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Digital Humanities: Tools and Technologies for the Study of the American West

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DIGITAL HUMANITIES

Tools and Technologies for the Study of the American West

Tammy Troup, Digital Services Manager

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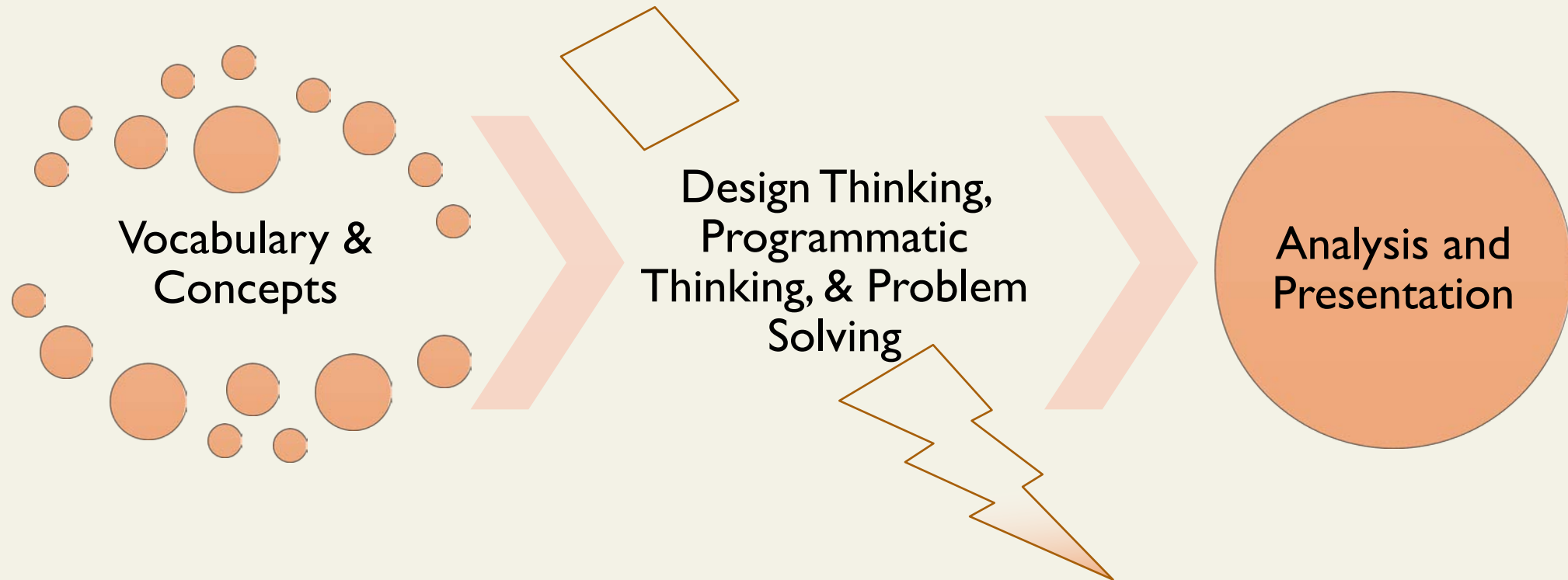


QUESTIONS CONSIDERED BY MSU

- What kind of DH should MSU engage in?
- What are best practices?
- What pitfalls should we avoid?
- What are we going to need to undertake this?
- What type of learning experiences do we want to facilitate (undergraduate and/or graduate level)



AGENDA (INTENTION)





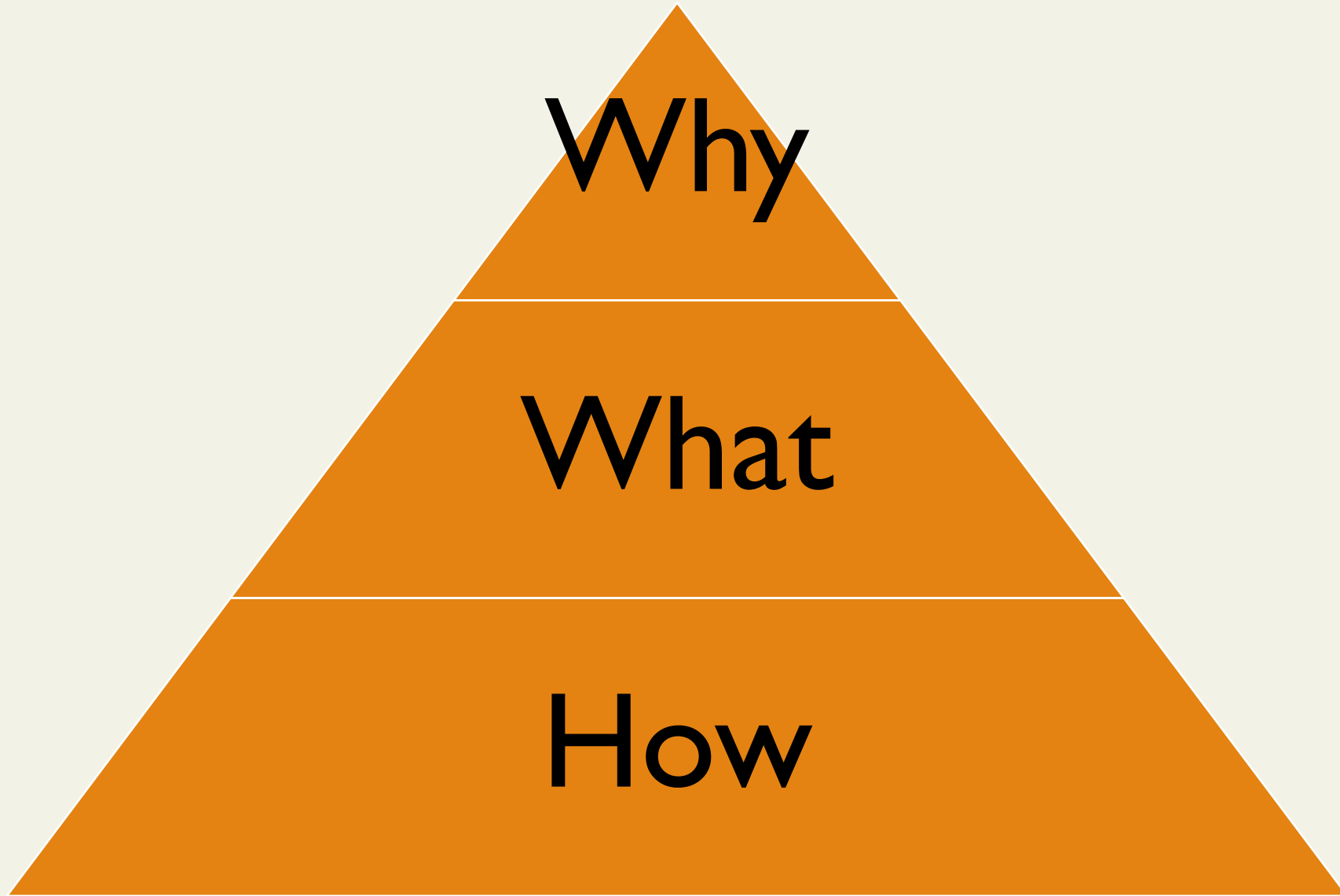
PREPARING THE FOUNDATION

An inverted orange pyramid divided into three horizontal sections. The top section is the largest, the middle section is smaller, and the bottom section is the smallest, forming a triangular shape. The sections are separated by thin white lines.

