

8-2014

City2 Buffalo: a smartphone app designed to establish a mobile museum without walls, exhibiting the living city of Buffalo, NY and its rich history and environment, with a purpose to inform and inspire all toward global cultural awareness and civic engagement, in order to collectively create a better future.

Deborah L. Russell

Advisor
City2 Buffalo, russdl28@mail.buffalostate.edu

Cynthia A. Conides, Ph.D., Associate Professor of History

First Reader

Cynthia A. Conides, Ph.D., Associate Professor of History

Second Reader

Jill M. Gradwell, Ph.D., Associate Professor of History

Department Chair

Andrew D. Nicholls, Ph.D. Professor of History

To learn more about the History and Social Studies Education Department and its educational programs, research, and resources, go to <http://history.buffalostate.edu/museum-studies-ma>.

Recommended Citation

Russell, Deborah L., "City2 Buffalo: a smartphone app designed to establish a mobile museum without walls, exhibiting the living city of Buffalo, NY and its rich history and environment, with a purpose to inform and inspire all toward global cultural awareness and civic engagement, in order to collectively create a better future." (2014). *Museum Studies Theses*. 5.
https://digitalcommons.buffalostate.edu/museumstudies_theses/5

Follow this and additional works at: https://digitalcommons.buffalostate.edu/museumstudies_theses



Part of the [Archival Science Commons](#), and the [History Commons](#)

City² Buffalo:
a smartphone app designed to establish a mobile museum without walls, exhibiting the
living city of Buffalo, NY and its rich history and environment, with a purpose to inform
and inspire all toward global cultural awareness and civic engagement,
in order to collectively create a better future.

By

Deborah L. Russell

An Abstract of a Thesis
in
History with a Museum Studies Concentration

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Master of Arts

August 2014

SUNY Buffalo State
Department of History and Social Studies Education

ABSTRACT OF THESIS

City² Buffalo:

a smartphone app designed to establish a mobile museum without walls, exhibiting the living city of Buffalo, NY and its rich history and environment, with a purpose to inform and inspire all toward global cultural awareness and civic engagement, in order to collectively create a better future.

The present environment, including the technological capabilities inspired by the Information Revolution, requires American museums to reconsider their traditional practices. American history museums are specially challenged to address future possibilities and difficulties resulting from social, economic and demographic change. This paper proposes a new type of history museum of the future, one that utilizes the resources of the Internet and related technologies to practice the new kind of history demanded by the current environment, one that is inclusive, open-ended and relevant to the public. City² Buffalo is a smartphone application, intended to create a mobile “museum without walls” to exhibit the history of the living city of Buffalo, NY. The museum aspires to facilitate public participation in history every day, in the hopes of inspiring cultural awareness and civic engagement among its users, to support a better future for the city.

Deborah L. Russell

August 2014

SUNY Buffalo State
Department of History and Social Studies Education

City² Buffalo:
a smartphone app designed to establish a mobile museum without walls, exhibiting the
living city of Buffalo, NY and its rich history and environment, with a purpose to inform
and inspire all toward global cultural awareness and civic engagement,
in order to collectively create a better future.

A Thesis in
History with a Museum Studies Concentration

By
Deborah L. Russell

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Master of Arts
August 2014

Cynthia A. Conides, Ph. D.
Associate Professor
Department of History and Social Studies Education

Andrew D. Nicholls, Ph. D.
Professor and Chairperson of the
Department of History and Social Studies Education

Kevin J. Railey, Ph. D.
Associate Provost and Dean Graduate School

THESIS COMMITTEE SIGNATORY

Cynthia A. Conides, Ph. D.
Associate Professor
Department of History and Social Studies Education

Jill M. Gradwell, Ph. D.
Associate Professor
Department of History and Social Studies Education

Acknowledgements

I wish to express my deep gratitude to my thesis review committee, Dr. Cynthia Conides and Dr. Jill Gradwell, for their insightful guidance, enthusiastic encouragement and constructive critiques of this work. I am indebted Dr. Conides, who has served as my advisor over the long-run of this project, providing valuable advice and support, including the important idea to incorporate new app technology in the project. Dr. Conides is also to be credited with the clever idea to represent the project's working name of City Square as "City²." I am grateful to Dr. Gradwell, who has served as my instructor for a number of courses during my studies at SUNY Buffalo State College. The hands-on experiences created by Dr. Gradwell through these courses inspired the idea of presenting Buffalo, NY as a living history "museum without walls."

Finally, I wish to thank my family, for allowing me to indulge in my passion for museums by visiting them with me wherever we travel.

Table of Contents

Chapter 1: Introduction	1
Anticipating Change	1
Framing the Opportunities and Challenges for Museums	7
<i>What is Going Right with Museums?</i>	7
<i>Will Museums Succeed in Reinventing Themselves?</i>	10
Purpose	12
Chapter 2: Literature Review	13
History as We Knew It	13
Historymaking in History Museums	15
City Museums, History and Civic Engagement	25
The Virtual History Museum	29
Chapter 3: Methods and Data	36
Methods	36
Data.	37
<i>Sample Set: “Museums without Walls”</i>	37
<i>Sample Set: Apps.</i>	53
<i>Future Trends.</i>	59
Chapter 4: Results	66
Analysis.	66
<i>Sample Set: “Museums without Walls</i>	66

<i>Sample Set: Apps.</i>	72
<i>Future Trends.</i>	76
Limitations	77
Chapter 5: Proposal and Discussion	79
City ² Buffalo Design	79
City ² Buffalo Next Steps.	88
Chapter 6: Conclusions	91
Implications for Future Research.	94
Implications for Practice.	95
End Notes	97
Bibliography.	112
Appendix 1.	119
Appendix 2.	122

List of Tables and Figures

Tables

2.1 Traditional vs. New Museum of the City	29
3.1 Scan of “Museums Without Walls” for Sample Selection.	38
3.2 Summary Data for Sample of “Museums Without Walls”	119
3.3 Summary of Future Trends Facing Museums	60
4.1 Summary of Priorities for Sample “Museums Without Walls”	71
4.2 Summary of Testing Results of App Sample	73
6.1 Internet Users Using Apps by Age Group	94

Figures

4.1 City ² Snap: Contemporary Photograph Snapped and Posted.	83
5.2 City ² Snap: Old Photograph, Digitized and Posted	83
5.3 City ² Snap: Old Photograph, Digitized and Posted	83
5.4 City ² Snap: Contemporary Photograph Snapped and Posted.	84
5.5 City ² Map: Photograph Snapped, Posted and Mapped.	85
5.6 City ² Map: Photograph Snapped, Posted and Mapped.	85
5.7 City ² Map: Photograph Snapped, Posted and Mapped.	86

Chapter 1

Introduction

“Education is our passport, tomorrow belongs to those who prepare for it today.”
Malcom X, Civil Rights Leader¹

The present environment, including the technological capabilities inspired by the Information Revolution, requires American museums to reconsider their traditional practices. Given current social, economic and demographic trends, American history museums are specially challenged to address future possibilities and difficulties. This thesis examines the opportunity to create a new type of history museum of the future, one that utilizes the resources of the Internet and related technologies to practice a new kind of history demanded by the current environment, one that is inclusive, open-ended and relevant to today's public. With the goal of inspiring cultural awareness and civic engagement among citizens of Buffalo and visitors to the Queen City, this work presents a smartphone application entitled City² Buffalo. The app is designed to keep pace with the changing interests and preferences of the public, while avoiding some of the pressures facing brick and mortar museums. While City² Buffalo describes a city museum of history for Buffalo, New York, this application can also be applied to other cities around the world.

Anticipating Change

“The Digital Revolution is far more significant than the invention of writing or even printing.”
Douglas Engelbart, Internet Pioneer²

It is widely held that we are in the midst of a global economic revolution, often referred to as the Information Revolution. This revolution, which began in the mid-

twentieth century with the invention of the computer chip, is profoundly changing the human experience. In particular, the Internet, now widely accessible via personal computing devices, provides multitudes of people with ever-expanding capabilities for accessing and distributing information instantaneously. As of June 2012, 2.4 billion people, approximately one-third of the world's estimated population of seven billion, used the Internet. These figures represent an increase in usage of 566 percent since 2000.³ This global Internet phenomenon is currently redistributing knowledge and shifting the balance of power among the world's institutions and individuals. Based on the experience of the Agricultural Revolution and the Industrial Revolution of earlier centuries, we can expect this transfer of power to greatly impact institutional, as well as individual behaviors.

In *The Third Wave*, Alvin Toffler explained that three waves of social change have occurred over history, driven by agriculture, industrialization, and most recently information.⁴ Toffler reported that the first two waves resulted in new ways of life previously unimaginable, and predicted that the third wave resulting from the Information Revolution would lead to the "deepest social upheaval and creative restructuring of all time."⁵

In "The Biggest Story of Our Lives: Economic Revolution," David Maney reports ideas similar to those expressed by Toffler decades earlier.⁶ Maney also points to the dramatic adjustments resulting from the Agricultural Revolution and Industrial Revolution as indicators of the great change we can anticipate over the twenty-first century, as society transitions through the Information Age.

The first revolution, the Agricultural Revolution, which occurred some 10,000 to 5,000 years ago during the Neolithic Age, was driven by a shift in human activity from hunting and gathering to farming. The resulting improvements in food production allowed for larger human settlements and eventually civilized societies, which invented new technologies and new systems of knowledge, such as writing and law.⁷ Over thousands of years, the accumulation of technological know-how and expanded scientific knowledge established the conditions for a second economic revolution, the Industrial Revolution.

The second revolution, the Industrial Revolution began in Britain around 1760, when human economic activity shifted again from farming and crafts work to machine production using new power technologies.^{8, 9} Waves of inventions in manufacturing, transportation and communication spread throughout Europe and America between the late eighteenth and early nineteenth centuries, fueling rapid industrialization and urbanization. The demands of growing cities triggered the creation of new organizations in government, commerce and education, such as the corporation, the modern university and the public museum. The Industrial Revolution set the stage for institutional and individual practices which continued through the twentieth century. Over the two centuries of the Industrial Revolution, “daily life changed more than it had in the 7,000 years before.”¹⁰

We remain in the midst of the third revolution, the Information Revolution. It began in the mid-twentieth century, based on new digital technology which has driven another shift in human activity from material-based production to information-based production made possible by computers.^{11, 12, 13} The mass production of ever smaller

microprocessor chips has provided a constant stream of inventions, including the personal computer, the Internet and the smartphone. These new technologies, which allow for storing, manipulating and transferring information in new ways, continue to fuel rapid and dramatic change in institutional and individual behaviors. For example, we have already witnessed new patterns of activity as a result of the expanded use of the Internet.

Internet executive Martha Fox Lane provides a constructive analysis of Internet use since its early days in the 1990s, identifying three primary characteristics: (1) globality, (2) disruptiveness and (3) inventiveness.¹⁴

Fox Lane describes the global reach of the Internet, now a worldwide network connecting billions of individuals and organizations almost anywhere in the world, at any time. As of June 2012, there are approximately 2.4 billion Internet users around the globe, representing about one-third of the world's seven billion population.¹⁵ Internet user penetration is even greater in the U.S. where 277 million Internet users, or 87percent of the 319 million population, are reported as of March 2014.¹⁶ Based on 2010 reports, these numbers include more than 16.1 million Internet users in New York State, or 81 percent of the state's 19.1 million people.¹⁷ (Applying an 80 percent penetration rate to the 1.1 million population of the Buffalo-Niagara Falls Metropolitan Statistical Area as of June 2010 indicates that there are approximately one million local Internet users.¹⁸ Additionally, applying the same 80 percent penetration rate to the 22.5 million annual visitors to Niagara Falls, one of the world's most popular tourist destinations, suggests another eighteen million Internet users visit the area.¹⁹) Many of these Internet users communicate globally using social networks such as Facebook and

Twitter. For example, using the social network Twitter, U.S. President Barack Obama can instantly connect to forty-two million people, while pop star Katy Perry can link to fifty-two million followers.²⁰ These large global networks are only made possible by the Internet.

The second characteristic of the Internet noted by Fox Lane is its capacity for disruption.²¹ Consider how Amazon, the world's largest online retailer, has affected the way people shop since it first began selling books online in 1995. The fact that seventeen percent of 2013 retail sales were conducted online, demonstrates how the retail industry has been disrupted by the Internet.²² Social networks, such as Facebook and Twitter have disrupted the way news and other information is shared, impacting the news media and other public media.²³

Finally, Fox Lane describes the continuous innovation facilitated by the Internet.²⁴ According to the Consumer Electronics Association, the industry is projected to generate record revenue of \$208 billion in 2014, up two percent from 2013.²⁵ The \$4 billion of forecasted growth is fueled by new products including, 3D printers, Bluetooth wireless speakers, convertible PCs, health and fitness devices, smart watches, Ultra HD television displays, and more. New Internet applications seem to be limited only by imagination. No doubt, the potential opportunities created by the Internet's global reach, its capacity to disrupt markets and its support for innovation, will continue to attract more and more activity by individuals and institutions.

In addition to the globality, disruptiveness, and innovativeness experienced early in the Information Revolution, Fox Lane highlights a slightly later development in Internet use, the increased power of individual users.²⁶ The influence of individuals has

largely been driven by the explosion of social media use. Today, individuals rely upon social networks such as Facebook and Twitter to connect to others, almost anywhere and at any time. As Fox Lane describes, this capability has launched a struggle for authority between users and others providing information.²⁷ Internet users can now access real user reviews of products from sites such as TripAdvisor or Yelp to guide their decision making, circumventing corporate advertising. Other types of Internet sites such as the *Huffington Post*, a liberal-leaning news aggregator, connect like-minded individual users and strengthen political voices which might not otherwise be noted. In many different areas, the empowerment of individual Internet users is generating change.

This idea is reinforced by *Time Magazine*'s recognition of "You" as the person of the year for 2006, "for seizing the reins of the global media, for founding and framing the new digital democracy, for working for nothing and beating the pros at their own game."²⁸ As Lev Grossman writes in the related cover story, "we are looking at an explosion of productivity and innovation, and it's just getting started, as millions of minds that would otherwise have drowned in obscurity get backhauled into the global intellectual economy."²⁹ The rise in the power of the individual may be the defining characteristic of the Information Revolution.

The Internet and linked technologies continue to offer tremendous potential, but also risks for institutions and individuals alike. As valued cultural institutions, museums are uniquely positioned to play an important role in smoothing the dramatic change from the Information Revolution and contributing to a better twenty-first century. However, in order to maintain their relevance, museums will need to embrace the evolving

capabilities of the Internet, its global reach, its disruptive nature, its innovative potential and especially the power it bestows on individual users. Additionally, museums must adjust their practices to meet the shifting social, economic and demographic conditions of the current environment. These are the fundamental reasons for creating a new type of history museum of the future, one that utilizes the resources of the Internet and related technologies to share history that is relevant to today's audience.

Framing the Opportunities and Challenges for Museums

"Difficulties mastered are opportunities won."
Winston Churchill, Statesman³⁰

What Is Going Right with Museums

Museums are well positioned to play an important role in smoothing the turbulence of transition and contributing to a better twenty-first century. For one reason, museums have proven to be adaptable over history.

The idea of the modern museum grew from the private collections of seventeenth-century European rulers and academic societies.³¹ As these collections morphed into the public museums of the eighteenth century, museums expanded their activities beyond the interests of the privileged and learned to include the education of the public.

American museums, which were developing during the nineteenth century era of nation building, further extended their educational mission to include shaping a national identity.³² As the twentieth century witnessed more social change, museums continued to broaden their efforts to reach previously excluded audiences. Over this process,

museums have played an important role in preserving and sharing Western culture, all the while growing and adapting to the changing tides of scholarship and public interest.

With 35,144 active museums reported in 2012, more than double the estimated 17,500 of the 1990s, American museums continue to support the cultural and educational priorities of their communities.³³ Even so, museums face a changing environment. In addition to being good stewards and interpreters of their collections, they must compete for precious time, attention and money against the numerous and varied providers of other leisure activities. Museums must provide both entertaining and enriching experiences, ranging from hosting children's birthday parties at the local science museum to facilitating a panel discussion on genocide at the U.S. Holocaust Memorial Museum in Washington, D.C. Museums.

It appears that museums have been holding up against this challenge. A 2012 survey by the National Endowment for the Arts reported 21 percent of adults visited an art museum or gallery during the year, while 23.9 percent reported touring a park, monument, building, or neighborhood for design value.³⁴ This participation rate was down slightly from 2008 participation rates of 22.7 percent and 24.9 percent, respectively. However, the National Endowment for the Arts has indicated that a forthcoming revised report is expected to show approximately flat participation rates, as the 2012 survey methodology slightly underestimated participation rates compared to 2008.³⁵

In late 2013, *The Economist* published a special report about museums around the world, highlighting their global success in terms of numbers of museums and visitors, especially contemporary art museums.³⁶ The article suggests that the

enthusiasm for museums is partly attributable to higher education levels among the public, especially in wealthy countries. According to surveys, well-educated people like to visit museums, because they like to learn about how and where they fit into the bigger world view. The report also noted visitor-focused programming and imaginative buildings (such as the Guggenheim Museum in Bilbao, Spain) as reasons for increased public attention for museums.

Additionally museums are among the few traditional institutions to have retained the public's trust. The American Alliance of Museums reports that Americans put more trust in museums than in any other sources of history, according to an Indiana University survey.³⁷ Roy Rosenzweig and David Thelen have also reported on American trust in museums. According to Rosenzweig and Thelen, when visitors "approach artefacts and sites on their own terms, . . . (they are able to) cut through . . . intervening stories . . . (and) agendas . . . and feel that they are experiencing a moment from the past almost as it (was) originally experienced without . . . distortion."³⁸

As museums and their audiences absorb the effects of the Information Revolution, we can reasonably assume that those museums able to successfully combine their traditional strengths of collecting and connecting to audiences, along with the ever-expanding capabilities of the Internet and related technologies, will be best positioned to meet the future needs of their communities. In addition to leveraging their historical strengths and new technology, we can also expect that successful future museums will need to address the social, economic and demographic shifts of the future.

*“Will U.S. Museums Succeed in Reinventing Themselves?”*³⁹

Many museums were gravely impacted by the “Great” recession of 2008, suffering reduced revenues as well as dramatic losses in their endowment funds and reductions in both government and private financial support. While endowment values have since rebounded along with the financial markets, museum revenues have remained under pressure. According to the National Center for Charitable Statistics, revenues for public charities in the category of Arts, Culture and Humanities declined 19% from \$32 million to \$26 million over the period from 2007 to 2010 (despite an increased number of reporting institutions).⁴⁰

One area of concern is the uncertainty of future government support for museums, both direct and indirect (private donations treated as tax deductible). More than two-thirds of American museums operate as nonprofit organizations, or public charities according to the U.S. tax code.⁴¹ These museums depend upon tax-deductible private donations from individuals and corporations to provide approximately one-third of museum funding.⁴² Another twenty-five percent of museum funding is provided by direct support from local, state and federal governments.⁴³ Given the financial pressures at all levels of government this funding may be vulnerable in the future.

Recent news headlines indicate ongoing financial stress for a range of museums, including the Delaware Art Museum, the Corcoran Gallery of Art, and the Field Museum in Chicago, to name a few.^{44, 45, 46} Funding challenges combined with reduced attendance and reduced income continues to lead some museums to cut programs, reduce employee numbers and reconsider traditional practices.

Additionally, the American Alliance of Museum's Center for the Future of Museums reports that future trends will provide both opportunities and challenges for museums, including shifting demographics, expanding technological capabilities, new means of information distribution and educational restructuring.^{47,48,49}

As America continues to become more diverse, history museums are particularly challenged. A 2010 survey reported nearly forty percent of history museum visitors were at least fifty years old and more than forty percent of visitors held a graduate degree.⁵⁰ While this group provides a large audience for visiting and supporting history museums, it also indicates that in general, history museums need to work at connecting to younger and more diverse audiences in the future. In order to reach "the young, the underserved and the disinclined," museums need to shift from their traditional academic approach to an interactive exchange between the museum and its community.⁵¹

The Internet provides the greatest potential for connecting to larger and more diverse audiences. Lynn Zevelansky dares museums to "stop thinking about the web as an add-on, and (instead) think about it as a virtual museum."⁵² In addition to active social networking, many museums have already developed rich online content. However, the future requires that museums move beyond these uses of the Internet to connect with their constituencies in new ways.⁵³

While museums have traditionally operated from a position of authority as experts, information access and networking capabilities have altered audience expectations for exploring ideas differently. The Information Revolution is pushing museums to reconsider their traditional practices.

Purpose

“Let’s go invent tomorrow instead of worrying about what happened yesterday.”
Steve Jobs, Inventor and Entrepreneur⁵⁴

This thesis explores public interest in history and the past and present practices of history museums, in order to design a better history museum for the future. A review of scholarly literature and other published sources examines public preferences for experiencing history, the unique environment for city museums of history, as well as the use of the Internet and social media in museums. Various alternatives to traditional museum practices are analyzed, including the use of websites and smartphone apps. Considering the best historical practices of history museums and the best practices of museums using new technologies, along with the forecasted future environment for museums, this thesis proposes a smartphone app as a new type of history “museum without walls,” to exhibit the city of Buffalo, NY and its rich history and environment.

City² Buffalo is specifically designed to meet the contemporary interests and preferences of the public for history that is inclusive, open-ended and relevant. Its purpose is to encourage the everyday practice of history, in order to inform and inspire the public toward global cultural awareness and civic engagement, in the hopes of creating a better future for the city. It also avoids some of the pressures facing brick and mortar museums today. While this app proposal describes a city museum of history for Buffalo, NY, it might also be applied to other cities around the world.

Chapter 2

Literature Review

History as We Knew It

“The history of the world is the record of a man in quest of his daily bread and butter.”

Hendrik Wilhelm van Loon, Author¹

Since the earliest times, humans have demonstrated a strong interest in recording and understanding past experiences. Herodotus, the Greek author of the fifth century BCE is widely recognized as the first historian to have systematically studied and recorded the past as a narrative.² Over the many centuries that followed, scholars have continued to practice history in that tradition, establishing the discipline as an evidence-based, empirical practice, committed to explaining the past in narrative form.

Patricia Mooney-Melvin explains how the modern history profession has evolved to include different types of history and professionals. According to Mooney-Melvin, academic history grew out of the institutionalization of knowledge that occurred in university settings in nineteenth-century America.³ Since then, academic history has come to be defined by the typical requirements of history professors, including formal graduate training in a university, teaching history to college students, conducting history research, and publishing new findings and understandings.⁴ While academic historians most often work in university settings, many educated historians have also pursued the study of history outside of the university. Partly due to limited job opportunities in the academy, but also due to the rise of the New Social History in the 1960s and 1970s, as well as the increased number of museums and historic sites, the field of public history has greatly expanded over recent decades.⁵

According to the National Council on Public History, public history is “history applied to real-world issues.”⁶ Public historians take on a variety of professional assignments as archaeologists, architects, institutional historians or archivists, museums professionals, local historians, and historic preservationists and many other jobs. The common characteristic among all of these different jobs is an “interest and commitment to making history relevant in the public sphere.”⁷ An understanding of the development of public history is useful for considering the future of history museums.

