Memorality

The Future of Our Digital Selves

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Memorality: The Future of Our Digital Selves
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MEMORALITY

THE FUTURE OF OUR DIGITAL SELVES

Collaborators

Support & Guidance

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The Future of Our Digital Selves

Legacy, afterlife, & remembering...

Can we plan to maintain a presence within our digital content to communicate across our social network after we die? How can we be stewards for our post-life digital selves? Is that even what we want?

Designer's Note
Project Stakeholders

I would like to take this opportunity to thank all of the people who worked together to make this project possible.

First and foremost, thanks to Gian Pangaro and Luke Woods for their guidance. It was because of their flexibility and professional wisdom that I was able to further extend the value of this educational journey to reflect on my project process at regular intervals.

Secondly, remote conversations with Richard Banks were invaluable to inject fresh perspective from the field of digital humanities. Further, the openness and contribution from the professionals, family, and social network of peers that contributed allowed me to go deep in research. With their input I was able to achieve a level of understanding of digital legacies across generations and the world. I am grateful for all of the personal stories and moments shared.

Not to be forgotten, my academic advisor Kent Lindbergh who provided confidence and support as I navigated through the process. Lastly, to my peers and staff at the Umeå Institute of Design for continuous thought provoking moments of reflection and shared sources of inspiration.

INTRODUCTION
PHYSICAL DEATH & DIGITAL LIFE

In this increasingly digital world, is it intentional that we only plan for the future of our physical selves? If not, then how can we sustain a residual presence after we are gone— if that's even what we want? How can we have a legacy that will matter to future generations?

Abstract

DIGITAL IMMORTALITY OR NOT?

The aim of this thesis was to explore how we might be stewards for our post-life digital self after physical death, and to provide a new interaction experience in the form of a tangible, digital, or service design solution.

Prior to the project kick-off secondary research, including academic research papers, analogous services, and existing projects, was distilled to form topical questions. These questions were then presented in many casual topical conversations and revealed that although post-life digital asset management awareness is increasing, little consideration exists on how to reflect legacies into the future long after death.

¹See the Appendix I on page 73 for de-
tails on how the thesis topic developed
over time.

A second stage of primary research included multiple on-site investigations, paired with in-person interviews and a quantitative online survey. Insights and understandings then lead to initial concepts that were tested to address distinctive qualities between tangible and digital design solutions. The main findings included that although people want to be remembered long after they die, current methods of tangible and digital content management can not sufficiently support the reflection of legacies long into the future.

In conclusion, this thesis argues that to become part of an everlasting legacy, the interaction experience can leverage commonalities and shared moments from life events captured in digital media. These points of connections rely on associated metadata (i.e. keyword tags, date stamps, geo-location) to align relevant moments that transcend time and generations. The solution proposed here harnesses the benefits that both digital and tangible media afford and are presented as a tablet interface with an associated tangible token used as a connection key.

Topic Overview
Everlasting Legacies

As we continue to transition into digital lifestyles, we have to acknowledge the potential value and intent of our prolonged content as it relates to -time.¹

Although, many aspects of humanities have changed over the generations, fundamental needs remain as we strive to capture our own legacies and to participate and identify in family and cultural legacies.

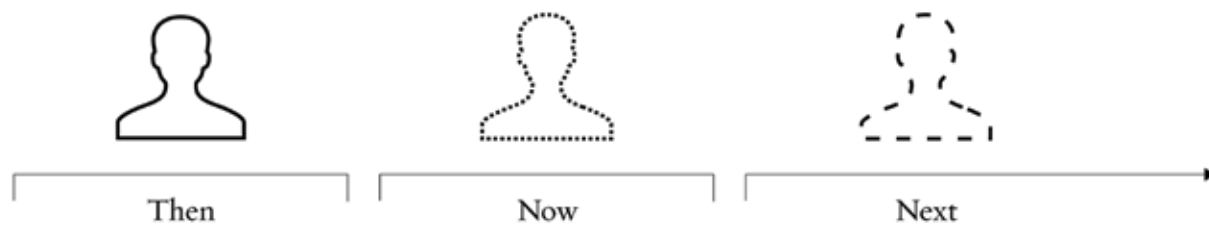In human history, there has always been a desire to leave a legacy and be remembered. This happens at various scales whether as a civilization, culture, family, or individual—think pyramids to gravestones. In modern times, we continue to try and connect with those around us, only our channels of communication have shifted; we are transitioning towards digital methods of connecting and content management.

Further, current tools for digital memento and archive management are not intended to function for post-life communications. They do not sufficiently consider the longevity of content, digital legacies, or relevancy of content over time.

Present research and services exist around the management of digital assets after death, and how to remember or stay connected with those that knew them in life. However, the solutions presented are often static archives of content or algorithm supported services that auto-post on behalf of the deceased to those people they knew in life.

Spanning preliminary investigations and project development, it is apparent that little exploration exists on the implications of the future of digital content long after physical death. Specifically, it gets exponentially more challenging to retain a legacy after those that knew us in life also die.

The compulsion to capture our lives for posthumous remembrance, thanatography, has been titled 'thanatosensitivity' as a new approach to human-computer interaction research in post-life digital humanities. Although, my thesis will present findings within the scope of this fundamental research, it does not directly incorporate the novel nomenclature.

Then   Now   Next

Research

Jan. 28ᵗʰ-Feb. 22ⁿᵈ

Museum visits

Design ethnography

User research

Analogous research

Contextual interviews

Online Survey

Synthesize & Ideate

Feb. 25ᵗʰ-Mar. 15ᵗʰ

Brainstorming

Early Concept Testing

Rapid-prototyping

Online Evaluation

Visual frameworks

Prototype & Evaluate

Mar. 18ᵗʰ-Apr. 12ᵗʰ

Physical mock-ups

Digital prototypes

User testing

Storytelling

User scenarios

Refine & Test

Apr. 15ᵗʰ-May...

Refinement

High-fidelity mock-ups

Usability tests

Final mock-ups

Digital Thesis Book

Design Goals
Designing a Digital Afterlife

This thesis presents insights on designing interactions for digital immortality after physical death, and will focus on points of interactions with the digital archive for those that remain alive.

The goal of this project is to create an interaction experience to address digital immortality and the future of our digital selves. It will result in a prototype (i.e. digital, physical, service, or a combination), a thesis paper, defense, and public exhibition ending in June, 2013.

As part of this project, I hope to further explore and find new direction in the research space of post-life digital presence. To continue, I would like this project to serve as a point of reflection for people regarding the longevity of digital content after death. Also, I hope to further develop my skills in digital asset production, and communication of the result—specifically in storytelling the proposed solution.

Time, memory, & forgetting...

"Five years ago I sent my future self an email using one of those online services when they came out. Of course, I completely forgot about it and was disappointed when it arrived because I only wrote about my predications at the time for what I thought I would be doing 'now'. It wasn't interesting because it was way off—it didn't mean anything to me."

- Martin S., Iceland
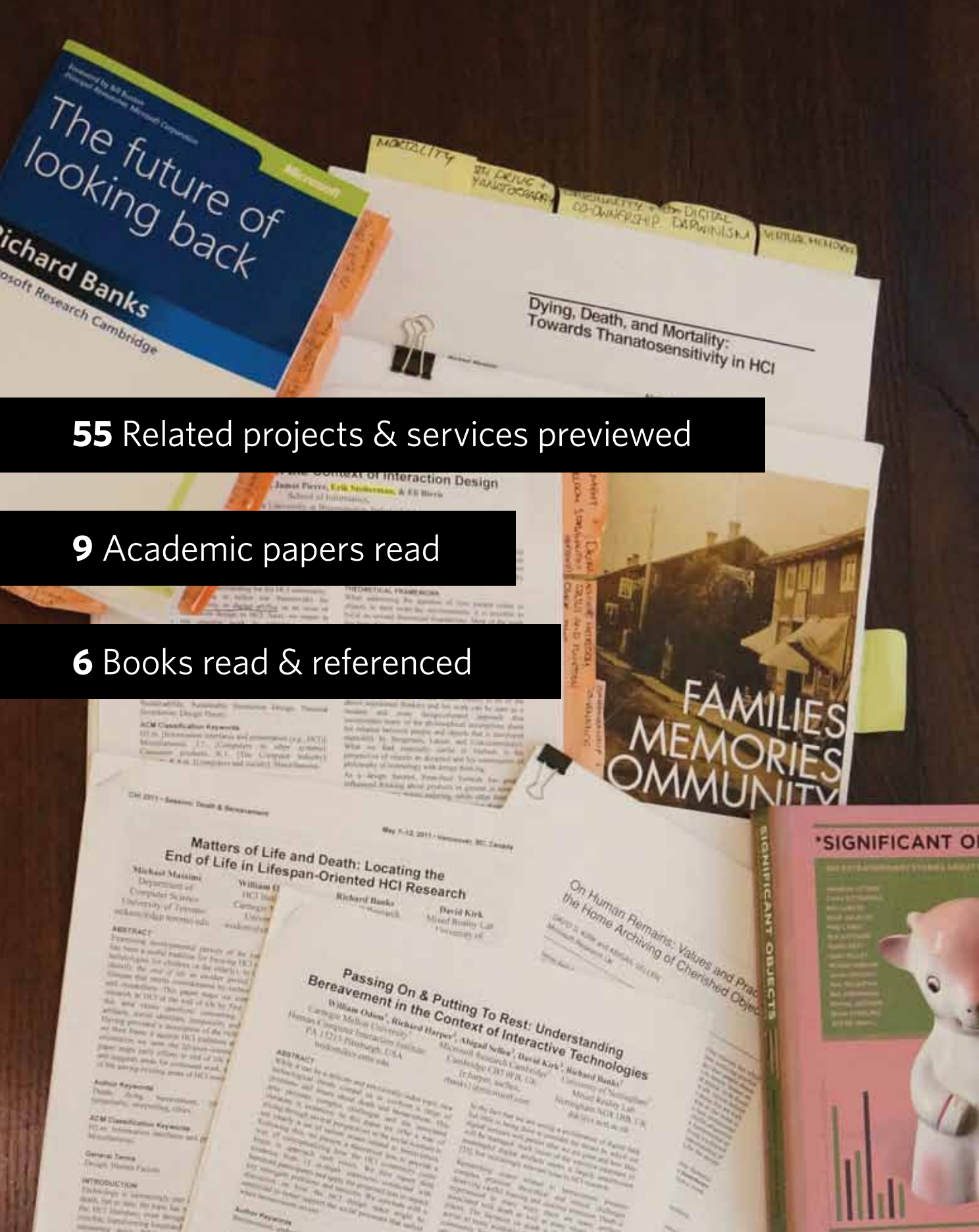
55 Related projects & services previewed

9 Academic papers read

6 Books read & referenced

Research Overview

Research for this project, 'presearch', started months prior to the thesis kick-off with a selection of articles, example projects, services about digital bereavement, digital asset management, memorial websites, and online archives.[1]

After launch of the thesis, the scope was further narrowed and official primary research began with museum site visits, informal conversations, open-ended interviews with cultural experts, observation, and an online survey. As a full reference list is included as part of this document to capture the various secondary research sources of inspiration, only a brief overview of these efforts will be presented here. Thus, the process and more details of the primary research will be the focus in the following pages.[2]

The presearch process resulted in many tangential and philosophical questions around life, death, and immortality with various people. General emergent themes were established into a series of questions early on that helped to capture the thought space I wanted to explore. Further, it was clear that many people had not considered the digital extensions of life after physical death. Also there was little pre-existing research literature found in this area.[3]

Top: Tangible inspiration from Richard Banks at Microsoft Research, UK.

Bottom: Digital inspiration from the mobile phone application, Timehop.

In tandem with this presearch, tangible, digital, analogous, and aesthetics sources of inspiration were investigated to get a broader perspective on the thesis topic.
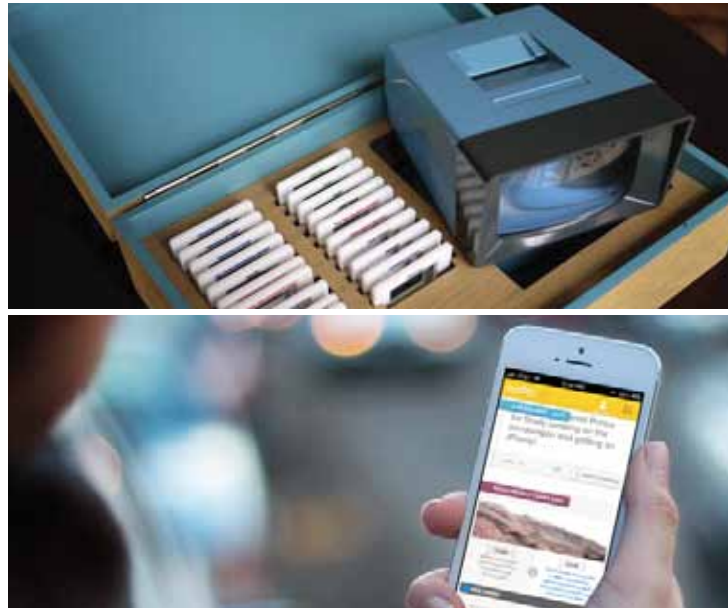
Tangible

Tangible inspiration for this project includes recent work by Richard Banks at Microsoft Research in Cambridge, UK, who has developed objects titled "technology heirlooms" (technological / digital artefacts designed with the intent to outlive its owner and be passed on).

Three exemplar projects from this lab include: Digital Slide Viewer, The Backup Box, and the Timecard. These projects are great examples that push the boundaries of conceptual realisation to combine digital and physical properties. Additional influential research by Microsoft including: MyLifeBits, Montage, and Spindex from FUSE Labs address creating and sharing visual content.

Digital

Digital inspiration for this thesis include mobile applications for smart phone devices, namely Timehop and Shoebox. Timehop emulates an aspect of the daily news: "What happened today in history?", and applies it to an individual's history of social media. Effectively, if you subscribe to Timehop,

it will access your legacy of social media to display content from the past relevant to the current day or time.

The latter, Shoebox, allows collections of photos in a mental model of a literal digital shoe box. Both of these applications connect the past to the present for the user, yet neglect to address the future longevity and stewardship of our digital selves directly.

Analogous

Analogous inspiration for this project includes Nectar & Pulse, an Austrian company that produces personal printed city guides with favourite insider tips by locals called "Soulmates". Essential background information about the potential Soulmate is presented as a narrative including a photo, biography, and a personal interview. You then select which is most inspiring, and subscribe to their tips and suggested "hotspots" in your desired city.

With this unique approach to a narrative journey, it is easy to imagine how similar methodologies could be applied to this thesis topic: A purposeful trail that survives a loved one remains to be discovered when the time is right.

Aesthetics

Early visual inspiration for this project came from the technique of light writing, beautiful yet ghostly. There is a clear ethereal distinction between light and dark—think life and death. Each light element is the result of traces of light left behind and captured by the camera. Also, the light writing style is a type of embedded message in existing digital content that is layered over time.

Communication Tools

Further, a series of printed cards and an online website were created as additional communication tools for the thesis.

The printed cards captured early topical questions that rose from initial research and served as conversation starters when speaking to various people about the thesis project. Also, the printed cards were combined with goals of the thesis, the time line, and my supporting background credentials as a designer. These packages were then mailed a couple of months in advance of the thesis kick-off to potential external thesis collaborators.[4]

In addition, custom long exposure photography was created to embody aesthetic elements from earlier inspiration and was incorporated into a custom website for the project. The website housed essential thesis information (i.e. overview, time line, goals), served as a hub for collaboration, survey / concept feedback, and reflection in the form of a blog.[5]
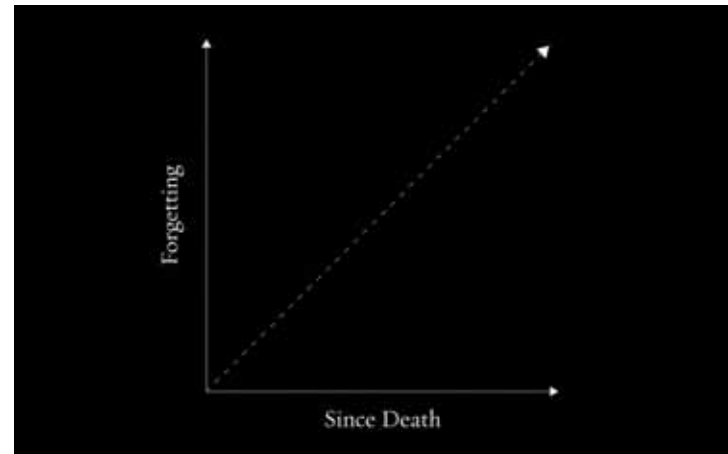
Early Problem Analysis

Current tools for digital memento and archive management are not intended to function for post-life communications and do not sufficiently consider the longevity of content, digital legacies, and relevancy of content over time. Also, little exists that considers how to reflect our legacies into the future long after we are dead to potentially last forever.

