

# Smart Phone Services for Smithsonian Visitors



July 2010

Office of Policy and Analysis



Smithsonian Institution

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## Preface

The Office of Policy and Analysis (OP&A) is pleased to participate in this study for the development of a Smithsonian phone application/service for on-site Mall visitors. OP&A designed this project as a multi-phase effort that includes a review of past data collected in OP&A surveys, in-depth personal interviews with visitors who use smart phones, a query to Smithsonian Twitter and Facebook users about their preferences, a sample survey, and testing of prototypes. I appreciate the willingness of visitors to speak with us and offer comments. The time they provided, in the midst of their museum visits, is evidence of their affection for the Smithsonian and their interest in building stronger relationships.

I also thank the members of the development team assembled by the Office of Public Affairs and the Office of the Chief Information Officer: Nancy Proctor, Mara Jones, Beth Py-Lieberman, Sarah Taylor, Dana Small, Sara Snyder and Victoria Portway.

On my staff, Ioana Munteanu and Claire Eckert collected and analyzed the data and wrote the report. Zahava Doering and Andrew Pekarik participated closely in all stages of this study, often providing practical guidance and helping bridge the gaps between content and beliefs of Smithsonian staff, and what the public actually says and does. Maurice Johnson and Alexis Van Zalen, two newly arrived interns, also assisted in the preparation of the report. I am grateful to all of them for their excellent work.

Carole M. P. Neves

Director, Office of Policy and Analysis

## Summary

In June 2010, the Office of Policy and Analysis (OP&A) conducted 24 in-depth interviews with a total of 31 visitors, all owners of mobile devices (primarily smart phones), at seven Smithsonian Institution (SI) locations and received 142 messages from Facebook and Twitter users. This report presents the study team's analysis of the visitors' comments (Part I), and the responses of Smithsonian Facebook and Twitter fans (Part II), about their preferences and needs for a Smithsonian phone application/service.

In the case of the interviews with on-site visitors, OP&A made an effort to select different types of people with mobile phones (e.g., age; whether alone or with others; and ethnic background). All interviewees participated voluntarily. The Facebook/Twitter respondents were limited to those who followed these Smithsonian social media and chose to answer the question posed to them.

The findings reveal the variety and breadth of perceived needs and preferences for an SI application/service. Interviewees' familiarity with the capabilities of current mobile devices ranged the spectrum from new, amateur users to seasoned, visionary professionals. Similarly, opinions about what a SI application/service might include varied across individuals. Nevertheless, a set of perceived needs and preferences emerged from the data as a whole. What priority the Smithsonian assigns to any one of these needs in the actual development/implementation of an application/service is inextricably linked to the goals of SI and its multiple units. This initial set is listed below, followed by a map of the responses and more in-depth discussion of each item in the set:

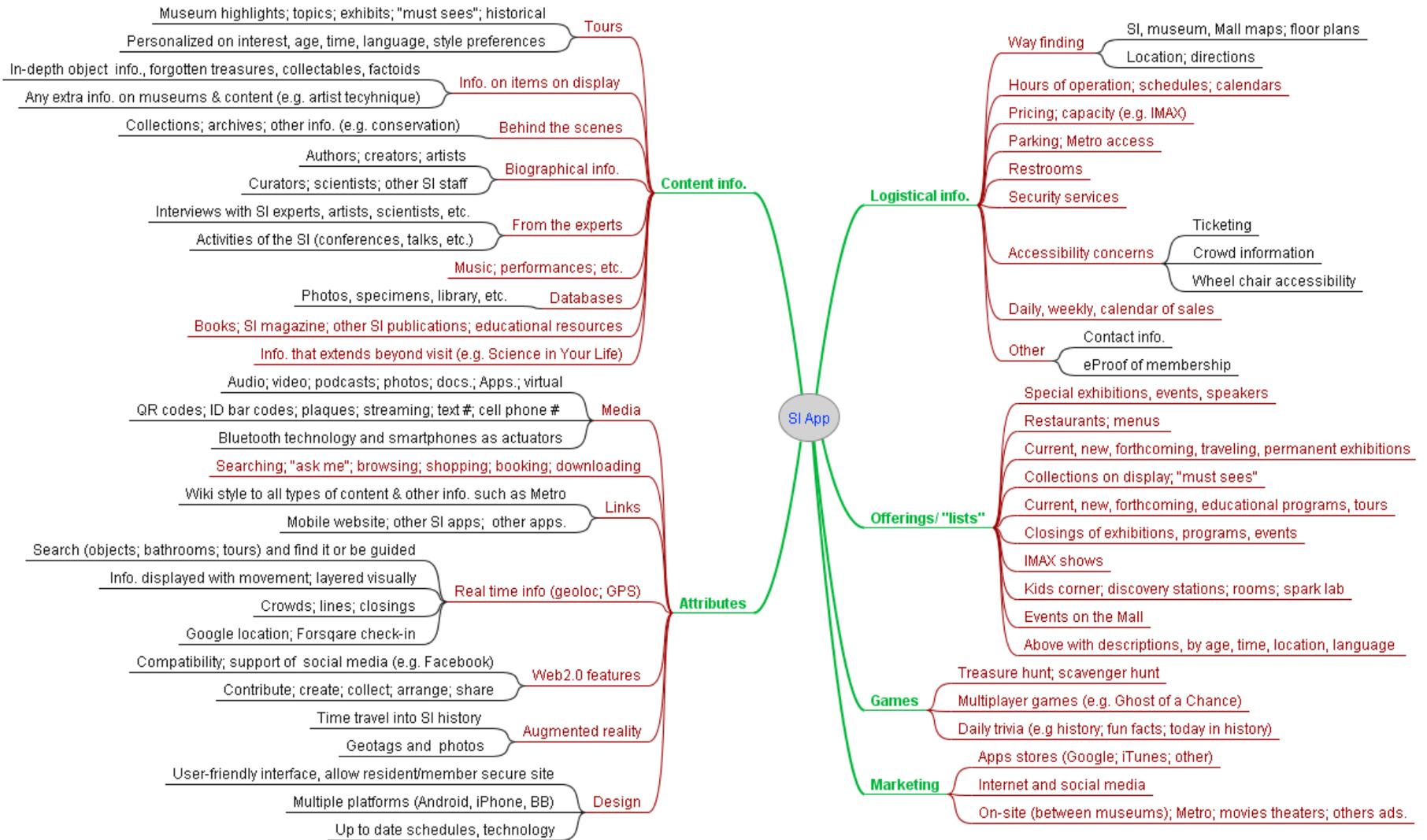
- General information for planning/logistics (e.g., wayfinding, prices)
- Specific information/listings of Smithsonian offerings (e.g., special events) for planning
- Content information related to Smithsonian collections and other matters (e.g., tours, items on display, behind the scenes looks, biographical information, databases, interviews with experts, music and other performances, published materials, and educational materials)
- Games related to the visit or other topics (e.g., treasure hunts and multiplayer games)
- Information related to visitors' personal interests and needs (e.g., specific topics, age level, and language)

Visitors had suggestions for some ways to meet their needs:

- Stretching the museum through such means as electronic searching, browsing, linking, and hyperlinking, and through augmented reality/time travel
- Access to real-time information

- Specific formats (reading-docs, listening-audio, talking-audio, playing-games, seeing-video, and interacting with experts)
- Up-to-date technology (updatable, alerts, and compatible with various operating systems)

## Map 1: Visitors' suggestions from both interviews and social media



# Introduction

## CONTEXT

More and more Smithsonian visitors are using smart phones and this is likely to increase in the near future. In response, the Institution's Office of Public Affairs (OPA) has identified start-up funding for the development of an initial SI-specific mobile application/service (app). OPA believes that the development and implementation of such a service should be guided by the needs, interests, and responses of on-site Smithsonian visitors with smart phones and asked the Office of Policy and Analysis (OP&A) to assist in determining visitors' initial needs and perceptions.

In response to OPA's stated goals and following several meetings, OP&A proposed a three-part study: first, to review existing OP&A data for information on visitors' needs, second to conduct qualitative interviews with on-site smart phone users to ascertain their needs and perceptions, and followed by a survey; third, to assist the Office of the Chief Information Officer (OCIO) in testing prototype applications and to study initial use of the prototype products in ways that could guide their future development.

## STUDY METHODS

- 1. Interviews:** From June 7 to 21, 2010, OP&A completed 24 in-depth interviews with a total of 31 visitors<sup>1</sup> (see Appendix A for a copy of the interview guide). The study team targeted visitors with smart phones but also spoke with visitors with other types of cell phones and handheld devices. The interviews varied in length from 2 to 40 minutes. The study team transcribed and analyzed key portions of the interviews.
- 2. Social Media Query:** To augment the interviews, OP&A asked the Smithsonian Institution's Facebook and Twitter fans this question: "Help us design a Smithsonian application or service for visitors with smartphones. What would YOU find useful or interesting?" (See Appendix B for their complete list of responses).

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<sup>1</sup>The interviews took place at the National Museum of the American Indian, National Museum of American History, Kogod Courtyard of the National Portrait Gallery and the Smithsonian American Art Museum, National Air and Space Museum, Freer and Sackler Galleries, and Smithsonian Castle.

## **ORGANIZATION OF THE REPORT**

This report is composed of two parts. Part I addresses the comments of the on-site visitor interviewees. Part II presents an analysis of the comments from the Facebook and Twitter fans.