In “Historians in Public”, Thomas Bender reviews how the practice of history, both academic and public, has been and continues to be impacted by the changing “public sphere” in America.⁸ Bender traces the practice of history along with the customs of public intellectual life over time, from the coffee houses, to the presses, to the modern research university and learned societies. According to Bender, any intellectual career, whether it involved scholarship or journalism, was once rooted in public service (even if it was elitist). Bender describes the ebbs and flows of historical scholarship over the decades, identifying the pressure introduced by the media sphere as a strong influence on the evolution of academic history. After describing some of the limitations of academic history, including overspecialized research, a lack of relevant inquiry and the absence of a collective narrative, Bender recommends public history as another way (outside of the university or the media) for historians to connect to the public.⁹ Citing the survey work of Roy Rosenzweig and David Thelen (discussed later in this chapter), Bender notes that the public prefers experiencing history through visits to historic sites and museums compared to experiencing history through books, movies or classroom settings.¹⁰

Bender further suggests that historians can better connect to the public by using the narrative to explore the concerns of everyday life.^{11, 12} Bender writes:

“(T)he narratives constructed by historians do something different and fundamentally important for political action and cultural self-awareness. It is important that history is a mode of scholarship, thinking, and knowledge that is constituted by narratives. Moreover, historical narratives usually locate citizens in time and place. And it is multi-scalar- from local to larger narratives extending to national and even global scales. The challenge historians assume (or should) is to bring into the public a narrative explaining why this happened, where, when and in what way things happened. Such a narrative at its best can suggest possible alternatives, but at a minimum it can demonstrate that neither the past, present, nor future are pre-determined. They are the result of choices made. That is politically liberating, if not a precise answer to the challenges” for history in the future.¹³

In spite of debates about the practice of history and the use of narratives, the practice of history will persist as it has for thousands of years, because it responds to a human desire to know about the past in order to understand the present and to anticipate the future. Using new technologies, historians have the opportunity to interact with the public in new and improved ways to create relevant, inclusive and open-ended history, and to inspire cultural and civic awareness. City² Buffalo is designed to practice a new kind of interactive history recommended by the current environment.

Historymaking in History Museums

“How does one ‘measure’ the success of a museum? . . . I imagine that public response and acceptance constitute one reasonably valid and accurate yardstick.”

J. Paul Getty, Industrialist and Philanthropist¹⁴

A brief review of the development of American history museums helps to identify the strengths and weaknesses of current museum practices, relative to twenty-first-century demands. It provides a point of departure from which to consider the design of a

new type of history museum, one not yet blessed or burdened, as the case may be, with the physical infrastructure and collections of earlier eras.

From the beginning, American museums focused on collecting for educating, inspiring and entertaining the public. Charles Wilson Peale's Philadelphia Museum, opened in 1786, ranks among the first American museums. Built to house Peale's portraits of Revolutionary War heroes as well as discoveries of the new world of North America, the Philadelphia Museum was the first systematically organized museum of art and history in the newly established America.¹⁵ According to David Brigham, Peale intended the Philadelphia Museum as a "national university," accessible to the general public as well as the privileged and educated class. Peale hoped his collections would promote science and invention, and therefore economic independence for the developing nation.¹⁶ As the museum was financially dependent upon ticket sales, Peale deliberately designed his exhibitions and lectures to be interesting and relevant to the general public. Brigham describes Peale's entertaining methods of education as "middle brow" culture.¹⁷ Peale's democratic approach to educating and inspiring the public set the tone for all American museums to follow.

The Smithsonian Institution, established in 1846, with its commitment to "the increase and diffusion of knowledge," also greatly influenced museum practices related to the display of collections for the benefit of educating the public.¹⁸ In *Museum History and Museums of History*, the Smithsonian's George Brown Goode wrote, "(t)he museum cultivates the powers of observation, and the casual visitor even makes discoveries for himself and under the guidance of labels forms his own impression. In the library one studies the impressions of others."¹⁹ In Goode's day, museums focused

primarily on the display of objects (as compared to the multi-media exhibits prevalent today). Goode's preference for relying on objects over words as the best guide for visitors foretold of today's public interest in authenticity and shared authority over interpreting history.

Over the eighteenth and nineteenth centuries, as America industrialized and urbanized, museums were thought to be well suited for educating the masses of immigrants populating the growing cities. Accordingly, in addition to collecting, preserving and displaying objects, museums expanded their focus to also include educational programming. Most museums supported the national themes of democracy and progress, with collections comprised of portraits of America's heroes and objects representative of the refined tastes of America's elite.²⁰

Over the period between the American Civil War and World War I, characterized by continued industrialization, economic volatility and class conflict, museums continued to reinforce the national identity. During this time, in addition to museums, world's fairs also served to tell the story of American progress. A number of world's fairs from this era, including Philadelphia, Chicago, Buffalo and St. Louis, formed the basis for a number of museums and collections in their cities.²¹

The diversity of American life was largely ignored by museums until well into the twentieth century when alternative views emerged along with the New Social History in the 1960s and 1970s.²² Responding to the civil rights, antiwar and women's movements, museums stepped-up their efforts to broaden content and include new groups, such as women, racial minorities, ethnic Americans and workers. Also, new museums opened, some representing heritage groups and others representing the

memory of historical events. These museums were not necessarily built around the collection of objects, but rather focused on telling a part of the American story.

This may explain the weakened connection to objects in some of today's museums.²³ As Steven Conn notes, at "some museums, collections are only secondary to their institutional mission . . . (, while at) others, objects are almost irrelevant to what the museum wants to do and how it does it. "²⁴ It may be that the New Social History is not well represented in the collections of earlier years, or it may be that the New Social History is not easily represented by objects. Regardless, this shift away from objects ignores the fact that real objects remain one of the unique assets of museums that set it apart from other sources of history or forms of entertainment.

While American museums have been involved in educating the public from their earliest days, over the late twentieth century, educational programming has expanded and changed to keep pace with the cultural climate and new theories about learning and visitor behavior.²⁵ Early twentieth-century museum practices assigned curators responsibility for disseminating knowledge to visitors through exhibitions, catalogues and lectures, while visitors were expected to learn by receiving this information passively.^{26, 27} This practice has been countered by the research of John Falk and Lynn Dierking, which suggests that the success of learning in museums is dependent upon an individual's expectations, their knowledge and choice in the learning process.²⁸ Further, learning is enhanced by social exchange and reinforcement from within and outside of the museum experience. Accordingly, museums have become increasingly sensitive to the experiences of their diverse audiences.

Genevieve Bell describes three characteristics of visitor expectations, liminality, sociality, and engagement.²⁹ According to Bell, visitors seek a liminal, or “transformative experience.”³⁰ Second, people typically visit museums in groups, as couples, families or school classes, expecting to have a social experience. Finally, Bell suggests that people expect museums to engage or educate them about something. In addition to meeting Bell’s list of expectations, visitors expect museums to deliver their experiences in an entertaining way. Bell’s analysis may have important implications for how museums use the Internet and technology to interact with audiences in the future. To date, museums have mostly used Internet resources as a one-way communication tool. In the future, museums will need to meet visitors’ expectations to be engaged in and transformed by an experience they can share with others, whether the experience takes place physically or virtually.

What is necessary for a history museum to provide the kind of transformative experience the public is seeking? Many assume that the American public is either ignorant of, or uninterested in the past, as suggested by these news headlines:

- “Don’t Know Much about History” *Boston Globe* (2011)³¹
- “How Ignorant are Americans?” *Newsweek* (2011)³²
- “History Survey Stumps U.S. Teens” *The New York Times* (2008)³³

These articles may speak to the public’s lack of basic knowledge about American History, but not necessarily their interest in history. Highlighting this challenging paradox, Michael Frisch writes,

“On the one hand, it is widely believed that we face a general crisis of historical amnesia; on the other hand, there is clearly enormous and growing public

interest in history, manifest in museum attendance, historically oriented tourism, participation in festivals, and even the media-driven excesses of nostalgia and commemoration of recent historical periods.”³⁴

A survey conducted by Roy Rosenzweig and David Thelen confirmed Frisch’s later point, that Americans are connected to history.³⁵ Rosenzweig and Thelen asked 1,500 Americans about how they connect to history and how it impacts their present and potentially their future. Participants were questioned about their participation in ten different history activities within the past year. More than half of the respondents noted participating in six of the activities, including reading a history book, watching a history television program or film, visiting a museum, taking pictures to preserve memories, or looking at family photographs.

Rosenzweig and Thelen also asked respondents to identify which history settings they found most comfortable.³⁶ Consistent with Bell’s description of museum visitors’ expectations (described earlier), the participants indicated they felt most comfortable at holidays, with family and in museums. Participants also expressed a perceived stronger connection to history when they shared the experience with others close to them.

Highlighting the impressive numbers of museums, Rosenzweig and Thelen referenced data from their survey that also matched information provided by the American Alliance of Museums.³⁷ In 2012, 35,144 active museums were reported, more than double the 17,500 estimated in the 1990s, the time of the Rosenzweig and Thelen study. The 2012 total museums includes 16,880 historical societies and historical preservation organizations.³⁸ These growing numbers are cited as evidence of museums’ popularity.

Michael Kimmelman questions whether museum success should be measured by numbers and attendance, suggesting that we should measure the quality of museum visits instead.³⁹ Maxwell Anderson also recommends alternative metrics of success specifically for art museums.⁴⁰ While art museums obviously differ from history museums in terms of collections and visitors, many operating practices and concerns are similar across all types of museums, so Anderson's measures are useful. Anderson identifies the three most common metrics collected by museums and used to demonstrate success, namely numbers of big exhibitions, visitors and members.⁴¹ According to Anderson these indicators are used, not because they are useful, but because they are familiar (having been borrowed from entertainment markets), they are easily documented and reported and they are more likely to present a positive story for museums. Anderson recommends the following alternative mission-focused measures of performance which are long-term and verifiable:

- "Quality of Experience
- Fulfillment of Educational Mandate
- Institutional Reputation
- Management Priorities and Achievements
- Caliber and Diversity of Staff
- Standards of Governance
- Scope and Quality of Collection
- Contributions to Scholarship
- Contributions to Art Conservation
- Quality of Exhibitions, Facilities' Contribution to Core Mission"⁴²

With one important omission, namely the quality of the visitor experience, Anderson's measures are similar to the American Alliance of Museum's Characteristics of Excellence listed below:

- “Public Trust and Accountability
- Mission and Planning
- Leadership and Organization
- Collections
- Education and Interpretation
- Financial Stability
- Facilities and Risk Management”⁴³

Anderson highlights the quality of the visitor’s experience as possibly the most important and challenging criteria to measure. To attempt to measure the quality of the museum experience, Anderson presents a twenty-three question survey. The following four questions from the survey are most relevant for the purpose of designing a new type of history museum:

- “An intangible sense of elation- a feeling that a weight was lifted off their shoulders
- A greater appreciation of works of art or a period or movement
- An improved understanding of why some artworks are more valuable than others
- A desire to return to the museum in the not-too-distant future”⁴⁴

The remaining list of questions relate to the visitor’s perception of the museum, what segment of the public the visitor represents, how much time is spent in the gallery (or online), how much money is spent during the visit, and also what other activities are undertaken during the visit. While the survey has its limitations, it does attempt to measure the quality of a visitor’s museum experience rather than simply the quantity of visits.

A comparison of Bell’s visitor expectations and Anderson’s museum visit metrics indicates overlapping ideas. Bell’s visitors expect an engaging transformative experience that can be shared, while Anderson’s metrics capture the educational and

transformative nature of the experience. The important missing link between the two is the value of a shared experience. One additional idea left out of Anderson's measures is trustworthiness.

In the Rosenzweig and Thelen survey, museums ranked eight out of ten on a trustworthy scale, higher than all other providers of history information including eyewitness accounts.⁴⁵ Similarly, the American Alliance of Museums reported that Americans consider museums to be one of the most trustworthy sources of objective information based on an Indiana University survey.⁴⁶ Respondents to the Rosenzweig and Thelen survey also indicated trust in museum interpretations, based on museums' reputations for objective research and presentation.⁴⁷ Even so, survey participants expressed their preference for drawing their own conclusions about history, based on personal interactions with authentic objects and places. According to Rosenzweig and Thelen, Americans trust history museums and historic sites because they "feel that they are experiencing a moment from the past almost as it (was) originally experienced" without the distortions of other mediums.⁴⁸

The evolution of history museums demonstrates their long term commitment to collections, education and the visitor experience, albeit with different emphasis at different times in history. The changing environment will demand new priorities for history museums as they work to enhance the visitor experience, and meet changing individual and community interests. The survey work by Rosenzweig and Thelen provides clues for people's preferences related to history.

It is not surprising that the Rosenzweig and Thelen survey found that its participants rely on history to establish identity, and to make sense of what has

happened in the past and what might happen in the future. Perhaps more interesting is that participants experience the most powerful meanings from history by connecting the past to the present.⁴⁹ Rosenzweig and Thelen point out that the idea to adapt knowledge to present needs ties back to early twentieth century historians such as Carl Becker.⁵⁰ In other words, history museums can provide the greatest value to the public by helping to make history relevant to the present.

The Rosenzweig and Thelen survey also notes that people prefer to make their own histories, and they prefer the process of making history to be active and collaborative.⁵¹ Accordingly, Rosenzweig urges that history professionals and historymakers practice what is called shared authority. Under this arrangement authority for creating historical narratives is redistributed and redefined, “assigning the audience authority based in culture and experience rather than academic subject expertise.”⁵²

Additionally, consistent with addressing both the global reach of the Internet and the power of the individual, Rosenzweig suggests that history museums adjust their scope. According to Rosenzweig,

“(h)istorical practice (needs to be) simultaneously more local and intimate and more global and cosmopolitan, more shaped by popular concerns and more enriched by insights based on systematic and detailed study of the past. And ... historical practice needs to link the past and the present in an active and continuing conversation.”⁵³

Finally, while it is significant that the Rosenzweig and Thelen study demonstrates an interested, active and thoughtful audience for history (and history museums), Rosenzweig suggests that history professionals must figure out how to engage those audiences. Rosenzweig recommends that historians work differently by “listening to and

respecting the many ways popular historymakers traverse the terrain of the past that is so present for all.”⁵⁴

This limited and brief review of American history museum practices and visitor or historymaker experiences identifies a number of areas for future exploration related to museum collections, interpretive programs and audiences. The survey work of Rosenzweig and Thelen confirms that in spite of headlines exclaiming American ignorance over historical dates and events, the public is interested in participating in history. History museums of the future will need to find new ways and means to help the public discover a past that is more relevant to their future. One opportunity to accomplish this specifically for the people of the city of Buffalo (and potentially other cities) is to present history through a city “museum without walls” in the form of the app City² Buffalo.

City Museums, History and Civic Engagement

“Cities are the defining artifacts of civilization...Civic buildings, monuments, archives and institutions are the touchstones by which our cultural heritage is passed from one generation to the next.”
John Reader, Author⁵⁵

Approximately eighty percent of the U.S. population now resides in cities.⁵⁶ Cities face enormous challenges ahead, deteriorating infrastructure, income inequality, inadequate housing, failing public education, dysfunctional government, violence and more. According to Chet Orloff, city museums have an obligation to serve a significant and meaningful role in helping cities address these challenges and improve the future for their citizens.⁵⁷ A review of the historical role of city museums provides background for designing a new city museum suited to this mission.

Early American city museums were museums located in cities, not necessarily museums about cities. Modeled on eighteenth-century literary and scientific societies, these historical societies collected mostly books, maps, documents and paintings in honor of America's great men and moments.⁵⁸ Industrialization and booming cities led to the founding of more city museums in the nineteenth century, in part to preserve the stories of the cities' elite, and in part to educate and Americanize the exploding population of immigrants.⁵⁹ In keeping with museum tradition, many of the historical societies eventually housed themselves in grand buildings, filling them with fine art and decorative objects representing the tastes of the cities' elite. For the most part, these museums focused on broad themes celebrating America and technological and industrial progress, while ignoring the social and political issues of the day.

It was not until the twentieth century, that city museums began to consider the urban experience. Preservationists (armed with new preservation laws) took action to save historic city buildings and neighborhoods from aggressive destruction in the name of urban renewal. In the 1960s and 1970s, city museums (like other museums) adopted the New Social History, expanding programming to include new groups such as women, racial minorities, ethnic Americans and workers.⁶⁰

While a number of city museums participated in the museum building boom by building new history centers, increasingly museums are practicing history beyond the museums walls. "Places, buildings, cities, and regions are becoming the artifacts that city museums are preserving and interpreting, if not collecting."⁶¹ Orloff considers how city museums might interpret the urban environment, suggesting that new museums of the city might take on any number of different forms, such as "richly interpretive guided

tours, exhibits in public places, explanatory labels on buildings or places described on cell phones.”⁶² While Orloff contemplates what forms a museum of the city might take, Michael Frisch describes what a city museum might do.

Frisch describes the city museum according to four dimensions, the narrative, the scholarship, the artifacts, and the audience.⁶³ According to Frisch, the traditional American story of economic growth and progress has been challenged by the New Social History. While museums have made efforts to include the history of previously neglected groups, they have not created a blended narrative from these stories.⁶⁴ Frisch recommends that city museums support the development of a new urban narrative that includes a broad mix of “economic and political forces; of regional, national, and even international relationships; and (the complex network) of social groups and relations across racial-ethnic and class spectrums.”⁶⁵

Frisch explains that urban history (in contrast to city history) evolved from the New Social History. While urban history scholars have worked to establish better understanding of under-represented groups in earlier history, more work needs to be done, including collecting the stories of today’s under-represented groups.⁶⁶ City museums have a unique opportunity, not only to bring diverse groups of people together to discover and share their different histories, but also to facilitate the collecting of tomorrow’s diverse histories today.

Frisch recommends that city museums avoid their ongoing struggle to construct the right interpretation of history and instead allow the objects to create an environment in which visitors can interpret their own lives and experiences in the context of a city’s history.⁶⁷

Finally, Frisch identifies museum audiences as an underutilized resource for interpreting the complexities of urban history and recommends that museums engage audiences in the exhibition process.⁶⁸ According to Frisch, “historical museums have always known something about drawing and even satisfying audiences, but these audiences have been traditionally somewhat narrow, and it is not clear how meaningful and interesting their museum experiences have been.”⁶⁹ Frisch suggests that in order to create meaningful interpretations of history for our every changing urban communities, historians and museum professionals should engage the broader public in a historical dialogue in order to find common ground. Frisch points out that . . .

“the urban historical setting provides special and substantial opportunities for sophisticated dialogue if we become better at respecting our visitor’s very real knowledge and experience and learn how to turn both presumed certainties and areas of ignorance into the energy of activated curiosity.”⁷⁰

City museums can provide forums for local discussions about city issues, as well as global connections to cities around the world addressing related urban issues. Chi-Jung and Szu-Yun Chang discuss how the combined phenomenons of globalization and urbanization have positioned cities (rather than nation-states) as centers of global competition.⁷¹ Therefore, city museums are uniquely positioned to play a meaningful role in the cultural, civic and economic activities of cities in the future.

Table 2.1, a modified version of one created by Chi-Jung and Szu-Yun Chang, captures how twentieth-century museums of cities have evolved from traditional historical societies or city museums of the past.⁷² These new city museums have expanded their collections beyond the traditional recorded documents of academic

history to include not only artifacts, but structures and places beyond museum walls. Also new city museums no longer limit discussions to historical events of the past, but rather attempt to connect historical experiences of the past to a vision of the future.

Table 2.1 Traditional vs. New Museum of the City

Traditional vs. New Museum of the City	Traditional Historical Society or City Museum	New Museum of the City
Axis	Time	Space
Time Zone	Past	Past, Present, Future
Exhibitions	Texts, images	Texts, images, objects, structures, places
Collections	Historical records, artifacts	Objects of the past and present, vision for future

As the effects of the Information Revolution and increasing globalization and urbanization play out, museums of cities will be uniquely positioned to engage their audiences in cultural and civic discussions connecting their cities' histories to improved futures. City² Buffalo employs new interactive technologies to motivate users to participate in this effort. A statement made by Nichola Johnson captures the potential opportunity well. "The best city museums act as a starting-point for the discovery of the city, which can lead people to look with fresh, more informed and more tolerant eyes at the richness of the present urban environment and to imagine beyond it to past and possible future histories."⁷³

The Virtual History Museum

"I believe that the virtual world mirrors the physical world."
Marissa Mayer, Yahoo CEO⁷⁴

From the beginning of the nineteenth century through the twentieth century, history museums functioned as institutions of knowledge and education based on the

preservation of collections. Traditionally, museum curators served as the experts, interpreting collections for audiences in the form of exhibitions, lectures and publications, while most museum audiences experienced museums passively. Expanding on George Brown Goode's collection's based educational priorities (discussed earlier in this chapter), John Cotton Dana outlined what museums, as educational institutions, should do for the public.⁷⁵ Dana's recommendations included interpreting the collection for general visitors and school children through exhibitions, classes and lectures, reaching out into the community by loaning collections and exhibitions to schools and other community locations, and also communicating information about collections and educational programs more broadly.

By the middle of the twentieth century, cultural trends and behavioral studies had influenced museums to make additional adjustments to educational programming. Public participation and shared authority in American history extends back to the legacy of American folklore, the WPA projects of the 1930s, the New Social History of the 1960s, as well as the culture wars of the 1990s.⁷⁶ Behavioral studies, such as the learning preferences reported by Falk and Dierking (presented earlier in this chapter), also encouraged museums to engage their audiences differently. Museums have since continued to adjust their practices to address their current environment and to take advantage of new capabilities made possible by the Internet.

Steve Brier discusses the benefit of using digital technologies for teaching history.⁷⁷ These advantages also apply to history museums using the Internet to share history with museum audiences. One advantage is the amount of space available and the low cost of storing digital information. Other advantages include the ability to

efficiently locate and track information and to quickly navigate between sources, as well as multimedia capabilities. The primary disadvantage is the glut of information out there, since quantity of information does not necessarily translate into quality information.

Others suggest that using the Internet to collect and share excessive amounts of information is actually a benefit to history, since it is both economical and comprehensive. Daniel Cohen points out that the inclusiveness of today's Internet collecting of history is akin to the original approach of Herodotus, the father of history mentioned earlier. Cohen proves this point by quoting Herodotus:

"I will go forward in my account, covering alike the small and great cities of mankind. For of those that were great in earlier times most have now become small, and those that were great in my time were small in the time before. Since, then, I know that a man's good fortune never abides in the same place, I will make mention of both alike."⁷⁸

Cohen recognizes the value of using the Internet to collect, store and organize various forms of history, such as documents, images and narratives. However, there are some challenges. "(T)o build a collection, you first need a collection; (and) often the only way to attract contributions is with other contributions."⁷⁹ To address this need, Cohen recommends that Internet projects include outreach efforts to attract community participation. Cohen further recommends partnerships with brick and mortar institutions such as museums, historical societies which can potentially provide additional support to such projects.⁸⁰

For the purpose of exploring how museums and users might share digital content, Nina Simon analyzes how users' authority has developed over the Internet.⁸¹ Rather than restrict and organize Internet content, Internet developers have remained open and inclusive, making it easy for anyone to add content. Additionally, developers

have refined search capabilities so that users can organize content according to their own priorities. This user generated cataloguing system called *folksonomy*, has allowed users to access exactly the information they want. Internet leaders have insisted that open access is the way of the future, and any efforts to control or limit access to information will not be successful. Instead, it has been suggested that “institutions should look for ways to get (their) content into as many environments as possible to be shared, remixed, and discussed.”⁸²

Simon suggests that the public is already conditioned to participate in online museum activities due to the sharing capabilities of websites such *Wikipedia*, *YouTube* and *Facebook*, which have demonstrated that everyone can create and share knowledge and culture.⁸³ Further, Simon suggests that by using the Internet to engage in participatory activities with audiences, museums can address many of visitors’ expectations including relevance, liminality, inclusiveness, engagement and sociality (discussed earlier in this chapter).