Early Conclusions

Today, the longevity of content is mostly unconsidered and arbitrary. By specifying the duration of content we have the ability to imbue new behaviours and meaningful interactions into our digital lives.

Present research and services exist around post-life digital asset management, and how to remember or stay connected with those that knew them in life. However, the solutions presented are often static archives of content or algorithm supported services that auto-post on behalf of the deceased.

Much of the activity around digital afterlife exists around the aggregation of digital content which is concerned with a different scale of time, namely the past and the present. However, based on preliminary research, it is apparent that little exploration exists on the implications of the future of digital content.

As this topic addresses a potential sensitive aspect of our lives—digital immortality—it also serves as a point of self-reflection. Have we properly considered the ability of digital immortality to command the significance and endurance of our content when we pass on? What are the ethics of management for digital content post-life? Is this an opportunity to leverage a medium of communication and expression beyond the grave? Is that even what we want?
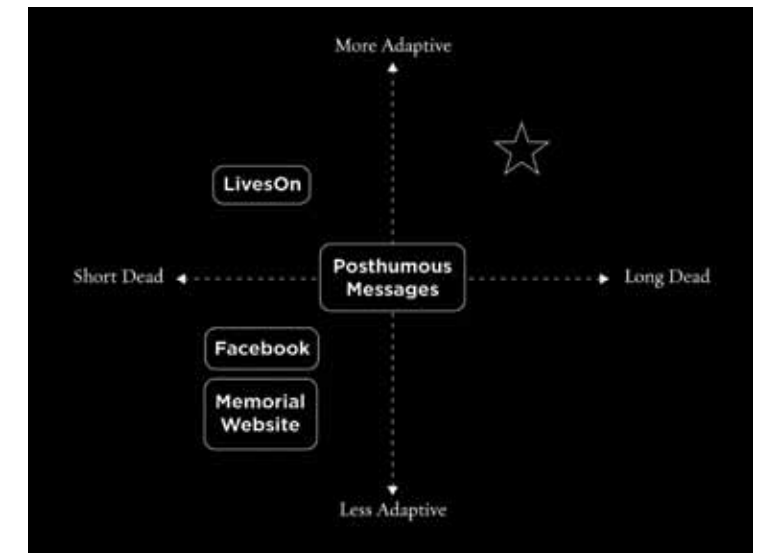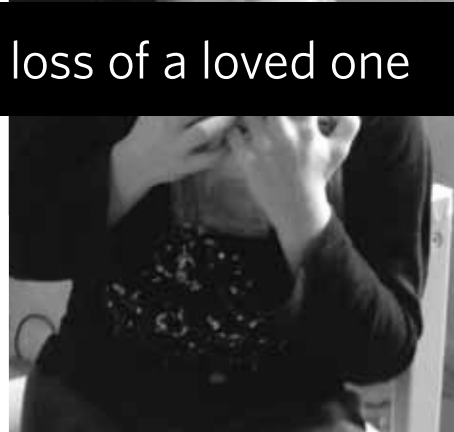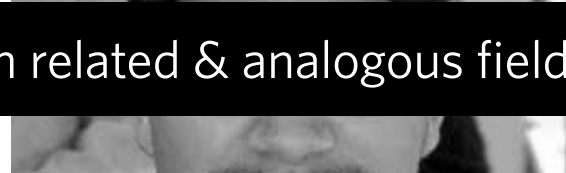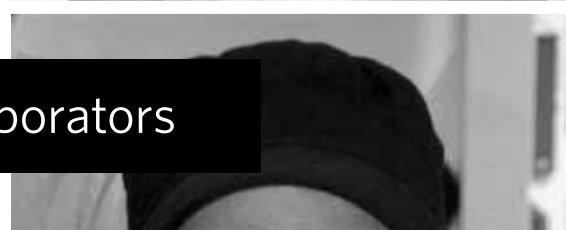
2.5 Project collaborators

9 Professionals in related & analogous fields

173 People of all ages that can relate to the loss of a loved one
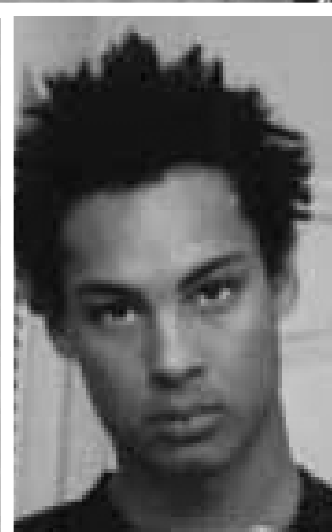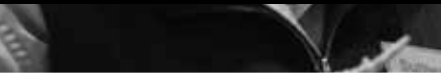
History, tradition, & cultural legacies...

"A legacy is what's passed down from generation to generation. It's the birth certificate, and objects left behind."

- Paul M., Canada
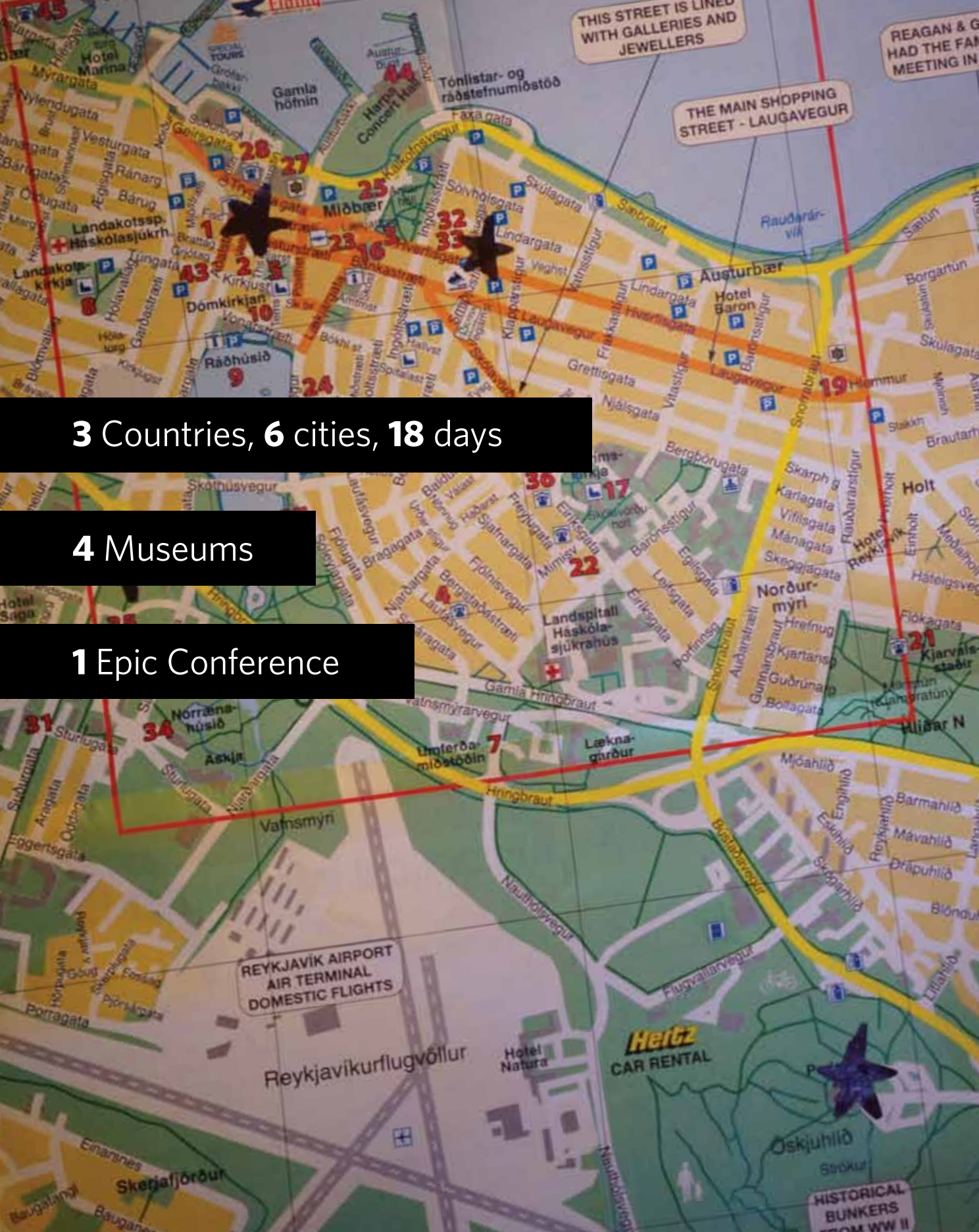
3 Countries, **6** cities, **18** days

4 Museums

1 Epic Conference

RESEARCH PART II
LEGACIES OF THE PAST & FUTURE

Opposite Page: Map of Reykjavik, Iceland, with cultural highlights marked as places visited as part of the primary research shortly after the launch of the thesis project in February, 2013.

An important part of research for this thesis examined cultural legacies that have survived throughout the generations. Primary studies included: museum site visits, audio guided tours, interviews with anthropologists, family and the general public, an online survey, observations, and reflections resulting in topic provoking questions.

The goal of this portion of research was to discover how cultural legacies and historical methods and materials can inspire the legacy of digital content for the subsequent generations of technocrats. Further, to gain insights from people across various ages and stages in their life. The following museum sites were investigated:

Native American Totem Poles, Vodou Spiritual Communications, Postage Age Messaging, and Icelandic Sagas.

Native American Totem Poles
Layers of Lineage & Materials of Remembrance

Research at the Museum of Civilization in Ottawa, Canada, revealed relevant Pacific Native American art in the form of totem poles. Each pole is an aggregate of totems, or characters, that often embody family lineages or people of significant influence (generally chiefdom). Often, each totem is symbolic of an individual, and together they represent a family heritage. They remain in the landscape for those passing by to communicate in this vernacular form of encoded symbology and can remain for up to 100 years.

Due to their lifestyle and location, they were able to spend much of their time exploring artistic techniques of carving totem poles and worked with methods of subtraction as they carved away, and addition as they would paint layers back on.

Does the depth of the subtraction / carving relate to the longevity of the message as the surface wears away over time? Is the level of the impression made by the individual indicative of the strength of the relationship or influence in the network?

Is there opportunity to provide more functionality for objects of remembrance? Can being part of the daily routines of those that they are connected to facilitate remembrance?

Can the added layers of generations be adaptive over time and fluctuate within the context of available resources? Could that then be indicative of the evolution of a family lineage or a time line?

Vodou Spiritual Communications
RITUALS, SACRIFICES, & POST-LIFE COMMUNICATIONS

Communication with spirits is at the heart of Vodou, called Iwa. For Vodouists, everything is connected and reality transcends the fragmented world we perceive through our rational mind and senses. It consists of spirits and energies flowing through all things and communicating everywhere at all times. One can only reach the spirits via specific avenues including: temples, sacred chambers, altars, or pilgrimage sites. Vodouists inherit Iwa that have been honoured by their families for generations. Additionally, each Iwa requires a sacrifice and must be intentionally called via a ritual with sacred objects.[1]

The Gede embody the continuous cycle of regeneration and, as the sovereigns of cemeteries, know the path between life and death (where those worlds meet to allow us to take care of one another). Further, skulls and crosses often characterize the Gede and, in this context, the cross represents the crossroads we all must pass—the intersection of the world of the living and that of the dead.

What would it mean to access content from loved ones who have died, essentially on-demand?

What are the implications as opposed to the loved one leaving content to be discovered serendipitously, or at a pre-determined date? Would it require a pilgrimage to a specific location?

Top: Postcard aficionados sharing their collection, Museum of Fine Arts, Boston, USA.

Bottom: Postcards on display as part of the Postage Age exhibit at the Museum of Fine Arts, Boston. They show Paris at the turn of the 20th century and are 'real photo' postcards (printed directly from the negative onto the postcard). This technique made portraits readily available to the masses and offer a rare glimpse into the lives of people at the time.

Postage Age Messaging
Collecting Communications & Traditional Tweets

Postcards are a traditional, quick, and effective method of communication of their time (1895-1915). Wildly popular they were a literal encapsulation of a moment to share and much importance was placed on the front-facing image. For postcard aficionados, the image was a trigger for the memory and provided context for the message on the reverse side.

The 'craze' for postcards included a worldwide network of postcard exchange. Beyond sending messages they were also collected in albums, tucked away in boxes, and served as a tool for advertising and propaganda. However, as with all things, the mania surrounding postcards was replaced with faster means of communication (i.e. telephone and radio).

How can the visual element of the communication serve as the trigger for the memory?

How might these communications be organized based on the person or group of people we are corresponding with?

How might the memories embedded in the postcards be passed on and transferred to the next generations?

Icelandic Sagas
LIVING LEGACIES LASTING GENERATIONS

As there were a small number of original Icelandic people, the family lineages are not seen as completely distinct and there is a sense in the country that everyone is part of the same large family tree. According to Icelandic cultural anthropologist, Johanna Bergmann, this leads to feelings of isolation. As she explained, it results because the Icelandic culture has been one tight cluster in one small mass of land for a continuous period of over 1,000 years and all of the details of the history are accounted for and there are few questions remaining or few opportunities to deviate from the past.

It is not until the sagas were written that Icelandic people felt they were their own distinct nation and culture. Thus, the sagas were the means of establishing 'Icelandic' from other Scandinavian cultures from where the Icelandic people originated.

What is the right balance of detail and mystery to maintain curiosity in past lineages?

What information is required to identify with people from the past and feel connected?

Interaction 13 Conference
LOOKING AHEAD FOR INSPIRING INTERACTIONS

Attending the Interaction 13 conference in Toronto at the end of January provided a unique opportunity to get inspiration from those leading the interaction design field. It was interesting to hear the main panel discussion as the topic quickly evolved from 'Big Data' and quantified self to questions about post-life content management. Of the various talks throughout the event, these were the main questions derived as points of reflection on the thesis topic:

How can a tangible interaction be the humanizing element to connect us with our environment (i.e. feelings, feel, touch).

Can personality traits be represented via the rhythm of the interaction in the interface, whether digital or physical?

Can we provide modular starting points for curation and expression of ourselves for future legacies? How can it retain flexibility and be adaptable? How can we refocus the content to apply to a specific context or relationship?

Do bodies really matter? Can we communicate and provide inputs and outputs when the physical body is gone? How can we connect with people after their physical life ends?
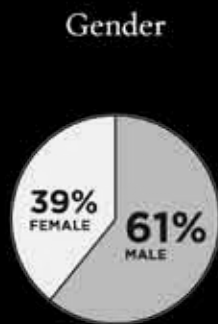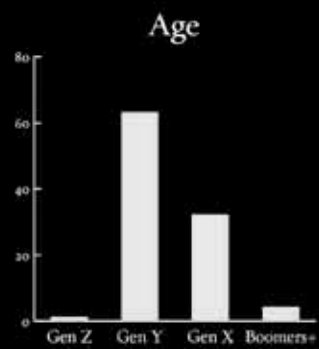
Reflecting forward, & generations...

"I want my children and people in the future to know that what is shown in social media and the digital world is not real.

They should remember me and see the real me, and the idealized me at the same time, so they can understand for themselves what is true."

