

# **Ashton Prigge**

***MLIS Candidate, 2019***

***Informatics Specialization***

***UCLA, Department of Information Studies***

Advisor: Professor Miriam Posner

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Resume

# Ashton Prigge

## Information Science and Technology Professional

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## Experience

### 2019-04 - present **Software Engineer Intern**

*UCLA Digital Library*

- Map legacy digital library metadata to current digital library to joined siloed collections.
- Write Python Scripts to ingest and extract materials to legacy digital libraries and to Samvera digital library.

### 2017-10 - present **Information Systems Assistant**

*UCLA Technology Development Group*

- Create User Experience designs leveraging Google Analytics, search logs, and user testing to improve company's website.
- Leverage SEO to market available technologies.
- Create and test with users data analysis visualizations of UCLA's technology and licensing portfolios after constructing custom SQL datasets allowing for understanding of business needs.
- Design and implement queries to SQL database for New Ventures Group, Intellectual Property Transactions Group, and Marketing Group to capture unique datasets which reduced workloads for key staff members.
- Write Python script to search websites and collect descriptive data about our technology portfolio in order to enrich our database.

### 2018-06 - 2018-09 **User Experience Research and Design Intern**

*Getty Research Institute and Getty Trust*

- Created and redesigned research application features with software development team informed by user interviews and user tests.
- Analyzed data from A/B testing.
- Created wireframes and prototypes in Sketch and InVision.
- Designed and analyzed research questions using Optimal Workshop tools(card sorts and tree tests) and UserTesting.com to test iterative designs.

### 2018-04 - 2018-06 **Client Partner and User Experience Designer**

*CORAL ERM*

- Handled all communication with the client regarding progress of the project.
- Managed project bids, project scoping, user research, and implementation redesigns.
- Created surveys, interview questions, experience maps, personas, and wireframes.
- Synthesized deliverables into a final report with concrete recommendations for fundamental information architecture and interaction design changes informed by user experience research.

### 2017-03 - 2017-06 **Sales Administrative Assistant**

*Pindler*

- Designed business reports for the Vice President of Sales and the Marketing Manager to communicate trends in sales behavior.
- Analyzed and compiled sales data from showrooms and sales representatives to create use cases utilizing Excel forecasting.

## Education

### 2017-09 - 2019-06 **UCLA, Master's in Informatics**

- Curriculum includes Computer Science, Data Analysis, Data Management, Information Search and Retrieval Systems, Web Development
- Leadership position within ASIS&T (Association for Information Science & Technology)
- Leadership position within the iSchool's User Experience Research Group

2012-09 - 2015-09    **UCLA, BA**

## Skills

User Experience Research and Design - Optimal Workshop, Usertesting.com, Sketch, InVision  
Web Design and Development - HTML, CSS, Javascript, PHP, Django, Vue.js, ElasticSearch  
Business Intelligence Tools - Google Analytics, Tableau, Excel  
Database Creation and Data Analysis - SQL, Python, R

## References

### **Ragan Robertson, PhD**

Business Development & Information Systems Officer  
UCLA Technology Development Group  
ragan.robertson@tdg.ucla.edu

### **Joshua Gomez**

Head of Software Development and Library Technologies  
UCLA Libraries  
joshuagomez@ucla.edu

### **Lynn Boyden**

Information Architect  
USC  
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# Professional Development Statement

Software Engineer and Information Technology Professional

When I began the MLIS program, I simply knew that information was interesting to me. I liked the idea of learning skills that could be applied to many different areas of study and that I could continue to learn more after I completed my studies. I saw information as a conduit that flowed through almost any professional field. I have a humanities background that illustrates my interests in people; I wanted to combine that with actionable skills. I have a humanities background so I would enjoy working at an institution that blends technology with humanities interests. I greatly enjoyed working at the Getty. I also enjoy learning about different fields as I have done at the Technology Development Group. My priority is to work within an environment that allows for new learning to take place.

In my fall quarter I took a computer programming class and my professional direction began from there. It was fascinating to learn how digital information worked and I wanted to keep learning more. The informatics track became more fleshed out to me as I continued to take classes such as User Experience design, Information Access and Retrieval, Human-Computer Interaction, Digital Research Methods, Digital Humanities, and Data Management. I am also involved in the student research group UXLIS spearheaded by Jonathan Calzada.

I see myself as an Information Technology Professional and my work experience reflects that identity. I wanted to expose myself to as much diversity of jobs as possible within the information field, so I could at least be able to grasp the potential work environments that would be available post-graduation. I have done this by working at the Technology Development Group where I create analytics for UCLA's intellectual property portfolio. There, I have developed my SQL programming language knowledge. I create custom datasets in order to understand portfolios. I also explored applications of human computer interaction. In the summer of 2018, I interned at the Getty Research Institute and Getty trust as a User Experience Researcher and Designer.

At this time, I am interested in pursuing more engineering centric work. Within the six-month timeframe I will complete a Software Engineering Internship where I will practice industry best practices. Internships also present opportunities to network with others. As a Junior Software Engineer, I will continue to develop an understanding of software engineering principles. I am especially interested in continuing to work on web development and frontend engineering projects. Some concrete examples of potential action include: attend and present research at relevant conferences, perhaps the csv,conf, attend software engineering meet ups, submit a relevant research article to a non-traditional information publication such as Medium.com.

As my professional-self matures, I will take on more leadership roles at work by overseeing and managing projects. This would mean I will be able to offer solutions and recommendations and detail data architecture. In this timeframe, I will cement understanding of software engineering problems and solutions. Technology is constantly changing, and I will be constantly learning by reading new articles and explanations of these various technologies, giving talks at software engineering meet up groups. As I think about time further from the present, my ideas about my professional development become abstracted. I look to my mentors to see what they are currently doing in a professional sense to gain an idea of where I am headed. As a Senior Software Engineer, I could manage overall institutional projects as a tech lead. Specifics could include developing research and produce copyrightable software. At this point, I will continue to write articles about the theory and practice of the above software. I will also give conference presentations on research at traditional and non-traditional conferences. I will complete the cycle of mentorship by bringing mentored developers into projects.

# Advising History

Throughout graduate school, I have received excellent professional advice from Professor Miriam Posner, Josh Gomez, and Kristen Carter.

## Meetings with Professor Posner

I met with my advisor, Professor Posner, once a quarter to review my class choices, outside work and general progress in the program. I also took two classes with Professor Posner. Professor Posner's expertise in digital technologies and their applications within humanities situations proved invaluable. I utilized her advice to check my ideas for a career path and course selection. Professor Posner also helped shape and edit my issue paper as we met to review and refine my topic.

## Josh Gomez's professional advice

I took a computer programming class with Josh Gomez my first quarter and a databases class with Josh in Spring 2018 as well. I interned on his team at the Getty in Summer 2018. I am currently working as a Software Engineer Intern on his team at the UCLA Library. Josh has provided numerous forms of advice in the past year and a half.

## Kristen Carter's professional advice

My User Experience research and design internship at the Getty Research Institute connected me to a team of information management professionals. Kristen Carter, my supervisor at the Getty, offered advice for pursuing a career in User Experience design.

# Courses

Below is a list of courses taken while completing my MLIS degree in the Informatics track.

## Fall 2017

IS 211 Artifacts and Cultures - Professor Drucker

IS 260 Description and Access - Professor Furner

IS 271 Introduction to Computer Systems and Programming - Joshua Gomez

## Winter 2018

IS 270 Systems and Infrastructures - Professor Posner

IS 272 Human Computer Interaction - Professor Lievrouw

IS 438B Advanced Issues in Archival Science – Archival Description and Access Systems - Professor Furner

## Spring 2018

IS 212 Values and Communities in Information Professions - Professor Srinivasan

IS 279 User Experience Design - Lynn Boyden

IS 289 Survey of Data Storage and Retrieval Systems - Joshua Gomez

## Fall 2018

IS 289 Digital Methods for Research and Scholarship - Professor Drucker

IS 289 Intellectual Property - Mikka Conway

IS 400 Professional Development and Portfolio Design - Snowden Becker

## Winter 2019

DH 201 Introduction to Digital Humanities - Professor Posner

EDUC 222D Qualitative Inquiry: Special Topics Qualitative Data Analysis - Professor Kim Gomez

IS 262A Data Management and Practice - Dr. Jillian Wallis

**Spring 2019**

IS 262B Data Curation and Policy- Dr. Jillian Wallis

IS 289 Web Development - Joshua Gomez

IS 206 Economics of Information - Professor Lievrouw

# Issue Paper

## Issue Statement:

In their online resources, cultural institutions often attempt to convey their richness and depth of information at the design level. In fact, however, this level of detail is often counterproductive, as it impedes these resources' ease of use. Instead, these institutions can better deliver information with a streamlined user experience design that shifts detail from the whole to the part. Moving the segmented aspects of information to the background of design allows users to leverage the entire information resource.

Ashton Prigge

## Unique Information Resources and Streamlined User Experience Design

What happens when a complex design impedes the utility of an information resource?

This summer I worked at the Getty Research Institute as a User Experience Designer and witnessed this problem firsthand. My work focused on the Provenance Index Remodel project, a technical and User Experience design transformation of the collection of databases that contain incredibly rich information about artwork. There, my coworkers used Google to navigate the current Provenance Index when they were explaining the remodel project.<sup>1</sup> It was quicker and easier to do this instead of going to the Getty main website, searching for resources, and then going through the next four or five decisions and screens, just to get to a place to attempt a search. It struck me how the Provenance Index showed its complexity by building the rich data structure into the immediate design which forces users to make numerous choices before even entering a search query. In their online resources, cultural institutions often attempt to convey their richness and depth of information at the design level. However, this level of detail is often counterproductive, as it impedes these resources' ease of use. Instead, these institutions can better deliver information with a streamlined User Experience design that shifts detail from the whole to the part.

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<sup>1</sup> "Provenance Index Remodel (Getty Research Institute)." [http://www.getty.edu/research/tools/provenance/provenance\\_remodel/index.html](http://www.getty.edu/research/tools/provenance/provenance_remodel/index.html).

## Background

Evaluation of the usability of a digital tool is rooted in the fields of Human-Computer Interaction, Interaction Design, and User Experience Design. These disciplines all contributed to evolving definitions of usability which currently includes the statement that there are “five criteria that a product must meet to be usable: Effectiveness, Efficiency, Engagingness, Error Tolerance, Ease of Learning.”<sup>2</sup> User Experience research groups such as the Nielson Norman Group have provided years of research and defined heuristics for usability. The most relevant heuristic to overcomplicated cultural institution information resources is the following Nielsen Norman Design Heuristic of aesthetic and minimalist design that “every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.”<sup>3</sup> The Nielsen Norman Group also emphasizes the importance of “recognition rather than recall: Instructions for use of the system should be visible or easily retrievable whenever appropriate.”<sup>4</sup> The importance of placement of design features is underscored when combined with research about the ability of design to aid memory. The Nielson Norman Group has contributed to this research and writes “How easily information can be retrieved from memory depends on how often we’ve encountered that information, how recently we’ve used it, and how much it is **related to the current context.**”<sup>5</sup> Bruce Tognazzini (a Human-Computer Interaction Researcher, Designer, and Engineer) distills this need for appropriate information into the *anticipation principle*, which requires design to “bring to the user all the information and tools needed for **each step of the process.**”<sup>6</sup> When all information is contained within every page, a

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<sup>2</sup> Komninos, Andreas. 2019. “An Introduction to Usability.” The Interaction Design Foundation. This was a definition offered by Whitney Quesenberry, the UX and Usability Expert and former President of the Usability Professionals’ Association (UXPA).

<sup>3</sup> “10 Heuristics for User Interface Design: Article by Jakob Nielsen.” 1994. Nielsen Norman Group.

<sup>4</sup> Ibid.

<sup>5</sup> “Memory Recognition and Recall in User Interfaces.” 2014. Nielsen Norman Group.

<sup>6</sup> Tognazzini, Bruce. 2014. “First Principles of Interaction Design (Revised & Expanded).” *AskTog* (blog). March 6, 2014.

user cannot easily remember what is relevant. For example, when the complexity of the Provenance Index is baked into the design of the information resource itself, it is hard to recognize the actual pertinent information in comparison to the extraneous information. The result is an overcomplicated design that blocks users from fully accessing the information resource.

## **Reasons for Complex Design**

One reason for complex design is the unique information that the information resources must contain. For example, the Getty Provenance Index contains transcribed art gallery stock books and the database is populated with information about specific entities (art, people, places) but also relationships between entities. It is difficult to think of complex relationships and complex transcribed content as fitting into streamlined design. The accuracy and depth of information should not be lost; User Experience design must balance rich information with ease of use. While cultural institutions' information is unique, the design of the resource that contains the information does the richness a disservice by weighing down users' navigation with unnecessary complexity that confronts the users immediately. Overcomplicated design only encourages the use of simpler tools such as commercial search engines and if a site has to rely on Google to deliver resources to its users, it is not very effective.

Another reason for the complex design is because experts of the field build the information resources; they are highly familiar with the content stored within the information resources. Subsequently, the information resources are designed with the idea that all the information is relevant, and that complexity fully expresses the importance of the information. When experts of the field create these resources, they imagine themselves as the users and their expertise carries into the design. This result is termed the *false-consensus effect* and is defined by the Nielsen Norman Group as “people’s tendency to assume that others share their beliefs and

will behave similarly in a given context.”<sup>7</sup> This phenomenon is a contributing reason for the maintenance and not the re-design of existing resources. It is important to keep users in mind. *Information Architecture* by Louis Rosenfeld, Peter Morville, and Jorge Arango defines users as “the people who will use your information environment.”<sup>8</sup> This definition certainly includes more than staff and experts. When developing a product that the general public will use, it is important for more than the experts to be designing the product. To make these resources usable for others, design needs to be streamlined; even experts will benefit from streamlined design.

## Motivations for Change

Information resources connected by cultural institutions are intended to connect to the public and serve as a public good. Cultural institutions are specifically motivated to pursue changes in design as these resources function as public goods. Mission statements of institutions underscore the value of serving the public. One pertinent example is the Getty’s mission statement, which includes the statement “The Getty pursues its mission in Los Angeles and throughout the world, serving both the **general interested public** and a **wide range of professional communities** in order to promote a vital civil society through an understanding of the visual arts.”<sup>9</sup> In this line of thought, the general public should be able to use the information resources these institutions have devoted time and financing to create. When the information resources and the users exist but cannot meet, a disservice is done to the uniqueness of these resources. I would essentially call this a last mile problem, and this last mile problem essentially negates the existence of these resources.

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<sup>7</sup> “You Are Not the User: The False-Consensus Effect.” 2017. Nielsen Norman Group. October 22, 2017.

<sup>8</sup> Rosenfeld, Louis, Peter Morville, and Jorge Arango. 2015. *Information Architecture*. Fourth. Sebastopol, CA: O’Reilly.

<sup>9</sup> “About the Getty”. <http://www.getty.edu/about/>.

## Examples of Complex Design

The following examples reveal problematic and overcomplicated design that attempt to communicate the entire complexity of the information all at once. The confusing entirety can be discussed in terms of information architecture and features. I have used red circles to isolate complex design features.