The Information Revolution is driving a further shift in museum practices, from a model based on collections and education to a “model based on knowledge exchange and participation.”⁸⁴ According to Elisa Giaccardi, social media, which provides information access and global networking capabilities, impacts traditional patterns of museum behavior in three ways: (1) social media encourages new ways of understanding and experiencing history; (2) social technologies promote and legitimate a participatory culture in which individuals connect based on common interests and affinities; and (3) social media and social networking technologies support new ways of engaging people, interpretations, and values linked to specific territorial settings.⁸⁵

Under this new model, museums of the twenty-first century become another type of media institution. Maren Mouliou suggests that museums model the practices of new media, including blogs.⁸⁶ Mouliou proposes that we look to the features and qualities of blogs as a framework for how twenty-first-century city museums might reach out to the public and build new audiences. These generic qualities of blogs and free press are:

- “Open-sourced, multi-vocal, collaborative, involving, promotes of dialogue and debate
- Informative and constantly updated, intellectually intelligent
- Humane, people centered, emotionally intelligent
- Seekers of innovation and constructive reformation
- Users of honest, clear, assertive language
- Multimedia, dynamic-looking
- Relevant for the present and forward-looking
- Critical of the self and the others
- Omnipresent in time and space
- Freely accessed by all”⁸⁷

Blogs, with open-source journalism and user-generated content, have been enthusiastically adopted by many museums. The George Eastman House in Rochester, NY provides one regional example.⁸⁸ Contributions, often made by students or interns, describe research, projects or events at the museum.

In today’s Information Age, Internet websites have become more than just tools for promotion. Websites also connect the museum’s community to collections, exhibitions, curators, archival records, distant resources, other visitors, and more. Based on behavioral research, Rachel Sargent recommends that the following eight guidelines be applied to all internet related practices:⁸⁹

- Be useful. In other words, use a simple design, be easily found, and provide rich content.

- Be attractive. A beautiful site will attract users.
- Keep it personal. People engage more with websites that allow them to personalize their experience.
- Provide for serendipity. Allow for the unexpected to happen.
- Share. Sharing promotes user trust; it allows online community building; and it promotes content reuse.
- Encourage participation. Allowing for ongoing dialogue builds trust.
- Provide access to experts. Again ongoing dialogue builds trust.
- Collaborate across institutional boundaries. When institutions share their pooled resources they become richer.

These guidelines are equally applicable to the other digital technologies used by museums, such as interactive exhibits and apps. Increasingly museums are using smartphone apps to enhance the experience for visitors both inside and outside of the museum. Sam Grobart analyzes one of the early app efforts released by the National Gallery in London in 2009, *Love Art*.⁹⁰ Since then, the pace of app innovation has been impressive. Today's apps offer much more than the traditional audio tours of earlier versions. In addition to information access, new technologies provide for mapping, multi-media presentations, and interactive social networking capabilities, just to mention a few features. According to Aaron Radin, a good museum app is determined by the quality of its content, not by the number of features. "If it can elegantly and efficiently access high-quality content, it will be successful."⁹¹

Graham Faircloth notes that new technology and social media offer more than bigger audiences.⁹² One, it changes the experience of history by inviting everyone to be a historymaker. Also, rather than limiting the experience of history to those visiting a museum or an historic site, history can become a daily practice for everyone, everywhere. John Kuo Wei Tchen discusses the potential for using social media as a platform for conducting important dialogues among community members to debate

current issues, as well as to discuss the relationship between the present and the past.⁹³ Tchen questions whether or not brick and mortar museums will be necessary for this in the future. According to Tchen, “our smartphone and other new technologies are better suited for these dialogues to come. . . . This is the future form museums will have to take on- a provocative remix of the real and the digital.”⁹⁴

The following sections will study examples of new types of history museums (and smartphone apps with history and museum applications) which engage their audiences in participatory practices beyond the museum walls. The best practices from the past and the present will be combined to design a twenty-first-century city museum, City² Buffalo.

Chapter 3

Methods and Data

“If we knew what it was we were doing, it would not be called research, would it?”
Albert Einstein, Scientist¹

Methods

The methods described in this section include: (1) the collection and analysis of data for a relevant sample of organizations loosely described as “museums without walls,” (2) the collection and analysis of data pertaining to sample apps and (3) the collection and analysis of information relating to future trends pertinent to the practices of museums.

In order to identify the two sample sets, as well as future trends, an Internet search was conducted using the (SUNY) Buffalo State College E.H. Butler Library Databases, as well as Google and Yahoo search engines. The key words used in the search included: museums without walls, museums without buildings, museums of the future, virtual museums, museums and technology, and museum apps. This process identified numerous publications in the form of books, articles and websites, which in turn revealed “museums without walls,” apps, and future trends for consideration. These lists were refined (as described below) in order to focus on samples and trends considered most relevant to the design of City² Buffalo.

The sample analysis and the app analysis explore the commonalities and differences among the sample organizations and apps, in order to determine the best practices to be included in the design of the proposed City² Buffalo. The analysis of future trends helps to identify which of the sample groups’ best practices are most

suited to the likely future environment for museums. Chapter 4, Results, describes the findings of these analyses, presenting them in terms of four traditional categories of museum operations: (1) Mission and Background, (2) Collections and Programs, (3) Communities and (4) Organization. These findings combined with the development of museum practices over history, form the basis of the design of the proposed City² Buffalo presented in Chapter 5, Proposal.

Data

Sample Set: "Museums without Walls"

Based on the search methods described above, ten organizations were identified as potentially operating as "museums without walls." All of the identified organizations which were involved in museum-like work, such as education and interpretation were considered for the sample group, regardless of their focus on art or history. This was due to the small number of "museums without walls" identified, and also due to the strong connection between art and history in many museums. All of these organizations were accessible online; while only some of them were also accessible through a smartphone app. (A separate review was conducted specifically for museum apps, as described below.) Utilizing data sourced primarily from websites, these organizations were compared by purpose, mission, geographic reach, accessibility and collections. Table 3.1 provides summary data of the scan.

Table 3.1 Scan of “Museums without Walls” for Sample Selection

Museum	Purpose	Mission	Geography	Access	Start	Collectors	Users
Artsy ¹	Art	Gallery, Education, Research	Global	Online, App	2013	125,000 artworks, 25,000 artists, 200 institutes	4.2 m visitors
CultureNOW Museum Without Walls ²	Art, Architecture, History	Education	70 U.S. Cities	Online, App	2003	11,000 sites, 21,000 images, 1050 podcasts	Unknown
Europeana 1914-1918 ³	History	Education, Preservation	Europe	Online	2012	20 countries, 400,000 documents, 660 hours of film, 90,000 images	Unknown
Geograph ⁴	Geography	Preservation, Education	Britain and Ireland	Online	2005	3.8 million images	12,000+ Images
Google Cultural Institute ⁵	Art, History, Culture	Education, Inspire	Global	Online	2011	151 museums, 40,000 images, 6million+ historic records, 166 world heritage locations	4.8 m followers
HistoryLink ⁶	History	Education	Washington State	Online	1998	6000 original essays	5000 visitors per day
Historypin ⁷	History, Art	Education, Civics	Global	Online, App	2010	342,478 records	54,345 users, 1637 institutions
Museum of the City ⁸	History	Education	Global	Online	2010	Unknown	15,000 visitors per month
Museum on Main Street ⁹	History	Education	U.S.	Mobile, Online, App	1994	4 changing exhibitions	More than 700 towns
Museum Without Walls: Audio ¹⁰	Public Art	Education	Philadelphia, PA	Online, App	2010	150 audios, 60 artworks	Unknown

- a. Artsy, accessed March 4, 2014, <https://artsy.net/>.
- b. CultureNOW Museum Without Walls, accessed March 4, 2014, <http://www.culturenow.org/mission>.
- c. Europeana, accessed March 4, 2014, <http://www.europeana.eu/portal/>.
- d. Geograph, accessed March 4, 2014, <http://www.geograph.org.uk/>.
- e. Google Cultural Institute, accessed March 4, 2014, <http://www.google.com/culturalinstitute/home?view=grid&hl=en..>
- f. HistoryLink, accessed March 4, 2014, <http://www.historylink.org/Index.cfm?DisplayPage=about/index.cfm>.
- g. Historypin, accessed March 4, 2014, <http://www.historypin.com/>.
- h. Museum of the City, accessed March 4, 2014, <http://www.museumofthecity.org/>.
- i. Museum on Main Street, accessed March 4, 2014, <http://www.museumonmainstreet.org/>.
- j. Museum Without Walls Audio, accessed March 4, 2014. <http://museumwithoutwallsaudio.org/>

Among the initial list of ten organizations, CultureNOW, Historypin, Museum of the City and Museum on Main Street were identified as having the most relevant data for the purpose of designing the proposed City² Buffalo. These four sample organizations were chosen because they all conduct history-related, education-oriented, museum-like activities (compared to others functioning primarily as encyclopedias or apps).

The data for the sample group was collected primarily by reviewing Internet sources and practicing the Internet and app programs available for each of the sample organizations. Table 3.2 (see Appendix 1) provides a summary of basic information about these “museums without walls,” including a description of activities, the reported mission or purpose, organizational information such as partnerships, the scope of their activities described in terms of subjects, geographies and time periods included, the type and volume of user interactivity, authority for content of collections and exhibits, funding and support, and recognitions. While all of these organizations conduct some of activities similar to those intended for the proposed City² Buffalo app, none of them match the intentions of City² Buffalo, to serve as a forum for city life and an interactive museum of city history which provides for user authority and connectivity. Chapter 4, Results describes the findings of the data analysis in greater detail. Summaries of the sample reviews follow:

CultureNOW²

Mission and Background

CultureNOW is primarily a digital gallery of art and architecture which resides in the public realm in cities throughout the U.S. The collection, which grew from efforts to catalogue and preserve the public art and architecture of lower Manhattan after the devastation of September 11, 2001, is now open for additional submissions by other institutions and individuals from around the U.S. CultureNOW is dedicated:

“to celebrating our vast cultural environment as a gallery that exists beyond walls through cultural tourism and arts education. CultureNOW believes that the three facets to understanding the world around us are art, architecture and history. Mapping these empowers the public to better visualize the place they live in

making it a powerful tool to understand the richness and diversity of a community.”³

CultureNOW originated from the work of the Cultural and Historic Resources Committee of New York New Visions Design Coalition for the Rebuilding of Lower Manhattan, led by the American Institute of Architects New York Chapter and the American Planning Association, New York Metro Chapter, a group established to provide recommendations for rebuilding New York City following the tragic events of September 11, 2001. Fearing the loss of downtown’s rich heritage, the committee determined to produce a map identifying the cultural and historical assets of the area. The resulting downtownNOW map, first printed in 2002, was intended to encourage the rebuilding of the entire downtown community in addition to the sixteen acre World Trade Center site.

Today, CultureNOW is one of the largest and most comprehensive online collections of cultural and historical records.

Collections and Programs

CultureNOW’s art and historical collections include 11,000 sites and 21,000 images, plus more than 1,050 related podcasts, and approximately fifty self-guided cultural tours. CultureNOW (with Google Maps) offers a website map that plots its entries around the world. Only a few public art works and landscapes are included for Buffalo, NY, the most recognizable of which is Erie Canal Harbor. The home page displays the collection geographically. It also orients the viewer for further exploration according to categories (art, architecture, history, cultural, academic and green spaces) or time (in order of most recent additions). The website is searchable (by artist,

architect, city or year). CultureNOW invites individuals and institutions to submit works to be included in its Mapping program (subject to review by CultureNOW).

CultureNOW's programs include: Mapping, App, Cultural Tourism and Research and Education.

Mapping. The core of CultureNOW's programs is its maps. Since the first downtownNOW map was printed in January 2002, CultureNOW has taken on additional mapping projects. ManhattanArtNOW, first published in 2007, now includes more than 10,000 images of art seen every day in New York, plus podcasts featuring artists describing their works and inspirations. HarlemNOW, physically published in 2009, grew out of a project in physical planning at the Pratt Institute. This map project has grown to include additional online resources, recorded podcasts by community leaders, journalists, artists and architects who have lived or worked in Harlem, as well as a series of tours of the area.

App. In order to make its collection more accessible to the public, CultureNOW created a smartphone app (at a cost of \$1.99) titled Museum without Walls. CultureNOW has partnered with more than seventy cities throughout the U.S. to present their cultural assets through its app. The app utilizes GPS technology to map the images, podcasts, videos and tours available on the website via smartphones. The app was voted New York's Best Cultural App of 2011. In 2012, the American Institute of Architects honored it with a National Collaborative Achievement Award.

Cultural Tourism. CultureNOW partners with other cultural organizations, including the National Park Service, New York City & Co., Manhattan Chamber of Commerce, and Center for Architecture and the Museum of the City of New York.

CultureNOW has developed its own walking tours and participated in other organizations' tours by providing maps, volunteers and expertise.

Research and Education. Education is a priority for CultureNOW. Several maps were created from semester long research projects conducted in classrooms. All of the maps have been used as teaching tools in schools ranging from New York City elementary schools to many private schools and universities. CultureNOW maintains a project-based internship program for students. Since 2002, CultureNOW has hosted more than forty interns. CultureNOW has also organized lectures and symposia on urban planning issues that have arisen from the mapping.

Communities

CultureNOW collaborates with over seventy public art collections across the country to create its digital national gallery of art and architecture in the public realm. Individuals and institutions are invited to submit their suggestions for inclusion in the project, though submissions are subject to acceptance at the discretion of CultureNOW. CultureNOW relies on a network of professionals, including scholars, artists, architects, urban planners, educators, curators and historians, who volunteer their time and expertise to advance the mission.

Organization

In addition to its numerous community public art partners and a network of professional volunteers, CultureNOW includes three staff and twelve interns, located in New York, Boston, and Los Angeles. It is guided by a Board of Directors and an Advisory Council, plus additional advisory councils of Los Angeles and Boston. CultureNOW is a 501(c) (3) organization. Its financial support for operations and

projects is provided by foundations, corporate and individual gifts, as well as government support.

Historypin⁴

Mission and Background

Historypin was launched in 2010, by We Are What We Do, a nonprofit U.K. organization dedicated to changing behavior to improve society. According to Nick Stanhope, CEO of We Are What We Do, Historypin was influenced by the work of sociologist Robert Putnam, who argued that society has suffered a decline in social capital since the middle of the twentieth century.⁵ Historypin was created in the hopes of rebuilding social capital by linking people across generations and cultures using photographs from family scrapbooks as well as institutional archives. Today Historypin is a “global community that connects millions of people across different generations, cultures and practices, to share historical content for the benefit of enhancing the story of human history.”⁶

Historypin is accessible via its website and smartphone app, through which everyone can add photographs, videos and audios of the past to Google Maps by date and location. Users can add additional information to it, and organize it into Tours or Collections. Beta-launched in 2010, and globally launched in 2011, to date Historypin has gathered 341,837 materials, memories and contributions from 54,470 users and 1,649 institutions.⁷

Collections and Programs

Historypin encourages everyone to share their history, whether it is sourced from family albums or archives. Historypin’s 341,837 materials, memories and contributions

are all filed according to location and date. A map containing all of these materials can be searched by location, date and subject. Historypin also displays Historypin Projects which users are invited to expand upon. There are currently seventeen projects including topics such as Olympic Memories, East and Main Street and Living with Railroads. Historypin's collections include tours of the public art surrounding the Albright Knox Gallery and a downtown Buffalo architectural tour among other records.

Historypin users begin by creating a Channel (account), to which they attach digital records (images, audio and video recordings, and stories) according to place and time. Items must be tagged with a date and location to be pinned, as this is important to sharing content with other users. (Primary sources, photographs, videos and audio recordings, are generally pinnable because they can be measured by location and date, even if the date is not certain. Stories and recollections, are not necessarily pinnable, because they cannot be pinned to a specific point in time and space). Also, Historypin currently only dates back to 1840, because that is the earliest date of photographic imagery. (Though Historypin is now considering how to incorporate earlier dates.) All pinned data becomes available to all users to assemble and add to Collections and Tours. While Historypin features Tours and Collections on its website, its users can also browse the entire inventory.

The Historypin app provides a number of additional useful and entertaining capabilities:

Augmented Reality. Using a smartphone camera to view the street and GPS location, the viewer can display historical images from nearby. The historical image can be overlaid onto the modern view to create a comparison.

- **Capture History.** Images captured with a smartphone camera can be instantly pinned to the Historypin map, along with titles and stories. Images can also be added from smartphone albums.
- **Digitize Old Photos.** Old pictures can be photographed using a smartphone camera (instead of scanning them) and pin them to the Historypin map, along with a description.
- **Create Modern Equivalents of Classics.** Contemporary versions of classic photos can be recreated using the smartphone camera.
- **Compare Photos to Street View.** The user can use the smartphone viewer to blend an old image with the modern street view.
- **Shake up History.** The user can shake the smartphone to bring up a random image from anywhere in the world.

Historypin provides home pages for Schools, Local Communities, and Libraries, Archives and Museums.

Schools. Historypin's Schools Home Page invites schools to explore, add to or curate Historypin content. The page demonstrates sample topics, tours and case studies of potential interest to different school groups. The section also provides resources that can be downloaded, including how-to guides, activity sheets and sample materials to promote projects.

Local Communities. The Historypin website also includes a Local Communities Home Page, which provides information similar to that noted above for Schools.

Libraries, Archives and Museums. Historypin is collaborating with over 200 libraries, archives and museums around the world. Historypin gets millions of online views and thousands of smartphone app downloads, so partners can make their collections available to new audiences from around the world. The Library, Archives and Museum Homepage provides details about how to use Historypin, how to upload large amounts of records and how to embed Historypin within an institution's website. Information is also provided related to credits and copyrights. Buffalo partners include the Albright Knox Art Gallery and University at Buffalo.

Communities

Historypin is focused on bringing people together from different communities and different generations, to share history together in new ways. To date Historypin has gathered its contributions from 54,470 users and 1,649 institutions. Institutional collaborators include more than 200 libraries, archives and museums from around the world. The Historypin network includes Schools, Local Communities, Libraries, Archives and Museums, and Universities and Academic Institutions. Historypin also collaborates with academic institutions from around the world on projects. For example a project is underway with Stanford University's Spatial History Lab to develop a series of new study and research tools.

The Historypin community actively responds to requests for photos, videos, audios or stories around specified themes. Historypin manages integrated platforms with other social media networks including the *Historypin Blog*, *Twitter*, *Facebook*, *Google+* and *YouTube*. Institutional partners are able to embed Historypin into their own digital communication programs.

Organization

Historypin is owned and managed by We Are What We Do, a U.K. registered nonprofit and charitable foundation. The organization is operated by a team of twenty. Its two funding partners are Nominet Trust and the Heritage Lottery. The project is supported by donations from supporters, grants, corporate sponsorships and investments from We Are What We Do's other work. Any profits from the Historypin project are to be reinvested in the next year's operating and development costs, or donated to the community and education work of We Are What We Do Charitable Foundation.

Google is Historypin's main technology partner. Historypin utilizes Google's tools, including Google Maps, Picasa, Google App Engine and Android. Content is stored on Google App Engine.

Museum of the City⁸

Background and Mission

Museum of the City is a "virtual museum of city culture, features, issues and history that collects exhibits submitted by citizens of the world."⁹ It was created in 2001, by Chet Orloff, to serve as a "forum for the exchange of knowledge, ideas, and informed opinion between specialists and civilians, about issues pertaining to the world's cities, past, present and future," in order to encourage a greater appreciation of cities from around the world and history.¹⁰ The museum's digital galleries are collected and exhibited via the organization's website.

Collections and Programs

The Museum of the City invites “students and their teachers, scholars, planners, urban designers, architects, ... (and) citizens interested in their own and others’ cities,”¹¹ to submit their own exhibits. Exhibits are organized into twenty-two galleries covering a variety of topics (such as, recreation and transportation) and disciplines (for examples, art and history). The website provides details about how to submit an exhibit and mentions that the exhibits are edited by staff. However, there are no details about the review process or the criteria for acceptance. The exhibits on display cover a range of subjects and include photographs, maps, artwork, recordings and accompanying interpretive texts. These exhibits can be viewed under twenty-two topics or one-hundred-ten galleries. The entire website is searchable. Additionally, the website presents a useful word cloud, depicting the proportion of tags in the collections relating to the various topics. Currently, the greatest representations are city planning, sustainability, architecture, historic preservation, and Portland, Oregon.

Communities

The website appears to be academically oriented. “Students and their teachers, scholars, planners, urban designers, architects, ... (and) citizens interested in their own and others’ cities” are invited to participate.¹²

Organization

Museum of the City is a collaborative project between Oregon State University and the International Council of Museums’ Committee for the Collections and Activities for the Museums of Cities. The museum is operated by a President, a Curator, and student interns. It is a 501(c)(3) corporation.

Museum on Main Street¹³

Background and Mission¹⁴

Museum on Main Street is a website and app (linked to the Smithsonian Institution's website) created by the Smithsonian to connect rural Americans to American history. The operation grew out of a 1991 survey conducted by thirteen state humanities councils in coordination with Smithsonian Traveling Exhibition Services. The survey revealed that rural Americans experience severe geographic, economic and cultural isolation. Additionally, rural small towns are typically denied the opportunity to host traveling cultural exhibitions due to the high cost and complicated logistical needs. While rural cultural facilities are often well regarded within their communities, they have limited staffing and budgets. Museum on Main Street is designed to address these limitations by giving support for high-quality transportable exhibitions. Additionally, through its website and app capabilities, Museum on Main Street provides a means for small towns to collect and preserve their local history.

Collections and Programs¹⁵

On the website, Museum on Main Street displays approximately 500 items by tag, 400 items by geography or nineteen exhibits. Additional collections are available through Online History. Museum on Main Street's programs include Smithsonian Traveling Exhibitions, Stories from Main Street, Interactivity and Connectivity, and Education.

*Smithsonian Traveling Exhibitions.*¹⁶ Each year, six communities are selected by state humanities councils, through a competitive application process, to show the Smithsonian exhibition in their communities over the year. The state humanities

councils assist with the planning and cost of the exhibition. Smithsonian professionals, along with state council representatives and community members, prepare for the exhibit and related events. The exhibition program enhances the visibility of the local museum in the community, increases awareness of the value of local history in the community, encourages collaboration among local museums, educational organizations, and local businesses and provides professional museum training and often capital improvements for their facilities. Current traveling exhibitions are described as follows:

- Journey Stories:

“Journey stories are tales of how we and our ancestors came to America. (They) are a central element of our personal heritage. From Native Americans to new American citizens and regardless of our ethnic or racial background, everyone has a story to tell.”¹⁷

- Key Ingredients: America By Food:

“Our recipes, menus, ceremonies, and etiquette are directly shaped by our country's rich immigrant experience, the history and innovations of food preparation technology, and the ever-changing availability of key ingredients.”¹⁸

- The Way We Worked:

“American workers perform a diverse array of jobs to power our society. Whether we work for professional satisfaction and personal growth or to ensure the well-being of ourselves and our families, work is a part of nearly every American's life.”¹⁹ (From an original exhibition by the National Archives, September 2011.)

- Hometown Teams:

“If we're not playing, we're watching: in the stands, on the fields with our sons and daughters, or in our living rooms with friends in front of a television. Football, baseball, and basketball capture our attention most, but more and more, other non-traditional sports vie for our time and support.”²⁰

The website provides descriptive information and educational resources related to these exhibitions, as well as a listing of the exhibition viewing schedule.