## **Part I: Interviews**

### **Visitors' Background, SI Website Use, and Mobile Phone Use**

#### **INTERVIEWEES' MUSEUM VISIT BACKGROUND**

The OP&A study team asked visitors about the frequency and other aspects of their visits to the Smithsonian and other museums, and the reasons for their visits. The visitors had different histories with regard to museum visits.

#### **VISITORS' PLANNING DECISIONS (GENERAL)**

How and to what extent the interviewees planned their Smithsonian visits varied. Some planned extensively, while others did not plan at all. Although local residents were less likely to plan, some locals made a point of preparing for the visit before they came. A snapshot of the different planning styles is provided below. While there is overlap across the styles, and not everyone fits the patterns described below, it is possible to describe visitors' planning styles according to residence and frequency of visits.

#### **Non-local, first-time visitors relied on or were enticed by:**

- Others (friends, family, or organized group)
- Printed tourist guide / brochures
- Advice from locals
  - A mother and daughter from out of town relied on advice from a stranger: "A gentleman on the Metro told us how to get here and what to see."
- Website
- The Smithsonian's reputation as a tourist destination
  - A family from Singapore stated: "We just looked at the city map and walked. Smithsonian is well-known. We knew [we had] to visit it."

#### **Local, repeat visitors relied on or were enticed by:**

- Word of mouth
  - "A lot of the Smithsonian things that I've been to have been mostly through word of mouth. Other people know about it and invite you to it."

- Memory; they had visited before
- Routine / habit (especially in the Kogod Courtyard where local professionals go for lunch)
- City paper / an exhibition review they had read
- Advertisements

### **USE OF THE MAIN SMITHSONIAN WEBSITE (<http://www.si.edu/>)**

A majority of the visitors interviewed had used the main Smithsonian website. Interviewees indicated multiple reasons for their website visits.

**Planning** was mentioned by both local and non-local visitors.

- Non-local visitors most often looked for hours of operation and location (i.e., general planning information).
- Local visitors most often mentioned looking for “What’s on” (special events, programs and new exhibitions).
  - One local person described his visits to the website: “I am a member of The Smithsonian Associates, and I look for what programs are coming up since I work across the street. At lunchtime sometimes I go over. If there are special events, sometimes I have my wife come and meet me, and we go to something, but that is about it. I look for special presentations and lectures being done by the Associates.”
  - Another local person described how she would like information on special exhibitions: “I would like to know what the special exhibits are. I would like to see a tab or a link that was visible on the website that says ‘special exhibit’ or ‘visiting exhibitions’, etc. If you would click on that, you would have which museum it was at and a description to click on if you wanted more information.”

**Other reasons** that visitors cited for visiting the website were content (e.g., information on art, historical personalities, SI history and its buildings, etc.), membership information, and tickets/prices.

**Experience with the website visit:** When asked whether the website meets their needs, some interviewees mentioned having problems. Some were not able to find the information they were looking for (e.g., special exhibits). Others found the website difficult to navigate. One

interviewee described her experience with the website as follows: “It is a little bit overwhelming. When you get to a [web] page, there is so much going on. It’s covering a vast array of information with all the different museums. It was very ... you feel like an ADD [attention deficit disorder] child because there are so many colors and flashing and words. It had a ton of information, which is really nice but a little dense.”

One interviewee responded with another preferred source of information when asked, *Were you getting enough info from the website?* saying, “To be honest, I would be more likely to go to *The Washington Post* and read about what is happening. Maybe more reviews would be good. If I like something, I am more likely to go see it.”

## **ACCESSING THE SI WEBSITE FROM MOBILE PHONES**

None of the interviewees accessed the SI website through their mobile phones. The reasons varied from “I did not have any questions” to “I did not think about it.” In addition, some visitors felt that once they were in a specific museum, they had no need to go to the SI website via their phones. They gave as reasons that it was “too much trouble” and had “no point” because they were already there.

At least one interviewee intended to access the SI website from his phone but ended up at another site. One person who submitted a query about an artwork said he was directed to Wikipedia: “I actually started to go to the website today on my phone when I was in front of the room with the huge Americana Portraits. I went to the web to look up the artist. When I Googled the artist, the Wikipedia page came higher, so I just picked that one up.”

## **VISITORS’ USE OF PHONES IN MUSEUMS**

The level at which interviewees used their phones in the museum ranged from limited to heavy, depending in part on a) the type of phone they had<sup>2</sup>, b) how many functions they used, and c) how extensively they relied on/used their phones in their daily lives.

### **Level of Use**

**Limited use (non-smart phones users; use of standard phone functions, e.g., texting, talking, and taking an occasional photo):** Visitors without smart phones were more likely to say they used their phones to call or text friends and family; a few mentioned using additional functions, such as their phones’ built-in camera. One person with an LG Touch described how she used her phone in the museum and why: “The cell phone has a touch screen, but I don’t have any applications. I usually call, text, and send pictures. Today I took pictures. My sisters are

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<sup>2</sup> BlackBerry users commented that their phones were especially well-suited for email, but not web browsing, and they were less likely to mention accessing the internet or downloading applications to their phones.

jealous that I'm here so I promised them I would send pictures of the Smithsonian building and the Mall.”

**Moderate use (non- and smart phone users; use of basic phone functions plus additional functions, e.g. email, but the phone is not used constantly):** Some interviewees reported using the phone for a handful of purposes such as GPS, email, texting and calling. Some reported reserving the phone for specific purposes, such as for email or keeping in touch with friends and family. A BlackBerry user, when asked “*Have you used your phone today in the museum? What have you used it for?*” responded, “Yes. I used it to check our flight status. That’s it.” However, his wife chimed in: “He uses it to look up random bits of information!” This same interviewee described restricted use of his cell in general: “I don’t give my cell phone number out. I use it mainly for family and things like that. Even though most people in my line of work would use it for business, I don’t. I always have my cell phone on vibrate or silent. If someone had called me while I was here, I wouldn’t have noticed. When I check it later, I will return the call if I want to. More than likely I won’t want to.”

**Heavy use (non- and smart phone users; use of numerous functions and/or constant use):** Some interviewees, who had smart phones or phones with internet access, described themselves as being “glued” or “completely attached” to their devices. They constantly checked their phones and, in the case of smart phone owners, sought to maximize the use of their phones: they surfed the net, played games, planned, talked to friends, read the news, got directions, found restaurants, etc. These visitors were also more aware of their phones’ capacities and limitations and were more likely to consider engaging the virtual Smithsonian from their devices (a topic discussed later in the report).

### **User types and application preferences**

The interview findings suggest that some interviewees prefer certain kinds of applications. Although they did not use their favorite applications exclusively, their preferences allow the study team to categorize them into five main user types: planners, information seekers, gamers, and networkers.

- **Planners** favored search applications such as WHERE and AroundMe.
- **Information seekers** used applications such as Wikipedia, and *The New York Times*.
- **Gamers** self-identified as “game players” and played games such as Sim3 or Farmville.
- **Networkers** preferred social media applications such as Facebook, Twitter, and Foursquare.
- **Multimedia users** liked Shazam and were likely to contribute to and watch YouTube.

An individual, categorized by the study team as an information seeker, described his use of the mobile phone as follows:

“I have three and a half pages of applications. My favorites are HuffPost and *The New York Times*. Usually I use it [my phone] for news. I am a fourth grade teacher. If I have down time in my classroom, I just want to look up the news. Facebook, Twitter, and Foursquare would be my social networking [sites]. I also have Yelp, a dictionary function, and a lot of productivity apps like lists and database. I also had 3D Brain, which is a reference application. You don’t need the internet. All the info is on your phone. So if I am sitting on the plane and I don’t want to read or write, then I just pick up my phone and flip through those without having the access to the internet.”

## **VISITORS’ EXPERIENCES WITH MUSEUM APPLICATIONS**

**Smithsonian mobile applications:** At the time OP&A conducted the interviews, the Smithsonian was offering at least two mobile applications to its audiences: MeAnderthal (National Museum of Natural History) and Yves Klein (Hirshhorn Museum and Sculpture Garden). When the study team asked visitors if they had looked for a “Smithsonian mobile application,” most replied that they had not. Some said, “I did not know there was one,” and others said that they “did not even think about it.” One person, explaining why she did not think about it, said: “I’ll be honest, I hadn’t thought about that before. I’ve only heard a couple of organizations so far that do that kind of thing. I know the Cincinnati Zoo, just in the last couple of months, has developed an application.”

Three smart phone users who fit the description of planners and information seekers, and who were regular museum-goers, searched for a Smithsonian application in the Apple store and on the Internet and could not find one.

Some interviewees thought that a SI smart phone application would be preferable to a mobile website, i.e., a website that has been designed to be accessed through a mobile phone. For example, one couple felt strongly that websites designed for mobile phones were inferior to smart phone applications: “The point is that these devices [smart phones] are not intended to look at web pages which are designed to go on screens this big [gestured to show the size of a normal computer screen]. The problem isn’t that the site does not have the information; it is just that it does not find the link. You have to open it up, and open it up, and then find it.”

Another person commented, “Please do not use Flash! The iPhone does not support them. You would go into incredible debates about that. Do not go there. Within about 18 months to two years, HTML file will take over the Flash and other similar [systems].”

**Other museum mobile applications:** Three visitors mentioned downloading applications for the Portland Museum of Art, the Louvre, and the Musée D'Orsay. Their reasons included planning their visits and downloading content.