How

What

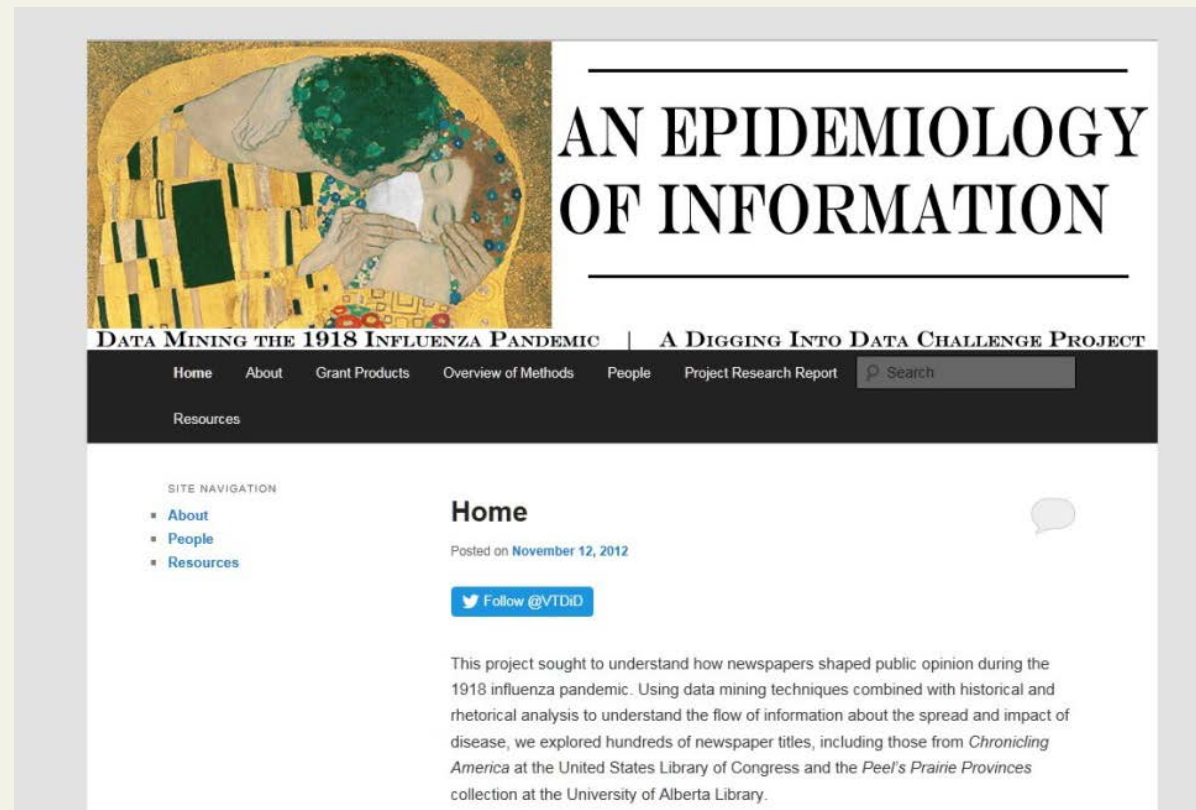
Why





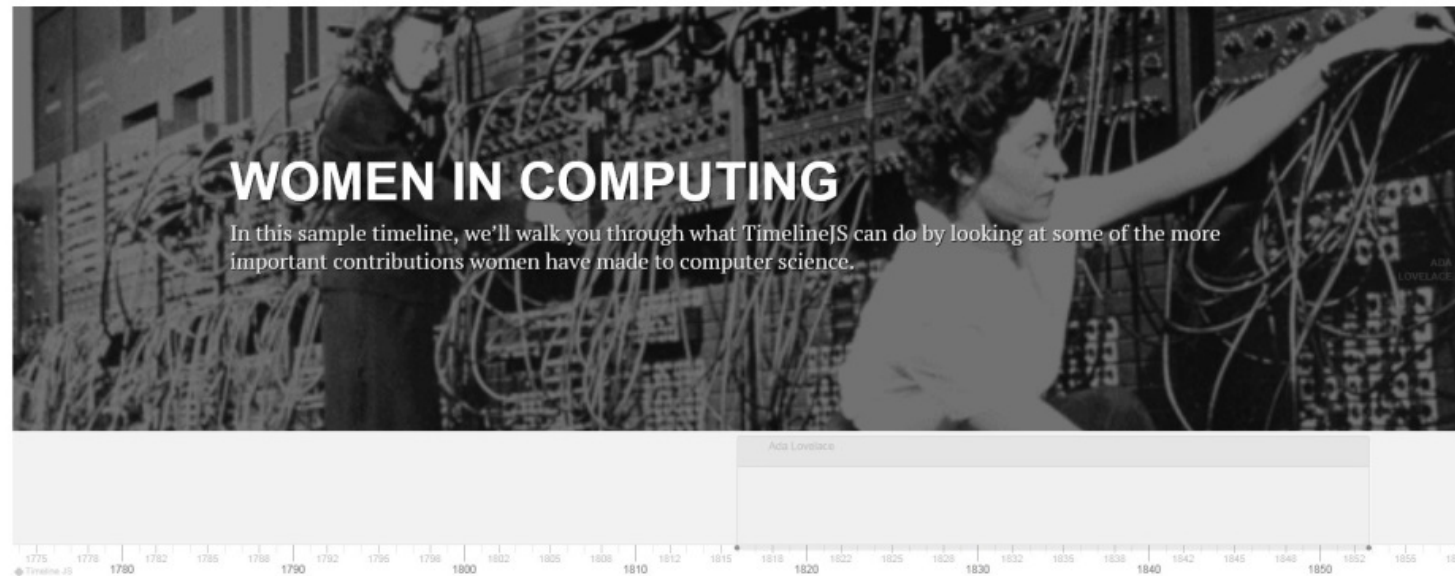
WHY

CREATE: NEW PERSPECTIVES & KNOWLEDGE



<http://www.flu1918.lib.vt.edu/>

CURATE: ORGANIZE FOR NEW UNDERSTANDING



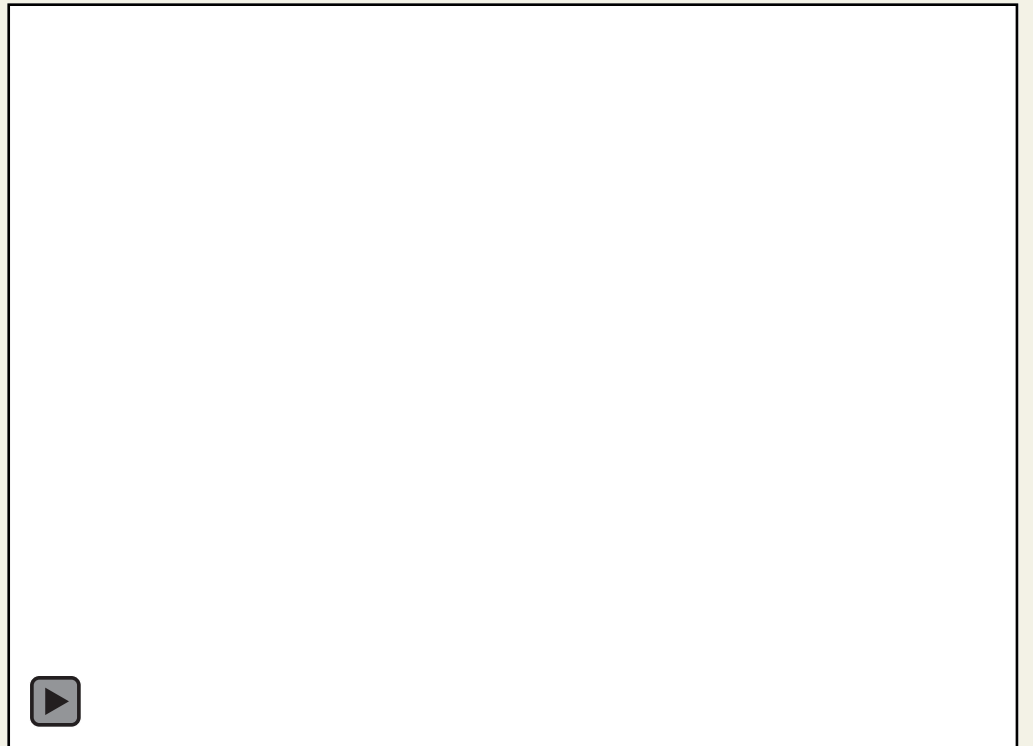
<https://timeline.knightlab.com/>



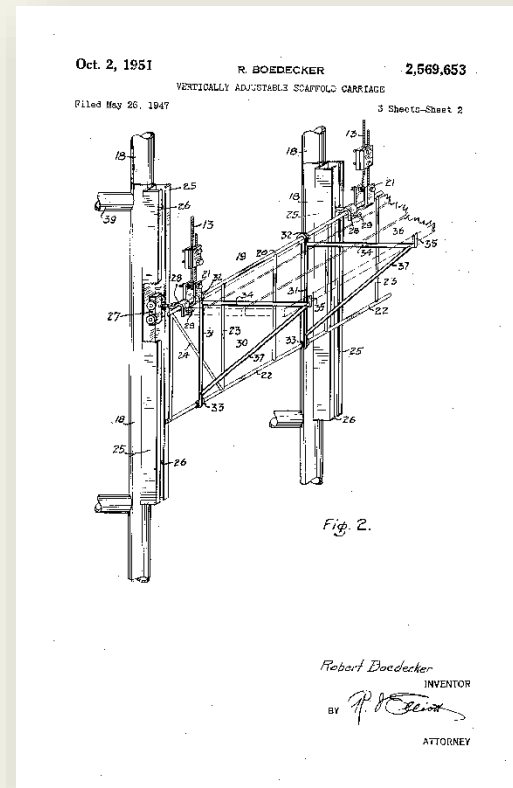
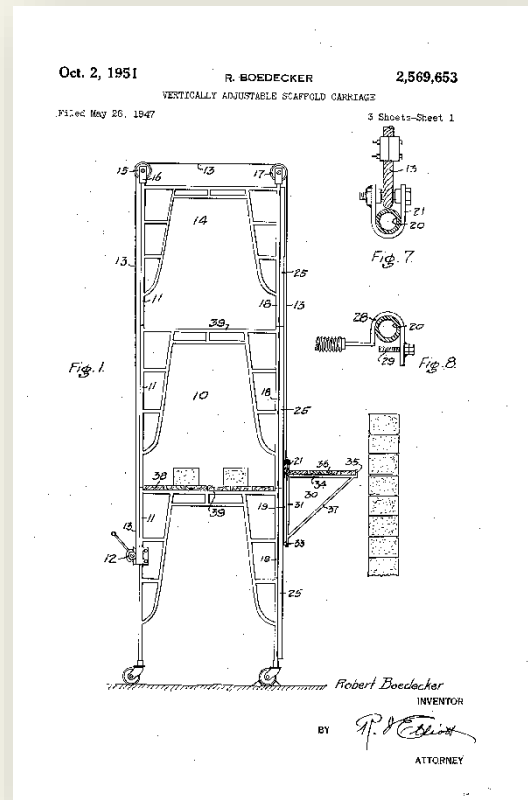
EXPRESS: BYTELIGHT

Kalish, Jack and Gabriella Levine. "Bytelight." 2010.
Vimeo <https://vimeo.com/18140945>. Retrieved 24
October 2016.

"Bytelight takes one basic, ubiquitous aspect of
the computer, an LCD pixel, and portrays it in a
physical representation that is familiar and
unintimidating: an overhead light controlled by
light switches."



