital exhibitions on the library's website. The outreach programs of the LAPL seem to be limited to online initiatives. As with many metropolitan libraries during the COVID-19 Pandemic, the LAPL launched their Safer at Home archive, to document the lives of citizens during the coronavirus pandemic. Submissions will eventually be curated and made available in a digital collection accessible through our online special collections portal, TESSA. The LAPL also maintains a blog used to share stories from the community about ethnic and cultural groups or the many diverse neighborhoods of the city. The LAPL maintains an active presence on Youtube where its channel is used to not only disseminate information about the library system, but to share oral histories from the library's archival collections. Of particular note is an app developed by the LAPL in association with the USC Annenberg School for Communication and Journalism called ARchive LAPL. The app was developed to "augment" the library—bringing visual, video and 3-D experiences to the rich art, architecture and collections of the historic Central Library.

Included in this section of the report were metropolitan library systems located in the three largest cities in the country (New York, Los Angeles and Chicago) as well as some of the oldest and most renown public library systems in the country (Boston and San Francisco). These particular institutions were chosen for analysis to demonstrate the practices and typical strategies employed at some of the largest and most prestigious metropolitan library systems in the United States. In many of these cities, the library systems were only one of several archival institutions dedicated to preserving the history of their respective communities, both private and public. Every one of these library systems held archives preserving the history of their cities however,

some were not designated as the official repositories of municipal records and none of the institutions mentioned in this segment produced interactive exhibitions onsite beyond traditional displays.

In New York and Chicago, private museums with their own sizeable archives create exhibitions dedicated to telling the stories of their respective cities. These private institutions are where emerging digital technologies are employed to create interactive and engaging experiences for visitors, while the metropolitan library's archival collection is reserved for research purposes and minor displays in the system's central library building. In places steeped in history like Boston, the city's history is displayed at a wide variety of institutions, from sites operated by the National Parks Service, to state and city owned historic sites to private museums and other tourist attractions. These disparate institutions employ varying levels of technology to create engaging experiences in an effort to lure tourists to their particular establishment over their competitors. In Los Angeles, the metropolitan library's central branch features an exhibition hall where many items from the library's collection are displayed, from artwork to rare books. However, there is no separate space dedicated solely to the display of the city's history and the displays employ traditional exhibition strategies with little digital technology or interactive elements. The San Francisco History Center stands out as unique among the institutions surveyed, bearing close resemblance to the organizational structure and operations of the Austin History Center however, producing no onsite or digital exhibitions, serving solely as an archival repository for research purposes. If given the opportunity to expand into the entirety of the Faulk Central Library building, the AHC would have ample space available to not only expand their archival storage but create sizeable interactive and traditional exhibitions housed in two historic structures, with room for an auditorium and a bookshop. The expansion into the Faulk would position the AHC as one of the premier metropolitan archival institutions and campus in the country when compared to the examples mentioned in this section.

Part II:
Technology

Touchscreen Interfaces

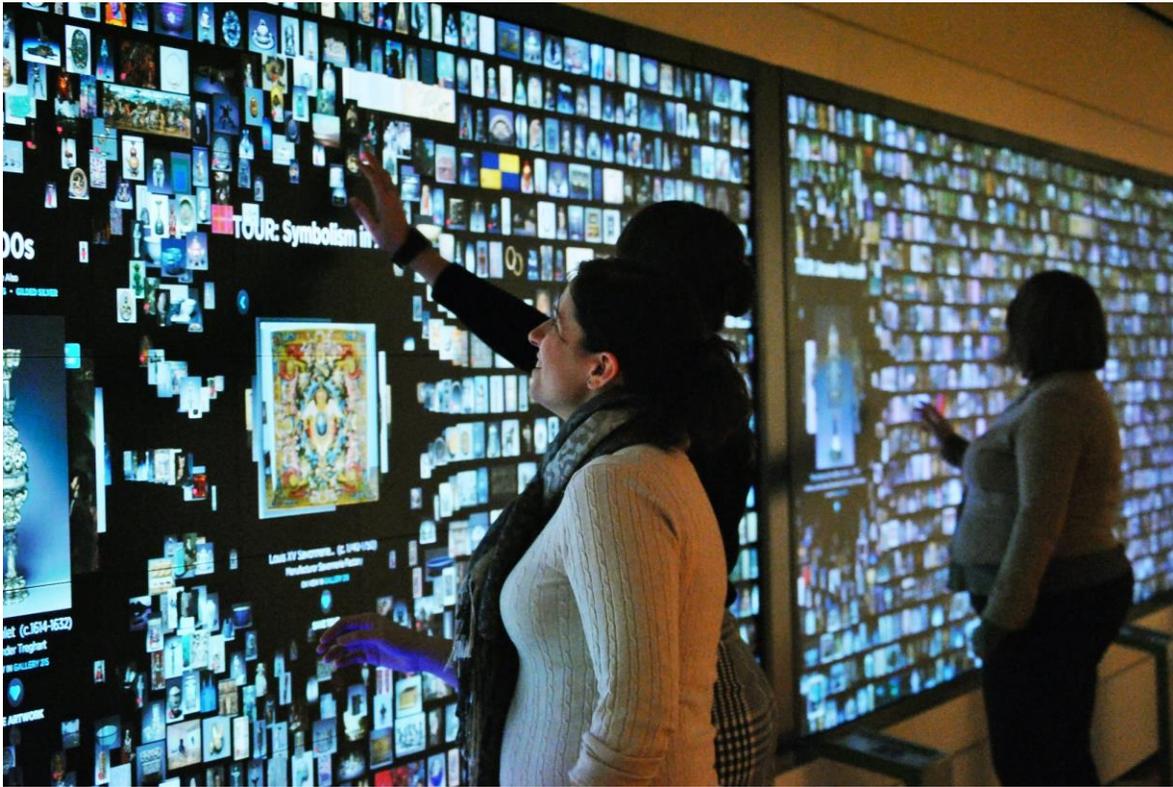


Figure 7: Visitors to the Cleveland Museum of Art explore an interactive touch screen wall known as ArtLens. Photo courtesy of the [Cleveland Museum of Art](#).

One of the most popular examples of digital technology utilized in exhibitions is the interactive touch screen. According to Ivan Burmistrov, 51% of museums and other cultural institutions participating in a 2013 study indicated that they were contemplating the use of touchscreens in their exhibition halls.⁴⁵ Touch screens enhance visitors' interactivity with objects, increase the sense of control over their experience of the place and can provide a large amount of information about an institution's collection in a reduced space. Advancements made in touchscreen technology over the past decade have led to larger interactive screens, multi-touch screens, higher definition resolution and a more affordable price tag. These advancements, along with the interactive and independent experience created by touch screens, have made them staples of engaging technology used in many exhibitions.

The idea of interactive kiosks utilizing technology in exhibitions is not a new concept. Since the advent of the personal computer in the 1970's, curators and exhibit designers have

⁴⁵ Ivan Burmistrov, *Touchscreen Kiosks in Museums*, (2015): 3, https://www.researchgate.net/publication/282049608_Touchscreen_Kiosks_in_Museums?channel=doi&linkId=5601f44f08aeb30ba7355859&showFulltext=true.

continued to find ever creative ways to utilize computers to create interactive experiences in exhibition. Over the next thirty years, computers were frequently utilized in exhibitions for a multitude of purposes such as platforms to run videos or video games related to the exhibition; search engines/databases providing information and access to items from an institution's collections not on display; or for access to online materials to supplement physical exhibitions. As computers became smaller and more affordable over this time, computer kiosks remained the ideal technology to create engaging, interactive experiences in exhibitions.

By the end of the first decade of the twenty-first century, touch screen technology began to make great strides thanks to the development of mobile devices. Touch screen technology in mobile devices such as smartphones and tablets led to a revolution of the technology employed in larger screens. Though touch screens had been utilized in larger screens before the 2010's, they were often bulky, slow to respond and required a heavy hand to operate. As the decade progressed, not only was the technology applied to larger and larger screens, the ability to have multiple users on the same touch screen surface was also pioneered.

One of the biggest issues many archives, museums and collecting institutions face is how to make their vast holdings more accessible to their visitors and a larger audience. Exhibition spaces can only display a limited quantity of items at a given time and many artifacts may be too delicate to move or display in an exhibition setting. Interactive touch screens are one of the primary tools used to showcase an institutions collection in an interactive way while allowing users to explore information they desire at their own leisure. Whether set up in association with a specific element of an exhibition to augment a display, or as individual kiosks intended for independent exploration, touch screen interfaces allow visitors to engage with an exhibition's or institution's content in a personal manner. Much like the computer kiosks that preceded them, touch screen kiosks have a wide variety of interactivity such as videos, videos, pdfs, games and quizzes and so much more.

Touch screen interfaces and kiosks have proven to be particularly useful to archival institutions whose collections are primarily composed of documents rather than artifacts. In September 2016, the National Library of Scotland opened its Moving Image Archive in Glasgow utilizing digital touch screen kiosks to create an interactive experience that would connect people of all ages and experiences to the library's historical and rich collection of films.⁴⁶ Touch screen kiosks were situated throughout a large room with comfortable furniture where users could sit in comfort while they browsed the library's film archive. The relaxed atmosphere of the exhibition as well as the ability to accommodate up to two users with headsets for audio, created an engaging experience that left a lasting impression on the library's visitors. The touch screens utilized by the National Library of Scotland were provided by a company called Popcomms, which has provided similar touch screen interfaces for both public institutions, such as the Royal Mint, and private companies.⁴⁷

⁴⁶ "National Library of Scotland - Moving Image Archive Touchscreen," POPcomms, accessed October 1, 2020, <https://www.popcomms.com/case-studies/national-library-scotland/>.

⁴⁷ "The Royal Mint - Touchscreen Experience," POPcomms, September 22, 2017, <https://www.popcomms.com/case-studies/the-royal-mint-touchscreen/>.

An issue that quickly arose after information kiosks became popular in exhibitions was the isolating nature of the experience to the user. While encouraging individual exploration and a new level of interaction with the subject of the exhibition these kiosks, either utilizing computers or touchscreens, limited group interaction among visitors. Though large volumes of information can be assessed by users, individualized kiosks limited social interaction among individuals in a visiting group. Experts have often noted that visitors to museums and heritage institutions with exhibitions often visit with others, whether friends, family, peers or colleagues.⁴⁸ Even when we visit museums alone, we are often sensitive to the behavior of others. However, recent advancements in multi-touch screen technology have provided a solution to this predicament and created a new dimension of interactivity using touch screen interfaces. Now multiple visitors can use the same touch screen surface and continue their exploration of an exhibition's content individually or in concert with other users.

One of the most prolific multi-touch interfaces is located at the Cleveland Museum of Art. Called the ArtLens Wall, the exhibition features a 40-foot interactive, multi-touch, MicroTile wall, displaying in real time all works of art from the permanent collection currently on view in the galleries—between 4,200 and 4,500 artworks.⁴⁹ In addition, the ArtLens Wall displays thematic groupings that may include highlighted artworks currently on loan as well as select light-sensitive artworks that are in storage. The largest screen of its kind in the US, standing 5-feet tall by 40-feet wide, the ArtLens Wall facilitates discovery and dialogue with the museum's visitors and can serve as an orientation experience, allowing visitors to download existing visitor-created tours or create their own on their iOS or Android device. Its display transitions every 40 seconds to keep things interesting—grouping artworks by theme and type, such as time period or materials and techniques, as well as by 32 curated views of the collection.⁵⁰ The ArtLens Wall enables visitors to connect with objects in the collection in a playful and original way, making their visit a more powerful personal experience.

In 2014 the Cooper Hewitt Smithsonian Design Museum debuted several new digital multi-touch installations throughout the museum.⁵¹ Utilizing “Play designer” on 4K resolution touchscreen tables that feature specialized interactive software, the 84-, 55-, and 32-inch tables use projected capacitive touch technology – the same technology found in popular tablets and smart phones, as a medium to communicate the museum's themes in various interactive touch screen displays. These multi-touch high definition tables allow users to explore the museum's digitized collection on large touchscreen tables; draw wallpaper designs in a specialized Immersion Room; solve real-world design problems in a room called the Process

⁴⁸ Roberto Vaz, Ana Cecilia Nascimento Rocha Veiga, Paula Odete Fernandes, “Interactive Technologies in Museums: How Digital Installations and Media Are Enhancing the Visitor's Expertise,” *Handbook of Research on Technological Developments for Cultural Heritage and eTourism Applications*, by João M. F. Rodrigues, Célia M. Q. Ramos, Pedro J. S. Cardoso, Cláudia Henriques, Hershey, Pennsylvania: IGI Global (2018), 33.

⁴⁹ “ArtLens Wall,” Cleveland Museum of Art, August 28, 2020, <https://www.clevelandart.org/artlens-gallery/artlens-wall>.

⁵⁰ Kmiers, “ARTLENS Gallery First Iteration: Gallery One,” Cleveland Museum of Art, July 12, 2018, <https://www.clevelandart.org/artlens-gallery/first-iteration>.

⁵¹ “The Pen Experience,” Cooper Hewitt, Smithsonian Design Museum, June 4, 2020, <https://www.cooperhewitt.org/new-experience/>.

Lab; discover how the Carnegie Mansion worked as house; and understand how donors have influenced the museum's collection over the last 100 years. Socialization during the visit was a core aspect of the museum's intentions, with the largest table being able to accommodate up to six visitors to interact with one touchscreen at the same time.

In 2010, the Los Angeles Museum of the Holocaust in Pan Pacific Park debuted three interactive multi-touch touch screen experiences, *The Memory Pool*, *18 Camps* and a *Spatial Audio Guide*, designed by the tech company Potion.⁵² The centerpiece of the first interactive gallery, the *Memory Pool*, tells the stories of Holocaust victims which emerge as photographs on the surface of the table, as if floating in a pool of water. Up to fourteen visitors may use the table at once, pull one of the photos towards edge of the table, whereupon the story behind the photo is slowly revealed. As images in the Memory Pool eventually fade away, they foreshadow the grim realities of the Holocaust revealed in the subsequent rooms of the museum.⁵³ *18 Camps* is a field of united interactive displays with each screen embodying a specific concentration camp. Each screen features historical photographs of the camps, stories of victims, first-person accounts of survivors and statistics about each camp. When the screens are not being used by a visitor, all eighteen displays sync with each other in a choreographed sequence of imagery and text. The free, palm-sized *Spatial Audio Guide* provides narrated descriptions for up to 100 artifacts in each of the museum's ten galleries. The guide features a visual browser that allows visitors to browse and select curated content with the touch of a finger on their own smartphones, even syncing with videos on the museum's touch screen displays.