## **Visitors' Needs, Interests, and Preferences for a Smithsonian Application/Service**

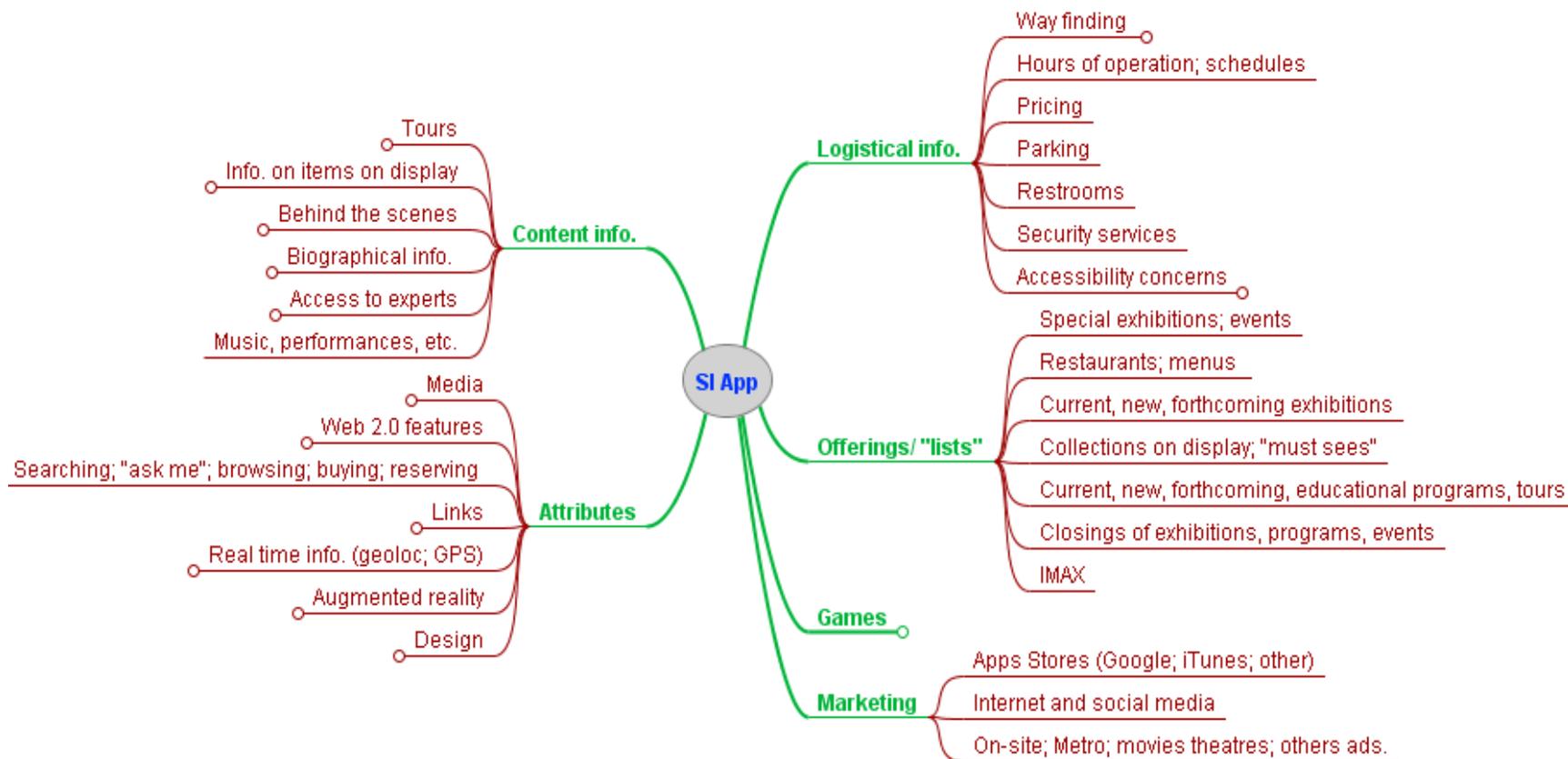
**General reactions:** Most interviewees agreed that they would like the Smithsonian to offer services for mobile phone users. “Sweet!” and “Cool!” were some of the reactions when interviewees were informed that the Smithsonian is looking into developing a service/application for mobile phone users.

**Visitors' needs and preferences overall:** The comments of interviewees about the purposes that a mobile phone service could serve and needs it could meet varied greatly (see Map 2). They included needs such as planning, entertainment, education and learning, communication of Smithsonian information, and an ability to contribute. The analysis of the interviews indicated that some visitors have specific needs for services from mobile devices and that those needs are related to the visitors' backgrounds, specifically:

- Residence (local vs. non-locals),
- Frequency of visits to the Smithsonian and other museums and closely connected to this, the use of museum aids,
- Reasons for using their phones (seeking information, planning, gaming, social networking, and accessing the information using a variety of media), and
- Access to information styles (reading-docs, listening-audio, talking-audio, playing-games, and watching-video).

## Map 2. Visitors' preferences for a smart phone service/application

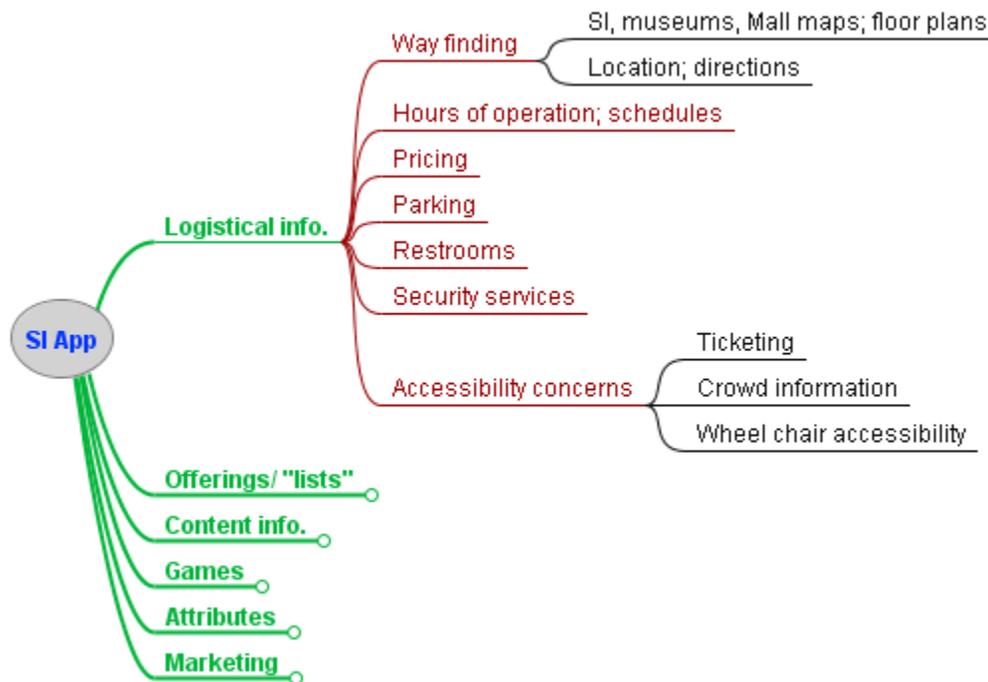
Source: OP&A Interviews



## LOGISTICAL INFORMATION

Most visitors suggested that a SI app should provide basic logistical information. However, first-time visitors and those categorized as planners seemed especially interested in getting logistical information. One interviewee, who had downloaded applications for museums for planning purposes in the past and had also looked for a SI application, said, “We wanted to find out the hours that this museum was open and the address so we could tell the cab driver where to go. We wanted to see what exhibitions were current and if you had any Sargents.<sup>3</sup> We were interested in finding out if there was a café, or what the hours were and which entrance was wheelchair accessible.” Map 3 provides the types of logistical information that interviewees wanted.

**Map 3. Logistical information**



A repeat visitor who had downloaded other planning applications on her device and who had similarly looked for a SI application said she was interested in both logistical information and content: “It would be nice if you could have the maps loaded on [the app], the maps of the

<sup>3</sup> John Singer *Sargent* (January 12, 1856 – April 14, 1925) was an American painter.

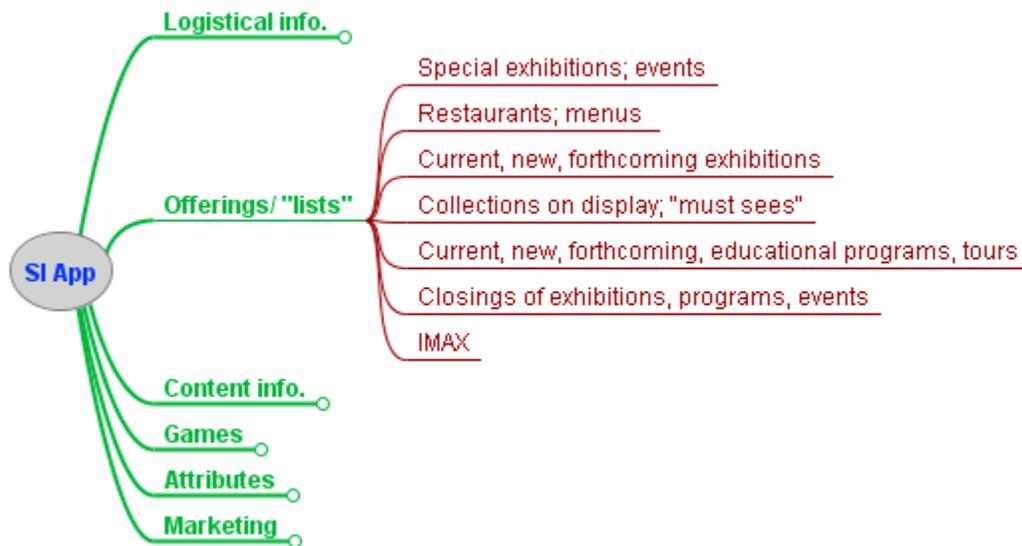
museum of where things are. So let's say you are *not* interested in the First Ladies' dresses, but you are in that museum, and you wanted to know where this kind of thing was, you could go to the first floor and touch your map on the iPhone and see what is in there.”