PREPARE: SCAFFOLDING

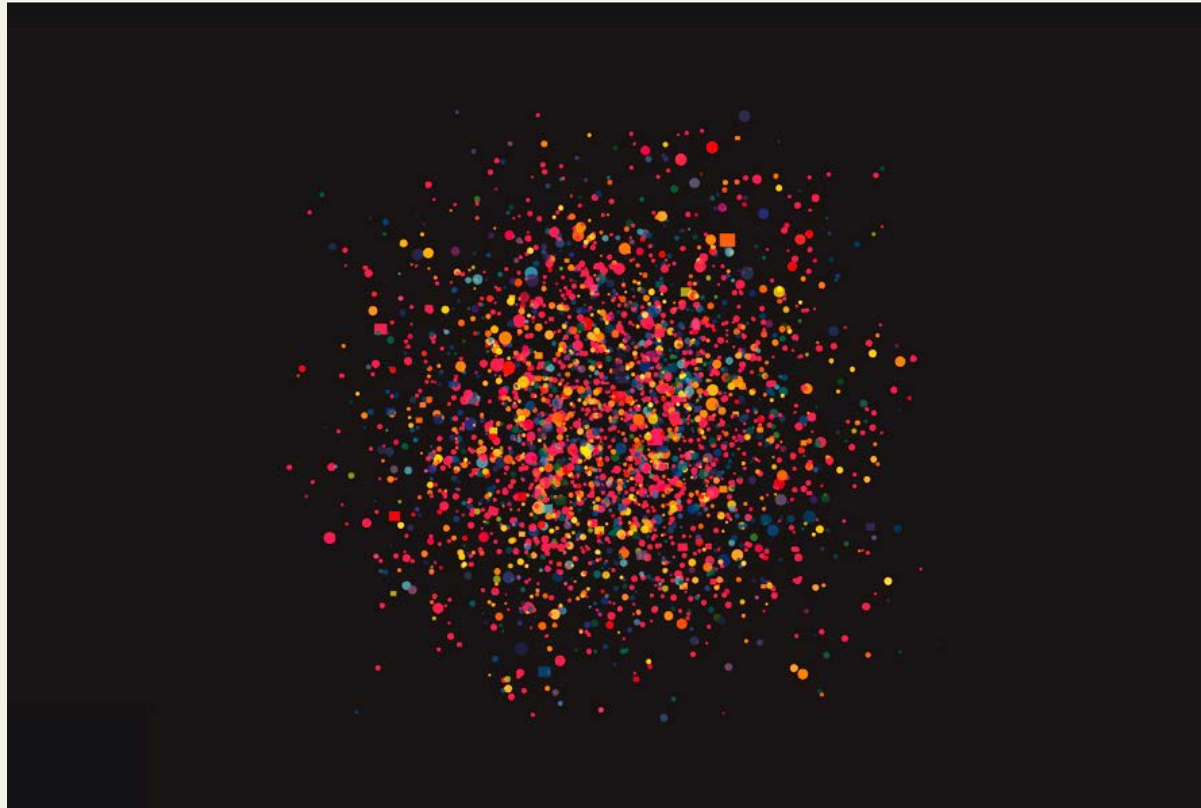


THE GREAT ~~MUTATION~~ PREPARATION



Troup, Tammy. Quantification. Digital Image. October 2016. Personal Collection.

ABUNDANCE OF INFORMATION



<http://wefeelfine.org/>

PINNED FOR DISPLAY



“Traces of human activity are not butterflies to be collected, cataloged, and pinned in 21st century cabinets of curiosity.”

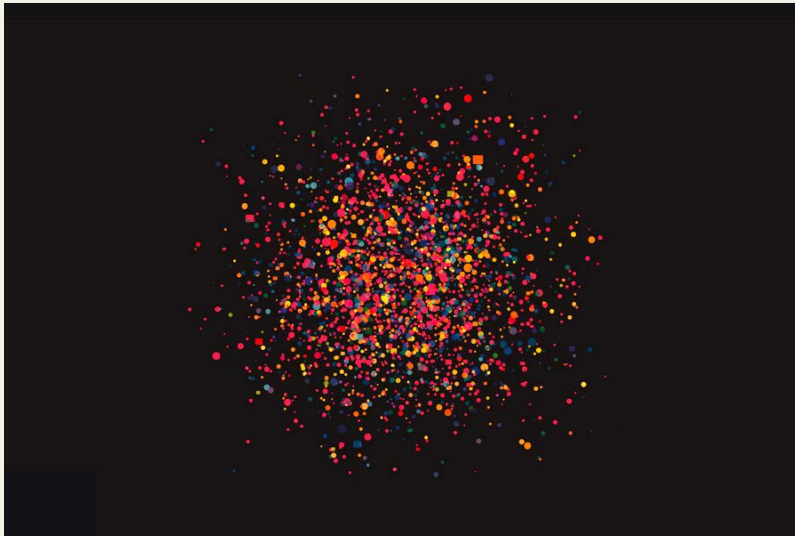
–Thomas Padilla

Padilla, Thomas. “Collections as Data: Conditions of Possibility.” Thomas Padilla on Medium. October 2016.
<https://medium.com/@tgpaddillajr> Retrieved October 29, 2016.

Troup, Tammy. Billy and Jane. Pinned. October 2016. Personal Collection.



ANALYZING



Internet Usage

Societal Events

Linguistic trends



CLOSE READING
AND
MACHINE SUPPORT



WHAT




WHATISDIGITALHUMANITIES.COM



MACHINE-SUPPORTED STUDY OF HUMANITIES



CONTRIBUTING DOMAINS



Public History & Museum Studies



- Historical Literacy
- Curated Delivery
- Context Considerations
- Interpretive Issues
- Balanced Perspectives
- Audience Engagement
- Audio/Video Exchange of knowledge
- Exhibit Design

Advanced Linguistics



- Language Literacy
- Phonology
- Morphology
- Syntax
- Semantics
- Pragmatics

Academic History



- Close Reading
- Historical Literacy
- Evidence Analysis (including textual)
- Investigation of Information Sources
- Historical reasoning



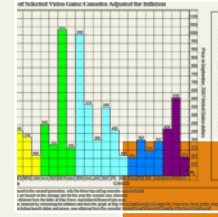
Information Science

- Information Literacy
- Curation Methods
- Organization of Information
- Metadata Standards
- Intellectual Property (Rights Management)
- Documentation



Spatial Science

- Geographic Literacy
- Human Interaction with Space
- Spatial Analysis Methods
- GIS Tools
- Data Collection and Curation Methods

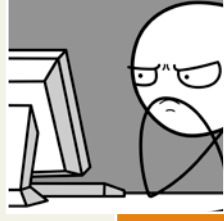


Social Science

- Data Literacy
- Data Collection and Curation Methods
- Data Analysis Methods
- Quantification



Information Technology



- Technical Literacy
- Algorithmic Thinking
- Automated Processes (Scripts & Software)
- Workflows (Humans & Machines)
- Hacker Culture
- Maker Culture
- Open Source Values
- Open Access Values
- Knowledge Sharing Values

Film and Media



- Visual Literacy
- Audio Literacy
- Market Literacy
- Information Literacy
- Audience Assessment
- User Analysis
- User Experience
- Emotional Impact
- Interviews/ Documentary exchange

Graphic Design



- Visual Literacy
- Color Theory
- Communication
- Harmony
- Abstraction
- User Experience Considerations
- User Interface Considerations

DEFINING THE DOMAIN

Unknown. "Photograph of Students Playing Chess." 1972[3]. The Portal to Texas History <https://texashistory.unt.edu/ark:/67531/metaph573066/> Retrieved 24 October 2016



DIGITAL HUMANITIES

Matrix

Rules

Strategy



WaddenMedia. Chess Tactics Discovered Check. 23 August 2010. Wikimedia Commons. Retrieved 24 October 2016.



MATRIX – MSU DH PROGRAM

- What is the institutional support?
 - Is the support sustainable (people, systems, commitments, finances, etc.)?
- Does this happen in a physical location or is it distributed (online)?
- What type of physical environment supports collaborative learning?
- What type of physical environment supports programming or technical skill development (individual learning)?
- What hardware is needed?
 - Student devices (loaner equipment available)?
 - University devices (minimum specs, service schedules, operating system & software support)
 - Digitization and/or image creation equipment (maintenance schedules)?
 - Sandbox server?
- What software is needed?
 - License monitoring?
 - Virtual environments to encourage experimenting?
- Other?