In contrast to their computer based predecessors, touchscreens provide much better interface with which to present information to users, offering a more interactive and engaging experience. Touch screen interfaces allow collecting institutions to bypass the barrier between their audience their collections in a manner that is not only secure and aids in the preservation of collections but is interactive and engaging to the visitor. This technology remains one of the best and most cost effective strategies to encourage individual exploration of an institution's collections onsite. Thanks to recent developments in multi-touch technology now multiple users can interact with the same touch screen or with one another on the same screen, creating a new layer of socialization within the context of exhibitions. This simplicity of the interface has proven appealing to young visitors accustomed to touchscreen mobile devices, as well as older visitors who may not be as familiar or comfortable with other technologies such as augmented and virtual reality. For collecting institutions such as libraries and archives, whose collection consists primarily of documents and photographs as opposed to artifacts, touch screen technology has proven to be one of the best strategies to encourage visitor engagement and exploration onsite, with the contents of their collection.

⁵² "Memory Pool, 18 Camps, Audio Guide," Potion, accessed September 30, 2020, <https://www.potiondesign.com/project/la-museum-holocaust/>.

⁵³ "Potion Designs Three Interactive Experiences for LA Museum of the Holocaust," Dexitner, accessed September 30, 2020, <https://www.dexitner.com/news/22713>.

Augmented & Virtual Reality



Figure 8: *The augmented reality experience created by the Chicago00 app at the site of the Eastland Disaster in downtown Chicago. [Photo courtesy of the Chicago Museum of History.](#)*

Augmented and Virtual reality has recently transformed from a cumbersome and expensive technology, impractical as an educational tool for archives, to one that is easy to use and easily affordable. These technologies offer new ways of delivering information and create new experiences for visitors of cultural heritage sites. Though these technologies have grown in popularity, especially in cultural heritage institutions, studies investigating the way visitors interact with them are still limited and few. However, thanks to advancements and the proliferation of mobile device technology, augmented reality (AR) and virtual reality (VR) have become more accessible and user friendly to a wider audience. There are no shortage of examples of Augmented Reality (AR) and Virtual Reality (VR) exhibitions that are now pushing the boundaries of artistic expression and finding new ways to educate. However, the challenge

that faces curators is to ensure that digital solutions enhance rather than interfere with the museum experience.

Augmented Reality

Augmented Reality (AR) is the technological approach that allows users to view an ‘enhanced’ version of the real world, in which digital objects are combined with physical ones.⁵⁴ With AR, computer generated imagery is overlaid on real-time images. One of the main advantages of this technology is that it enables users to receive information, to browse media and to experience stories that are embedded in their surrounding environment. Users can access information relevant to their current location, link the digital media with the physical context, and have a more direct and engaging way to interact with the contents of the application. At present, smartphones and other mobile devices present the easiest, most user-friendly and widely available method with which to deliver an augmented or virtual reality experience.

Recent studies have demonstrated that the field of Cultural Heritage presentation and dissemination has benefited greatly from a wide adoption of AR through a range of informative or educational apps for museum visitors and tourists.⁵⁵ Studies have also suggested that object-focused interfaces are more useful and understandable to people who visit museums rarely.⁵⁶ AR has proven especially effective in the interpretation of tangible heritage such as historic sites and structures, monuments and artifacts. This is due in part because users need to be focused on items and places of the real world, which is the actual cultural object, in order to appreciate the information they are receiving about said object. Augmenting real-world objects or exhibitions with additional contextual information has been traditionally done through human or audio guides. However, digital technology is not limited to narration alone and can include images, videos, static or animated 3D content.

When it comes to using augmented reality at heritage institutions, the possibilities are limited only by the imagination. Though it can be difficult to come up with a one-size fits all approach to implementing augmented reality to a diverse variety of heritage institutions, such as archival campuses, the main factors to remember are the institution type and the visitor experience you seek to enhance. One of the most prominent examples of augmented reality used by heritage institutions has been through outdoor exploration, where GPS-based augmented reality platforms allow for interactive AR experiences to be projected on the user’s surrounding landscape. The mobile gaming industry was quick to seize on this technological breakthrough with Pokémon GO as the prime example, but many heritage institutions have developed similar GPS based augmented reality tour programs and games for use at their historic sites. A common

⁵⁴ Theodora Ekonomou and Spyros Vosinakis, “Mobile Augmented Reality Games As An Engaging Tool For Cultural Heritage Dissemination: A Case Study,” *Scientific Culture*, Vol 4, No 2, (2018): 97. <https://eds-b-ebSCOhost-com.libproxy.txstate.edu/eds/pdfviewer/pdfviewer?vid=2&sid=ad31436b-a745-469f-8eaa-74466c3bf167%40sessionmgr103>.

⁵⁵ A. Haugstvedt and J. Krogstie, "Mobile augmented reality for cultural heritage: A technology acceptance study," 2012 IEEE International Symposium on Mixed and Augmented Reality (ISMAR), Atlanta, GA, (2012): 247-255. <https://ieeexplore-ieee-org.ezproxy.lib.utexas.edu/document/6402563>.

⁵⁶ Eran Litvak and Tsvi Kuflik, “Enhancing cultural heritage outdoor experience with augmented-reality smart glasses. *Personal and Ubiquitous Computing*, Springer London Language: English, Database: Springer Nature Journals (2020): 1-14, <https://doi-org.libproxy.txstate.edu/10.1007/s00779-020-01366-7>.

use of AR at historic and archaeological sites has been to recreate a historic built environment where users can visualize structures that no longer exist on the landscape.

One of the best examples of an augmented reality application based on materials from an archival institution is The Chicago 00 Project developed by the Chicago History Museum.⁵⁷ Developed between the museum and filmmaker Geoffrey Alan Rhodes, The Chicago 00 Project is an engaging augmented and virtual reality application that can be utilized at historic sites throughout the city. The application includes a series of site-specific, interactive, immersive multimedia experiences designed to showcase the Museum's film, photo, and sound archive and share Chicago's stories in new and unique ways. Many of the sites featured in the application allow for users of the app to overlay historic photographs of historic events at the sites they actually happened, overlaid with informative narration or with the option to explore subfields at each site. Sites featured in the project include the World's Columbian Exposition, the 1968 DNC Protests, the 1933 World's Fair, St. Valentine's Day Massacre, The Eastland Disaster and Mediamstream 150 (a digital art project).

While AR is naturally suited to enhance outdoor programming from heritage institutions, the technology can be just as useful in interior spaces as well. Just as mobile games like Pokémon GO represent the potential for AR in outdoor applications, Snapchat and other social media filters represent the potential of the technology applied to an indoor setting. AR Markers are the most common way of applying augmented reality in museums.⁵⁸ Similar to QR codes, AR Markes trigger a particular process whenever captured by a camera through an augmented reality application. Any two-dimensional image can be made into a marker you could use for the AR app. As soon as the marker is captured, AR apps can overlap an image, audio, a video, additional information or a 3D model.

Virtual tour guides are one of the most creative and interactive ways AR has been adapted to museum exhibitions and historic sites. At the Museum of Celtic Heritage in Salzburg Austria, visitors can be guided by an animated 3D model of a walking talking ancient Celt who even stands guard outside the museum if users engage the app before entering the facility.⁵⁹ This virtual guide tells visitors interesting facts about the exhibits and Celtic history in general. A similar 3D AR tour guide, this time a penguin, was also employed by the Sunshine Aquarium in Tokyo to help attract and guide visitors to the institution through the busy streets of the capital city.⁶⁰

AR has even proven especially adept in creating an interactive experience with static and permanent exhibitions in museum galleries. In 2015, the Smithsonian introduced AR technology

⁵⁷ "The Chicago 00 Project," Chicago00, accessed September 23,2020, <https://chicago00.org/>.

⁵⁸ Anastasia Morozova, "How to Use Augmented Reality in Museums: Examples and Use Cases," jasoren.com, accessed September 23, 2020, <https://jasoren.com/how-to-use-augmented-reality-in-museums-examples-and-use-cases/>.

⁵⁹ Morozova, accessed September 23, 2020.

⁶⁰ Ainars Klavins, "7 augmented reality ideas for interactive museum experiences," overlayapp.com (January 2, 2020), <https://overlyapp.com/blog/7-augmented-reality-ideas-for-interactive-museum-experiences/>.

to bring a whole new dimension to one of its oldest and most loved displays.⁶¹ *Called Skin & Bones*, the app allows users to see how skin and muscle would have looked some of the museum's most famous animal skeletons on display, and how the animals would have moved. The use of AR in natural history exhibitions proves exceptionally promising to demonstrate how animals look and move about in their environment without having to confine real specimens to an enclosure as in zoos. This process can easily be applied to a historical context for historic objects, vehicles and human figures from throughout history.

Art museums in particular have found many creative ways to employ AR technology to enhance the visitor experience to traditionally static and unengaging exhibitions. At the Latvian National Museum of Art, an exhibit created in partnership with the European based tech company Overly, brought world famous artworks to the museums virtually and displayed them in an exhibition space entirely through the use of AR technology.⁶² The exhibition essentially resemble framed QR codes but by scanning each, the visitors could explore famous artworks in detail via their mobile devices. At the Art Gallery of Toronto, the museum worked with digital artist Alex Mayhew to create an AR installation called *ReBlink*, which reimagined some of the existing pieces in the collection.⁶³ When visitors use their phones or tablets to view the gallery's artwork, the subject pieces come alive and often interact with the user, transporting the paintings to our 21st-century reality.

The opportunities presented by AR in museums and galleries are limitless. AR technologies are constantly developing, and the application of the technology is ever expanding as cultural heritage institutions adopt and pioneer new methods of interaction with target audiences. With augmented reality institutions can attract more visitors, bring exhibitions to life, provide play-and learn experiences, open up exhibition spaces and subjects on display (virtually speaking), recreate the historic built environment or historic events, keep users posted and notified about updates and events at your institution, and make regular, cost-efficient updates to exhibitions and programs to maintain interest.

Virtual Reality

In the case of collecting institutions, the barrier of geography is a consistent obstacle that presents a problem that is difficult to overcome. Be it a barrier of distance between the physical institution and its potential audience or the barrier between an institution's audience and the vast holdings within its collections. The persistent challenge of heritage institutions is how to make their archives and collections more open and accessible to their audience. Recent advancements in digital technology such as virtual reality are helping heritage institutions bridge the gap between their collections and their audience in new and imaginative ways.

⁶¹ Diana Marques, Robert Costello, "Reinventing Object Experiences with Technology," *Exhibitionist*. 37 (1):74–82, https://repository.si.edu/bitstream/handle/10088/35691/Exhibition_SP18_ReinventingObjectExperiencesWithTechnology.pdf?sequence=1&isAllowed=y.

⁶² Klavins, accessed September 23, 2020.

⁶³ Charlotte Coates, "How Museums are using Augmented Reality," *MuseumNext*, (September 17 2020), <https://www.museumnext.com/article/how-museums-are-using-augmented-reality/#:~:text=There%20are%20many%20possibilities%20for,artists%20next%20to%20their%20work>.

Virtual reality (VR), as defined by Brady D. Lund and Shari Scribner is an immersive, interactive experience presented by a digital device.⁶⁴ VR typically creates computer-generated environments that replicate places, presence of people and objects, or fictional worlds, allowing realistic sensory experiences by full immersion of a user into a digital environment. The full immersion into a digital environment is what separates VR from AR as well as the ability to fully interact within a digital environment rather than a limited augmented environment where digital information is added to real-world contexts.

VR presents an exciting new opportunity for collecting institutions to make their holdings more accessible and their exhibitions more interactive. VR experiences can be interactive and game like, placing users in a recreated digital environment, or take the form of 360-degree video. It can help curators to put objects in their proper context and show their true scale. VR can also be used to create virtual museum tours, make interactive digital exhibitions, or add a level of interactivity to physical exhibitions.

At Emporia State University, Library Science masters students used virtual reality to make items from the university library's special collections more accessible to users, especially for education purposes, while marketing the library's holdings to a global audience.⁶⁵ Using readily available virtual reality software and a Samsung 360 camera, students modeled a virtual experience of a physical exhibition, supplementing the experience with additional information just as a tour guide would in-person. The VR experience allows users to select from objects on display in the virtual exhibit to learn more by reading short exhibit labels or listening to audio clips. The VR experience at Emporia State University demonstrates recent advancements in VR and digital technology that have made them easier to produce without complex computer software or coding skills. The process has become so simplified that they can be produced inexpensively and easily by staff archivists, graduate students from various programs, or even interns.

Art galleries have been some of the most enthusiastic proponents of adopting VR technology to their collections and exhibitions. In October 2019, The Louvre launched 'Mona Lisa: Beyond the Glass', the museum's first VR experience that explores the famous Renaissance Painting.⁶⁶ Through interactive design, sound and animated images, users discover details about the painting, such as its wood panel texture and how the passage of time has changed the way it looks. The National Museum of Finland in Helsinki opened a VR exhibit in 2018 which allowed visitors to travel back in time to the year 1863 and explore R. W. Ekman's painting *The Opening of the Diet 1863 by Alexander II*.⁶⁷ The VR experience allowed users to step inside the painting, wander around the room and even interact with some of the subjects of the painting.

⁶⁴ Brady D. Lund and Shari Scribner, "Developing Virtual Reality Experiences for Archival Collections: Case Study of the May Masee Collection at Emporia State University," *The American Archivist*, Vol 82, No. 2 (Fall/Winter 2019): 470.

⁶⁵ Lund & Scribner, 470-483.

⁶⁶ "Mona Lisa: Beyond the Glass," Musée du Louvre, Paris, accessed, September 22, 2020, https://arts.vive.com/us/articles/projects/art-photography/mona_lisa_beyond_the_glass/.

⁶⁷ Rebecca Hills-Duty, "National Museum Of Finland Offers Virtual Time Travel," *vrfocus.com*, (February 16, 2018), <https://www.vrfocus.com/2018/02/national-museum-of-finland-offers-virtual-time-travel/>.

Collecting institutions such as natural history and traditional history museums have also enthusiastically adopted VR technology to make objects from their collections more accessible. In 2017 the British Museum has partnered with VR content developer Boulevard to create an application called *Two Million Years of History And Humanity*.⁶⁸ Using Oculus Touch, users can view and compare 48 objects from the British Museum's vast collection of artifacts and even reach out and pick up objects such as the Mesopotamian Flood Tablet, or a two-million-year old stone chopping tool. In 2018 the British Natural History Museum in partnership with broadcaster Sky developed *Hold the World* an educational VR experience that puts users in reach of a few rare specimens from its world-famous collection.⁶⁹ With Sir David Attenborough as their guide, users can handle and resize the objects while Attenborough teaches important facts about how the animals must have lived, ate, breathed, and more.

