Chapter 7

The Social Value of Digital Ghosts

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Introduction

The meaningful objects and memories we collect over a lifetime are increasingly taking a digital form. People are now "as likely to inherit a loved one's collection of hard drives, USB keys, SD cards, and email accounts as we are collections of papers, journals and photographs."[1]

Over the past few years, a growing collection of designers and researchers have begun to consider this digital legacy, asking questions about the nature and provenance of digital ghosts that survive our corporeal lives.[2]

In this chapter, we present a critical review of contemporary services and artefacts designed to facilitate the preservation and transmission of memories and experience *post-mortem* and ask what the social value of such digital ghosts may be. Work is considered that discusses attitudes and sensitivities to a digital afterlife, asking what is technically feasible and socially palatable. Findings are reported from a study uniquely assessing attitudes of older adults towards new technologies and services provided in this space, which show that context is key- people *do* want to pass on information to loved ones; however, privacy concerns and usability issues may stand in the way of adoption. It is summarised that there is little going on in terms of public discussion around the social value of digital legacies, but that they are an inevitable outcome of our growing technological dependence and should therefore be given more in depth considerations for the future.

Our digital footprint

A significant number of daily activities are now conducted in the digital sphere. Many individuals work online, using technologies for data sharing, email for communication, the cloud for collaboration and improved mobility. But people also play online: uploading photographs and videos, using social media to access and sometimes create news, listening to a personalized, cloud-based music collection that travels with us, accessing an individual collection of books and other reading material anywhere anyplace via digital services. This ever changing data, our digital footprint will reflect many different facets of a life, but this can make for a complex digital legacy.

Digital footprints are small in those societies where access to technology and wireless services is limited, but they can be extremely large when the technological infrastructure is readily available to all. In the United States, for example, 72% of all online adults use social networking sites,[3] with two thirds of American adults using Facebook as their dominant social network.[4] Not surprisingly, then, given the capabilities of such social media sites, we find that over half of American adults (54%) have posted original photos or videos online. This trend is also growing with new photo sharing applications for mobile phones (such as Instagram and Snapchat) gaining a hold on the younger market.[5] However, the use of social media is also growing in the older population, with a 2013 Pew survey reporting that social media use in 43% of adults aged 65 and older.[6]

Citizens are surrounded by new tools that allow for the relatively seamless capture and curation of their everyday lives. The term “lifelogging” has come to mean the act of recording and shaping the multifaceted aspects of our digital selves – a practice that has been demonstrated most dramatically by Microsoft’s Gordon Bell who tries to digitally capture all documents,

photographs, and sounds he has experienced in his lifetime in his *MyLifeBits* project.[7] The idea of such "total capture" may seem somewhat extreme, but there is a growing awareness that lifelogging practices can be used to complement the activities of daily living[8] and potentially offer a useful service in compensating for the fallibility of human memory.[7]

A more critical perspective would see lifelogging as a form of digital hoarding – the indiscriminate practice of keeping every digital record "just in case" it may be useful later. Researchers recognize that such hoarding practices may be counterproductive and lead to massive information overload ultimately resulting in something that is simply too large and complex to be useful. Such problems are likely to become more pressing as we move from systems that support the active and considered processes of digital curation to those that allow for passive capture of everyday places, events, and experiences. As an example, the new location tracking service Placeme.com can automatically publish daily timelines that describe where you are at different times of the day, store this data as a record of daily activities, and/or stream it to select others. Such systems show how it is becoming easier to simply record everything, but this then begs the question: *What might I do with all the stuff I collect?*[9]

Until now, there have been relatively few attempts to assess what people might want to do with this mass of information. While some progress has been made in the design of technologies that might aid in the bequest of data (e.g. Microsoft Memory Box), there is not yet an agreed mechanism or model which provides a suitable way to prepare for digital information bequests.[10] However, there is growing recognition that new digital hoarding practices will lead to serious problems in managing one's digital legacy.

Our Digital Legacy

Bizarrely, our digital footprints are simultaneously ephemeral and persistent. A paradox, but one that is easily resolved: for all sorts of reasons (as will be discussed momentarily), many find it hard to keep hold of digital data. We create a digital record but then find we cannot fully lay claim to it, constrain it, label it, find it, which, in turn, means that we cannot effectively delete it, edit it, or bequeath it. It can linger in cyberspace, joining a growing digital diaspora that may become useless to us as individuals but is increasingly useful to commerce or government in feeding the new "big data" machine.

