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## **Agile Curation at the Smithsonian Museums: The Challenge of Computer-Based Technology Collections**

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### **Biography**

Petrina Foti is a PhD candidate in the School of Museum Studies at the University of Leicester. She is specifically interested in the curatorial history of collections that contain computer-based technology at the Smithsonian Institution, with specific attention given to the concepts of collection stewardship and contemporary collecting. She has held various museum positions including a post from 2006 - 2011 in the Computers Collections at the National Museum of American History.

### **Abstract**

The main objective of this study is to investigate how the curatorial staff at the history and technology museums of the Smithsonian Institution have responded to the challenge of collecting objects that contain computer-based technology. This current research will attempt to illustrate how curatorial expertise, through contemporary collecting, can respond with agility and creativity to unknown types of technology. In doing so, the critical role that 21st-century curators play within the museum will be examined and how the museum both contributes to and is influenced by modern society's understanding of these new technologies will be explored. What is emerging is a responsive and distributed model of curatorship, one that has been honed by a long tradition of technology-related collection stewardship and one that is fully prepared to answer the challenges posed by computer-based technology, revealing the museum as a trusted source for context and clarity in a rapidly evolving world.

### **Keywords**

Smithsonian, curation, computer technology, curatorial history, contemporary collections

### **Introduction**

Among the challenges and unknowns that come with collecting without the guidance of an established historical narrative, computer-based technology offers a particularly difficult set of circumstances both for its prevalence and for its complexity. The museum faced with a new

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challenge both in terms in what to collect and how the museum staff approach this change. Furthermore, computer-based technology itself offers a unique challenge as to its combined format of hardware-dependent software and software-dependent hardware. Curators are able to engage with these format challenges specific when collecting and exhibiting with creativity and agile thinking.

In this paper, we will examine two Smithsonian exhibitions that have addressed these challenges: the National Museum of American History's *American Stories* (opened 12 April 2012) which presents American social history through iconic object in the museum's holdings and the National Air and Space Museum's *Time and Navigation: The Untold Story of Getting from Here to There* (opened<sup>1</sup> 12 April 2013), a joint collaboration between the American History Museum and the Air and Space Museum to present the technological advances from the 19<sup>th</sup> century navigation equipment to modern GPS devices. Both exhibitions, though differing in subject matter and approach to history, are examples of computer-based technology being presented as part of a main narrative, rather than a separate and distinct category, providing examples of how computer-based technology is being integrated into general society. With these two exhibits, we will examine specific instances where curators answered challenges associated with their computer-based technology objects. In doing so, we will begin to see patterns of agile and distributive models of expertise emerging.

## Recording History As It Is Occurring

We will begin with an object that, for all intents and purposes, appears to be a car. In reality, it is a driver-less vehicle, commonly referred to as 'Stanley,' famous for winning the 2005 Defence Advanced Research Projects Agency (DARPA) Grand Challenge, a contest held by the United States Defence Department to promote invention and innovation, generally in the area of robotics and autonomous vehicles. This reminds us that computer-based technology can be enclosed in surprising, even misleading containers. It can be challenging for exhibit teams to ensure that museum visitors, when encountering computer technology in an unfamiliar format, are still able to easily grasp what narrative the museum is trying to display. 'Stanley' was both collected and exhibited at a moment when its full legacy is still unknown. Collecting without the benefit of an existing historical narrative can be seen as the major challenge that contemporary collecting poses for curators. Traditionally, museum curators have focused on collecting non-contemporaneous subjects, since it is easier then to evaluate

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<sup>1</sup> It should be noted that both *American Stories* and *Time and Navigation* currently have no closing dates. *American Stories* is scheduled to be opened during the museum's ongoing west wing renovation, while *Time and Navigation* was developed to be a "permanent" exhibition.