*Stories from Main Street.*²¹ Stories from Main Street is the Smithsonian's home for rural America's history including America's Stories, History Online and Online Exhibits. The public and institutions are invited to submit images, videos, stories, and interviews responding to different questions. Records are submitted via the website or the app (currently being upgraded), by question, gender and geographic location. The questions are:

- "What does living in a small town teach you?
- How do people in your town work together?
- Where do people go to have fun in your community?
- What is your favorite memory of living in or visiting a small town?
- What do you like most about living in a small town?
- What is your favorite festival?"²²

Related to Stories from Main Street, under the heading History Online, the website provides user access to the recordings according to the following categories:

- "Listen to America's Stories (based on questions above)
- Leaders and Causes
- Our Town
- People and Land
- Pastimes and Recreation
- Work and Industry
- Food, Music and Culture
- Americans at War
- Life at Home
- Innovation and Advancement"²³

*Interactivity and Connectivity.*²⁴ Museum on Main Street, its website and app, are primarily focused on documenting and collecting the stories (and also records) of rural

America, rather than exhibiting them. (It appears to function similar to Story Corp, the national project to record people's stories in sound.) Based on a limited random sample of the project's audio recordings, many of them seem to be sourced from visitors to the traveling exhibitions. The content quality and of the quality of the audio recordings varies. A number of the responses merely confirm the speaker's appreciation of the visiting exhibit (as a memory, or a way to have fun). A secondary use for gathering the recordings may be to affirm the value of the traveling exhibit program in those rural communities visited, for the purpose of justifying continuing support for the program. There are numerous avenues for connecting via *Facebook*, *Twitter*, *YouTube*, *Stories from Main Street Blog*, the app and the website. However, it is unclear whether or not these mechanisms are actively used. For example, the blog is not functioning at the time of this review.

*Education.*²⁵ Educational resources are extensive, well organized and well presented. They included teaching guides and lesson plans. Although some of the resources at the time of this report were not functioning.

Communities

Since 1994, Museum on Main Street exhibits have traveled to nearly 900 rural towns in forty-six states and one U.S. territory.²⁶ The website invites all users to provide stories guided by the questions and topics. Also, the website encourages users to submit new ideas for categories.

Organization

Museum on Main Street, part of the Smithsonian Traveling Exhibition Service and the Smithsonian Institution, is supported by the U.S. Congress and participating

state humanities councils.²⁷ The Smithsonian is a 501(c)(3) corporation. Previous support for the program has come from the Hearst Foundation, the John S. and James L. Knight Foundation, the National Endowment for the Humanities, the Rockefeller Foundation, the Smithsonian Institution's Special Exhibition Fund and the Smithsonian Institution's Educational Outreach Fund.

Sample Set: Apps

In order to identify apps for the sample set, a broad search was conducted of iTunes, Android Market Place and Google Play. The effort involved searching for using the terms museums, history, travel and cities, as these categories were expected to identify the apps most likely to have features applicable to the design and function of City² Buffalo. As app search engines are limited in detail, it was challenging to identify apps that matched the intended purpose of the City² Buffalo. Fifteen apps are included in the sample, as these were the only apps identified to be history-related, education-oriented and, or museum-like.

App stores and search engines assign apps to similar categories including Business, Education, Entertainment, Games, Health, Lifestyle and Travel, to name just a few. Of the fifteen apps selected for the sample set, nine are assigned to the Travel category, four are assigned to the Lifestyle category and two are assigned to the Education category. These fifteen are listed and reviewed below based on data collected primarily from iTunes app preview information and app testing.

General information about the apps' functionality, sharing capability and ratings was collected and reviewed. Additionally, a simple analysis was conducted based on the studies described in Chapter 2, Literature Review, related to Bell's²⁸ visitor

expectations and Anderson's²⁹ museum performance measures. The analysis considered these four questions: (1) Is the app easy to use? (2) Does it cause elation (Wow!)? (3) Is it engaging (either educational or entertaining)? (4) Is it shareable via social media networks? A discussion of the findings of the reviews and analysis has been reported in Chapter 4, Results.

American Experience (PBS)³⁰

Mapping History helps the user explore the local environment or browse the history behind U.S. landmarks through two programs: (1) Engineering Map which highlights significant engineering accomplishments across the U.S. and (2) Abolitionist Map which features sites important to that movement. The maps can be pinned with archival images from museums and users via the American Experience PBS website. As of this writing, neither the Engineering Map nor the Abolitionist Map programs include significant posts related to Buffalo. (Free; Category Education; Updated 2014; iTunes Rating 4+; Customer Rating None.)

Artsy (Art.sy, Inc.)³¹

Artsy intends to make as much of the world's art accessible as possible. The app allows you to browse, collect and share thousands of artworks from leading galleries and museums, as well as virtually tour selected art fairs and exhibitions around the world. Currently, Artsy does not include any galleries or museums from the Buffalo area. The app also allows you to browse and purchase art works from galleries and obtain the advice of a personal art adviser. The app has art related educational content and connects to the Genome (art history) research project. Sharing capabilities are available

via email and social networks. There is a related website with similar capabilities. (Free; Category Lifestyle; Updated 2014; iTunes Rating 12+; Customer Rating ****.)

Cities (Travel Channel)³²

This app includes photos, videos and tips from various Travel Channel shows. The app provides resources to explore twenty-four U.S cities, including books, movies, music, and lists of dos and don'ts. The app filters sites by categories: restaurants, bars, hotels, etc. It includes GPS mapping capabilities. Sharing capabilities include Facebook or Foursquare. Toronto is the closest city to Buffalo included in this app. (Free; Category Travel; Updated 2013. iTunes Rating 12+; Customer Rating ***)

CultureNOW: Guidebook for Museum without Walls³³

The app showcases the cultural assets of 70+ cities. The app includes images, podcasts and tours. Currently there are six posts of public art and landscape projects located in Buffalo, NY. Sharing capabilities are provided via email Facebook and Twitter. There is a related website with similar capabilities. (\$1.99. Category Travel; Updated 2013; iTunes Rating 4+; Customer Rating ***)

Explorer (American Museum of National History)³⁴

Linked to the American Museum of National History's website, the app includes a navigating system that provides location and turn-by-turn directions, to help visitors plan their trip to the museum. (Though reviews complain that the GPS locator does not work.) The app provides access to digital exhibits, museum-planned and custom tours, and a treasure hunt. There is a bookmarking feature to allow further exploration from home. There are also sharing capabilities via email, Facebook and Twitter. (Free; Category Education; Updated 2013; iTunes Rating 4+; Customer Rating ****.)

Goop City³⁵

The app provides a city travel guide for London, Los Angeles and New York, based on Gwyneth Paltrow's lifestyle show and a related website. The app includes a bookmarking feature, as well as sharing capabilities via Facebook and Twitter, and feedback and rating links. (\$3.99; Category Travel; Updated 2013; iTunes Rating 4+; Customer Rating ***½.)

History Here (History Channel)³⁶

The app provides a guide to thousands of historic locations across the U.S. Users can search for listings near their current GPS location or by city. While there are a number of listings for the Buffalo area, including public art, historic buildings and museums, the list is far from comprehensive. Users can also use the app to suggest additional historic sites to be included in the program. (Free; Category Travel; Updated 2013; iTunes Rating 4+; Customer Rating ***½.)

Historypin (We are What We Do)³⁷

The app reveals photos near your location and allows you to view them layered on top of modern scene. There are numerous posts by individual and institutions for Buffalo, NY and the surrounding area. For example, there are approximately ninety-five posts of art by the Albright Knox Gallery. Users can add photos and stories to the map, and also create collections of images and stories. There is a related website. You can share the experience via Historypin Blog, Twitter, Facebook, Google+ and You Tube. (Free; Category Travel; Updated 2014; iTunes Rating 12+; Customer Rating ** ½.)

Museum Locator³⁸

The app provides information on local museums, monuments, galleries and exhibits across U.S. A list of museums is provided based on proximity to the user. Basic information is provided including museum name, museum type, address, phone, website, admission fees and hours. Many Buffalo museums are listed, though the list is incomplete. (Free; Category Travel; Updated 2010; iTunes Rating 4+; Customer Rating ***1/2.)

Museum Without Walls: Audio³⁹

The app is an interpretive audio program of 150 plus artworks around Philadelphia. It uses a GPS locator to match the user's position to a map. Stories can be submitted via a related website. (Free; Category Education; Updated 2013; iTunes Rating 4+; Customer Rating none.)

Roadside America⁴⁰

This is an app to share quirky sites found primarily in the U.S. Additional purchase is required for additional cities and attractions. A few odd and dated references to Buffalo are included. The experience can be shared via Facebook and Twitter. The public is invited to submit tips and photos to a related website. (\$2.99; Category Travel; Updated 2014; iTunes Rating 9+; Customer Rating ****.)

Street Museum (Museum of London)⁴¹

This app uses a GPS locator to match and layer a modern scene over an archival image from museum's collection. There are links to the museum's site for prints and other images. The app is shareable via email, Facebook and Twitter. (Free; Category Travel; Updated 2014; iTunes Rating 4+; Customer Rating ****.)

Stories from Main Street (Smithsonian)⁴²

This app allows users to add or listen to stories from small towns and rural America. The app relates to the Smithsonian's traveling exhibitions programs to rural towns, featuring exhibitions about American culture and history. Selected stories featured on website. (Free; Category Education; Updated 2013; iTunes Rating 4+; Customer Rating *** ½.)

The Scoop (The New York Times)⁴³

This app is a guide to New York City from the staff of the New York Times. The app includes lists of restaurants, bars, coffee shops, outings and trips. It can be shared via email, text, *Facebook*, *Twitter* or *Four Square*. (Free; Category Travel; Updated 2014; iTunes Rating NR 12+; Customer Rating **.)

University Circle⁴⁴

This is a guide to University Circle, Cleveland, OH. The app provides information, photos, maps, restaurants, galleries, entertainment venues and other information about a neighborhood near Cleveland. (Free; Category Lifestyle; Updated 2013; iTunes Rating 4+; Customer Rating ****.)

Future Trends

Current social, economic and demographic trends, as well as the technological capabilities inspired by the Information Revolution, require American museums to reconsider their traditional practices. In response to the changing environment, the American Alliance of Museums' Center for the Future of Museums publishes an annual report on its research titled "TrendsWatch." This report attempts to identify trends that have the potential to drive change, especially in museums. While the search methods

outlined above revealed numerous articles, conferences and panel discussions related to future trends for museums which were reviewed, this analysis focuses on the “TrendsWatch” reports specifically, for two reasons: (1) the “TrendsWatch” reports are timely, in particular they include a 2014 report and (2) the “TrendsWatch” reports are available for the successive years 2012, 2013, and 2014, providing for some continuity in the research over time. The trends identified in these reports combined with the best practices of “museums without walls” and apps, provide the basis for designing City² Buffalo, a new type of history museum for the future. Table 3.3 summarizes the major trends described in the “TrendsWatch” reports of 2012, 2013 and 2014. The future trends are discussed in more detail under the following categories: Nonprofit status, Location, Funding, Demographics, New Technology, Information and Education.

Table 3.3 Summary of Future Trends Facing Museums

	2012 (a)	2013 (b)	2014 (c)
Nonprofit Status	Nonprofit status of museums under pressure. Social organizations experimenting with alternatives to 501(3)(c).		For profit museums may be more attractive structure. Social entrepreneurs are exploring ways to achieve social good while forgoing nonprofit status. Parallel rise in impact investing.
Location	Museums are using adaptable infrastructure to engage with the community beyond its walls. For example, mobile museums, pop-up museums.	North America's population is 80% urban and climbing. Young, older and creative people are moving into cities. Consider museum's physical location and how it affects access by users and access to resources?	
Funding	Social media tools and distributed technology offer new sources of financial support for museums. Embedded giving, crowdfunding, Google Wallet.	Patterns of giving are shifting along with wealth, demographics and tax policies. Museums will need to engage philanthropists with new motivations and expectations. Wealth is concentrated with the Boomers. Population is increasingly more diverse. Younger and female donors demand measurable results.	
Demographics	The aging population in the U.S. presents both opportunities and challenges for museums, in terms of visitors and supporters. More than 100 million Americans over 50.		
New Technology	Augmented reality technology offers new ways to enhance the museum experience for visitors and others.	3-D printing offers a valuable tool for reproducing collections for exhibition and for retail purposes among other uses.	Synesthesia. Emerging technologies record sensory experiences of scent, sound, sight, touch and taste, to be presented in new ways.
		Location and context aware technologies allow for complex interactions with networked objects and attentive spaces.	Rapid development of smaller, more mobile robots with wide ranging capabilities.
Information	Crowd sourcing via the Internet allows large numbers of volunteers to provide content ranging from opinion to expertise.	People are assessing the downside of our hyper-connected world. Museums must balance demands for connectivity and space for contemplation.	90% of all data has been created in the last two years. Access to big data plus new tools for analyzing the data offer new ways to predict the future.
			Privacy. We are just beginning to address appropriate limits on how data is shared, with whom, and for whose benefit.
Education	Historic formal learning methods are being challenged. Learning is being reinvented with new technology.	Skyrocketing costs, high unemployment among young causing fragmentation of postsecondary education. Competency-based learning, online learning.	

- Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch, Museums and the Pulse of the Future." Annual report of Center for the Future of Museums, American Alliance of Museums (2012), accessed February 12, 2014, http://www.aam-us.org/docs/center-for-the-future-of-museums/2012_trends_watch_final.pdf?sfvrsn=0.
- Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch, Back to the Future." Annual report of Center for the Future of Museums, American Alliance of Museums (2013), accessed February 12, 2014, <http://aam-us.org/docs/center-for-the-future-of-museums/trendswatch2013.pdf>.
- Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch" Annual report of Center for the Future of Museums, American Alliance of Museums (2014): 8-18, accessed March 30, 2014, http://www.od20ww77ktm1d2.doctracking.com/nocache/od20ww77ktm1dA/pdf.fdf?page=0&DMCA_WARNING=It_is_a_criminal_offence_to_remove_or_disable_this_copyright_protection_technology&Search_Google_for_details=DMCA+eBook+Adobe&k=01113209#FDF.

Nonprofit Status

According to “TrendsWatch” (2013), the typical nonprofit status of museums may change.⁴⁵ Today, more than two thirds of museums operate as independent nonprofit organizations, usually as public charities, defined by section 501(c)(3) of the U.S. tax code. Traditionally, these museums have benefitted from the tax breaks granted for charitable donations, in exchange for their commitment to public service. However, the current economic climate could potentially change this pattern, as many policy makers consider museums to be a luxury rather than necessary public service today. This assumption, combined with financial pressures may drive some governments to impose taxes or alternative payments on previously tax-exempt museums and/or eliminate the tax-deductibility of donations made to charities. This has stimulated interest in a new type of corporation, a low-profit limited liability corporation (also referred to as a benefit corporation or L(c)(3) corporation), which puts social goals ahead of profit-making as a future trend. This hybrid organization has the advantage of accessing both philanthropic and commercial funding while earning moderate profits.

The vulnerability of the nonprofit organizational structure was identified again in “TrendsWatch” (2014).⁴⁶ The report highlighted social entrepreneurship, as a growing type of business activity which addresses a social or environmental need. Historically, these needs might have been met by nonprofit tax-exempt organizations. Instead entrepreneurs are creating for-profit structures that allow for more flexible access to capital, while avoiding dependence on government tax breaks. The report describes two examples. In one case, the museum uses philanthropy to build services that provide a

self-sustaining income stream. In the other example, the museum partners with another organization, using a shared business platform.

Physical Location

As discussed in this paper, museums are increasingly expanding their activities beyond their buildings. “TrendsWatch” (2012) reported a variety of approaches, including adaptable infrastructure, such as the mobile museum and the pop-up museum.⁴⁷ These types of temporary, low cost, low-risk experimental sites are easy to set up and they meet the growing public interest in participatory experiences, especially in unexpected places. This trend is further supported by social media networks such as Facebook and Twitter, which allow instantaneous communications among followers and participants. Additionally, these local and casual (less intimidating) versions of museums provide the opportunity to reach audiences that might not otherwise visit museum buildings.

Also important to the discussion of a museum’s location is where it is situated relative to the population. “TrendsWatch” (2013) reports on the re-urbanization underway in North America.⁴⁸ North America’s urban population, already eighty percent, is expected to reach ninety percent by mid-century. This urban growth is being driven by young people (ages 25-29), older people (ages 60+) and creative people, all moving into cities for various reasons ranging from employment, to services, to cultural experiences. The report points out that growing cities will require redesigned public and private services. Accordingly, museums will need to consider where they are located relative to the growing population centers and other city services and activities.

Funding

Related to the discussion about the tax-exempt nature of museums, is the continued pressure for fundraising. “TrendsWatch” (2012) reports museums are using new technology to generate contributions using mobile phone texting, web links, Google Wallet and Card Case.⁴⁹ Museums are also experimenting with crowd-funding methods to source many small donations to meet a project need.

Demographic Shifts

While museums are experimenting with new technology for sourcing funds from donors, the demographic profile of museum supporters is shifting. “TrendsWatch” (2013) reports that wealth is now concentrated primarily in the hands of the Baby Boomer generation, the traditional core of museum visitors.⁵⁰ However, populations are rapidly growing more diverse. Future donors will likely have different profiles and different expectations to which museums will need to adjust.

“TrendsWatch” (2012) reports that the number of Americans aged 65 and older is expected to more than double by 2040.⁵¹ As this is an important group of museum visitors and supporters, museums will need to address new issues such as accessibility.

New Technology

Not surprisingly, the Center for the Future of Museums identified a stream of new technologies that will not only alter the museum experience in the near term, but potentially alter what a museum is and does in the future. “TrendsWatch” (2012) cited Augmented Reality as one of the new technologies available for museums to enhance the experiences of both physical and virtual visitors.⁵² Augmented Reality, a technology that can layer digital elements (sound, video, graphics and even touch sensations) over

real experiences via mobile devices, is predicted to become mainstream technology. It has the potential to provide museum visitors with new and richer ways to experience objects or images.

“TrendsWatch” (2013) identified 3D printing as another new tool for reproducing collections for many uses.⁵³ The same report also highlighted location-aware and context-aware technologies as a future means for museums to interact with visitors.⁵⁴ Building on Augmented Reality capabilities, “TrendsWatch” (2014) noted another emerging technology, Synesthesia, which allows for the sensory experiences of scent, sound, sight, touch and taste to be recorded and translated in new ways.⁵⁵ Mobile robots were also reported to have the potential for a wide range of capabilities.⁵⁶

Information

Crowd-sourcing, the process of gathering content and suggestions from an open group of participants using the Internet, is identified by “TrendsWatch” (2012) as both an opportunity and a challenge for museums.⁵⁷ While crowd-sourcing allows museums to expand in scope, it also adds the burden of oversight and quality control. Crowd-sourcing also challenges the traditional curatorial authority over content, since the public becomes the curator and the curator becomes the facilitator.

While constant and immediate connectivity creates tremendous potential, “TrendsWatch” (2013) suggests a growing demand by many for space and time to disconnect.⁵⁸ Museums must balance their role as a potential provider of connectivity versus space or time for contemplation.

“TrendsWatch” (2014) highlights the overwhelming amount of data being created (with more than ninety percent created in the last two years). Metadata access plus new

tools for analyzing it promise new ways to predict the future.⁵⁹ However, these capabilities come at the cost of privacy. Privacy in the digital world is another concern reported.⁶⁰ Society is just beginning to question the appropriateness of how data is shared, with whom, and for whose benefit.

Education

“TrendsWatch” (2012) discusses the changing environment for U.S. education.⁶¹ In the transition from the Industrial Age to the Information Age, the traditional style of learning (taught by teachers lecturing in physical classrooms) is expected to change. According to the report, future learning will be individual and self-directed, supported by educators who are primarily “aggregators, facilitators and mentors.”⁶² Museums can play a role in the new educational environment, but will need to improve online access and indexing of online resources.

Another educational trend reported in “TrendsWatch” (2013) is the fragmentation of postsecondary education.⁶³ The skyrocketing costs of college combined with high unemployment among young people is driving students to consider alternatives to a traditional college degree, including “competency-based learning” and online learning.⁶⁴ Museums can potentially play a role in this arena, offering online courses, educational partnership arrangements and training. This also presents an opportunity to engage college-age learners, the museum supporters of the future.

Chapter 4

Results

“Results! Why, man, I have gotten a lot of results! I know several thousand things won’t work.”

– Thomas A. Edison, Inventor¹

These results analyze the three data sets described in Chapter 3, Methods and Data: (1) Sample Set: “Museums without Walls, (2) Sample Set: Apps and (3) Future Trends. The analyses explore the commonalities and differences among the sample organizations and apps and the likely future environment for museums, in order to determine the best practices to be included in the design of the proposed City² Buffalo. The findings are presented in terms of four traditional categories of museum operations: Mission and Background, Collections and Programs, Communities and Organization.

The review of museum practices over history described in Chapter 2, combined with this evaluation of current practices and the environment informs the design of the proposed City² Buffalo presented in Chapter 5. City² Buffalo, a smartphone app, is intended to serve as a “museum without walls” for the city of Buffalo. City² Buffalo aspires to facilitate public participation in history as part of everyday life, in the hopes of inspiring cultural awareness and civic engagement among its users, in an effort to support a better future for the city.

Analysis

Sample Set: “Museums without Walls”

The sample group of “Museums without Walls” includes CultureNOW, Historypin, Museum of the City and Museums on Main Street. The activities of all four organizations relate to the preservation and understanding of history. All of the samples utilize a

variety of techniques for practicing museum-like activities, such as collecting and interpreting. Each organization is designed for different specific purposes, though all of them note education as a priority. While none of the four sample organizations mirrors the intentions of City² Buffalo, many of their activities are worthy of consideration. Some of the strengths and shortcomings of the sample set are summarized below.

CultureNOW

CultureNOW functions primarily as an outdoor museum or gallery of art, architecture and history. Its mission is to promote cultural tourism and arts education. Its collection is primarily representative of U.S. cities (including a few from Buffalo). The collection is plotted via Google maps, providing a useful resource for organizing tours. The app, Guidebook for Museum Without Walls, has good functionality as a guide. However, its cost (\$1.99) may discourage use by some. The museum-like approach of the organization is reflected by its collection categories of artist, architect, city and year (created). The collections are not gathered into any exhibitions or themes, rather they are organized in a few tours. Submissions for the collection are invited from all users, individuals and institutions, although this invitation appears to be targeted toward institutions or community groups. Also, inclusion in the collection remains at the discretion of CultureNOW.

CultureNOW's approach could be useful in a city such as Buffalo, so rich in historical art and architecture. One of the priorities of City² Buffalo is to inspire cultural awareness, similar to that of CultureNOW. However, CultureNOW provides no forum or means for its community to connect the art and architecture of the past to the present-day urban experience. Further, while CultureNOW's collections primarily reside in cities,

the collections do not necessarily represent their cities. Also, CultureNOW does not allow much opportunity for user input or interactivity. CultureNOW is missing the means to achieve one of the key objectives of City² Buffalo, to inspire civic awareness and community participation.

Historypin

Historypin's stated goal is to create a global community of millions of people across different generations, cultures and practices, to share history. At a local level Historypin seeks to encourage neighborhood participation in history, thus avoiding the trend of social isolation identified by the sociologist Robert Putnam.² To this end, Historypin invites everyone to pin materials to a Google map, and to assemble these items into Collections and Tours. Historypin only requires that the content represent both a location and time, as this is how it is recorded in the collection. Additionally, users are invited to add materials to existing Historypin Projects, and to other users' pinned records, Tours and Collections. Historypin is not subject to the review of a curator (with exception of appropriateness at the discretion of Historypin). As such, it is the only organization among the sample group to grant curatorial authority to its users.