VR is also applicable in bringing historical sites and events to life. It is especially popular among archeological sites as the technology allows for a recreation of a historic built environment in which users can explore and interact with in the first person. Australian archaeologist, Simon Young and his company Lithodomos VR has used the technology to create virtual reconstructions of Roman ruins via smartphone headsets.⁷⁰ One of the most popular VR platforms of recent years *Timelooper*, is an application designed to give individuals the ability to immerse themselves completely in important historical events or locations experiencing the past from a first-person perspective.⁷¹ VR has also been used to place viewers in the middle of historic reenactments such as the Battle of Waterloo.⁷² TIME Magazine has even broken into the VR experience creating several digital 360 VR videos uploaded to their YouTube channel covering historic events such as Pearl Harbor and Dunkirk.⁷³

360 VR videos have become the most popular and prominent example of VR experiences available online as many cultural heritage institutions and organizations have employed the inexpensive and easy to use technology to create more engaging experiences for their audience. In 2016, the Texas State Preservation Board partnered with local tech start-up Chocolate Milk and Donuts, to create a 360 video virtual reality tour of the Texas State Capitol.⁷⁴ Chocolate Milk and Donuts is a full-service augmented/virtual reality production studio, that creates stunning immersive experiences such as 360 videos, AR/VR experiences and Web AR/VR experiences.⁷⁵ To date, the company has created a VR experience for the National Museum of

⁶⁸ Rebecca Hills-Duty, "Discover Two Million Years Of History With The British Museum's Latest VR Experience," vrfocus.com, (March 20, 2017), <https://www.vrfocus.com/2017/03/discover-two-million-years-of-history-with-the-british-museums-latest-vr-experience/>.

⁶⁹ Katie Pavid, "Explore the Museum's collection with Sir David Attenborough," Natural History Museum, (March 6, 2018), <https://www.nhm.ac.uk/discover/news/2018/march/explore-the-museum-with-sir-david-attenborough.html>.

⁷⁰ Rebecca Carlsson, "How virtual reality is bringing historical sites to life," MuseumNext, (June 11, 2020), <https://www.museumnext.com/article/how-virtual-reality-is-bringing-historical-sites-to-life/>.

⁷¹ "XPLORE," timelooper.com, accessed September 22, 2020, <https://www.timelooper.com/xplore>.

⁷² National Geographic, "360° Battle of Waterloo | National Geographic," YouTube (YouTube, December 10, 2017), <https://www.youtube.com/watch?v=Bj1aVW3LuVo>.

⁷³ TimeMagazine, "Remembering Pearl Harbor VR: Experience History | 360 Video | TIME," YouTube (YouTube, December 2, 2016), <https://www.youtube.com/watch?v=7fWNCUZjJ5Q>.

⁷⁴ "The Texas State Capitol in 360°," Chocolate Milk & Donuts: YouTube Channel, June 26, 2016, <https://www.youtube.com/watch?v=ELtc4GoOMts>.

⁷⁵ "About Us," Chocolate Milk & Donuts (CM&D), accessed September 22, 2020, <https://chocolatemilkdonuts.com/about/>.

the Pacific War in Fredericksburg Texas, and AR experience for hiking trails in central Texas and created several 360 videos for companies like the Circuit of the Americas.⁷⁶

In the wake of the COVID-19 pandemic, many museums and other cultural heritage institutions have turned to VR experiences to keep their audiences engaged with their collections. Thanks to community or nationwide-lockdown rules, most museums have had to accommodate a period of forced closure which has boosted interest in virtual museum tours. To counter this, many museums offered visitors virtual tours and video content through their website and social media.⁷⁷ VR efforts can also prove to be a useful marketing tool to draw increased visitation in the long term, despite the recent barriers to on-site visitation. When used responsibly, with the goal of disseminating knowledge and information, VR can help bridge the gap not only between the past and the present, but between the site and the visitor.

Augmented and Virtual Reality are exceptionally effective tools that the Austin History Center can utilize to reach a broader audience in the Austin area both onsite and remotely. Austin's reputation as a technology hub has attracted many talented individuals and companies to the central Texas region such as Apple, Google and Facebook, who each have their own divisions dedicated to advancing AR/VR technology. Similarly, the city is home to many smaller tech start-ups, some of whom specialize in AR/VR technology such as Chocolate Milk & Donuts, which the AHC can utilize in designing interactive and engaging digital experiences for visitors. The AHC's close proximity to several universities also provides a valuable resource of both undergraduate and graduate programs which can be utilized to aid in the research and development of AR/VR programming. With an expanded space in the old Faulk building, the AHC would be poised to begin exploration of adapting these digital methods to their exhibitions and programming which can be used onsite or in nearby neighborhoods.

⁷⁶ "Our Work," Chocolate Milk & Donuts (CM&D), accessed September 22, 2020, <https://chocolatemilkdonuts.com/work/>.

⁷⁷ Manuel Charr, "The Best Free Virtual Tours of Museums in the World," MuseumNext, (October 17, 2020), <https://www.museumnext.com/article/the-best-free-virtual-tours-of-museums-in-the-world/>.

Holograms



Figure 9: *Visitors interact with and pose questions to a hologram in the "Survivor Stories Experience." at the Illinois Holocaust Museum and Education Center. Photo courtesy of the [Illinois Holocaust Museum and Education Center](#).*

While it may seem like a relatively new technology, holography has been around in various forms since the early 1960's.⁷⁸ As the technology advanced over the next century it has been considered a powerful tool for three-dimensional imaging in display technologies. At present, display holography is well suited for optical replication of 3D images of objects or people which is especially useful in an exhibition setting. Reasons for using holographic displays in an exhibition setting range from limited space, inability to acquire certain artifacts fitting to the theme of the exhibition, or the sensitive preservation nature of older artifacts. Since collecting institutions often store many artifacts that for different reasons cannot be displayed, the use of holography can solve this problem by replacing the real object with a holographic copy.

Holography and holographic display cases, such as the ColliderCase produced by Virtual Case Systems, could help museums bring artifacts to life by providing a richer more detailed

⁷⁸ V. B. Markov, "Holography in Museums," *Imaging Science Journal*. 2011, Vol. 59 Issue 2, 66.

experience than merely displaying a historic artifact.⁷⁹ Once an object is scanned, these scans can be displayed alongside the actual artifact to demonstrate how the artifact worked or would have been used in context. Using holograms projected onto a clear glass display, animations and simulations demonstrate how a historic artifact was created or used, without risking damage to the original item. The same technology has been applied holographic recreations of animals to demonstrate how they move about in their natural environment, enhance the visual display of inanimate objects by adding holographic animation to a static display case, or substitute traditional exhibit labels, which are limited on space, with digital text information that can be summoned into view on command.⁸⁰

Holograms and holographic display cases could also be used to highlight or enhance important and notable areas of a delicate object or document, without actually casting any light on the surface or paper that could damage its colors or ink.⁸¹ The very first ColliderCase was installed at the Culloden Battlefield Visitors Center in northern Scotland in 2016, displaying historic documents dating to the time of the battle in 1746.⁸² The holographic display allows visitors to view highlighted sections of the document which translates the historic text to the viewers language of choice, and includes large print and audio options. Holographic technology can also provide a temporary digital restoration to historic documents whose ink has faded over time. At the W.M. Keck Earth Science and Mineral Engineering Museum in Reno Nevada, a ColliderCase was used to digitally trace over original writing of a certificate from Cody's Wyoming Coal Company, defining the faded script without having any detrimental effect on the delicate paper.⁸³ The document was signed by Wm F. Cody (Buffalo Bill) himself. The case was also able to display high resolution scans of the original document, digitally magnifying the elaborate illustrations printed on the historic artifact.

Holograms are not limited to just recreating or enhancing artifacts and documents, they can also be used to depict entire human bodies in motion within and environment. At the Tampa Bay History Center, the museum's exhibit "Treasure Seekers" uses holographic pirates on a life-sized recreated pirate sloop who give instructions to visitors about how to sail the "vessel."⁸⁴ Disney theme parks have also groundbreaking strides in the field of holograms used in many of their attractions such as the Haunted Mansion and Pirates of the Caribbean, the latter of which began using holograms in the late 2000's.

Of particular interest to archival institutions is the ability for holograms to create an interactive and engaging experience with which to share oral histories. At the Illinois Holocaust Museum and Education Center (IHMEC), visitors have the opportunity to interact and speak

⁷⁹ ColliderCase.com, accessed September 30, 2020, <http://www.collidercase.com>.

⁸⁰ "Projects," VirtualCase Systems, accessed September 30, 2020, <http://www.virtualcase.com>.

⁸¹ Andrew Liszewski, "Holographic Display Cases Could Help Museums Bring Artifacts to Life," GIZMODO, May 4, 2016, accessed September 30, 2020, <https://gizmodo.com/holographic-display-cases-could-help-museums-bring-arti-1774657559>.

⁸² "Bonnie Prince Charlie Letters," VirtualCase Systems, accessed September 30, 2020, <http://www.virtualcase.com/#/bpcletters/>.

⁸³ "Cody's Wyoming Coal Company," VirtualCase Systems, accessed September 30, 2020, <http://www.virtualcase.com/#/keck/>.

⁸⁴ "Treasure Seekers," Tampa Bay History Center, accessed September 30, 2020, <https://www.tampabayhistorycenter.org/treasure-seekers/>.

with holograms in the "Survivor Stories Experience."⁸⁵ Using technology developed by the USC Shoah Foundation called New Dimensions in Testimony, the IHMEC recorded the stories of 13 Holocaust survivors at a stage in Los Angeles, surrounded by hundreds of cameras. The survivors were recorded answering up to 2,000 questions once the interviews had been completed. These recordings are then played at the "Survivor Stories Experience" exhibit as holograms.

Visitors to the exhibit can pose questions to the holograms, and the holograms respond as if the survivor is actually on stage thanks to voice activation and recognition software. The interview questions that the survivors answered were designed to anticipate audience questions, including inquiries about life before the war, the state of the survivors' respective families and more. Writing about engaging the hologram for *The Verge*, Lauren Goode said, "The conversation felt almost absurdly natural, due in large part to the [Shoah] Foundation's development of its own natural language processing system. At one point, I realized I felt rude interrupting a video."⁸⁶

With an expanded exhibition space in the Faulk Central Library Building the AHC would have the potential space to create an interactive and engaging holography experience like the examples previously listed. In its present location the AHC could utilize holographic display cases such as the ColliderCase but considering the large nature of such cases, which is necessary to achieve the hologram effect, the current exhibition space in the historic AHC building would not be able to accommodate many of these cases in a given exhibition. The current exhibition space in the historic library building is also incapable of incorporating full body human holograms such as the ones at the Tampa Bay History Center. However, a renovated Faulk Central Library Building with an auditorium would be able to accommodate an exhibition similar to the "Survivor Stories Experience," in which holograms project human figures that are able to answer questions.

⁸⁵ "Take A Stand," Illinois Holocaust Museum & Education Center, accessed September 30, 2020, <https://www.ilholocaustmuseum.org/tas/>.

⁸⁶ Lauren Goode, "Are Holograms the Future of How We Capture Memories?" *The Verge*, November 7, 2017, <https://www.theverge.com/2017/11/7/16613234/next-level-ar-vr-memories-holograms-8i-actress-shoah-foundation>.

Interactive Projectors



Figure 10: Digital art installation "And That's the Way It Is," is projected onto a building of similar architectural style to the Faulk Central Library building, at the Moody College of Communication, University of Texas at Austin. Image courtesy of the [University of Texas at Austin](#).

Other methods of creating immersion experiences in museums is through the use of interactive projection. Interactive projection experiences have become increasingly popular in recent years in museums and other institutional spaces around the world. High end projection systems, motion detection hardware, and interactive software are combined and customized to suite the experience and spatial environment of the exhibit. Using their own gestures, visitors can interact with and affect the imagery and audio of the projection, which can be projected on floors, walls or other surfaces. Interactive projectors in museums offer a different experience than traditional digital media that is experienced on stationary displays using touchscreens input or other peripherals.

There are many applications for interactive projections such as educational and storytelling experiences, multi-player games, captivating ambient effects and so much more. So far, the technology is commonly implemented for entertainment purposes, but the technology has great potential as an engaging storytelling device. Because of its captivating display, it has a broad age appeal for visitors of all ages, especially children and since there is no limitation to the number of people who can interact with it at a given time, it's ideal for large groups or events.

The world's largest interactive projection display was unveiled in the Wu Kingdom Helv Relics Museum in 2014. Simply named *The Time Machine*, the immersive experience takes visitors on a 15-minute story through the history of the ancient kingdom of Wu mixing cinematic scenes with paint-style animations.⁸⁷ The interactive projection is displayed on a 400-square meter interactive floor and a 250-square meter projection screen that allows visitors to interact with the scenes projected around them.⁸⁸

The *Connected Worlds* exhibition at the New York Hall of Science is another one of the largest interactive projection systems ever created.⁸⁹ The goal of the exhibit is to help visitors understand the interconnectivity and balance of natural ecosystems. Interaction with the digital environment is made by using gestures and body movements which are constantly tracked by 12 Kinects and an infrared system. The virtual biosphere combines six ecosystems in the exhibit space, changes to one ecosystem are reflected in the other ecosystems of the projection. Visitors can also alter the projection using physical objects, such as the path of a projected waterfall.

Of particular interest to archival institutions was an interactive projection exhibition produced for the Museum Victoria called mARChive.⁹⁰ The interface consists of a 360-degree data browser that allows users to navigate through more than eighty thousand digital records of objects from the museum's collection, in an immersive and interactive environment. Using a tablet to browse, selected images are projected on the surrounding walls where users can view the objects at a one-to-one scale. The experience can be augmented with 3D glasses to further enhance the experience. This amazing and interactive browser is yet another solution for collecting institutions who face the problem of making the holdings in their collection more accessible to the public.

In addition to promoting the exploration of the past or remote locations, interactive projections are also used to present art exhibitions. Examples include the Pipilotti Rist: Pixel Forest at the New Museum in New York in 2016.⁹¹ The exhibition explored physical and psychological experiences of the living world, through the presentation of textures, forms, lights and sounds, in immersive environments. Contrary to this exhibition, where visitor's interaction with the digital world doesn't provoke a response, the *Immersion Room* at the Cooper Hewitt Smithsonian Design Museum does.⁹² Using a multi-touch table, visitors are able to browse through the museum's collection of wallpapers, or create their own design, which are subsequently projected at full scale on the walls around the room. Some of the wallpapers are accompanied by audio clips providing information about a particular design or designer.

⁸⁷ "TIME MACHINE," TAMSCHICK MEDIA+SPACE, accessed October 2, 2020, <https://www.tamschick.com/en/projects/time-machine/>.

⁸⁸ "Time Machine - Interactive Installation - Helv Relics Museum," kraftwerk.at, January 13, 2020, <https://www.kraftwerk.at/reference/time-machine-wuxi/>.

⁸⁹ Connected Worlds, New York Hall of Science, 2015, accessed October 2, 2020, <https://nysci.org/home/exhibits/connected-worlds/>.

⁹⁰ Sarah Kenderdine, Timothy Hart, "mARChive: Sculpting Museum Victoria's Collections," museumsandtheweb.com, April 2014, <https://mw2014.museumsandtheweb.com/paper/marchive-sculpting-museum-victorias-collections/>.

⁹¹ Roberta Smith, "'Pipilotti Rist: Pixel Forest,' Deep in the Wilds of Video," *New York Times*, October 27, 2016, <https://www.nytimes.com/2016/10/28/arts/design/pipilotti-rist-pixel-forest-deep-in-the-wilds-of-video.html>.

⁹² "Immersion Room," Cooper Hewitt, Smithsonian Design Museum, April 3, 2020, <https://www.cooperhewitt.org/events/current-exhibitions/immersion-room/>.