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objectively what has had a lasting legacy. However, as museology grows as a discipline, there has been an increasing awareness that there is a value to recording events and trends in society at large as they are happening, despite the concerns that might arise without a pre-existing historical narrative to provide guidance. Stevens experienced such concerns when collecting Stanley:

We are not always as explicit as we might be about contemporary collecting. If there were no limits, if there were no limits to space, if there were no limits to resources, we would be collecting much more to document the world we live in now. I went out on a limb on Stanley. It could have gone either way. It could have been that all this DARPA stuff might have just been a 'flash in the pan,' so to speak, and that autonomous vehicles would have gone nowhere. That turned out not to be true. It is now possible to buy automobiles with autonomous systems already in place. It was already on the horizon when Stanley did the race. [...] So when I read these things, I watch with great interest because I do not want to have made an incorrect decision. We do it all the time; we make decisions about contemporary collecting and lots of things just do not pan out. But with a big blue thing like Stanley it would be very costly to the museum in terms of space and so forth not to be right about this. So I am hoping I am somewhat right, because it is a bigger question about contemporary collecting.<sup>2</sup>

Though it is easier to collect scientific and technological milestones as they are occurring, there are no guarantees that technological triumphs will always be as valued by future generations. Take, for examples, the 1847 'life car' invented by Joseph Francis, the founder of the U.S. Life-Saving Service. This boat was used to rescue shipwreck passengers, as many as 199 during the wreck of the Ayrshire in 1850. Lubar notes that 'it was one of the most popular exhibits on display at the turn of the century and included on every list of Smithsonian treasures. But as maritime disasters became less common, Francis's fame diminished and the life car was moved into a smaller exhibit area on disasters at sea.'<sup>3</sup> It is not unreasonable to think that the same might hold true for 'Stanley' in the future, even if the immediate years have proven Stevens justified in collecting.

It is important to note that in the ten years since it was first accessioned, 'Stanley' has been on display in three separate exhibitions, which could be considered as evidence of the popular interest that 'Stanley' has generated and highlights the flexibility that comes with

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<sup>2</sup> C. Stevens, Interview with P. Foti, 23 September 2013.

<sup>3</sup> S. Lubar and K. Kendrick. 2001. *Legacies: Collecting America's History at the Smithsonian*. Washington, D.C: Smithsonian Institution Press, 123.

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having a particular object available in a museum collection. This also presents us with the opportunity to examine the narratives of each exhibition, which, as Stevens notes, was 'three different contexts each time.' She continues: 'I would imagine each time it goes on display that will happen. It is so versatile. Stanley is so versatile.'<sup>4</sup> It is interesting to note that Stevens is able to declare a specific-purpose object such as 'Stanley' as versatile. As we shall further discuss in the next chapter, this is illustration of the creative and open-mindedness that curators regularly employ in the course of the work. Further examination of the ways that 'Stanley' has been exhibited serves as evidence as to what Stevens might mean.

The first exhibition was as a new acquisition, with very little interpretation. The second occasion was with *Robots on the Road* (2008-2012) where Stevens engaged with 'Stanley' as representation of computer code with the numeric code on display alongside the vehicle. It is important to note why Stevens took this approach. She directly credits the team itself with teaching her to viewing 'Stanley' as a computer code story.<sup>5</sup> Stevens provides an example of a curator looking to the experts for guidance in an unfamiliar subject area.

Currently 'Stanley' is on exhibit at the *Time and Navigation* exhibit at NASM. The exhibit is a chronological exhibition explaining the development of certain category of technology, in this particular instance navigation and time-keeping technology. However, it is the section at the end that actively engages with current technology that effects museum visitors' daily life, specifically with the prevalence of GPS. In this exhibition, 'Stanley' is displayed as the possible precursor to a future generation of self-driving cars as a method to further connect the museum visitor to an otherwise confusing example of technology. Museum visitors will likely recognize an object like 'Stanley' as a car like one that they might own and that presents an opportunity to allow those visitors to consider a familiar aspect of their lives in a new way and then allows them to further speculate about future technological advances. However, visitor's familiarity with a contemporary object can offer challenges as well as opportunity.

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<sup>4</sup> C. Stevens, Interview with P. Foti, 23 September 2013.

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Figure 1: Disassembled iPhone (first case one the right) and 'Stanley' in NASM's *Time & Navigation* exhibit (photo credit: author)

### Reintroducing the Familiar

In the *Time & Navigation* exhibit, in the same section as Stanley (see Figure 1 above) and in one of the last cases in the exhibit is an iPhone, opened to reveal its circuitry. The iPhone would be a familiar object virtually all of museum visitors, since that is one of the most direct ways that the average museum visitor would utilize GPS would be through his or her smartphone which means. However, unlike with 'Stanley,' the iPhone is a multi-functional object, which means that it serves a great number of functions beyond its GPS capabilities. The challenge for the exhibition would actually be how to present the object in a way that visitors would clearly understand why this particular iPhone – or the GPS chip within the iPhone, to be more precise – was included as part of the exhibition. In this case, the solution was to open the device to reveal its GPS chip.