### 1. Getty Provenance Index:

Research Home > Search Tools & Databases > Collecting & Provenance Research > Provenance Databases

## The Getty Provenance Index® Databases

Archival Inventories

Sales Catalogs

Public Collections

Exit & Logout

Search Inventory Contents

Search Sale Contents

Search Public Collections

Search Inventory Descriptions

Search Sale Descriptions

Search Provenance of Paintings

Records retrieved:

Keywords	Artist Name	Artist Nationality	Title	Object Type	Subject/Iconclass	Owner Name	Date of Document	City of Document	Country of Document	Inventory #	Item #
(e.g., Peter Paul Rubens or Reni or Bassano; Veronese)	(e.g., Italian)	(e.g., frutti or portrait)	(e.g., disegno or peinture or kaart)	(e.g., last supper or 73D24)	(e.g., Corsini)	(e.g., 1689 12* or 1835*:1840*)	(e.g., Venice or Venezia)				

G.Search Clear All

Records retrieved: 724 results from 680 records retrieved

View: Transcription Custom display PDF Download: Full records (CSV sheet)

Sort by: Artist Previous Page | Displaying 26 - 50 of 724 | Next Page

Artist Name	Title	Owner Name(s)	Year	View Selected
FERRETTI, GIOVANNI DOMENICO	I Commentatori di Seneca	Sansedoni, Ottavio, Cavaliere	1773	<input type="checkbox"/>
FYT, JAN	Pais de caceria (landscape by Fyt, figures by Rubens)	Ugena, Isabel María de la Cruz Abedo, Marquesa de	1747	<input type="checkbox"/>
GIORDANO, LUCA	Il Genio di Rubens, che stà dipingendo vane fantasie con quantità di figure intorno	Carpio, Gaspar de Haro y Güzman, VII Marqués de Elche, Duque de Alburquerque, Conde-Duque de Olivares, Conde de Morente y VII Marqués del	1682	<input type="checkbox"/>
GOLTZIUS, HENDRICK	Un Libro grande di Carte n:o 74	Fabbri, Giovanni	1695	<input type="checkbox"/>
GOLTZIUS, HENDRICK	Een portfolio met 49 tekeningen	Dusart, Cornelis	1704	<input type="checkbox"/>
GYSELS, PEETER	Een stuck sijnde vruchten, hasen, vogels, beelden en honden	Kraij, Maria Justina	1722	<input type="checkbox"/>
JORDAENS, JACOB (I)	Diverse figure	Guicciardini, Francesco, Conte di Guicciardini, Ferdinando, Colomello	1807	<input type="checkbox"/>
JORDAENS, JACOB (I)	Vergine che allatta il Bambino con cuscino davanti	Torlonia, Giuseppe, Marchese	1814	<input type="checkbox"/>
MANTEGNA, ANDREA	Un Libro grande di Carte n:o 74	Fabbri, Giovanni	1695	<input type="checkbox"/>
MATO, JUAN BAUTISTA MARTINEZ	el Libro grande di Carte n:o 74	Carrion, Gaspar de Haro y	1651	<input type="checkbox"/>

Figure 1

Archival Inventories

Sales Catalogs

Public Collections

Exit & Logout

Search Inventory Contents

Search Sale Contents

Search Public Collections

Search Inventory Descriptions

Search Sale Descriptions

Search Provenance of Paintings

Archival Inventory Contents: 724 results from 680 records retrieved

View: Transcription Custom display PDF Download: Full records (CSV sheet)

Sort by: Artist Previous Page | Displaying 26 - 50 of 724 | Next Page

Artist Name	Title	Owner Name(s)	Year	View Selected
FERRETTI, GIOVANNI DOMENICO	I Commentatori di Seneca	Sansedoni, Ottavio, Cavaliere	1773	<input type="checkbox"/>
FYT, JAN	Pais de caceria (landscape by Fyt, figures by Rubens)	Ugena, Isabel María de la Cruz Abedo, Marquesa de	1747	<input type="checkbox"/>
GIORDANO, LUCA	Il Genio di Rubens, che stà dipingendo vane fantasie con quantità di figure intorno	Carpio, Gaspar de Haro y Güzman, VII Marqués de Elche, Duque de Alburquerque, Conde-Duque de Olivares, Conde de Morente y VII Marqués del	1682	<input type="checkbox"/>
GOLTZIUS, HENDRICK	Un Libro grande di Carte n:o 74	Fabbri, Giovanni	1695	<input type="checkbox"/>
GOLTZIUS, HENDRICK	Een portfolio met 49 tekeningen	Dusart, Cornelis	1704	<input type="checkbox"/>
GYSELS, PEETER	Een stuck sijnde vruchten, hasen, vogels, beelden en honden	Kraij, Maria Justina	1722	<input type="checkbox"/>
JORDAENS, JACOB (I)	Diverse figure	Guicciardini, Francesco, Conte di Guicciardini, Ferdinando, Colomello	1807	<input type="checkbox"/>
JORDAENS, JACOB (I)	Vergine che allatta il Bambino con cuscino davanti	Torlonia, Giuseppe, Marchese	1814	<input type="checkbox"/>
MANTEGNA, ANDREA	Un Libro grande di Carte n:o 74	Fabbri, Giovanni	1695	<input type="checkbox"/>
MATO, JUAN BAUTISTA MARTINEZ	el Libro grande di Carte n:o 74	Carrion, Gaspar de Haro y	1651	<input type="checkbox"/>

Figure 2

Research Home > Search Tools & Databases > Collecting & Provenance Research > Provenance Databases

## The Getty Provenance Index® Databases

**Archival Inventories**

- Search Inventory Contents
- Search Inventory Descriptions

**Sales Catalogs**

- Search Sale Contents
- Search Sale Descriptions

**Public Collections**

- Search Public Collections
- Search Provenance of Paintings

**Exit & Logout**

[\[Back to Search Results\]](#)  
[\[Back to Search\]](#)

[\[Next Record\]](#)

Item 142 Archival Inventory I-3453 (Torlonia)

<b>Artist Name</b>	BALEN, VAN (Flemish), or Rubens, Peter Paul (Flemish), or Balen from inventory: van Balen; <b>Rubens</b>
<b>Title</b>	SS. Annunziata con gloria e angeli
<b>Object Type</b>	Pittura
<b>Materials</b>	rame
<b>Subject [Iconclass]</b>	Annunciation: Mary, usually reading, is visited by the Angel [73A52]
<b>Owner Name(s)</b>	Torlonia, Giuseppe, Marchese
<b>Date or range</b>	6 March 1814
<b>Document Origin</b>	Rome, Italy
<b>Document Context</b>	Page 388, Item 142
<b>See Also</b>	<a href="#">Inventory Description</a>

*Transcription*  
361 Un quadro in rame alto palmo 1 e oncie 4 1/2, largo palmo 1 e oncie 1. Autore van Balen. Rappresentante la SS. Annunziata con gloria e angeli contrassegnato dietro col N. 86 e col nome di **Rubens** 10

[\[Back to Search Results\]](#)  
[\[Back to Search\]](#)

Figure 3 “The “Getty Provenance Databases.” <http://piprod.getty.edu/starweb/pi/servlet.starweb>.

Here, the Getty Provenance Index provides quite a bit of unnecessary information at the search level. One feature highlighted above is that the results page does not allow a user to further refine a search. Furthermore, the list of results offers no way to filter or facet results. There is not a connection to original search at the individual result level. Users must wade through all of the results or search again by going back to the search page.

## 2. The Getty Museum’s Search and Results’ Page

Issues of overcomplication exist beyond the Getty Provenance Index. Below is an example of the Getty Museum’s Collection search interface.

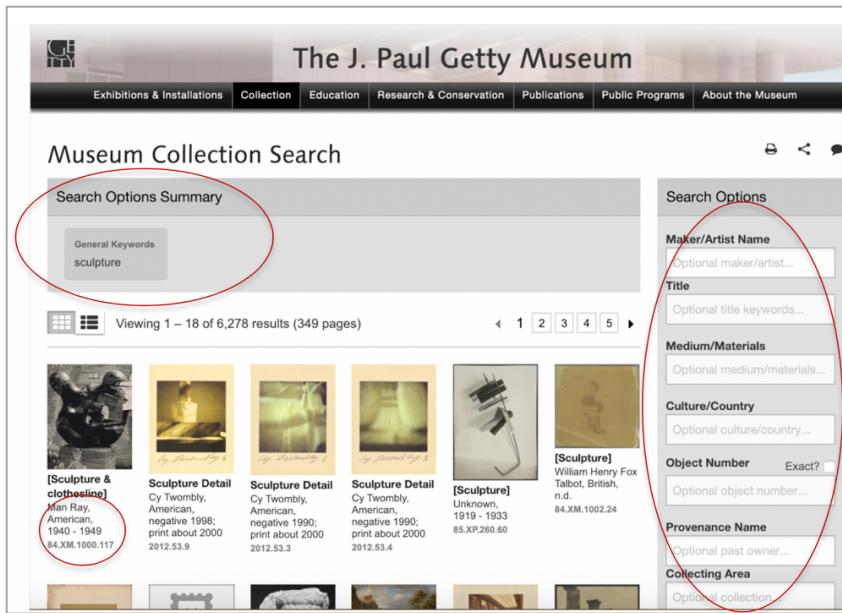


Figure 4 "Collection (Getty Museum)." The J. Paul Getty in Los Angeles.

The Getty Museum Collection search page is straightforward, yet the results page does not reflect this simplicity. In fact, the only way a user can continue to move through results is with advanced knowledge of the material. This requirement of advanced knowledge is reflected in the right column and the lack of a general search bar. Once again, the complexity of the information is built into the design of the user experience.

## How to Achieve Streamlined Design

The next step in improving burdensome design is to understand who the user is and what they are trying to accomplish by using the information resource. User Experience design that reflects the full structure of the information also assumes that the user is an expert in the field, though that is not the only type of user. User research locates and improves complicated design by revealing the current problems of an information system and determining how future designs can fix those problems. Interviews with users will show how the information resource is approached, which aspects of design are utilized, and what specific roadblocks the design

presents. In regard to user testing, Catherine Baird and Tiffany Soares write in *Weave* that “[Data] can tell us about how [users] search and research, and what motivates those choices.”<sup>10</sup> Designers translate user research data into iterative design specifications. Testing design and iterating design will reveal what aspects of design can be removed and the best configuration of elements of information.

There is also a litany of tools that aid in distilling interviews into actionable items. Tools that are applicable to streamlining design include use of analytics, card sorts, and decision trees. Analytics provide more quantitative data about user behavior such as where people drop off in their searches and what people may be naming certain concepts. Card sorts are a tool to evaluate a user’s mental model of the information. “The best way to support ease of learning is to design systems that match a user’s existing mental models. A mental model is simply a representation of something in the real world and how it is done from the user’s perspective.”<sup>11</sup> Tree tests evaluate the effectiveness of information architecture. These tools all lead into the creation of a final streamlined design that creates a navigable information resource.

## Filters and Facets

Next, designs derived from user data can be put into action. Streamlined design requires complexity to move to the background of design so that detail can be parceled out to each item that requires it. The User Experience design literature included in the introduction outlines the importance of restrained detailed which can be achieved in part with appropriate use of filters and facets. In describing these concepts, the Nielsen Norman Group writes, “Filters [...] analyze a given set of content to exclude items that don’t meet certain criteria. More recently, rich

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<sup>10</sup> Baird, Catherine; Soares. 2018. “A Method of Improving Library Information Literacy Teaching With Usability Testing Data.” *Weave: Journal of Library User Experience* 1 (8).

<sup>11</sup> Komninos, Andreas. 2019. “An Introduction to Usability.” The Interaction Design Foundation.

information systems have also begun to provide faceted navigation, which basically extends the idea of filters even further into a complex structure that attempts to describe all the different aspects of an object, for maximum flexibility in information retrieval.”<sup>12</sup> I would add that successful design moves specific choices (filters and facets) after an initial search; my experience testing designs at the Getty made clear that people just want to search when they encounter an information resource. When design changes to represent only the relevant part of a resource instead of attempting to showcase an entire system, a user is able to navigate through the system.

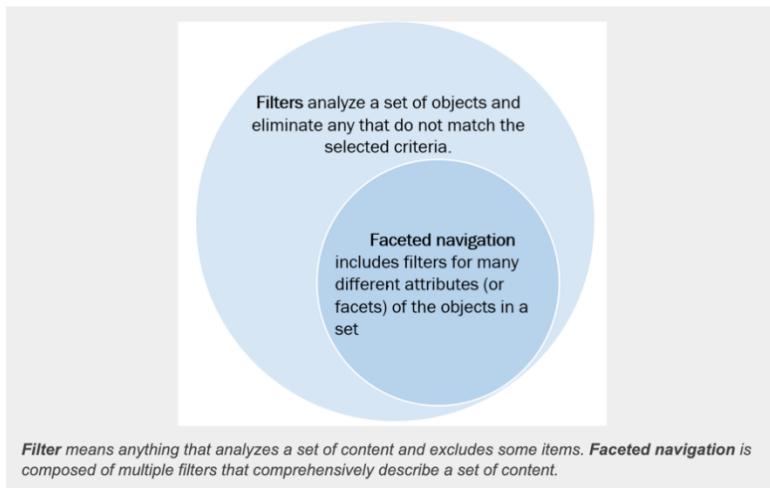


Figure 5 Filter and Facet graphic from Nielsen Norman Group “Filters vs. Facets: Definitions.” 2014. Nielsen Norman Group.

## Examples of Complex Data and Streamlined Design

I believe the concept of removing overcomplication in design is one best demonstrated with examples. One institution that has committed to a User Experience design overhaul is the

<sup>12</sup> “Filters vs. Facets: Definitions.” 2014. Nielsen Norman Group.

Metropolitan Museum of Art.<sup>13</sup> They provide a wonderful visual example of a streamlined cultural institution information resource with their Collection Search. I have used red circles to isolate important features.

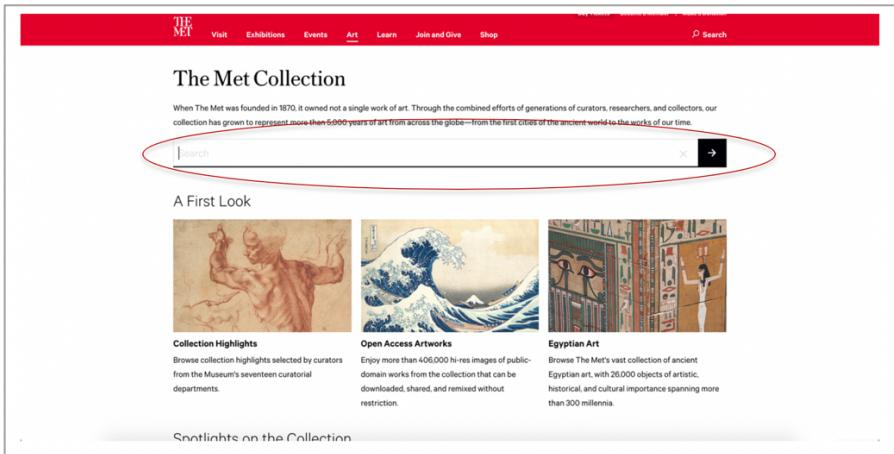


Figure 6

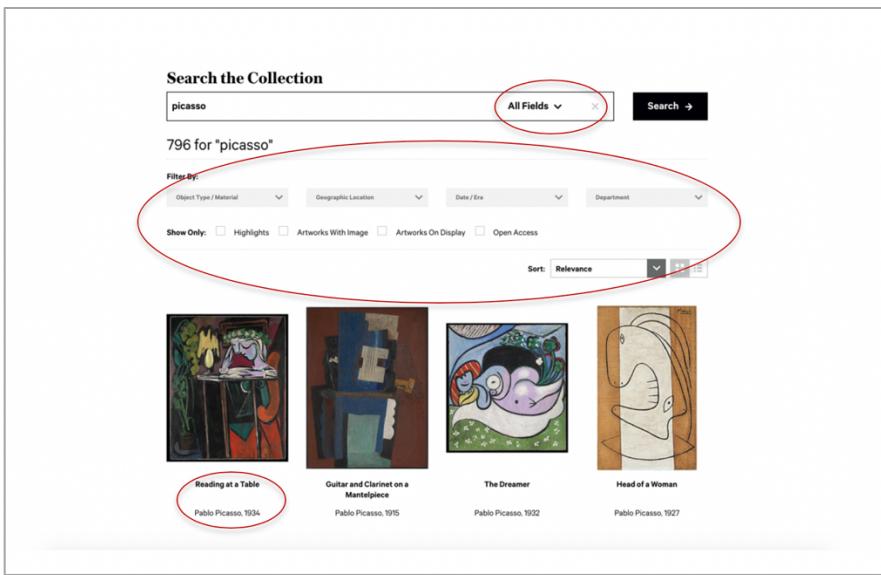


Figure 7

<sup>13</sup> Sree Sreenivasan, and Loic Talon. 2016. “A Fresh Digital Face for The Met.” The Metropolitan Museum of Art, i.e. The Met Museum. February 29, 2016

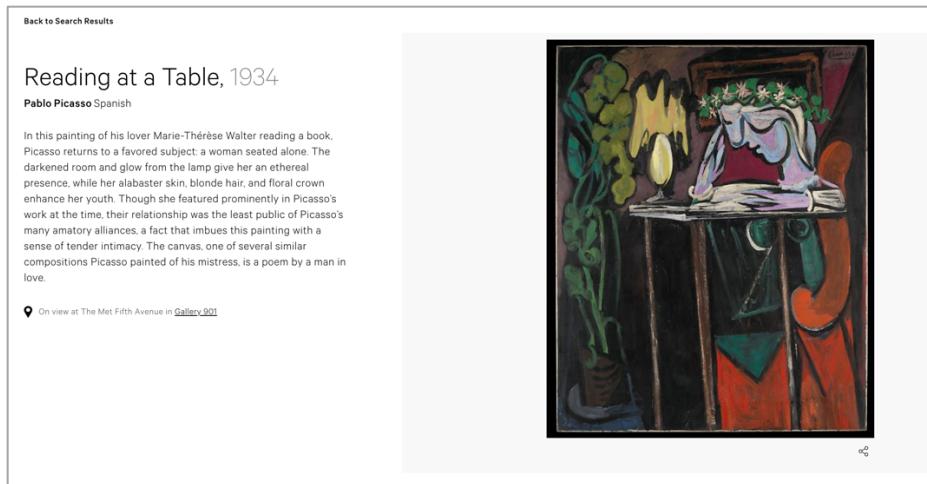


Figure 8 The most pertinent information is placed above the fold at the item level.