One contributing factor to the problem of managing our digital data is the fact that there are so many different data types, each with very different provenance. Researchers at California's Naval Postgraduate School, Simson Garfinkel and David Cox,[11] for example, define four types of digital footprint: (i) publicly identified footprints comprising digital data that is explicitly linked to an individual by name and that is relatively accessible and identifiable; (ii) organizational footprints that include company documents, web pages, emails, and calendars; (iii) pseudonymous footprints, where the author uses a false name consistently, or anonymous footprints, where the author has attempted to disguise his or her contribution and which may become lost *post-mortem*; and (iv) private footprints that are typically held behind a password or other authentication mechanism or that are held on private machines.

So, the data itself can be complex, but there are other contextual factors also at play in at least four overlapping ways:

First, digital artefacts are often invisible and as such are seen as less valuable than their physical counterparts.[12] Digital intangibles are less easily claimed and they don't lend themselves to the physical acts of sorting through possessions that might be practised as a family. In researching "a digital death in the family," Michael Massimi and Ronald Baeker, exploring

technology adoption in death at the University of Toronto, describe the process of siblings laying claim to the paintings of their deceased mother – by the simple act of writing their names on the back – and contrasts this with the problems inherent in laying similar claim to files: "There is no equivalent claiming affordance for digital files […] it is conceptually more difficult to earmark many files spread across a file system than it is to claim a handful of physical items kept in a household."[13]

Second, individuals don't always own the rights to their own data, so access to what one has come to think of as his or hers can be denied. This may be at the corporate level, where companies storing data "in the cloud" could rescind the access rights to that data.[14] But, even within a family, the origins of digital artefacts can be forgotten or ownership can be shared, either of which can make it very difficult when issues of inheritance are discussed.[15]

Third, digital memories are often associated with particular access privileges that themselves require authentication, so forgetting a password itself becomes problematic. Accessibility issues also arise because of changes in technology itself. Family memories stored on videotape become inaccessible as new forms of digital storage take hold. Massimi and Baeker describe the ways in which something as simple as a password can prevent people from inheriting the assets associated with an account, quoting one of their participants as follows: "We just left it, I couldn't get into [my brother's] account… his school account was deleted obviously, but I left his personal account."[16]

Finally, digital memories can become lost or inaccessible as a function of failure to properly file or organise the information –it simply gets lost in the vast data space. People are reluctant to delete personal information[17] but they also fail to organize it effectively.[18] Moreover, there are not many tools available to support them in this.[19]

Thus a vast hinterland of orphan data is created. As William Odom at Carnegie Mellon University and colleagues from Microsoft Research note, "Posting something online, in today's world, can mean *relinquishing control* over the things that you care about, but also *losing awareness* of what exists, where it is, who has access to it, who is accountable for it, and what is being done with it."[20] No doubt, the vast majority of emails, tweets, spreadsheets, and messages that are exchanged in any one day are highly relevant to one particular time and place but irrelevant thereafter, leaving a garden of digital weeds that no one values but persists despite the neglect.

The need for systems that can both forgive and forget is important in this space, and a number of researchers are calling for such reparation as part of a new research agenda that can also help with the problems of digital overload described earlier. Will digital archives shed too harsh a light on the ways people live their lives? Digital curation can certainly carry some unintended consequences,[21] and life-logging systems – particularly those more passive systems – illustrate our mistakes and misjudgements. While people may wish to share their "average" or "best" behaviour, they can often promote themselves at their worst.[22] There are also times when a digital legacy seems inappropriate. The long-term storage of digital possessions after a relationship breakup can cause distress,[23] and it is easy for the bereaved to come across digital records that were never intended for their eyes.[24] Liam Bannon, working at the University of Limerick, reminds us that there is genuine value in the ability to forget information and wonders whether technologies used to support our digital selves should also support the act of forgetting as a means of avoiding digital overload. Bannon[25] also features the development of new applications that have an inbuilt "forgetting function" (e.g. the photo-sharing communication app Snapchat claims to delete data after around 10 seconds).