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The curator for this section was Paul Ceruzzi,<sup>6</sup> long-time curators for the Air & Space Museum, but perhaps better known in some circles as a computer historian. Ceruzzi was able to translate his enthusiasm for computer-technology into a dynamic display. In doing so, he also demonstrates how inclination-motivated collecting can also shape what he or she chooses to display. By disassembling an iPhone as prototype (see Figure 2), Ceruzzi was able to judge if this display technique would be as interesting to a general public.

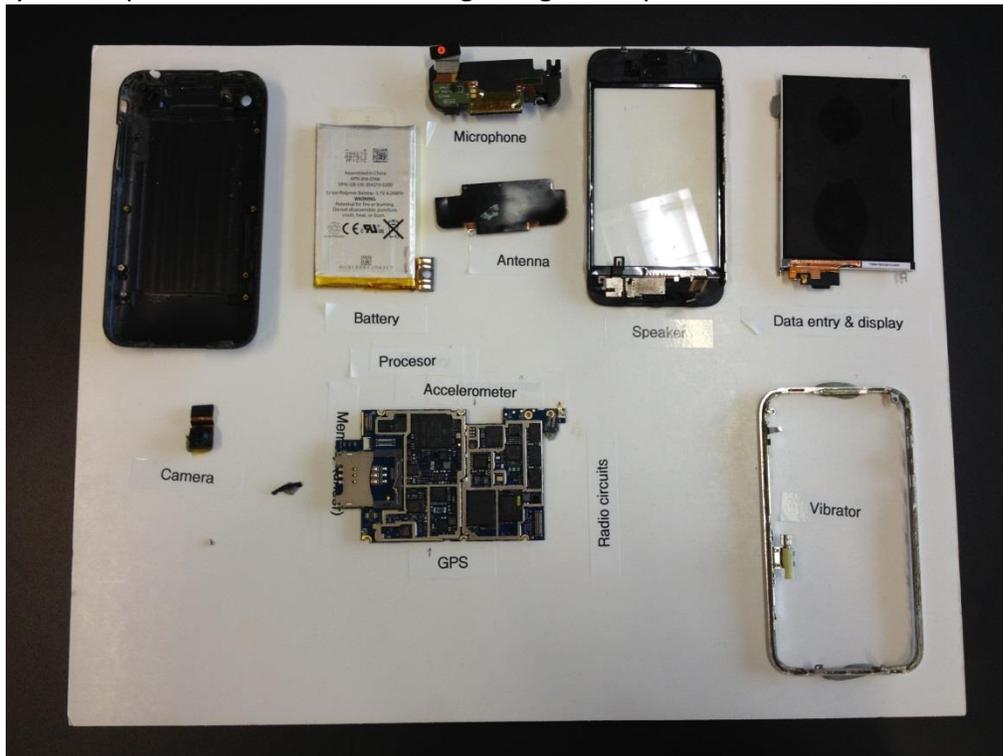


Figure 2: Ceruzzi's prototype for displaying a disassembled iPhone (photo credit: author)

While with 'Stanley' we saw how the familiar will offer the visitors a way to understand the unknown and complex, the disassembled iPhone takes the familiar and offers visitors a different visual experience to an object they might already be holding in their hands. Removing the outer case to display the circuitry was a common display feature for all the computer technology in *Time and Navigation*. However, with the iPhone, the familiar outer case remains

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<sup>6</sup> While both Stevens and Ceruzzi were curators on the same exhibition and collaborated with educators and designers for the overall narrative of each exhibition.

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on display with the GPS chip to make it instantly recognizable. Rather than a complication, Ceruzzi viewed this as an advantage:

We were fortunate in that almost half the people who come into the museum have those phones; so they could recognise the shape of it when they saw it. It was sort of fun, I think. It has worked out pretty well that we have it right next to a submarine guidance system and we say 'Everything on that submarine is in your phone - except for the nuclear tipped missiles!' Everything else is there. The gyroscopes, accelerometers, radio satellite navigation, computer, keyboard, everything is there. So people get a kick out of that.<sup>7</sup>

Ceruzzi shows that he understands that the visitors to the exhibition will likely have a certain level of technical savvy, which in turn reveals how much the technology has been adopted into society. The knowledge that Ceruzzi and the rest of the Time and Navigation exhibition team provides is not meant to enlighten museums visitors to an unknown subject, but to augment their already existing knowledge on a given subject.