Signatures, Inscriptions, and Markings	
<b>Inscription:</b> Signed and dated (upper right): Picasso/ XXXIV	
+	

Provenance	
the artist. Paris (1934–ca. 1936; by March 1936 to Rosenberg); [Paul Rosenberg, Paris, and Rosenberg & Helft, London, by 1936—at least 1937; stock no. 3414]; Victor William (Peter) Watson, London (probably by 1937, and certainly by 1939–1945; stored at the Museum of Modern Art, New York during World War II; sold in New York on November 28, 1945, through L. Denham (Denny) Fouts, London and elsewhere, for \$12,500 to Marx); Samuel and Florene Marx, Chicago (1945–his d. 1964); Florene May Marx, later Mrs. Wolfgang Schoenborn, New York (1964–d. 1995; on extended loan to the Museum of Modern Art from 1971; on extended loan to MMA from 1985; her bequest to MMA)	
-	

Exhibition History	
+	

References	
+	

Timeline of Art History	
+	

MetPublications	
+	

Signatures, Inscriptions, and Markings	
-	

Provenance	
-	

Exhibition History	
+	

References	
+	

Timeline of Art History	
+	

MetPublications	
+	

Figure 9 and 10 Details that provide a lot of content are compressed and can be opened if a user wishes to do so.

The Metropolitan Museum of Art example showcases a cultural institution's ability to simplify the complexity of information by editing detail to place it only where it is relevant. In this example, the user does not need deep knowledge of the subject to use the resource and an expert can further refine if they wish to do so. Moving the segmented aspects of information to the background of design allows users to leverage the entire information resource. The Met achieves this movement of complexity by first showing a single search box. After that search, the

results are listed with a single set of filters and the individual results on this screen do not contain all their information. Specific information is contained to the item's individual page. Above the fold, there is a description and an image; the granular detail is housed below the fold and accessed by opening the headings. The Metropolitan Museum of Art does not design its collection's search User Experience by just replicating the structure of the information at hand. Instead, the design allows for a user to toggle with different refinements of the information. The effect of a streamlined information resource is one that welcomes use instead of inhibiting it. More cultural institutions can follow the Metropolitan's User Experience design lead and streamline their information resources.

### **Simple Design Does Not Remove the Complexity of the Content**

Any usage of a current information resource does not make it useful (or as useful as it could be). While experts in the field are capable of navigating an information resource built with granular detail in mind, overwhelming and complex design still presents roadblocks to users. Furthermore, I find it important to emphasize that simplifying the complexity of design does not do a disservice to the information — streamlining design allows for easier access of information. In fact, clarity of design that places detail only where it is relevant brings more focus to the information itself rather than to questions of how to use the resource.

### **Required Resources and Labor Requirements**

Any fundamental revision to the form of an information resource requires investment. The resulting usefulness and achievement of usability is worth the investment. This investment includes design and engineering as this type of User Experience design also requires revised engineering. This sort of design revision requires investment. The outlined solutions to the

burdensome design problem can be remedied by people, specifically User Experience researchers and designers. My past work leads me to believe a devoted staff member who is a User Experience expert needs to be available to work on these design projects. Excellent, intuitive design recedes into the background, but a good designer is needed to make that happen.

## **Conclusion**

The evolved state of User Experience Design allows cultural institutions and information institutions to think critically about their own design. Cultural institutions' missions are rooted in interaction with the public and these missions should encourage cultural institutions to improve the design component of their resources. Engaging users with clear design can draw them into the unique aspects of information resources; complex design blocks users from fundamentally accessing the information. Exceptional User Experience design is the final step in connecting people with a unique information resource. After all, why build the information resource in the first place if it will not be used to its greatest ability?

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## Selected Course Work

# Major Paper – Advanced Issues in Archival Science – Archival Description and Access

**Objective for Class:** "Exploration of history of archival description and access systems in the U.S. and their development since World War II; data collection; access tools and implications of these issues in development of online archival access systems."

**Justification for inclusion in the portfolio:** This paper was written for Professor Furner's Archival Access and Description class in Winter 2018 and serves as my major paper. The class was primarily focused on traditional archival practices. I used this paper to connect traditional archival practices of description with current social media technologies that also utilize ideas of repositories and description of content. This paper touches on my interest of humans' interactions with technology with a comparison to archival description.

Ashton Prigge

IS 438B

March 21, 2018

## Description and Access of Social Media Content: Learning from Archival Practices

Information systems rely on description of content to render content visible. Archives employ standards of description in order to ensure accessibility to users. In today's increasing digital and social media dominated age, social media platforms use of description is growing exponentially, though the form of description is often not standardized and originates from individual users. Archival standards are quite rigid in presentation of description and access points. Within the context of social media, description of content has the possibility of providing access to content to new audiences. Archives rely on finding aids created with standards such as the output neutral *Describing Archives: A Content Standard* (DACS) to offer individuals a summary of their content. DACS achieves this by making use of mandatory fields of information such as dates and language as well as optional notes regarding aspects of the material. Social media must make do with just individual description and algorithms to bring content to individuals' attention. If social media platforms which already utilize description and access in the form of tagging were to adopt practices from archival science, it would allow for greater connection to audiences. Perhaps there is a future where social media platforms implement more authority control for description and access to content. This could allow for a more connected form of social media connection where users are able to search and collect posts that are related. Instagram's features borrow from archival practice and functions as a personal archive in the social media age. Engagement with the format of material in various ways (liking, saving, tagging, creating own archive) boosts Instagram's interaction with users as it adds more time and commitment to posts. Social media give users multiple avenues for pursuing content, allowing for dynamic exploration of information and content.

Description is key to the archival practice as description and authority control provide access points to collections. This description is found within the collection's finding aid. Similarly, social media makes use of tags as description to function as access points to different

forms of content. In fact, social media platforms that utilize more description are seemingly more popular. [metric for popularity snap versus Instagram, Pinterest, Tumblr etc.] Description functions as engagement with content and as greater connection with the platform. With the rise of social media in the last fifteen years, platforms for connection have come and gone. A common feature of these longer standing platforms is the component of description. Instagram, Twitter, and Facebook all allow users to categorize their posts with hashtags, geo tags, and tagging other users. These descriptors function as access points to content. Furthermore, these descriptors allow for interaction with the user and the platform as well as user and user interaction.



Figure 1 Instagram allows for users to geotag their posts.

Instagram connects content with various methods described below. Instagram from *Hashtag of Instagram: From Folksonomy to Complex Network* “allows users to add captions, hashtags using the # symbol to describe photos or videos, or to mention other users using the @ symbol (the @ symbol creates an actual link among the accounts).”<sup>14</sup> As Instagram is not a formal archive, the connections between material do not function hierarchically. Still, these descriptors offer access to content to new followers. These descriptors would have even more power to accurately describe content with they also made use of authority control.

Instagram’s history is very short when considered in relation to the history and evolution of archives. *Conversational Documentarianism in Instagram: Multidimensional Interface and Interactivity*) describes Instagram as a system that ‘proposes a ludic use of its platform for sharing images online in a socially interactive network with collaborative possibilities, in which the user creates a profile and follows other users while being followed by others to create a *time line* in the same fashion as Twitter and Facebook with

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<sup>14</sup>Ibba et Al., “Hashtag of Instagram From Folksonomy to Complex Network”. DOI: 10.5220/0005613502790284

text comments and hashtags. However, its originality lies in the platform's use in sharing photographic images and videos and its design as an application to be used via mobile phones.”

<sup>15</sup> *Beliefs about the Use of Instagram: An Exploratory Study* provides background, “Instagram was founded in 2010. Being mainly a photo-sharing application, Instagram has excelled as an effective communication and marketing tool to display products with visual descriptions. Hence, it becomes a useful social networking platform instantly to individuals and companies.

Moreover, the acquisition of Instagram by Facebook has potentially made the application more attractive and appealing to millions of users.”<sup>16</sup> Instagram’s history as a visual tool serves to illuminate how it can be thought of as a personal archive with material never leaving a profile until a user decides to do so.

As social media is a very recent development, there isn’t an extensive academic discourse on the topic. As social media continues its life, the discourse will evolve. A lot of best practices regarding the architecture and format of platforms originate from companies and therefore is internal information. Historically, research on the topic of Instagram and tagging is focused in the domain of Human Computer Interaction and User Experience Design. In contrast, archival history is much broader subject, though this paper is primarily concerned with the archival practice of providing a standardized format and as well as access points for users. Archival description has a rich past and emerged more so with the use of authority name and subject control. The subject of authority control and unique resource identifiers also extends beyond social media and archives. The increased move towards standardization is seen in wide ranging aspects of life from bar codes to software regulating work flow. Social media and archives do share some similarity in the frequently personal nature of their content.

Archival description and access are a focus of research regarding archival methods. Much of this research was published in the late 1990s and the early 2000s and detail changes made to standards of archival description. Archival finding aids are also formatted with specified and required fields of information. Though finding aids are often only found in pdf form and rarely offer digital access to collections themselves. It is the authority name and subject headings that

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<sup>15</sup> Jacob Bañuelos, 2015. “Conversational Documentarianism in Instagram: Multidimensional Interface and Interactivity.” *Journalism and Mass Communication* 5 (February). <https://doi.org/10.17265/2160-6579/2015.02.002>.

<sup>16</sup> Ting, Hiram, Winnie Wong Poh Ming, Ernest Cyril de Run. 2015 - International Journal of Business and Innovation. n.d. Accessed March 20, 2018.

[https://www.researchgate.net/profile/Hiram\\_Ting/publication/272026006\\_Beliefs\\_about\\_the\\_Use\\_of\\_Instagram\\_An\\_Exploratory\\_Study/links/54d9749c0cf24647581e492e.pdf](https://www.researchgate.net/profile/Hiram_Ting/publication/272026006_Beliefs_about_the_Use_of_Instagram_An_Exploratory_Study/links/54d9749c0cf24647581e492e.pdf).

function as access points that is of primary concern when considered in relation to the archival function of social media. Laura Millar in *On the Crest of a Wave: Transforming the Archival Future* poses the question to the archival field “how can we make sure that all the effort put into developing recordkeeping and archives management tools like document management systems or online descriptive databases is not swept away by the next technological wave?”<sup>17</sup> Millar also grapples with the digital age and how archives will be able to adapt. “What once was one simple document that fit into an acid-free file folder might now be a hybrid, computer-generated, paper-supported information monster composed of dozens of different and sometimes conflicting file types. Just when records professionals figure out how to capture one technical element – PDF/A versus PDF for instance – someone changes the technology. Archivists have to rethink fundamentally our understanding of how to capture the nature of evidence. This is the wave we surf, and we are struggling to stay upright.”<sup>18</sup> Social media grapples with the same constant evolution though social media often has more shaping power than archives.

There is a bridge between the traditional archive that is often used for research and social media platform that shares similar features. The academic research background on the issue of description and access to social media is mainly grounded in Human Computer Interaction, User experience design of the platforms, and analytics about social behavior. The subject as a whole is waiting to be explored in further detail as the platforms continue to cement their places in peoples’ lives. Research regarding archives is undergo less more fleshed out as it is a long-standing profession and format for material. Archives are also more static in their format than social media. Overall, social media platforms have come to dominate digital life. *It is not just a picture: Revealing some user practices in Instagram* provides background to the use of social media and its encompassing features. “The everyday use of smartphones with high quality built-in cameras combined with the online social networks, such as Facebook, Youtube, Twitter, Flickr and Instagram, have led to a new way of sharing and reacting to life events.”<sup>19</sup> The life events component of social media allows for it to be thought of in terms of a personal archive of content. From the HCI and User Experience Literature regarding Instagram and other social media platforms there begins to be a discussion about the metadata and formatting of description

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<sup>17</sup> Laura Millar, “On the Crest of a Wave: Transforming the Archival Future.” *Archives and Manuscripts* 45 (2): 59–76. <https://doi.org/10.1080/01576895.2017.1328696>.

<sup>18</sup> Ibid.

<sup>19</sup> C. S. Araújo, L. P. D. Corrêa, A. P. C. d Silva, R. O. Prates, and W. Meira, “It Is Not Just a Picture: Revealing Some User Practices in Instagram.” In *2014 9th Latin American Web Congress*, 19–23. <https://doi.org/10.1109/LAWeb.2014.12>.

associated with these social media platforms. *Folksonomies - Cooperative Classification and Communication Through Shared Metadata* discusses this issue. “The overall costs for users of the system in terms of time and effort are far lower than systems that rely on complex hierachal classification and categorization schemes. In addition to this structural difference, the context of the use in these systems is not just one of personal organization, but of communication and sharing.”<sup>20</sup> Though *Folksonomies - Cooperative Classification and Communication Through Shared Metadata* was authored in 2004, before the rise of Facebook, Instagram, and twitter, the connection between archives and social media is still drawn. “Metadata - data about data - allows systems to collocate related information, and helps users find relevant information. The creation of metadata has generally been approached in two ways: professional creation and author creation. In libraries and other organizations, creating metadata, primarily in the form of catalog records, has traditionally been the domain of dedicated professionals working with complex, detailed rule sets and vocabularies. A second approach is for metadata to be created by authors. The movement towards creator described documents was heralded by SGML, theWWW, and the Dublin Core Metadata Initiative. [There is also] a third approach: user-created metadata, where users of the documents and media create metadata for their own individual use that is also shared throughout a community.”<sup>21</sup> Social media is a new opening for individual users to shape content description. Archives rest on professional practice, but spaces like Instagram allow for individuals to shape the narration of content by the users in opposition to description created by dedicated individuals. “Traditionally metadata is created by dedicated professionals. Catalogers create metadata, often in the form of Machine-Readable Cataloging (MARC) records for books and other intellectual creations, and this is the basis of most Online Public Access Catalogs (OPAC) in libraries and other institutions. The library and information science field has developed elaborate rules and schemes for cataloging, categorization and classification that include classification schemes as well as large controlled vocabularies of terms for describing the subject of materials, such as the Library of Congress Subject Headings.”<sup>22</sup> The chasm between the informality of social media and intense formality of archives can be bridged with the implementation of controlled vocabularies and access points by social media.

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<sup>20</sup> Adam Mathes, “Folksonomies – Cooperative Classification and Communication Through Shared Metadata [Online Report].” *Journal of Computer-Mediated Communication - JCMC* 47 (January).

<sup>21</sup> Ibid.

<sup>22</sup> Ibid.