Dealing with Digital Legacy

The problems of digital legacy are slowly becoming recognised, and there are relatively few systems available to facilitate the inheritance of digital assets. The phrase "digital asset planning" has been used to describe the actions one might take to determine what will happen to digital data,[26] and big companies such as Facebook and Google have systems that support legacy processes. More dedicated commercial sites such as Legacy Locker[27] are appearing, offering the means to ensure personal, digital information to be accessed by others in the event of death or unexpected illness.

A number of authors have described the psychological burden accompanying the inheritance of digital devices – such as phones and laptops – where the digital data is somehow inaccessible, but where the promise of untold stories or links of strong emotional significance means that the bereaved cannot bear to throw those devices away.[28] The issue of what to do with digital information following the death of the creator is now a pressing issue for families,[29] and people are increasingly being advised to consider how they may want others to access their digital selves should anything happen to them.[30] Naturally, the issue of death is a sensitive topic, and there are many papers that discuss the need for "thanosensitive" design around the appropriate management of data post-mortem.[31]

A number of approaches have begun to address the question of essential principles for thanosensitive design, beginning with a better understanding of the preparatory processes for digital inheritance. Three main activities have been identified when preparing a digital legacy: (i) Curation, the active process of taking family records and annotating them so that someone else can make sense of them, (ii) Creation of mementos by collating those curated materials in order

to produce an artefact such as a scrapbook for family, and (iii) Active reminiscence where people tell stories about the past based on their own memories.[32]

Some solutions to managing digital legacy involve the curating of data to form tangible objects - sometimes referred to as a "technology heirloom."[33] A technology heirloom is similar in many ways to a traditional heirloom, but can encapsulate computer files, mobile phone data, and any other digital information someone may wish to store. The heirloom can then be bequeathed to somebody in the event of death and used to support memories of that person. The form and function of such heirlooms can vary, with recent examples including tilting picture frames and mourning stones to support the grieving process.[34] Three heirloom designs, BackUp Box, Timecard, and Digital Slide Viewer, all of which enable the archiving and reviewing of sensitive personal information, have been explored recently.[35] Timecard is a wooden photo frame that can be used as a personal timeline of the deceased. The Backup Box automatically backs up Twitter feeds in ways that might later acquire the same meaning as diary entries. Digital Slide Viewer is a physical device that could potentially contain online photo collections of the deceased, making them accessible to relatives, while The Family Archive was developed to enable the digitization of everyday objects in the home, displaying their photographs.[36] These projects highlight the fragile and temporal nature of physical objects, creating an important digital trace that could outlive their material shelf life.

Tangible and intangible heirlooms have very different properties. The former has a more natural propensity to decay over time, and so researchers have been interested in the value of such decay processes (in an argument similar to that discussed above on the value of forgetting). Should both types of object – digital *and* physical –be allowed to decay over time? In response to such considerations, a number of websites have been developed that allow for the uploading of

photographs that gradually decay (BlackBox, DataFade, and BitLogic), although these have not been universally welcomed. Participants, while happy to accept decay processes around physical objects (e.g. the clothes of the deceased) couldn't understand the point of digital decay, believing the main purpose of digital archiving was unlimited, high-quality storage.

Digital memorials

The practice of offering online memorials to the dead began in the early days of the Internet, when the bereaved would create commemorative webpages capturing the life and achievements of the deceased.[37] These were succeeded by more dynamic, cyber-memorials that allowed visitors to post messages of respect and condolence.[38] In both cases, these memorials were crafted in the period following death, when those most affected were able to come together and celebrate a life passed. Social media developments such as Facebook allowed for the living to create their own online identities that could be repurposed as memorials by friends and family.[39]

This repurposing included using the profile pages of the deceased as memorials[40] and promoting these memorials via social networks[41]. Brubaker and Hayes have noted that such memorials are unusual in that they have effectively been created by the deceased themselves and almost seem to offer a voice from beyond the grave. As such, it may not, therefore be so surprising that such profiles can provoke comments and expressions of remorse from friends and family and can effectively create a vehicle that gives the bereaved the sense that they can continue the digital conversation – i.e. speak directly to the dead[42] .