Interactive projectors are not limited to interior spaces alone as the technology also has great potential for artistic display outdoors. In recent years, intricate light shows projected onto the surfaces of historic buildings have grown in popularity. Though often these light shows represent singular celebratory occasions, such as the fiftieth anniversary of the launch of the Apollo 11 mission, many have become permanent showcases in cities across the world.⁹³

Located just over a mile north of the Austin History Center is the lightshow titled *And That's The Way It Is*.⁹⁴ As part of the university's Landmarks public art series, the display is visible every evening on the Walter Cronkite plaza projected onto the exterior façade of the Jesse H. Jones Communication building on the University of Texas Campus. Designed by contemporary media artist Ben Rubin, the lightshow projects an interwoven grid of text along the contours of the building over an area 120-feet wide by 42-feet tall. The text draws from two sources: closed caption transcripts of five live network news streams and archival transcripts of CBS Evening News broadcasts from the Cronkite era, including those housed at the university's Briscoe Center for American History. Though not as flamboyant as similar lightshow projections on other structures, this particular display is of considerable interest to the AHC for the similar design shared by the Jesse H. Jones building, built in 1973, and the old Faulk Central Library building built in 1979.

Down the road from Austin in San Antonio, several of these light shows have been featured on the historic structures of the old Spanish City. "San Antonio | The Saga," a 24-minute, 7,000-sq. ft. video art installation is projected onto the front façade of San Fernando Cathedral four nights a week.⁹⁵ *Restored By Light*, a light show projected onto the facades of the historic missions south of San Antonio, has been a recurring event on special occasions since 2015.⁹⁶ Unlike the light show projected onto San Fernando Cathedral, *Restored By Light* dedicates a portion of its program to depicting the façade of the historic mission as it may have looked over two hundred and fifty years ago, decorated with multicolored frescoes. The first show of the program was held at the historic Mission Concepcion in 2015, but subsequent shows have been projected onto every other mission of the national park/world heritage site every year since its debut.⁹⁷ While *Restored By Light* provides an engaging experience intended to draw visitors to the historic missions, it also provides a rare opportunity to temporarily restore the missions, without causing further physical harm to historic structures.

Interactive projections provide one of the most engaging experiences digital exhibitions presently offer. The impressive technology employed in their display has proven to be an

⁹³ Meilan Solly, "Watch the Apollo 11 Anniversary Show That Was Projected Onto the Washington Monument," Smithsonian Magazine, July 10, 2019, <https://www.smithsonianmag.com/smart-news/life-sized-apollo-11-rocket-will-be-projected-washington-monument-commemorate-50th-anniversary-moon-landing-180972590/>.

⁹⁴ "And That's The Way It Is," Landmarks, College of Fine Arts: University of Texas at Austin, accessed October 2, 2020, <https://landmarks.utexas.edu/artwork/and-thats-way-it/>.

⁹⁵ "San Antonio | The Saga," visitsanantonio.com, accessed October 2, 2020, <https://www.visitsanantonio.com/san-antonio-the-saga/>.

⁹⁶ "Restored by light - Mission Concepcion," sanantonio.gov, accessed October 2, 2020, <https://www.sanantonio.gov/Mission-Trails/Home>.

⁹⁷ "Missions Restored By Light," San Antonio Magazine, September 8, 2017, <https://www.sanantoniomag.com/missions-restored-by-light/>.

effective strategy to keep exhibit spaces relevant in a digital age with tech savvy visitors. While some interactive projection exhibitions can prove prohibitive due to cost and size, such as the *The Time Machine*, light shows, and artwork projected onto the facades of structures has proven to create an engaging experience for visitors to heritage institutions. Many of these projections have been a cost effective way to temporarily restore historic structures for spectator purposes but have also proven successful at providing creative and cost effective ways to decorate the facades of modern structures as large scale works of public art. The current historic structure that the AHC occupies does not have many suitable surfaces with which to project such a massive display on however, the Faulk Central Library building presents a much larger canvas which can be utilized. Of particular interest to the AHC is the lightshow *And That's The Way It Is*, projected onto a structure bearing similar design to the Faulk Central Library building. This particular show creatively utilized the mid-twentieth century Brutalist design of the structure in its display which could easily be replicated upon the façade of the Faulk building.

Beacon Technology

Beacons for location intelligence is an alternative strategy for triggering content on mobile devices. Museums and exhibitions are already familiar with similar content triggering strategies such as QR codes. Beacons for location intelligence is a digital strategy to mapping/positioning within a defines space and its association with data. Providing location based services, it can be used to deliver specific information in response to visitor's surroundings and enable in-depth analytics on their behaviors, contributing to the promotion of formal and informal learning in a museum or exhibition space. Beacons enable automatic content delivery to nearby smart devices via Bluetooth, functioning as wireless tools that can be installed anywhere, uninhibited by physical barriers.

In 2015 the Spencer Museum of Art located at the University of Kansas developed a mobile application using iBeacon technology to encourage a deeper level of engagement with their collections.⁹⁸ Strategically placing the beacon devices throughout the museum, visitors would receive app alerts with pop-up messages informing them of items of interest as they approached a beacon. The app alerts also offered additional images, video and text about artwork on display.

Beacon and location intelligence technology has also been used to develop interactive games in museum and exhibition contexts. In 2016 the University of Cambridge Museums consortium developed a mobile game named *Ghosts!*, using beacon technology placed throughout the gallery spaces of the eight museums that compose the consortium.⁹⁹ Designed to lead visitors through different museums, the narrative of the game unfolds as visitors explore gallery spaces of the different institutions. Pop-up messages appear through a downloadable app on visitors smart devices, informing them that “ghosts” need assistance with finding their way back to their home artifacts or displays, equipped with their own unique beacon, while constantly providing feedback and assistance along the way.¹⁰⁰

The use of beacon technology is also applicable to many different situations and contexts both within and outside of exhibitions. Beacon technology has been applied to create digital tours, turning applications into a digital docents to deliver rich, educational media, including video and audio, based on location.¹⁰¹ With weather resistant housing and long battery life or a reliable power source, beacon technology has also been applied to parks and outdoor spaces to

⁹⁸ Elizabeth Kanost, “Media Release: Spencer Museum launches art mobile app created by KU Information Technology,” Spencer Museum of Art: The University of Kansas, November 19, 2015, <https://www.spencerart.ku.edu/press-room/spencer-museum-launches-art-mobile-app-created-ku-information-technology>.

⁹⁹ “Using Beacons with Gamification,” BeaconZone Blog, August 8, 2016, <https://www.beaconzone.co.uk/blog/using-beacons-with-gamification/>.

¹⁰⁰ Tommy Nilsson, Alan F. Blackwell, Carl Hogsden and David Scruton, “Ghosts! A Location-Based Bluetooth LE Mobile Game for Museum Exploration,” Creating Worlds, July 19, 2016, <https://www.creating-worlds.com/research/ghosts.pdf>.

¹⁰¹ “Location-Aware Beacon Apps for Indoor and Outdoor Sites,” OnCell, accessed November 4, 2020, <https://www.oncell.com/beacons/>.

deliver information to users when they are off the beaten path or wander around manicured outdoor spaces. Beacons have even been used in tourism to help tourists find nearby attractions and shops based on their precise location, further connecting with tourists as they move throughout a new city. Beacons for location intelligence have also proven useful in gathering information from the visitors including assessing the effectiveness of exhibits, the type of visitors, where they go, where they spend the most time and providing an end user feedback form.¹⁰²

At the Austin History Center, beacons could be applied to a wide variety scenarios to create interactive experiences for visitors or to engage potential visitors nearby. Within an indoor setting, beacons could be placed within an exhibitions in a gallery space to provide supplemental information to visitors about items on display or serve as tour guides to the art and architecture of the historic 1933 central library building. Beacons could also be placed nearby outdoors around the Austin History Center, such as throughout Waterloo Park, to send relevant information to visitors mobile devices about historic sites or events taking place at the Austin History Center.

¹⁰² “Category: Museums,” BeaconZone Blog, April 26, 2019, <https://www.beaconzone.co.uk/blog/category/museums/page/2/>.

Wearable Technology & RFID



Figure 11: The "Dog Tag Experience" at the National World War II Museum is one of the most successful examples of RFID used in a museum/exhibition setting. Photo courtesy of the [National World War II Museum](#).

Another digital technology that has made great advancements and become increasingly popular in the past decade are wearable devices. Wearable technology refers to computer-based devices that take the form of a portable and lightweight accessory that can be worn by users and can integrate tools to track social media interactions, movement, vital signs, perform productive tasks, etc.¹⁰³ This technology includes devices such as smartwatches from Apple, Samsung,

¹⁰³ Vaz, Veiga, & Fernandes, "Interactive Technologies in Museums," *Handbook of Research on Technological Developments for Cultural Heritage and eTourism Applications*, 41.

Sony, etc.... or smart bracelets such as Nike, Fitbit, Google Glass etc., but also includes older technologies such as radio-frequency identification tags. The advent of digital devices that visitors wear on their person (excluding mobile devices) has presented a new opportunity for museums and other heritage institutions to explore new scenarios of storytelling and interaction in their spaces.

Currently the majority of efforts to incorporate wearable technology have focused on Google Glass and similar smart glass (smart glasses) devices produced by other companies.¹⁰⁴ The experience created by these type of devices is something similar to an augmented or virtual reality experience. Of course for wearable technology like smart glass to be incorporated into an exhibition setting an institution would more than likely have to provide them to visitors, as the devices are not commonly owned by the public. The potential expense and limited availability of smart glass devices are some of the limitations that have prevented their application to exhibitions in heritage institutions to date. Although the engaging experience of smart glass could be adapted to augmented and virtual reality applications on mobile devices such as phones and tablets, making the exhibitions designed for use with the technology more accessible to visitors, the overall experience would be altered, negating the intended effect of the wearable technology experience in an exhibition.

Similar to beacon technology, wearable technology can be incorporated to deliver content directly to visitors onsite or near a heritage institution. At the San Francisco de Young Museum, a mobile application was developed by the museum that integrates a smartwatch to act as an invisible tour guide, delivering additional interpretative information by alerting visitors through a notification vibration on their wrist.¹⁰⁵ Though most of the content in the app is supplemental audio recordings, it allows visitors concentrate on the art itself without the need to look at a screen, essentially serving as a new generation audio guide.

Perhaps the most traditional iteration of wearable technology are location identifying tags known as RFID's. RFID stands for radio-frequency identification which uses electromagnetic fields to automatically identify and track tags attached to objects or worn by individuals. When triggered by an electromagnetic pulse from a nearby RFID reader device, the tag transmits digital data back to the reader. In a museum environment, RFID tags and readers can be used to trace an individual visitor's path through an exhibition, compile a record of responses to themed questions or scenarios, or create a record of achievement in interactive games.¹⁰⁶

One of the most popular applications of RFID tags has been the *Dog Tag Experience* at the National World War II museum in New Orleans. Using RFID tags which guests can check out after purchasing their admission, the interactive experience tells the stories of individual veterans and other people who served during the war. By checking into a series of themed

¹⁰⁴ Elizabeth Merritt, "Peering at the Future of Wearable Tech at AAM 2015," Center for the Future of Museums Blog: American Alliance of Museums, May 12, 2015, <https://www.aam-us.org/2015/05/12/peering-at-the-future-of-wearable-tech-at-aam-2015/>.

¹⁰⁵ Vaz, Veiga, & Fernandes, 41.

¹⁰⁶ "RFID and Its Use in Museums," MuseumNext, June 12, 2020, <https://www.museumnext.com/article/rfid-and-its-use-in-museums/>.

interactive kiosks throughout the museum, called Dog Tag Stations, guests can follow the video story of 50 different veterans drawn from the Museum's archived interviews. From station to station, the stories evolve to reveal each individual's WWII saga.

Each Dog Tag Station is themed to match the surrounding physical exhibit, allowing guests to move from the deserts of North Africa to the streets of Berlin and the jungles of Guadalcanal. The RFID tracking system keeps a running tally of videos viewed by guests so that they can watch videos from stations they missed, either in the Museum, or later at home. The interactive kiosks throughout the museum are packed with multimedia content such as archival videos and oral history interviews collected by the NWWII's content team and edited by Atherton Pictures.¹⁰⁷ Guests can also view animated battle maps, photographs, 3D scanned artifacts and more.

The experience proved to be incredibly well received and wildly popular among visitors to the museum. In the first year, more than 570,000 dog tags were registered by museum visitors and 400,000 people provided an email address to remain in contact with the museum.¹⁰⁸ The Dog Tag Experience also allows the exhibit to escape the physical walls of the museum through the Dog Tag Experience website, where guests can review the content they saved in the museum.¹⁰⁹ For each saved piece of content on the website, the museum's database system suggests five pieces of related content to visitors of the website. The use of RFID's has also allowed the museum to gather data on visitor interaction with the physical exhibitions onsite as well as visitor engagement with archival material online.

A more recent example of RFID's application in an exhibition setting has been at recently opened International Spy Museum in Washington D.C.¹¹⁰ Similar to the *Dog Tag Experience* at the National WWII Museum, the International Spy Museum's *Undercover Mission Experience*, uses RFID technology and interactive stations to let visitors adopt a spy's cover identity and test their espionage skills. Visitors receive their undercover identity at the museum's Briefing Center and can even get their mission "debrief" online after the visit by entering their badge numbers.

RFID's have also proven to be versatile in their compatibility with other digital technologies. Both the *Dog Tag* and *Undercover Mission* experiences incorporate the use of interactive touch screens equipped with RFID readers, allowing visitors to engage with digital content onsite. The technology's incorporation with interactive touch screens also allows for institutions to recycle existing technology into new exhibitions with only minor upgrades to incorporate RFID readers. RFID's have also been incorporated into exhibitions utilizing interactive projections. At the Nobel Peace Center exhibition in Oslo, Norway a 'hidden' RFID

¹⁰⁷ Greg Peduto, "National WWII Museum Campaigns of Courage: An Immersive Interactive Journey," Unified Field, September 22, 2016, <https://www.unifiedfield.com/insights/national-wwii-museum-an-immersive-interactive-journey/>.

¹⁰⁸ Nadia Adona, "Experiencing Courage-Unified Field's WWII Museum Interactives," SEGD - The Society for Experiential Graphic Design, September 20, 2016, <https://segd.org/experiencing-courage%E2%80%94unified-fields-wwii-museum-interactives>.

¹⁰⁹ "Dog Tag Experience," The National WWII Museum, accessed December 8, 2020, <http://dogtagexperience.org/>.

¹¹⁰ "Spy Museum Exhibits," International Spy Museum, accessed December 8, 2020, <https://www.spymuseum.org/exhibition-experiences/>.

system is used in association with a multitude of digital technologies in an exhibition designed by US-based Small Design Firm.¹¹¹ In the center's Nobel Chamber, a 'book' of Alfred Nobel's life uses projections to create its pages and infrared sensors to detect where on the page people are pointing. RFID chips are embedded in each page to tell the computer which page is open and therefore which to project.