Figure 3: Disassembled iPhone to reveal GPS Chip in *Time & Navigation* exhibit (photo credit: author)

We saw before in his analysis of ‘Stanley’ that Paul Ceruzzi was aware of the power of the familiar as a point of entry for complex technical topics. Now we see him apply the same

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<sup>7</sup> P. Ceruzzi, Interview with P. Foti, 24 July 2013.

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principles in answer to the multifunctionality of an iPhone, using its familiarity not only to understand modern GPS navigation, but as a lens to view the entire gallery. Ceruzzi explains:

The good news is everyone knows what a phone is so we do not have to explain what an iPhone is. The rest of the gallery tells people what is inside. We have examples of gyroscopes and satellites and everything else there in the gallery. So if they have gone through the gallery in the proper order they will have this in their heads: 'Oh, this is what I just saw over there, there's the satellite and this is picking up that satellite signal, or this is the radio and it's picking up that radio signal.' I do not know how many people will understand that it has an accelerometer on it or gyroscope on it, but we have those things and it is all in one piece, which is why it is such a revolutionary product.<sup>8</sup>

As familiar as an iPhone is to a contemporary audience, most people have not seen them disassembled. The *Time and Navigation* exhibit allows the visitors to peer within their arguably most familiar example of computer technology to see part of what makes it function.

Nearby at the American History Museum, the *American Stories* exhibition offers a different, yet no less successful approach with a similar piece of technology, a 2004 iPod. Described as 'a chronological look at the people, inventions, issues, and events that shape the American story,'<sup>9</sup> the exhibition might, at first glance, appear to be a highlights show – an exhibition meant to represent the entire museum and/or collection. However, its inception served a greater purpose for the museum. Since 2006, NMAH has been in midst of a phased-plan renovation of its building on the National Mall; the current phase calls for the closing of the wing on the west side of the building, where many long-term, popular exhibits had been on view. Curator Bonnie Campbell Lilienfeld, current Assistant Director of Curatorial Affairs and then Deputy Chair for the Department of Home and Community Life, was lead curator for *American Stories*. She describes the motivations for the exhibit's development:

It was basically a museum initiative to put things on the floor that were not going to be exhibited anymore, partly because of the closing of all the exhibits in the West Wing. So, *Information Age*, *Communities in a Changing Nation*, and *Popular Culture*. There was the fear that not only would the objects not be on display, but the ideas and the themes that were represented in the exhibits would not be on the floor. So, that was the initial initiative, I think, for doing that exhibit.<sup>10</sup>

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<sup>8</sup> P. Ceruzzi, Interview with P. Foti, 24 July 2013.

<sup>9</sup> Smithsonian Institution. 'Exhibitions: American Stories' <http://www.si.edu/Exhibitions/Details/American-Stories-244> (accessed 1 July 2014).

<sup>10</sup> B. Campbell Lilienfeld, Interview with P. Foti, 26 April 2013.

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We can see from Campbell Lilienfeld's words that there are certain subjects on which the museum has placed such an importance that having the subject represented in a currently on view exhibition is a high priority. More than a straight recycling of object that were on display Campbell Lilienfeld viewed this as an opportunity to highlight high priority topics and objects that, for whatever reason, were not currently being exhibited. Computer-based technology was one of these high priority topics.

Since *Information Age* – the museum's last major exhibition to present the history of computer technology – had been closed 2006, computer technology had only been represented in small, temporary displays. Campbell Lilienfeld saw this new exhibition as a way to rectify that. By looking for additional opportunities to present the technology, Campbell Lilienfeld is demonstrating that the computer has an important value to society that is not be relegated as a special interest. This forces the curator to think in new and different ways to represent this importance. The end result is that what is displayed on the floor is actually a truer representation of the impact of computer-based technology on people's lives.