- James G., USA
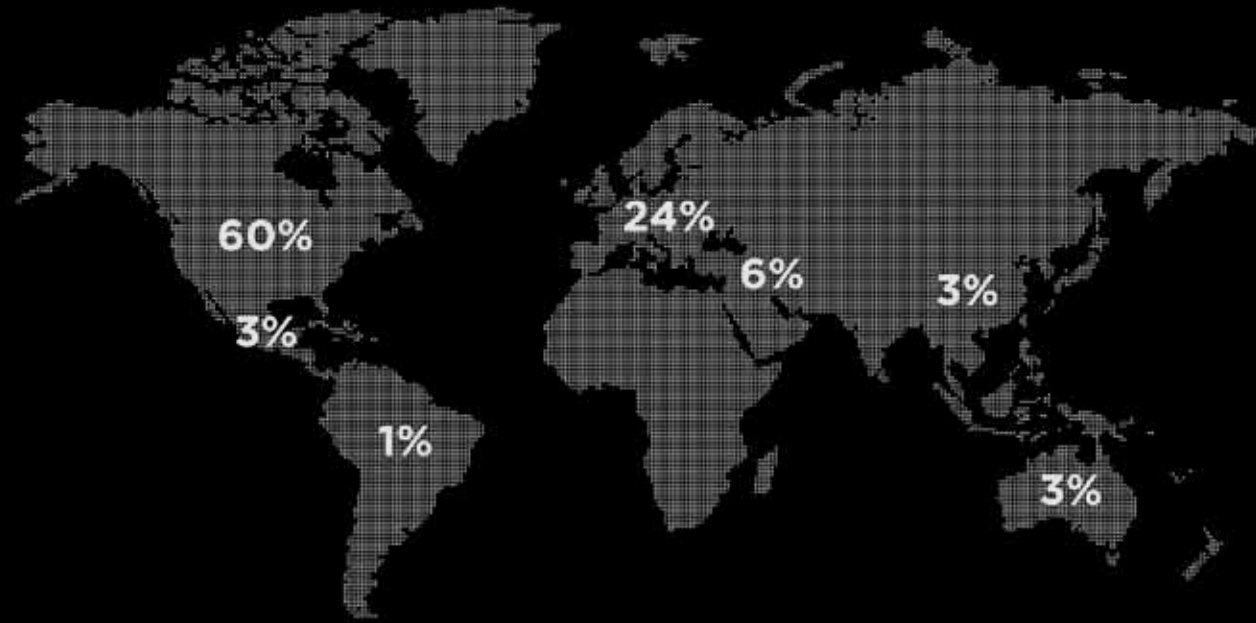
Participants from 22 countries across the world.

60%

24%

6%

3%

3%

1%

3%

Age

80
60
40
20
0

Gen Z   Gen Y   Gen X   Boomers+

Gender

39% FEMALE   61% MALE

Profession

■ Male
□ Female

80
60
40
20
0

Working   Student   Stay-at-home   Unemployed   Other

How long do you want to be remembered? **vs** When content should become public domain?

80
60
40
20
0

54% NEVER WANT CONTENT TO BECOME PUBLIC DOMAIN

43% WANT TO BE REMEMBERED FOREVER

□ Public Domain
■ Legacy

Never   1 Gen.   3 Gens.   5 Gens.
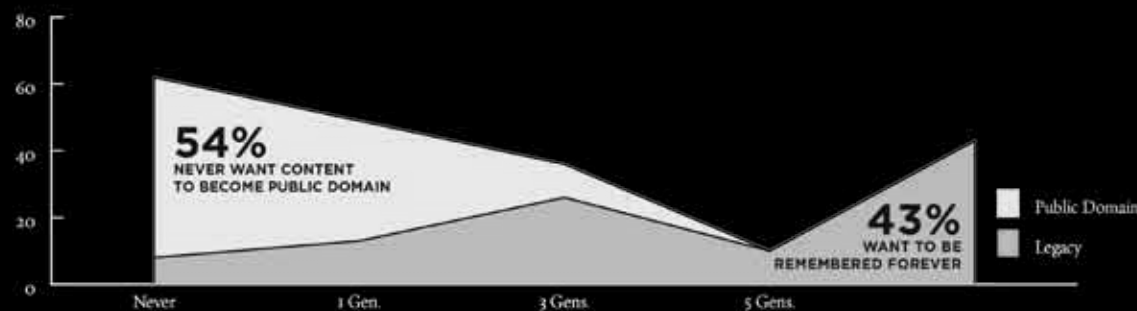
Survey Results

Opposite Page: Demographic overview of survey respondents.

[1]The results presented here are a summary from the second iteration of the original survey. The first survey iteration concluded with an additional 21 respondents and presented similar topical questions. Due to technical inaccuracies of compiling the data into the spreadsheet, that quantitative data has not been included here. In cases where the response was qualitative, those insights are considered to retain research integrity and may be included in some inferences.

[2]Quantified survey responses and data graphs are available in Appendix III on page 81.

[3]Survey questions are available in Appendix IV, on page 91.

The survey had a total of 115 respondents and incorporated quantitative and qualitative questions. Input methods were via radial button selection, multiple check box selection, and free text entry. Questions included general demographics and six subsections (traditional mementos, digital mementos, digital will, your legacy, the dead, digital archives) totalling 31 questions with the option for feedback at the end.[1]

Survey Conclusions

Based on survey responses, these are the main conclusions from the survey regarding mementos (traditional and digital), post-mortem management of content, legacies, and digital archives.[2,3]

Regarding mementos, people organize and manage them to the same degree, regardless if they are digital or traditional (i.e. using one, two, or three types of tools). People keep traditional mementos because they are valuable predominantly for themselves, where digital mementos are considered to have more value for others.

Further, traditional mementos are rarely handled and often forgotten about compared to digital mementos which are
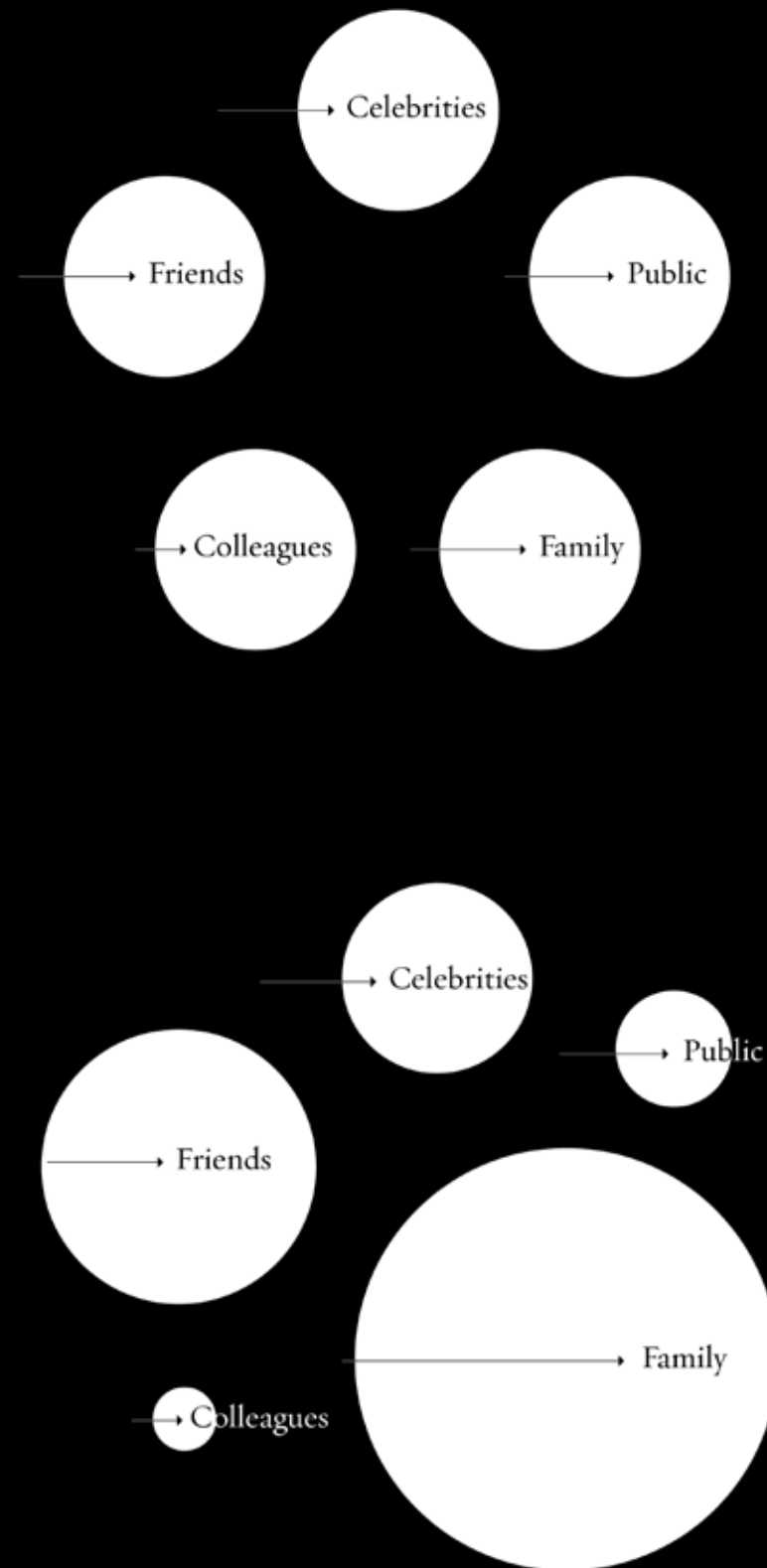
Top: Type of digital archives respondents would want to access after death, grouped by relationship.

Bottom: Value of digital archives for specific types of relationships after death. Responses were weighted by frequency / emphasis of the answer.

more frequently accessed. Traditional mementos tend to be solely viewed by the owner compared to digital mementos that have a much broader audience.

Over 90% of ppl want to be remembered after they die
Most of them forever...

To continue, people want to manage content after they die, more than they want to own it. Yet, they still want family to be the primary owners / managers of the content post-life. Also, people are more comfortable having more owners and less managers for their digital content after death.

In terms of legacies, the majority of people want to be remembered forever, yet never want their digital archive to become part of the public domain. People want to be remembered in a positive manner (i.e. happy, loving, and true-to-life). Almost all people do not want the original service provider to own or manage their content after death.

Depending on the type of relationship, respondents felt that their future digital self would be relationship-specific (i.e. subjective memories and content for close relationships and objective for far relationships). Also, people do not necessarily view a loved ones digital archive as being a separate entity from their own, because so many of the memories and content would be derived from a shared experience.

Memories are valuable because they are shared
As a result, archives are not seen as being separate...

After death, people would want to access archives in order of family members (whether close or extended), friends, celebrities, the public, and colleagues. The reasons people would want to access digital archives for the deceased include: to satisfy emotional needs, to discover more about the individual who has died, to learn more about themselves, or to fulfill an obligation or duty to them.

Problem Analysis

Traditional Mementos

Traditional mementos are often just meaningful to the person that owns them and they likely do not even remember the last time they handled them. Comparatively, many people want to be remembered long after their death so the paradigm of coveting personal objects as a method to retain a legacy to pass on to others is not effective. The meaning and value of traditional mementos can easily be lost to the next sequence of receivers.

Digital Mementos

We are amassing gigabytes of photos, videos, and email. We struggle to parse meaningful content at relevant times from the collections. Web services like Flickr, or software applications like iPhoto add some clarity with organizational methods like date stamping or tagging. Facebook's implementation of the Timeline also helps us reflect on shared moments based on years of our lives. Yet, why is a date, keyword tag, or year relevant after we die? Does this metadata add value to our digital legacy when people want to access it later?

The Archive

The digital archive is a collection of all digital content that the person owned including the digital photos, video, audio, email, tweets, and text messages from that one person. However, the lines between digital archives are not so distinct. Typically, digital media is shared with others. Our milestone moments and memories have value because we experience them with people. Consider the shared mementos between a family, or tight network of friends. The digital archive of someone who has died in that context is viewed less as 'theirs' and more as 'ours'.

Ownership

We accept a broader ownership of digital content as we tag our friends, and they tag us, and we each share the same content independently through different outlets. With so many channels available to access and share digital content, and so much of our time now being dedicated in the digital realm, there is a larger audience available that is unparalleled by our traditional mementos. There is greater opportunity to reflect our digital selves forward to be remembered by future generations and, more importantly, to provide value for them via our digital archives for a longer period of time.

Everlasting Presence

As traces of our digital selves persist after we die, there is opportunity leverage digital media so our lives can continue to be meaningful for our loved ones. We can retain relationships with people we care about and make our life experiences available for their benefit. In essence, we can persist digitally to some degree after physical death.

Current platforms that exist have not been built for the functionality of post-life content management. Facebook's Memorial pages are static archives in an active public platform that do not address the sensitivities of specific relationships. The Timeline organization of content is practical for our own self reflection in life, however, as a digital archive it does not provide direct value for others.

Remembering the Dead

One of the biggest challenges with digital immortality is retaining relevancy of our digital content over time so our lives can be valuable and meaningful to future generations. In the period immediately after death, family and friends mourn and go through the grieving process. After acceptance of the death, the person is remembered by those surviving via memories and mementos. If the person was known first hand in life, triggers such as a place, date, or smell can recall shared moments. However, what happens generations after the death of someone when those people that knew them in life also pass away? How can someone who has been dead for a long time retain a legacy in digital content that will have meaning to future generations?

Activating Archives

Now we have the opportunity to leverage qualities of digital content to support different types of relationships into the future. With the copious amounts of data being collected and shared about our personal lives, there is opportunity to

stay connected in new ways after death. Algorithms based on personality and character traits can auto-post on someone's behalf—as seen in the new online service 'LivesOn' that will tweet for you beyond the grave. Similarly, services like 'Dead Social' and 'ifidie' allow users to send preplanned messages in social media after death.

Intersections of Life

Yet, not represented in the current suite of post-life digital services are the benefits of shared life experiences and commonalities across digital archives after death. Namely, the moment of overlap between someone's life and a digital moment from someone who is dead can be valuable in different contexts.

Connections provide a new perspective on existing commonalities (i.e. life events) that bridge time and generations.

These corresponding life experiences can be available from the archive of those that have died to provide a new basis for empathy throughout life phases of the living that the deceased can contribute to. This provides an opportunity to discover new perspectives on people you thought you already knew, or new commonalities with a relative you never knew in life. Commonalities and shared experiences are timeless. They retain value in new ways to different people, for different reasons, at different moments.

Subjective vs. Objective Relationships

Because we have various degrees of relationships with people, we often want to share and remember people in different ways based on how we knew them. Also, the type and amount of information we will want to share will depend on how close we are to them. Thus, using public platforms to serve the purpose of many degrees of relationships is not appropriate. It does not satisfy the specificity of personal relationships, and imposes moments in the public sphere that would likely not be expected and potentially not desired as well.

Conclusions

With new outlets for connecting to a larger audience, and with traces of ourselves that are left behind in digital media, it is more important than ever to consider aspects of ownership, longevity, and relevancy over time of our legacy after death. Different from past traditions, the future of digital content management allows us to preplan and augment our digital archive to remain connected with loved ones and individuals in our social network long after we die.

Through my research, I believe current existing platforms do not leverage digital media adequately for post-life legacy in an active contextual way, nor does it support the needs of those close to us as a platform for communication and memory in our physical absence. I believe the lines between individual digital archives are blurred and there is opportunity for our life to retain relevance far after we die by leveraging the value of commonalities across our digital archives.

Through shared memories and availability of empathetic experiences, our lives can have meaning over time via the rich digital content that aggregates throughout our lives. There is a new opportunity presented to us that did not exist before with traditional mementos. Fortunately, we are in control and will get to decide what it means to command our post-life digital selves—should we choose to.

In summation, based on my primary and secondary research, there is a unique opportunity and challenge to consider how we might leverage digital content to retain a legacy that reaches far beyond our death and those that knew us in life. In the next section, I will present the evolution and development of a design solution that addresses this provocation.

Contributions, family values, & accomplishments...
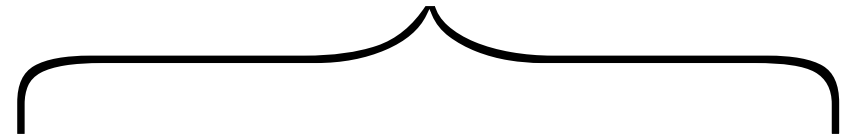
MARCH

EARLY CONCEPTS
TESTING DISTINCTIVE QUALITIES

Opposite Page: Early concepts selected for initial tangible concept testing in the first week of March. Photos are of Charlie Chaplin at various stages in his life.

Throughout the research and synthesis phase many ideas, and bits of ideas were captured. Some more ghostly, conceptual, or akin to metaphors we already employ as legacy devices. These included:

Reverse Reflections, Family Runes, Continuous Capsule, Growing Shadow, Legacy Book, Delayed Post, Eye of the Beholder, Goggles Gone By, Walk in the Shoes, Fading frame, IOU's (Coupon Book), and Card Collections.

Knowing early on that tangibility could serve as a valuable part of this design solution, the first concept testing focused on physical designs, followed by a digital approach.

Tangible Testing

Of the early tangible ideas, five were selected to combine and develop further to test distinctive features:

Legacy Book, Fading Frame, Life Cards, IOU Tokens, and Soul Stroll.

These tangible concepts were tested online with a series of quantitative survey questions and in person with guided and open-ended qualitative interviews. The combined results of this process are presented after each concept description.

Every day a new concept was presented on the Memorality website with a brief description and a sequence of three sketch scenarios to help convey context and use cases. Concepts were presented in order of metaphorical comfort, starting with the Legacy Book having a similar mental model of a photo album.[1]

Concepts were evaluated on ten different points including:

Likability, frequency of use, share-ability, emotional connection, grieving aid, content control, relevancy over time, shared ownership, archive perception, and archive longevity.