The visual design of Instagram is iterative. Currently, Instagram is divided into five tabs. All of the tabs allow for different ways to search through material. The explore page combine with the search bar allow users to search using specific access points. *Online Popularity and Topical Interests through the Lens of Instagram* describes the dynamics of Instagram tagging systems. “Instagram exhibits a mixture of features including social structure, social tagging and media sharing. The network of social interactions among users models various dynamics including follower/followee relations and users' communication by means of posts/comments. Users can upload and tag media such as photos and pictures, and they can *like* and comment each piece of information on the platform.”<sup>23</sup> *Online Popularity and Topical Interests through the Lens of Instagram* describes hashtag behavior: “First, the tag usage mechanism seems to follow an information economy principle of least effort, that is that the majority of media are labeled with just a few tags, and larger sets of tags assigned to the same media are increasingly more unlikely to be observed.”<sup>24</sup> The article also delves into an analytic study of hashtag popularity. Specifically, “Second, although the mechanism describing the assignment of tags is not quite by preferential attachment, the outcome of the process, that is the overall tag popularity, follows a power law behavior. Similar findings have been observed in other popular systems, like Twitter, where popular (hash)tags emerge from individuals' adoption [45]. Limited attention of users and competition among (hash)tags have been hypothesized as explanation of the emergence of such broad distributions.”<sup>25</sup>

*Instagram Hashtags as Image Annotation Metadata* describes types of tagging that Instagram uses “Instagram hashtags, and especially those provided by the photo owner / creator, express more accurately the content of a photo compared to the tags assigned to a photo during explicit image annotation processes like crowdsourcing. In this context, we explore the descriptive power of hashtags by examining whether other users would use the same, with the owner, hashtags to annotate an image.”<sup>26</sup>

One user centered purpose of Instagram is to browse, but companies and individuals use user's attention to sell.” Figure 7 also shows that posts shared by worldwide brands (topshop,

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<sup>23</sup> Emilio Ferrara, Roberto Interdonato, and Andrea Tagarelli, “Online Popularity and Topical Interests Through the Lens of Instagram.” In *Proceedings of the 25th ACM Conference on Hypertext and Social Media*, 24–34. HT ’14. New York, NY, USA: ACM. <https://doi.org/10.1145/2631775.2631808>.

<sup>24</sup> Ibid.

<sup>25</sup> Ibid.

<sup>26</sup> Stamatios Giannoulakis, and Nicolas Tsapatsoulis, “Instagram Hashtags as Image Annotation Metadata.” In *Artificial Intelligence Applications and Innovations*, 206–20. IFIP Advances in Information and Communication Technology. Springer, Cham. [https://doi.org/10.1007/978-3-319-23868-5\\_15](https://doi.org/10.1007/978-3-319-23868-5_15)

louisvuitton, gucci, disney, converse) receive a large number of likes. These posts may be shared either by the brands themselves or by their fans. It is well-known that brands use Instagram as a

Controlled Access Headings
<b>Corporate Name(s)</b>
<ul style="list-style-type: none"><li>• Institute of Electrical and Electronics Engineers--Administration.</li><li>• United States. Advanced Research Projects Agency.</li></ul>
<b>Personal Name(s)</b>
<ul style="list-style-type: none"><li>• Kahn, Robert E.</li><li>• Kleinrock, Leonard</li><li>• Roberts, L. G. (Lawrence G.) -- Archives</li></ul>
<b>Subject(s)</b>
<ul style="list-style-type: none"><li>• ARPANET (Computer network)--Archives.</li><li>• Computer networks--United States--Archives.</li><li>• Computer science. Computer architecture and design--Archives.</li><li>• Internet (Computer network)--United States--Archives.</li></ul>

Figure 2 Authority name and subject headings within the above finding aid allow for uniformity for researchers.

self-promotion media, attracting the public interested in their products. Moreover, worldwide brands are also promoted by bloggers that tend to have a large number of followers increasing the probability of attracting many likes.”<sup>27</sup>

Finally, there is the archival use of metadata and description literature. The following pieces of literature regarding archival use of

standards and authority control are not on the cutting edge of academic research. Archival standards and agile development for Silicon Valley Products are quite different. There is an established method that is currently at work within archives. There are numerous archival encoding and formatting standards. From *Archival Description Concepts, Principles, Methodologies* “description is a major function in the processing of archival materials, and the products of this function are finding aids of various sorts which give administrators control over their holdings and enable users and archivists to find information about particular topics.”<sup>28</sup> “If the purpose of archival description is to provide access to materials, then archival description standards are mutually agreed-upon guidelines, rules, and specifications that prescribe methods of producing uniform and consistent results or products for use in providing access to primary source materials. These definitions are important because people should develop and embrace standards as strategies to further ends- in this case, improved access to archival materials. These definitions, however, are exceedingly broad. The creation of successful descriptive practice and

<sup>27</sup> C. S. Araújo, L. P. D. Corrêa, A. P. C. d Silva, R. O. Prates, and W. Meira, “It Is Not Just a Picture: Revealing Some User Practices in Instagram.” In *2014 9th Latin American Web Congress*, 19–23. <https://doi.org/10.1109/LAWeb.2014.12>.

<sup>28</sup> Lisa B. Weber, “Archival Description Standards: Concepts, Principles, and Methodologies.” *The American Archivist* 52 (4): 504–13. 1989.

standards to guide that practice requires archivists to articulate the objectives of description systems in measurable ways.”<sup>29</sup>

Summary Information	
Repository	UCLA Library Special Collections
Creator	Roberts, L. G. (Lawrence G.)
Title	L. G. (Lawrence G.) Papers
Date [inclusive]	1962-2009
Extent	1.0 box
General Physical Description note	The original materials are in good condition.
Location note	Stored off-site at SRLF. Advance notice is required for access to the collection. Please contact the UCLA Library Special Collections for paging information.
Language	English
Abstract	The collection includes professional and research files of L.G. (Lawrence G.) Roberts dating from 1962 to 2009 and includes: publications; notes

*Figure 3 The summary information of the finding aid is a concise description of the contents of the archival collection.*

Within the archive, the archivist “Using this descriptive data, chooses and formulates access points, such as the name of the author and the title of the work, for information retrieval. These access or entry points serves as index terms to the bibliographic description.”<sup>30</sup> Furthermore, archival finding aids also make use of data

structures which “to the format or container in which we organize information. People connect data structures to computer data-base designs, but data structures exist in non-automated environments as well. For example, inventories and registers are data structures. Data structures provide a specific place and uniform format for pieces or categories of information. Examples of data structure standards include the International Standard Bibliographic Description (ISBD) and the Common Communications Format (CCF). The US- MARC (United States Machine-Readable Cataloging) format for Archival and Manuscripts Control (AMC) is a standard data structure that U.S. archivists have adopted primarily to exchange information about their holdings. Use of the USMARC AMC format allows archivists to integrate descriptions of archival materials with those of other kinds of research materials.”<sup>31</sup> These formally formatted data structures exist within the context of archives to give access to individuals. Much of the archival literature, including the piece above, is lacking in terms o thoughts regarding interdisciplinary connections of themes.

Archival standards exist to ensure quality of access and the ability to transmit information. Formatting standards and description field standards were also created in order to exist within the digital world. The history of the structure of the archival finding aid is detailed in

<sup>29</sup> Ibid.

<sup>30</sup> Ibid.

<sup>31</sup> Ibid.

*Introduction—Encoded Archival Description: Context and Theory.* It began with “first, in selecting Standard Generalized Markup Language (SGML) as the metalanguage environment within which the EAD data structure (or Document Type Definition (DTD), in SGML parlance) would be developed, Pitti made a deliberate decision to position his finding aid encoding scheme somewhat “ahead of the curve” in terms of existing library and archival software applications.” Second, within the context of the revolution in access to all types of information that has been enabled by proliferation of the Web, librarians and other information professionals have sensed the potential of hierarchically structured finding aids for providing access to many such resources.”<sup>32</sup> This piece explicitly calls out the purpose of finding aids as to offer insights into collections. These finding aids had to be integrated into the digital world, so the data structure choices were quite impactful decisions.

Overall, the historical research provides a basis for understanding the topic of digital description and access in the form of social media. However, social media is still a fledgling allowing for a future full of more in depth and specific research of this topic. The user experience and human computer interaction literature distills to how and why people use social media. From that basis, academics then run experiments on those people to capture that answer. There is certainly room for more interdisciplinary research regarding the format of social media and how it branches out in its functionality. Social media is used as a vehicle for so many activities it is difficult to separate them out from one another. A searcher’s use of archives is often much more straightforward, and the literature reflects that purpose. Archival systems’ information is static. The finding aids do not change based on the individual accessing them, but instead are designed to incorporate descriptive metadata fields. Digital finding aids utilize these features of access points for searchers and researchers. Finding aids utilize the EAD encoding form and follow distinct rules for fields that are necessary in order to properly describe any resource and collection. Similarly, this sort of description may benefit social media users.

There is a large audience and user population for social media sites. Utilization of authority or DOI or URI could allow for a more streamlined and connected social media platform. “Instagram Application Programming Interface (API) allows to research tags placed by users and provides complete information on images and videos. Through the API, for each photograph it is possible to find an univocal identifier (id) and the link to two versions of the

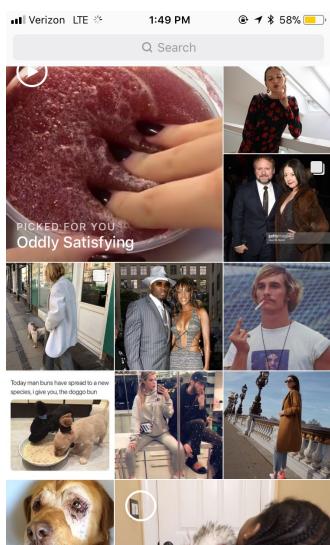
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<sup>32</sup> Jackie M. Dooley, “Introduction—Encoded Archival Description: Context and Theory.” *The American Archivist* 60 (3): 264–65. 1997.

same image (low resolution and standard resolution), the metadata that describe user name, date and time of image creation, the location where the picture was taken, the caption entered by the author, comments, tags associated to the image, number of likes and names of the users that gave their like. Other than the metadata associated to images, metadata associated to each user that has posted a picture can be extracted. These metadata allow to find number of followers and following, email address, number of posts and a brief biography.”<sup>33</sup>

Currently there are informal standards for how certain people, businesses or institutions share content. With more standardization of description, this content will be capable of reaching larger audiences. This engagement with material in various ways (liking, saving, tagging, creating own archive) boosts Instagram’s interactive experience as it takes more than taking a

photo and posting to generate descriptive content. There are different pages, feed of people followed, an explore page to search in various ways, feed of what followers have liked, feed of a user’s interaction with others, personal page, can view that in different ways, can save other people’s posts (can categorize others posts based on an individual’s own system) and can remove your old posts, and stories feature. can move through the site in various ways as opposed to other social media where experience is more dictated. Rise of marketing via Instagram i.e. influencers, brands Instagram’s accounts.



*Figure 4 Instagram's explore page*

Instagram’s design allows for flexibility of content’s description by a user. Hashtags as search and retrieval/tagging within pictures, caption, and comment. Explore page/window of Instagram allows to search via hashtag or “tag”. Archive function within Instagram—can remove a photo from an individual’s feed and put in in a place where only the user can see it. If trying to cultivate a certain “mood” and photo no longer fits. Use of feature building own “collection” within Instagram. An individual account can save other’s photos to build a new collection. Though there is not necessarily an aspect of research that is often prevalent in formal archives, this function within Instagram utilizes similar ideas of collection and curation.

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<sup>33</sup> Ibba et Al., “Hashtag of Instagram From Folksonomy to Complex Network”. DOI: 10.5220/0005613502790284

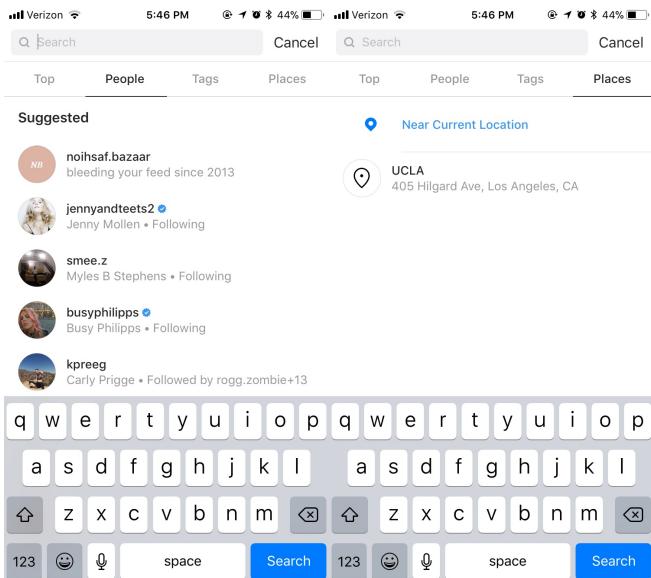
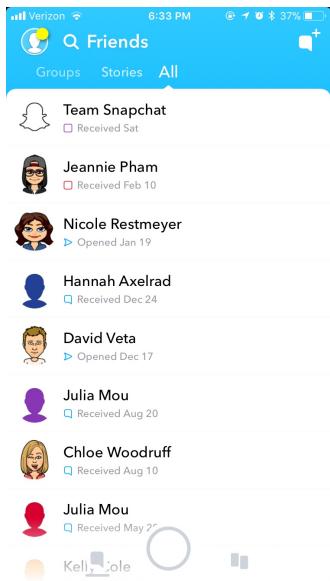


Figure 5 Various ways to search content. Top, people, tags, places

other social media that don't allow categorization within design. Search features delineate between people, tags, places. Users are most often describing their own content, but users can also tag peoples' photos via comments. These interactions lead to a greater sense of engagement. Users can also tag other users in posts they may think they may enjoy. Business and advertisements when better described/tagged posts are searchable, can reach a broader audience. This information most likely feeds into Instagram's algorithms. "An important aspect of a folksonomy is that it is comprised of terms in a flat namespace: that is, there is no hierarchy, and no directly specified parent-child or sibling relationships between these terms. There are, however, automatically generated "related" tags, which cluster tags based on common URLs. This is unlike formal taxonomies and classification schemes where there are multiple kind of explicit relationships between terms. These relationships include things like broader, narrower, as well as related terms. These folksonomies are simply the set of terms that a group of users tagged content with, they are not a predetermined set of classification terms or labels."<sup>34</sup>

Branching from the ideas of description of content from archival practices, social media's content can be better described in a more authoritative manner. Description allows for greater access to content and therefore a more beneficial tool. Though the purpose of social media and the purpose of archives are most frequently different, the formatting of the two have commonalities. Instagram's integration of archival like features make the social media platform a personal archive for many users. Instagram's use of user generated description. As opposed to

<sup>34</sup> Adam Mathes, 2004. "Folksonomies – Cooperative Classification and Communication Through Shared Metadata [Online Report]." *Journal of Computer-Mediated Communication - JCMC* 47 (January).



*Figure 6 Snapchat does not utilize user generated description as seen in this interface. Users can only post videos or photos.*

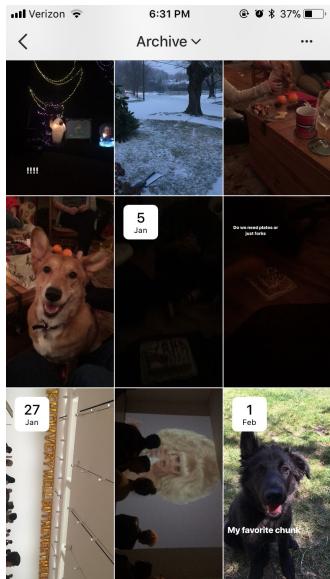
Even within the realm of social media, there are differences in the use of description even when they work with similar content formats such as text, photos, and videos. With Snapchat, the only description available to the user is who an account is friends with or follow. There is not a notion of lasting content and therefore not much of a connection to a personal archive as with Instagram. With Snapchat, a user can see their generated/created stories. The user cannot search places or tags, although there is now a search function. Twitter can use hashtags, pin tweets, save, retweet. Twitter users also have a timeline which cements their activity into a lasting repository. Hashtags allow for storage of an idea within an archive of related thoughts/images. As opposed to other social media that don't allow categorization within design. Links of tags to a

page. Instagram's formatted search features delineate between people, tags, places. These levels of search allow for more specific information to be provided and accessed.