We might pause here to recognize that Campbell Lilienfeld is not a computer historian or indeed a history of technology curator at all. Campbell Lilienfeld, in addition to her administrative role, was curator for the ceramics and glass collection and had worked in recent years to bring a more social history perspective to a previously decorative arts based collection. It is noteworthy to see that computer-based technology has become so common place that a non-specialized historian would have both the knowledge and the ability to interpret these objects. Partly this comes with what we might classify a more universal curatorial skill set. We see with *American Stories*, Campbell Lilienfeld using these same principles to present and interpret computer-based technology as she did to reshape the ceramics collection, allowing for another narrative to take prominence. Campbell Lilienfeld explained:

Clearly, it is a technology story but also seemed to me to be an interesting story about economics and manufacturing in this country. [...] That if you looked at the record player which is from 1949, it just struck me that that was made in America and then it is a portable turntable, so not a big table top model. And then, the Walkman made in the 1980s, also another portable music technology, but made in Japan, because that was really indicative of what was going on throughout different manufacturing industries in the United States. So I thought that was really interesting. And a portable music player. So things are getting more portable. It is a whole different type of infrastructure. You have to buy the tapes rather than the records. And then you look at the [2004 Apple iPod]. It was maybe the mark on the back of the Apple that actually made me start thinking about this: "Designed in America. Made in China." I thought that was really fascinating. I thought it was a really, really interesting arch, that manufacturing and economic story in the US and also that was tied to technology. It was interesting because it was music. Trying to tell the story of manufacturing could

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be sort of dry, but if you can get people to think about the thing they have in their pocket and the history of how we have listened to music.<sup>11</sup>

Campbell Lilienfeld reminds us that computer-based technology can be used to tell multiple sorties beyond the invention and innovation narrative. Campbell Lilienfeld employed a familiar, computer-based technology object to explain a complex economic system.

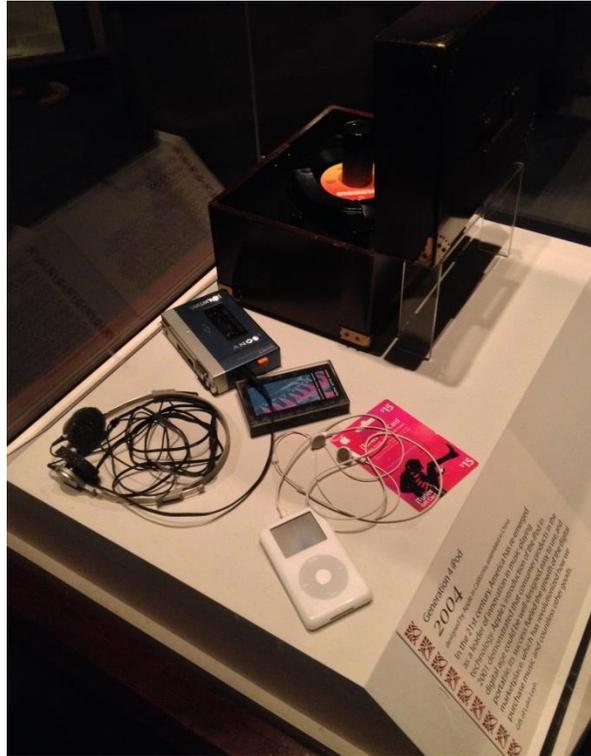


Figure 4: Generation 4 iPod on exhibit in American Stories (photo credit: author)

This particular design and manufacturing story could be told through and number of mass produced objects, but choosing a company as familiar as Apple engages the visitors' interest. Like with 'Stanley' and the iPhone, visitors' familiarity and personal connection to the technology is viewed as an asset and is reflected in the design of the exhibition case. Stevan Fisher, lead designer for the exhibition, notes that:

The whole concept of the gallery was that things mean something and they mean different things to different people - that was one of the backgrounds to the development of the centre section, which was not tied into any period, but

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<sup>11</sup> B. Campbell Lilienfeld, Interview with P. Foti, 26 April 2013.