Several interviewees indicated that they would like the app to look like the *GoSmithsonian* booklet. One interviewee suggested translating the information in the booklet into “something suitable for a user interface” the size of a smart phone, which would also mean that visitors would not be burdened with carrying around printed copies. Along these same lines, another interviewee commented on the value of accessing the layout of the museum. “Given the size of the Smithsonian, you are not always looking at where you're going; you're looking at where you are. So as a consequence it is hard to find the restrooms or an elevator or any of those things. So something that has a basic layout. That approach [as presented in *GoSmithsonian*] is quite good.”

## OFFERINGS

The Smithsonian offerings that visitors suggested varied according to their background (see Map 4). Some interviewees thought that this information should be organized by categories such as time, appropriate age, the time it takes to complete, and location.

**Map 4: Lists of Smithsonian offerings**



### Local, repeat visitors:

- One local young woman commented that she would like to be informed about “Any special events. There are some special events at the Hirshhorn that they do once a month with wine and cheese. My friends and I talk a lot about how we would like to utilize the SI more, but we never do. We just stick to Dupont or U Street. If we knew about all the things that are going on, we would probably do more and be more inclined to come down here.”
- Information on nearby restaurants was important to one local visitors who said, “When I have people coming into town and we go to the Smithsonian, we try to think of where to eat around here because we always try to tie a meal with [the visit] to make it easier.”

**Out of town, museum-goers:** One person commented, “Every museum has certain things that are featured, and [I would like] to know where those are ... Like if you go to the Louvre, you want to go to the Mona Lisa, etc.”

**Planners:** A person who liked to plan wanted to know about “Anything new and upcoming that is going to happen, or if there is something that is going on. I do not want to miss a tour by a minute or so because I did not know about it or I forgot to look when I was coming in, and stuff like that.”

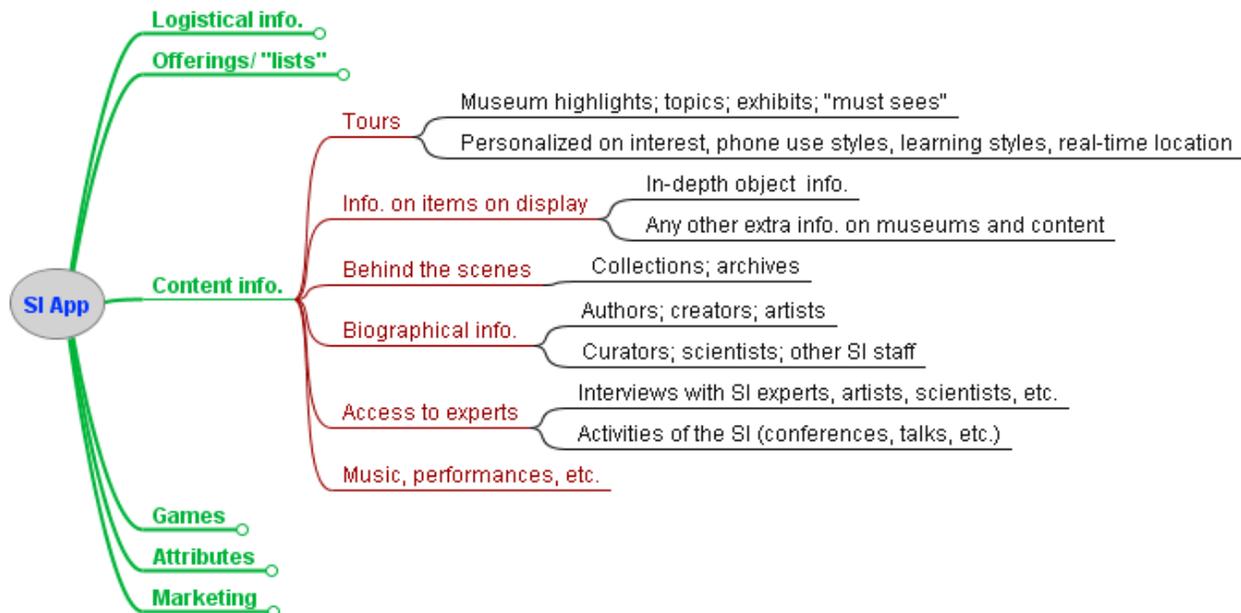
## CONTENT

Interviewees' opinions ranged widely about whether the SI application/service should contain content. Below are examples from the two ends of the spectrum; one interviewee expressed that providing vast, searchable content was an attribute of a superior app, while another stated that there is enough information already available in the museums.

**Treasure trove of information:** An interviewee who said he favored news apps and downloaded the Louvre app to learn more about art (to impress his girlfriend who was an artist) talked about how he envisioned using a SI application: "If I knew there was one, if it was big on the website, I might be tempted to download it there while I am at my computer. Then I would have it on my phone, and I would have this treasure trove of information available on my phone." When prompted about whether he would like logistical information on this SI application, he said, "I don't need an app to find a restroom."

**No additional information needed:** It is important to note that some interviewees were quite pleased with the amount of information they got in exhibitions and didn't see a need for anything other than logistical information. A moderate user of the iPhone noted, "The displays and exhibits are self-explanatory. SI does a good job of explaining what it is we are looking at. A lot of museums, if there is a special exhibit, will have touch screens, active displays that can interactively enhance the exhibition, and if there are additional questions; all seem to work pretty well. I've never had an 'if-only-I-did-this,-I-would-be-happy' moment."

**Map 5: Content information**



## Tours

Tours were among the most popular features mentioned by interviewees. The analysis showed that visitors had preferences among the kinds and types of tours they would download. Some, especially those who tended to plan their trips, thought highlight tours or time-based tours would be helpful. Others would like topical tours tailored to their interests. Others cared mostly about how they can access the tour information—through audio, video, or a hyperlink document.

- **Topical:** An interviewee expressed her interest in a topical tour: “Here is this museum, and here is everything related to one specific topic. You could walk through the museum, and it could tell you what each object was about. Having a little map of it would be good—like go here, and then your next stop is over this part of the museum. That could be fun. That would be something I would do for sure. If someone would give me a little talking map I would do that.”
- **“Must sees”:** An out-of-town visitor said, for example, “You have two hours at NASM. What are your ‘must-sees’?”
- **In-depth tour of an exhibit:** “Like something you would download, more like an in-depth view of the exhibit that you would use personally,” one interviewee stated.
- **Build your own:** According to one interviewee, “It’s nice to interact with people, but let’s say that you want to do your own thing in there. If you had the earphones, you could get what it is in different locations and listen to the different things.”
- **Audio:** A teenage iPhone user, when asked about having access to an audio tour through his phone, said, “Yeah, actually, that would be helpful, instead of having to get a headset [device provided by the museum]. That would be cool.” Another interviewee mentioned that a podcast or tour would be helpful for exhibits that are crowded or have text that is difficult to read: “The one area was the Star Spangled Banner at NMAH. There is so much to read about it. It is a very small display, but there is a lot of information there.”

## Information on items on display

Having access to information about what’s on view at the Smithsonian was important to many interviewees.

- **In-depth object-related information:** An interviewee commented, “One thing that is frustrating for me is when you are walking through the actual physical museum and getting to artwork that is really interesting, and all I get is the titles and the artists and the dates of their lives and the dates the works were created. I want to know more.” Similarly from another interviewee, “I have to admit that the biggest thing that I would love from

an app would be to be able to go and stand next to an object and check my app and say, ‘tell me more about this,’ and have someone tell me in my ears, ‘this is what this art object is.’”

- **Contextual information:** This point was made by many interviewees: “I was here, I was on the second or third floor, and I was looking at some art object. It had a little [label] that did not say a whole lot about it. It might just have the name of the artist and the date that it was made, and that was it. There was no context, of explaining a little bit more of the history or perhaps what the artist intended. I was just kind of curious at that point in time as to why would they did this, what is the history of this, I wanted to know a little bit more.”

### **Behind-the-scenes information**

Several interviewees were interested in finding out what goes on “behind the scenes” at the Smithsonian.

- One interviewee said she was interested in the Institution’s films and archive: “I know you have the movies and a huge archive.”
- A repeat visitor to the Smithsonian discussed the potential educational value of the Smithsonian collections: “Now you can get your website [on iPhone], but think in the future how much further you can go. Better yet, people want to know what is in your basement. What if you could look at what you have in your basement? Let’s say it is a photo archive. People can go and see what is in the storage, and that might be educational.”

### **Biographical information**

Knowing more about the artists, scientists, and other historical individuals featured in the museum was important to some visitors: “If I could read about E.O. Wilson while staring at his portrait [that] would be really cool.”

### **Access to the experts**

Several interviewees mentioned wanting content from the experts, through talks and interviews with SI experts, artists, scientists, and inventors.

- An interviewee whose favorite applications involved social networking said, “What I would really love is to have someone who knows more about this – far more about it

[than me] – talk to me about it. Like, [I could] go to an object of art, press a button, and it will tell me more about the object if I wanted to hear more about it.”