A number of authors have explored the content of social media postings by the bereaved in order to understand more about the conversations provoked by such 'virtual cemeteries'. An ethnographic study of 200 MySpace comments made during January to April 2008[43] found that

the most common form for posts were simple expressions of a shared loss: "*cursory comments that could be thought of as virtual black armbands, veils, or flowers left at a gravesite—symbolic and public expressions of loss and solidarity*"[44] although other, lengthier and more carefully crafted tributes were also posted – more akin to a speech made at a funeral. The authors also noted that site acted as a means to create a biography in which friends and family could share moments from the past in order to build a more elaborate picture of the person they'd lost.

Using a similar approach to data gathering, Brubaker et al., collected posts made to 1369 deceased MySpace users during April of 2010, although their study explored the utility of sentiment analysis in this space and focussed on those contributions with clear expressions of emotional distress. In particular they noted the pain felt by those speaking directly to the deceased noting that " for these authors, the comment space serves more as an environment for conveying individual yearning or pain"[45]. They acknowledge the writing of others in this space, noting in particular the finding that people can express their distress in comments posted over long periods of time[46] and recognising the difficulty faced by survivors who must eventually take action to remove the deceased from their network.[47]

Digital ghosts

The work on memorials shows that people have a need to be able to 'speak' to those recently deceased, so it is perhaps unsurprising that new services are paving the way for the dead to respond posthumously. New applications such as LIVESON[48] use the tagline, "When your heart stops beating, you'll keep tweeting," and present their services as a social afterlife. Similarly, the website DeadSocial[49] allows individuals to prepare goodbye messages and deliver them in a timely manner after death, as well as posting messages to sites such as Facebook. This is a theme that is premediated by fiction and film: In 1995, Bios discussed the idea of keeping

someone “alive” by collating mannerisms and familiar speech patterns – at a time before digital lives were well established. One step further and television shows such as *Black Mirror* encourage us to think about the physical as well as digital reconstruction of a deceased loved one, relying on resurrection from online blogs, emails, and social network activity.[50]

The notion that someone can speak from “beyond the grave” is a well-rehearsed trope and one that has been used in the design of technologies surrounding death for some time. A 2005 study, for example, addressing the design of a cemetery in Atlanta, asked visitors to tour the cemetery with an audio guide narrated by a historian who led participants to his own grave.[51] It is not unusual for museums to use a known history of an individual to provide an engaging means of bringing the past to life, but it is only now, with the weight of digital information pressing upon us, that we might like to reflect on some of the values assumed by such practice.

Just because there is enough information to reanimate someone, does that mean we should? The company Ziggur invites visitors to consider such issues by posing the following questions on its website:

> What happens to your ads on auction sites if you are no longer here? How do you prevent your birthday notices being sent to your friends via Facebook, telling them that you will be another year older “in a few days”? Or how do you prevent business contacts being reminded that they should get in touch with you through LinkedIn? What happens to money in your Paypal account? Or the heartfelt appeal to the love of your life to make themselves known to you?[52]

Such issues bring to the fore the notion that as citizens, careful attention should be paid to our digital selves, particularly when contemplating the possibility of a digital afterlife. But how can

these issues be addressed in a sensitive way? Who should be consulted in order to ensure that there is a value agenda around such issues? A number of researchers have established the importance of value- sensitive design (VSD) in the creation of any new technologies and this kind of approach is creeping into the digital legacy space.

Socially sensitive design around a digital afterlife

Within the bereavement and digital legacy space, VSD asks us both to understand the value of digital legacies and to and honor the wishes and the reputation of the deceased in tandem with the needs of the living. It is an agenda in which some practical problems must be solved while at the same time acknowledging a new landscape in which social mores and personal beliefs play an important role. In the previous section, for example, new technologies and future visions were explored. But what should be made of such possibilities as the deceased continuing to have an online presence post-mortem and indeed even having a digital proxy that actively communicates from a VSD perspective? Massimi & Baecker[53] describe a "poltergeist" moment for Betty, a woman in her 20's who had lost her mother to cancer:

> I got a call a couple of months from her office after she died, but it was her phone number, and I thought I was having some surreal poltergeist kind of moment…I recognized she passed away and thought "My mom's calling me" and I froze and freaked out there. I remember that terrified me, but how excited I was at the potential to talk to her.[54]

In this and other stories, Massimi & Baeker point to the role of technology in "reanimating" the dead, but, to date and despite the volume of new research in this field recently, there has been little attempt to assess how a non-bereaved population might view such posthumous practices.