Historypin serves a range of purposes, as a family scrapbook, as a tour guide or as a museum gallery. In all cases, materials can be shared via a number of social networks. Additionally, the Historypin app includes a number of useful and entertaining capabilities using current technologies. The open content, shared authority and entertainment value of Historypin are all useful for meeting the objectives of City² Buffalo.

Museum of the City

Museum of the City is a digital museum of the city which provides a forum for exchange information about the world's cities of the past, present and future. Museum of the City exists only as a website, which is not interactive, though there is connectivity via social media. Also it only accepts exhibitions of a certain form which are subject to editing. A random sampling of exhibitions suggests thought provoking topics. Although there is a useful search function, the organization of the collection could be improved by creating fewer galleries (categories). Also, the home page includes an informative feature, a word cloud, which indicates the various topics included among the galleries, based on frequency of topic. For example, currently sustainability and planning are the largest words in the word cloud. The word cloud points to the primary activity of Museum of the City, collecting and sharing ideas related to cities, city planning and sustainability, an in particular as related to Portland.

Despite the name and description, Museum of the City provides little guidance for the functional design of City² Buffalo. The purpose of the museum, as a forum for ideas about the cities, is similar the idea behind City² Buffalo. However, at this time its functionality and interconnectivity is limited.

Museum on Main Street

Museum on Main Street is intended to counter the severe geographic, economic and cultural isolation often experienced in rural America. Additionally, through its website and app capabilities, Museum on Main Street encourages the collection and preservation of rural local history. Museum on Main Street, its website and app, seem to be focused primarily on collecting and preserving, rather than exhibiting the stories of

rural America. A secondary use for gathering the recordings may be to affirm the value of the traveling exhibit program in those rural communities visited, for the purpose of justifying continuing support for the program.

While Museum on Main Street is designed primarily for collecting, City² Buffalo is intended to collect, exhibit and share images and other records for the purpose of practicing history as part of everyday inquiry. Museum on Main Street conducts some activities of potential interest for City² Buffalo. For one, Museum on Main Street has an interesting and well thought out traveling exhibition program. City² Buffalo could also benefit from traveling exhibitions (to neighborhood schools, libraries and community centers) as this could encourage community participation in the app project. Additional useful ideas gathered from Museum on Main Street include its approach to organizing content. Where its activities are organized by town (geography) and exhibition topic or question, City² Buffalo might instead organize its practices according to neighborhood (geography), as well as by topic or issue. Also, Museum on Main Street's questions for small town residents could easily be modified and asked of Buffalo residents. Similarly, many of the history categories designed for organizing records from rural communities could also be applied to collections from city neighborhoods. On the whole, this website does not match the intention of the City² Buffalo. However, many of the ideas are useful for the design process.

Summary

Table 4.1 summarizes the priority activities of the sample group of "museums without walls," compared to the intentions for City² Buffalo. All of the organizations in the sample set categorize their collections based on geography. Two of the sample

organizations specify the location of records using Google Maps. Two of the samples, specifically source content globally, Historypin and Museum of the City, while CultureNOW collects primarily from U.S. cities and Museum on Main Street collects primarily from rural American towns. City² Buffalo will initially focus on the city of Buffalo and its urban neighborhoods, though eventually the app can be used in other cities around the world.

Table 4.1 Summary of Priorities Sample “Museums without Walls”

Table 4.1: Summary of Sample Group Priorities	CultureNOW	Historypin	Museum of the City	Museum on Main Street	City ² Buffalo
Geographic Focus:					
Local	X	X	X	X	X
National	X			X	
Global		X	X		X
Museum Focus:					
Collecting		X		X	X
Exhibiting	X	X	X		X
Curatorial Authority:					
User		X			X
Museum	X		X	X	
User Participation:					
Interactive		X			X
One-way	X		X	X	
Time Focus:					
Past	X	X	X	X	X
Present	X	X	X	X	X
Future			X		X

All among the group display their collections as exhibits in some form, though authority for creating the exhibits varies. Museum on Main Street retains authority for its exhibits. CultureNOW and Museum of the City rely on institutions and some individuals to create exhibitions, subject to review and approval before being included in the collections. Only Historypin allows users authority over all collecting and exhibiting. Not only can Historypin users add their own materials, they can also add to other users’

creations. City² Buffalo will follow the Historypin example and allow users to control the content, with some appropriate supervision.

Both Historypin and CultureNOW link records to dates. Museum of the City collections are not necessarily dated, but reference periods. Museum on Main Street exhibits American culture without specificity related to date. None of the sample museums specify a time period for inclusion in the collection, though in practice time periods do apply. Museum of the City exhibits range from ancient to modern, with no specificity. CultureNOW references time in terms of the date a work or building was created. Museum on Main Street's collections emphasize history as a period of memory. The same applies to Historypin, which is the only sample organization to require that a date and location be connected to each record. (Historypin's timeline is currently ends at 1840, marking the birth of photographic images. However, they acknowledge working to extend this limit.) Again City² Buffalo will follow the Historypin example and require users to attach a date to the materials. However the historical calendar should be extended back beyond 1840.

Sample Set: Apps

The app sample set was determined based on a broad search of iTunes, Android Market Place and Google Play using the terms museums, history, travel and cities, as these categories were expected to identify the apps most likely to have features applicable to the design and function of City² Buffalo. Fifteen apps were identified as conducting activities similar to those envisioned for City² Buffalo. Chapter 3, Methods and Data, provides a review of these apps based on data collected primarily from iTunes app previews and app testing.

Table 4.2 provides a summary of the results of a simple and quick test of the apps. The test criteria are based on Bell's visitor expectations and Anderson's museum performance measures previously described in Chapter 2.^{3, 4} The analysis addressed four questions: (1) Is the app easy to use? (2) Is it transformational (Wow!)? (3) Is it engaging, either educational or entertaining? (4) Is it shareable via social media networks? The results of the simple test are not especially revealing.

Table 4.2 Summary of Testing Results of App Sample

App	Dated	Easy?	WOW!	Engaging?	Sharable?	Rating
American Experience	2014	Yes	No	Yes	Yes	**** ½
Explorer (ANHM)	2013	Yes	No	Yes	Yes	****
Artsy	2013	Yes	Yes	Yes	Yes	*****
Cities (Travel Channel)	2013	Yes	No	Yes	Yes	***
CultureNOW	2013	Yes	Yes	Yes	Yes	***
Goop City	2013	Yes	Yes	Yes	Yes	*** ½
History Here (History Channel)	2013	Yes	No	Yes	Yes	*** ½
Historypin (We are What We Do)	2014	Yes	Yes	Yes	Yes	** ½
Museum Locator	2010	Yes	No	No	Yes	*** ½
Museums Without Walls Audio	2013	Yes	No	Yes	Yes	NR
Roadside America	2014	Yes	Yes	Yes	Yes	****
The Scoop (NY Times)	2014	Yes	No	Yes	Yes	12+
Stories from Main Street (Smithsonian)	2014	Yes	No	Yes	Yes	4+
Street Museum (Museum of London)	2014	Yes	No	Yes	Yes	NR
University Circle	2014	Yes	No	Yes	Yes	4+

All of these apps were created or updated within the past year, except one.

Museum Locator was created in 2010, as is evident from its very basic technology and

functionality. It appears that most apps are regularly updated to incorporate new technological capabilities.

As might be expected, nearly all of the sample apps appear easy to use. That being said, the app design might also influence perception about the ease of use. As smartphone screens are small, content that is cluttered or complicated may be a disincentive for users.

Five of the apps achieved a “Wow!” rating (based on their potential to create a transformative experience for users, as described in Chapter 2). All five of these apps, Artsy, CultureNOW, Goop City, Historypin and Roadside America have rich content. Several of these apps have additional entertaining features. For example, Historypin includes Shake It Up, a feature which reveals a new (and hopefully interesting) picture after the phone is shaken. Both Historypin and Street Museum incorporate Augmented Reality, a technology which allows the user to blend a current view with another digital image of the same location.

Most of the apps were considered engaging or at least functional. Eight of the apps provide for some sort of user input. However, the user input via smartphone is primarily photos. (In some cases, additional content is accepted through a related website. Nine of the apps have a related website.) All of the apps incorporate some sort of mapping feature.

All of the apps are shareable via social media including Facebook, Twitter, YouTube, Google+ and Four Square.

Twelve of the fifteen apps are free. Prices for the other three apps range from \$1.99 to \$3.99. Cost may deter usage, especially by a younger crowd. A related factor

is advertising. For example, The Scoop (by the New York Times) is free, but incorporates a lot of advertising. It is not clear which is the lesser of two evils, the barrier of cost or the nuisance of advertising?

The iTunes ratings are similar to movie ratings, with the number indicating the appropriateness of the app for certain ages. One would expect apps with open content to earn a 12+ rating.

The customer ratings, which range from 2 ½-stars to 5-stars, are not assumed to be reliable, as the sample groups are small. Further, comparison to another rating service shows large discrepancies between ratings for the same app. Also, ratings are not available for new or newly updated apps. That being said, Artsy, the one app with a large commercial function (as an art broker) in addition to its gallery and educational services, appears to be the slickest app, earning a 5-star rating.

Summary

City² Buffalo is intended to be a smartphone app for a mobile city museum of history, exhibiting the living city of Buffalo, NY, as represented by its neighborhoods, landscapes and culture. The purpose City² Buffalo is to make history an everyday experience in order to inform and inspire users toward global cultural awareness and civic engagement. There does not appear to be an app quite like City² Buffalo on the market at this time.

Based on the purpose outlined for City² Buffalo, the app should be designed to accomplish three priorities: (1) to collect and share information about history, (2) to offer interesting entertainment related to history and (3) to enable users to share what they find interesting and inspiring. An important factor in the app's success will be user

participation, especially in developing content. To support the effort to build the collection it is therefore recommended that City² Buffalo consider partnerships with cultural and educational organizations in Buffalo. Further, the app should specifically target younger people (under 30), who are familiar with smartphone technologies and actively practice them. The over-all objective is that City² Buffalo is to make sharing content, such as photos, videos or other information about history easy and fun.

Future Trends

The American Alliance of Museums Center for the Future of Museums issues an annual report titled “TrendsWatch.” The findings of these reports over the past three years were analyzed to consider what environmental and industry trends might influence the success of the City² Buffalo.

Nonprofit status and funding pressures are of concern for museums in the future. This suggests that City² Buffalo cannot rely on traditional sources of museum support, such as private donors or governments. City² Buffalo should consider alternatives to nonprofit operations. If it is determined that a nonprofit arrangement is best, City² Buffalo should strive to be self-sustaining, eventually.

Another factor of concern to museums is the desirability of existing locations relative to populations and the high cost of maintaining physical structures. City² Buffalo addresses these challenges by creating a mobile museum without the costs of brick and mortar.

New technologies are another important factor driving museum practices and visitor expectations. City² Buffalo should incorporate the newest app technologies,

including Augmented Reality (a live view supplemented by other input) and Synesthesia (the blending of visual experience with other sensory experiences) among others.

History museums are facing a changing demographic environment as their current supporters' age, and younger and more diverse audiences show less interest in the traditional presentation of history. City² Buffalo should seek to engage an important segment of the population, younger urban dwellers.

Finally, education represents a great challenge to the community, as well as a large population of potential users. Also many nonprofit organizations emphasize an educational mission partly due to their nonprofit tax status. There are more than 235,000 children under the age of eighteen in Erie and Niagara counties according to 2013 estimates, plus nearly 65,000 college students in Buffalo area.^{5, 6} These numbers of students represent a large potential audience and also a potential source of assistance building the collection. School partnerships should be considered to help with this effort.

On the whole the future environment for museums encourages the experimentation of these ideas using a smartphone app, as it is relatively low cost, low-risk, and the reward is high if it succeeds.

Limitations

A proposal for City² Buffalo is described in Chapter 5. The design for City² Buffalo considers the results of research conducted to understand the range of activities of select "museums without walls" and select apps that practice museum-like activities. The design also considers future trends applicable to the activities of museums in the future. Despite a somewhat limited data sets, the combination of the "museums without

walls” analysis, the app analysis and the future trend analysis, provides useful input to be considered in the design for City² Buffalo.

Chapter 5

Proposal

City² Buffalo Design

“Eventually everything connects- people, ideas, objects . . . the quality of the connections is the key to quality per se. . . . I don’t believe in this ‘gifted few’ concept, just in people doing things they are really interested in doing.”
Charles Eames, Designer¹

City² Buffalo is a smartphone app intended to serve as a mobile “museum without walls,” exhibiting the living city of Buffalo with a purpose to inform and inspire all toward global cultural awareness and community participation. Utilizing new technologies, City² Buffalo will enable users to practice history that is inclusive, open-ended and relevant to everyday life. City² Buffalo is further described below according to categories established for the sample groups studied in Chapter 3.

Background and Mission

A smartphone app, City² Buffalo, will function as a “museum without walls,” as well as a forum for city life. Its objective is to integrate history into everyday life by allowing people to share images and ideas that connect to them to the past, present and potential future of their city. The title City² evokes the idea of a city square or forum, where people come together to experience the city. City² Buffalo is open to all of the public, all the time. By allowing everyone to have a voice, City² Buffalo can help communities to bridge change and differences, in order to collectively improve city life for the future.

Collections and Programs

*App. City*² Buffalo is an app intended to serve the public as an open-sourced, user-driven “museum without walls,” with a collection of images (and eventually video and audio recordings) accessible via smartphones or electronic tablets. Its mission is to:

- Collect and share Buffalo life of the past, present and future;
- Showcase Buffalo’s richness and diversity to inspire cultural awareness and community participation; and
- Connect Buffalo locally and globally.

Apps are only as rich as their content and therefore dependent upon user participation. *City*² Buffalo is designed so that users will want to participate in city history and life by:

- Organizing information about city life in Buffalo;
- Linking the history of Buffalo to the present and future; and
- Sharing excitement and entertainment based on new technologies and history.

Appendix 2 provides mock-ups of smartphone screens which demonstrate some of the app’s important and the navigational flow of its important functions. The main menu for *City*² Buffalo provides users with four primary functions: *City*² Life organizes information about the city, according to categories or tags; *My City*² provides calendar information; *City*² Map provides mapping; and *City*² Snap allows users to record, post and share images, video and sound. The menus are outlined below.

- City² Life
 - Communities and Leaders
 - Education and Entertainment
 - Work and Industry
 - Science and Nature
- My City²
 - My Day (a calendar)
 - My History (a history of personal posts)
 - My Favorites (a link to favorites)
 - My Friends (a link to social networks)
- City² Map
 - Neighborhoods
 - Tours
- City² Snap
 - Post (share)
 - View
 - Surprise

City² Snap is perhaps the most important feature of City² Buffalo, since it allows users to post and manipulate the images and records that will populate the app's collections, exhibits and tours. Anyone can submit photographic images (and eventually video and audio clips). Each record must include a date, a location and a tag. The tag may be chosen from among a list provided or self-created. Proposed tags match the

categories for City² Life: Communities and Leaders, Education and Entertainment, Work and Industry, and Science and Nature. Also, multiple tags can be applied. These tags serve an important organizational purpose for searching the collection, creating tours and exhibits. Users are also encouraged to include a limited narrative or descriptive text with each record.

In order to engage users, the app will necessarily incorporate these technologies:

- Record History. Capture an image with a smartphone camera.
- Digitize Old Photos. Photograph old pictures with a smartphone camera.
- Augmented Reality. Compare a modern city image to an historic one. Use the smartphone camera to create or retrieve a picture. Based on GPS location technology, retrieve archived images from nearby. Overlay the historic view onto the modern one to create a comparison.
- Surprise. Use your smartphone to retrieve a random image from anywhere in the city's past present or future. Users can further document it: Tag it, Like it or Share it.

Figures 5.1, 5.2, 5.3 and 5.4 show examples of images of Buffalo's Albright Knox Art Gallery that demonstrate the range of photographs which might be posted using the features of City² Snap described above. Once posted, images can then be shared via social media links, liked, tagged (by topic, geography or date) or compared using Augmented Reality. They can also become part of a collection, exhibition or tour.

Figure 5.1 City² Snap: Contemporary Photograph Snapped and Posted

Tag: Education and Entertainment, History, Culture, Art Museums, Architecture, North Buffalo

Description: The Albright Knox Art Gallery, Buffalo, NY, holds one of the top modern and contemporary art collections in the world.



Source: Britannica.com, accessed July 25, 2014,
<http://www.britannica.com/EBchecked/topic/13120/Albright-Knox-Art-Gallery>.

Figure 5.2 City² Snap: Old Photograph, Digitized and Posted

Tag: Education and Entertainment, History, Culture, Art Museums, Architecture, Buffalo

Description: Guest departing a special exhibiton at the Albright Knox Art Gallery, Buffalo, NY in 1905.



Source: Albrightknox.org, accessed July 25, 2014,
<http://www.britannica.com/EBchecked/topic/13120/Albright-Knox-Art-Gallery>.

Figure 5.3 City² Snap: Old Photograph Digitized and Posted

Tag: Education and Entertainment, History, Culture, Art Museums, Architecture, Buffalo

Description: The Caryatids of the Erechtheum, Athens, Greece, an inspiratiion for the Albright Knox Art Gallery, Buffalo, NY.



Source: Artofgardening.org, accessed July 25, 2014,
<http://artofgardeningbuffalo.blogspot.com/2011/04garden-in-ruins.html>.

Figure 5.4 City² Snap: Contemporary Photograph Snapped and Posted

Tag: Education and Entertainment, History, Culture, Art Museums, Architecture, North Buffalo
 Description: The Caryatids of the Albright Knox Art Gallery, inspired by the Erechtheum, Athens, Greece. View of the Albright Knox Art Gallery, Buffalo, NY. Completed 1905. Sculptor August Saint-Gaudens, Architect by E.B Green .



Source: Artofgardening.org, accessed July 25, 2014,
<https://turordoctorofwny.wordpress.com>.

City² Map is another important feature of City² Buffalo, since it allows users to post images and eventually other records to a Google Map. Neighborhood tags are also applied to posted images to allow for searching the collection, creating tours and exhibits. Figures 5.5, 5.6, and 5.7 show examples of images of Buffalo's Michigan Street African American Heritage Corridor to demonstrate a collection of photographs that might be posted to create a tour using the features of City² Map. Once posted, mapped tours can be shared via social media links, liked, tagged . These posts might eventually be linked to other apps providing information about nearby resources, such as Yelp, for restaurants.

Figure 5.5 City² Map: Photograph Snapped, Posted and Mapped

Tagged: Education and Entertainment, History, Culture, African American Culture, Michigan Street

Description: The Buffalo's Colored Musicians Club offers some of the best jazz you can find anywhere. The club offers Sunday night "Jam Sessions" and Saturday lessons.

Address:

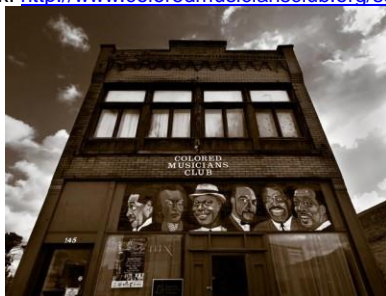
Colored Musicians Club

145 Broadway

Buffalo, NY 14203

Phone: 716-855-9383

Event Link: <http://www.coloredmusiciansclub.org/schedule.html>



Source: BuffaloVibe.com, accessed July 25, 2014,

<http://www.buffalovibe.com/local-info/colored-musicians-club>.

Figure 5.6 City² Map: Photograph Snapped, Posted and Mapped

Tagged: Education and Entertainment, History, Culture, African American Culture, Michigan Street

Description: The Langston Hughes Institute Center is a gallery featuring Buffalo and regional African American artists, and a gathering place for cultural and community events.

Address:

The Langston Hughes Institute Center
for Cultural History and Arts Education

136 Broadway

Buffalo NY

716-881-3266



Source: CultureNiagara.com, accessed July 25, 2014, www.culturalniagara.com/.

Figure 5.7. City² Map: Photograph Snapped, Posted and Mapped

Tagged: Education and Entertainment, History, Culture, African American Culture, Underground Railroad, Michigan Street
 Description: The Michigan Street Baptist Church. A central part of the history and culture of the African American community in Buffalo for more than 150 years. Erected in 1845, it became a legendary Underground Railroad station. It was a central meeting place for abolitionists and anti-lynching activists.

Address:
 511 Michigan Avenue (between Broadway and William
 Buffalo, N.Y.



Source: VisitBuffalo.Niagara.com, accessed July 25, 2014,
www.visitbuffaloniagara.com/.

Website. The development of a related website is recommended for future consideration. A website for City² Buffalo will allow for home pages not only for individual users, but also for Schools, Communities, and Cultural Organizations. These home pages will provide guidance for users building collections, exhibits and tours. A website will also allow for easier manipulation of large amounts of data. This capability may encourage institutions from around the city, including schools, libraries, museums and community groups, to participate in populating the City² collection with their own collections of modern and historic images, video and audio recordings. In addition to enhancing the collection, institutional participation will lend credibility to the project and perhaps encourage financial support.

Traveling Exhibits. An additional program worthy of future consideration is traveling exhibitions for display in neighborhood community centers, libraries and schools. By staging events in different neighborhoods City² Buffalo can facilitate the development of its collection, increase its visibility and encourage use of the app.

Communities

In keeping with the findings of Chapter 2, City² Buffalo will be audience-oriented. The collections will be created and curated by the public. While the technology logically targets a younger audience, City² Buffalo aims for general inclusiveness. It is designed to capture the interest and attention of local citizens and visitors, while also allowing users to consider their city in a global perspective.

Consistent with the educational priorities of most nonprofit museums, the app is intended to support learning. City² Buffalo will provide for learning, experimentation and discussion that can be easily shared via social media by educational and cultural institutions, as well as individuals.

In order to be successful app, City² Buffalo must outperform its competition in terms of social value. To this end, the collection will remain open and interactive. City² Buffalo will connect users through social networks such as Facebook, Twitter and Four Square. City² Buffalo will also consider using other applications where appropriate, such as Google Maps, Google StreetView, Flickr, YouTube, Instagram and Historypin.

Given the overlapping functionality among apps, research will be conducted to determine if City² Buffalo should create its own program entirely, or if other apps might be embedded within the City² Buffalo app. Apps that might be considered for this purpose include Historypin (discussed earlier) and My Tour (an app that facilitates the

creation and distribution of tours for a fee). City² Buffalo will also consider links to other service apps relevant to users of City² Buffalo, such as Yelp or Open Table for restaurant information.

Organization

Given the environment for museums and nonprofits, the organizational structure for the app must be carefully considered. Community partnerships should be considered as a means of leveraging resources and building the collection more quickly. Preferably the app can become financially self-sustaining. This will likely require either advertising or some sort of fees. There will also be costs associated with promoting and maintaining the site.

The organization will be structured to require limited management of day-to-day operations, though some staff will be required to maintain functionality including:

- Librarian/Archivist to manage data
- Editor to filter data, settle disputes, or other issues

City² Buffalo Next Steps

The proposal City² Buffalo requires additional research and planning in order to determine the scope of the project, the budget and a marketing plan. Funding ranging from \$1,000 to \$250,000 will be needed to conduct further research and planning, and eventually develop the project.²

There are numerous sources of private funding for apps, including several crowd-sourced funding platforms, such as SellAnApp and Appsfinder, and a venture capital fund called iFund.³

Assuming a nonprofit organizational structure for City², grant funding may also be available to provide early financial support for this type of community project. Museums for American, National Leadership Grants for Museums and the National Endowment for the Humanities, The New York Council for the Humanities, The Community Foundation of Greater Buffalo and the John R. Oshei Foundation may be possible sources. Partnerships with area educational or cultural organizations may be necessary to obtain this type of financial support.