Legacy Book

CONCEPT: You receive a book of family legacy and lineage with custom content specific to the relationship and commonalities shared with the deceased. Different types of digital content are available depending on the scope of their digital archive and shared moments unique to your relationship. Access the shared memories and digital mementos by placing a smart device over their photo to have a 'window' into the moment. Compare Legacy Books with others to learn more about the deceased person and see a unique point of view you may never have known before.
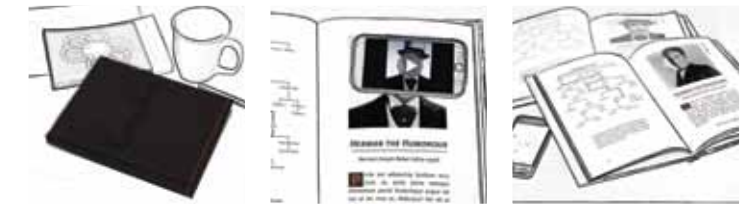
USE: Review and reflect on shared moments at your convenience. Activate the digital memento by placing a smart device on the page. Combine Legacy Books to see the same person from a new perspective.

FEEDBACK: The Legacy Book concept was generally the most liked of all, and rated highly with the metrics. Mainly, respondents felt they would be in control of the content, and felt a strong sense of shared ownership of the content with this concept. Also, people felt a person's legacy could live on forever and they would feel comfortable sharing the Legacy book with other people.

Fading Frame

CONCEPT: A framed photo hanging on a wall captures the person as you remember them best, and is responsive to the frequency you access shared digital mementos. When you visit shared memories with the deceased, they are fresh in your mind and the silhouette remains crisp. As days pass and you do not access their digital archive, their image becomes faded. Shared moments will begin to fade away until they are eventually gone forever. The frequency of visiting shared moments may also be dynamic to life events. The person's digital archive may require a higher frequency of visits during a period of mourning or special occasion.

USE: Last viewed in 7 days: The memory of the person is fully preserved. Last viewed in 45 days: The integrity of the content weakens. Last viewed in 63 days: The content begins to fade away.

FEEDBACK: This concept promoted a sense of shared ownership and respondents felt that the deceased's archive in the Fading Frame was adaptive. Most people felt they would feel closer to the deceased with this concept. However, they did not feel they would use the Fading Frame frequently, nor did they feel it would help them grieve. Also, respondents commented that feelings of guilt and obligation are associated with this concept as the interaction and maintenance of the relationship would be mandated and less optional.

Life Cards

CONCEPT: A series of cards embody the unique relationship you have with the person who has passed on. Each card is a visual snapshot from the person's life and enables you to access the related digital memento by placing it on a smart device. Moments captured in each card pertain to life experiences that the deceased can share with you to impart

wisdom, or a point of self reflection that is meaningful to you right now. You can share the personalized cards and mementos with family or friends to access a larger view and perspective of that person.

USE: Review and reflect on commonalities presented on the cards before accessing the memento. Activate the digital memento associated to that card by tapping it to a smart device. Share moments and new understandings of the person with others.

FEEDBACK: Overall the Life Cards were well received. People felt they would be in control of shared memories with the deceased, and had a strong sense of shared ownership. People felt they could easily share them with others and that the deceased's legacy could live on forever. They also felt like they would be closer to the deceased by using the Life Cards. However, they did not feel they would use them very often, nor would they help with the grieving process.

FEEDBACK: There was a mixed response with this concept, half liking, half not liking it. Overall, people felt they would be in control of shared memories with the IOU tokens, and would be comfortable sharing them with others. They felt the person's archive was adaptable, however, they did not feel they would use them often, or that the person's archive could last forever with the IOU Tokens.

IOU Tokens

CONCEPT: Here are 14 tokens to access mementos in order based on the digital age since physical death. Detach the tokens to access 'Private' or 'Shared Moments'. For example, the 'Private Moment' (2/14) allows you to leave audio messages for the person who has passed on. Icons on the tokens denote the digital media that is accessible with a smart device. Some tokens may have an ideal window of time for viewing the content relative to a birthday, or life milestone. Other 'Shared Moment' tokens may intentionally be social, requiring another person to be present to activate the memento.

USE: Detach token to activate this 'Private Memento' and leave audio messages for the deceased. Use a smart device to access the digital memento via an embedded chip in the token. Some tokens are 'Shared Moments' requiring more than one person to gain access.

Soul Stroll

CONCEPT: Go for a stroll and 'tune' into the digital mementos of people important to you who have passed away. They are available at specific locations that were significant to the deceased, and will be relevant to your current life phase and your relationship to them. Tune the device to navigate all available mementos to learn more about the person who has died. Rest your smart phone on the device to amplify the signal and access any visual content associated with the memento. Combine devices to filter mementos even further. For example, if your parent places their device next to yours, only shared mementos or commonalities relevant between your parent, you, and the deceased family member will be available (see next page).

USE: Navigate through the digital mementos connected to that location. Place your smart phone on top to amplify the signal and access the memento. Combine devices to tune into mementos shared between multiple people.

FEEDBACK: This concept was well received and people felt a strong sense of shared ownership and that they would be comfortable sharing their Soul Stroll device with others. Also, they felt it would help them feel closer to the deceased and the digital archive could potentially persist forever.

Tangible Results & Conclusions

The Legacy Book, Life Cards, and Soul Stroll were the most well received of the five concepts presented. Respondents felt the Legacy Book, the Life Cards, and the Soul Stroll would maintain relevancy over time and help them at different stages of their lives. Also, the same three concepts were highest rated for longevity, helping with the emotional connection, and expected to be used the most often of all five concepts. The Legacy book was the overall favourite.

With all of the concepts the digital archive was perceived as adaptive, not static. The Fading Frame was the only concept not perceived as being sharable or social. The IOU Tokens is the only concept to not help the person feel closer to the deceased. The Fading Frame and the Life Cards were perceived as not likely to help in the grieving process. People felt the least amount of control over digital content with the Fading Frame and the Soul Stroll concepts. People felt shared ownership of the digital content with all of the concepts, except the IOU Tokens. People did not expect to use any of the concepts very frequently and there were tensions with bereavement and the use of these tangible concepts.

Stages of Digital Afterlife

After reflecting on the results of the first tangible concepts and the tensions arising around when or how they might be used, and what that meant relative to the recent loss of a loved one, more time was spent resolving on the digital afterlife and what that meant for those left behind. Specifically, emotions and needs vary greatly shortly after the period of death, compared to when a person has been deceased for long period of time.

In summation, we can think about the stages of digital afterlife consisting of three subsections:

Missed, Remembered, Forgotten
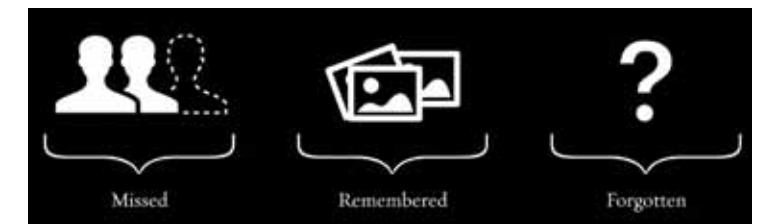
MISSED *(Bereavement & Content Management)*

The period of bereavement and digital asset management. When somebody passes away, those close to them are reconciling the emotional loss, and handling the deceased's final affairs. This phase includes the period of mourning and the management of digital assets (i.e. closing accounts, & transferring information).

REMEMBERED *(Rituals & Triggers)*

The period after bereavement until those surviving also die. After all of the affairs are in order, the deceased is remembered throughout day-to-day activities by those that knew them in life. This includes various triggers like tangible mementos (i.e. photos, gravestone), digital mementos (i.e. photos, digital memorial site, social platforms), the external environment (location, smells, sounds, sights), dates (i.e. birthdays, holidays).

Forgotten (*Long Dead*)

The period when no one remains alive that knew you when you were alive. Approximately two generations after death, both the online and offline identity of the deceased lack context and they have not been curated in years. At this point there is no direct connection to the deceased and the value of their life can not be subjectively reflected forward to future generations.

After comparing the time line of the afterlife of being dead for a short time (Missed & Remembered) to being dead for a long time (Forgotten), with the existing suite of services and activity in this topic area, it made sense to further narrow the scope of this thesis project to the period of being long dead. Thus, in order to connect and relate with people from the long past, those people would never have the opportunity to meet and life and face unique challenges.

How to be Unforgotten?
› Connect with people we never knew in life.
› Reach a broad audience (i.e. family, famous, public)
› Stay relevant and relate to people over time
› Connect with the right people in the right way—repeat

Images: Array of images encompassing the two visual aesthetic approaches, connections & celestial bodies, that guided the initial digital user interface designs.

Visual Metaphors

To find the essence of a design solution for connecting with people from the past that could transcend time and generations two visual metaphors were explored which ultimately lead to the final design solution. These were connections and celestial bodies, respectively.

First, connections were quite literal in the attempt to capture visually and communicate back to users what it would mean to connect with people from the past. This was expressed either as a junction point, or the space between the connections. Secondarily, solar systems and orbital patterns of celestial planetary bodies were the other source of visual inspiration of the design solution. The outer-worldly qualities of this approach were appropriate because they are viewed as ethereal with an existence that seemingly transcends time and generations.
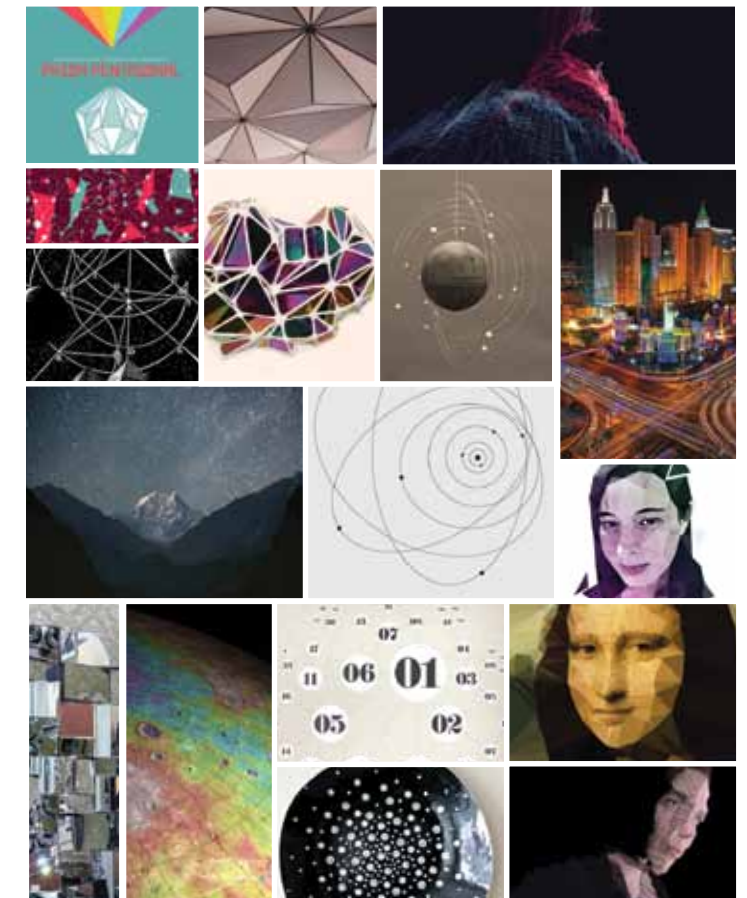
April

Left: *Screen crop from tablet of digital user interface testing where the user can connect existing digital services or upload their own digital content.*

Right: *Overview of digital content that the user has connected from other digital services or uploaded. The system provides feedback on the integrity of the content based on the quality of metadata available.*

Bottom: *Main portion of the digital concept that shows connections made with deceased people. Connections are based on shared moments of life events captured in digital media. Glimpses of media are displayed between the points of connection and are prioritized by the quality and type of media (i.e. video & photos).*
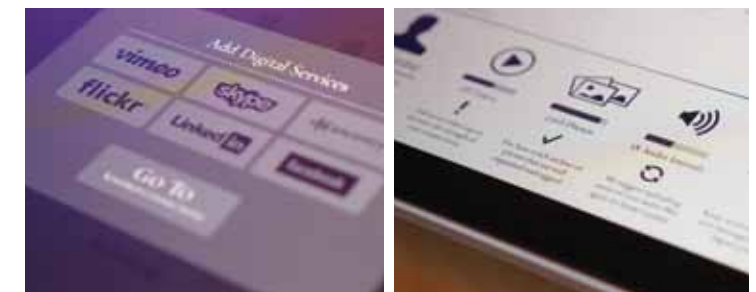
Digital Concept

Insights and results from the tangible testing lead to the second phase of testing a digital user interface based on connections with people from the past.

The result was a sequence of key frames to capture the core interactions of connecting people living today with deceased from generations in the past. The connections were based around the idea of shared moments in our lives (i.e. birth of a child) that could address these use cases:

› Automatically in day-to-day activities *(date, event, place)*
› On-Demand *(times of need, entertainment)*
› Forwarded by a peer *(general interest, sharing fun facts)*

For first time use, digital services or personal content is connected or uploaded. Next, the digital media is evaluated by the system to convey the integrity of the archive based on the potential of rich and meaningful connections with others. Content is rated based on various metadata measures like: People tagging, geolocation, keyword tagging, and date stamping.

The intent is that content from the digital archive of the user
is paired with metadata to promote connections and high-
light moments where our lives intersect. The core of the user
interface (UI) is a vertical scrolling time line of connections
where the digital content is highlighted as a glimpse into the
moment. As a life event can be connected to many people,
in this example, priority is given by type of relationship (i.e.
family before strangers). The user is then able to access the
digital content from those people in the past to reflect on
their own life and learn more about those that came before.

When accessing the digital content associated with the
connection, information is prioritized based on the type
of connection, who the connection is with, metadata about
how the connection is relevant, and also other people that
you share a similar connection with. In the example images
shown above, the user is embarking on a new photography
career and is connecting with people from the past who had
a similar transition at a similar time in their life.

In lieu of creating additional test screens, the celestial body
visual metaphor was tested using the iPad app Planetary. In
the application, each planet represents an artist, and orbit-
ing moons are songs. The existing application was used in
addition to a visual description of how it would also serve
the similar function to make connections with people from
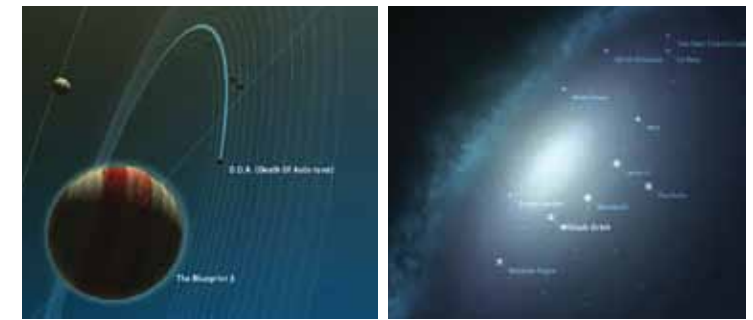
the past revolving around shared moments and alignments
from their lives. It was shown to people after the first digital
UI so they had a base understanding of the use case. Digital
concept testing was informally implemented at the SIDeR
conference in Denmark.

Digital UI Results & Conclusions

The digital interface that embodied visual elements of con-
necting and providing a 'glimpse' into a shared moment was
the most well received and easily understood. From testing,
it was clear that the name and photo of the person from the
past is not initially as important as the type of connection
because they were never known in life. People wanted to
know if they had connected with the deceased previously,
and how long ago the person they were connecting with died
to provide context.

Tangible vs. Digital Testing

The goal of early concept testing was to investigate quali-
ties of both tangible and digital approaches to get insights
toward developing the final concept solution. Insights from
testing proved that daily life already offers numerous triggers
for remembering, people are comfortable knowing memen-
tos are safe and thus are likely not to handle them frequently.
Also, the meaning and value of physical objects are not easily
reflected forward to future generations. Conversely, a digital
UI solution lacked a social component and was not person-
alized compared to physical objects.

As a result, tangibility with a digital UI were combined
for the final design solution to leverage the best qualities
of both. For example, a tangible component allows for a
unique and personalized element and provides additional

Images: Early exploration of the
tangible token as a navigation tool for
the connections, or life events, with
the deceased.

opportunity for sociability within the digital interface.
Conversely, the digital user interface allows a multitude of
connections with a broad audience that can continue far into
the future.