Though not an inherently new technology, after all retailers have long used RFID tags to monitor and prevent theft in stores, RFID's adaptative use to exhibitions over the course of the last decade has created a plethora of exciting new interactive experiences to foster visitor engagement with heritage institutions.¹¹² Not only has RFID fostered creative and interactive experiences in an exhibition setting but it has also assisted curators and other staff of heritage institutions in gathering data and providing insights into which exhibits are the most popular, tracking visitor movement through galleries as well as their engagement with exhibitions.¹¹³ The technology is also applicable to assist collecting institutions track inventory and gather environmental data to keep their most valuable assets safe from theft and damage.

RFID technology has proven exceptionally beneficial to archival institutions as one of the most interactive methods with which to deliver additional content to visitors as well as encouraging further engagement with archival material both onsite and remotely. As demonstrated at the National WWII Museum and the Internal Spy Museum, visitors are able to explore an institution's exhibitions and collections onsite and create an independently curated digital collection of their own, with which they can continue explore further remotely from their own homes. Another benefit of RFID is its relatively low cost, especially when the cards are bought in bulk. RFID technology's affordability, versatility in many exhibitionary situations as well as its compatibility with a multitude of other digital technologies has contributed to the technology's popularity with exhibitionary institutions around the world.

¹¹¹ "Nobel Peace Center," Small Design Firm Inc., accessed December 8, 2020, <https://www.davidsmall.com/nobel-peace-center>.

¹¹² "Why RFIDs for Museums Make So Much Sense," Advanced Mobile Group: Mobile Computing, RFID & Voice Directed Solutions, October 17, 2017, <https://www.advancedmobilegroup.com/blog/why-rfids-for-museums-make-so-much-sense>.

¹¹³ Calvin Hennick, "RFID Tags Enhance Museum Experiences and Back-End Support," BizTech Magazine, November 25, 2019, <https://biztechmagazine.com/article/2019/10/rfid-tags-enhance-museum-experiences-and-back-end-support>.

Part III:
Comparative Institutions

National Institutions of Interest

For this portion of the study, we were specifically asked to research several institutions similar to the Austin History Center located around the country. These particular institutions included the Atlanta History Center, the Charlotte Museum of History and the United States Holocaust Memorial Museum. Our goal of including these heritage institutions was to explore how these particular history museums employed interactive technology to create an engaging experience for their audience which the Austin History Center could emulate if provided with expanded exhibition space in the vacated Faulk Central Library building. These particular institutions were specifically requested by members of the Austin History Center Association because of their well-established reputations as regional history centers or their incorporation of technology in their exhibitions. This research provides a cost-effective alternative to expensive site visits which have been made impossible during the COVID-19 pandemic. Though we have attempted to portray the strategies employing interactive technologies at these institutions in thorough detail, our research was limited by the restrictions of remote research and should not be considered as an absolute alternative to site visitations in the future.

Included in our list of specific institutions are the San Diego History Center the Chicago Museum of History and the National Museum of African American History and Culture. The Atlanta History Center, Charlotte Museum of History and the San Diego History Center represent institutions similar to the Austin History Center in terms of scope and mission. Though these three institutions all represent private non-profit organizations with larger budgets than the Austin History Center, the programs and exhibitions they produce serve as models the Austin History Center should and could strive to emulate with expanded space in the old Faulk Central Library building. All three institutions operate in metropolitan communities with a population smaller than the Austin metro area, but which developed into economic and political hubs at earlier stages than Austin, allowing for the establishment of private history centers funded by charitable donations, rather than municipal budgets.

The Chicago History Museum, the United States Holocaust Memorial Museum and the National Museum of African American History and Culture were included in this study because they demonstrate creative uses of technology in their exhibitions which have created engaging experiences for their visitors. The Chicago History Museum is unique for creating a series of augmented and virtual reality (AR/VR) experiences at historic sites located around Chicago. Users can engage with these historic sites through smartphone apps which overlay historic images from the museum's archives over real world environments onsite. These experiences have also been adapted to the program's website, allowing for users to experience the program remotely from home. The AR/VR programs of the Chicago History Museum demonstrate the potential for archival institutions with large photographic collections to create AR/VR experiences in their own communities.

Atlanta History Center



Figure 12: *The Atlanta History Museum at the Atlanta History Center. Image courtesy of the [Atlanta History Center](#).*

The Atlanta Historical Society was founded in 1926 to preserve and study Atlanta history. In 1990, after decades of collecting, researching, and publishing information about Atlanta and the surrounding area, the organization officially became Atlanta History Center. What began as a small, archival-focused historical society grew over the decades to encompass several historic sites, an archival facility, an exhibition hall, and working gardens/farms used for horticultural research. At present, the Atlanta History Center comprises the Atlanta History Museum, the Kenan Research Center, a StoryCorps recording studio, several historic homes, and working gardens/farms spread across a 33 acre site.¹¹⁴ Though considerably older and larger than the Austin History Center in terms of facilities, programming and its mission, the Atlanta History

¹¹⁴ “Explore Our Destinations,” Atlanta History Center, accessed September 9, 2020, <https://www.atlantahistorycenter.com/explore/destinations>

Center serves as an example of the type of institution that the Austin History Center could one day emulate in terms of research, exhibitions and onsite/outreach programming.

The main attraction of the Atlanta History Center (AHC) campus is the Atlanta History Museum. The museum features the institution's main exhibition halls and is the location of the museum store. The Atlanta History Center has a number of onsite exhibitions, both permanent and temporary, that portray the diverse nature of life in Atlanta.¹¹⁵ The center has also produced two online object based exhibitions, *Atlanta in 50 Objects* and *More than Self: Living in the Vietnam War*.¹¹⁶ In our discussion about the use of technology in their exhibitions Kelsey Fritz, the Project Manager at the Atlanta History Center, informed us that the newer exhibitions at the AHC rely heavily on the use of touchscreens to create an interactive experience for guests onsite. She informed us that they also use TV monitors and large scale projectors to deliver media content in their exhibitions. The AHC also has several map-type interactives where visitors can click on points of interest to view more information such as data illustrations like demographic shifts over time. These traditional technologies in their galleries are used to deliver content, such as oral history recordings, videos, music, etc. The AHC employs this technology for interactive activities such as quizzes or visitor driven polls. For example, the AHC recently produced an interactive where visitors pick three different pieces of artwork to build their ideal city showing what they care most about (sustainability, affordable housing, etc.).

In response to the COVID-19 Pandemic the AHC adapted their exhibitions and outreach strategies in several creative ways. During the pandemic, the AHC began using a hand sensor called Leap Motion to make touch screens touchless. Leap Motion, developed by the company ultraleap, is essentially a small sensor put under the screen that allows the user to control the screen with their hand rather than touching the screen directly.¹¹⁷ These sensors can also be attached to any TV. Launched in early 2020, the Atlanta Corona Collective is a recent initiative to collect materials that illustrate how the citizens of Atlanta are experiencing and responding to all aspects of life in Atlanta during the COVID-19 crisis.¹¹⁸ In response to museum closures of the pandemic, the AHC also created a new feature on their website titled, *Museum At Home*. The website features a selection of online exhibitions, learning guides, workshops, virtual author talks, educational resources, a breakdown of the Atlanta History Center archival collection and more.¹¹⁹

Similar to the archival collections of the Austin History Center, the Kenan Research Center at the Atlanta History Center preserves extensive primary source holdings for the study of Atlanta and the surrounding region, including a special collection for Southeastern horticultural

¹¹⁵ "Explore Our Exhibitions," Atlanta History Center, accessed September 9, 2020, <https://www.atlantahistorycenter.com/explore/exhibitions>

¹¹⁶ "Online Exhibitions," Atlanta History Center, accessed September 9, 2020, <https://www.atlantahistorycenter.com/explore/online-exhibitions>

¹¹⁷ "ultraleap," ultraleap.com, accessed, October 27, 2020, <https://www.ultraleap.com/>

¹¹⁸ "Atlanta Corona Collective," Atlanta History Center, accessed September 9, 2020, <https://www.atlantahistorycenter.com/research/corona-collective>

¹¹⁹ "Museum at Home," Atlanta History Center, accessed September 9, 2020, <https://www.atlantahistorycenter.com/explore/museum-at-home>

history.¹²⁰ The archival collections of the Kenan Research Center contain records of government and civic affairs, military history, African American History and thousands of photographs.¹²¹ The center also has a collection dedicated to collecting and sharing the stories of veterans through the *Veterans History Project*. The *Veterans History Project* is primarily an oral history collection containing video and audio interviews of those who served in World War II, the Korean War, the Vietnam War, the Persian Gulf War, the Global War on Terror, and the civilians who supported them.¹²² Within steps of the Atlanta History Center Museum is Veterans Park, a memorial space dedicated to military veterans from Atlanta. The memorial has been equipped with free wi-fi for an augmented reality interactive experience where visitors can explore videos of veterans sharing their stories, memories, tragedies and triumphs through their mobile devices.¹²³ The Kenan Research Center is also home to a division of StoryCorps. In January 2013, StoryCorps at the Atlanta History Center opened in the Franklin Miller Garrett Studio, making the Atlanta History Center the second museum in the country to host this nationwide initiative.¹²⁴ Since 2009, StoryCorps has partnered with WABE 90.1 FM to air local stories collected through the project. The Franklin Miller Garrett Studio at the Kenan Research Center is also used for the Veterans History Project and other oral history initiatives.

Though significantly larger than the Austin History Center, the Atlanta History Center presents a model, in terms of exhibition space, archival collecting and programming and community outreach that the Austin History Center can aspire to emulate as it looks to expand into the Faulk Central Library Building. Though the Austin History Center will probably never operate historic house museums, living history farms or working horticultural gardens like the Atlanta History Center does, the Austin History Center's proximity to many historic houses in West Austin, Wooldridge Square Park and the Capitol Grounds presents unique opportunities for community engagement with nearby historic structures and spaces in a similar yet unique format from the Atlanta History Center. The Atlanta History Center also demonstrates how an archival research facility can play host to exhibitions that engage the community both off and on-site. While the exhibition space is housed in a separate facility from the archives and research space, the Atlanta History Center demonstrates the benefits of having an exhibition space in close proximity to a research archive. The collections, records and information housed in the Kenan Research Center at the Atlanta History Center campus allow museum professionals to develop engaging exhibitions and programs with the intent of bringing the community to the center or bringing their stories to the community.

¹²⁰ "Kenan Research Center," Atlanta History Center, accessed September 9, 2020, <https://www.atlantahistorycenter.com/research/kenan-research-center>

¹²¹ "Archival Collections," Atlanta History Center, accessed, September 9, 2020, <https://www.atlantahistorycenter.com/research/archival-collections>

¹²² "Veterans History Project," Atlanta History Center, accessed September 9, 2020, <https://www.atlantahistorycenter.com/research/veterans-history-project>

¹²³ "Veterans Park," Atlanta History Center, accessed September 9, 2020, <https://www.atlantahistorycenter.com/explore/goizueta-gardens/veterans-park>

¹²⁴ "StoryCorps," Atlanta History Center, accessed September 9, 2020, <https://www.atlantahistorycenter.com/explore/destinations/storycorps>

Of particular interest is the Franklin Miller Garrett Studio housed in the archival holdings of the Kenan Research Center. By having their own recording studio onsite and housed in the same facility as their archival collections, the Atlanta History Center can better capture and record the history of Atlanta from the perspective of its citizens. Having a similar studio located in the renovated Faulk Central Library building would prove greatly beneficial to the Austin History Center in its mission to preserve the history of the community and engage with the public. With sound/music recording programs at both UT-Austin and Texas State University, along with oral history programs in several university history departments in the metro area, a recording studio for the purpose of capturing oral histories would allow another level of engagement with university students throughout central Texas.

While the Atlanta History Center uses modern technology in their exhibitions and in their community outreach initiatives, such as interactive touchscreens and augmented reality, this is a common trend among many museum/exhibitionary institutions around the world. For a full analysis of these technologies used in this context, refer to Part II of the report that details these technology-based strategies directly. Of particular interest is the Franklin Miller Garrett Studio housed in the archival holdings of the Kenan Research Center. By having their own recording studio onsite and housed in the same facility as their archival collections, the Atlanta History Center can better capture and record the history of Atlanta from the perspective of its citizens. Having a similar studio located in the renovated Faulk Central Library building would prove greatly beneficial to the Austin History Center in its mission to preserve the history of the community and engage with the public. With sound/music recording programs at both UT-Austin and Texas State University, along with oral history programs in several university history departments in the metro area, a recording studio for the purpose of capturing oral histories would allow another level of engagement with university students throughout central Texas.

Charlotte Museum of History



Figure 13: *Charlotte Museum of History main exhibition hall, image courtesy of the [Charlotte Museum of History](#).*

The Charlotte Museum of History is a 501 (c)(3) not-for-profit organization dedicated to interpreting and preserving Charlotte's unique history. Originally founded to be the steward of the 1774 Hezekiah Alexander Home Site, the museum has since expanded its scope to cover all periods of Charlotte's history, comprising of multiple venues on an eight-acre wooded campus in

east Charlotte.¹²⁵ The Hezekiah Alexander Home Site places an emphasis on the settlement of the Carolina Backcountry and the ideas and events that led to the American Revolution. The Alexander House is the last extant home of a framer of North Carolina from the 1770's, is the oldest surviving house in Mecklenburg County.¹²⁶

The Charlotte Museum of History maintains several continuing exhibitions that specifically cover the history of the community in stunning detail. Subjects of these exhibitions include music venues of Charlotte, Charlotte neighborhoods, creeks and waterways of the city, city sporting events, mysteries of the Rock House at the Hezekiah Alexander site, an exhibit covering the colonial era backcountry of Charlotte, and a photography exhibit displaying photos of life from all across the city.¹²⁷ While the Charlotte Museum does not produce virtual exhibits specifically designed for their website, they have produced a series of video tours of the Rock House at the Hezekiah Alexander site, their music venues permanent exhibition and a separate video about famous Charlotte artist Chas Fagan.¹²⁸ Along with their video tours, the museum maintains a YouTube channel where videos are posted covering a wide variety of subjects from artifacts in their collection to living history talks.¹²⁹

What the Charlotte Museum lacks in virtual exhibitions they more than make up for in digital learning programming and resources. Appearing to have been launched in response to the COVID-19 pandemic, the *Museum from Home* program regularly publishes an online collection of learning resources with varying themes based on the museum's historic focus and general American history.¹³⁰ As of September 2020, subjects covered by the Museum from Home program include constitution week, women's suffrage, US Independence Day, social justice and equality, and Charlotte's 240th anniversary. Included under the program are also activities designed for school-age children and their families. Under normal, non-pandemic circumstances, the Charlotte Museum is open to guided tours for visitors and school groups.¹³¹

Though the Charlotte Museum of History represents a smaller operation than the Atlanta History Center, it provides an excellent example of a historical institution in a city of comparable size to Austin Texas. While the population of Atlanta is significantly smaller than the population of both Charlotte and Austin, both Atlanta and San Diego represent cities at different stages of their development when compared to Austin and Charlotte.¹³² The focus of the Charlotte

¹²⁵ "The Charlotte Museum of History," charlottemuseum.org, accessed September 21, 2020, <https://charlottemuseum.org>

¹²⁶ "Hezekiah Alexander Homesite," charlottemuseum.org, accessed September 21, 2020, <https://charlottemuseum.org/about/hezekiah-alexander-homesite/>

¹²⁷ "Exhibitions," charlottemuseum.org, accessed September 21, 2020, <https://charlottemuseum.org/exhibitions/>

¹²⁸ "Virtual Exhibits," charlottemuseum.org, accessed September 21, 2020, <https://charlottemuseum.org/virtual-exhibits/>

¹²⁹ "Charlotte Museum of History," Youtube.com, accessed September 21, 2020, <https://www.youtube.com/c/CharlotteMuseumofHistory/featured>

¹³⁰ "Museum from Home," charlottemuseum.org, accessed September 21, 2020, <https://charlottemuseum.org/museum-from-home/>

¹³¹ "Tours," charlottemuseum.org, accessed September 21, 2020, <https://charlottemuseum.org/visit/tours/>

¹³² Population of Charlotte estimated to be roughly 885,708 as of July 2019. Population of Austin estimated to be 978,908 as of July 2019. Population of Atlanta estimated to be 506,811 as of July 2019. United States Census Bureau, <https://www.census.gov/quickfacts/fact/table/US/PST045219>

Museum and its programming represent models the Austin History Center should strive to emulate. The exhibits produced by the museum have an excellent focus on the history of the community and region, from its colonial past to its modern present. Of particular interest are their continuing exhibit on local music venues, neighborhoods and natural creeks, all of which can easily be applied to an Austin setting. The outreach programs of the Charlotte Museum also represent examples of community engagement that the Austin History should strive to emulate with an expanded campus. These include their *Museum from Home* program which creates excellent activities based on the scope of the museum that users can participate in from the comfort and safety of their own home or classroom, as well as the museum's YouTube channel, which provides another strategy of delivering historical content directly to interested participants. Although the Charlotte Museum of History and the Austin History Center differ in terms of institutional organization (private vs. public) as well as mission (museum vs. research archive of the city's public library system), the community focus of the Charlotte Museum as well as their outreach programming represent models that the Austin History should strive to emulate with an expanded campus.