Such partnerships may provide additional benefits. Specifically, this project could be appropriate for a college or university partnership. For example, Urban Studies, History or Museum Studies students, might conduct projects in collaboration with community groups, museums or other cultural organizations to establish collections, exhibits and tours. Also, the design and programming of the app could be created by students as part of a course project.

The next steps for developing the City² Buffalo are outlined below.

- Planning and Budgeting
 - Partnerships
 - Grants
- Organization and Funding
 - Legal
 - Financial
 - Staff

- Design
 - Focus Group Research
 - Information Architecture
 - Interactive Design
 - Visual Design
- Programming
- Testing Phase
- Promotion and Launch

The following Chapter 6 provides concluding thoughts about the prospects for City² Buffalo and its implications for future history museums.

Chapter 6

Conclusions

“To succeed jump as quickly at opportunities, as you do to conclusions.”
– Benjamin Franklin, Statesman and Scientist¹

The present environment for history museums, including the technological capabilities inspired by the Information Revolution, requires American museums to reconsider their traditional practices. This thesis has explored public interest in history and the practices of museums, especially history museums, in order to design a better history museum for the future. Various alternatives to traditional museum practices were analyzed, including the use of websites and smartphone apps. Considering the best historical practices of history museums and the best new technologies, along with the forecasted future environment for museums, this thesis has proposed a smartphone app as a new type of history “museum without walls,” to exhibit the city of Buffalo, NY and its rich history and environment.

City² Buffalo relies upon the Internet and smartphone technologies to practice the spontaneous and participatory history of interest to today’s museum audiences. Its purpose is to encourage the everyday practice of history, in order to inform and inspire the public toward global cultural awareness and civic engagement, in the hopes of creating a better future for the city. It also avoids some of the pressures facing brick and mortar museums today.

It is clear from this study that many museums have already responded to the Information Age, adopting new technology and social media tools to engage audiences in new ways. The two sample groups studied, “museums without walls” and apps,

demonstrate the range of such practices. Of special note are those activities that facilitate the development of historical collections primarily by users (including institutions) adding images and tagging them according to place, time and theme. Another important preference noted in the literature and in practice relates to user authority, the ability of users to share and contribute to records on an ongoing basis. Finally, some features appear to be designed primarily for entertainment value, possibly to encourage spontaneous sharing among users. These types of activities are incorporated into the design of City² Buffalo.

Ultimately, the challenge is for City² Buffalo is to meet the experiential expectations of users, for their continued participation will depend upon the quality of their early experiences. To this end, the design of City² Buffalo considers several findings from the literature reviewed in Chapter 2, including the three conditions described by Bell as necessary for a quality visitor experience, liminality, sociality, and engagement.² In addition, City² Buffalo considers ideas about the popular uses of history as described in the work of Rosenzweig and Thelen.³ City² Buffalo engages users by giving them the tools to construct their own history and share it. In this way history also remains open-ended, as users have the opportunity to add supporting or conflicting history records to the collection.

Another idea suggested by Rosenzweig is that people practice history that is simultaneously local and intimate, and global and cosmopolitan.⁴ Similarly, Frisch pointed out that urban history is not one history, but a blend of local, national and international history.⁵ To this point, City² Buffalo attempts to fulfill local needs and interests, while at the same time allowing for global connections and visibility for the

city's rich cultural assets. This functionality appeals not only to those people practicing local history and cultural tourism, but also to people interested in exploring issues important to the growing urban communities around the world.

In addition to helping museums to better meet visitor expectations, new technology-based museum practices allow museums to avoid some of the financial pressures facing today's brick and mortar museums. For example, City² Buffalo requires no physical museum building, instead relying on the city and the Internet to hold its collections and provide its exhibition space. Further, City² Buffalo is intended to require little management and staff to operate. Instead, its operations will be driven by the efforts of the users to input and share historical records.

Apps are expected to keep pace with technology and to provide upgraded capabilities regularly to users. City² Buffalo has great potential to expand its functionality for users. One approach to expanded capability is to link with other apps which already provide needed services. It is also recommended that a related website be created. This could encourage broader participation and use of the collection (since mobile technologies are mostly relied upon for immediate functionality and social connections).

As this paper has revealed, history has been represented in many ways. It can be an object or an image, a place or a cause. It can be captured in many forms, ranging from the physical to the virtual. History is also simultaneously personal and collective, local and global. Understanding history contributes to pride of place and a commitment to the future of the city, and also an understanding of its place in the world. History remains important because it connects the past to the present, so we can better

envision the future. By supporting an understanding of city history, City² Buffalo supports the future success of its city.

Implications for Future Practice

The limited opportunity for testing to date, suggests that the design of City² Buffalo will benefit from focus group testing as part of the ongoing design and development process.

While City² Buffalo is intended to meet the needs and interests of all, it is likely to be especially appealing to younger users who regularly practice with app technology. Table 6.1 presents the percentage of Internet users who also use apps by age category. More than eighty percent of Internet users aged sixteen to forty-five also use apps. These numbers make it clear that the experience of young users will be especially important to the successful development and marketing of the app. Additionally, a 2012 National Endowment for the Arts survey reported reduced history museum attendance for the same age group.⁶ Potentially apps such a City² Buffalo can stimulate renewed interest in history museums from younger generations.

Table 6.1 Internet Users Using Apps by Age Group

Age	16-24	25-34	35-44	45-54	55-64	65+
Internet Users Using Apps	92%	81%	80%	66%	43%	3%

Source: Phil Tottman, "92 Percent of Internet Users between the Ages of 16 and 24 Use Apps – More than Any Other Age Group," Mobile Entertainment, accessed July 25, 2014, <http://www.mobile-ent.biz/industry/market-data/infographic-who-uses-apps-and-how-do-they-use-them/043462>.

The app marketplace expects continuous improvements or updates, with each new version providing new features and functionality. There are additional ideas

practiced by the sample organizations which can be further studied and tested for use in future City² Buffalo upgrades. As new technologies become available they can also be considered for City² Buffalo.

The initial design and functionality of City² Buffalo (limited by the smartphone) especially supports the individual user in Buffalo and the surrounding area. Expanding the technology resources to include a related Internet site might be attractive to larger cultural institutions, educational institutions and other community organizations, with different priorities compared to individual users. Given the success of the Historypin app in particular, there is also the potential to tap global audiences. This app is highly adaptable to use in other cities. Many of the sample operations conduct their activities in multiple cities.

The recent rapid growth of the use of apps for many different needs indicates a growing opportunity. The opportunity has drawn tremendous competition for user attention. Success will require not only exceptional design and functionality, but also strong marketing and promotion. All of these aspects of the app development are critical to the long term success of City² Buffalo.

Implications for Future Research

We remain in the midst of the Information Revolution. The “deepest social upheaval and creative restructuring of all time” predicted by Toffler in 1980 has not yet played out.⁷ Recall the characteristics of the Internet described by Fox Lane, its global reach, its disruptive nature, its innovative potential and especially the power it allows individual users.⁸ These characteristics have driven not only change in patterns of behavior, but also a shift in power in favor of the individual.

Today, more than 2.4 billion Internet users create, share and store massive amounts of data. This information, referred to as *big data*, provides both opportunities and threats. There are opportunities for organizations that can successfully capture, search and analyze data relevant to their activities. While there are threats primarily related to the loss of control over private information.

As an app for city life, City² Buffalo has the potential to collect data about urban lifestyles. This information, especially if the app expands to multiple global cities, would be useful to many groups, including policy makers, city planners and marketers.

Perhaps more important is the opportunity for solving challenging urban problems. As cities continue to grow in numbers over the twenty-first century, a global collaboration of city museums such as City² Buffalo can provide an ongoing global forum for exploring the richness and complexities of urban life. By collecting, interpreting and sharing the past, present and future vision for cities around the globe, city museums such as City² Buffalo, can support a better future for cities.

End Notes

Chapter 1

1. Malcolm X, speech at founding Rally of Organization of African America Unity (1964). Quoted by "BlackPast.org," from *Malcolm X, By Any Means Necessary: Speeches, Interviews, and a Letter by Malcolm X* (New York: Pathfinder Press, 1970): 35-67, accessed July 10, 2014, <http://www.blackpast.org/1964-malcolm-x-s-speech-founding-rally-organization-afro-american-unity>.
2. Douglas Englebart. (1997). Quoted by "Doug Englebart Institute," accessed July 10, 2014, <http://dougengelbart.org>.
3. "World Internet Usages and Population Statistics, June 30, 2012," Internet World Stats Usage and Population Statistics, accessed July 11, 2010, <http://www.internetworldstats.com/stats.htm>
4. Arthur Toffler, *The Third Wave* (New York: Morrow, 1980), 10-11.
5. Ibid.
6. David Maney, "The Biggest Story of Our Lives: Economic Revolution," *Forbes.com*, March 1, 2013, accessed March 11, 2014, <http://www.forbes.com/sites/economaney/2013/03/01/the-biggest-story-of-our-lives-economic-revolution>.
7. Jacob L. Weisdorf, "From Foraging to Farming Explaining the Neolithic Revolution," *Journal of Economic Surveys* 19, no. 4 (September 2005): 561-586, accessed March 29, 2014, <http://classes.uleth.ca/200701/anth1000b/foraging%20to%20farming.pdf>.
8. Joel Mokyr, "Why Was the Industrial Revolution a European Phenomenon?," (paper presented to the Conference on the Rule of Law, Freedom, and Prosperity, George Mason University, November 2001), accessed March 29, 2014, <http://www.acsu.buffalo.edu/~ytang4/Zywicki.pdf>.
9. Joel Mokyr, "The Years of Miracles: The Industrial Revolution 1750-1830," in *The Lever of Riches*, (New York: Oxford University Press, 1990), 81-112.
10. Ibid., 81.
11. John W. Verity, "The Information Revolution – Introduction," *Business Week*, August 24-31, 1998, accessed July 13, 2014, <http://www.businessweek.com/1998/35/z3372001.htm>
12. "Invention of the PC," History.com, 2011, accessed July 13, 2014, <http://www.history.com/topics/inventions/invention-of-the-pc>.
13. "Invention of the Internet, History.com, 2010, accessed July 13, 2014, <http://www.history.com/topics/inventions/invention-of-the-internet>.
14. Martha Fox Lane comments at Amnesty International U.K. conference, YouTube post, June 26, 2007, accessed March 15, 2014, <https://www.youtube.com/watch?v=x8Y18U2es6s>.
15. "Usage and Population Statistics," Internet World Stats, June 30, 2012, accessed March 29, 2014. <http://www.internetworldstats.com/stats.htm>.

16. "United States of America Internet Usages and Broadband Usage Report, March 2014," Internet World Stats Usage and Population Statistics, accessed July 11, 2010, <http://www.internetworldstats.com/am/us.htm>.
17. Ibid.
18. "Population MSA: Buffalo-Niagara Falls, 2013," Texas A&M University Real Estate Center, accessed July 14, 2014, <http://recenter.tamu.edu/data/pop/popm/cbsa15380.asp>.
19. Queenseyes in City Comment referencing *Travel and Leisure*, "Niagara Falls: #5-World's Most Visited Tourist Attractions," BuffaloRising.com, accessed July 23, 2014, <http://buffalorising.com/2011/10/niagara-falls-worlds-most-visited-tourist-attractions/>.
20. "Twitter Top 100 Most Followers," Twitter Counter, accessed April 21, 2014, <http://twittercounter.com/pages/100>.
21. Martha Fox Lane comments at Amnesty International U.K. conference, YouTube post, June 26, 2007, accessed March 15, 2014, <https://www.youtube.com/watch?v=x8Y18U2es6s>.
22. "Quarterly Retail E-Commerce Sales 4th Quarter 2013," U.S. Census Bureau News, February 18, 2014, accessed March 29, 2014, https://www.census.gov/retail/mrts/www/data/pdf/ec_current.pdf.
23. Jesse Holcomb, Jeffrey Gottfried and Amy Mitchell, "New Use across Social Media Platforms," Pew Research Journalism Project, November 14, 2013, accessed March 29, 2014, <http://www.journalism.org/2013/11/14/news-use-across-social-media-platforms/>.
24. Martha Fox Lane comments at Amnesty International U.K. conference, YouTube post, June 26, 2007, accessed March 15, 2014, <https://www.youtube.com/watch?v=x8Y18U2es6s>.
25. "CEA Sales and Forecast Report," Consumer Electronics Association, January 7, 2014, accessed April 24, 2014, [https://www.ce.org/News/News-Releases/Press-Releases/2013-Press-Releases/CE-Industry-Revenues-to-Reach-Record-High-of-\\$208.aspx](https://www.ce.org/News/News-Releases/Press-Releases/2013-Press-Releases/CE-Industry-Revenues-to-Reach-Record-High-of-$208.aspx).
26. Martha Fox Lane comments at Amnesty International U.K. conference, YouTube post, June 26, 2007, accessed March 15, 2014, <https://www.youtube.com/watch?v=x8Y18U2es6s>.
27. Ibid.
28. Lev Grossman, "You- Yes, You- Are Time's Person of the Year," *Time Magazine*, Monday, December 25, 2006, accessed March 3, 2014, <http://content.time.com/time/magazine/article/0,9171,1570810,00.html>.
29. Ibid.
30. Winston Churchill, speech at Post-War Councils on World Problems, "A Four Year Plan for England, broadcast from London over BBC, March 21, 1943, reprinted in *Vital Speeches of the Day*, IX (April 15, 1943):386-391, accessed July 10, 2014, <http://www.ibiblio.org/pha/policy/1943/1943-03-21a.html>.
31. Edward P. Alexander, *Museums in Motion, An Introduction to the History and Functions of Museums* (Walnut, CA: Altamira Press, 1996), 8.
32. Ibid., 11-15.

33. "Government Doubles Official Estimates: There are 35,000 Active Museums in the U.S.," Institute of Museum and Library Services Press Release (May 19, 2014), accessed July 26, 2014, http://www.ims.gov/government_doubles_official_estimate.aspx.
34. National Endowment for the Arts, "How a Nation Engages with Art, Highlights from the 2012 Survey of Public Participation in the Arts Survey," NEA Research Report 57, September 2013, 22,24, accessed July 26, 2014, <http://arts.gov/sites/default/files/highlights-from-2012-SPPA-rev.pdf>.
35. Ibid., 3.
36. "Special report: Museums," *The Economist*, December 21, 2013, 3-4.
37. "Museum Facts," American Alliance of Museums, accessed March 3, 2014, <http://www.aam-us.org/aboutmuseums/museum-facts>.
38. Roy Rosenzweig and David Thelen, *The Presence of the Past, Popular Uses of History in American Life* (New York: Columbia University Press, 1993), 105-106.
39. Title borrowed from article of the same name. Andras Szanto, "Will U.S. Museums Succeed in Reinventing Themselves? The Recession is Forcing North American Institutions to Reconsider Every Aspect of What They Do," *Museums USA*, no. 209 (January 11, 2010): 5, accessed February 10, 2014, <http://www.theartnewspaper.com/articles/Will-US-museums-succeed-in-reinventing-themselves?%20/20030>.
40. Joseph C. Morreale, "The Impact of the Great Recession on NPOs" (paper 5, Pace University Wilson Center for Social Entrepreneurship, August 31, 2011), 5-7, 27, accessed July 13, 2014, <http://digitalcommons.pace.edu/cgi/viewcontent.cgi?article=1004&context=wilson>
41. Elizabeth E. Merritt and Phillip M. Katz, Center for the Future of Museums, American Alliance of Museums, "Back to the Future," *TrendsWatch 2013* (2013): 35-39, accessed February 12, 2014, <http://aam-us.org/docs/center-for-the-future-of-museums/trendswatch2013.pdf>.
42. "Special report: Museums," *The Economist*, December 21, 2013, 4.
43. Ibid.
44. "Delaware Art Museum Board of Trustees Vote to Retire Debt," Delaware Art Museum Press Statement, March 26, 2014, accessed July 25, 2014, <http://www.delart.org/about/press-room/>.
45. Philip Kennicott, "The End of the Corcoran Art Gallery," *The Washington Post*, February 19, 2014, accessed July 25, 2014, http://www.washingtonpost.com/entertainment/museums/the-end-of-the-corcoran-gallery-of-art/2014/02/19/accd8a38-99a3-11e3-b931-0204122c514b_story.html.
46. Heather Gillers, Jason Grotto and Steve Johnson, "Field Museum to Cut Staff and Research, Refocus Its Mission," *The Chicago Tribune*, December 19, 2012, accessed July 25, 2014, http://articles.chicagotribune.com/2012-12-19/news/chi-field-museum-to-cut-staff-overhaul-operations-and-limit-research-scope-20121218_1_natural-history-museum-field-museum-museum-officials.

47. Elizabeth E. Merritt, Phillip M. Katz, Center for the Future of Museums, American Alliance of Museums, "Museums and the Pulse of the Future," *TrendsWatch 2012* (2012), accessed February 12, 2014, http://www.aam-us.org/docs/center-for-the-future-of-museums/2012_trends_watch_final.pdf?sfvrsn=0.
48. Elizabeth E. Merritt and Phillip M. Katz, Center for the Future of Museums, American Alliance of Museums, "Back to the Future," *TrendsWatch 2013* (2013): 35-39, accessed February 12, 2014, <http://aam-us.org/docs/center-for-the-future-of-museums/trendswatch2013.pdf>.
49. Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch" Annual report of Center for the Future of Museums, American Alliance of Museums (2014): 8-18, accessed March 30, 2014, [http://www.od20ww77ktm1d2.doctracking.com/nocache/od20ww77ktm1dA/pdf.fdf?page=0&DMCA_WARNING=It is a criminal offence to remove or disable this copyright protection technology&Search Google for details=DMCA+eBook+Adobe&k=01113209#FDF](http://www.od20ww77ktm1d2.doctracking.com/nocache/od20ww77ktm1dA/pdf.fdf?page=0&DMCA_WARNING=It+is+a+criminal+offence+to+remove+or+disable+this+copyright+protection+technology&Search+Google+for+details=DMCA+eBook+Adobe&k=01113209#FDF).
50. Special report: Museums," *The Economist*, December 21, 2013, 4.
51. Osvaldo Sanchez quoted in Andras Szanto, "Will U.S. Museums Succeed in Reinventing Themselves? The Recession is Forcing North American Institutions to Reconsider Every Aspect of What They Do," *Museums USA*, no. 209 (January 11, 2010): 5, accessed February 10, 2014, <http://www.theartnewspaper.com/articles/Will-US-museums-succeed-in-reinventing-themselves?%20/20030>.
52. Lynn Zelvansky quoted in Andras Szanto, "Will U.S. Museums Succeed in Reinventing Themselves? The Recession is Forcing North American Institutions to Reconsider Every Aspect of What They Do," *Museums USA*, no. 209 (January 11, 2010): 5, accessed February 10, 2014, <http://www.theartnewspaper.com/articles/Will-US-museums-succeed-in-reinventing-themselves?%20/20030>.
53. Ibid.
54. Steve Jobs, interview by Kara Swisher and Walt Mossberg conducted with Microsoft Chairman Bill Gates and Apple CEO Steve Jobs at the D5 conference on May 30, 2007, reprinted in "All Things," accessed July 10, 2014, <http://allthingsd.com/20070531/d5-gates-jobs-transcript/>.

Chapter 2

1. Hendrik Wilhelm van Loon. *The Story of Mankind* (New York: Liveright, 1921), American Library, accessed July 10, 2014, <https://archive.org/details/storymankind00loongoog>.
2. Joshua J. Mark, "Herodutus," Ancient History Encyclopedia, September 2, 2009, accessed July 10, 2014, <http://www.ancient.eu.com/herodotus/>

3. Patricia Mooney-Melvin, "Professional Historians and the Challenge of Redefinition," in *Public History Essays from the Field*, ed. James R. Gardner and Peter S. LaPaglia (Malabar, FL: Kreiger Publishing Company), 5-21.
4. Ibid., 8.
5. Ibid., 10-16.
6. National Council on Public History, accessed May 5, 2014, <http://ncph.org/cms/what-is-public-history/>.
7. Ibid.
8. Thomas Bender, "Historians in Public," *Academia and the Public Sphere* (September 5, 2011), accessed March 19, 2014, <http://publicsphere.ssrc.org/bender-historians-in-public/>.
9. Ibid.
10. Roy Rosenzweig and David Thelen, *The Presence of the Past, Popular Uses of History in American Life* (New York: Columbia University Press, 1998), 20, table 1.2. Referenced by Thomas Bender, "Historians in Public," *Academia and the Public Sphere* (September 5, 2011): 6, accessed March 19, 2014, <http://publicsphere.ssrc.org/bender-historians-in-public/>.
11. John Dewey, "Public Opinion," *The New Republic* (May 3, 1922), 286-88. Referenced by Thomas Bender, "Historians in Public," *Academia and the Public Sphere* (September 5, 2011): 7-8, accessed March 19, 2014, <http://publicsphere.ssrc.org/bender-historians-in-public/>.
12. Thomas Bender, "Historians in Public," *Academia and the Public Sphere* (September 5, 2011): 7-8, accessed March 19, 2014, <http://publicsphere.ssrc.org/bender-historians-in-public/>.
13. Thomas Bender, "Introduction: Historians, the Nation, and the Plentitude of Narratives," in *Rethinking American History in Global Age*, ed. Thomas Bender (Berkley, 2002): 1-21. Referenced by Thomas Bender, "Historians in Public," *Academia and the Public Sphere* (September 5, 2011): 7-8, accessed March 19, 2014, <http://publicsphere.ssrc.org/bender-historians-in-public/>.
14. J. Paul Getty. *As I See It: The Autobiography of J. Paul Getty* (Englewood Cliffs, NJ: Prentice Hall, 1976).
15. "Charles Wilson Peale and His World," (published in conjunction with exhibition at Metropolitan Museum of Art, National Portrait Gallery, and Amon Carter Museum of Western Art, 1983), 6, accessed April 5, 2014, <http://libmma.contentdm.oclc.org/cdm/singleitem/collection/p15324coll10/id/1303/rec/129>.
16. David Brigham, interview by author Liane Hansen, "Philadelphia Museum Shaped Early American Culture." *NPR News Weekend Edition* (2008), accessed March 10, 2014, <http://www.npr.org/templates/transcript/transcript.php?storyId=92388477>.
17. Ibid.
18. Smithsonian, accessed April 5, 2013, <http://www.si.edu/About/Mission>.
19. George Brown Goode, *Museum History and Museums of History* (1989; repr., New York: The Knickerbocker Press, 1889), 310.