- An interviewee, who is an artist, remarked that curators have specialized knowledge that adds value to the public’s experience and should be incorporated into an application/service, “If this is your virtual museum, this gallery has this art, and curators are talented at bringing out the unseen elements of the works or drawing context and linking it up to other things that are on display.”
- Another visitor noted, “Sometimes I don’t want to read all the information that is there, and I would rather hear it. Or listening to the artists talk about their work can be more interesting than reading about it.”
- Yet another person mentioned that visitors often have questions for museum staff: “Sometimes people have to ask questions like ‘Why did you do this?’ and ‘What is this piece for?’”

### **Music, performances, and films**

Music and sound was important to some interviewees. For example:

- “Let’s take it a step further. You guys do a lot with schools. So, for example, you have to do a presentation for school, and let’s say that you are doing it on the Australian Outback. How neat it would be to have their music to demonstrate it. For learning purposes that would be awesome.”
- “I like different kinds of music. I am pretty eclectic, and that would be cool if you could download different things [like music from other countries]. So if you travel around the world, you get the experience of different countries. I spent a month in Brazil, and I actually like that music. My sister is in Ireland, my brother-in-law goes to Australia, so there are different sights and sounds, and maybe that [having the ability to download music from different countries] would not be such a bad thing.”

## GAMES

Some interviewees said that a Smithsonian application should be fun and entertaining as well as useful (see Map 6 for examples of applications people mentioned).

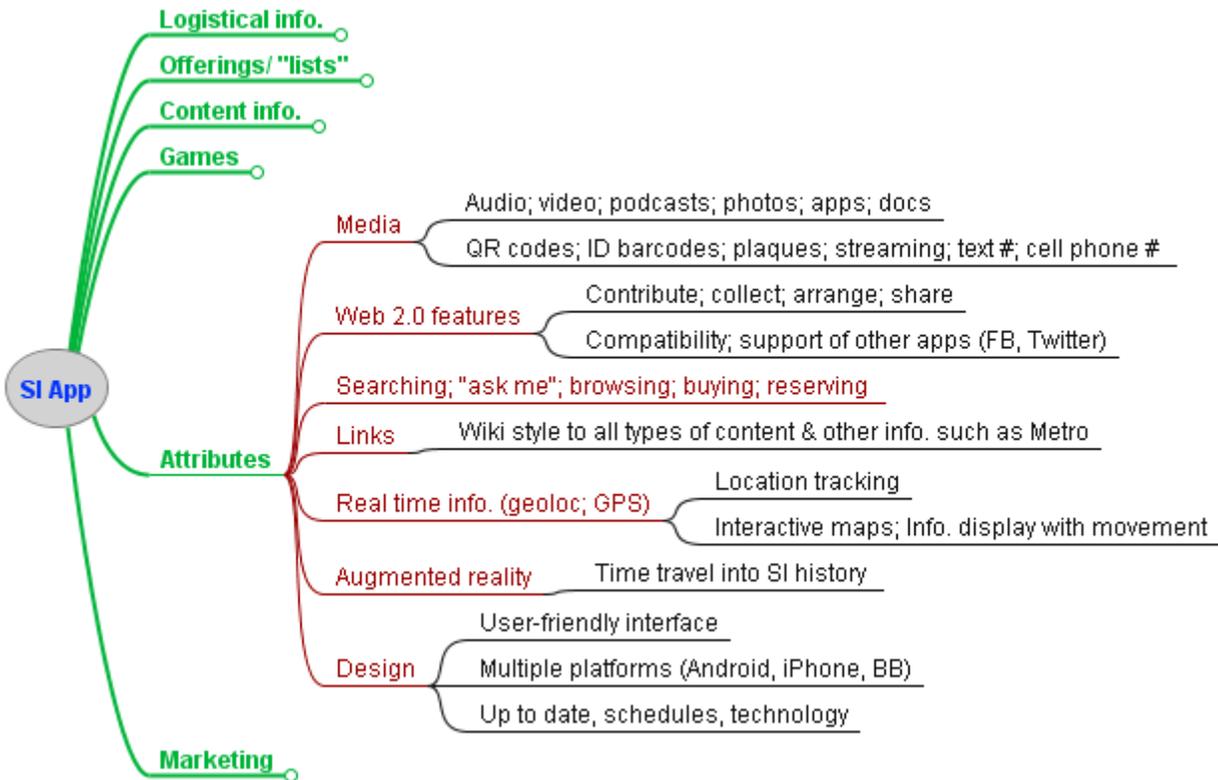
**Map 6: Games**



- One teenage interviewee, who used his iPod Touch mostly for games, recommended the Smithsonian consider that “It has to be eye-popping. ... if it’s interactive, have games, [and] isn’t all of this reading.” Another young interviewee suggested that “maybe playing with the pictures, matching or something like that, or finding the pictures.” Yet another explained how some smart phones can be physically moved about and how the Smithsonian could consider incorporating that feature: “Spinning the phone, physically moving the phone. There is a car game that was pretty cool.”
- An educator, thinking about the ways in which the new generation learns, said, “There are games that people want to play on-line. Especially for kids you have scavenger hunts, and for kids those would be a blast. People want to play multiple player games on these things.”

## ATTRIBUTES

### Map 7: Attributes



## Media

Interviewees expressed strong preferences in terms of how they wanted to access the information they were interested in. Most wanted to listen to the information, but others wanted to read it, and still others to see a video about it. Most also said they would prefer to download the information, although some indicated other forms of access such as dialing in a number; texting a number; and moving either through a QR code or ID bar or streaming it when applicable

**Audio: *Listening*** was the most popular way of gaining information mentioned by interviewees. Most suggested audio tours, podcasts, or other ways in which they could listen to information of interest. "I know that you have tours, and I was wondering if there was an app that you could use to listen in and learn more about an object of art or an object of history or science or whatever," one interviewee said. From another, "A podcast would be nice from different points of view."

Some of the interviewees who preferred audio as their main way to get information described sound as *immersive*. One person, talking about the benefits of an audio tour, said that "The really

good audio tour—probably the best one I had—was one at the Roman Baths, where it was a nice balance of detail. It was not just narrators, but a lot of background sound and voices. It was more of an immersive environment that coupled well with the displays, which were very well done. Someone has thought it through very carefully. It was a different environment.”

Another interviewee brought up the idea that audio allows visitors to feel immersed or embedded in the story:

“This is what they do in Alcatraz. They have a little earphone that you put on, and you walk through, and they will tell you the history. It’s interesting that you have not only the guards telling the history, and the historian, but you also have some of the inmates telling the history as well. They also incorporate some sounds that you would have heard at the time, like the closing of the gate and the prisoners talking or the lonely call of the seagulls. It was more like a multimedia experience. They would give a little speech, and you would then walk to the next thing and do the next button. I enjoyed that experience, and it probably was one of the best tours I had ever been on in my life.”

It is worth mentioning that a couple of interviewees who tended to use news applications said they would not want sound on their apps. One said simply that “I would prefer to read.” Another commented, “I would keep sound out of the picture. You would want something that would not immediately make noise when you open the app, because that causes people to close the app or get upset or whatever.”

**Text: Reading** was the preferred information mode for many interviewees. When asked how they would like to get content information from their app, one said, “just readable very quickly [she made the motion of scrolling through an iPhone].” Another, when asked whether he would like to listen to information, said, “I would prefer to read it.”

**Video: Viewing** moving images was also mentioned: “Yeah, video would be cool actually, because it could show you different things about the museum.”

## **Web 2.0 features**

Some interviewee mentioned web 2.0 features available on apps. For these visitors, two features were important:

- Integration of the SI app and support of social media.
- The ability to contribute, collect, create, and share. One interviewee mentioned an app feature “where you can spin and paint this white square. That was cool.”

## **Searching and browsing**

Visitors stated that the SI application should allow users to engage in basic functions such as searching and browsing for information of interest, and also provide hyperlinks. For example, “You could type in what you like, like R&B or something like that, and it would tell you which museum to go to, or if you want to see the Ruby Slippers, it would show you with a map. Conceivably, you could just type in an artist’s name or select from a menu or the name of the painting. There is a variety of ways and interfaces you can do. But most folks are getting pretty good at typing on their devices. So just search for the artist name and bring up the maps highlighted.”

## **Links**

Many interviewees indicated that the importance of an SI application having links and hyperlinks to a variety of logistical and content information. One person, an information seeker, described why he sees the need for hyperlinks: “There is a certain dynamic of how I, and my peers, interact with [internet information]. Wikipedia is full of links. It would be great if, as you go through [the SI app], you can almost get lost in the app itself, where you are going from page to page where everything is active, and you can click around, rather than having nowhere to go but back. On the first floor you have 1960-80, then 1980-present. Just walking around it was like being in Wikipedia. ... The east wing of the first floor, where you have the big portrait of Edison, and then the inventors, it was one of those places where I remembered reading about some of these peoples’ works, but I want to know more about them. ... Take me to the Wikipedia page. It is so easy to pull out Wikipedia and search it by myself that it has to be some value for it for the SI application. Just having all the works up there and scroll to the works as I walk down the hall.”