San Diego History Center



Figure 14: *San Diego History Center located in historic Balboa Park. Image courtesy of the [San Diego History Center](https://www.sandiegohistory.org).*

The San Diego History Center (SDHC), is a 501(c)3 non-profit organization which collects, preserves and displays items highlighting the regional history of Southern California. The SDHC operates facilities in two National Historic Districts: the San Diego History Center and its research archives located in Balboa Park; and the Junípero Serra Museum in Presidio Park.¹³³ The center has 40 full and part-time staff and contractors, and more than 100 volunteers who assist with the activities of the organization. The SDHC presents dynamic, engaging exhibitions as well as providing educational programming for school children and popular programs for families and adults. Since 2013, the History Center has been a Smithsonian Affiliate.¹³⁴

¹³³ “Junípero Serra Museum,” The San Diego History Center, accessed September 11, 2020, <https://sandiegohistory.org/serramuseum/>

¹³⁴ “San Diego History Center,” balboapark.org, accessed September 11, 2020, <https://www.balboapark.org/museums/history-center>

The Research Archives of the SDHC serves residents, scholars, students and researchers onsite and online.¹³⁵ The collections of the SDHC encompass 45 million documents – business, public and architectural records, maps, diaries and manuscripts; 2.5 million historic photographs; 1,700 oral histories (the largest collection in California); 1,500 films; 15,000 historic objects; 7,000 items of historic clothing; and a significant collection of San Diego artwork.¹³⁶ Since 1955, in cooperation with the University of San Diego, the SDHC has published the prestigious *Journal of San Diego History*, one of the only scholarly publications dedicated to a major American metropolitan region.

The SDHC produces onsite exhibitions covering a wide variety of topics from San Diego history, a list of which can be found online.¹³⁷ Previous exhibits have employed interactive technologies such as virtual reality to create an engaging experience with visitors.¹³⁸ Of particular note is the SDHC’s hands-on experience titled *Marston’s History Emporium*.¹³⁹ *Marston’s History Emporium* was originally designed in 2017 to be a hands-on history lab where families can use all five senses to touch and explore. With an imaginative take on what a history emporium might look like, visitors encounter seven stations and scenarios, designed to create interactive and engaging experiences for children and their families. However, COVID-19 has meant that many of these hands-on elements of the exhibition can no longer be displayed. The SDHC also produces activity sheets for children which can be picked up onsite or downloaded from their website.¹⁴⁰

In the wake of the COVID-19 Pandemic, the SDHC launched their Learn at Home program, a separate website where educators at the museum gathered resources and created activities for users to enjoy from home.¹⁴¹ Programs and activities include live virtual field trips, stories from the archives, Girl Scout activities that can be done at home and virtual exhibits of historic sites and subjects in San Diego history. Of particular note are instructional activities of how to record and preserve history at home which include tutorials covering the preservation of primary sources and how to record oral histories.¹⁴² The History Center also offers many opportunities for adults to enhance their visit through a guided experience of the History Center, the Serra Museum, and Balboa Park.¹⁴³ Other types of programming include a speaker series

¹³⁵ “Research,” The San Diego History Center, accessed September 11, 2020, <https://sandiegohistory.org/research/>

¹³⁶ “Our Mission: Collections,” The San Diego History Center, accessed September 11, 2020, https://sandiegohistory.org/our_mission/

¹³⁷ “Exhibitions,” The San Diego History Center, accessed September 11, 2020, <https://sandiegohistory.org/exhibitions/>

¹³⁸ Experience San Diego: The Virtual Reality Experience,” The San Diego History Center, accessed September 9, 2020, <https://sandiegohistory.org/exhibition/experience-san-diego/>

¹³⁹ “Marston’s History Emporium,” The San Diego History Center, accessed September 9, 2020, <https://sandiegohistory.org/exhibition/marstons-history-emporium/>

¹⁴⁰ “Family Programs,” The San Diego History Center, accessed September 9, 2020, https://sandiegohistory.org/family_programs/

¹⁴¹ “Learn at Home,” The San Diego History Center, accessed September 11, 2020, <https://sites.google.com/view/sdhc-learn-at-home/home?authuser=0>

¹⁴² “Doing History In Your Own Home,” The San Diego History Center, accessed September 11, 2020, <https://sites.google.com/view/sdhc-learn-at-home/home/doing-history-in-your-own-home?authuser=0>

¹⁴³ “Tours and Guided Walks,” The San Diego History Center, accessed September 11, 2020, https://sandiegohistory.org/adult_programs/

and a Community Historian Program.¹⁴⁴ The Community Historian Program sends trained volunteers and staff to community meetings and organizations to host informative talks which can introduce visitors and tourists to San Diego history dive deep into the details of a unique San Diego topic.¹⁴⁵

Though the organizational status of the San Diego History Center differs from the Austin History Center, being a 501(c)3 non-profit organization, the programming and community engagement of the SDHC serves as an excellent model which the AHC could emulate in an expanded facility. Like the SDHC, the AHC is located in close proximity to several historic sites in the downtown Austin area which include Wooldridge Square Park, the Bremond Block, dozens of historic homes, the Texas Governor's Mansion, the Capitol Grounds and Congress Avenue. Just as the SDHC utilizes its location to other cultural institutions and historic sites to create engaging experiences with the public, such as guided interpretative tours, so too could the AHC. While the SDHC maintains a significant historical collection for research purposes, the quantity and quality of exhibitions produced by the institution is nothing short of impressive. The collections of the SDHC not only support research initiatives but provide ample subject material for engaging exhibitions. SDHC's Marston's History Emporium demonstrates an innovative strategy for creating engaging exhibitions onsite that appeal to both school groups and families. The school programming and educator resources produced by the SDHC also serves as a model with which an expanded AHC could seek to emulate. The onsite programming for school and scout groups at the SDHC have been met with considerable success and the educational resources that can be accessed digitally and done in the classroom or at home are initiatives which the AHC should strive to reproduce in their own setting. With an expanded campus, not only could the AHC create engaging experiences onsite but also offsite at nearby historic sites or remotely in the classroom and at home, just as the San Diego History Center has done.

¹⁴⁴ "History Hub," The San Diego History Center, accessed September 11, 2020, <https://sandieghistory.org/historyhub/>

¹⁴⁵ "Community Historian Program," The San Diego History Center, accessed September 11, 2020 <https://sandieghistory.org/historianprogram/>

Chicago History Museum



Figure 15: *The Chicago History Museum located in Lincoln Park. Image courtesy of the [Chicago History Museum](https://www.chicagohistory.org/).*

Much like New York, Chicago is home to a separate private non-profit history museum which maintains its own historical archive pertaining to the history of the city and the surrounding region, the Chicago History Museum.¹⁴⁶ The Museum's collection of more than 23 million objects, images, and documents records the evolution of Chicago.¹⁴⁷ Much like a typical research archive, the Chicago History Museum welcomes scholars, students, genealogists, filmmakers, journalists, and the general public to access the Research Collection, which includes prints and photographs, archives and manuscripts, architectural drawings and records, books, and other published materials.

In 2005, the museum launched their oral history initiative with the opening of the Studs Terkel Center for Oral History.¹⁴⁸ The center collaborates with community partners to promote oral history as a tool of social justice. The most recent projects include a youth engagement component, training middle and high school students as oral historians. The museum also

¹⁴⁶ "Chicago History Museum," [chicagohistory.org](https://www.chicagohistory.org/), accessed September 15, 2020, <https://www.chicagohistory.org/>.

¹⁴⁷ "Collections," Chicago History Museum, accessed September 15, 2020, <https://www.chicagohistory.org/collections/>.

¹⁴⁸ "Studs Terkel Center for Oral History," Chicago History Museum, accessed September 15, 2020, <https://www.chicagohistory.org/oralhistorycenter/>.

partners with the Chicago Historical Society and the Newberry Library to produce The Encyclopedia of Chicago, an online encyclopedia focused on life in the windy city.¹⁴⁹

The exhibitions of the Chicago History Museum employ a wide variety of cutting-edge modern technology to create interactive and engaging experiences for visitors. Many of their permanent exhibitions utilize touch screen technology and interactive computer stations for guests of all ages to engage with the subject of the exhibitions. Of particular note is the permanent exhibition called *The Fifth Star Challenge* which encourages user participation to complete a series of tasks which visitors can compare their results with other visitors at the end of the process.¹⁵⁰ The museum also produces a series of digital exhibitions utilizing items from their vast collection.

Along with the use of these technologies in their exhibitions, the Chicago History Museum has also developed an engaging augmented and virtual reality application that can be utilized at historic sites throughout the city called The Chicago 00 Project.¹⁵¹ The Chicago 00 Project is an award winning partnership between the Chicago History Museum and filmmaker Geoffrey Alan Rhodes to produce and publish a series of site-specific, interactive, immersive multimedia experiences designed to showcase the Museum's film, photo, and sound archive and share Chicago's stories in new and unique ways. All Chicago00 augmented and virtual reality experiences are free applications to download on users mobile devices and several experiences have been recorded and uploaded to the project's YouTube channel.¹⁵² Each episode explores this new medium for sharing Chicago's rich media archives with the public: history embedded in the objects and places of our city. Sites featured in the project include the World's Columbian Exposition, the 1968 DNC Protests, the 1933 World's Fair, St. Valentine's Day Massacre, The Eastland Disaster and Mediastream 150 (a digital art project).

¹⁴⁹ "Encyclopedia of Chicago," Chicago History Museum, accessed September 15, 2020, <http://encyclopedia.chicagohistory.org/>.

¹⁵⁰ "The Fifth Star Challenge," Chicago History Museum, accessed September 15, 2020, <https://www.chicagohistory.org/exhibition/the-fifth-star-challenge/>.

¹⁵¹ "The Chicago 00 Project," Chicago History Museum, accessed September 15, 2020, <https://chicago00.org/>.

¹⁵² "The Chicago 00 Project," YouTube, accessed September 15, 2020, https://www.youtube.com/channel/UCGr_Gf8ru97ihiKdwcCYbXw

United States Holocaust Memorial Museum

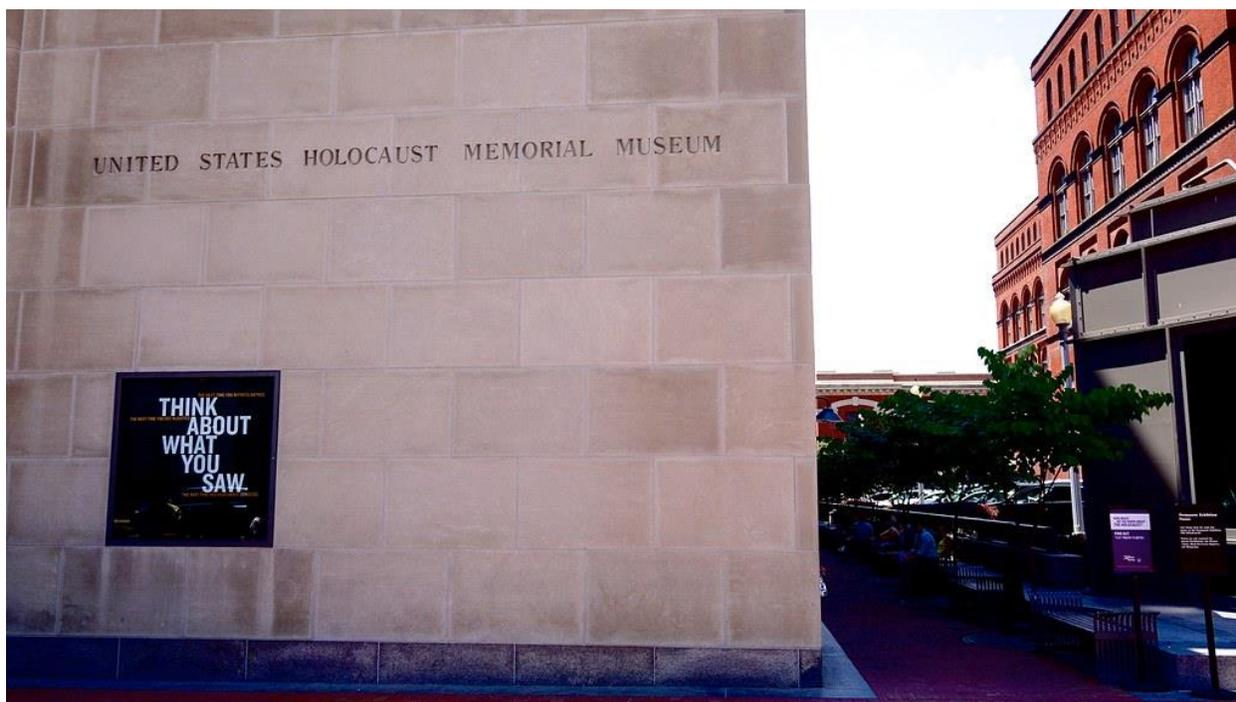


Figure 16: *The United States Holocaust Memorial Museum. Image courtesy of [Creative Commons](#).*

The United State Holocaust Memorial Museum (USHMM) officially opened to the public on April 26, 1993. However, the road to creating this museum actually began as far back as 1978. On November 1, 1978 then President Jimmy Carter created the President's Commission on the Holocaust with the goal of creating a report that would lay the groundwork for the "establishment and maintenance of an appropriate memorial to those who perished in the Holocaust."¹⁵³ The commission was chaired by famed author, and holocaust survivor, Elie Wiesel and consisted of 34 members of various religious faiths, holocaust survivors, historians, and members of the US congress. The commission submitted their report on September 27, 1979. In their final report, the commission called for the creation of a memorial/museum, an education foundation, Committee on Conscience, Days of Remembrance, and called on the US government to Ratify the Genocide Convention, Prosecute Nazi War Criminals in the US, and protect Jewish Cemeteries.¹⁵⁴ The approval of the museum was passed by a unanimous vote by the US Congress in 1980 and the groundbreaking ceremony was held October 16, 1985. The museum's goal is to be a living memorial to the Holocaust that will "confront hate, prevent

¹⁵³ "The President's Commission on the Holocaust," United State Holocaust Memorial Museum, accessed October 9, 2020, <https://www.ushmm.org/information/about-the-museum/presidents-commission>

¹⁵⁴ Jimmy Carter, Report to the President, "President's Commission on the Holocaust," Elie Wiesel, Chairman, September 27, 1979, Reprinted by the United State Holocaust Memorial Museum, June 2005, 9, <https://www.ushmm.org/m/pdfs/20050707-presidents-commission-holocaust.pdf>.

genocide, and promote human dignity.”¹⁵⁵ Although the museum is not a part of the Smithsonian Institution, the museum is federally funded and chartered, which is why it is located adjacent to the National Mall.