Indeed, very few researchers have asked people about how they may wish their legacy to be maintained. Strikingly very few systems have considered digital legacies from the perspective of the older adult. Those closest to death have rarely been consulted on the principles they would like to see enshrined in digital legacy, although there have been studies that have consulted those who have recently experienced bereavement.[55] In the remaining part of this chapter we summarize some of our own work, particularly our work with older adults, that addresses this omission. Our work not only uses a VSD approach in recognition of the fact that digital legacies will have a significant long-term impact on society but also specifically reflects a conversation with older people, those closest to death, in order to challenge some digital legacy and heirloom designs in terms of "what they think of as important in life."[56] We conducted a study with older adults (ranging in age from 56 to 76) from the local community in the Northeast of England. In this study, we presented them with films capturing different aspects of digital legacy in order to prompt discussion on the social value of those digital technologies designed to support some kind of posthumous memorial or social presence. The films were selected from a scoping exercise provided a number of examples of legacy technologies, including art projects such as Mission Eternity,[57] commercial developments such as Asset Locker, as well as academic projects including Microsoft's Technology Heirloom work. From this sample, we selected two films that captured different elements of curatorial practice underpinning digital legacy: self-curation (lifelogging) and other-curation (memorialization). For each film, we provided a verbal description and at each showing we asked a facilitator to use the film to prompt a process of *envisionment* (generally considered important in value-elicitation practices)[58] and discussion of social values around digital legacy.

Self-curation was introduced to our older adults via a film clip of Gordon Bell's MyLifeBits project in which he is shown gathering digital data from every aspect of his life, including e-mails, phone calls, webpages, and conversations with people. Our participants also watched a film explaining the idea of the quantified self,[59] examples being where cameras placed on the chest are used to take regular photos, and how wearable devices such as watches and activity monitors collate a large amount of data about one's own activities.

Our older adults were asked to describe their feelings towards such scenarios and asked to consider the value of such data. They were encouraged to talk freely and exchange ideas with others. Data was collected in the form of audio-recordings of the discussions that took place; these were transcribed and analyzed thematically, revealing interesting themes pertaining to the older adult digital legacy perspective.

Other-curation was introduced via a promotional film for Living Memorials,[60] a company in Ireland that has created a way for relatives of the deceased to memorialise them by attaching a QR code to their gravestone. This QR code, when scanned with a smartphone, provides information about the deceased, usually as a blog or webpage. Older adults were asked to watch the Living Memorials promotional video, depicting a family member attending a gravestone and scanning the QR code with their smartphone. The video explained how the information on the device can be modified by family members and friends.

Family Values

Our first observation was that both curation practices were viewed quite positively when discussed *within a family context.* The ability to access a digital record was seen as valuable, particularly when contrasted with the paucity of information accessible in previous years. This was acknowledged by at least one participant: "I did my family ancestry thing a few years back

and my eldest sister helped. Now she has died, I've lost that line of contact and we never got round to putting very much on tape, and that information now has gone forever." Our older adults could also see the benefit for people outside of the family having some access to the data generated from life-logging or memorial practices as a means to evoke memories: "It would be a nice sentimental touch to look back when somebody's grown old, to look back on their past life."[61]

However, participants worried that, *outside of the family context*, legacy and life-logging technologies were open to misuse. There was a sense that information meant to be kept private may subsequently be released, and they argued that not everybody needed to know or should have the right to view such personal information. They also questioned the value of technologies that didn't directly support face-to-face contact with others who were sharing the grieving process. They explained that the opportunity for a family to be together is central to providing emotional and practical support – and, although they recognised that a process of discovery and fun was crucial to a family legacy, they weren't sure that a digital inheritance would feel the same.

We also found strong support for the idea that digital legacies wouldn't be valuable unless they could support forgetting. Our older adults expressed significant concern about a digital collection that would include those moments in a lifetime that we would rather forget: "I have times in my life when I think, 'Oh my god, I wish I hadn't done that,' and, with the passage of time, you can file it into the background and forget about it. If you've got it there in front of you, movement by movement, you can't forget, you keep living it over and over again." Others talked of the value of forgetting in the grieving process, and they felt that remembering

may not always be helpful, “I mean another word for forgetting is letting go and that’s a very, very important process.”