## **Location-based information (real-time, movement-based, GPS-based or on Google maps)**

For several interviewees, the SI app should allow them to get information that corresponds to their physical location. Talking about the helpfulness of this feature, a fervent smart phone user said, “From my standpoint, if I am in the museum, I guess the thing I want to avoid above all else is missing some of the incredible things. For example, I turned left instead of right, and therefore I never saw the [treasure]. I felt that that is the case particularly in the National Museum of American History because it is large, it talks about things across centuries, spaces are cut up, and then it includes the nature of what they are displaying ... so something that would say, ‘Hi, you are here’ would be delightful. So please, tell me where I am and what is around me. If I want to go to X, can you give me a magic arrow to follow?”

An iPhone user in his late teens said, “If you could just open the app, and it was a big map, and you could drag it around, and you can type in what museum you're at and what museum you want to go to, it tells you how to get there.”

## **Augmented reality/time travel**

A handful of interviewees talked about augmented reality/time travel:

- One interviewee described an example that “was done in Paris, and you would point your camera, and [it would] say ‘You are this place, and these are the things you can do.’ Frankly, augmented reality would not be half bad because people will get used to seeing those.”
- An out-of-town, repeat visitor who would like to have been able to see a comparison of an exhibit in the old and the renovated museum wanted the app to answer the following question: “I’m sure that Julia Child’s kitchen [exhibit] was new. What was there before? ... What did they do with the other displays? Do they bring them out periodically? ... Think about all the things you see at that point. The Lincoln Memorial will never change, but the displays inside the museum change, and they are so big.”

## **Design: some requirements/considerations**

Interviewees expressed the following concerns:

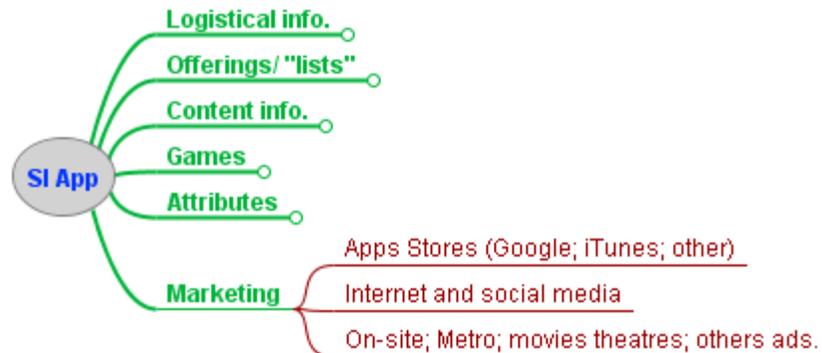
- **Compatibility with multiple operating systems.**
- **Availability of hubs for downloading.** As one interviewee put it, “If [the app] is large, the museum has to provide an on-site computer for the visitor to use to download their apps. The one problem I would expect to run into is that the apps use huge amounts of information you cannot download wirelessly. My dictionary app and my Louvre app, I think, were both too big to be downloaded away from the computer.”
- **Need to start small and build from there.** “Bear in mind,” said one person, “that an app does not have to be a thing on its own. It can call home, and it is pretty much wide open to what you want to bring to the device, and then [you can] centralize it as much possible, so that I only need to bring one [screen] up. But it is [better to] start small and build out from there.”
- **Need to aim high.** One interviewee advised, “If you design where the future is going, [that] is ok. If you design something where you consider the limit where the version was

three years ago, it is not the way to go. If you can aim towards something more richly presented, you will not go wrong because the spread of the technology will catch up.”

## MARKETING

Interviewees, especially those who looked for and could not find Smithsonian apps, spoke about the importance of increasing awareness about what applications are being offered (see Map 8).

Map 8: Marketing



### The need for marketing/advertising

A woman who indicated she used many planning applications said, when asked whether she had downloaded any SI applications, “Not yet. I did not know that they had any. Maybe if you advertise them in WHERE [and other similar] applications. I was looking for one for the Smithsonian and never found it.” Another person who had looked for a SI application commented, “I think another thing is marketing, letting people know that that technology is there and available if people want to use it.”

### Marketing venues

Visitors suggested the following venues for marketing Smithsonian applications:

- **Internet / Google / App Store:** Interviewees were likely to go online to find mobile phone applications. One mentioned, “I would probably go to the Google app. You can type in what you’re looking for, and then you can find it and download it.” Another interviewee remarked that he always uses the App Store: “I don’t know. I just get them from the App Store based on the top 25. I don’t really search for any. I just open the top 25, and whatever the top ones are, I look at them, and if I care, I get them.”
- **Social media sites:** Facebook emerged as an example of a place to advertise a SI application/service.

- **On-site:** Some interviewees spoke about advertising within the museums, for example one interviewee said, “You may need to put up a sign that says ‘there is an app for your phone.’” Another visitor suggested advertising the app before IMAX shows: “The big thing now is to do on the Internet what you do in the movie theaters—put an ad up before the show starts.” Yet another suggested that the museum’s information desk have appropriate signage: “From a pragmatic point of view, if you have web resources that are suitable for someone walking around, make sure that is very evident from the signage at the information desk and other things of that nature.”

**Marketing and pricing:** One interviewee mentioned, “The other thing you may want to know is that I am willing to pay for an app from the app store for 99 cents or \$1.99.”

## OP&A Observations Based on Analysis of the Interviews

The target audience of this study, on-site visitors with smart phones, was small. To determine the exact percentages of the visitors who would like an SI application/service and what needs and preferences these visitors' have, a sample survey study is needed. Nevertheless, some points can be made:

- Smart phone users would likely welcome a service/application for smart phones, given that most interviewees responded positively to this possibility.
- The most desirable service was information for general planning (e.g., listings of “what’s on”). The mobile website GoSmithsonian.com already provides this information for smart phone users. GoSmithsonian.com could be included in a prototype for a SI app.
- It appears that the display and organization of services is best developed with both first-time and repeat visitors in mind because the types of general planning information needed seemed to differ according to visit frequency and residence:
  - First-time and out-of-town visitors mostly preferred logistical information and lists of “what’s on.”
  - Repeat visitors and/or locals preferred listings and alerts about new and closing exhibitions, special programs, events, and performances, i.e. things that are time sensitive and unique from the museum’s permanent displays.
- Content was an important component of a SI app for many interviewees, and exclusively so for some. As expected, visitors had a variety of interests and content needs, and suggestions on how they wanted the information packaged.
  - It seems important to allow visitors to access content through a variety of media to satisfy both the way they are used to accessing information and the information they prefer. Their preferences, with respect to what they would like in an application, appeared to mirror the ways they used their phones and their preferences for accessing information.
  - Those who used planning apps were mostly, but not exclusively, interested in planning information.
  - Those who used information applications were interested in content information, links to Wikipedia, or offerings of hyperlinked text.

- Gamers preferred games and the ability to control content, such as selecting their own pictures, etc.
  - Those who preferred YouTube, etc. wanted to access content through audio and video more so than through text.
  - Those who used social media were interested in an application that supports social media sites. Interestingly, these people also mentioned that they would like to hear from Smithsonian experts and artists.
- Museum-goers and non-museum-goers differed in terms of whether they are inclined to download an application. Non-museum-goers, even if they are heavy users of mobile devices, were less inclined to say they would use a SI app. Non-local museum-goers who were heavy mobile device users were more likely to say they would use a SI app.

## Part II: Responses from Social Media Users

The study team posed the following question to Smithsonian Twitter followers and Facebook fans:

**Help us design a Smithsonian app or service for visitors with smart phones. What would YOU find useful or interesting?**

The participating Smithsonian units, each of which had its own Facebook and/or Twitter accounts, included the National Air and Space Museum, National Museum of Natural History, Asia-Pacific American Program, Affiliates Program, National Postal Museum, Luce Center and the Donald W. Reynolds Center, the Ocean Portal of the National Museum of Natural History, and the Smithsonian Traveling Exhibition Service. The study team collected a total of 142 comments, 50 from Twitter and 92 from Facebook.

Map 9 provides a comprehensive overview of visitors' comments, grouped into categories, along with a full listing of the suggestions made by the Smithsonian's Facebook and Twitter fans.

## Map 9: Responses from Both the Interviews and Facebook/Twitter Fans

Note: Categories generated by Facebook/Twitter fans and not by the interviews, are in bold.



### Listing of the responses of the Smithsonian's Facebook and Twitter fans

Responses	Museum	Social Media
Searchable database of exhibits/artifacts, with walking directions. Location links to online exhibit book / more info.	NASM	Twitter
Offer touring guides based on interest. E.g. if someone is interested in pre-shuttle spaceflight, give them an interactive map and allow them to tailor it. Also include IMAX ticket availability and show times.	NASM	Twitter
Of course: easy way to access hours, ability to purchase IMAX tickets, discovery station descriptions and schedules, map of the mall & museum interiors, list of current exhibits (emphasis on limited engagements), and cross promotions between museums.	NASM	Twitter
Replace some of the "call in for more info" things with QR codes that go to pages in mobile browser. Also strongly recommend mobile web app over app store or android market (reaches most visitors by being phone-agnostic).	NASM	Twitter
An audio tour for self paced viewing and listening.	NASM	Twitter
Guided tours! Exhibit factoids!	NMAH	Twitter
Have the guided tour downloaded like an app. Provide Headphones. Pictures along with Tour track. It is a bonus Souvenir.	NMAH	Twitter
Audio tours from within the smart phone app, using some ID number or bar code to select audio for specific rooms or items.	NMAH	Twitter
Ability to reserve tickets for special exhibits and shows via an app.	NMAH	Twitter
Have games that all ages can play while waiting in lines.	NMAH	Twitter
Have a barcode at area entrances to listen to audio, via earbuds, that goes with objects.	NMAH	Twitter
Smart phone tours. E.g. an SI tour of Civil War might take you to items in NMAH as well as paintings in NGA.	NMAH	Twitter
Be able to know the least crowded area, perhaps to start in.	NMAH	Twitter
Easily share an exhibit or display item on Twitter, Google Buzz, or FB.	NMAH	Twitter
A behind the scenes look at how work is conserved and have the curator discuss an exhibition.	SI	Twitter
Real time data on when each Museum closes. Big pain to check four websites every morning to find early closures.	SI	Twitter
Keyword searches for exhibits and locations of information centers.	SI	Twitter
A possible partnership with Google to create an interactive walking map so you know where you are when looking for museums.	SI	Twitter
A list of current exhibits with an A/V narrative to accompany it. But also include the floorplans of the museums so we don't get lost.	SI	Twitter
Portable museum map with info and maybe a recording to play back at certain exhibits; help me find the Lesser Panda at the National Zoo.	SI	Twitter
Texting for secret galleries, limited viewings, etc.	SI	Twitter
A .99 cent audio tour.	SI	Twitter
Maps!	SI	Twitter