The USHMM operates as both a museum and as an archive and research facility. The museum side of the USHMM is the side most visited by the general public, and when creating exhibits USHMM has two main target audiences in mind: leaders and youths.¹⁵⁶ The museum’s permanent exhibits are well curated to both of these audiences. The largest of the permanent exhibits is aptly named, The Holocaust, spans three floors of the museum, and chronologically tells the story of the Holocaust to visitors.¹⁵⁷ Americans and the Holocaust is a smaller exhibit that as the name suggests focuses on the relationship between Americans and the Holocaust and the environment of the US during the Holocaust.¹⁵⁸ One of the highlights of the museum is the permanent exhibit, Remember the Children: Daniel’s Story. While the entire museum tries to make this difficult subject matter as accessible to all, as it can be, this exhibit, truly focuses on making this subject accessible to young visitors. Here, visitors are presented with a much more engaging environment where visitors are encouraged to touch, watch, listen, and engage with Daniel’s story.¹⁵⁹

Although the USHMM is seen by many as a museum, the library and archives are just as important and house many different topics and documents that help researchers understand the scale and importance of the Holocaust. The archive collections are broken down into smaller collections such as photos, American Response to the Holocaust, resistance, concentration camps, diaries, artwork, refugees, testimonies, films, propaganda, Nuremberg Trials, and more. The library and archives house both published and nonpublished works that are available to researchers. As well, the library and archives are also home to several special collections. While the regular collections are broader and more open to most areas of the Holocaust and Holocaust studies, the special collections are created through joint partnerships with different individuals and institutions, as well as from gifts from different donors, and sponsorships for particular programming. Examples of these special collections include, “Save Their Stories” a collection to preserve the stories of Holocaust survivors, the Jeff and Toby Herr Oral History Archive, the Fortunoff Video Archive for Holocaust Testimonies, the USC Shoah Foundation Visual History Archives, and many more. What makes these special collections particularly noteworthy is their use of mixed technologies. Some of the information in the collections are not digitized, but others are available digitally and in several different forms. For example, while there are

¹⁵⁵ “Mission and History,” United State Holocaust Memorial Museum, accessed September 9, 2020, <https://www.ushmm.org/information/about-the-museum/mission-and-history>

¹⁵⁶ “Strategic Plan 2013-2018,” The United States Holocaust Memorial Museum, accessed October 9, 2020 <https://www.ushmm.org/m/pdfs/Strategic-Plan-2013-2018.pdf>

¹⁵⁷ “Permanent Exhibition: The Holocaust,” United State Holocaust Memorial Museum, accessed September 9, 2020, <https://www.ushmm.org/information/exhibitions/museum-exhibitions/permanent>

¹⁵⁸ “Americans and the Holocaust,” United State Holocaust Memorial Museum, accessed September 9, 2020, <https://www.ushmm.org/information/exhibitions/museum-exhibitions/americans-and-the-holocaust>

¹⁵⁹ “Remember the Children: Daniel’s Story,” United State Holocaust Memorial Museum, accessed September 9, 2020, <https://www.ushmm.org/information/exhibitions/museum-exhibitions/remember-the-children-daniels-story>

documents that are just scanned pieces of paper, the collections also include videos, pictures which makes them much more interactive.¹⁶⁰

As part of their mission to “confront hate, prevent genocide, and promote human dignity,” the USHMM provides resources to both students and teachers looking to further understand and learn about the Holocaust. These resources are both digital and physical. Some examples include of the digital materials are videos, podcasts, digital guidelines and lesson plans. While some examples of the physical resources include things such as DVDs, posters, printable timelines, poster sets, and guidelines and lesson plans.¹⁶¹ Another major part of USHMM is genocide prevention. To aid in this mission, the museum provides access to information, raw data, case studies, reports, and the various projects they undertake.¹⁶²

The use of technology has become particularly important to the USHMM during 2020 and the Covid-19 pandemic. While the museum has been using some forms of technology for years in their exhibits and archive, this year the use of technology has been paramount to their continued success. During the pandemic, while most major institutions have been forced to close their doors to in person visitors, USHMM began to create more digital content. Not only did they create digital tours of their permeant exhibits for anyone to view online, but they also created online lesson plans and content for teachers and students who were now going to school remotely. As well, USHMM transitioned away from in person traditional events to full digital and virtual lectures and presentations.

¹⁶⁰ “Special Collections,” United State Holocaust Memorial Museum, accessed September 9, 2020, <https://collections.ushmm.org/search/special-collections>

¹⁶¹ “Teach,” United State Holocaust Memorial Museum, accessed September 9, 2020, <https://www.ushmm.org/teach>

¹⁶² “Genocide Prevention,” United State Holocaust Memorial Museum, accessed September 9, 2020, <https://www.ushmm.org/genocide-prevention>

National Museum of African American History and Culture



Figure 17: *The Smithsonian National Museum of African American History. Image courtesy of [Creative Commons](#).*

The National Museum of African American History and Culture (NMAAHC) opened to the public on September 24, 2016, but the museum can trace its roots to a push to get a federally owned museum of African American history all the way back to 1915. In 1915, African American veterans of the US Civil War had been excluded from the 50th anniversary parade that celebrated the victory of the Union Troops. These veterans formed the Committee of Colored Citizens of the Grand Army of the Republic to guarantee that their time in the Civil War would not be forgotten. One of the goals the committee worked towards was the creation of a permanent memorial or museum that would depict African Americans' contributions to the United States. The group worked hard to overcome racism and were actually very successful in their grassroots campaign. In fact, on March 4, 1929 then President Calvin Coolidge signed a law

allowing for the creation of a museum space. However, unfortunately, due to the stock market crash and Great Depression, the funds would never be able to be raised.¹⁶³

However, beginning in 1986 there was renewed interest in the creation of an African American History Museum. A joint resolution that year sponsored by Representatives Mickey Leland of Texas, John R. Lewis of Georgia, and Senator Paul Simon of Illinois began the push for a memorial and museum to be built in Washington, DC. In 1988, Rep. John R. Lewis began to introduce new bills annually that pushed for the creation of the museum. Unfortunately, it wouldn't be until 2001 that a bipartisan bill finally cemented the idea of the NMAAHC. The museum was officially authorized in 2003 but the groundbreaking wouldn't take place until February 22, 2012. The site was finally completed and opened to the public on September 24, 2016.¹⁶⁴

The NMAAHC operates as both a museum and archive. Currently, the museum has twenty-two exhibits. Several of the exhibits, such as, A Century in the Making, A Changing America, and Defending Freedom, Defining Freedom offer visitors a chronological view of not only the history of the museum, but also the experiences of African Americans. A Century in the Making focuses on the history of the museum from its early start in 1915 to the opening of the museum to the public in 2016 and what is going on in the African American community at this time.¹⁶⁵ Whereas, Defending Freedom, Defining Freedom focuses on African American experiences and history from 1876 to 1968.¹⁶⁶ While A Changing America focuses solely on the African American experience from 1968 to present.¹⁶⁷ These two exhibits set up the foundation of visitor's understanding of African American history.

These are powerful exhibits but focus mostly on the use of more traditional museum objects to tell their stories to visitors. Whereas exhibits like Everyday Beauty use more advanced technology to really capture visitors' attentions. Everyday Beauty uses an interactive table to highlight photographs and movies of rarely seen moments in history and people's everyday lives. This experience helps bring the struggles of these people's lives to life for the visitors who see these events as only part of history.¹⁶⁸ Another great example of the NMAAHC use of technology is the Explore More! exhibit. This 6,000 square-foot interactive space uses a variety of technologies to make history more interactive. For example, the use of 3D models of objects created in partnership with Google, and a 30-foot curved digital wall called The Ark that has different objects and stories visitors and interact with.¹⁶⁹

¹⁶³ "Historical Origins," Smithsonian Institute Archives, accessed October 23, 2020

<https://siarchives.si.edu/history/national-museum-african-american-history-and-culture>

¹⁶⁴ "Historical Origins"

¹⁶⁵ "A Century in the Making," National Museum of African American History and Culture, accessed October 15, 2020 <https://nmaahc.si.edu/century-making>

¹⁶⁶ "Defending Freedom, Defining Freedom," National Museum of African American History and Culture, accessed October 15, 2020 <https://nmaahc.si.edu/defending-freedom-defining-freedom>

¹⁶⁷ "A Changing America," National Museum of African American History and Culture, accessed October 15, 2020 <https://nmaahc.si.edu/changing-america>

¹⁶⁸ "Everyday Beauty," National Museum of African American History and Culture, accessed October 17, 2020 <https://nmaahc.si.edu/everyday-beauty>

¹⁶⁹ "Explore More!," National Museum of African American History and Culture, accessed October 17, 2020 <https://nmaahc.si.edu/explore-more>

As well as being a vast museum, NMAAHC also operates a large library and archive collection. Since the museum is not limited to one time period in history, but rather encompasses the entirety of the history of African Americans, the collections at NMAAHC are equally broad. They list nineteen broad categories that they have archive and library collections in. These range from slavery and segregation to things Hip Hop and LGBTQ+. They also offer a mix of traditional print items and a variety of digital items as well, such as music, films, and photographs.¹⁷⁰

Since the museum is so new, technology has always played an important role in how the NMAAHC staff relates information to the general public. One of the ways NMAAHC uses technology to their advantage is through the use of the Smithsonian Collection's Open Access Project. As a part of the Smithsonian Institute, the museum participates in the Smithsonian Collection's Open Access Project. This project was created to try to bring the Smithsonian's mission to increase the diffusion of knowledge into the 21st century. The Open Access project allows visitors of the museum website to access different types of digital resources and to use them, copyright free, in whatever manner they see fit.¹⁷¹ Another way the museum reaches a digital audience is through their Curator Chat Series. The Curator Chat series is a series of short videos that allows the curators of the museum to give viewers a deeper understanding of various current exhibits or an inside look into up-and-coming projects. However, currently there are only three entries.¹⁷² Similar to the Curator Chat series is the Collection Stories page. Collection Stories is an ongoing series where the curators of the NMAAHC are able to write posts about distinctive items in the museum collections and provide interesting stories, information, and personal interpretations about these items.¹⁷³ All of these different avenues allow for more accessibility in an ever increasingly digital world.

¹⁷⁰ "The Collection," National Museum of African American History and Culture, accessed October 15, 2020 <https://nmaahc.si.edu/explore/collection>

¹⁷¹ "Smithsonian Open Access," National Museum of African American History and Culture, accessed October 15, 2020 <https://nmaahc.si.edu/explore/smithsonian-open-access>

¹⁷² "Curator Chats," National Museum of African American History and Culture, accessed October 18, 2020 <https://nmaahc.si.edu/explore/curator-chats>

¹⁷³ "Collection Stories," National Museum of African American History and Culture, accessed October 15, 2020 <https://nmaahc.si.edu/explore/stories>

Smaller Institutions



Figure 18: *The museum at San Felipe State Historic Site features an interactive touch screen wall where visitors can explore a historic map of the settlement in greater detail. Image courtesy of [San Felipe State Historic Site](#).*

Little Rock Central High School, National Historical Site Visitors Center

Though not a collecting institution such as the Austin History Center, the Little Rock Central High School National Historical Site does seek to preserve the history surrounding the events of September 1957 as the school sought to desegregate. The Visitors Center at the historic site features a detailed exhibit with interviews, news footage, and audio/video recordings of those directly involved in the desegregation of Central High School plus a new park interpretive film.¹⁷⁴ The exhibit is notable for its reliance on technology to deliver oral histories of The Little Rock Nine and others who witnessed the historic events of the desegregation crisis at the site.¹⁷⁵ The exhibit features several individual listening stations where users can take their

¹⁷⁴ “Visitors Centers,” Little Rock Central High School National Historical Site, accessed October 1, 2020, <https://www.nps.gov/chsc/planyourvisit/visitorcenters.htm>.

¹⁷⁵ “Stories,” Little Rock Central High School National Historical Site, accessed October 1, 2020, <https://www.nps.gov/chsc/learn/historyculture/stories.htm>.

time and select from an archive of oral history recordings and videos to explore at their leisure. There are also several creative and interactive elements intended to deliver these oral histories such as interactive telephones, video displays and touch screens.

San Felipe State Historic Site

An excellent “local” example of a small institution that has creatively employed interactive technology to create an engaging audience experience is the newly opened museum and visitors center at the San Felipe State Historic Site near Sealy Texas.¹⁷⁶ The museum gallery at the visitors center employs a healthy amount of interactive touchscreen technology in their exhibits which allow visitors to interact with the history of the site in new and engaging ways. The exhibition gallery features a wall covered in touchscreen panels depicting a lithographic map of the historic townsite where visitors can select points of interest to learn more about individual sections of the town.¹⁷⁷ This feature is of particular interest to the Austin History Center with similar lithographic maps of the city from the same time period as well as numerous photographs of the city at different stages of development.¹⁷⁸ Another interactive feature of the exhibition is a touchscreen conference table where visitors can participate in a recreation of three historic diplomatic meetings that took place in the fall of 1835.¹⁷⁹ Accommodating up to eight participants, users can make decisions and vote on the same choices that were presented to participants of these historic meetings at the dawn of the Texas Revolution.¹⁸⁰

These smaller institutions were included in this report to demonstrate creative and effective strategies of exhibition utilizing digital technologies. At the Little Rock Central High School National Historical Site Visitors Center, digital technologies such as interactive touch screen kiosks allow visitors to explore oral histories from members of the community who witnessed the historic events associated with the site. Similar interactive kiosks would prove beneficial at an expanded Austin History Center campus to aid in the delivery of oral histories from members of the Austin community. At San Felipe State Historic Site, the new museum successfully employed multi-touch, touch screens in several displays throughout their galleries, allowing visitors to recreate and participate in historic meetings from the Texas Revolution, or to explore a historic map of the settlement in greater detail. Similar displays could be incorporated utilizing resources from the AHC’s archives such as historic maps of Austin or simulations recreating important decisions city leaders have faced through the history of the community.