Pre-Final Concept

The results from early testing were combined to yield an
initial tablet application and tangible token to connect with
people from the past. It leveraged shared moments between
our digital archives and the lives of those that died at least
two generations before us—people we could not know in life.
Interactions are facilitated with a tangible token that serves
as a unique identifier for the user within the network of
archives and further assists as a navigation tool.

It utilizes rich metadata to provide the context for connec-
tions to be made between shared moments from our lives.
Connections are available with family members, famous
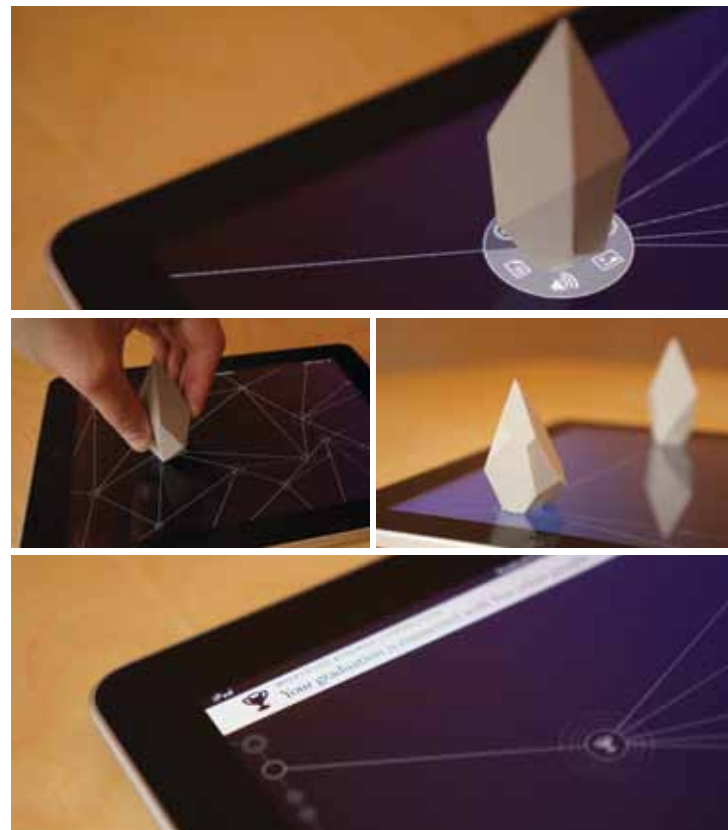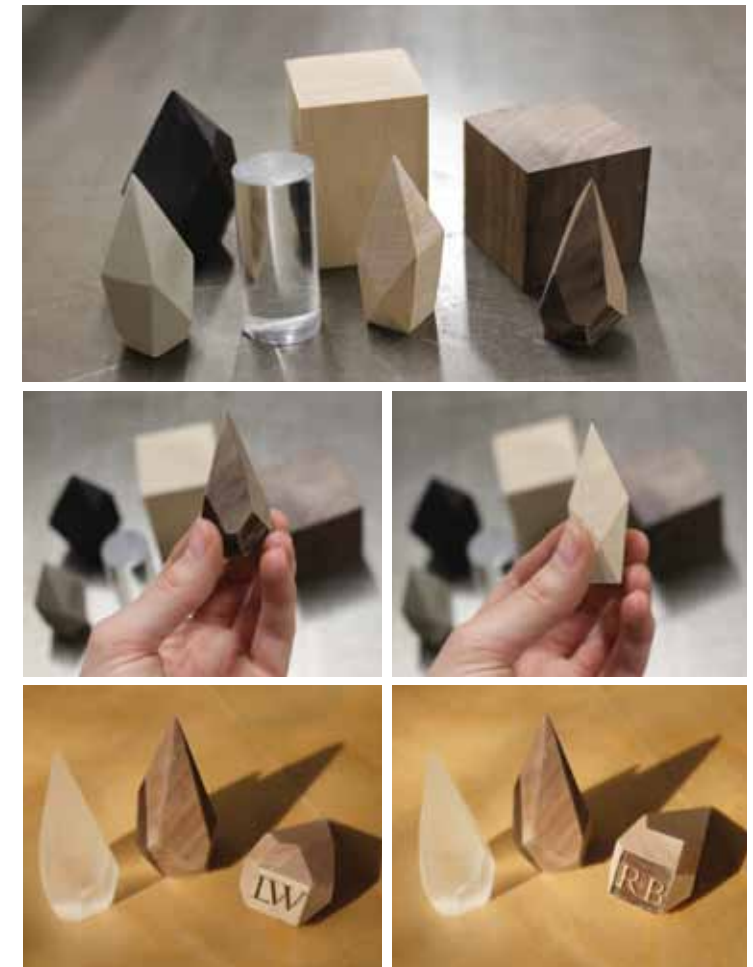
people, and the general public from the past and can include
various types of media (i.e. video, photos, text).

Regarding the tokens, consideration of shape, size, and ergo-
nomics were explored. Further, to identify individual tokens
amongst a group, monograms on the bottom of each token
were tested.

Final Concept
Tangible Meets Digital
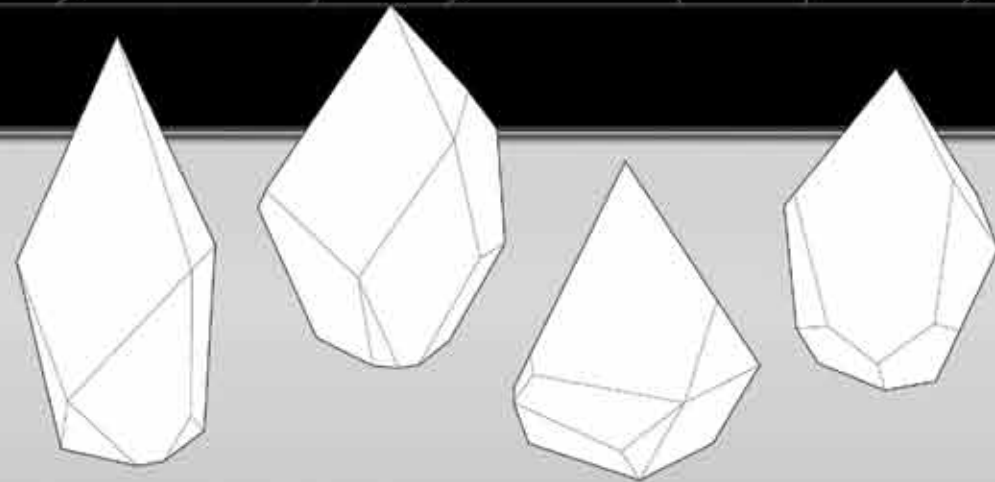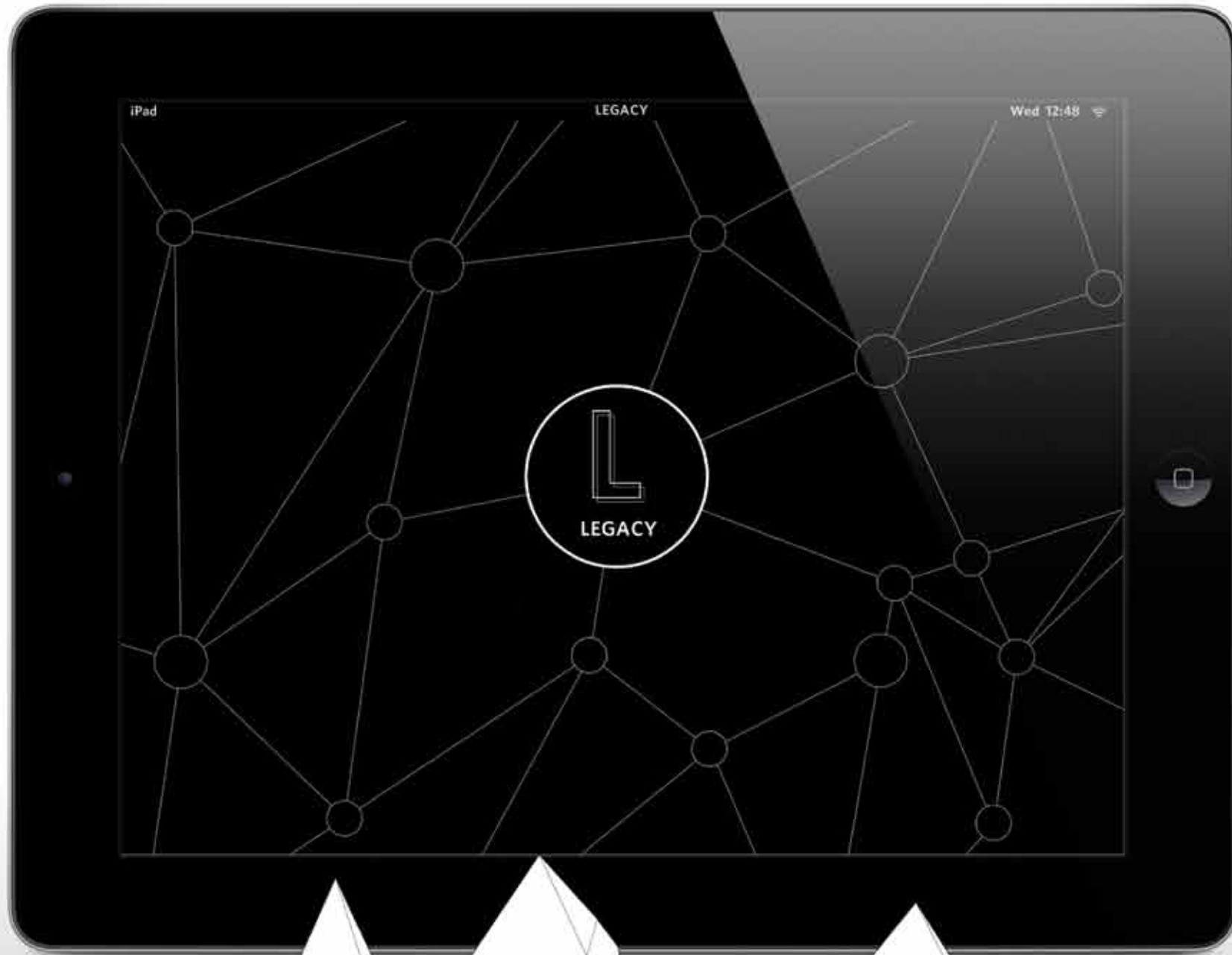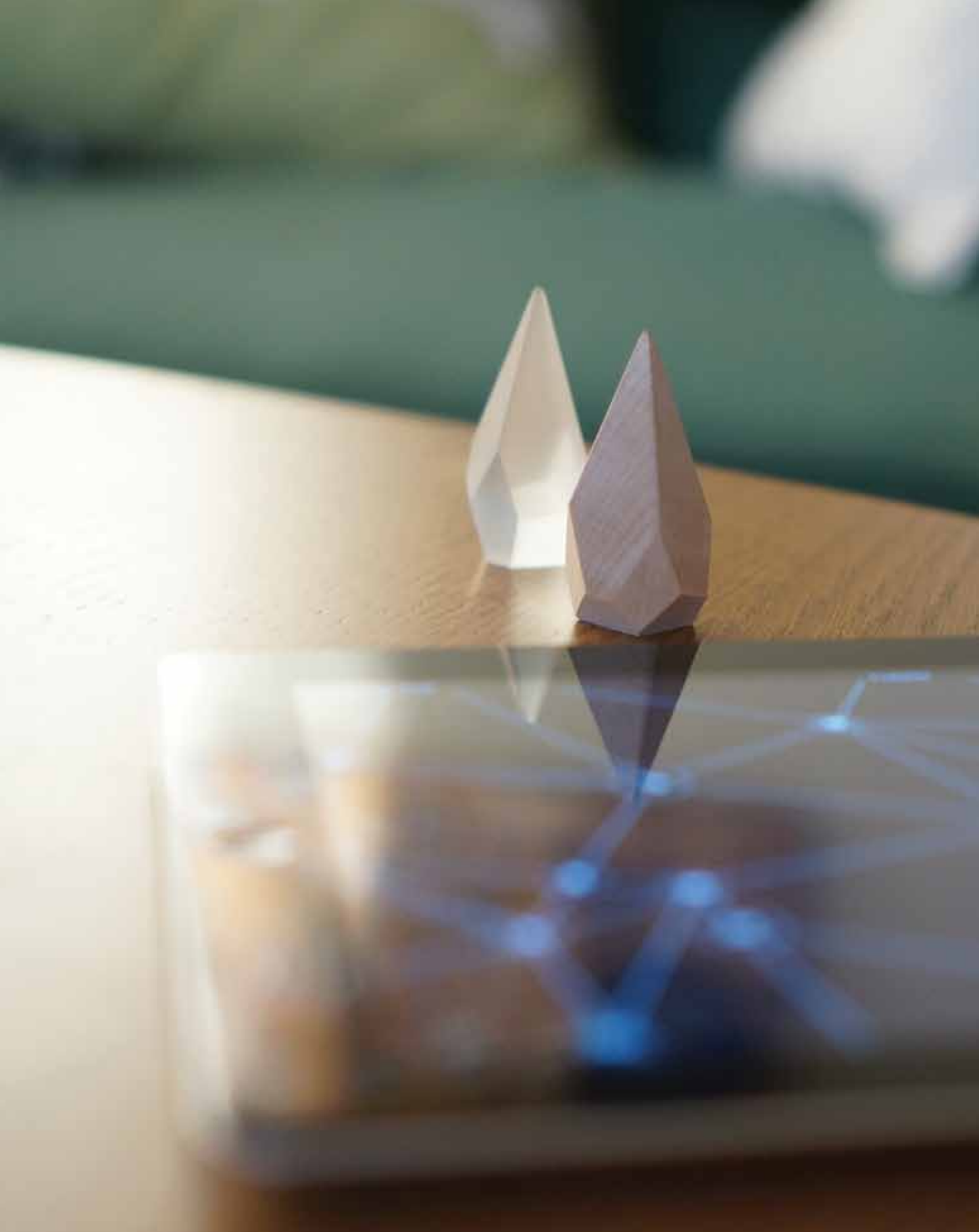
The final concept is a combination of the best elements and points of feedback from the first two rounds of testing with user feedback and incorporates a tangible token that is used in tandem with a tablet user interface.

The proposed design solution is a tablet user interface called Legacy. It reveals connections of shared moments, called kindred connections, between our digital archives and the lives of those that died at least two generations before us— people we could not know in life. Interactions are facilitated with a tangible token, called a connection key, that serves as a unique identifier within the network of archives and further assists for navigation.

The Legacy application leverages rich metadata to provide the context for connections to be made between shared moments from our lives and the deceased. Connections are available with family members, famous people, and the general public from the past and can include various types of media (i.e. video, photos, text). Further, a kindred connection with someone from the past can be recreated and saved as a tribute from today. Thus, the person who is connecting with the deceased is able to both contribute to the shared life event, and also have a more meaningful experience.

> **"** Moments in my life are more meaningful because they connect with people who have come before me, and will connect with those coming long after me.
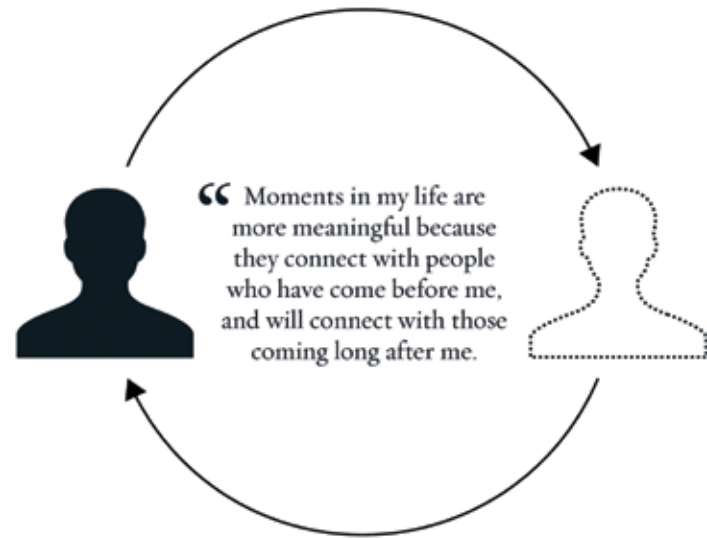
TRIBUTES

Kindred connections can be recreated as a tribute to honour the deceased. Essentially, a photo or video is emulated (i.e. with similar poses or props), embedded underneath the original media, and accessed via the tribute icon in the bottom left of the Legacy application. This tribute serves as a 'footprint' to show who has shared this life event in the past. The result is that even an old connection can evolve as people interact with the same moment over time. Although, tributes can be added directly from the Legacy application, the opportunity for a supplemental Tribute mobile application to extend the value of the Legacy application is recognized—yet not resolved in the scope of this project.