RULES – MSU DH PROGRAM

- Which knowledge domains will this program draw on?
 - What standards can we use from these knowledge domains?
- What standards will be required?
 - Which of these standards, best practices, and processes require systematic training?
 - Are specialists available to coach or provide support?
 - What standards need to be developed?
- What are reliable professional organizations?
 - Who is a reliable contact?
- What organizations/institutions are leading the field of DH?
 - Who is a reliable contact?
- Other?



STRATEGY – MSU DH PROGRAM

- What pedagogical strategies will be used?
 - How should theory be addressed?
 - How should practice be addressed?
- How will we document the exchange of knowledge and build upon this knowledge (e.g., wikis)?
 - How can faculty build a general framework of knowledge?
 - How can we create a scaffold for student learning?
- What is the best way to support interdisciplinary activities?
 - What processes are currently on campus and “known”?
 - What processes need to be cultivated on campus?
- What campus collaborations can we create?
 - What can we learn from hacker culture?
 - What can we learn from design culture?
 - How can we create an IT space with tech support and encouragement?
- Other?



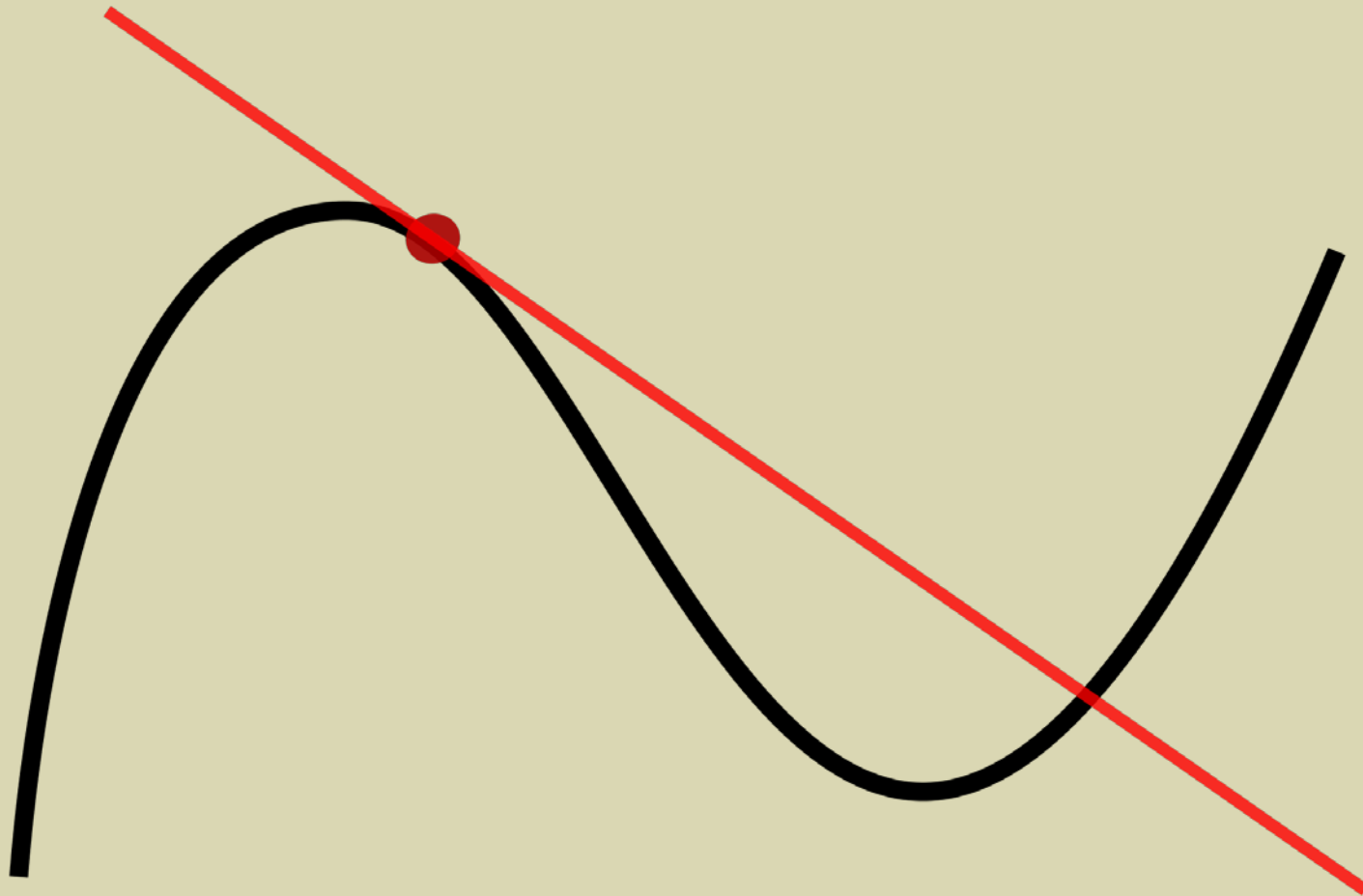
SMALL GROUP DISCUSSION I



THINKING AND PROBLEM SOLVING

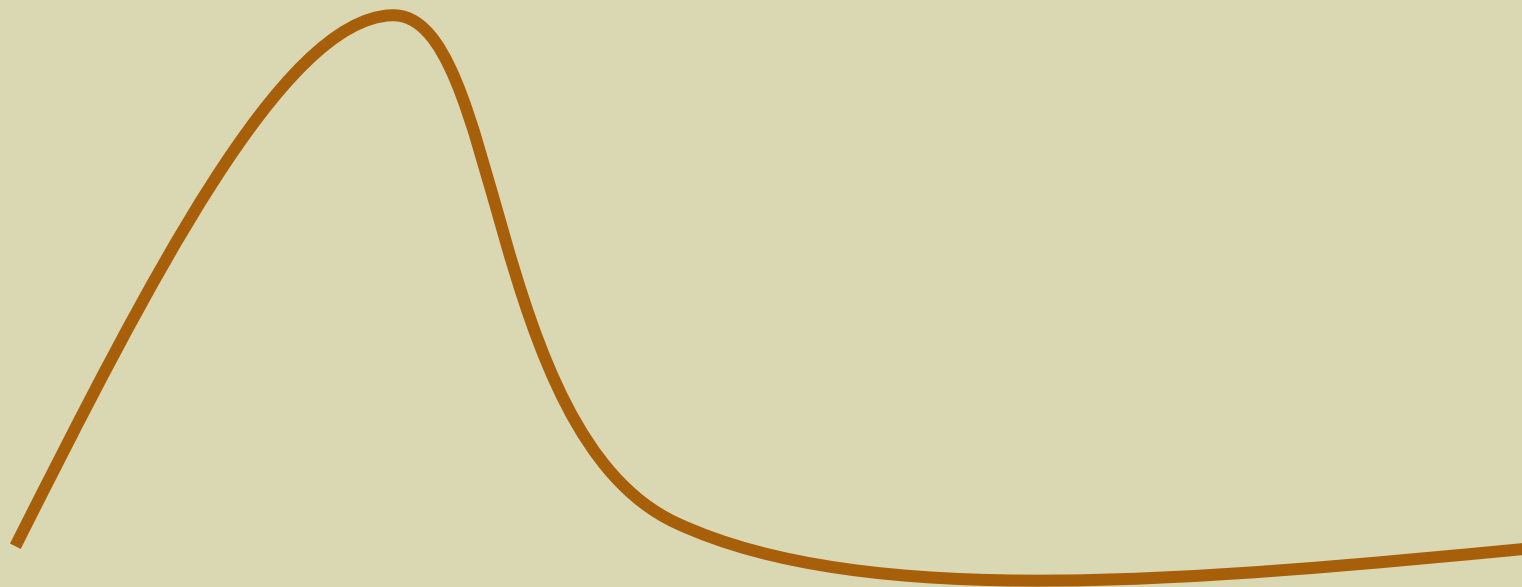


BUT FIRST, A TANGENT





LONG-TAIL OF DIGITAL PRESERVATION





FOUNDATIONAL DIGITAL PRESERVATION

System of organization

- Documented processes, procedures, and purposes (README)
- Repository recommendations for directory and file naming conventions

Sustainable File Formats

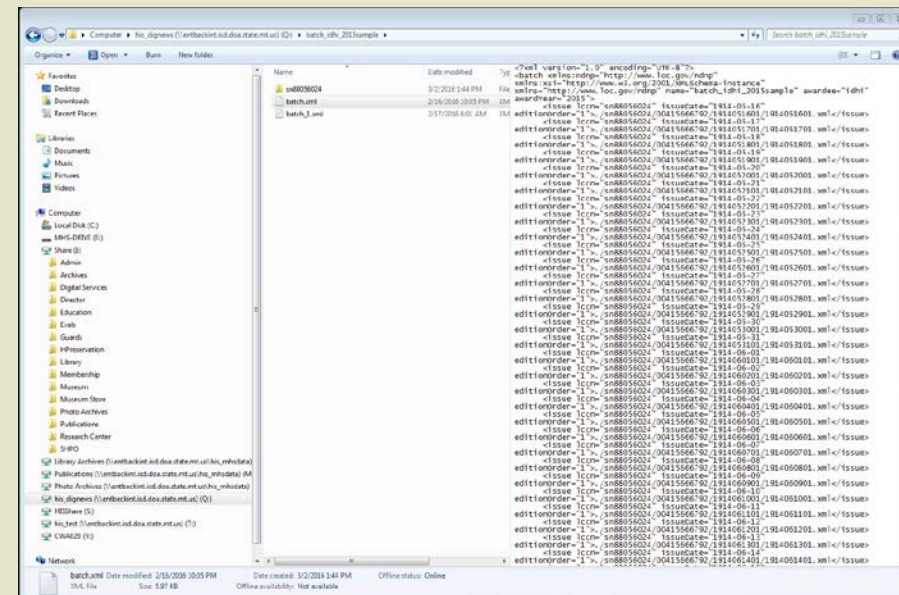
- Formats recommended and supported by local repository
- Open Source software (if possible)

Metadata

- Embedded Metadata
- Structured (sidecar) Metadata

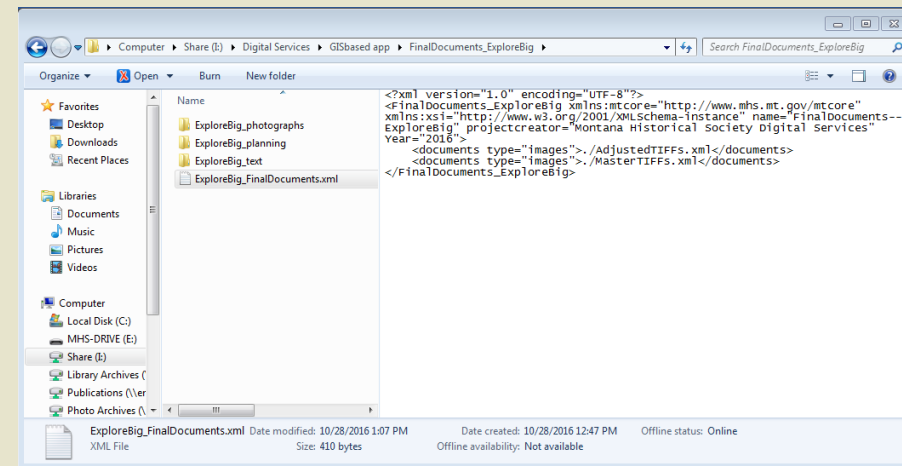
SYSTEM OF ORGANIZATION

- Baglt specifications
<http://www.digitalpreservation.gov/documents/bagitspec.pdf>
- Persistent identifiers.
- Structured information about the directories and content of the directories.



SYSTEM OF ORGANIZATION

- Local Specs
 - FinalDocs root directory.
 - Marked up pointers to additional information in final directories.
 - Directory and File naming conventions formatted for storage
 - CamelCase
 - _ or -
 - ISO dates (YYYYMMDD)
 - Leading zeroes (0001)



SUSTAINABLE FILE FORMATS

- Working/Dissemination and Preservation Formats
- Limited
- Learn Local Repository Standards





QUESTIONS?