¹⁷⁶ “San Felipe de Austin State Historic Site,” Texas Historical Commission, accessed November 1, 2020, <https://www.thc.texas.gov/historic-sites/san-felipe-de-austin-state-historic-site>.

¹⁷⁷ San Felipe de Austin State Historic Site, Facebook, July 22, 2019, <https://www.facebook.com/SanFelipedeAustin/photos/a.591029937581339/2942334135784229/>.

¹⁷⁸ San Felipe de Austin State Historic Site, Facebook, November 26, 2019, <https://www.facebook.com/SanFelipedeAustin/photos/a.591029937581339/3565267113490925/>.

¹⁷⁹ San Felipe de Austin State Historic Site, “To celebrate #MuseumMoments as part of #MuseumWeek, we are celebrating our use of technology to engage and inform visitors.” Facebook, May 14, 2020, <https://www.facebook.com/SanFelipedeAustin/posts/4182384055112558>.

¹⁸⁰ San Felipe de Austin State Historic Site, “Summer have you hot and bothered? Our museum galleries are a cool 70 degrees Fahrenheit all year round. Come and beat the heat while exploring some, pardon the pun, cool Texas history,” Facebook, July 12, 2019, <https://www.facebook.com/SanFelipedeAustin/posts/2942332209117755>.

Part IV:
Conclusion

Conclusion



Figure 19: *The Reading Room at the Austin History Center. Photo courtesy of the Austin History Center Association.*

Herminina Din and Phyllis Hecht note in *The Digital Museum: A Think Guide*, that the presence of digital technology in museums is both pervasive and permanent.¹⁸¹ While technologies continue to change, heritage institutions will continue to adapt to the promise and challenge inherent in digital media. This inherent promise for a collecting institution is not only improved preservation, but improved access to collections and enhanced exhibitions. After decades of development, digital technologies are longer isolated tools designed to accomplish specific tasks. Instead digital technologies have become infrastructure essential to heritage institution operations, fostering better preservation, engagement with and access to collections.

If heritage institutions are to remain relevant, vital and meaningful, then they must adapt to a changing society. This means not only recognizing and incorporating new digital tools but recognizing the changing needs of society as reflected in their communities of visitors, both physical and virtual. The challenge of how to adapt to a changing society, remaining relevant while still retaining familiar and traditional elements is one shared by all varieties of heritage

¹⁸¹ Herminia Din and Phyllis Hecht, ed., *The Digital Museum: A Think Guide*, Washington, DC : American Association of Museums, (2007), 6.

institutions, and institutions both large and small. While creating interactive, participatory and engaging experiences using digital technology, it is important to maintain the authority and expertise of the institution, while being flexible to change and open to new ideas. When creating an interactive and engaging experience at a heritage institution such as an archival campus, an institution must consider not what digital technologies can do, but what their visitors can do with digital technologies to enhance their experience. Even the terminology “users” instead of “visitors” suggests a more active experience and inclusive community, one that invites members of various publics to participate in an interactive and engaging experience.

In this report we’ve outlined some of the most popular digital technologies currently utilized by heritage institutions around the world. While it is neigh impossible to accurately predict what new technologies will develop over the course of the coming decade, we can at least predict how these current technologies will continue to be embraced and adapted to use in heritage institutions, such as archival campuses, over the next ten years. As mobile technologies continue to improve, so does the potential for increased opportunity to utilize digital technologies to create interactive and engaging experiences within exhibitions, onsite or near heritage institutions or online and remotely.

Perhaps the oldest and most cost effective technology heritage institutions currently utilize is touch screen technology. Interactive kiosks remain the best strategy to foster individual exploration of collections onsite, beyond physical exhibitions. They also remain one of the best data gathering tools institutions can use to collect visitor information and track trends among visitor exploration. With recent developments allowing for bigger touch screens and multi-touch screens, the technology continues to reinvent itself and remain relevant as a popular digital feature of exhibitions.

Perhaps the most engaging technologies currently utilized by heritage institutions are augmented and virtual reality. Though iterations of these technologies have existed for several decades now, only recently has the promise of this technology for use in heritage institutions been realized thanks to advancements in mobile device technologies. Similarly, advancements in the software of AR/VR applications has made the creation of such applications significantly easier and more affordable. Heritage institutions even have the ability to create simplified AR/VR experiences inhouse utilizing equipment that can be purchased at local technology stores thanks to these software programs. This has led to a proliferation of companies specializing in creating AR/VR experiences across the globe. Similar to touch screen technologies, AR/VR allows users/visitors to explore at their own leisure, creating a unique experience for themselves or by following a predetermined program. Unlike other technologies listed in this report, AR has the potential for use outdoors, allowing for even more creative opportunities for heritage institutions to create interactive and engaging experiences.

Holograms and interactive projectors may appear to be the most advanced technologies we analyzed in this report however, like previous technologies mentioned, recent advancements have made these technologies more affordable and adaptable to use by heritage institutions. Holograms have proven to be the most creative method for sharing oral histories, even allowing a certain level of user interaction with holographic projections. Holograms have also proven adaptable to traditional exhibitions thanks to ColliderCase technology, redefining traditional

methods of display in an exhibition setting. Interactive projections, while appearing complex, have also proven to be adaptable to the purposes of heritage institutions by creating an interactive environment onsite without the need for mobile or wearable technology. Recent advancements in the technology have also led to a proliferation of companies specializing in developing interactive projection experiences in exhibitions but also as engaging displays of art which can be projected both indoors and outdoors.

Beacon technology has proven to be the most effective strategy with which to deliver content directly to visitors of heritage institutions. This location based technology has revolutionized the onsite experience by allowing institutions to create digitally guided experiences which visitors can also use to explore at their own leisure. Beacon technology has also proven effective as a data gathering tool utilized by institutions to track visitor engagement with exhibitions as well as their interest in the subjects on display. The technology has also proven as effective to reaching out to potential visitors offsite as they pass by beacons by sending notifications directly to users mobile devices (if allowed of course).

As we analyzed interactive technologies used to create engaging experiences in Part II of this report, we listed many institutions where these technologies were pioneered or successfully adapted to heritage institutions. In Part III we analyzed several institutions of interest to the AHC either comparable in size and scope, or unique for their creative use of digital technologies to create interactive and engaging experiences. Many of these institutions employed touch screen technology onsite or in their exhibitions, reinforcing our assertion that the technology is one of the most common and cost effective digital technologies used by heritage institutions onsite, and one of the most accessible digital technology available to smaller institutions. Other, well-funded institutions, were successfully able to develop interactive experiences using digital technologies, such as the AR/ VR experiences created by the Chicago Museum of History. Yet the most common digital technology utilized by every institution included in Part III of this report was the use a diverse and engaging website. The online presence of these institutions proved to be the most reliable and cost effective solution to reach their various publics. A diverse and engaging website has proven invaluable to these institutions during the time of the COVID-19 Pandemic, allowing them to continue developing content for users/visitors and deliver it to them in the wake of facility closures and lockdowns. These websites have also allowed users/visitors to engage with and even contribute to the collections of these institutions as many have begun COVID archival projects to accurately record the impact of this historic period on their respective communities.

These institutions, both large and small, have demonstrated either through use of digital technologies onsite or through their programming, models of outreach that the AHC could and should strive to emulate with an expanded campus and renovated facility in the Faulk Central Library building. Similarly, the technologies detailed in Part II of this report demonstrate many creative and adaptive uses that could be employed by the AHC with an expanded campus. At present, the AHC already occupies a unique position when compared to the history centers of neighboring Texas cities. On a national level the AHC stands as unique for being one of the few archival institutions of a metropolitan library system that produces exhibitions and programming while occupying its own historic campus. Considering its scope, mission and activities, the AHC is comparable to other local archives such as the many located on the campus of the University

of Texas at Austin. With the AHC's expansion into the old Faulk building, it will even bear a close physical resemblance to the Dolph Briscoe Center for American History, occupying a facility of similar design and age.

At its present location, the Austin History Center occupies a prime location in the historic downtown grid of Austin Texas. Located within walking distance from the AHC are several historic districts which are home to many historic structures and sites of significance to the development of the city such as the Congress Avenue Historic District, Sixth Street Historic District and the Bremond Block Historic District. The very neighborhood surrounding the AHC is also steeped in history with many historic houses and sites nearby. With the passage of Proposition A in the November 2020 election, Project Connect will see the construction of a new underground tunnel through downtown Austin making transportation between east downtown, home to the convention center and Sixth Street where tourists tend to congregate, faster and safer.¹⁸² Project Connect will also improve transportation to and from the downtown grid to the far reaches of the city, which will prove beneficial to the local audiences the AHC intends to reach.

Despite the common misconception that the majority of tourists to Austin are only interested in the music and nightlife of the city, recent data from Austin museums located in the downtown area would suggest otherwise. Since 2013, the Texas State Capitol has recorded over one million visitors annually, the Bullock Texas State History Museum around four-hundred thousand annually and the Capitol Visitors Center more than one-hundred forty thousand annually. The Blanton Museum of Art located on the University of Texas Campus reported over two-hundred thousand visitors between September 2017 and August 2018. Many of the other heritage institutions located throughout the downtown area such as the LBJ Presidential Library and the Mexic-Arte Museum continue to rank highly as favorite attractions of tourists on travel websites.

By utilizing space within the old Faulk Central Library building, either for public outreach programs, exhibition galleries or archival storage, the AHC will be poised to create a unique institution that not only serves as the city's archival repository, but as a city museum and heritage center. With an expanded space, the AHC would have the potential to become the premiere public archival institution/history center affiliated with its city's metropolitan library system in the state of Texas, while also rivaling many of the nation's premier private history centers/museums.

¹⁸² "A New Transit Plan for Austin - Project Connect by Capital Metro," [capitalmetro.org](https://www.capmetro.org/project-connect), accessed December 8, 2020, <https://www.capmetro.org/project-connect>.

Specific Recommendations for AHC



Figure 20: *The John Henry Faulk Central Library building.*
Photo courtesy of the Austin History Center Association.

In this report, we have analyzed a wide variety of digital technologies which could be employed by heritage institutions, such as the Austin History Center, to create interactive and engaging experiences onsite, both indoors and outdoors. Also included in this report are comparative analyses of institutions of similar size and scope to the AHC, that have effectively employed digital technologies or created interactive programming which the AHC could seek to emulate with an expanded campus incorporating the old Faulk Central Library building. While many of the technologies detailed in this report represent the pinnacle and cutting edge of interactive experiences at heritage institutions around the nation and world, and some of the most expensive methods to create engaging experiences for visitors, recent advancements in technology have made some of these digital strategies more affordable and accessible.

Concerning digital technologies, at present touch screen interfaces remain the most affordable digital technology utilized by heritage institutions to create interactive and engaging experiences onsite. Recent advancements in multi-touch technology have allowed touch screen interfaces to become more social installations, as opposed to their more solitary predecessors. Higher resolution and increases processing power have also allowed touch screen technology to be applied to larger displays, enhancing their visual appeal and use in exhibitions. Touch screen

interfaces present the most affordable and effective method for archival institutions, like the AHC, to foster engagement with their collection with items both on display and in storage.

Augmented/Virtual reality and their various methods of presentation, represent unique opportunities to create truly interactive and experiences both onsite at an expanded campus and with historic sites located across the downtown Austin grid. Thanks to recent advancements in mobile technology, AR/VR has become more accessible and affordable than ever before with many heritage institutions around the world finding ever creative ways to adapt the technologies to exhibitions. Austin's reputation as a tech hub has created a wealth of individuals and companies who specialize in developing such experiences, from small tech star-ups like Chocolate Milk and Donuts to major companies like Facebook and Google. Recent advancements in technology have also allowed AR/VR programs to be developed inhouse or by academic institutions for considerably less than through a private company. Should the AHC choose to develop an AR/VR experience for use at an expanded campus or at historic sites located in downtown Austin, there exists wealth of nearby academic institutions and local companies which could be utilized for such an endeavor.

Beacon technology represents another cost-effective strategy to create an interactive experience onsite while also proving effective at fostering engagement with potential visitors offsite. The ability to deliver content directly to visitors (or potential visitors) mobile devices as they explore an expanded campus or pass nearby, would allow the AHC to engage individuals more directly in a format that they are familiar with, without relying on the need for pricey, bulky or complex installations. Similarly, RFID present an equally affordable strategy to create an engaging experience both onsite and remotely. The ability to let visitors choose archival content to explore and even save for later exploration remotely, presents great opportunity for archival institutions like the AHC to create new and imaginative interactive experiences based on the content of their collections.

While technologies such as holograms and interactive projectors represent some of the latest and showiest examples of interactive strategies employed by heritage institutions, their cost (which can vary depending on the developer), as well as the equipment necessary to create such displays, can prove prohibitive to some institutions. Though not entirely out of reach for the AHC, they represent the most unique and sensational examples of digital technologies the AHC could employ at an expanded campus. Thanks to recent advancements, technologies such as augmented and virtual reality have become more user friendly, mobile and most importantly, more affordable, with the potential to be developed in-house with the right resources. The affordability of beacon technology and RFID's also makes them appealing for use by heritage institutions but the recent advancements, affordability and versatility of interactive touch screens has made them the most reliable and popular digital technology among heritage institutions the world over.

Recommendations for Further Reading/Work

In the process of drafting this report, we chose to include some of the most popular digital technologies utilized in exhibitions at heritage institutions from around the world but which also remained applicable to an archival institution like the Austin History Center. In our analysis of comparative institutions, both state and national, we also chose to include programming with an emphasis on digital engagement and outreach as opposed to more traditional programming onsite. Technologies of interest to the AHC not included in this report but which warrant further and subsequent exploration include 3D printing, which would allow for the recreation of historic objects and foster kinetic exploration of such objects, especially by visually-impaired visitors. Other digital strategies of interest to the AHC are the many web-based strategies employed by some of the institutions listed in the report, which foster remote engagement, participation and contribution to archival collections. This strategy is exemplified by the many COVID archival initiatives created by these institutions, dedicated to digitally collecting and recording the historic effects of the recent pandemic on their respective communities.

To further enhance understanding of the potential of these digital tools and strategies, we recommend thoroughly exploring the sources listed in the footnotes and bibliography for Part II of this report. Websites which frequently publish articles pertaining to the creative use of digital technology in exhibitions include MuseumNext.com and the blog for the American Alliance of Museums. In addition to the sources cited in Part II, we have included a recommended reading list of publications specifically pertaining to the use of digital technologies in libraries, archives and museums in the pertaining section of the bibliography.

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Courtney Stevens and Kyle Walker, Authors

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