Greater and more authoritative description of images could allow for algorithms to work more accurately when integrated into suggested posts such as Instagram's explore page as "the main purpose of social tagging is thus to facilitate visibility of information (visibility of images in Instagram's case) for the creation of recommendation systems."<sup>35</sup> Combined with previous search history, the accuracy of description of content furthers the power of algorithms. This is especially notable as the explore page change has evolved since purchased by Facebook. It was once home to the overall most popular posts on the site, but it now a reflection of what other content may be most relevant to the individual user. How users browse, search and find resources is an issue of continuing interest especially to companies who provide platforms for various content. Though not necessarily public knowledge, perhaps there is a way these platforms will work more authority control and description into the structure of their sites. When discussing folksonomies, Adam Mathes succinctly writes that "while the controlled vocabulary issues discussed above may hamper findability, browsing the system and its interlinked related tag sets is wonderful for finding things unexpectedly in a general area."<sup>36</sup>

<sup>35</sup> Ibba et Al., "Hashtag of Instagram From Folksonomy to Complex Network". DOI: 10.5220/0005613502790284

<sup>36</sup> Adam Mathes, "Folksonomies – Cooperative Classification and Communication Through Shared Metadata [Online Report]." *Journal of Computer-Mediated Communication - JCMC* 47 (January 2004).



*Figure 7 Archive function of Instagram where old posts can be placed away from view.*

With this sort of formatted description, users can also categorize their own content and create individual access points. These individual access points have the opportunity to connect to greater communities. Though authority control is not always utilized. Businesses do often have preferred hashtags. Implementation of DOIs could be taken from either archives or internet resources. Delineating references of tags and hashtags could provide access points to users. Instagram's use of user generated description is the front-end version of description. Instagram's interface allows for implementation of the archival practice (that is also seen in similar form in the form of URIs) of access points and authority control. The interface currently consists of pages for feed, explore, posting, personal account and photos. Instagram, as a widely utilized

platform, contains features of an archive and some principles of authority control for description and access. Users can create their own archives use the archive feature. As these features are quite recent transitions for the platform, not much exists in the way of academic research. Instead, analysis of these features must be researched via technical news sites. One very relevant feature is the archive; “The feature further addresses the problem Instagram realized last year: people think it’s only for the highlights of their life. To that end, Instagram copied Snapchat’s Stories feature to add an ephemeral sharing option. But deleting permanent Instagrams was always a one-way street. Now if Instagrammers want to hide a post that didn’t perform well, manicure the look of the top posts on their profile, or hide their creations for any other reason, the archive gives them the ability to bring them back from the dead later.”<sup>37</sup> This digital archive within Instagram is an explicit call out to the formal archive. Though the entirety of Instagram, placed in the archive feature or not, functions often as an archive.

Many individuals and many communities make use of social media for various reasons. Different communities may also describe their content in different manners. A standardization for description of social media would need to take these differences into account as social media users is a very broad grouping. Particular groups of users, and their motivations, goals, and

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<sup>37</sup> Josh Constine, “Instagram Deters Deletion with Reversible ‘Archive’ Option.” 2017. *TechCrunch* (blog). May 23, 2017. <https://social.techcrunch.com/2017/05/22/instagram-archive/>.

expectations; companies versus individual. Public versus private. Archives' purpose is often that of specific information retrieval for various kinds of research. Users of social media have various motivations. If they are personal, users' goals may be to share content with friends. Companies use social media to connect with customers and promote their brands. Instagram as a platform allows for use by particular institutions with different missions which are reflected in their use of descriptors. These companies and institutions have flocked to social media as a form of advertising and as a way to connect with their customers and audience. "The main tool in the hands of a manager of an Instagram profile is hashtags: a suitable hashtag makes the content visible to all users interested in that specific topic, and also gives visibility to the profile, generating additional followers. Content with suitable hashtags generates likes and comments that make the account visible in the "Explore" tab, where new content of interest can be found."<sup>38</sup> Connections between companies that use Instagram as a marketing tool and other users are formalized with the use of hashtags. These standardized tags function as the sort of authority control that may be implemented by other users. The standard company tags allow for customers or users to accurately connect with the brand via social media. The correct tags also allow for customers to appear on the company's tagged page. Company's use of standardized tagging offers a glimpse of the benefits of controlled vocabulary on social media.

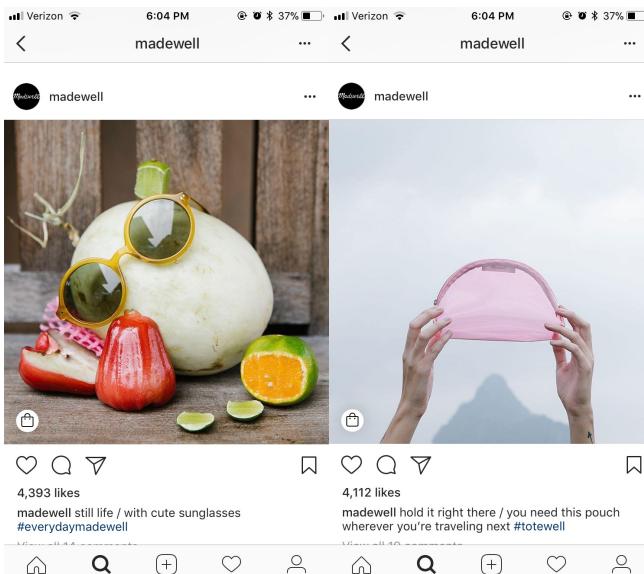
Instagram is a reflection of particular collections of resources specifically personal photos and photos used for marketing. Within the realm of Instagram, "influencer marketing is growing tremendously, in report by Fashion and Beauty Monitor in association with Econsultancy (2016, 3) "A healthy majority of survey respondents, 57%, say they already have an Influencer Marketing programme underway. Currently a quarter are allocating between 30% and 75% of their marketing budget to Influencer Marketing." <sup>39</sup> The purpose of this content is different than the commemorative purpose of personal content, but can still utilize the same standardization of tagging systems.

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<sup>38</sup> Ibba et Al., "Hashtag of Instagram From Folksonomy to Complex Network". DOI: 10.5220/0005613502790284

<sup>39</sup> Veissi, Iman. "Influencer Marketing on Instagram." n.d. Accessed March 20, 2018.

[https://www.theserus.fi/bitstream/handle/10024/135448/Iman\\_Veissi.pdf?sequence=1](https://www.theserus.fi/bitstream/handle/10024/135448/Iman_Veissi.pdf?sequence=1)



*Figure 8* Madewell implementing a hashtag to brand their posts with. Often users will utilize the same hashtags when posting about the brand.

mention your brand on social media can lead to a higher search engine ranking (Barker 2016.)”<sup>40</sup> By integrating marketing of products into the browsing of social media, companies are able to reach new consumers. These same companies also often create unique hashtags to categorize their postings.

Social media and archives are both particular kinds of repositories. Archival finding aids can be compared to the features with social media platforms especially Instagram, Twitter, and Snapchat. Instagram is designed to allow for a multitude of ways to explore within the site. Users have multiple access points to various content and this adaptability is seemingly a factor in its longevity. The categorization of photos with self-made tags is another level of interaction with content that other social media (i.e. Snapchat) do not offer in the same robust manner.

Twitter is another popular social media site that makes use of different forms of description. The movements through content on Twitter have evolved over time; a feature similar to other social media sites. “For Twitter, while retweets and replies can be measured and connections between users identified through following relationships and @mentions, there are several practices that imply connections without necessarily creating a formal, structural link. Tufekci (2014) outlines some of these practices, including sub-tweeting (discussing others without explicit mention of

Social media focused marketing has taken off in recent years and Instagram is a very popular site for this new form of advertising. Social media advertising is in part a result of “the ever-growing number of adblock users (Barker 2016). According to the Adblock report published by Pagefair (2017, 5), the number of Ad-block users with mobile and desktop users has grown by “142 million between Dec 2015- Dec 2016”. Because of this, marketers can’t rely on the fact that traditional advertising will reach consumers. Also getting people to

<sup>40</sup> Ibid.

their name or Twitter handle) and screencapping (including screenshots of comments in tweets)."<sup>41</sup> Formalized description of material and users evolved with usage of the social media platform as "when Twitter was initially launched in 2006, there was no technical or social convention for replying to another user, for organising tweets together, or for indicating that a tweet was part of a broader topic. All of these affordances emerged from the social uses of Twitter's early users, with the '@' reply convention, retweeting, and, hashtags all becoming technically formalised in Twitter's architecture (Halavais, 2013). The use of the hash (or sometimes called the pound or number sign) character before certain terms indicated a desire to group tweets socially, or as Halavais explains, these are '... a way of indicating textually keywords or phrases especially worth indexing ... by using the # character to mark particular keywords, Twitter users communicate a desire to share particular keywords folksonomically'"<sup>42</sup> Both Twitter and Instagram give an introduction to material via description that could be made even stronger if authority controls were to be implemented.

Given the prevalence of tags in some social media apps combined with those apps' sustained popularity, future social media apps will incorporate this functionality. Academic research seems to be burgeoning. Algorithms are a subject that scholars are exploring. Metadata and data about content is especially valuable to companies as they try to boost engagement. Their metrics are proprietary, but a good portion of this research exists to explore what this data means. Social media platforms can utilize practices of authority control and access points from archival methods. Though the format of social media is notably different than the static archival finding aid, authority control is utilized across fields. Unique identifiers and controlled name and subject headings allow users to correctly connect with posts. This could allow for a more connected form of social media connection where users are able to search and collect posts that are related.

Instagram is not necessarily a search and retrieval tool and its purpose is much more adaptable than the traditional archive. Furthermore, there is not an ideal or prescribed way to search through content. However, the format of Instagram and other social media platforms leaves an opening for greater use of description of content. The format of Instagram currently allows users to have feeds with posts they have intended to follow as well as options of browsing through general, people, tags, location. These descriptors function as access points to various

<sup>41</sup> Tim Highfield, and Tama Leaver, "A Methodology for Mapping Instagram Hashtags." *First Monday* 20 (1) 2014. <http://www.firstmonday.dk/ojs/index.php/fm/article/view/5563>.

<sup>42</sup> Ibid.

categories of content within the platform. All the areas people can tag and subsequently, these aspects of the interface have the opportunity for standardized description and access. In a similar sense, archives utilize similar access points. Archives possess much more of a search and retrieval function as they are more often used for professional purposes.

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# Elective Paper – User Experience Design

This was a highly collaborative project from the course User Experience Design taken in Spring 2018. I served as the client partner and was the key communicator with our client. Together, we frequently video chatted and used Google Documents to create experience maps and interview questions. Ulysses and I completed the card sort of the initial survey. The team collaborated for the final recommendations and the remainder of the report.

**Objective for class:** "Upon completion of this course, students will have an understanding of common tools and processes, nomenclature, and professional practices in user experience design. They will conduct independent research, defining the problem, gathering and analyzing data, and formulating recommendations. They will work on their presentation skills and project management practices, and will also learn about the context of professional practice."

**The project** consists of a process undertaken in order to produce a collection of interim deliverables that culminates in a set of strategy recommendations. These are then delivered to the client.

**Justification for including:** This is a User Experience design project that evaluated CORAL ERM and provided recommendations for User Experience design changes. This class provided fundamental understanding of User Experience Design which I applied at my User Experience Research and Design internship at the Getty Research Institute the following summer.

# CORAL

## Final Report

Laura Jara, Lorie Kim, Ulysses Pascal, Ashton Prigge, Rebecca Townsend

UCLA • UX Design 279 • Spring 2018

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# CORAL Final Report

Laura Jara, Lorie Kim, Ulysses Pascal, Ashton Prigge, Rebecca Townsend

## Executive Summary

- Major Findings about Users:
  - Many users are using an outdated version of CORAL.
  - Many users use only some modules.
  - Some users expressed frustration with how the modules integrate with one another and with outside systems.
- Recommendations:
  - Establish consistency across the system in language, visual design, layout, and wayfinding.
  - Minimize interruptions to user tasks, so that users do not need to navigate to new modules or windows in order to complete a single task.
  - Add descriptive elements to homepage to aid navigation.
  - Change functionality of search and sorting.

## Overview of Research Methodology

We incorporated a number of research methods into our user experience analysis. We began with an initial exploration of the CORAL demo and a stakeholder interview to identify areas of focus. We then analyzed responses from a previous survey, conducted user interviews and cognitive walkthroughs, and conducted our own survey of users to answer additional questions. A summary of our process and findings for each of these steps follows.

### Initial exploration

We began by exploring the CORAL demo to try to learn what CORAL was, how it worked, and how its modules fit together. We discovered that CORAL is complex and features interoperable modules. Figuring out how the individual pieces fit together was a necessary first step for beginning our research.

### Stakeholder Interview

We went initial questions to Tommy and the Steering Committee in order to determine our goals and plan for the project. Some of our key takeaways from this initial point of contact were:

- Since all of the coding work on CORAL is done by volunteers, there are limited resources for improvements, and UX issues often take the backseat to functional issues.
- As a result, any UX recommendations that might be relatively easy to implement would be most valuable.

- Stakeholders identified certain potential pain points, such as form interaction and modal windows.

### Card Sort (of former survey)

Our first step in user research involved analyzing the 58 results from CORAL's Road Map Survey. Our process was to create printed cards with individual key-in responses from the survey and then sorted them thematically based on similar ideas to gain a sense of which performance issues held the most weight with users.

Some of the key pain points that we identified included:

- Saving work and work flows
- Saving commonly used forms
- Integration with other ILS systems
- Finding and managing duplication

Additionally, we did a UX heuristic analysis of the survey, and discovered that it CORAL is:

- Useful
- Credible
- Controllable
- Valuable

But it is not

- Findable
- Clear
- Communicative
- Accessible
- Learnable
- Delightful

The card sort also illuminated the questions that we still had about the specific terminology used within CORAL, what these functions were, and how they worked with one another, so we arranged for a walkthrough with Tommy Keswick to better understand how resource librarians actually interact with the system.

### User Research

Our most important goal was to talk to actual CORAL users. We reached out to them via the CORAL email list. We also sent our call for participation to the UCLA IS-NET (students, alumni, staff, faculty, etc) email list, in an attempt to reach other electronic resource librarians. One challenge for our research is that CORAL is used by a very specific and highly specialized user base (librarians who manage electronic resources). This means that our pool for user (or potential user) interviews is rather limited. It also means that it is not

always obvious what users mean in their survey responses, or where problems lie, as managing electronic resources is a specific task that none of us have experience with.

### User Interviews

Though we had limited responses to our request for participation, we were able to conduct four user interviews, three of which included some form of a cognitive walkthrough of a task in CORAL. Our user interviews were conducted virtually with librarians from institutions across the country.

#### *Key findings:*

- Many users were still using an outdated version of CORAL. Some expressed fear that updating their software would “break it” or that they would lose their existing records.
- One librarian was using the Organizations module for resources, but did not want to go to the trouble of switching to Resources because inputting records was so cumbersome.
- Multiple librarians expressed some frustration with usage statistics, both in terms of importing reports and searching existing statistics.
- One librarian expressed a desire to be able to more easily duplicate information for products that shared facets, and to more easily do a global update on resources with shared characteristics.
- Multiple librarians are still using other spreadsheets in tandem with CORAL; it is not meeting all of their needs.
- One interviewee had IT department run extra reports, including a report on duplicate license entries on a weekly basis, because CORAL did not have this functionality.

### *Narrowing Scope*

After doing our user interviews, it became even more evident that CORAL is a huge platform with five different modules with many interoperabilities, and our understanding and time frame constrained us. After consulting with stakeholders, we decided to pursue a UX project surrounding the Resources Module.

### User Survey

After completing all of our user and stakeholder interviews and narrowing down our scope, we analyzed our findings and as a group created survey questions that both varied from our interview questions and CORAL’s previous survey, to hone in on the issues within the Resources module that users were encountering. In order to ensure that we reached a wide range of users geographically, we distributed our survey via the CORAL listserv as well as through the CORAL newsletter, linking directly to our survey. Due to the nature of

the survey and the platform we utilized we were quickly able to receive responses for analysis.