20. Andrew Hurley, "Taking It to the Streets: Public History in the City," in *Beyond Preservation, Using Public History to Revitalize Inner Cities* (Philadelphia: Temple University Press, 2010), 32-46.
21. Robert W. Rydell. *All the World's a Fair: Visions of Empire at American International Expositions, 1876-1916* (Chicago: University of Chicago Press, 1984) 1-8.
22. Andrew Hurley, "Taking It to the Streets: Public History in the City," in *Beyond Preservation, Using Public History to Revitalize Inner Cities* (Philadelphia: Temple University Press, 2010), 32-46.
23. Steven Conn, *Do Museums Still Need Objects* (Philadelphia: University of Pennsylvania Press, 2010), 20-57.
24. Ibid, 56.
25. Roy Rosenzweig and David Thelen, *The Presence of the Past, Popular Uses of History in American Life* (New York: Columbia University Press, 1998), 5.
26. Angelina Russo, "The Rise of the Media Museum, Creating Interactive Culture Experiences through Social Media," in *Heritage and Social Media: Understanding Heritage in a Participatory Culture*, ed. Elisa Giaccardi, (New York: Routledge, 2012), 146.
27. Eileen Hooper-Greenhill, *Museums and the Shaping of Knowledge* (New York: Routledge, 1992), 190.
28. John H. Falk and Lynn D. Dierking, *Learning from Museums Visitor Experiences and the Making of Meaning* (Lanham, MD: Altamira Press, 2000), 69-89.
29. Genevieve Bell, "Making Sense of Museums, The Museum as 'Cultural Ecology,'" (paper prepared for Intel Corporation, June 2002), 3, accessed March 19, 2014, http://echo.iat.sfu.ca/library/bell_02_museum_ecology.pdf.
30. Ibid.
31. Jeff Jacoby, "Don't Know Much about History," *Boston Globe* (June 19, 2011), accessed April 2, 2014, http://www.boston.com/bostonglobe/editorialopinion/oped/articles/2011/06/19/dont_know_much_about_history/.
32. Andrew Romano, "How Ignorant are Americans?," *Newsweek* (March 22, 2011), accessed April 2, 2014, <http://www.newsweek.com/how-ignorant-are-americans-66053>.
33. Sam Dillon, "History Survey Stumps U.S. Teens," *The New York Times* (February 26, 2008), accessed April 2, 2014, http://www.nytimes.com/2008/02/27/us/27history.html?_r=0.
34. Roy Rosenzweig and David Thelen, *The Presence of the Past, Popular Uses of History in American Life* (New York: Columbia University Press, 1998), 3. Quoting Michael Frisch, "Cracking the Nutshell: Making History-Making," unpublished document, September 20, 1989, in possession of the author.
35. Roy Rosenzweig and David Thelen, *The Presence of the Past, Popular Uses of History in American Life* (New York: Columbia University Press, 1998), 19, 234.
36. Ibid, 20-21, 236-237.
37. Ibid, 105.

38. "Government Doubles Official Estimates: There are 35,000 Active Museums in the U.S.," Institute of Museum and Library Services Press Release (May 19, 2014), accessed July 26, 2014, http://www.ims.gov/government_doubles_official_estimate.aspx.
39. Michael Kimmelman, "Museums in a Quandary: Where Are the Ideal?," *The New York Times* (August 26, 2001), accessed March, 2014, <http://www.nytimes.com/2001/08/26/arts/art-architecture-museums-in-a-quandary-where-are-the-ideals.html>.
40. Maxwell Anderson, "Metrics of Success in Art Museums," (paper commissioned by the Getty Leadership Institute, 2004), accessed March 6, 2014, <http://www.cgu.edu/pdf/files/gli/metrics.pdf>.
41. Ibid., 5-8.
42. Ibid., 9.
43. "Characteristics of Excellence for U.S. Museums," American Alliance of Museums, accessed March 18, 2014, <http://www.aam-us.org/resources/ethics-standards-and-best-practices/characteristics-of-excellence-for-u-s-museums>.
44. Maxwell Anderson, "Metrics of Success in Art Museums," (paper commissioned by the Getty Leadership Institute, 2004), 17, accessed March 6, 2014, <http://www.cgu.edu/pdf/files/gli/metrics.pdf>.
45. Roy Rosenzweig and David Thelen, *The Presence of the Past, Popular Uses of History in American Life* (New York: Columbia University Press, 1998), 235.
46. "Museum Facts," American Alliance of Museums, accessed March 31, 2014, <http://www.aam-us.org/about-museums/museum-facts>.
47. Roy Rosenzweig and David Thelen, *The Presence of the Past, Popular Uses of History in American Life* (New York: Columbia University Press, 1998), 105-108.
48. Ibid., 105-106.
49. Ibid., 78.
50. Ibid., 181.
51. Ibid., 179.
52. Ibid., 181-182.
53. Ibid., 188.
54. Ibid., 189.
55. John Reader. *Cities* (New York: Atlantic Monthly Press, 2004).
56. "Frequently Asked Questions," U.S. Census Bureau, accessed May 5, 2014, <https://ask.census.gov/faq.php?id=5000&faqId=5971>.
57. Chet Orloff, "Museums and Cities of the Future of Cities," in *City Museums and City Development*, ed. Ian Jones, Robert MacDonald, Darryl McIntyre (Plymouth, U.K.: Altamira Press, 2008), 30.
58. Barbara Franco, "Urban History Museums and Historical Societies," in *The Practice of Public History, History Essays From the Field*, ed. James R. Gardner and Peter S. LaPaglia (Malabar, FL: Kreiger Publishing, 1999), 308.
59. Ibid., 308-311.
60. Ibid., 310-314.

61. Chet Orloff, "Museums and Cities of the Future of Cities," in *City Museums and City Development*, ed. Ian Jones, Robert MacDonald, Darryl McIntyre (Plymouth, U.K.: Altamira Press, 2008), 33.
62. Ibid., 33-34.
63. Michael Frisch, "The Presentation of Urban History in Big-City Museum," in *History Museums in the US: A Critical Assessment*, ed. Warren Leon and Roy Rosenzweig (Chicago: University of Illinois Press, 1989), 59-60.
64. Ibid., 41.
65. Ibid.
66. Ibid.
67. Ibid., 42.
68. Ibid., 60.
69. Ibid.
70. Ibid., 61-62.
71. Chi-Jung and Szu-Yun Chang 's, "Taipei City Museum in the Making," in *City Museums and City Development*, ed. Ian Jones, Robert MacDonald, Darryl McIntyre (Plymouth, U.K.: Altamira Press, 2008), 100.
72. Ibid.
73. Nichola Johnson, "Discovering the City," *Museum International*, 47, no. 3 (July-September 1995): 4- 6. Quoted by Ian Jones, "Cities and Museums About Them," in *City Museums and City Development*, ed. Ian Jones, Robert MacDonald, Darryl McIntyre, (Plymouth, U.K.: Altamira Press, 2008), 10.
74. Marissa Mayer. *Vogue Magazine*, August 2009, accessed July 10, 2014, <http://www.vogue.com/culture/article/from-the-archives-marissa-mayer-machine-dreams/#1>.
75. John Cotton Dana, *The New Museum Series*, 1 (1917), 52, quoted in *Museum Origins Readings in Early Museums History and Philosophy*, Hugh H. Genoways and Mary Anne Andrei, eds. (Walnut Creek, CA: Left Coast Press, Inc.), 137-142.
76. Angelina Russo, "The Rise of the Media Museum, Creating Interactive Culture Experiences through Social Media," in *Heritage and Social Media: Understanding Heritage in a Participatory Culture*, ed. Elisa Giaccardi (New York: Routledge, 2012), 146-7.
77. Steve Brier, "Historians and Hypertext Is It More Than Hype?," in *Clio Wired the Future of the Past in the Digital Age*, Roy Rosenzweig (New York: Columbia University Press, 2011), 85-90.
78. Herodotus, *The History*, trans. David Grene (Chicago: University of Chicago Press, 1987): 35, quoted in Daniel J. Cohen, "Collecting History Online," in *Clio Wired The Future of the Past in the Digital Age*, Roy Rosenzweig (New York: Columbia University Press, 2011), 150.
79. Daniel J. Cohen, "Collecting History Online," in *Clio Wired The Future of the Past in the Digital Age*, Roy Rosenzweig (New York: Columbia University Press, 2011), 137.
80. Ibid., 136-146.
81. Nina Simon, "Participatory Design and the Future of Museums," in *Letting Go? Sharing Historical Authority in a User-Generated World* (Philadelphia, PA: The Pew Center for the Arts and Heritage, 2011), 18-21.

82. Ibid., 4, 20.
83. Ibid., 20-22.
84. Elisa Giaccardi, "Introduction, Reframing Heritage in a Participatory Culture," in *Heritage and Social Media: Understanding Heritage in a Participatory Culture* (New York: Routledge, 2012), 3.
85. Ibid., 6-7.
86. Maren Mouliou, "From Urban Blocks to City Blogs Defining Attributes for the City Museum of Today," in *City Museums and City Development*, ed. Ian Jones, Robert MacDonald and Darryl McIntyre (Plymouth, U.K.: Altamira Press, 2008), 159.
87. Ibid.
88. "George Eastman House, The Blog," accessed July 25, 2014, <http://blog.eastmanhouse.org/>.
89. Rachel Sargent, "Building Cybercabinets: Guidelines to Online Access to Digital to Natural History Collections," (presented at Museums and the Web 2013 Conference, April 17-20, 2013), 8-11, accessed March 6, 2014, <http://mw2013.museumsandtheweb.com/paper/building-cybercabinets-guidelines-for-online-access-to-digital-natural-history-collections/>.
90. Sam Grobart, "Multimedia Tour Guides on Your Smartphone," *The New York Times* (March 16, 2011), accessed March 6, 2014, http://www.nytimes.com/2011/03/17/arts/design/apps-give-museum-visitors-multimedia-access.html?_r=0.
91. Aaron Radin, quoted by Sam Grobart, "Multimedia Tour Guides on Your Smartphone," *The New York Times* (March 16, 2011), accessed March 6, 2014, http://www.nytimes.com/2011/03/17/arts/design/apps-give-museum-visitors-multimedia-access.html?_r=0.
92. Graham Fairclough, "Others, A Prologue," in *Heritage and Social Media: Understanding Heritage in a Participatory Culture*, ed. Elisa Giaccardi (New York: Routledge, 2012), xvi.
93. John Kuo Wei Tchen and Liz Sevchenko, "The 'Dialogic Museum' Revisited: A Collaborative Reflection," in *Letting Go? Sharing Historical Authority in a User-Generated World*, Bill Adair, Benjamin Filene, and Laura Koloski, eds. (Philadelphia, PA: The Pew Center for the Arts and Heritage, 2011), 94-95.
94. Ibid.

Chapter 3

1. Albert Einstein. Quoted in "They Say Einstein Said," reprinted from Alice Calaprice: Expanded Quotable Einstein (Princeton University Press, 2000), accessed July 10, 2014, http://www.cs.ucla.edu/~klinger/tenpp/11_einstein.html
2. This review of CultureNow is based on information provided by the website and app of the same name. CultureNOW, accessed March 4, 2014, <http://www.culturenow.org/>.
3. "Mission," CultureNOW, accessed March 4, 2014, <http://www.culturenow.org/>.

4. This review of Historypin is based on information provided by the website and app of the same name. Historypin, accessed April 10, 2014, <http://www.historypin.com/>.
5. Amanda Gustin, "An Interview with Historypin Founder Nick Stanhope," *Museum Studies at Tufts University Blog*, July 15, 2011, quoting Robert Putnam, *Bowling Alone, the Collapse and Revival of America* New York: Simon and Schuster, Inc., 2000) [accessed March 4, 2014, http://sites.tufts.edu/museumstudents/2011/07/15/an-interview-with-historypin-founder-nick-stanhope/](http://sites.tufts.edu/museumstudents/2011/07/15/an-interview-with-historypin-founder-nick-stanhope/).
6. "FAQ," Historypin, accessed April 10, 2014, <http://www.historypin.com/>.
7. "Home," Historypin, accessed April 10, 2014, <http://www.historypin.com/>.
8. This review of Museum of the City is based on information provided by the website of the same name. Museum of the City, accessed March 4, 2014, <http://www.museumofthecity.org/>.
9. "Home," Museum of the City, accessed March 4, 2014, <http://www.museumofthecity.org/>.
10. "About," Museum of the City, accessed March 4, 2014, <http://www.museumofthecity.org/>.
11. Ibid.
12. Ibid.
13. This review of Museum on Main Street is based on information provided by the website and app of the same name. Museum on Main Street, accessed March 4, 2014, <http://www.museumonmainstreet.org/>.
14. "Why is Museum on Main Street Needed?," Museum on Main Street, accessed March 4, 2014, <http://www.museumonmainstreet.org/about/moms101.html#whymomshttp://www.museumonmainstreet.org/about/moms101.html#whymoms>.
15. "Museum on Main Street, accessed March 4, 2014, <http://www.museumonmainstreet.org/exhibitions.html>
16. Ibid.
17. "Journey Stories," Museum on Main Street, accessed March 4, 2014, <http://www.museumonmainstreet.org/journeyStories/index.html>.
18. "Key Ingredients," Museum on Main Street, accessed March 4, 2014, <http://www.museumonmainstreet.org/keyIngredients/index.html>.
19. "The Way We Worked," Museum on Main Street, accessed March 4, 2014, <http://www.museumonmainstreet.org/theWayWeWorked/>.
20. "Hometown Team," Museum on Main Street, accessed March 4, 2014, <http://www.museumonmainstreet.org/hometownTeams>.
21. "Stories from Main Street," Museum on Main Street, accessed March 4, 2014, <http://www.storiesfrommainstreet.org/>.
22. Ibid,
23. "History Online," Museum on Main Street, accessed March 4, 2014, <http://www.storiesfrommainstreet.org/pages/historyOnline.html>.
24. "Interact and Connect," Museum on Main Street, accessed March 4, 2014, <http://www.museumonmainstreet.org/connect/index.html> .

25. "Educational Resources," Museum on Main Street, accessed March 4, 2014, <http://www.museumonmainstreet.org/education/index.html>.
26. "History," Museum on Main Street, accessed March 4, 2014, <http://www.museumonmainstreet.org/about/moms101.html#history>.
27. "Supporters," Museum on Main Street, accessed March 4, 2014, <http://www.museumonmainstreet.org/about/moms101.html#history>.
28. Genevieve Bell, "Making Sense of Museums, The Museum as 'Cultural Ecology,'" (paper prepared for Intel Corporation, June 2002), 3, accessed March 19, 2014, http://echo.iat.sfu.ca/library/bell_02_museum_ecology.pdf.
29. Maxwell Anderson, "Metrics of Success in Art Museums," (paper commissioned by the Getty Leadership Institute, 2004): 9, accessed March 6, 2014, <http://www.cgu.edu/pdf/files/gli/metrics.pdf>.
30. "American Experience: Mapping History by PBS," iTunes Preview, accessed March 4, 2014, <https://itunes.apple.com/us/app/american-experience-mapping/id585230600?mt=8>
31. "Artsy - the art world in your pocket by Art.sy, Inc.," iTunes Preview, accessed March 4, 2014, <https://itunes.apple.com/us/app/artsy-art-world-in-your-pocket/id703796080?mt=8>.
32. "Travel Channel Cities by the Travel Chanel L.L.C.," iTunes Preview, accessed March 4, 2014, <https://itunes.apple.com/us/app/travel-channel-cities/id503889626?mt=8>.
33. "CultureNOW: Guidebook for the Museum Without Walls by CultureNOW," iTunes Preview, accessed March 4, 2014, <https://itunes.apple.com/us/app/culturenow-guidebook-for-museum/id372161838?mt=8>.
34. "Explorer: the American Museum of Natural History by the American Museum of Natural History," iTunes Preview, accessed March 4, 2014, <https://itunes.apple.com/us/app/explorer-american-museum-natural/id381227123?mt=8>
35. "City Guides by Goop," iTunes Preview, accessed March 4, 2014, <https://itunes.apple.com/us/app/city-guides/id484566289?mt=8>.
36. "History Here by A&E Television Networks Mobile," iTunes Preview, accessed March 4, 2014, <https://itunes.apple.com/us/app/history-here/id463240522?mt=8>.
37. "Historypin by We are What We Do," iTunes Preview, accessed March 4, 2014, <https://itunes.apple.com/us/app/historypin/id455228207?mt=8>.
38. "Museum Locator by YOUniversal Ideas," iTunes Preview, accessed March 4, 2014, <https://itunes.apple.com/us/app/museum-locator/id313640609?mt=8>
39. "Museum Without Walls: Audio by Association for Public Art," iTunes Preview, accessed March 4, 2014, <https://itunes.apple.com/us/app/museum-without-walls-audio/id632336892?mt=8>.
40. "Roadside America by This Exit LLC," iTunes Preview, accessed March 4, 2014, <https://itunes.apple.com/us/app/roadside-america/id347393479?mt=8>.
41. "Museum of London: Street Museum by Thumbspark Limited," iTunes Preview, accessed March 4, 2014, <https://itunes.apple.com/us/app/museum-london-streetmuseum/id369684330?mt=8>.

42. "Stories from Main Street by Smithsonian Institution," iTunes Preview, accessed March 4, 2014, <https://itunes.apple.com/us/app/stories-from-main-street/id460867219?mt=8>.
43. "New York Times the Scoop NYC by the New York Times," iTunes Preview, accessed March 4, 2014, <https://itunes.apple.com/us/app/nytimes-the-scoop-nyc/id374981318?mt=8>.
44. "University Circle by University Circle Inc.," iTunes Preview, accessed March 4, 2014, <https://itunes.apple.com/us/app/university-circle/id503623312?mt=8>.
45. Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch, Museums and the Pulse of the Future." Annual report of Center for the Future of Museums, American Alliance of Museums (2012): 8-10, accessed February 12, 2014, http://www.aam-us.org/docs/center-for-the-future-of-museums/2012_trends_watch_final.pdf?sfvrsn=0.
46. Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch" Annual report of Center for the Future of Museums, American Alliance of Museums (2014): 8-18, accessed March 30, 2014, [http://www.od20ww77ktm1d2.doctracking.com/nocache/od20ww77ktm1dA/pdf.fdf?page=0&DMCA_WARNING=It is a criminal offence to remove or disable this copyright protection technology&Search Google for details=DMCA+eBook+Adobe&k=01113209#FDF](http://www.od20ww77ktm1d2.doctracking.com/nocache/od20ww77ktm1dA/pdf.fdf?page=0&DMCA_WARNING=It+is+a+criminal+offence+to+remove+or+disable+this+copyright+protection+technology&Search+Google+for+details=DMCA+eBook+Adobe&k=01113209#FDF).
47. Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch, Museums and the Pulse of the Future." Annual report of Center for the Future of Museums, American Alliance of Museums (2012): 11-13, accessed February 12, 2014, http://www.aam-us.org/docs/center-for-the-future-of-museums/2012_trends_watch_final.pdf?sfvrsn=0.
48. Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch, Back to the Future." Annual report of Center for the Future of Museums, American Alliance of Museums (2013): 35-39, accessed February 12, 2014, <http://aam-us.org/docs/center-for-the-future-of-museums/trendswatch2013.pdf>.
49. Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch, Museums and the Pulse of the Future." Annual report of Center for the Future of Museums, American Alliance of Museums (2012): 4-16, accessed February 12, 2014, http://www.aam-us.org/docs/center-for-the-future-of-museums/2012_trends_watch_final.pdf?sfvrsn=0.
50. Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch, Back to the Future." Annual report of Center for the Future of Museums, American Alliance of Museums (2013): 8-12, accessed February 12, 2014, <http://aam-us.org/docs/center-for-the-future-of-museums/trendswatch2013.pdf>.
51. Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch, Museums and the Pulse of the Future." Annual report of Center for the Future of Museums, American Alliance of Museums (2012): 8-10, accessed February 12, 2014, http://www.aam-us.org/docs/center-for-the-future-of-museums/2012_trends_watch_final.pdf?sfvrsn=0.
52. Ibid., 20-22.

53. Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch, Back to the Future." Annual report of Center for the Future of Museums, American Alliance of Museums (2013): 13-17, accessed February 12, 2014, <http://aam-us.org/docs/center-for-the-future-of-museums/trendswatch2013.pdf>.
54. Ibid., 24-29.
55. Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch" Annual report of Center for the Future of Museums, American Alliance of Museums (2014): 16-22, accessed March 30, 2014, [http://www.od20ww77ktm1d2.doctracking.com/nocache/od20ww77ktm1dA/pdf.fdf?page=0&DMCA_WARNING=It is a criminal offence to remove or disable this copyright protection technology&Search Google for details=DMCA+eBook+Adobe&k=01113209#FDF](http://www.od20ww77ktm1d2.doctracking.com/nocache/od20ww77ktm1dA/pdf.fdf?page=0&DMCA_WARNING=It+is+a+criminal+offence+to+remove+or+disable+this+copyright+protection+technology&Search+Google+for+details=DMCA+eBook+Adobe&k=01113209#FDF).
56. Ibid., 48-55.
57. Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch, Museums and the Pulse of the Future." Annual report of Center for the Future of Museums, American Alliance of Museums (2012): 6-7, accessed February 12, 2014, http://www.aam-us.org/docs/center-for-the-future-of-museums/2012_trends_watch_final.pdf?sfvrsn=0.
58. Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch, Back to the Future." Annual report of Center for the Future of Museums, American Alliance of Museums (2013): 30-34, accessed February 12, 2014, <http://aam-us.org/docs/center-for-the-future-of-museums/trendswatch2013.pdf>.
59. Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch" Annual report of Center for the Future of Museums, American Alliance of Museums (2014): 24-31, accessed March 30, 2014, [http://www.od20ww77ktm1d2.doctracking.com/nocache/od20ww77ktm1dA/pdf.fdf?page=0&DMCA_WARNING=It is a criminal offence to remove or disable this copyright protection technology&Search Google for details=DMCA+eBook+Adobe&k=01113209#FDF](http://www.od20ww77ktm1d2.doctracking.com/nocache/od20ww77ktm1dA/pdf.fdf?page=0&DMCA_WARNING=It+is+a+criminal+offence+to+remove+or+disable+this+copyright+protection+technology&Search+Google+for+details=DMCA+eBook+Adobe&k=01113209#FDF).
60. Ibid., 32-39.
61. Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch, Museums and the Pulse of the Future." Annual report of Center for the Future of Museums, American Alliance of Museums (2012): 23-25, accessed February 12, 2014, http://www.aam-us.org/docs/center-for-the-future-of-museums/2012_trends_watch_final.pdf?sfvrsn=0.
62. Ibid..
63. Elizabeth E. Merritt, Phillip M. Katz, eds. "TrendsWatch, Back to the Future." Annual report of Center for the Future of Museums, American Alliance of Museums (2013): 18-23, accessed February 12, 2014, <http://aam-us.org/docs/center-for-the-future-of-museums/trendswatch2013.pdf>.
64. Ibid.

Chapter 4

1. Thomas A. Edison. Quoted by "Quote Investigator," posted July 31, 2012, accessed July 10, 2014, <http://quoteinvestigator.com/2012/07/31/edison-lot-results/>.
2. Amanda Gustin, "An Interview with Historypin Founder Nick Stanhope," *Museum Studies at Tufts University Blog*, July 15, 2011, quoting Robert Putnam, *Bowling Alone, the Collapse and Revival of America* New York: Simon and Schuster, Inc., 2000) [accessed March 4, 2014, http://sites.tufts.edu/museumstudents/2011/07/15/an-interview-with-historypin-founder-nick-stanhope/](http://sites.tufts.edu/museumstudents/2011/07/15/an-interview-with-historypin-founder-nick-stanhope/).
3. Genevieve Bell, "Making Sense of Museums, The Museum as 'Cultural Ecology,'" (paper prepared for Intel Corporation, June 2002), 3, accessed March 19, 2014, http://echo.iat.sfu.ca/library/bell_02_museum_ecology.pdf.
4. Maxwell Anderson, "Metrics of Success in Art Museums," (paper commissioned by the Getty Leadership Institute, 2004), accessed March 6, 2014, <http://www.cgu.edu/pdf/files/gli/metrics.pdf>.
5. CityTownInfo.com, accessed July 25, 2014, <http://www.citytowninfo.com/places/new-york/buffalo/colleges>.
6. "State and County Quick Facts," United States Census Bureau, accessed July 25, 2014, <http://quickfacts.census.gov/qfd/states/36/36029.html>.