Responses	Museum	Social Media
Maps of museums with interesting facts about the exhibits.	SI	Twitter
How about a scavenger hunt?	SI	Twitter
I find floor plans indispensable.	SI	Twitter
An interactive map that can target your location in real time, give info, play walking tours, has a daily calendar & a gift shop!	SI	Twitter
Of course, where's the nearest bathroom?! Also, if you type in artifact you get its location at the Smithsonian.	SI	Twitter
Downloadable audio tours!	SI	Twitter
It would be amazing to see the "Ghosts of a Chance" come to other Smithsonian museums in app form.	SI	Twitter
Agree! It would be amazing to see the "Ghosts of a Chance" come to other Smithsonian museums in app form.	SI	Twitter
This may seem obvious, but a map, hours, parking information, a list of exhibitions and sound bites/videos/photos about them.	SI	Twitter
Map connecting all exhibits within the Smithsonian - each exhibit has an icon, tapping on it gives you lectures, tours, pictures, videos, etc.	SI	Twitter
Foursquare integration and geolocation-based interactive mapping features would be helpful for tourists.	SI	Twitter
1. Make sure that the audio corresponds to the artwork, 2. access to audio outside of the museum. Links to a museum map and information. The app should have a virtual tour and links to Smithsonian podcasts.	SI	Twitter
For frequent visitors, I'd like a "what's new" or something like a Foursquare checking to see where I've been.	SI	Twitter
Artifact/exhibit exploration with additional behind the scenes details not able to fit in exhibit.	SI	Twitter
Interactive map with info for each museum about its exhibitions and other details (cost, times).	SI	Twitter
Fast load & a map.	SI	Twitter
Audio about the art and objects for kids and adults would be great!	SI	Twitter
A Layar-aware visual guide to the Air and Space Museum!	SI	Twitter
How about augmented reality of the exhibitions? See the planes warm up at AASM would be pretty cool :P	SI	Twitter
Think about features that extend pre- and post-visit. Science in your life, etc. It's not a video... but I want my mobile app to tell me about the artist's technique and the item's history. Make it give access to relevant information on the historical context of works in an exhibit, plus on the curators, their CVs, etc. Have a treasure-hunt game for groups of kids with prizes to inspire them to physically search the museums. Use Bluetooth technology & smart phones as an actuator - activating different streaming media files depending on location. Links to online, follow up resources for teachers to use in the classroom.	SI	Twitter
Expose the work behind creating an exhibit? 'Who Built this Exhibit' with videos alongside exhibit content?	SI	Twitter
Include mobile tour guide for exhibits.	SI	Twitter

Responses	Museum	Social Media
Other mobile things: Institutional themed tours, geo-locators that tell you what objects are closest to your current location.	SI	Twitter
Mobile should provide: big info on object: how did it come to the museum? Its geographical journey: where was it created, sold, traded and exhibited?	SI	Twitter
A monthly Events Schedule app would be great.	SI	Twitter
Enhanced reality showing details of the museum items when pointing the mobile at them.	SI	Twitter
Interactive barcode information at certain places people could scan and read more info, similar to the way how you can call that #.	SI	Twitter
A daily fact? (An app for each museum so that people could learn more about their favorite topic?) Also, it should have a way to view past facts in case we missed a day.	NMAH	Facebook
Weekly activities for adults and children.	NMAH	Facebook
People need to be reminded daily about how awesome and unique America is. We take too much for granted. The app should include only American history, art, music, events in a truthful manner. Not doctored up or washed over.	NMAH	Facebook
Comprehensive floor layouts for each Smithsonian museum. And possibly a layout of all the museums on the mall? More cost effective and greener than the paper maps.	NMAH	Facebook
Floor layouts, hours, history trivia and virtual tours. Recommendations for areas to visit for different grade levels, etc.	NMAH	Facebook
It would be great if, while in the museum, you could pull up all the blog posts and extra web stuff related to the exhibit you're looking at.	NMAH	Facebook
Info on which exhibitions are on-going, which are new, floor layouts and hours especially when they change over the seasons. Special events up coming.	NMAH	Facebook
Much of that can already be done using Layars and other augmented reality apps. Just geotag your photos and videos, etc. Many heritage institutions are going this route.	NMAH	Facebook
Interesting facts about objects in the exhibits. The objects are in the museum to be interesting.....so make it so....surely someone knows something interesting about that stuff.....underpaid and out of work historians.	NMAH	Facebook
Apps to design or follow a personal tour based on interests or themes.	NMAH	Facebook
A walking tour with audio might be nice. But that's not really an app... I'll keep thinking.	NPM	Facebook
The app should update event calendars, have audio tour download information and have images of items from the displays. Also wiki style hyperlink functions, and a waffle maker.	NPM	Facebook
There's just so much to see throughout the entire Smithsonian. What about a daily 'snapshot' of one piece of one exhibit, sort of a teaser to learn more or take a trip to DC? Focus on a different location, a new exhibit, an event, a 'today in history' change up. I'd sign up. Feeds my intellectual desire for museums on my very limited personal schedule.	SITES/Museum on Main Street	Facebook

Responses	Museum	Social Media
A trivia game would be popular, with categories aligned with each major museum, perhaps?	SITES/Museum on Main Street	Facebook
I don't have a smart phone but floorplans of the various Smithsonian Museums would be useful.	NASM	Facebook
I agree. Floorplans with labeled galleries. Maybe with links to the appropriate Smithsonian websites that explain the exhibit.	NASM	Facebook
Agree with floorplans, and general info (hours, contact info, etc). Also, info on special exhibitions (including IMAX), and maybe a way to reserve and purchase tickets. Maybe a kids 'corner that has info on special kids' activities.	NASM	Facebook
Floorplans with individual exhibit descriptions would be great. For those that have Android phones a Google map sync would be amazing. As you walk along the museum, the app knows exactly where you are and displays the appropriate exhibit info.	NASM	Facebook
I agree with making reservations for the planetarium and IMAX, maybe even a scannable ticket in an email on the smart phone like some of the airlines now do with boarding passes.	NASM	Facebook
I'd love to have links to the art exhibits, almost like a webcast, that can be downloaded onto my iPod feature of my phone. Maps are great especially if my husband wanders off and I can locate him using the GPS feature tied in with the floor plans.	NASM	Facebook
Perhaps (depending on cell and GPS reception) something barcoded to scan and get more info on exhibit. Maybe links to audio over the web about an exhibit.	NASM	Facebook
How about something for us aviation enthusiasts who don't live in DC? Maybe an airplane spotter guide?	NASM	Facebook
Having access to maps, right on the phone would be good.	NASM	Facebook
How about more information and videos about artifacts? :-)	NASM	Facebook
A simple page that shows what the newest aircraft that have been added to the museum either from storage or donation.	NASM (Udvar-Hazy)	Facebook
The ability to look up aircraft information when other people are blocking the plaque.	NASM (Udvar-Hazy)	Facebook
Add the 2D barcode to the plaque for phones to 'scan' that will link to info or more info and multimedia streaming	NASM (Udvar-Hazy)	Facebook
Self-guided tour available via Wi-Fi.	NASM (Udvar-Hazy)	Facebook
I think the app should be for iPod devices that use apps. Since not everyone uses smart phones, it would be nice to have files to download to play on portable devices such as mp3 players. It would be good to have tours according to interest.	NASM (Udvar-Hazy)	Facebook
What a great idea! An interactive map that you could touch and it would show details of the planes, etc.	NASM (Udvar-Hazy)	Facebook
It would be great to have the ATC feed streaming from the Wi-Fi home page so we don't have to be tied to the small speaker in the middle of the observation tower.	NASM (Udvar-Hazy)	Facebook
Virtual map!!!	SI	Facebook