Your Archive { Opportunity for Connections } Deceased's Archive
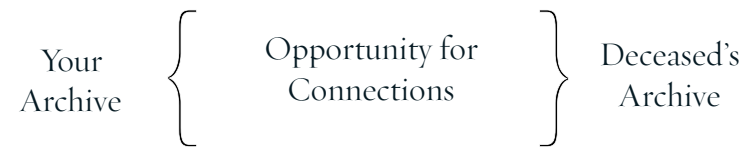
Kindred Connections

Kindred connections provide new channels to bring the living and deceased together across time and generations by leveraging existing commonalities from our digital lives. They are a point when the life events of two or more people are shared. The connec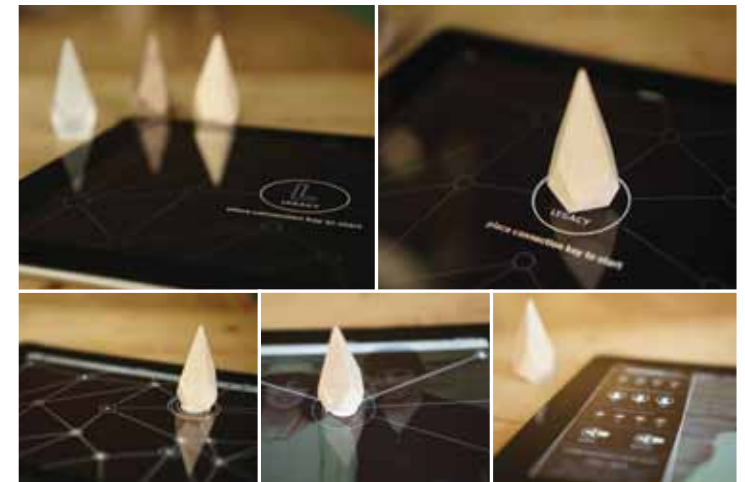tion is identified primarily by the type of shared moment, the people that share the related life event, and the associated media that can be accessed.

Images: Photos of the tangible token as a connection key to identify the user and enable connections with the digital archives of those deceased.

Metadata like people tagging, geolocation, keyword tagging, and date stamping provide context to the life events and facilitate kindred connections. Types of life events for the connections vary and can include unique life milestones, reoccurring life events, or serendipitous day-to-day activities.

Below is an overview of relationship, connection, and media categories of the Legacy application:

RELATIONSHIP	CONNECTIONS	MEDIA
Family Members	Heart + Home	Video
Famous People	Career + Education	Photos
General Public	Health + Wellness	Audio
	Travel + Experience	Text

System Design Overview

When using the Legacy application the first time, the person is prompted to connect existing digital services or upload digital content to create a personal digital archive. For example, Facebook, Ancestry.com, Instagram, or Youtube would provide rich sources for digital media and metadata. Next, the digital media is evaluated by the system to convey the integrity of metadata to provide adequate context for future meaningful connections with others.

Various types of digital media are supported and are value-weighted based on visceral qualities. For example, video would be considered more informative and emotionally rich than text. As the core of this proposed UI solution is about the point of connection, this design solution remains flexible to adapt for future media types (i.e. quantified-self, biodata).

The design of this user interface flows from a web of life events (free form) into the connection (time line) and associated digital media. Although, there are implications of permission and privacy restrictions, it is hypothetically possible to infinitely explore archives for those connecting people, to see who they are connecting with.

Free form

The user can see their life events connected in a web as a departure point to view a kindred connection. Also, this view allows the user to place additional connection keys next to the tablet to view shared connections between 2+ people. In this use case, one token is used as the connection key in the interface, while the other tokens passively act as additional filters for the life events.[1]
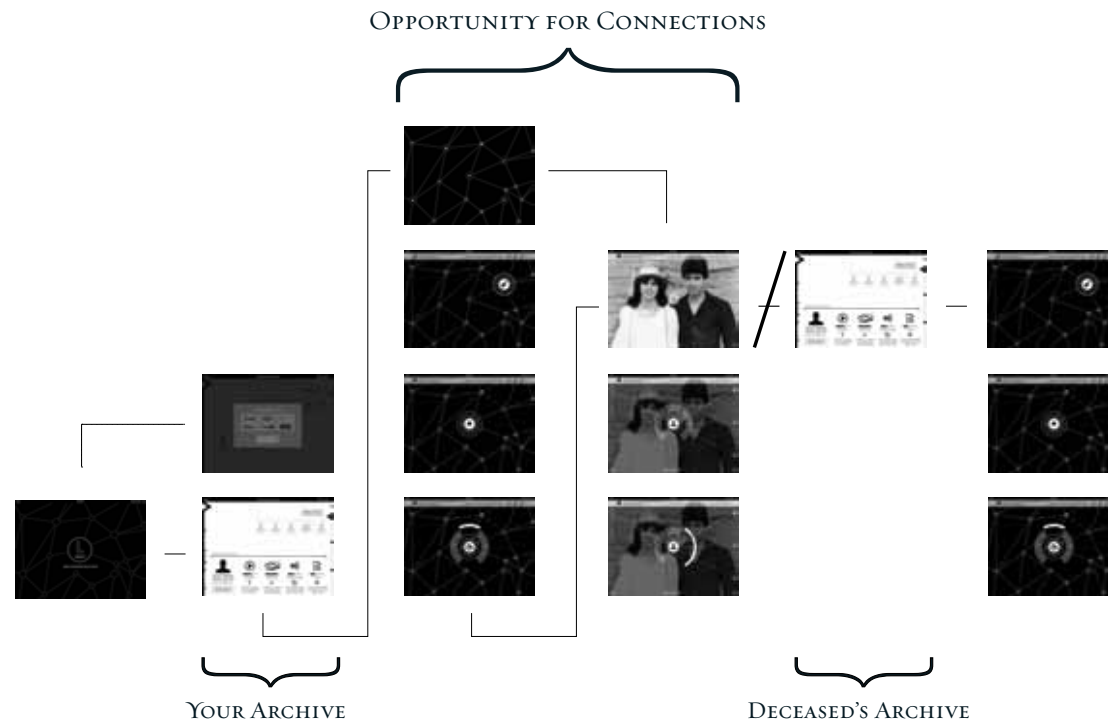
Time line

This view is intended for one person to have a clear overview their shared kindred connection, as well as any previous connections with the deceased on the left side. The structure of the Legacy application supports the user to navigate laterally from their digital archive to connect with the dead in the center, and then delve deeper from the point of connection to access details of the deceased's archive on the right side.[2]

Opportunity for Connections

Your Archive

Deceased's Archive

2"
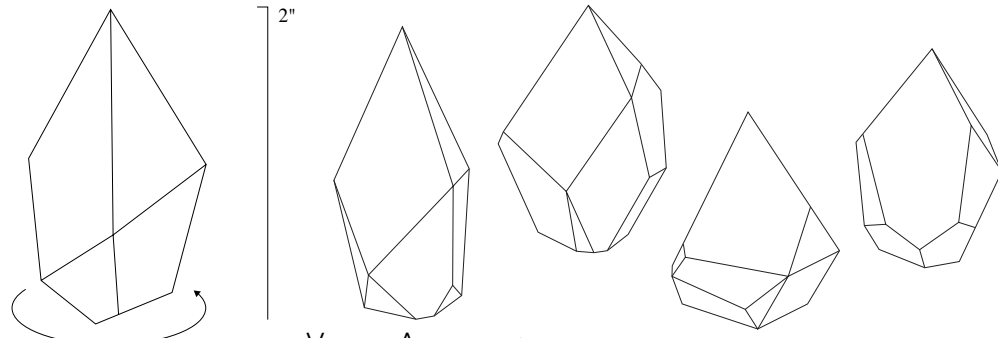
Visual Aesthetic

The final user interface is a derivative of the first two metaphors of intersections and celestial bodies. It attempts to use simple visual graphics to incorporate the essence of spirituality and connecting. The visual design is intended for ease of use, displaying only essential content as it is needed and highlights relevant elements when they are selected.

Connection Key

The tangible token serves as a connection key for the user within the digital archives of the dead. Each unique parametric design acts as personalized identifier for the user in the interface and serves as a point of connection with digital archives of the deceased. The polygonal form, inspired by the concept and visual aesthetic, is better suited than other shapes to provide a point of comparison with the digital archive of those deceased. Further, as the connection key is currently implemented on a standard tablet device, the multi-faceted object should be restricted proportionately to be less than or equal to 2"H x 1"W.

In terms of interaction with the screen, each token would house two magnets internally that communicate with the magnetometer, or compass sensor, inside the tablet. The token is also coated with a translucent conductive polymer. Magnets are preferred in addition due to their high accuracy, low latency, and ability to remain active in the absence of human conductivity.

Each magnet is uniquely identifiable solely by their magnetic properties and works in tandem with magnetometers embedded in most mobile devices. They can detect position relative to it's location on the interface and are beneficial to

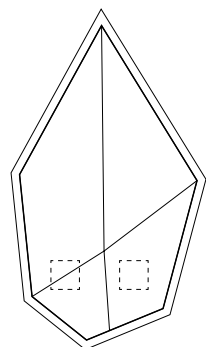[3] The use of magnets here is based on recent research by Andrea Bianchi presented at TEI 2013, Spain.

have an absolute orientation for accurate rotating interactions. Variations in magnetic field strength can be used to track relative motion and rotation and distinguish between multiple connection keys.[3]

The connection key interacts on the screen by sliding or rotation. The magnetic field of each connection key is recognized next to the tablet, on the tablet, or when holding the token on the screen to activate the conductive layer and navigate across the kindred connection (see below).
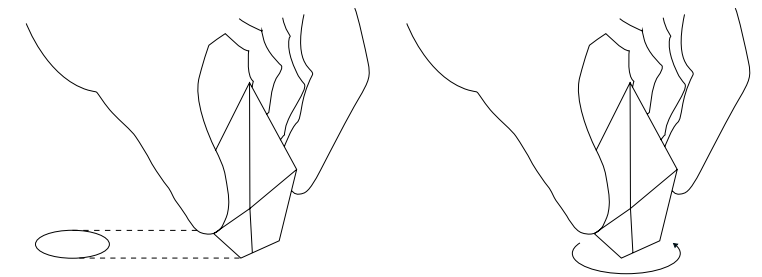
Material

Two material options for production have been selected based on primary research that provide slightly differing applications of use in the UI. First, the main connection key type is for the living user of the interface. Each of these tokens are wooden. The natural grain is personalized and will patina gracefully over time with the life of the user. Alternatively, a token as a unique identifier and point of connection to someone who is deceased to further filter shared life events can also be used. In that case, the material would be a frosted glass to embody the quality of physical death and persistence in solely a digital manner.
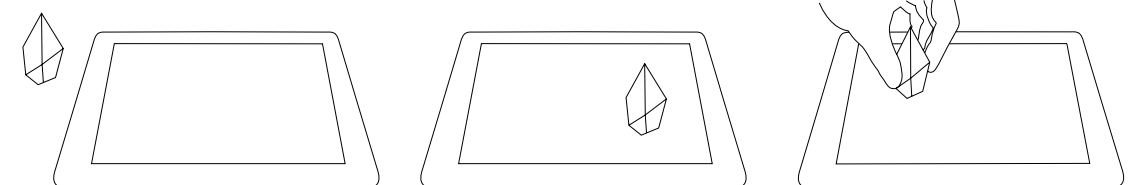
Life Event Icon
Denotes the type of life event in the Kindred Connection.

User Sidebar Menu
Access point for your Kindred Connection content, and an overview of all connection information.

Connection Timeline
Organization of life events for the kindred connections with the dead by the year they occured in your life.

Connection Tributes
The user can toggle from the kindred connection media to show any connection tributes that are available (i.e. recreated poses or actions based on the original content of the deceased).
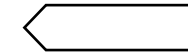
Context Tags
Keyword tags provide context for kindred connections. They are either system assigned or user-generated.

Deceased Sidebar Menu
Access point for the kindred connection details with the deceased, including media, keywords, and location.

Connecting Deceased
Deceased that share the kindred connection with the Legacy application user (i.e. relatives, famous people, or general public).

Thumbnail Overiew
Toggle between full screen view and thumbnails of the media associated within the kindred connection.

[4] *A more comprehensive video use case version can be viewed online at: www.vimeo.com/66781709*

Use Case

The following key images illustrate how a user can access the Legacy application and kindred connections with their connection key.[4]

Below you see the user placing the connection key on the screen to initiate access with the users identity. Next, the user enters the free form overview of their life events and selects the graduation kindred connection. An icon and keyword tags representing the kindred connection appear

[5] *Key screens from the Legacy inferface can be found in Appendix V, page 97.*
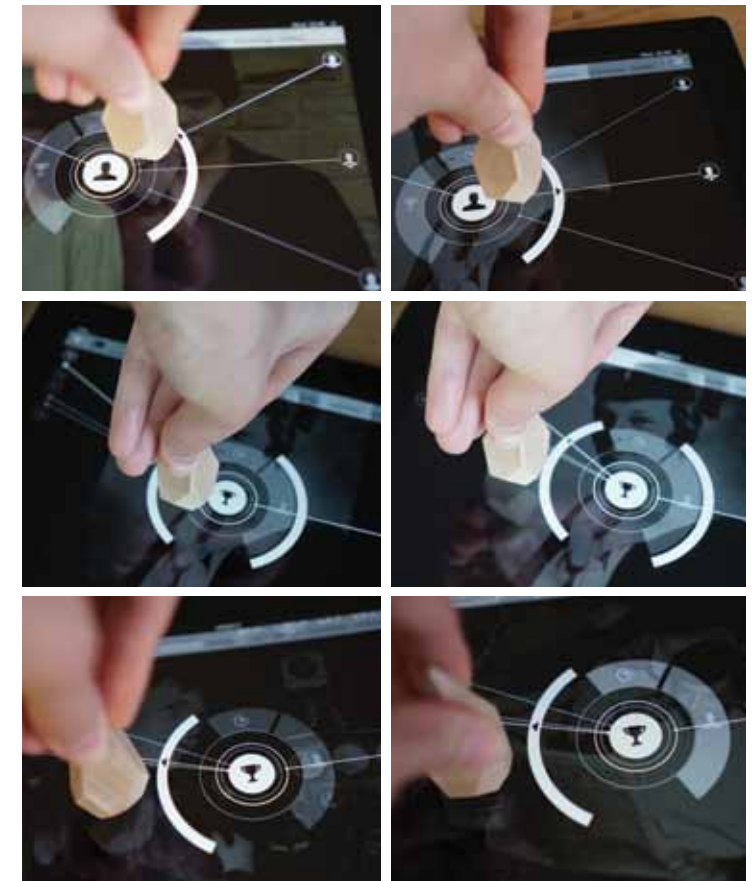
in the header bar. Then the user accesses the kindred connection media. Using the connection key, the user pivots to other people on the right side of the screen that share the life event. This happens by rotating the token. If they share any other kindred connections with the deceased, they are displayed in their corresponding time line on the left.