*Process of creating the survey:*

- Group collaboration
- After completing our stakeholder and user interviews, we synthesized our new questions for a survey
- We also ensured that this survey was distinctly different from the previous CORAL survey
- We wanted to reach geographically diverse users, so we emailed the link to survey to CORAL's listserv and had it linked on CORAL's newsletter
- The survey findings supported our previous findings from the interviews and previous survey:
  - People focused on wanting to fix modules that did not work at all for them, such as the Usage Statistics
  - CORAL users wanted modules to be fixed, such as usage Statistics
  - People were unsure of where they are within the modules when using CORAL
  - People wanted more search guidance and search possibilities
  - 65.2% of survey respondents use the Resources module

Please see the appendix for the full individual responses to our User Survey.

*User Persona*

- We shaped our user persona by referring to our four user interviews and generalized our interviewees, who were all resource librarians who use CORAL for work and as an alternative or supplement to spreadsheets

Please see the appendix for the User Persona in greater detail.



"How did I end up with so many tabs?"

**Age:** 55

**Work:** Electronic Resources Librarian

**Location:** Los Angeles, California

Organized

Busy

Eager to Learn

### Goals

- Add a new resource.
- Find and edit a resource.
- Overall, keep track of the library's electronic resource subscriptions, and do so efficiently and with ease!

### Frustrations

CORAL is a complex system, capable of accomplishing various tasks. However, it can be complicated to use. Various parts of the system do not talk to each other or interoperate, which requires users to jump between forms/modules/etc in the middle of their tasks. This interrupts workflow.

The system lacks consistency in language and format, which makes it difficult to learn and use effectively.

### Bio

Has been an electronic resources librarian for an institution in Los Angeles for the past 2 years. The library in which the user works at recently introduced CORAL, but before using CORAL the user had been using a series of spreadsheets to organize and manage the library's electronic resources.

### Brands & Influencers



## User Experience Maps

We focused on two tasks within the Resources module and drew up as-built and ideal user experience maps for each:

1. Adding a resource in CORAL
  - a. As-built: as the system currently exists
  - b. In an ideal system
2. Finding & editing a resource on CORAL
  - a. As-built: as the system currently exists
  - b. In an ideal system

Please see the Appendix for each User Experience Map.

1a. While exploring the feature of adding a resource in CORAL's existing Resources module, we found that...

- Format/Acquisition/Resource types can prompt interruption if the type(s) a user is looking for needs to be created:
  - The user has to exit out of the 'Add New Resource' pop-up form,
  - Go into the 'Admin' end, which is a completely different interface (albeit relatively straightforward),
  - And go back to find the resource he/she was in the middle of adding...

- ...in order to fill in the rest of the ‘Add New Resource’ pop-up form for the given resource and complete the single ‘Add’ task.
- The multiple steps that this interruption creates complicates the process of adding a new resource on CORAL, which can have larger implications on the entire system. For instance, one of our interviewees mentioned that she and her staff are often guilty of not completely filling in information in an ‘Add’ form– they leave some fields blank, skip all fields that require jumping out to a different part of the system, or simply forget to revisit and fill in an incomplete form and either submit it in an incomplete state or fail to submit it at all, etc. This ultimately affects their use of the entire system going forward. Not only does it create inconsistency in their records, which hinders their management responsibilities and tasks, but it also creates a backlog of records to clean up, which adds to their workload and workflow.

1b. In an ideal system, adding a resource in CORAL would be improved by consistency, organization and simplification.

#### *Consistency between Add New Resource and Edit Resource Forms*

1 Consistent labels , 2 consistent user options , and 3 consistent interface elements will increase users’ confidence that they are in the right place and editing the right aspect of a resource, in a way that is familiar to them. For example, in the current system, “product” and “resource” are used to label the same thing. We recommend to pick one label, and

use it consistently. Similarly, the current system presents the user with different options when adding resource and when editing it. We recommend to offer the users consistent options in both forms. Lastly, the current system uses different UI elements to represent the same options in adding and editing forms. We recommend using a consistent UI element in both forms.

### *Organizing Form Options* 4

We suggest organizing forms structurally, lexically, and visually by grouping similar user options together, creating labels for similar user options, and by removing unnecessary gaps between labels and options. Specifically, we recommend grouping the “resource format”, “acquisition type”, “resource type”, and “ISSN/ISBN” options under the label “Resource Categorization”. We also recommend organizing “Aliases”, “Parent Resources”, “Subject Relationships”, and “Organizations” under a label that indicates that all of these options connect resources to other entities. Suggestions for this label include “resource links”, “resource linkages”, or “resource relations.”

### *Simplification*

We recommend that the Add and Edit Resource Forms be simplified. One major simplification includes either removing or easing the interruption that occurs when a user must create a new resource format, acquisition type, or resource type. Adding an option to create a new type within the form, or providing clear direction on how to create a new type will alleviate this point. Another way to simplify the form experience is to create a reusable type of UI for similar types of interactions. In the current system there are multiple types of interactions for the action of adding an additional token of a type of input option, such as an additional URL, ISSN, Alias, or Organization. 5 The micro-interaction of “adding an additional x” can be simplified if CORAL implements a standard interface type for this action<sup>43</sup>. By doing so, it will be easier for users to learn how to use the system. Lastly, we recommend simplifying the form experience with searchable dropdown menus.<sup>44</sup> Searchable dropdown menus will make it easier for advanced users to navigate the form because they will have to spend less time scanning the drop down list. Furthermore, searchable dropdowns will enable users to tab through the form without needing to use a mouse.

### *Consistency and Organization in Resources > Admin*

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<sup>43</sup> Clickable UI prototype for adding additional links: <https://xd.adobe.com/view/13a51ec9-3d32-41ae-40b9-97cd8b67ace4-6594/screen/f73ba8bf-6867-433a-bfb0-5174a49dd158/Artboard-1>

This same interaction pattern can be used for instances of adding additional input options.

<sup>44</sup> For an example of a searchable dropdown menu see: <https://semantic-ui.com/modules/dropdown.html#search-dropdown>

The screenshot shows the CORAL software interface. At the top, there is a navigation bar with links: CORAL, Resources (highlighted), Licences, Organizations, Usage Stats, Workflows, Help, Home, Add New Resource, Queue, Import, Export, Dashboard, and Advanced Settings. Below the navigation bar is a sidebar titled "Advanced Settings". The sidebar is divided into several sections: "RESOURCE RECORD" (Alias Type, Attachment Type, Resource Format, Resource Type, Note Type, Subjects), "ORDERS AND ACQUISITIONS" (Acquisition Type, Cost Details, Currency, Funds, License Status, Order Type, Purchasing Site), "ACCESS" (Access Method, Administering Site, Authentication Type, Authorized Site, Storage Location, User Limit), "CATALOGING" (Cataloging Status, Cataloging Type), "ORGANIZATIONS" (Contact Role, Downtime Type), "CORAL USER ADMINISTRATION" (External Login Type, Users), and "DATABASE INTEGRATION" (EBSCO Kb Config, Import Configuration). At the bottom of the sidebar, there are links for "CONTACT US" (Report an issue, Feedback) and "INFORMATION" (Documentation, Github). A copyright notice "Copyright © 2018" is also present.

**1** First, we recommend relabeling the section of the resource module currently termed “Admin” as “Advanced Settings”. Admin has the connotation of managing multiple user roles, however many of the settings in this section of the module are available to non-admin level user roles.

**2** Second, we recommend categorizing the options in the the left sidebar according to the custer of settings they are related to in resource record page in order to create a more consistent mental model of these different user tasks.

2a. While exploring the features of finding and editing a resource in CORAL’s existing Resources module, we found...

- Unintuitive searching and limited sorting affects the finding task
  - Aspects of the search bar(s) are not intuitive
    - Certain fields are not straightforward: i.e. why ‘name’ and not ‘title’ or ‘resource name,’ as those terms appear elsewhere in the system? The language needs to be made consistent across CORAL and on the search bar
    - Though the search/filter capabilities are vast and flexible, the way the options are presented is quite overwhelming. They can be organized in a better way, in a single search bar, for better configurability.
  - Expanded sorting options would be advantageous

- 71.4% of our survey respondents said they would like to have more control over how resources are sorted
  - Survey Respondents selected/keyed-in the following sortation options that do not currently exist as potentially useful sorting capabilities
    - Date Modified
    - Publisher or Parent Organization
    - Date of the materials that are being referenced
    - Item Type
    - Primary Keys: Resource, Subject Guides
- Inconsistent format/language/layout of the system and form ‘Edit Resource’ form itself complicates the editing task
  - There are two (different) ways to get to the same ‘Edit Resource’ form
  - Form fill accepts information in an inconsistent way
  - There is no ‘Save’ button like the ‘Add Resource’ form
  - ‘Submit’/‘Cancel’ buttons are at the bottom of the form, and users need to scroll down to access them

**2b. In an ideal system, finding and editing a resource would be made more controllable, organized, consistent and navigable.**

*Improving Finding with Controllability and Organization*

The screenshot shows the CORAL application's Resources module. At the top, there are navigation links: CORAL, Resources (highlighted), Licenses, Organizations, Usage Stats, Workflows, and Help. Below the navigation is a header with Home, Add New Resource, Queue, Import, Export, Dashboard, and Advanced Settings. On the left, a sidebar titled "FILTER RESOURCES" (marked with a green circle containing a number 2) contains several dropdown menus and checkboxes for filtering resources. The main content area shows a table of 3768 resource records, with the first 25 listed. Each record includes fields for Resource Name, ID, Creator, Date Created, Date Modified, Acquisition Type, and Status. A search bar at the top right of the main area includes buttons for "Add Resource", "Import", and "Export".

The search bar is the most used tool for finding resources. 1 We recommend making the search function more prominent and simplified to reflect its importance. The current UI for search is unfamiliar, and mixes filtering with searching, which is confusing. 2 To solve this, we recommend separating the search function from filtering.

3 The filter sidebar can be improved by reorganizing the filter options into meaningfully organized groups. For example, “General Subject” and “Detail Subject” filters can be organized under a single “Subjects” label, as they are in the Admin section of the resources module. Similarly, “Creator”, and “Creation date” can be grouped near one another because they are logically related.

4 Sortation can be improved by being made more controllable. The most important improvement to the sortation function is to make it provide feedback to the user. In the current system, sortation UI in the header row of the resources table does not visually indicate whether the list is organized alphanumerically or reverse alphanumerically. By linking the direction of the sortation arrow to the direction of the sorting function, users will be able to navigate search more intuitively. Lastly, we recommend adding additional

columns to the resource table, such as a “date modified” or “publisher” column, or to allow the user to personal columns to display. Our recommended table columns are:

- Date Modified
- Publisher or Parent Organization
- Date of the materials that are being referenced
- Item Type
- Primary Keys: Resource, Subject Guides

## ***Improving Editing a Resource with Consistency and Navigability***

The screenshot shows a web-based application interface for managing resources. At the top, there's a navigation bar with tabs like CORAL, Resources, Licenses, Organizations, Usage Stats, Workflows, and Help. Below the navigation is a secondary menu with Home, Add New Resource, Queue, Import, Export, Dashboard, and Advanced Settings.

The main content area is titled 'EDIT RESOURCE RECORD' with a red circle containing the number 1. It contains several input fields and dropdown menus:

- RESOURCE NAME:** A text input field containing "American Music Reference".
- DESCRIPTION:** A text area with a detailed description of the 'Music Online' database.
- URLs:** A text input field with the URL "https://search.alexanderstreet.com/amso".
- PRODUCT CATEGORIZATION:**
  - Resource Format:** A dropdown menu set to "Electronic".
  - Acquisition Type:** A dropdown menu set to "Database".
  - Resource Type:** A dropdown menu set to "Select Resource Type".
- ISSN/ISBNs:** A text input field with the value "978-3-16-148410-0".
- RESOURCES LINKS:**
  - Aliases:** A section for adding aliases with a "Select Alias..." button and a "Submit" button.
  - Parent Resources:** A dropdown menu set to "Select Parent Resource".
  - Subject Relationships:** A section for selecting subject relationships with a "Select Subject..." dropdown and a "Submit" button.
  - Organizations:** A section for selecting organizations across three categories: Provider, Vendor, and Platform, each with a dropdown menu and a "Submit" button.
- NOTE:** A text area for adding notes with a placeholder "Add a Note...".

At the bottom right of the form are three buttons: Cancel, Add to Queue, and Submit.

At the very bottom of the page, there are links for CONTACT US (Report an Issue, Feedback) and INFORMATION (Documentation, Github), along with a copyright notice: Copyright © 2018.

1 We recommend making the “Editing a resource” feature more consistent with the “adding a resource” feature, and with the display of the resource information in the product tab. In the current system, adding and editing a resource use very different forms, which is confusing. Both forms should provide consistent options.

The screenshot shows the CORAL software interface. At the top, there's a navigation bar with links for CORAL, Resources (which is highlighted), Licences, Organizations, Usage Stats, Workflows, and Help. Below the navigation bar, there are links for Home, Add New Resource, Queue, Import, Export, Dashboard, and Advanced Settings. The main content area is titled "RESOURCE RECORD" with a red circle labeled "3" next to it. On the left, there's a sidebar with a "Resource Record" heading and a list of links: Acquisitions, Access, Orders, Cataloging, Contacts, Issues/Problems, Workflows, and Attachments. The main content area contains several sections: "DESCRIPTION" (with a detailed text about the American Music database), "URLS" (listing the URL as https://search.alexanderstreet.com/ams0), "PRODUCT CATEGORIZATION" (listing Resource Format: Electronic, Acquisition Type: Database, and Resource Type:), "RESOURCE LINKS" (listing Aliases: None, Parent Resources: None, Subect Relationships: Music > American, and Organizations: Provider: Alexander Street Press, LLC, Vendor: ProQuest LLC, Platform: ProQuest LLC), and a "NOTE" section (listing ISSN/ISBNs: 978-3-16-148410-0 and Flag for renewal). A red circle labeled "2" is positioned over the breadcrumb "Resources > American Music Reference". A red circle labeled "3" is positioned over the "Edit" button.

Before the resource can be edited, the user must review the resource to determine if it needs to be edited in the first place. This stage of the process can be improved by making it more navigable. First, in the current system, the resource record page (also called “the product tab”) does not have a clear relationship to the rest of the resource model. There is very little indication of where in the site the user is. **2** To remedy this we suggest adding breadcrumbs and clear titles to indicate what specific resource is being viewed, and what hierarchical relationship it has to the rest of the resources module. **3** We also recommend structuring the information on the resource record page to mirror the structure of the options in the “add resource” and “edit resource” pages.

## Wireframes

Please visit our navigable wireframe hosted on xd.adobe.com:

<https://xd.adobe.com/view/13a51ec9-3d32-41ae-40b9-97cd8b67ace4-6594/>

## Overall Recommendations CORAL

- Solve the interruption that occurs by having to go to another section to add or manipulate data and then return to task at hand
- Make the system (its visual language, layout, formatting and language) consistent

## CORAL Final Report – Post-mortem

### Start:

- **Scope:** Know the entire scope of software before signing up
  - CORAL is very different from a website; it is a software. With CORAL, users work within the system with more of an input/output relationship, while websites are just used for information consumption. There are multiple ways users can accomplish the same task on CORAL, which makes understanding the user experience much more nuanced and complex.
- **Practice:** More design practice and/or exposure to more UX ideas and understanding of how others have tackled designing UX within software.
- **Comparison:** Have client give examples of what software they want to be like
  - This would allow a better starting point for a comparative analysis, as well as provide valuable reference for recommendations and improvements.
- **Document:** Photograph our creative and collaborative process.

### Stop:

- **Delayed walk-through:** Wait until week four or five to set up a review with Tommy to walk through the software
  - As we were working on another complex system, this should be done at the start of the project. We did not realize the system's many layers and intricacies upon taking the project on and learned about its complexities through user research.
- **Trying to fix everything:** It was difficult to stay in scope because many aspects of the system could have benefited from improved user experience design.