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the idea was that this object represents something, and it was taken to represent changes in technology and manufacture, in personal listening devices.<sup>12</sup>

Fisher's words here reminds us, the exhibit's format is meant to create a narrative flow where the objects are in dialog which, in turn, fosters a dialog among its viewers. This echoes Owain Rhys's words on contemporary collecting: "Contemporary collecting helps to fill those gaps [in collections], but can also create a dialogue between past and present objects."<sup>13</sup> We see here how contemporary objects can foster a quite literal conversation between museum visitors. Fisher further explains that:

A tweener [a pre-adolescent] would be able to recognise the iPod but would not necessarily know what a 45 RPM record player was, and may have missed entirely the technology that is represented by a Walkman. Likewise the person they are probably here with (because usually a tweener is not travelling alone) will recognise the older thing and recognise the newer thing and will make their own connections about why these things are grouped together.<sup>14</sup>

Fisher observations show that the exhibit was designed for a technologically savvy audience. That the exhibition team felt safe to assume that the majority of their visitors expected to have used one, if not all, of the examples of technology on display serves as an example of how common place these items had become and highlighting that this entire case is made up of contemporary collecting objects. In doing so, the exhibit team was able to create a more complex narrative. Campbell Lilienfeld explains:

What we decided to do in this exhibit was to use the object as kind of a starting point to tell a bigger story. So we were using the iPod and these other musical things to tell a bigger story about economy and manufacturing. We were hoping that at least some people would get the idea that you can use these objects as a gateway to a bigger story that helps you understand the American Experience and the experience of lots of different people in the country and throughout the world. And it seems to me that they would get that with more contemporary things that they can recognize.<sup>15</sup>

Both Fisher and Campbell Lilienfeld's statements reveal a trust that the exhibition team that has in their audience to be able to make the connections on their own. The case does not

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<sup>12</sup> S. Fisher, Interview with P. Foti, 5 August 2013.

<sup>13</sup> O. Rhys, 2011. *Contemporary Collecting: Theory and Practice*. Edinburgh: Museums Etc. 17.

<sup>14</sup> S. Fisher, Interview with P. Foti, 5 August 2013.

<sup>15</sup> B. Campbell Lilienfeld, Interview with P. Foti, 26 April 2013.

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explicitly state the development of technology, since it does so visually. Campbell Lilienfeld's exhibit text offers information that augments their existing knowledge, allowing museum visitors to consider an aspect of a familiar object that they might not have previously considered.

The label for the case discusses the ramifications of digitization without explaining the process. As can be seen in Figure 15, each music player is paired with the means to play that music: record for the record player, cassette tape for the Walkman, and an iTunes gift card with the iPod. A careful observer will note that the iTunes gift card is not actually a container for the music. It is the means to procure the music. However, we can see from Fisher's comments that exhibit team is aware of the distinction. The label has been written for an audience that would already be familiar with iTunes and process of acquiring digital music. We see again a trust that museum visitors will understand how computer technology works. This, in turn, allowed Campbell Lilienfeld to tell a more dynamic story:

[That] is why I ended up getting into the story about the economy, since it is just as much about buying the music as it is buying the hardware. So it is really interesting. I think something like the iPod is so interesting because you can so many different stories.<sup>16</sup>

Campbell Lilienfeld demonstrates the same practice of offering augmenting knowledge that Ceruzzi utilized with the disassembled iPhone. We can begin to see a pattern of trust and creativity that current Smithsonian curators and exhibit teams in creating exhibition that present contemporary history, whether social or technical, to an audience that should already be familiar with the subject matter. We can, therefore, begin to identify that flexibility, responsiveness, and a trust in their audiences are all traits shared among the staff at the American History Museum and perhaps even across the Smithsonian in general. This, in turn, serves as another illustration as to how curators are prepared to meet the challenge of unknown that is computer-based technology with confidence and agility.

### Conclusion

As we have seen, the curatorial staff of the Smithsonian Institution are responsive in how they convey and record knowledge of computer-based technology. They are creative in their approach and prepared to work in new ways to better achieve their objective. This type of curatorial behaviour can be dramatic and overt, but often was quiet and subtle in expression. This curatorial knowledge is distributive in where it resides. It does not solely rest on the shoulders of one person, but shared between dynamic collections of individuals, both museum

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<sup>16</sup> B. Campbell Lilienfeld, Interview with P. Foti, 26 April 2013.

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professionals and non-museum professionals alike. This expertise dispersed across the space of the organisation, reaching out to the professional sector and to the very museum visitors that museum serves. These types of expertise were framed as defining traits of a wider pattern and characteristic of 'agile' museum curation.

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