Who controls a posthumous life?

Beyond the core values of what might be shared within and without the family, there were a number of more general themes that were considered important around the ideas of who controls the digital legacy. Three issues were discussed: technological exclusion, business practice, and digital vandalism.

Digital exclusion was a major worry, and our participants asked what would happen if people lacked the technological capabilities required to set up and maintain memorials. Older adults felt they had neither the technical means nor the understanding required to use digital systems, and they commented that this left them feeling vulnerable and overwhelmed. There was a sense that people might be at a disadvantage when presented with legacy-enabling technologies, if they weren't already familiar with them. The feeling of being overwhelmed by uncontrollable data was strongest when discussing the idea of life-logging and dealing with the massive amounts of data involved. One participant said, “Just answer one question, will this computer burst?” This statement made people in the workshop laugh, but the participant genuinely didn’t understand how the computer might store a decade’s worth of information. Others commented that some of the processes involved in curating information, such as setting up a website or blog, were simply “too technical” for them.

Our participants realized that new businesses could support those who lacked the technical ability to do such things themselves. But they raised a number of issues, asking whether such legacy businesses were acting in the best interests of the bereaved or whether they were in the best of taste. For example, there was a strong consensus that accessing information

on the life of the deceased via a QR gravestone was in decidedly “bad taste” and was exploitative. Such a means of prolonging the memory of someone was considered crude.

Finally, participants worried about what would happen when memories simply got into the wrong hands and were subject to acts of digital vandalism. The notion of “trolling,” the act of posting a deliberately provocative online message with the aim of inciting an angry response, was a familiar enough concept. Participants had read various news reports in the media. They talked of trolling as a real threat and believed it would be even more damaging to an individual because of the sensitive nature of death: “There’s a risk of people hacking that information as well. So, say there’s someone I really didn’t like; I could hack into it and say he’s a pedophile or whatever, and it would come up on your gravestone. It’s stuck there forever, then.”

Summary

In this chapter, we have tried to review some of the new technologies and systems that support digital inheritance and that, essentially, create a diaspora of digital ghosts. We also discussed the importance capturing public values in this space, describing a brief study which uniquely assessed some of the attitudes of older adults to new technologies and services provided in this space.

We found that such technologies were valued by older adults provided they are used *in the right context*. Within the family, the act of passing on historical information was seen as important, and participants acknowledged that new legacy technologies could add value to the process of dealing with an inheritance, a process recognised as being difficult but often overlooked at the end of life.[62]

However, both inside and outside of the family context, legacy and life-logging technologies typically evoked privacy concerns in our older participants and, for our older

participants, the protection of privacy, particularly within the family context, is paramount. For many, digital legacy systems are seen as unusable, simply because of issues of control, information leakage, privacy breaches, and the new threat of digital vandalism. A sense of exclusion was also prevalent in many discussions, brought about by their relative inexperience with existing technologies (e.g. QR codes having to be explained to everyone).

Feelings and emotions ran high in this population; our participants had, unsurprisingly, thought a lot about legacy issues and were fully prepared to discuss designs from an experiential but unsentimental standpoint. They were keenly aware of the importance of memories that could be circulated within the family but were quick to argue that such memories were not for public consumption, raising a number of privacy issues surrounding the broadcasting of private data and the unnecessary sharing of data from strangers: That came too close to being an unwanted personal invasion. Our older participants also worried that technologies might become the barrier, rather than the vehicle, for shared memories between generations because of the new knowledge or technical expertise required in the adoption of new legacy systems.

Digital legacy is a development space that is moving quickly: as noted, our digital footprints are growing rapidly, and the digital legacy issues associated with that growth are pressing. Yet, there has been relatively little public discussion around the social value of such legacies. Such a discussion is important, but the stakeholders are many and varied. Though we have brought an older adult perspective to bear, this is an issue that connects us all and of any age. We should be looking beyond the application of these technologies to specific groups such as the bereaved or those with memory deficits, and explore how technology can be utilised to manage and share digital collections belonging to the wider community.

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