### Continue:

- **Contingency plans:** Casting a wide net for our user research, as well as having backup plans for limited interviews and surveys, allowed us to better ensure that we would have data to work with for our project.
- **Cognitive Walkthrough:** Conducting cognitive walkthroughs during our user interviews was incredibly insightful and gave us a lot of examples of how CORAL is used in different ways by different people. This not only provided us with important user research, but it also helped us to realize that it would be necessary to narrow the scope of our project, which was a major turning point in our project.
- **Collaboration:** Group collaboration and weekly meetings were very important. We were able to meet outside of class several times a week.

- **Re-scoping:** When we realized it was necessary to narrow our scope, we immediately reached out to our point of contact to communicate about how to proceed. Consistently communicating about our progress and being realistic about our time constraints helped us to be more productive.

## CORAL Final Report – Appendix

- I. User Survey Responses
- II. User Persona
- III. User Experience Maps
  1. Adding a resource in CORAL
    - a. As-built: as the system currently exists
    - b. In an ideal system
  2. Finding & editing a resource on CORAL
    - a. As-built: as the system currently exists
    - b. In an ideal system
- IV. Tommy's Feedback

## Core Course Paper – Values and Communities

**Objective for class:** "Forum to discuss, understand, and critique value systems and power structures embedded in information and work in diverse societies. Exploration of importance of thinking locally, from grassroots, in design, evaluation, and engagement with information institutions and technologies, ranging from archives and libraries to Internet. Aspects of information society that shape and are shaped by cultural, societal, professional, community, and individual values, including exploration of impact of such values on professional practice, decision making, and public policy."

**Justification for including:** The following paper was written for the core class Values and Communities I took in Spring Quarter 2018 with Professor Ramesh Srinivasan. I am including this paper as it showcases my burgeoning interest in the overlap between economic incentive and technology. I am currently taking Economics of Information which delves deeper into this topic.

Ashton Prigge  
IS 212 Values and Communities  
Professor Ramesh Srinivasan  
June 11<sup>th</sup>, 2018

The Economic Model Molds Information Technologies  
Final Paper

Information technology is a commodity that often completely rests within private interests. Private interests in the United States of America are often formed to serve the interest of investors and their ultimate need for profit. Companies undercut themselves to serve short term goals and privatization is a means to this end. Economic motivations define the form of information technology and how it is deployed. Design, data collection, and data exposure are designed to function within the economic model that values immediate capital gains. Information technology is a commodity, not much different than a natural resource and is quickly exploited in a similar fashion. This paper argues that the pursuit of monetary value by those communities of companies who create and invest in them is cast into the research and practice of technologies. This monetary value determines their function. Technology must ultimately serve an economic purpose within this model. The need for constant growth, disruption, and innovation all shape the way technologies are deployed to the public. These corporate needs played out in an elaborate manner, but ultimately must return to investors. Business necessitates a large scope to obtain growth. Therefore, a company would never just aim for a small segment of the market or deploy with a single use in mind. There must be something game changing involved and often that game changing factor is a piece of new technology or platform. This pursuit of profit is seen with the implementation of micro targeting advertisements, recursive algorithms, artificial intelligence, data mining, bioengineering. These functions of technology all ultimately work to return value to investors. Breakthroughs expand the knowledge base, but the underlying value that pushes these information technologies into everyday use is the aforementioned value. These values are also often shrouded with immediate freeness. Information technologies given to users without a cost ultimately use their data and attention to generate revenue. Different communities react to this shaping of technology in different ways. Some of the formulation of technology and its motivations are not disclosed to users. However once those motivations reach the public sphere,

opinions and regulations regarding information technologies can change. Economic and political power work together and in relation to one another in the world. This paper argues that the usage of technology is defined by the economic system from which it is implemented. Modes of commercialization represent powerful values from the business community. These values reach out and affect numerous local communities and illicit a range of reactions based on those communities' values, priorities, and needs.

Values of major companies shape the deployment of technologies. The utmost value is the value of profit and those profits must be posted every quarter. It is growth that investors look for and often when it is not seen, a company may be abandoned. The processes of acquisition remove small and moderate players from the market who may have different values. Major companies, as discussed in class, have extreme economic, political, and social power and often exert that power for their own economic gain. Facebook purchased Instagram. Microsoft purchased Github. Google purchased Waze. Large companies increase their economy of scale with each horizontal or vertically integrated acquisition. Companies seize upon the opportunity to acquire others technological advantages in order to please their investors. This coalition of power is enough to draw talent from other sources of innovation such as research institutions. Traditionally, the values of research intuitions are quite different from a large corporation, where value is placed on long term research that is unique and fundamentally changes whatever field the researchers are working within at the time. Now, companies are so large they are able to sway these researchers away from traditional forms of innovation. This change fundamentally alters the process of technology development and allows for companies to impose their values into the process of research and discovery as it is being generated. The centers of economic power extend beyond nations. Technology has risen to extend far beyond the power of one specific nation. Major corporations such as Google, Facebook, Amazon, and many more extend their operations beyond a single country or even a single continent; they are global entities.

At a high level, it is the economic model that shapes the values of these corporations that are responsible for creating and implementing technologies. The economic model is that of profit driven capitalism and any business venture undertaken ultimately must serve the value of profit. This value carries to the way technologies are created. The business world is itself a complex maze with inventors, venture capital, universities, established companies, and individual investors all making up the ecosystem. Ultimately, information technology must also generate a profit for those who invested. Within the context of the IS 212 Values and Communities class,

this capital model is discussed as Neoliberalism. Specifically, David Harvey's work is the medium through which to examine the economic system as it emerged in the 1980s. "Harvey's most recent book, *A Brief History of Neoliberalism*, dissects the salient features of late 20th and early 21st century economic and social life: the gradual shift, throughout the nations of the global economy, toward economic and social policies that have given an increased liberality and centrality to markets, market processes, and to the interests of capital."<sup>45</sup> The change in the capitalism driven system is described as Neoliberalism and "is the intensification of the influence and dominance of capital; it is the elevation of capitalism, as a mode of production, into an ethic, a set of political imperatives, and a cultural logic."<sup>46</sup> Whether or not the emphasis placed on capital and private return on investment is called "neoliberalism" is beside the point within this paper. Here, the argument is that these values are themselves the mold that technologies are pushed through when they are deployed to users and consumers. The above history of how this mold came to be is helpful to consider the placement of these values of profit. What can be considered Neoliberalism helps to push the need for constant growth and room for investment. This in turn drives how, when, and why information technologies are deployed.

The United States of America seemingly serves as the center of technological development with the ultimate hub in Silicon Valley. Silicon Valley combined with research universities are pushing forward with their innovation. There is a coordination of economic and social policy in relation to financial industry and there are cultural dimensions of globalization. Information technology is global and so are the dominant economic models. Within the context of Neoliberalism and the underlying problem central to David Harvey is the object of speculation that is global. Investors are always looking for new places to invest. Variables optimized for their own bottom line and shareholders. There are freedoms of market and movement, but whoever has power of market activity has control over world. The economic world and its intricacies expand when Globalization occurs in the late 1980s and in the early 1990s with a set of agreements that Thatcher and Reagan really shape and in turn shape the flows of capital around the world. This is the era of the IMF and The World Bank seeking to incubate and support businesses that seek to spread across world. In this time (and even now) the systems of capital are looking for new frontiers. Just as the economy is globalized, information technologies also

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<sup>45</sup> Harvey, David. 2005. "A Brief History of Neoliberalism" 7

<sup>46</sup> Ibid.

become increasingly prevalent to connect the world. These information technologies are reaching their peak in the present moment and have global presences.

It is understood that there is an economic backdrop to global information. Geo-politically cities are important and privileged. Networks of connectivity are not decentralized, but constructed in image of power and image of other flows. Similarly, technology is created often in the image of profit and power. Ideas of disruption all play into the same model. Trans-national technologies are peer to peer in nature, function in the form of distributed communication, and are constantly expanded in scope. Investors demand that digital data infrastructure is built for new industries. Development is rooted in the value of the most immediate profit. At times these motives are tempered with long term vision, but ultimately profit is the motivation. This is all about what a company can do to make it more profitable in that instant. The economic model's saturation into the rapid matches the development of technology and often the two are fundamentally linked. Though for the purposes discussed here, it is more of a comparison than an integral similarity. The economic model outlined above starkly contrasts the ideal world of the digital. The supposed neutrality of all things digital eclipses the economic influence of these same technologies. Information systems in their many forms are heralded as something that will uplift and change the lives of anyone who comes into contact with them. "Enthusiasts of the "new medium" herald the Internet as a democratizing force that will give voice to diverse social economic, and cultural groups. It promises to give those who are traditionally disempowered access to typically unreachable nodes of power and previously inaccessible troves of information."<sup>47</sup> Innovation and leaps in technology seem to consistently begin with an ideal of the version. Information technologies may be theorized as a solution for an ideal world, yet economic model they are pressed through transforms their very function within the world. "Yet, as acclaimed media critic Robert McChesney and others have convincingly argued, commercial interests have been woven into the very fiber of the modern media networks, displacing and silencing the public service aspects central to the vision of the early pioneers of radio and television, and influencing such later innovations as media available via satellite and cable."<sup>48</sup> Capitalism meets technology to fundamentally determine how technology is formed and deployed. These capital interests place immediate value over long term functionality and can be seen in numerous use cases.

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<sup>47</sup> Nissenbaum, Helen. 2003. *The Internet in Public Life*. "Shaping the Web: Why the Politics of Search Engines Matter".

<sup>48</sup> Ibid.

The economic model that requires profit is baked into the design of various technologies. The use of ads is especially prevalent with search engines and social media and directly influences what and how people see what they see. Engagement within the platforms is key to the model. It is even shown that people click on first three to four results of Google, rendering these first spots incredibly lucrative for the companies that are able to secure them. Therefore, there is power and money to be made over representation within these first slots. However, this design does not indicate to the user how their results are coming to them. Design is design of algorithms, artificial intelligence, values of research, and definitions of success. Economic priority is the foundation for these decisions when they are made by private corporations who answer to regulators and most importantly to shareholders and board members. Design of the above has subsequently been speed up to compete with competitors. “As Web designers jealously compete for top slots, leading authors in the field of Web site promotion report that: They are always trying to fine-tune and tweak their HTML code and learn the next little trick. The best players even know dirty ways to "bump off" their competition while protecting their own sites.”<sup>49</sup> Here, the values are to promote a company’s material over others. Knowledge of how these systems and ranking algorithms work is key to do so. Designers and the companies they work for want their sites to appear when people search for them. The very design of search engines means results will be ordered. Therefore, designers and companies want to be high up on that ordered list. “Out of this strange ranking warfare has emerged an impossible situation: search engine operators are loath to disclose details of their ranking algorithms for fear that spammers will use this knowledge to trick them. Yet ethical Web page designers legitimately defend their need to know how to design for, or indicate relevancy to, the ranking algorithm, arguing that seekers are entitled to find what is genuinely relevant to their searches.”<sup>50</sup> The value of increased revenue is what encourages major companies to make these algorithms proprietary as it is what distinguishes it from other companies that purportedly offer the same service. Top level down organization of search where a company provides a service makes search efficient, but its technical functionality makes it unclear.

Algorithms capture efficiency, a characteristic highly sought after in today’s economic climate. Algorithm is defined as a repetitive mathematical process acting upon data. Saturate our interaction with information. Within the context of information and social technologies,

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<sup>49</sup> Ibid.

<sup>50</sup> Ibid.

algorithms have the power to and are designed in order to influence what information a user finds, what information finds a user, what is collected about a user and so on. Algorithms are applied to specific techniques and govern domains in relationship to people. Algorithms also are the backbone of artificial intelligence. Originally framed, artificial intelligence is the pursuit of how to develop computation intelligent in the way humans are intelligent. Currently, there are restrictions to AI's domain of knowledge and is currently implemented on the form of specialized AI. While these algorithms increase immediate profitability for the companies that implement them, algorithms and artificial intelligence that ultimately displaces the human worker will completely change the current economic system. With artificial intelligence and algorithms conducting work, humans will no longer be able to earn capital to purchase goods, completely halting the consumer driven economic system where firms produce goods and consumers purchase them. This excitement of being on the cutting edge of technology often does not recognize the harm companies may do to themselves when their strategies play out in the long term.

Algorithms and personalization make ads that much more effective. Marketing has become personalized using these algorithms to reach far beyond the traditional demographic. Instead, (potential) customers' data is processed and personalized recommendations are served to them. Companies are targeting consumers based on the aggregate of data collected about them. For example, Fiat personalized 500 commercials. Each supposedly a bit different for a different sort of person. Cathy O'Neil in her book *Weapons of Math Destruction* breaks down the definition of success and data for algorithm. Her critical discussion is based on what is associated with success and why events are defined the way they are within the system. Ultimately, algorithms function as opinions embedded in code and these judgements have to be situated into larger political economy. In the case of for profit businesses, these algorithms must ultimately be efficient and generate revenue or allow access to a certain revenue stream.

Algorithms lead into business with the use of targeting and knowledge about customers and consumers. Data brokers are certainly culprits of thinking short term about their business. Facebook as site for third party micro targeting and psychometrics. There are also alternatives to these algorithms with ways to design to show why a person is seeing what they are seeing and what factors influenced this. As it stands currently, it is unclear to user why things are connected, but content is linked to keep the attention of the viewer; autoplay and autofill send a person on a content trajectory. This content is far beyond just search and retrieval. These features press for

continued engagement with content, no matter what that content is. Extreme views and videos keep people watching. This engagement is how revenue streams are captured for the business. This is the ultimate goal of a business model that utilizes ads. Here, it is not convenient for companies to articulate why they are providing certain content to certain people. In fact, companies would probably argue it is the algorithms not the company that is providing the specific content. Here, users opt in to quite a bit when they open up a video. They are not opting into just use and access, they are also opting into transactions and protocols that are both visible and invisible. These algorithms are private, proprietary, not really regulated, and not transparent. Another example of algorithms turned into a good which is then sold is predictive policing. Predictive policing is technically artificial intelligence that is defined by algorithms defining categories of people. When algorithms such as this one are put into an economic context, companies probably will not put a lot of effort into reconciling cases where artificial intelligence has guessed incorrectly. Companies and researchers are still able to sell their technologies. “Predictive programs are only as good as the data they are trained on, and that data has a complex history.”<sup>51</sup> The criticism of existing artificial intelligence and use of algorithms to make decisions is summarized within the following New York Times opinion piece by Kate Crawford (who works at Microsoft): “While machine-learning technology can offer unexpected insights and new forms of convenience, we must address the current implications for communities that have less power, for those who aren’t dominant in elite Silicon Valley circles.”<sup>52</sup> Machine learning and whatever it may allow for will fundamentally be used in a for profit system. That requires the technology to be parceled out and used in a way that generates revenue. These information technologies, when implemented by the large corporations who control much of the markets, are deployed for specific economic purposes as determined by the economic mold.

Research interests of private corporations also do not seem to have modeled possible negative outcomes for their research. Facebook’s artificial intelligence research is an example of this and it seems an aspect of it was shuttered. James Wiler in Digital Journal writes, “If AI-invented languages become widespread, they could pose a problem when developing and adopting neural networks. There's not yet enough evidence to determine whether they present a

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<sup>51</sup> Crawford, Kate. 2018. “Opinion | Artificial Intelligence’s White Guy Problem.” *The New York Times*, January 20, 2018, sec. Opinion.

<sup>52</sup> Waler, James. 2017. “Researchers Shut down AI That Invented Its Own Language.” Digital Journal. July 21, 2017.

threat that could enable machines to overrule their operators.”<sup>53</sup> The situations often result in engineers talking to other engineers about how to make these technologies (especially artificial intelligence) more ethical. However, it is still unclear if they recognize the inconsistencies between the purported efficiency of algorithms and the trouble they can create. Algorithms undermining the efficiency they aim to create. Engineers seem to be creating artificial intelligence and there are publically visible concerns that at a certain point they may not be able to engineer their artificial intelligence any longer. Engineers still want systems they can control where the systems are producing the desired output and supporting what the larger system wants. As evidenced by the creation of special companies such as Open AI (Elon Musk) and Y Combinator (Sam Altman), engineers are concerned developing a super species that human engineers will be unable to understand and control. Outside of these projects, it seems as of artificial intelligence will be pursued as an answer to an economic question. The entire framing of what the definition of artificial intelligence is itself a very engineer centric task.