Chapter 5

1. Charles Eames. Quoted by "EamesFoundation.org," accessed July 10, 2014, <http://www.eamesfoundation.org/>.
2. Carter Thomas, "How Much Does it Cost to Develop and App," bluecloudsolutions blog, post March 6, 2011, accessed July 21, 2014, <http://www.bluecloudsolutions.com/blog/cost-develop-app/>.
3. Chinwe Onyeagoro, "Options for Financing Your Mobile App Business, Fundwell Features, January 30, 2013, accessed July 21, 2014, <http://www.thefundwell.com/2013/01/options-for-financing-your-mobile-app-business/>.

Chapter 6

1. Benjamin Franklin. Quoted by Mary Bellis in "Inventors, Benjamin Franklin Quotes," About.com, accessed July 10, 2014, <http://inventors.about.com/od/fstartinventors/a/Benjamin-Franklin-Quotes.htm>
2. Genevieve Bell, "Making Sense of Museums, The Museum as 'Cultural Ecology,'" (paper prepared for Intel Corporation, June 2002), 3, accessed March 19, 2014, http://echo.iat.sfu.ca/library/bell_02_museum_ecology.pdf.

3. Roy Rosenzweig and David Thelen, *The Presence of the Past, Popular Uses of History in American Life* (New York: Columbia University Press, 1998), 181-189.
4. Ibid., 188.
5. Michael Frisch, "The Presentation of Urban History in Big-City Museum," in *History Museums in the US: A Critical Assessment*, ed. Warren Leon and Roy Rosenzweig (Chicago: University of Illinois Press, 1989), 41.
6. National Endowment for the Arts, "How a Nation Engages with Art, Highlights from the 2012 Survey of Public Participation in the Arts Survey," NEA Research Report 57, September 2013, 24, accessed July 26, 2014, <http://arts.gov/sites/default/files/highlights-from-2012-SPPA-rev.pdf>.
7. Arthur Toffler, *The Third Wave* (New York: Morrow, 1980), 10-11.
8. Martha Fox Lane comments at Amnesty International U.K. conference, YouTube post, June 26, 2007, accessed March 15, 2014, <https://www.youtube.com/watch?v=x8Y18U2es6s>.
9. "Usage and Population Statistics," Internet World Stats, June 30, 2012, accessed March 29, 2014. <http://www.internetworldstats.com/stats.htm>.

Bibliography

Adair, Bill, Benjamin Filene, and Laura Koloski. "Introduction." In *Letting Go? Sharing Historical Authority in a User-Generated World*, eds. Bill Adair, Benjamin Filene, and Laura Koloski. Philadelphia, PA: The Pew Center for the Arts and Heritage, 2011.

"American Experience: Mapping History by PBS." iTunes Preview. Accessed March 4, 2014. <https://itunes.apple.com/us/app/american-experience-mapping/id585230600?mt=8>.

Anderson, Maxwell. "Metrics of Success in Art Museums." Paper commissioned by the Getty Leadership Institute, 2004. Accessed March 6, 2014. <http://www.cgu.edu/pdf/files/gli/metrics.pdf>.

"Artsy - the art world in your pocket by Art.sy, Inc." iTunes Preview. Accessed March 4, 2014. <https://itunes.apple.com/us/app/artsy-art-world-in-your-pocket/id703796080?mt=8>.

Bell, Genevieve. "Making Sense of Museums, The Museum as 'Cultural Ecology.'" Paper prepared for Intel Corporation, June 2002. Accessed March 19, 2014. http://echo.iat.sfu.ca/library/bell_02_museum_ecology.pdf.

Bender, Thomas. "Historians in Public." *Academia and the Public Sphere* (September 5, 2011). Accessed March 19, 2014. <http://publicsphere.ssrc.org/bender-historians-in-public/>.

Brier, Steve. "Historians and Hypertext Is It More Than Hype?" In *Clio Wired the Future of the Past in the Digital Age*, Roy Rosenzweig. New York: Columbia University Press, 2011.

Brigham, David. "Philadelphia Museum Shaped Early American Culture." *NPR News Weekend Edition* (2008). Interview by author Liane Hansen. Accessed March 10, 2014, <http://www.npr.org/templates/transcript/transcript.php?storyId=92388477>.

"Characteristics of Excellence for U.S. Museums." American Alliance of Museums. Accessed March 18, 2014. <http://www.aam-us.org/resources/ethics-standards-and-best-practices/characteristics-of-excellence-for-u-s-museums>.

"Charles Wilson Peale and His World." Published in conjunction with the exhibition at Metropolitan Museum of Art, National Portrait Gallery, and Amon Carter Museum of Western Art (1983). Accessed April 5, 2014. <http://libmma.contentdm.oclc.org/cdm/singleitem/collection/p15324coll10/id/1303/rec/129>.

Chi-Jung and Szu-Yun Chang 's, "Taipei City Museum in the Making." In *City Museums and City Development*, ed. Ian Jones, Robert MacDonald, Darryl McIntyre. Plymouth, U.K.: Altamira Press, 2008.

"City Guides by Goop." iTunes Preview. Accessed March 4, 2014.

<https://itunes.apple.com/us/app/city-guides/id484566289?mt=8>.

Cohen, Daniel J. "Collecting History Online." In *Clio Wired The Future of the Past in the Digital Age*, Roy Rosenzweig. New York: Columbia University Press, 2011.

Conn, Steven. *Do Museums Still Need Objects*. Philadelphia: University of Pennsylvania Press, 2010.

CultureNOW. Accessed March 4, 2014. <http://www.culturenow.org/>,

"CultureNOW: Guidebook for the Museum Without Walls by CultureNOW." iTunes Preview. Accessed March 4, 2014. <https://itunes.apple.com/us/app/culturenow-guidebook-for-museum/id372161838?mt=8>.

Dana, John Cotton. *The New Museum Series*, 1 (1917), 52. Quoted in *Museum Origins Readings in Early Museums History and Philosophy*, Hugh H. Genoways and Mary Anne Andrei, eds. Walnut Creek, CA: Left Coast Press, Inc.

Dillon, Sam. "History Survey Stumps U.S. Teens." *The New York Times* (February 26, 2008). Accessed April 2, 2014.

http://www.nytimes.com/2008/02/27/us/27history.html?_r=0. .

"Explorer: the American Museum of Natural History by the American Museum of Natural History." iTunes Preview. Accessed March 4, 2014.

<https://itunes.apple.com/us/app/explorer-american-museum-natural/id381227123?mt=8>

Fairclough, Graham . "Others, A Prologue." In *Heritage and Social Media: Understanding Heritage in a Participatory Culture*, ed. Elisa Giaccardi. New York: Routledge, 2012.

Falk, John H. and Lynn D. Dierking. *Learning from Museums Visitor Experiences and the Making of Meaning*. Lanham, MD: Altamira Press, 2000.

Fox Lane, Martha. Comments at Amnesty International U.K. conference. YouTube post, June 26, 2007. Accessed March 15, 2014.

<https://www.youtube.com/watch?v=x8Y18U2es6s>.

Franco, Barbara. "Urban History Museums and Historical Societies." In *The Practice of Public History, History Essays From the Field*, ed. James R. Gardner and Peter S. LaPaglia. Malabar, FL: Kreiger Publishing, 1999.

Frisch, Michael. "The Presentation of Urban History in Big-City Museum." In *History Museums in the US: A Critical Assessment*, ed. Warren Leon and Roy Rosenzweig. Chicago: University of Illinois Press, 1989.

Giaccardi, Elisa. "Introduction, Reframing Heritage in a Participatory Culture." In *Heritage and Social Media: Understanding Heritage in a Participatory Culture*. New York: Routledge, 2012.

Goode, George Brown. *Museum History and Museums of History*. New York: The Knickerbocker Press, 1889. Repr. 1989.

Grobart, Sam. "Multimedia Tour Guides on Your Smartphone." *The New York Times* (March 16, 2011). Accessed March 6, 2014.
http://www.nytimes.com/2011/03/17/arts/design/apps-give-museum-visitors-multimedia-access.html?_r=0.

Grossman, Lev, "You- Yes, You- Are Time's Person of the Year," *Time Magazine*, Monday, December 25, 2006. Accessed March 3, 2014.
<http://content.time.com/time/magazine/article/0,9171,1570810,00.html>.

Gustin, Amanda. "An Interview with Historypin Founder Nick Stanhope." *Museum Studies at Tufts University Blog*, July 15, 2011. Accessed March 4, 2014.
<http://sites.tufts.edu/museumstudents/2011/07/15/an-interview-with-historypin-founder-nick-stanhope/>

"History Here by A&E Television Networks Mobile." iTunes Preview. Accessed March 4, 2014. <https://itunes.apple.com/us/app/history-here/id463240522?mt=8>.
 Historypin. Accessed April 10, 2014. <http://www.historypin.com/>.
 "Historypin by We are What We Do." iTunes Preview. Accessed March 4, 2014.
<https://itunes.apple.com/us/app/historypin/id455228207?mt=8>.

Holcomb, Jesse, Jeffrey Gottfried and Amy Mitchell. "New Use across Social Media Platforms." Pew Research Journalism Project, November 14, 2013. Accessed March 29, 2014, <http://www.journalism.org/2013/11/14/news-use-across-social-media-platforms/>.

Hooper-Greenhill, Eileen. *Museums and the Shaping of Knowledge*. New York: Routledge, 1992.

Hurley, Andrew . Taking It to the Streets: Public History in the City." In *Beyond Preservation, Using Pubic History to Revitalize Inner Cities*. Philadelphia: Temple University Press, 2010.

Jacoby, Jeff. "Don't Know Much about History." *Boston Globe* (June 19, 2011). Accessed April 2, 2014.
http://www.boston.com/bostonglobe/editorialopinion/oped/articles/2011/06/19/dont_know_much_about_history/

Kimmelman, Michael, "Museums in a Quandary: Where Are the Ideal?" *The New York Times* (August 26, 2001). Accessed March, 2014.

<http://www.nytimes.com/2001/08/26/arts/art-architecture-museums-in-a-quandary-where-are-the-ideals.html>.

Maney, David. 2013. "The Biggest Story of Our Lives: Economic Revolution." *Forbes.com* (March 1). Accessed March 11, 2014.

<http://www.forbes.com/sites/economaney/2013/03/01/the-biggest-story-of-our-lives-economic-revolution>.

McCarter, William Matthew. "Perverting Good Sense: Usable Fictions as History." *The Space*, 1 (2012). Accessed March 19, 2014.

www.openhumanitiesalliance.org/journals/ts/article/download/3/6.

Merritt, Elizabeth E., Phillip M. Katz, Center for the Future of Museums, American Alliance of Museums. "Museums and the Pulse of the Future," *TrendsWatch* (2012).

Accessed February 12, 2014. http://www.aam-us.org/docs/center-for-the-future-of-museums/2012_trends_watch_final.pdf?sfvrsn=0.

Merritt, Elizabeth E., Phillip M. Katz, Center for the Future of Museums, American Alliance of Museums. "Back to the Future." *TrendsWatch* (2013). Accessed February 12, 2014.

<http://aam-us.org/docs/center-for-the-future-of-museums/trendswatch2013.pdf>.

Merritt, Elizabeth E., Phillip M. Katz, Center for the Future of Museums, American Alliance of Museums. *TrendsWatch* (2014). Accessed March 30, 2014.

[http://www.od20ww77ktm1d2.doctracking.com/nocache/od20ww77ktm1dA/pdf.fdf?page=0&DMCA_WARNING=It is a criminal offence to remove or disable this copyright protection technology&Search Google for details=DMCA+eBook+Adobe&k=01113209#FDF](http://www.od20ww77ktm1d2.doctracking.com/nocache/od20ww77ktm1dA/pdf.fdf?page=0&DMCA_WARNING=It+is+a+criminal+offence+to+remove+or+disable+this+copyright+protection+technology&Search+Google+for+details=DMCA+eBook+Adobe&k=01113209#FDF).

Mooney-Melvin, Patricia. "Professional Historians and the Challenge of Redefinition." In *Public History Essays From the Field*, ed. James R. Gardner and Peter S. LaPaglia. Malabar, FL: Kreiger Publishing Company).

Mouliou, Maren. "From Urban Blocks to City Blogs Defining Attributes for the City Museum of Today." In *City Museums and City Development*, ed. Ian Jones, Robert MacDonald and Darryl McIntyre. Plymouth, U.K.: Altamira Press, 2008.

"Museum Facts." American Alliance of Museums. Accessed March 3, 2014.

<http://www.aam-us.org/aboutmuseums/museum-facts>.

"Museum Locator by YOUniversal Ideas." iTunes Preview. Accessed March 4, 2014.

<https://itunes.apple.com/us/app/museum-locator/id313640609?mt=8>.

"Museum of London: Street Museum by Thumbspark Limited." iTunes Preview. Accessed March 4, 2014. <https://itunes.apple.com/us/app/museum-london-streetmuseum/id369684330?mt=8>.

Museum of the City. Accessed March 4, 2014. <http://www.museumofthecity.org/>.

Museum on Main Street. Accessed March 4, 2014. <http://www.museumonmainstreet.org/>.

"Museum Without Walls: Audio by Association for Public Art." iTunes Preview. Accessed March 4, 2014. <https://itunes.apple.com/us/app/museum-without-walls-audio/id632336892?mt=8>.

National Council on Public History. Accessed May 5, 2014. <http://ncph.org/cms/what-is-public-history/>.

"New York Times the Scoop NYC by the New York Times." iTunes Preview. Accessed March 4, 2014, <https://itunes.apple.com/us/app/nytimes-the-scoop-nyc/id374981318?mt=8>.

Mokyr, Joel. "Why Was the Industrial Revolution a European Phenomenon?" Paper presented to the Conference on the Rule of Law, Freedom, and Prosperity, George Mason University, November 2001. Accessed March 29, 2014. <http://www.acsu.buffalo.edu/~ytang4/Zywicki.pdf>.

Orloff, Chet. "Museums and Cities of the Future of Cities," in *City Museums and City Development*, ed. Ian Jones, Robert MacDonald, Darryl McIntyre. Plymouth, U.K.: Altamira Press, 2008.

Ragsdale, Diane. "Recreating Fine Arts Institutions." *Stanford Social Innovation Review* 7, no. 4 (Fall 2009). Accessed April 27, 2014.

<http://proxy.buffalostate.edu:3992/pov/pdfviewer/pdfviewer?sid=6bbb4a92-15f5-4594-b87a-0ca3a51b8178%40sessionmgr111&vid=2&hid=120>.

"Roadside America by This Exit LLC." iTunes Preview. Accessed March 4, 2014. <https://itunes.apple.com/us/app/roadside-america/id347393479?mt=8>.

Romano, Andrew. "How Ignorant are Americans?" *Newsweek* (March 22, 2011). Accessed April 2, 2014. <http://www.newsweek.com/how-ignorant-are-americans-66053>.
Rosenzweig, Roy and David Thelen. *The Presence of the Past, Popular Uses of History in American Life*. New York: Columbia University Press, 1993.

Russo, Angelina . "The Rise of the Media Museum, Creating Interactive Culture Experiences through Social Media." In *Heritage and Social Media: Understanding Heritage in a Participatory Culture*, ed. Elisa Giaccardi, New York: Routledge, 2012.

Sargent, Rachel. "Building Cybercabinets: Guidelines to Online Access to Digital to Natural History Collections." Presented at Museums and the Web 2013 Conference, April 17-20, 2013. Accessed March 6, 2014.
<http://mw2013.museumsandtheweb.com/paper/building-cybercabinets-guidelines-for-online-access-to-digital-natural-history-collections/> .

Simon, Nina. "Participatory Design and the Future of Museums." In *Letting Go? Sharing Historical Authority in a User-Generated World* . Philadelphia, PA: The Pew Center for the Arts and Heritage, 2011..

"Special report: Museums." *The Economist*, December 21, 2013.

Stearns, Peter N, "Why Study History?" American Historical Association. 1998. Accessed March 9, 2014. [http://www.historians.org/about-aha-and-membership/aha-history-and-archives/archives/why-study-history-\(1998\)](http://www.historians.org/about-aha-and-membership/aha-history-and-archives/archives/why-study-history-(1998)).

"Stories from Main Street by Smithsonian Institution." iTunes Preview. Accessed March 4, 2014. <https://itunes.apple.com/us/app/stories-from-main-street/id460867219?mt=8>.

Szanto, Andras. "Will U.S. Museums Succeed in Reinventing Themselves? The Recession is Forcing North American Institutions to Reconsider Every Aspect of What They Do." *Museums USA*, no. 209 (January 11, 2010). Accessed February 10, 2014.
<http://www.theartnewspaper.com/articles/Will-US-museums-succeed-in-reinventing-themselves?%20/20030>

Tchen, John Kuo Wei and Liz Sevchenko. "The 'Dialogic Museum' Revisited: A Collaborative Reflection." In *Letting Go? Sharing Historical Authority in a User-Generated World*, eds. Bill Adair, Benjamin Filene, and Laura Koloski. Philadelphia, PA: The Pew Center for the Arts and Heritage, 2011.

Toffler, Alvin, *The Third Wave*. New York: Morrow, 1980.

"Travel Channel Cities by the Travel Chanel L.L.C." iTunes Preview. Accessed March 4, 2014. <https://itunes.apple.com/us/app/travel-channel-cities/id503889626?mt=8>.

"University Circle by University Circle Inc." iTunes Preview. Accessed March 4, 2014, <https://itunes.apple.com/us/app/university-circle/id503623312?mt=8>.




Verity, John W. "The Information Revolution – Introduction," *Business Week*, August 24-3, 1998. Accessed July 13, 2014,
<http://www.businessweek.com/1998/35/z3372001.htm>.

Weisdorf, Jacob L. 2005. "From Foraging to Farming Explaining the Neolithic Revolution." *Journal of Economic Surveys* 19, no. 4 (September): 561-586. Accessed March 29, 2014.
<http://classes.uleth.ca/200701/anth1000b/foraging%20to%20farming.pdf>.

Zelvansky, Lynn. Quoted in Andras Szanto. "Will U.S. Museums Succeed in Reinventing Themselves? The Recession is Forcing North American Institutions to Reconsider Every Aspect of What They Do," *Museums USA*, no. 209 (January 11, 2010). Accessed February 10, 2014. <http://www.theartnewspaper.com/articles/Will-US-museums-succeed-in-reinventing-themselves?%20/20030>.

Appendix 1

Table 3.2 Summary Data for Sample of “Museums Without Walls”

Name	CultureNOW ¹	Historypin ²	Museum of the City ³	Museum on Main Street ⁴
Description	A nonprofit organization mapping history, art and architecture in the public realm, creating a “museum Without Walls.”	A global community collaborating around history.	A virtual museum of city culture, features, issues and history that collects exhibits submitted by citizens the world over.	A Smithsonian Institution Traveling Exhibition Service initiative to engage small town audiences and bring attention to underserved rural communities through their own museums, historical societies and other cultural venues.
Purpose/ Mission	CultureNOW functions primarily as a virtual museum or gallery of art, architecture and history that exists outside of the walls of museums. Its mission is to promote cultural tourism and arts education.	To help people come together across different generations, cultures and places around the history of their families and neighborhoods, improving relationships and building stronger communities. To conserve and open global archives for all to enjoy, learn from and improve. To create educational resources for schools and universities.	Museum of the City is a digital museum of the city. It serves as a “forum for the exchange of knowledge, ideas, and informed opinion about the world’s cities, past, present and future.	Share collections, research and exhibitions with rural Americans Broaden public interest in American history Inspire community revitalization, pride and cooperation Showcase local heritage in underserved rural communities across the Motivate rural museums to make lasting improvements
Founding	2002	Beta June 2010; Global July 2011.	2001	1994
Links				
Access	Website maps, podcasts, self-guided tours; Newsletter via email; Maps via cultural orgs; Museum Without Walls Guidebook via iPhone App.	Website provides map, projects, tours and collections; Newsletter via email; Blog; Historypin app free for Android, iPhone, Windows.	Website	Visiting exhibitions; Website; Blog; Main Street app to record or listen to a stories.
Educational Resources	Maps, podcasts, tours	Downloadable resources including how to guides, activity sheets and sample materials to promote projects.	Exhibitions	Lesson Plans, Scavenger Hunts, Reading Lists, Teaching Guides, Docent Handbook
User Input	Entry via website	Via website to add	Submit Exhibit	Via website or app to

		photos, stories, tours and collections, projects. Via app to add photos and stories.		contribute stories, photos, videos
Authority	Submissions reviewed by CultureNOW for acceptance to collections.	Open access with Historypin account (Gmail account required). Subject to peer review for accuracy and appropriateness, moderated by Historypin.	Curator Museum of the City	Recorded input guided by questions.
Topics	Art, Architecture, Cultural, Academic, Green spaces.	Photos, videos, audios pinned by date and geographic location. Organized as tours or collections by user. Searchable by geography, time, subject and channel (user account).	Ancient, Architecture, Art, Books, Contemporary, Culture, Districts, Food, Future, Health, Historical, Industry, Lecture Hall, Natural Resources, Planning, PSU. Recreation, Stories, Sustainability, Transportation, Urban Design, War.	Hometown Teams, Key Ingredients, Journey Stories, The Way We Worked.
Time		Time 1840 to present.		
Geography	Global, primarily U.S.	Global representation based on Google Maps and Street View.	200 libraries, archives and museums around the world.	U.S. small rural communities
Scope and Scale	11,000 sites and 21,000 images, plus more than 1,050 related podcasts, and approximately 50 self-guided cultural tours; collaborates with over 75 public art collections.	Historypin has gathered 341,837 "materials, memories and contributions" from 54,470 users and 1,649 institutions; also 200 library, museum and archive partners.	Citizens, students, scholars, curators, and professionals in the study, planning and design of cities to submit their own exhibits which are organized into 22 galleries covering a variety of topics (for example, recreation and transportation) and disciplines (for example, art and history).	46 state humanities councils and 900 rural cultural institutions.
Funders	New York City Department of Cultural Affairs, New York State Council on the Arts, NYC& Company Foundation.	Owned by We Are What We Do Charitable Foundation. Funded by donations, grants, sponsorships.		U.S. Congress and participating state humanities councils. Previous support from the Hearst Foundation, the John S. and James L. Knight Foundation, the National Endowment for the Humanities, the

				Rockefeller Foundation, the Smithsonian Institution's Special Exhibition Fund and the Smithsonian Institution's Educational Outreach Fund.
Organizational Partners/Contributors	American Institute of Architects, NY Chapter, American Institute of Architects, Los Angeles Chapter, Anonymous Foundation, New York Department of Cultural Affairs, Numerous private individuals.	Technology partner Google. Funding partners Nominet Trust and Heritage Lottery Fund.	Portland State University, International Committee for the Collections and Activities of Museums of Cities.	Smithsonian Institution Traveling Exhibition Services.
Awards	Voted New York app's Best Cultural App of 2011. In 2012, the American Institute of Architects honored it with a National Collaborative Achievement Award.	Webby for Best Charitable Organization/ Non-profit Website, The Sunday Times APP List 2012, The Love Awards for Best Education and Reference Website, American Association of School Librarians 2012, Best Website for Teaching and Learning, Family Tree Magazine: 101 Best Family History Website.		Presidential Design Award for Excellence.

1. CultureNOW, <http://www.culturenow.org/>, accessed March 4, 2014.
2. Historypin, accessed April 10, 2014, <http://www.historypin.com/>.
3. Museum of the City, accessed March 4, 2014, <http://www.museumofthecity.org/>.
4. Museum on Main Street, accessed March 4, 2014, <http://www.museumonmainstreet.org/>.

Appendix 2