Finally, the user can serendipitously access other shared kindred connections with the deceased. This happens when the connection key is moved across the center of the menu to the left, and then rotated to select previous connections that are displayed in the time line on the left of the screen.[5]
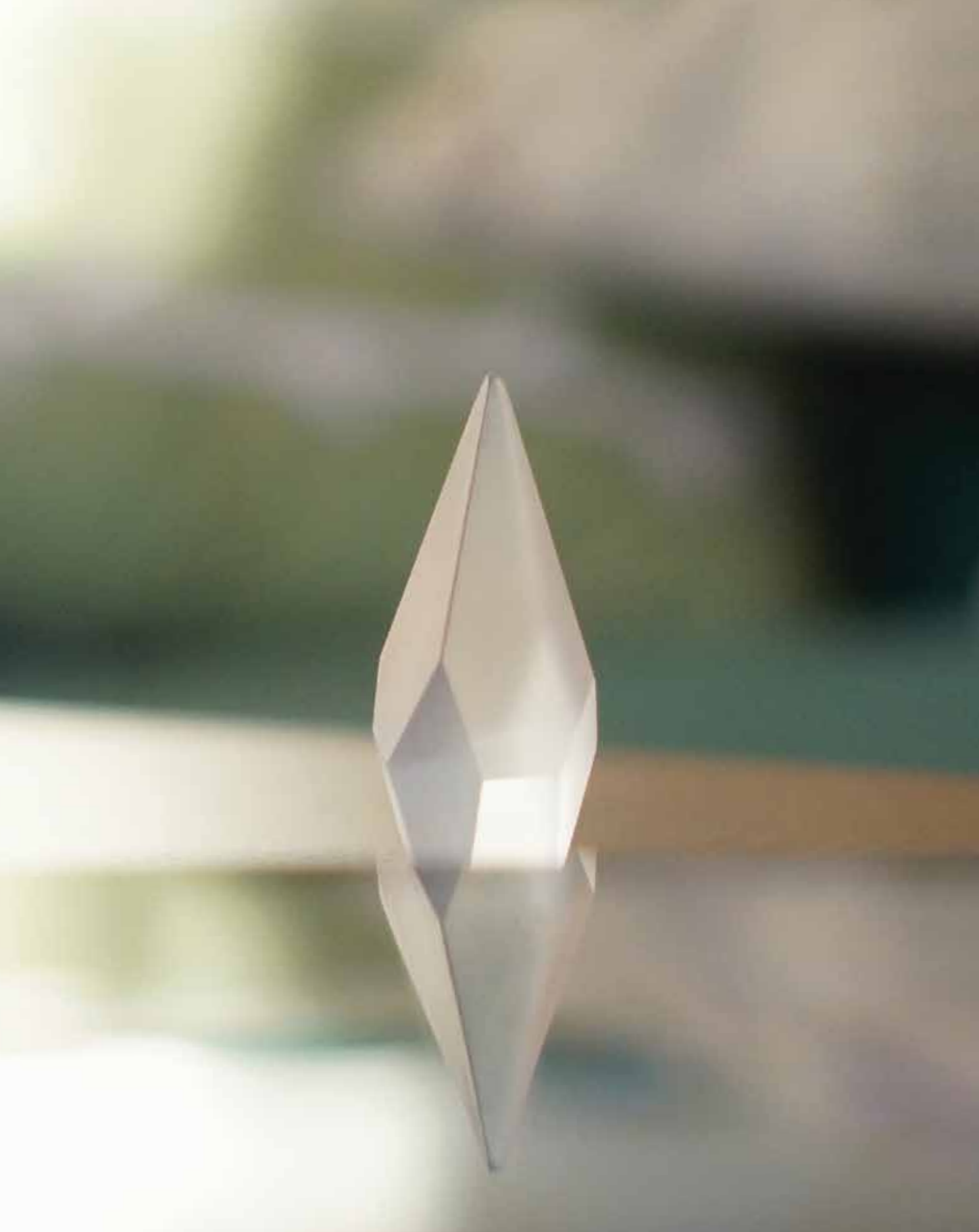
Reflections
Journey of the Mind

Reflections from this project include:

Presearching, The Design Process, Research Findings, Concept Relevancy, and the Project Goals.

Presearching

Looking back, starting presearch well in advance of the thesis kick-off was integral, as was the series of on-site primary research investigations. This topical space, although philosophically very large, has little existing material and research to rely on. To navigate and isolate a subsection of the topic was a reflective process in itself and could only properly manifest with adequate time. Only by reflection, and innumerous conversations with a variety of people, of various ages and backgrounds, was I able to focus so clearly on an area of digital afterlife and gain insights to creating the feasible design solution presented here.

The Design Process

It was valuable to have confidence in the design process and use the initial schedule as a guiding framework. For example, to think critically about what I was doing, why and when—and when in fact some design methods may not be needed to achieve the desired outcome. For example, early

in the research phase of the project I was preparing content for cultural probes. Initially, I felt they would be essential to 'go deep' into the personal lives of people for rich qualitative insights. However, after considering the goal of the probes I recognized the time / value trade-off would not be worth the effort and that equal data could be obtained via a rich online survey and supporting interviews.

Research Findings
In the process of talking to people and getting their feedback throughout the research and concept testing phases it was clear that there was a lot of apprehension around management and persistence of our digital lives after death.

The majority of people wanted to be remembered long after they died, but as soon as digital content became part of that legacy, there was much concern. Some respondents had anxiety and fear about how their content would be used, who would have access, and what type of digital content would be available. This extended to the point that instead of having an everlasting legacy, people would respond that they would want their digital content to be deleted immediately after death. This is an unfortunate reaction because there is so much value and experience generated and captured throughout a lifetime that could potentially inspire and guide a multitude of people into the future. Especially, with the use of digital media and relationship specific connections.

With further probing, respondents felt differently if they knew that only personal information would be available to family, and it was irrelevant if it was family they knew, or family members far into the future. In summation, it seems there is an intrinsic confidence and expectation that varies with the type of relationship. Although these apprehensions are well founded with the current state of digital asset management, post-life consideration is just beginning to emerge. I feel that if our digital selves can be relative to the relationship type, then the current anxiety that people have around post-life digital persistence and access to digital archives would greatly subside.

Concept Relevancy
With further reflection I consider how the Legacy concept solution is not intended to function for today. The foundation of the application assumes rich digital archives and media enabling connections with deceased people from at least two generations ago. Although, I believe we can easily fathom how this concept can work, and understand the value it can provide, it actually would not be applicable for our lives today. Only with the current digital generation are we creating the foundation for a concept like the proposed Legacy application to exist. I expect it would be at least two more generations, or about 50 years into the future, before the results presented here could really come to fruition and provide meaningful interactions.

Project Goals
In terms of fulfilling the initial goals of the project, I feel the solution I presented is valid and a clear product of the design process based on user-centered design. Although, the tangible UI Legacy application does address our future digital selves, I feel it also only addresses digital immortality indirectly. Of course, there is a portion of this design that is critical and allows people to connect and retain relevancy long after death. Yet, there remain many questions and qualities of immortality that were note explored. What qualifies as existence or presence after physical death? What is the definition of relationship and communication in this post-life context?

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Appendix I
Journey to the Topic

This thesis topic has emerged over the past three years from my travels, personal experiences, reflections, readings, and innumerable conversations. Below you can follow the journey to the research topic as it developed over time.

(Detailed overview of the time line on the following pages.)

Journey to the Topic - Part 1

2009

EXPERIENCE BARRIER: PUT DOWN THE CAMERA
Travel and be in the moment. Enjoy the experience but don't forget to capture the moment I haven't had yet—conundrum.

COLLECTING CONTENT: NOW WHAT?
Reflect on the amount of content aggregated. Where is it stored, what is the quality, how do I share it? And why am I keeping all of this again?

2010

DIGITAL IMMORTALITY: THE LIFE OF CONTENT
First encounter with this terminology. Lightbulb. I can empathize, but what are the implications? And what does it mean for me, and my network?

RECALL INITIATIVES: MICROSOFT MYLIFEBITS PROJECT
Reflect on the necessity of digital content management. What does it mean to effectively plan for a digital 'will'?

Journey to the Topic - Part 2

2011

OUR DIGITAL TWIN: SHERRY TURKLE
Get a new perspective around socializing and representing ourselves in a connected digital world from the book, Alone Together.

LOOKING BACK AT OURSELVES: FACEBOOK TIMELINE
Evolution over time of a record of ourselves. Yet 'time' is not symbiotic with digital content. Is there social pressure for the ideal?

2012

EXISTING RESEARCH: REFLECTIONS
Knowledge from existing journals and projects but they all address the past and present. What about the future?

FINDING FOCUS: UNCHARTED TERRITORY
Pre-research on memories and and honing in on the 'future of our digital selves'. Get excited and a little nervous. Establish next steps.

Appendix II
Thesis Questions (Finding Focus)

Started asking a lot of questions

Considered the aesthetics of the project

Made conversation tools

Thesis Questions

1. HOW MIGHT WE AGGREGATE DIGITAL CONTENT WITH THE PURPOSE OF SHARING?

Legacy Service: *What if there was a legacy service like Spotify to curate and navigate your own personal "playlist" of digital content to pass on to others?*

2. HOW MIGHT WE COMMAND THE LONGEVITY OF CONTENT?

Natural Selection: *What if digital content gains value over time as your social network interacts with them (likes, comments, reposting, viewing, etc.) and those that are bypassed fade over time and eventually cease to exist?*

3. HOW MIGHT WE MAINTAIN OR TRANSFER OWNERSHIP OF DIGITAL CONTENT?

Memory Lane: *What if you gradually acquire ownership when you frequently view digital content of a loved one who has passed on, and can access additional "metadata" as it unlocks over time?*

4. HOW MIGHT WE PASS ON OR TRANSFER OUR DIGITAL LEGACY?

Living Album: *What if all of your social media is printed into a physical book when you pass on that is augmented with NFC chips that trigger "metadata" when activated by a smart mobile device?*

5. HOW MIGHT WE PREPARE FOR OUR POST-LIFE DIGITAL LEGACY?

Living Moments: *What if we can allocate significant milestones and life phases within our personal time line of content that only emerge after we pass on to be intentional moments of reflection for loved ones when reviewing the content at a later date?*

6. HOW MIGHT WE BE STEWARDS FOR OUR INDEPENDENT POST-LIFE DIGITAL SELF?

Memory Developer: *What if we could imbue digital content with a personified layer that allows the memory or digital artifact to be remembered in a new and profound way?*
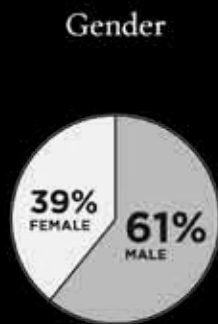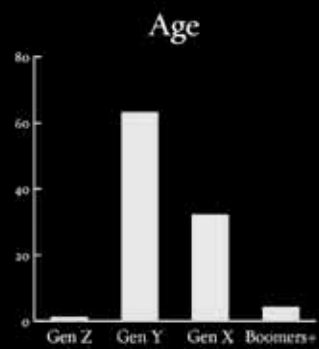
Participants from 22 countries across the world.

60%

24%

6%

3%

3%

1%

3%

Age

Gender

Profession

Male
Female

Gen Z Gen Y Gen X Boomers+

39% FEMALE   61% MALE

Working Student Stay-at-home Unemployed Other

How long do you want to be remembered? **VS** When content should become public domain?

54%
NEVER WANT CONTENT
TO BECOME PUBLIC DOMAIN

43%
WANT TO BE
REMEMBERED FOREVER

Public Domain
Legacy

Never   1 Gen.   3 Gens.   5 Gens.
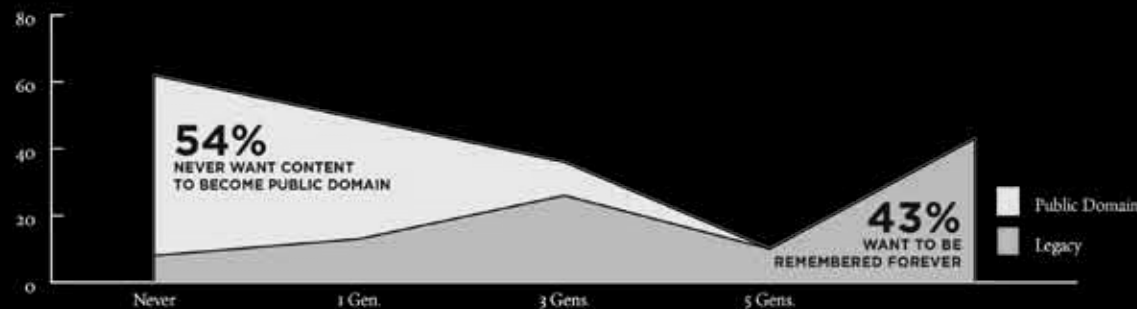
APPENDIX III
SURVEY FINDINGS & DETAILS

The survey had a total of 115 respondents and incorporated quantitative and qualitative questions. Input methods were via radial button selection, multiple check box selection, and free text entry. Questions included general demographics and six subsections (traditional mementos, digital mementos, digital will, your legacy, those gone, digital archives) totalling 31 questions with the option for feedback at the end.

The number of respondents were tabulated and the figures here are represented as a percentage of total respondents. Depending on the question, the number of total respondents may vary if for example, some people do not use traditional methods of memento organization but use digital methods, then their response would only be included in one sequence of those responses.

Out of the total number of participants of 115, an average of 3-5 responses to each question were compromised resulting in an approximate margin of error of 3.65%.

Keeping Mementos

Traditional mementos are currently organized using multiple methods. In order, the most common are: boxes (38%), albums (20%), drawers (16%), shoeboxes (14%), with not many using classic methods of filing cabinets (5%) or labels (1%). Not surprisingly, the majority of all respondents use traditional memento methods (94%), with only 6% saying they do not manage or organize their traditional mementos.

The majority of digital mementos (42%) are being organized and managed using personal storage devices (i.e. USB's or hard drives). In descending popularity, next is software (20%), then web services (16%), and cloud storage (14%). In this case, only 2% of all respondents replied that they do not currently use any digital management or organization tools.

In comparing the number of current memento methods used, they are relative, and 38% of respondents use one traditional method, with 42% using just one digital method. Overall, the majority of respondents use one to three methods.

Motivations for Keeping Them

Respondents have more reasons to keep digital mementos (59%) than traditional mementos (41%). The largest majority of respondents are motivated to keep mementos because they are valuable for themselves, specifically for traditional mementos (60%) and 45% for digital mementos. If they are keeping them because they are valuable to third parties, it is more likely to be a digital memento (47%) and not a traditional memento (32%). Further, when it comes to value for friends, the margin increases and respondents keep digital mementos (20%) over traditional mementos (8%).

Only a small portion of respondents replied that they are motivated to keep their mementos because of obligation (5%) or insurance (3%), regardless if it is digital or traditional.

Further, the number of reasons that people keep these mementos may vary depending if it's traditional or digital. For example, most traditional mementos are kept for one reason (53%), compared to only 35% of people keeping digital mementos for one reason. These results suggest that

respondents find that digital mementos can provide more value to various parties, where traditional mementos are more singular in benefit. Also, that singular benefit is likely to be for themselves.

In terms of providing more value, and functioning as a digital legacy post-life to our continued network or family lineage, we can leverage the innate qualities of digital mementos to augment the digital archive.

Frequency

How often are respondents accessing traditional or digital mementos? The majority of respondents can not recall the last time they handled their traditional mementos (78%), with only 1% answering that they look at them daily. Conversely, 47% of respondents access digital mementos on a monthly basis, and 26% access them everyday.

Audience

The audience for traditional mementos is more singular with the majority of respondents replying that only they look at them (42%) versus 29% for digital mementos.

Comparatively, the audience for digital mementos is more diverse and extends to include colleagues (11%), and the public (7%), relative to only 3% and 1% for traditional mementos respectively.

The size of the potential audience with traditional mementos is limited, with the majority of respondents (62%) stating that just one segment of people handle their traditional mementos—likely themselves. Whereas, it is significantly more social for digital mementos with 38% of people responding that only one party accesses the digital mementos.

Death

The majority of respondents viewed death as a natural phenomenon that they accepted (55%), 23% replied that they don't like considering the possibility of death, 14% were undecided, and 8% felt it was better to be prepared and ready.

Ways to Manage Traditional Mementos

80 60 40 20 0

Shoeboxes Albums Drawers Labels Filing cab Boxes I don't
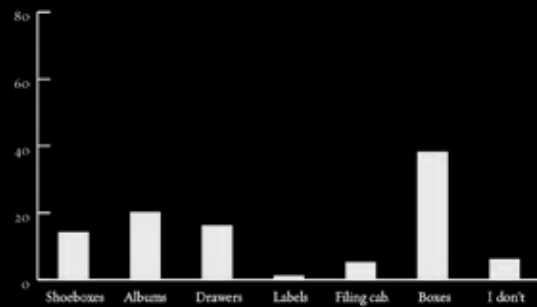
Ways to Manage Digital Mementos

80 60 40 20 0

Software USB/Hard Drives Cloud Storage Web Services I don't

Frequency of Handling Traditional Mementos

78%
I DON'T REMEMBER

- At least once a month.
- Everyday
- I don't remember the last time.

Frequency of Acessing Digital Mementos

47%
MONTHLY

- At least once a month.
- Everyday
- I don't remember the last time.

Reasons to keep mementos?