Responses	Museum	Social Media
Free audio/visual tour through your smart phone.	SI	Facebook
It would be great to access a daily schedule of events. Also, it would be great to shop the stores.	SI	Facebook
Video/podcasts about exhibits.	SI	Facebook
An app for a walking tour when you visit.	SI	Facebook
Kids' activities calendar.	SI	Facebook
An easy way to get info on special events, exhibits, hours and ticketing, etc.	SI	Facebook
Easier access to research materials!! :)	SI	Facebook
Our business uses PALM and Windows Mobile (Pocket PC) smart phones and I would love apps for a walking tour and schedules. Being able to look at something and learn more easily would be great. And hours, schedules and events? That goes without saying :)	SI	Facebook
Hours, special exhibits and times of IMAX movies would be great.	SI	Facebook
List of events for the week and weekend.	SI	Facebook
The ultimate? Augmented reality tours. Hold your camera phone up to a display's interpretive plaque and get a series of options for additional resources.	SI	Facebook
Walking tour and virtual map.	SI	Facebook
Obviously, the app should contain a Calendar of Events, Maps, Images that can also be used as wallpaper (just because that's fun), Fun Facts and Trivia (just because that's fun, too), Video Tours that supplement the old walking tours, Links to the Museum's Social Networking Pages, the ability to purchase IMAX tickets in advance or at least make a reservation for groups. :)	SI	Facebook
At the very least it should include a map that is kept up to date with current information of what to see and when (if appropriate).	SI	Facebook
I agree with having a schedule of events. Maybe a virtual map with more information? Bring up the map on your phone, click where in the museum you are or what exhibition you are in, and it could give audio, visual and text accompaniment. Sort of like a hand-held tour guide!	SI	Facebook
There was an app for London subways that took advantage of GPS. When you pointed the iPod in a street direction it would tell you the distance to nearest subway entrance and the time of departure for that train. Maybe something like that for the exhibits?	SI	Facebook
Definitely a schedule of events or special exhibits broken into "family friendly" and "don't miss", etc. But great, great ideas above! We love the museums. It is part of the reason we decided to relocate our family to this particular area.	SI	Facebook
Just talking at work (UNL) about something that might be helpful, a QR code at some exhibits that goes to an audio/visual page for that exhibit.	SI	Facebook
A map of the Mall with a search function, to find a person's location, due to a Mall wide unique coding by room or exhibit.	SI	Facebook
Virtual tours for people who can't get to D.C. but want to see the sights!	SI	Facebook

Responses	Museum	Social Media
Make sure you include Droid and other non-iPhone smart phones. GPS-driven map of what facilities are nearby with hours, fees, parking and metro recommendations and schedule of events, etc. Ability to get tickets by phone with discounts for app users. Audio/visual tours Extra data/video, etc. on exhibits (promo videos or coming attractions).	SI	Facebook
App for walking tour and museum highlights.	SI	Facebook
Yes I agree about the virtual guided and narrated tours!! Some people will never be able to go!!!	SI	Facebook
Where are the restrooms? Especially family restrooms. And different highlights for different age groups or interests.	SI	Facebook
Info on locations of different museums and galleries as well as any special events targeted at kids.	SI	Facebook
Absolutely a virtual map with interactive information on exhibits. It would be cool to not only find where you are in the museum but could click on icons and see interactive video, etc. For instance, when you get to the Wright Flyer you could watch the ten second video of it taking off.	SI	Facebook
Search feature for exhibits about a specific topic, tied the GPS to get you there. Also, camera could point to an exhibit or monument and receive age appropriate details (e.g. elementary, middle, high or adult.)	SI	Facebook
This may sound kind of sci-fi, but an overlay 3-d map that could be modeled from the Droid/Google's Sky Map. It could help visitors get their bearings on nearby exhibits and bathrooms. On top of that, it would be just awesome! Perhaps you could select restrooms and the basic floorplan map would show the restrooms flashing in red. Where can I find art from Picasso? Look around and find the flashing red on the map.	SI	Facebook
Audio/visual tour where you can choose child mode or adult mode.	SI	Facebook
Good stuff above, I agree with them. I would like to see daily history or fact tidbits of things from the Smithsonian. A walking tour app that is self-created would be awesome, be your own tour guide.	SI	Facebook
Perhaps the walking tour thing could start with the Smithsonian and perhaps span the globe. It could give historical, educational and landmark facts based on GPS location.	SI	Facebook
A "you are here" map. Maybe a few strategically place bar code plaques on the buildings to lead the visitor around. Maybe a small treasure hunt.	SI	Facebook
Give directions to the museum, where to park, hours, best routes, and then give categories, e.g. planes, cars, and a virtual guide to find them. Then of course refreshments and bathrooms. It would be really nice for app to find your exact location in museum and give you a brief history of what you are seeing!	SI	Facebook
Access to forgotten treasures, antiques and collectibles and a tour of the entire grounds.	SI	Facebook

Responses	Museum	Social Media
Visual Tour. Maybe a "must see" item or collection of day with explanations.	SI	Facebook
I have to say what everyone else is saying. It's hard to know which museums to visit so an interactive map, quick synopsis and maybe highlight about each place and its significance. I LOVE the Smithsonian so I'm sure whatever you put out will be perfect.	SI	Facebook
Love the idea of a virtual tour and walking tours that you can access for different age groups and types of audiences. You should be able to personalize and target where to go if you have 2 hours, 4 hours or 2 days.	SI	Facebook
Virtual map with audio.	SI	Facebook
Reminders about closing exhibits so I don't miss them before they're gone!	SI	Facebook
Love to see an app that allows visitors to find items in the collection and their location, history and provenance, etc.	SI	Facebook
I'd like an app with hours, directions, links to maps, parking info and maps, interactive maps of the exhibits, the ability to buy IMAX tickets, and I'd love to be able to shop the Smithsonian store.	SI	Facebook
I was recently at a rather large event that offered a GPS type map. When opened, the map would put you at the X-so to speak then offer directions to the tents or vendors you were looking for.	SI	Facebook
I love my Smithsonian Magazine in hardcopy, but an online e-reader for subscribers would be REALLY NICE.	SI	Facebook
Being able to pull up a map on the fly would be brilliant. Adding a quick and simple comment system would be nice. Good luck on it all running smoothly on Windows Mobile 7, Android, Palm OS, and iPhone.	SI	Facebook
Have a friend locator. i.e. you are here your friend is here. Also a detailed map with zoom capabilities.	SI	Facebook
I think some sort of interactive gallery of artwork from traveling exhibits would be really cool even though I don't have an iPhone. I'm thinking something simple like "Traveling Exhibit at Sackler Gallery" click on and download images from "Realm of the Buddha" and have a few of the artists works be displayed with info like artist's name, date and materials used. It would be something to hook in the individuals with!! :) I ♥ ART	SI	Facebook
Membership info in phone app so we can get our discounts without having the piece of paper in our wallets.	SI	Facebook
Up-to-date info on what museums are close by and what the current exhibits are in those museums. Sort of like "One bus away" but for collections.	SI	Facebook

Responses	Museum	Social Media
Please make sure that your app works on all smart phones, not just iPhones. Please do not support an Apple monopoly. First the basics: hours of operation, special exhibits, daily events, speakers' appearances, news of upcoming special exhibits and maps (point folks to the nearest restroom or eatery!). Next suggestions for age groups. A history of the Smithsonian and of each building. A virtual tour so you could preview whether you wanted to go to that building. I think a tour program would be cool, like those they have at some historical areas where you rent a little walkie-talkie device and it directs you from one exhibit to the next and tells you something about each one. A way to reserve tickets for IMAX shows from your phone.	SI	Facebook
Museum hours and crowd levels. Tours based on GPS. Directions within museums using GPS.	SI	Facebook
Please don't forget about BlackBerry users. As mentioned by others, I'm all for a tour map that's location-based (GPS or some local sensor, even). Something that tells me where I am and what's of interest in front of me.	SI	Facebook
I just spent all of last week in DC visiting museums, including the Air and Space at Dulles. A walking tour app would be great. Quick guide to new exhibits too.	SI	Facebook
Museum hours and crowd levels. Tours based on GPS. Directions within museums using GPS.	SI	Facebook
The virtual guide for 'English is second language' people! I can help with the Japanese one!	SI	Facebook
Link to metro stops, iPhone compatible, resided secure site with abbreviated login, link to Facebook, listing of Mall events	SI	Facebook
A virtual ticket for special shows like the butterfly exhibit, instead of paper tickets you get a picture of one on your phone with a time and code then you just show your phone picture at the door.	SI	Facebook
An app for random facts, pictures and maybe unknown elements such as what exactly the Smithsonian is and what exhibits or special items are being showcased.	SI	Facebook
Hours of daily operations, especially when there are changes. Updates of new exhibits would be great!	SI	Facebook
Real-time wait times for popular exhibits, restaurants and simulators, etc.	SI	Facebook
I would love to see line status, exhibit info and interactive maps.	SI	Facebook

# Appendix A: Interview Guide

## For interviews with Smithsonian visitors who use smart phones

### Interview guide / topics:

#### Reasons for visit / Background of visitors

**Smart phone history** (note there are other terms for smart phone that the interviewee may be familiar with, e.g., phone with internet)

- How long have you had a smart phone?
- Other than basic uses like email and phone, what do you use your phone for? What services are you generally looking for?
- How many applications do you currently use? Which are your favorite and why?
- Do you play any games, listen to music, and take pictures on your phone? Please explain which ones (if applicable).
- Have you downloaded location-based applications?
- Have you downloaded other museum's applications? Which ones? Favorites? Why? Ones that you did not like? Why?
- Do you monitor your use of the phone? (i.e., limit your use based on the plan that you have?)

#### Smithsonian website history / Smithsonian Applications

- Have you accessed the SI website? If so, why?
- What's your opinion of it?
- Was there anything that you were looking for and could not get?
- Have you downloaded any Smithsonian applications? Which ones? Why? Opinions? Favorites? Suggestions for improvement?
- Let's imagine you are in charge of designing a Smithsonian service for its visitors with smart phones. In your opinion, what should it do? Why?

- If the Smithsonian did not have an application, would you be disappointed?