“Sexism, racism and other forms of discrimination are being built into the machine-learning algorithms that underlie the technology behind many “intelligent” systems that shape how we are categorized and advertised to.”<sup>54</sup> Algorithms are built for the sake of speed and efficiency and in doing so, they leave a lot out of the picture.

Companies utilize their users’ data to create profitability for applications that are on the surface free of cost. Big data initially approached as a promising way to know and a result of increasing digital lives. Data collection about users is rampant, but also how these information technologies are able to function at the moment. These business models could be redesigned with more clarity for the user. Data functions as a commodity and that data is used to target people in order to sell them goods, market politicians, and probably much more. In combination with this business model, Facebook seems to be investing very little into people involved with their global governance (those who work to understand global and local communities). It is clear that Facebook’s desire is to just use it as it is a light weight technology. For Facebook, it would appear that a defined success for an algorithm is engagement with the material. These targets are crafted in both traditional demographics, algorithms, or they can be psychometric. Companies ultimately craft the regimes of data and control the regimes of data. Within the United States of

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<sup>53</sup> Ibid.

<sup>54</sup> Crawford, Kate. 2018. “Opinion | Artificial Intelligence’s White Guy Problem.” *The New York Times*, January 20, 2018, sec. Opinion.

America, there is not a huge move to protect the user/consumer from this sort of constant data collection due to its more pro-market philosophy. Just recently the European union passed legislation outlining what companies are allowed to do with their customers data. Many American sites went down in these EU countries the first day. Even sites' American versions posted notices and approvals for information about how they use cookies to make a better experience for their customers. Certain communities are pushing back against the values of large corporations and how information technologies are shaped in an economic light.

Moral or ethical judgements do not have a place within initial design; the thought is of the ideal and of the profit. This is seen again and again with public relations scandals that numerous information technologies have encountered. It is only when the public is outraged do they modify the original design. So, when companies create an algorithm to approve ads or identify groups to sell ads to, a lot can go wrong. ProPublica investigated how Facebook uses information about users to target information to them. "Over the past decade, the company has developed hundreds of rules, drawing elaborate distinctions between what should and shouldn't be allowed, in an effort to make the site a safe place for its nearly 2 billion users."<sup>55</sup> ProPublica investigative journalists "paid \$30 to target those [anti-Semitic] groups with three "promoted posts". Facebook approved all three ads within 15 minutes."<sup>56</sup> These situations are reconciled after the fact; "After we contacted Facebook, it removed the anti-Semitic categories — which were created by an algorithm rather than by people — and said it would explore ways to fix the problem, such as limiting the number of categories available or scrutinizing them before they are displayed to buyers."<sup>57</sup> The integral aspect of ads combined with the implementation of algorithms in creating categories in which to advertise, is that the world is reflected to users. In a similarly insensitive moment this year, Snapchat ad that made light domestic abuse and involved Rihanna and Chris Brown. This advertisement was approved via an algorithm as well.<sup>58</sup> Algorithms have been handed more control by companies, but this control or lack of it can result in massive backlashes. For example, celebrities and influencers deleted Snapchat after this

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<sup>55</sup> Angwin, Julia, et. al. 2017. "Facebook Enabled Advertisers to Reach 'Jew Haters' — ProPublica." ProPublica. September 14, 2017.

<sup>56</sup> Ibid.

<sup>57</sup> Ibid.

<sup>58</sup> Bowles, Nellie, and Valeriya Safronova. 2018. "Rihanna Protests Ad on Snapchat That Mocks Domestic Violence - The New York Times." New York Times. March 15, 2018.

incident. How much money do companies save when they choose the most efficient option on that moment only without playing out the longer-term possibilities?

The blurring of the technology space bleeds into politics and news extends beyond the traditional niche of using data to target ads. There is a beneficial exchange between government and huge technology corporations which certainly influences how these companies are regulated or not regulated by different governments. It could be said that there is a revolving door between Washington and tech. This door between Washington and the technology sector functions as any lobbyist group does—laws are lax regarding their regulation. This laxity is especially apparent when American privacy and data use laws are considered in comparison with those in Europe. Network effects-more data you have the more efficient the service will be. Get the right answers. What would a person be okay with giving up in terms of privacy and to whom for what sort of internet experience?

Design that is implemented into the economic model that values profit as its apex, will ultimately be formed by that same value. Simply put, money now is better than money later. Companies pour resources into technology that will attract investors and therefore it is technology that may not be the most thought through. What are the implications of Facebook sapping away professors from top engineering schools to research AI or of snapchat using an algorithm to approve ad buys? Both have poor long-term effects that most likely undercut the companies' eventual goals, but satisfy them in the short term. If profits keep a company running, then that company will prioritize their profits. By delving into new research within algorithms and artificial intelligence, the results are still unknown and the consequences may even harm the companies themselves.

A counter point to the above argument is that this format spurs increasing innovation. Innovation, these technologies make life easier and therefore better. Google search makes life incredibly convenient. It is quick and quite fast at returning results that are often correct. AI, algorithms, robotics all can be used to make life better, more efficient and include people who may have been excluded previously. Certainly, this is true. A tension to the above argument is that there are examples where local, non-corporate technologies exist. Though they are often either acquired or call themselves out as potential markets. There is the Zuni example of a community installing and maintaining their own cell phone towers, then having corporations market lower prices to that same community. When corporations fail to see a profit in certain

communities, they do not develop or deploy technologies within them. But, once corporations see the community providing the same service for itself, it acts swiftly.

When people are confronted with the sometimes ugly truth of control of technology, such as when net neutrality was repealed, new alternatives gain traction. Alternatives just like this were detailed in an Inverse article which reports, “When we access the internet via an ISP, we are likely connecting via broadband, which is literally a giant cable that connects our ISP to top-level internet exchanges. In other words, the ISP acts as the central gatekeeper that ultimately controls our point of online access.”<sup>59</sup> The article continues that, “In the short time since the FCC’s net neutrality ruling, there have already been a number of new mesh internet projects popping up.”<sup>60</sup> The article continues to point out that these community driven technologies are still not widespread, “Despite their many benefits, mesh networks are still niche. This is partly because connecting to a mesh network is still far more difficult than just signing up for Internet service via an ISP and paying a monthly Internet bill.”<sup>61</sup> There seems to be a tipping point when citizens exercise their individual and smaller collective power to reject the values of larger corporations. This social tipping point often comes after an event or political regulation becomes framed as greed in the public sphere.

Tensions in the above outlined argument center on the existence of technologies that are not deployed by corporations with an end goal of profit for shareholders. There are rampant examples of technologies being engaged with when there is not corporate interest. The book *Ours to Hack and to Own* by Nathan Schnieder and Trevor Schultz fundamentally argues that enterprises don’t have to be owned in private share holder. They say there can be a way to build digital enterprises profits to feed back into workers and their worlds in the form of externalities that will at some point have an economic impact in the world. Externalities are often not considered when a technology comes into the market. But often there are eventual economic effects to these externalities. What will happen to the economic system if artificial intelligence replaces so many jobs that people can no longer afford to consume goods that these companies are making? This is often the nature of how those businesses are constituted and owned—that is with thought to the immediate future. However, it does not have to be a homogenous organization. With values and different communities, companies may be able to move beyond

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<sup>59</sup>Guo, Eileen. n.d. “With Net Neutrality Gone, Here’s How To Build Your Very Own Internet.” Inverse.

<sup>60</sup> Guo, Eileen. n.d. “With Net Neutrality Gone, Here’s How To Build Your Very Own Internet.” Inverse.

<sup>61</sup> Ibid.

the present moment. Ownership, management, and development are more diversified, see those results Diverse boards, management teams can produce very viable profit. Alternatives to speedy and profitable only seem to exist when companies ignore or pass over certain areas. Only then do the communities have a chance to build resources themselves.<sup>62</sup> When discussing the downfalls of certain systems, it is important to remember that it is not the technologies that are necessarily the issue, but the values of the economic model and corresponding motivations of those who implement them for wider use in the world. Technology is parceled out as a commodity to invest and profit from as is everything else in the world. Technology companies are also so huge and encompassing in terms of their intellectual property portfolios. Often when a new and promising technology is developed outside of a behemoth company, it is eventually acquired.

Information technology is a constantly changing field with new scandals and laws emerging on a seemingly weekly basis. The discussion around what it means for a company to build a business off of targeting ads evolves as the regulations evolve. It is therefore necessary to discuss these new regulations and the analysis of their impact. These topical events are essential to discuss as they shape the information technology landscape. Recent events such as Cambridge Analytica's psychometric Facebook use, European Union's general data protection regulation reveal the immediacy of the tensions within the development of information technology. The economic motivations are seen in the ability to look past consequences of these technologies and place these consequences on humans rather than the technology itself. While it is not the technology itself that caused these issues, it is how companies implemented the technologies that allowed for these events to occur. Nick Bilton for Vanity Fair writes, "when you talk to people who work in the tech industry about the negative social consequences of their products, their response is usually to point a finger at the people who use technology, not the technology itself. Yet as the Internet has collapsed into a cluster of corporate fiefdoms—where one lunatic can reach a billion—the justification that these systems are just tools just doesn't pass muster." The article continues, "In many ways, the engineers behind these technologies choose to look at the utopian versions of their creations because it doesn't fit their self-concept to gaze elsewhere."<sup>63</sup>

The article concludes with a wise precaution, "If we couldn't anticipate that Facebook would be used by the Russians to trick Americans into protesting each other in the streets, or that armies of Twitter bots could be used to disseminate political propaganda and make us all hate

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<sup>62</sup> Rogers, Kaleigh. "Ignored by Big Telecom, Detroit's Marginalized Communities Are Building Their Own Internet - Motherboard."

<sup>63</sup> Ibid.

each other, what makes us think we can predict how this new wave of technologies will be turned against us, too?”<sup>64</sup> The need for introspection is apparent to many, but not necessarily to the community who creates the technologies or to the companies who implement them. In continuing to discuss these topical issues, Maya Kosoff for Vanity Fair wrote a piece on the next big backlash against tech firms as information technologies’ privacy practices become more well known. Specifically, these new regulations have far reaching affects that are certainly shaping how information and social technologies are going to be developed in the future. “The E.U.’s General Data Protection Regulation (known as G.D.P.R.), forces companies to adhere to certain guidelines when it comes to the use and storage of people’s data. The law is already causing panic in Europe: tech giants have been hit with multi-billion-dollar complaints filed by European privacy advocates, and programmatic ad buying has plummeted.”<sup>65</sup> It would appear that these privacy regulations will severely impact the current business model of United States based technology companies. And there are more regulations to come. Kosoff continues to write, “An even stricter privacy law is currently pending abroad. The law requires explicit consent from users for all messaging services before companies can place tracking codes on their devices or collect data about their electronic communications.” These European laws may be a tipping point for the traditional information technology development model. These laws also serve as a counter example to this paper’s main point. The very large and diverse community of the European Union has decided what their values are within the world of information technology. The argued downside of this law is that it will halt companies’ ability to develop new technology that can be provided for “free”. Kosoff in her Vanity Fair article writes that “tech companies, predictably, are up in arms over ePrivacy Regulation, which they believe will decimate their ability to target people with digital ads, thereby forcing sites or apps to charge fees or shut down altogether. They also argue the law would “seriously [undermine] the development of Europe’s digital economy” by preventing useful data from being shared with developers.”<sup>66</sup> The argument tech companies are making is that their ability to operate is directly tied to their ability to make a profit. If the process of monetization is changed, then development of information technologies within the European market will also be changed or stopped. The use of consumer’s or user’s data is so baked into the business model there seems to be no other conception of how to churn a profit from online activities.

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<sup>64</sup> Ibid.

<sup>65</sup> Kosoff, Maya. 2018. “The Next Big Anti-Tech Backlash Is Just Beginning.” Vanity Fair. May 29, 2018.

<sup>66</sup> Ibid.

The G.D.P.R. is also an example of the transnationalism of information technology. Companies reach far beyond a single community and far beyond a single nation with singular laws governing its behavior. Here, the European union community is asserting their value of privacy over information technology's value of profit. These assertions carry over in how companies communicate with customers outside of these European nations. Companies seem to be still deliberating over what is more efficient: splitting technologies based on region and developing them differently or uniformly creating rules that may be difficult for the companies' business models. Kosoff reports that "Already, G.D.P.R. has begun to create two separate versions of the digital world: as dozens of sites stonewall the E.U., The Washington Post, is reportedly launching an E.U.-specific paywall that doesn't include tracking or ads, but that's more expensive, creating a model for companies that may wish to follow suit."<sup>67</sup> Within the European Context, it is quite clear how data usage is the catalyst for profit. But without the profit motivation, what would motivate a company to produce an information technology. Within the community of business, profit is the highest and most essential value.

This paper concludes that technologies are shaped by the economic environment. Ultimately, the economic model of capitalism which prioritizes private ownership and properties greatly molds technology. Social media, bioengineering, algorithms, artificial intelligence, and on and on all will ultimately serve those who have invested into them. Companies that may initially form to serve a specific community or operate without ultimate deference to capital eventually purchase or face competition from large corporations. This economic environment greatly controls what is developed, by whom, and for what purposes. This is an economic model that ultimately serves profits and quick development and innovation is awarded with profits. Speed is key within the digital economy that values constant growth and new technology, even if that technology shapes the world in a self-destructive way. As information companies form, this competition becomes more intense and the desire to churn out technology grows accordingly. This quick turn to market to generate profitability often lacks long term thinking or at times even technological strategy. This value of short term gain is possible as private companies are accountable to those who regulate them and to their shareholders who invest in them. When private corporations are responsible for researching and engineering major advances in technology, these motives become ultimately profit driven. In turn, the search for profits speeds up research and deploys technologies whose complete impacts are not yet known.

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<sup>67</sup> Ibid.

Companies are privatizing the digital aspects of people's lives. Certain communities that range in size can access the form information technology takes and respond as their agency allows for within the world. The economic model and function of companies hold the most power when technologies are developed and deployed to their intended users. The economic underpinnings of the world grasp for speed and growth in new technologies without regard for many other considerations.

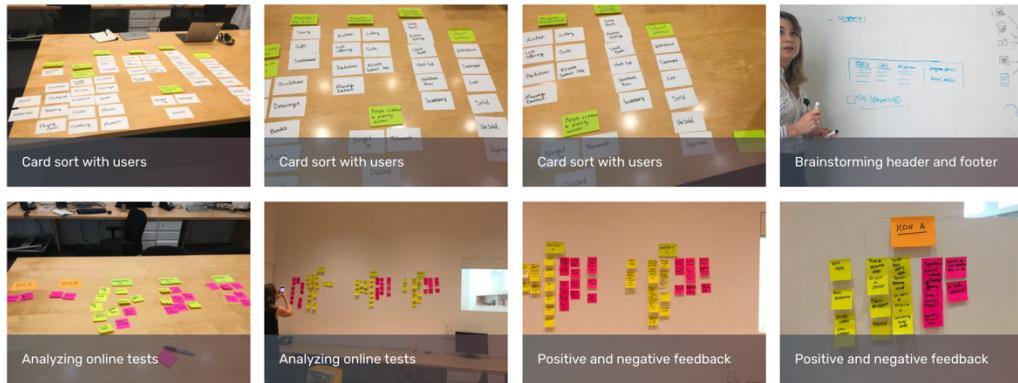
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# Supporting Documents

## Professional Work and Involvement

### User Experience Research and Design at the Getty Research Institute



These are several photographs of User Experience research analysis. I worked with Kristen Carter to interview and design several Getty resources.

# Professional Involvement

I attended the following events and conferences

## Neilsen Norman Day at the Getty

September 2018

## SCaLE Conference

March 2019

A conference about open-source technologies.

## UCLA UXLIS

UX Research Group

January 2018 – June 2019