- Digital Mementos
- Traditional Mementos

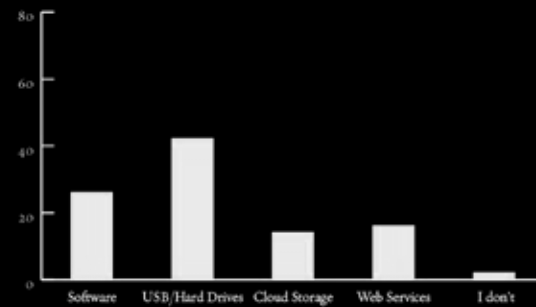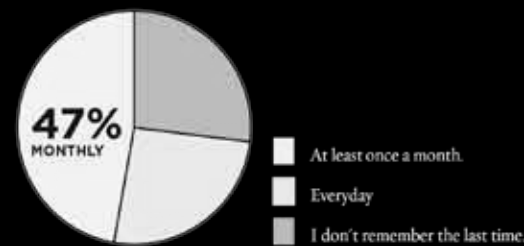**60%**
TRADITIONAL

For Me   Family   Friends   Obligation   Insurance

Number of Digital & Traditional Management Tools

80 60 40 20 0

1   2   3   4   5   6

- Digital Tools
- Traditional Tools
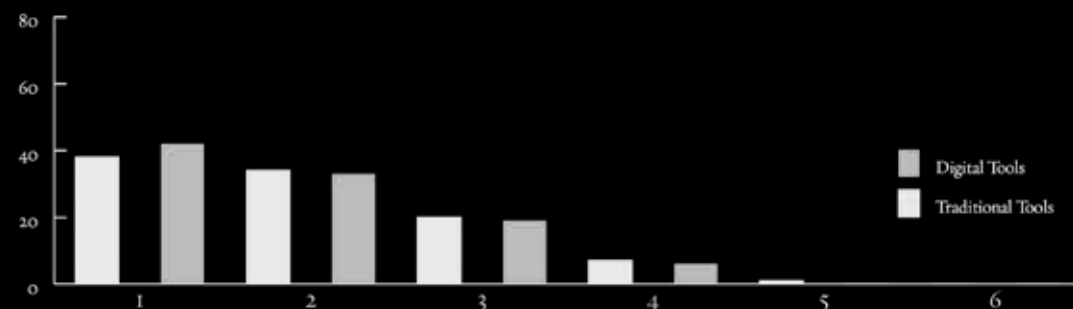
Legacy

Many respondents want to be remembered forever (43%), 26% want to be remembered for three generations, 13% for one generation, 10% for five generations, and only 8% don't want to leave a legacy.

How do people want to be remembered? The over arching responses were in a positive manner: happy, loving, and true-to-life. Depending on the type of relationship, respondents felt that their digital archive would adapt and be relationship-specific. Some respondents felt that more personal aspects of their life should be reserved for those close to them, either within the family or social network. In this context they might want to be remembered subjectively within shared memories. For those farther away generationally, or socially, some respondents want to be remembered more objectively. For example, responses included: being remembered by their actions, position in society, professional accomplishments, societal contributions, and title.

Ownership

In response to when digital content should become part of the public domain, the majority of respondents replied never (54%), then 36% said in one generation, and 10% in three generations. It can be noted that no respondents selected 'five generations', or 'immediately'.

In response to who should own the digital content after death, the majority said family (56%), next was friends (18%), themselves (16%), public (4%), and only 1% felt the original service provider should own their digital content after death.

When compared to expectations of post-life management, there are some deviations. The majority of respondents felt family should manage it (49%), however 30% responded that they should manage it themselves. Either preplanned, or in another way. Friends received 13% of responses, and the original service provider just 1%.

Only a small portion felt the digital content should be archived or deleted upon death, an average of 5%.

Who Should Own & Manage Your Digital Content After Death?

Me
Family
Friends
Colleagues
Service Provider
Public
No One

Manage
Own
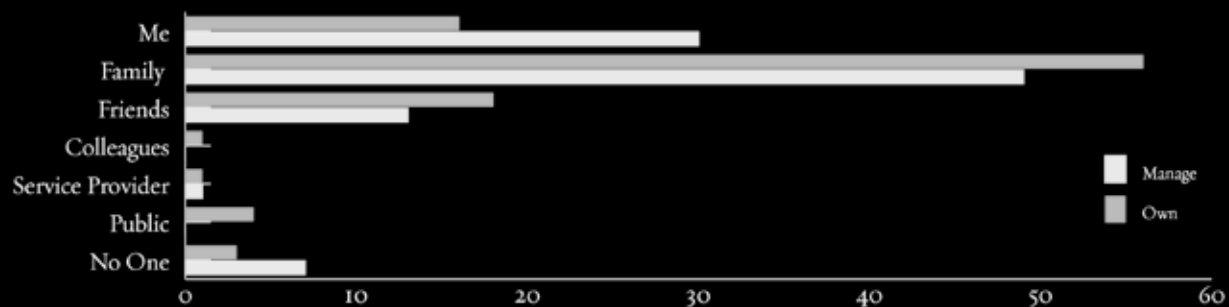
Who looks at these mementos?

Traditional Mementos

Digital Mementos

Public
Colleagues
Friends
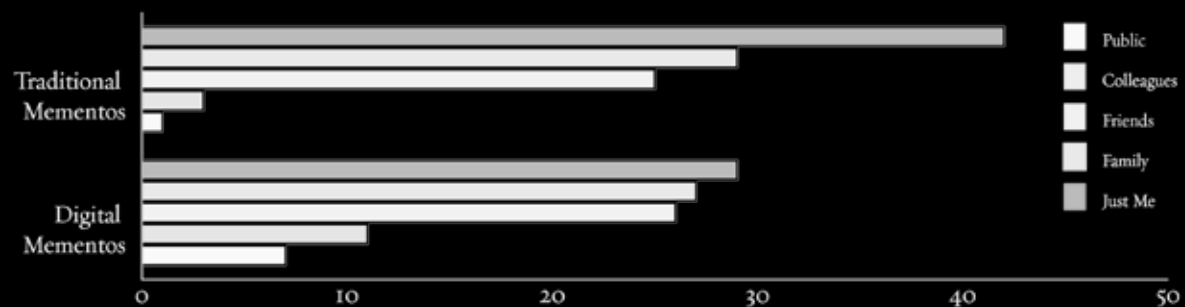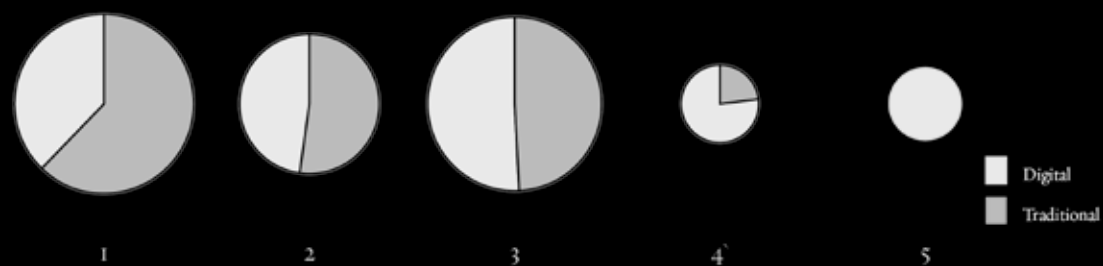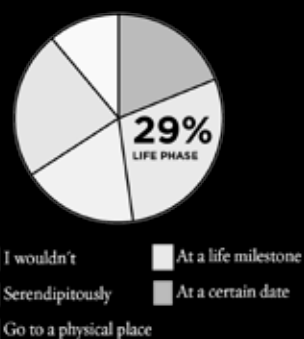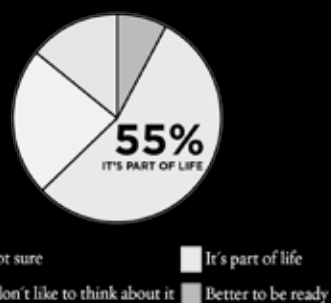Family
Just Me

How many types of people are viewing the content?

1 2 3 4 5

Digital
Traditional

When to access the person's archive?

29%
LIFE PHASE

I wouldn't
Serendipitously
Go to a physical place
At a life milestone
At a certain date

Feelings about death?

55%
IT'S PART OF LIFE

Not sure
I don't like to think about it
It's part of life
Better to be ready

Should your digital content change over time?

55%
NO CHANGE

Adapt a little
Stay current for generations
Remain exactly the same
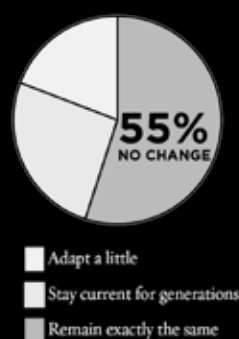
Regarding the number of 'parties' we expect to participate in post-life ownership and management, they are very similar. Primarily, we expect one type of party to own (56%) and manage (54%) our post-life digital content. Next, for two types of parties to own (34%) and manage (36%). Finally, for three or more parties to own (10%) and manage (10%).

Worth noting is that no respondents felt more than three parties should be involved in management, however, although a small sample, some respondents replied that up to six parties could be involved with post-life ownership.

Content

The majority of respondents felt that their digital content should remain exactly as it was when they died (55%), then 26% felt it should adapt over time to remain relevant for future generations, and 19% felt it should adapt a little and they should control how much.

Digital Archives

Using qualitative methods in the survey, questions around accessing digital archives of those who have died were asked. In response to the question of, "Who's digital archive would you want to access?", the responses in descending order include: family members (whether close or extended), friends, celebrities, the public, and colleagues. Responses were grouped by type of relationship and then paired with the reasons why they would want to access the deceased's archive. Next, these pairings were categorically grouped.

Although motivations for wanting to access the archives varied, there were overlying four themes. The majority were for the benefit of the person who was accessing the digital archive of the deceased to satisfy emotional needs of their loss of relationship (For Me To Benefit for My Emotional Sake), discover more about the individual who has died (For Me To Benefit for Their Functional Sake), and to learn more about themselves (For Me To Benefit For My Functional Sake). Another motivating factor for accessing the deceased's archive was for the benefit of the deceased to fulfil an obligation or duty to them (For Them To Benefit for Their Functional Sake).

See below for a subdivision of additional reasons why respondents would want to access the digital archive of a person after death. They are ordered with the highest frequency of answers at the top:

REASONS TO ACCESS DIGITAL ARCHIVE OF DECEASED FAMILY

i. For Me To Benefit for My Emotional Sake
> to relive or refresh memories
> feel them close
> trigger memories
> missing them, or feelings of loneliness
> attempt to retain ongoing relationship
> for closure or to grieve

ii. For Me To Benefit for Their Functional Sake
> learn about who they were
> remember who they are
> step into their shoes

iii. For Me To Benefit For My Functional Sake
> to identify with myself within their memories
> appropriate memories / glean archive for keepsakes

iv. For Them To Benefit for Their Functional Sake
> to share / retain family history
> to manage or maintain content

REASONS TO ACCESS DIGITAL ARCHIVE OF DECEASED CELEBRITY

i. For Me To Benefit For My Functional Sake
> curiosity
> knowledge
> inspiration

REASONS TO ACCESS DIGITAL ARCHIVE OF DECEASED FRIEND

i. For Me To Benefit for My Emotional Sake
> to relive or refresh memories
> feel them close
> trigger memories
> for closure or to grieve

ii. For Me To Benefit for Their Functional Sake
> learn about who they were
> remember who they are
> step into their shoes

iii. For Me To Benefit For My Functional Sake
> curiosity
> appropriate memories / glean archive for keepsakes

iv. For Them To Benefit for Their Functional Sake
> to manage or maintain content

REASONS TO ACCESS DIGITAL ARCHIVE OF DECEASED PUBLIC

i. For Me To Benefit for My Emotional Sake
> to identify and reflect on myself

REASONS TO ACCESS DIGITAL ARCHIVE OF A DECEASED COLLEAGUE

i. For Me To Benefit For My Functional Sake
> curiosity

Appendix IV
Research & Concept Survey Q's

On the following pages are the questions from the research and tangible concept surveys. They surveys were presented on the memorality.me thesis website. Although, specific individuals were invited to participate, both surveys were available to the public.

Research Survey Questions Overview

Questions from the survey below were presented using radial, check-box selection options, or free-form answering to provide a mixture of quantitative and qualitative data. The survey remained online for about two weeks. In addition to the survey, in-person and remote conversations were also conducted. Below is the introduction text that was presented on the website:

Contribute to research for this thesis project and reflect on the future of your digital self. The goal of this graduate study is to create an interaction experience to address digital immortality and the future of our digital selves. After general demographic information, this survey has six short sections that span from traditional mementos to digital archives beyond the grave.

How do you feel about digital immortality? Click here for the project introduction. All submissions are anonymous and for education purposes only. It will take approximately ten minutes.

Demographic Questions

i.   Gender: *Male, Female*
ii.   Age
iii. Where are you from? *
iv.   Which best describes your primary area of focus:
      Working professional, Stay-at-Home Mom or Dad, Retired, Student, Unemployed, Other

A. Traditional Mementos (*photos, letters, postcards, souvenirs*)

1.   How do you organize and manage your traditional mementos?
2.   For example, photos, letters, or postcards. Select all apply.
      Shoeboxes, Photo albums, Drawers, Labels/label maker, Filing cabinet, Boxes, I don't
3.   Why do you keep these traditional mementos? Select all that apply.
      Not applicable, Valuable to me, Valuable to my family, Valuable to my friends, Obligation, Insurance requirements
4.   Who looks at these traditional mementos? Select all apply.
      Not applicable, Just me, Family members, Friends, Colleagues,

General public

5.   How often do you handle your traditional mementos?
      Not applicable, I don't remember the last time, At least once a month, Everyday

B. Digital Mementos (*digital photos, email archives*)

1.   How do you organize or manage your digital mementos? For example, digital photos and email archives. Select all that apply.
      Software on my computer, Personal storage devices (i.e. usb & hard drives), Cloud storage, Web services, I don't
2.   Why do you keep these digital mementos? Select all that apply.
      Not applicable, Valuable to me, Valuable to my family, Valuable to my friends, Obligation, Insurance requirements
3.   Who looks at these digital mementos? Select all that apply.
      Not applicable, Just me, Family members, Friends, Colleagues, General Public
4.   How often do you access your digital mementos?
      Not applicable, I don't remember the last time, At least once a month, Everyday

C. Digital Will

1.   How do you feel about death?
      I don't like to think about it, I don't mind, it's part of life, Better to be prepared and ready, Not sure
2.   Who should own your digital content when you die? Select all that apply.
      Me, Family members, Friends, Work colleagues, The website/service owner where "it" was initially created, General public, No one, it should be deleted
3.   Who should manage your digital content when you die? Select all that apply.
      Me (preplanned), Family members, Friends, Work colleagues, The website/service owner where "it" was initially created, General public, No one, it should be archived
4.   How should your digital content change over time?
      It should remain exactly as it was when I died, It should adapt over time to stay current for next generations, It should adapt a little, and I want to control how much
5.   When should your digital content become part of the

public domain?
Immediately, After one generation, After three generations, After five generations, Never

D. Your Legacy

1. How long do you want to be remembered after you die?
One generation, Three generations, Five generations, Forever, I wouldn't
2. Who would you want to share your legacy with? Select all that apply.
Family members, Friends, Work colleagues, General public, No one
3. How would you want to be remembered?

E. Those Gone

1. Have you lost someone important to you recently?
2. How often do you think of people important to you that have passed on?
3. What makes you think of those people?
4. What mementos do you have of people who have died that are important to you? Include up to three mementos.
5. Where are those objects?
6. When do you interact with them?
7. How do you feel when you interact with them?

F. Digital Archives

1. Whose digital archive would you want to access after they pass on? Include up to three people.
2. Why would you want to access their archive(s)?
3. When would you want to access someone's digital archive? Select all that apply.
Determined by a certain date, At a life milestone/phase, By going to a physical place, Discovered/serendipitously, I wouldn't
4. What should the digital archive be? Select all that apply.
General digital content (i.e. photos, video, email), Digital content specific to your relationship, The person's laugh, Include their personality, A dynamic digital persona of the person who has died

Feedback

i. Queries or comments?
ii. Want to preview and evaluate upcoming project concepts? *(Name, First Name, Last Name)*

Concept Survey Questions Overview

One concept was tested everyday for a week. A key image of the concept, a brief description, and three scenario images were presented for each one. In addition to the survey, in-person and remote conversations were also conducted for the concepts.

Questions from the survey below were identical for each concept, and were presented using a five-point likert scale:

Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

Demographic Questions

i. Gender
ii. Age
iii. I have lost a loved one:
Three months ago, or less; Four to six months ago; Seven months to a year ago; Over a year ago; Thankfully, I haven't

Concept Evaluation (i.e. Legacy Book)

1. I would use my Legacy Book.
2. I would use the Legacy Book at least once a month.
3. I would feel comfortable sharing my Legacy Book with others.
4. The Legacy Book would make me feel closer to the deceased.
5. The Legacy Book would help me grieve.
6. I would feel in control of my shared memories with the deceased when using the Legacy Book.
7. The Legacy Book would help me in different ways at different phases in my life.
8. I would share ownership of each digital memento with others present in the memory.
9. The deceased's digital archive in the Legacy Book is active, not static.
10. A person's legacy will last forever with the Legacy Book.

Feedback

Queries or Comments?

Appendix V
User Interface Screens

On the following pages are the key frames from the Legacy tablet user interface.