METADATA

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<Metadata xmlns:tt="http://www.ttroup.org/originalobservations">
  <tt:OriginalObservation>Data About Data</OriginalObservation>
  <tt:OriginalObservation>Structured Information</tt:OriginalObservation>
  <tt:OriginalObservation type="quote" src="NISO">Metadata is structured
information that describes, explains, locates, or otherwise makes it
easier to retrieve, use, or manage an information resource.
Metadata is often called data about data or information about
information.</tt:OriginalObservation>
</Metadata>
```

METADATA (SIDECAR)

INPUT BACK END (BACKEND)

History
Urgins Appearance Users Settings Welcome, super User Log Out

Dashboard
Name
Collections
Item Types
Tags
Exhibits

Edit Item #11: "Ed Craney and Gang aft...

Dublin Core
Item Type Metadata
Files
Tags

Dublin Core

The Dublin Core metadata element set is common to all Omeka records, including items, files, and collections. For more information see: <http://dublincore.org/documents/dces/>.

Title

Add Input
Ed Craney and Gang after Fishing

Use HTML

Subject

Add Input
Craney, Edmund S., 1905-1991

Remove Use HTML

Radio stations -- Montana

Remove Use HTML

Description

Add Input
Al Pearce, Ed Craney K Q, MacPerson [Dubl amousnecological] and members of Al Pearce and his gang. An afternoon NBC show after fishing on Madison

Use HTML

Save Changes

View Public Page

Delete

Public
Featured

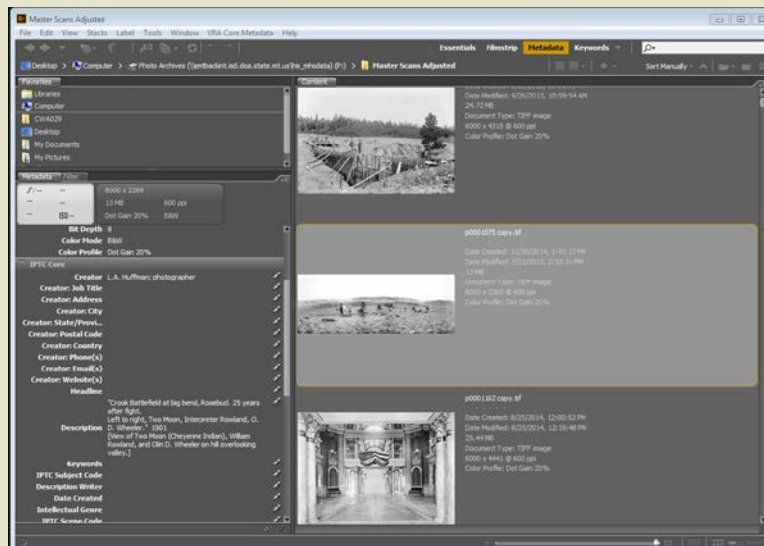
Collection
Edmund Canry Audio/Visual

OUTPUT XML

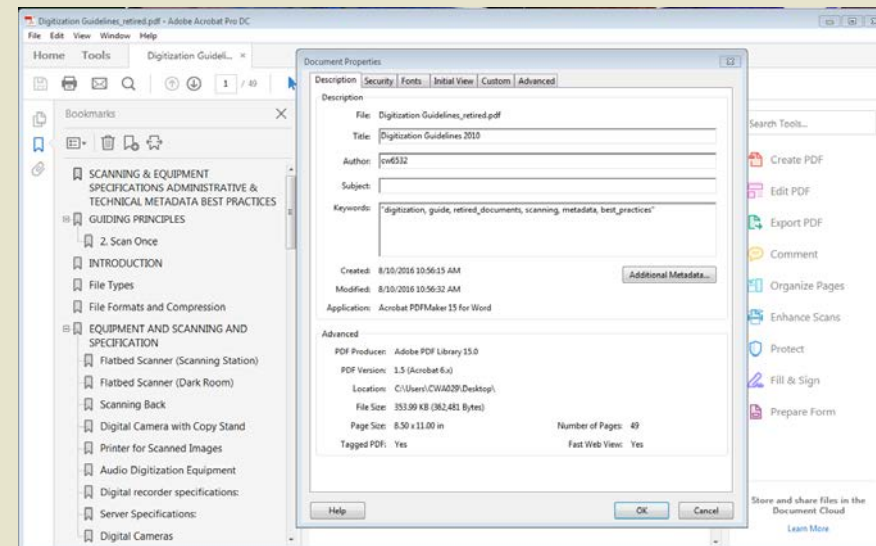
[illegible]

METADATA (EMBEDDED)

TIFF

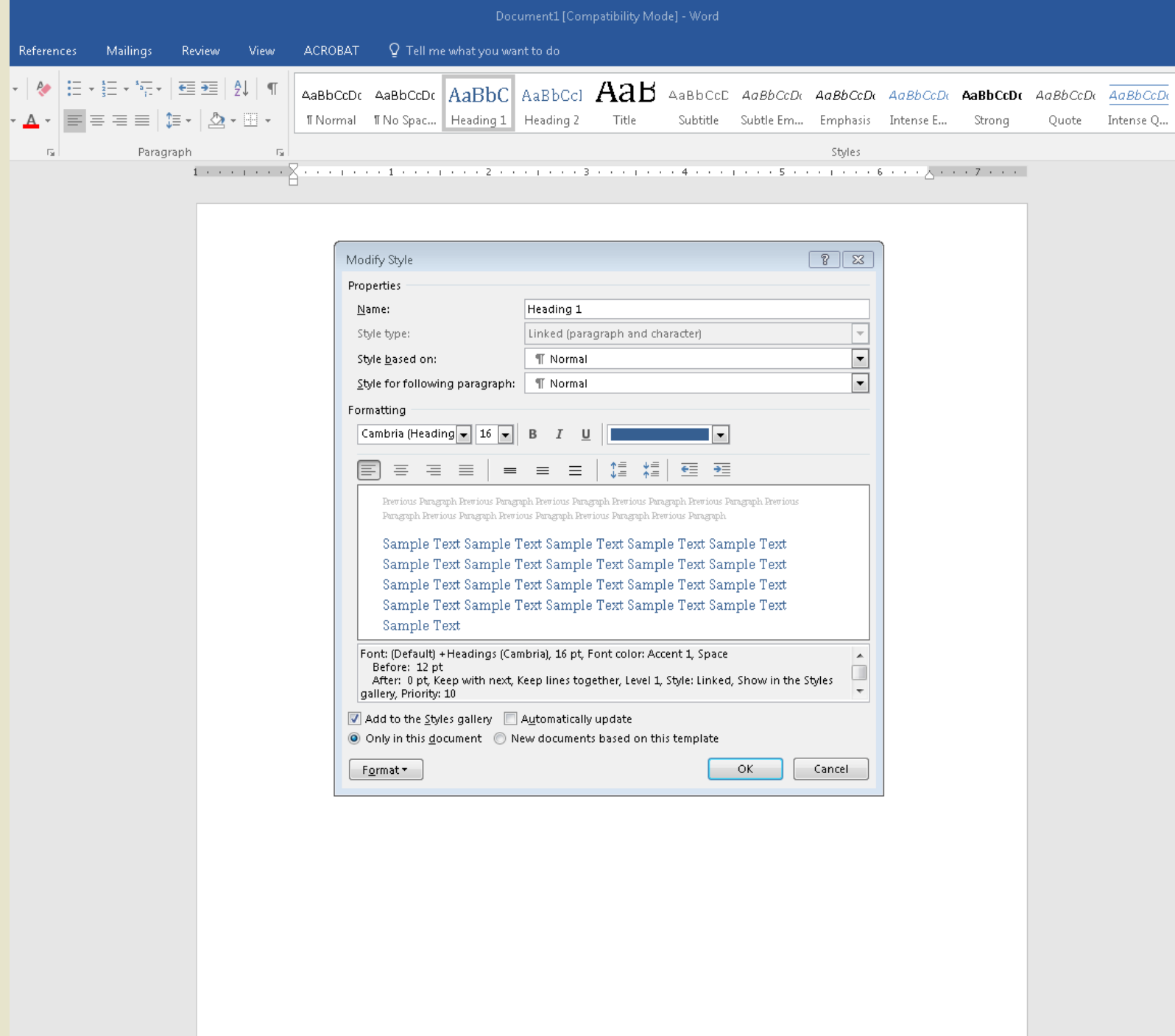


PDF



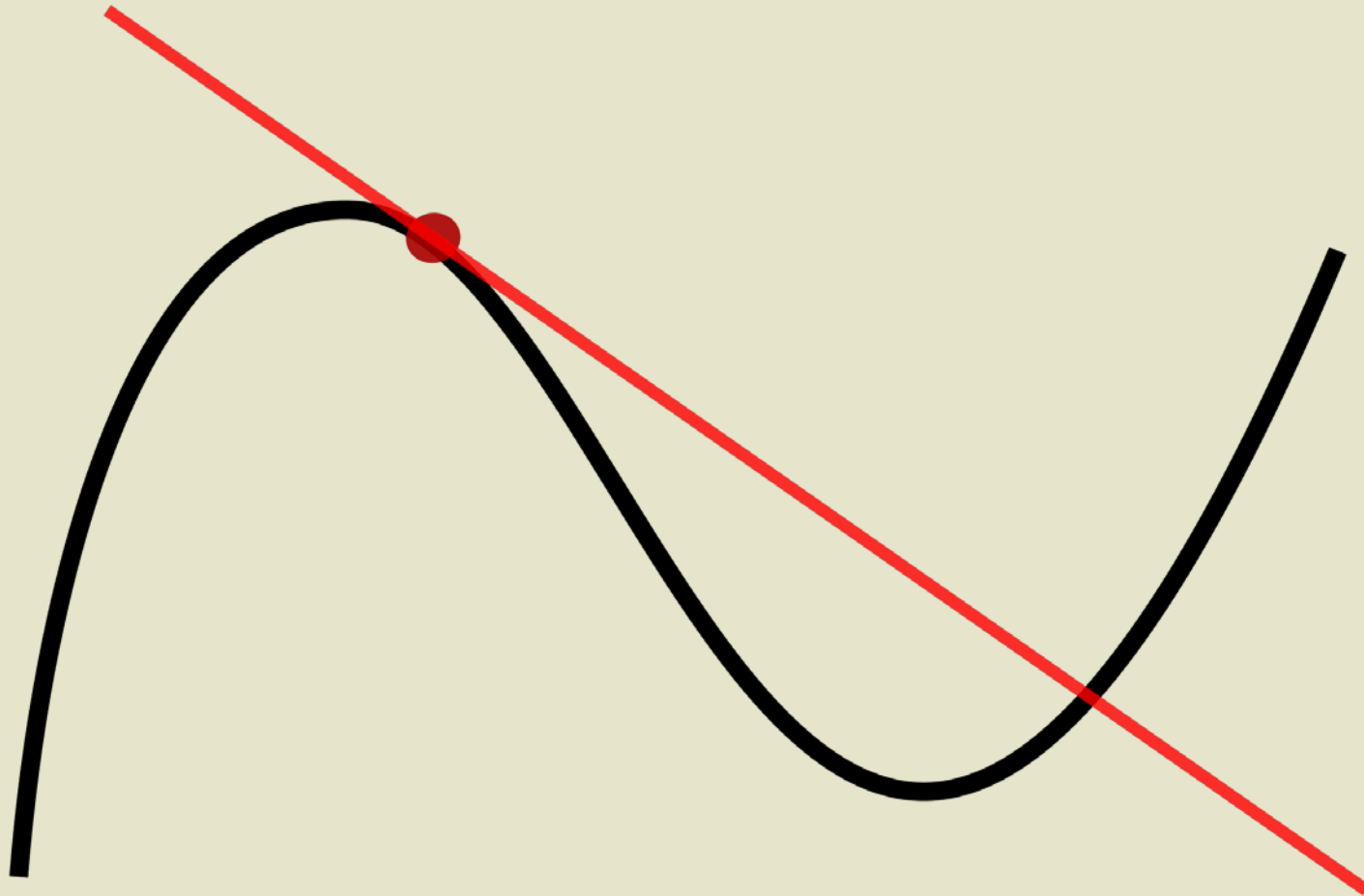
EMBEDDED METADATA

- Structural Metadata





AND ANOTHER TANGENT



<INSERT TRAINING MONTAGE>





SITZFLEISCH REQUIRED

Information Management

- Batch processing
- Logical Naming & Foldering
- Storing & Monitoring
- Format conversion
- Project Documentation

Image Creation

- Digitization
- Image Manipulation
- Mapmaking
- Vector Graphics
- Data Visualization (charts, networks, clustering, etc.)

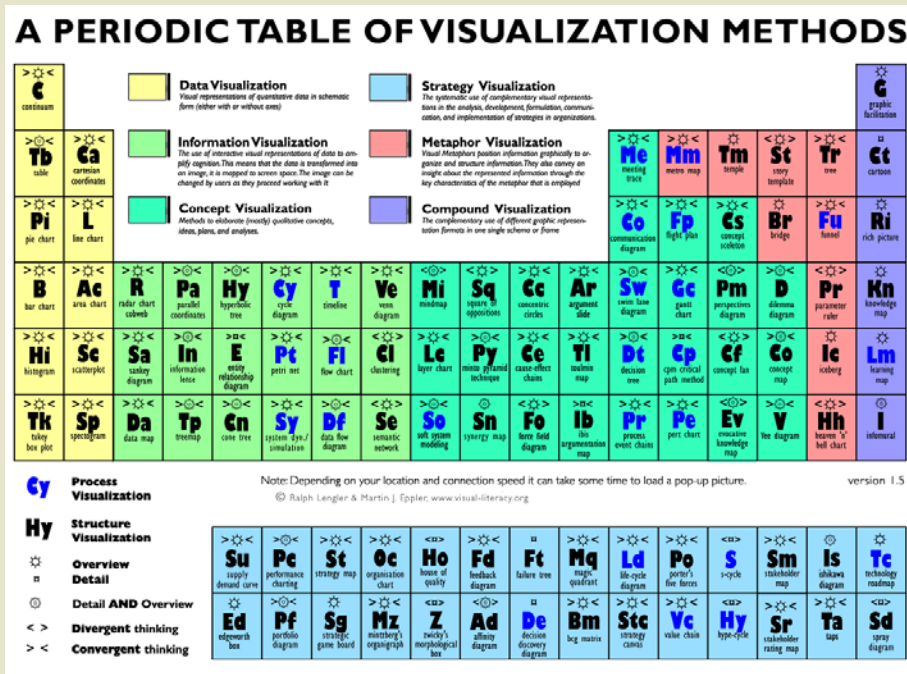
Metadata Development

- Metadata Schemas
- Content Standards
- Embedding Metadata
- Crosswalking Metadata

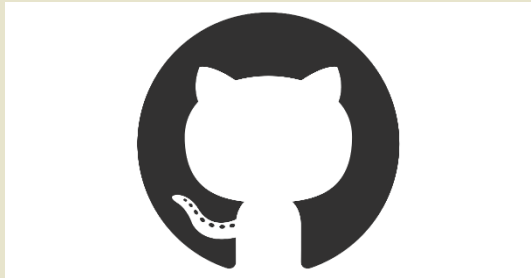
Data Transformation, Management, & Use

- Markup languages
- Scripting languages
- Transforming/ converting XML
- Data Query
- Data AnalysisData Mining
- Data Curation
- Data Crawling
- Data Scraping (APIs)

KNOWLEDGE BANKING TOOLS & METHODS



<http://dirtdirectory.org/>

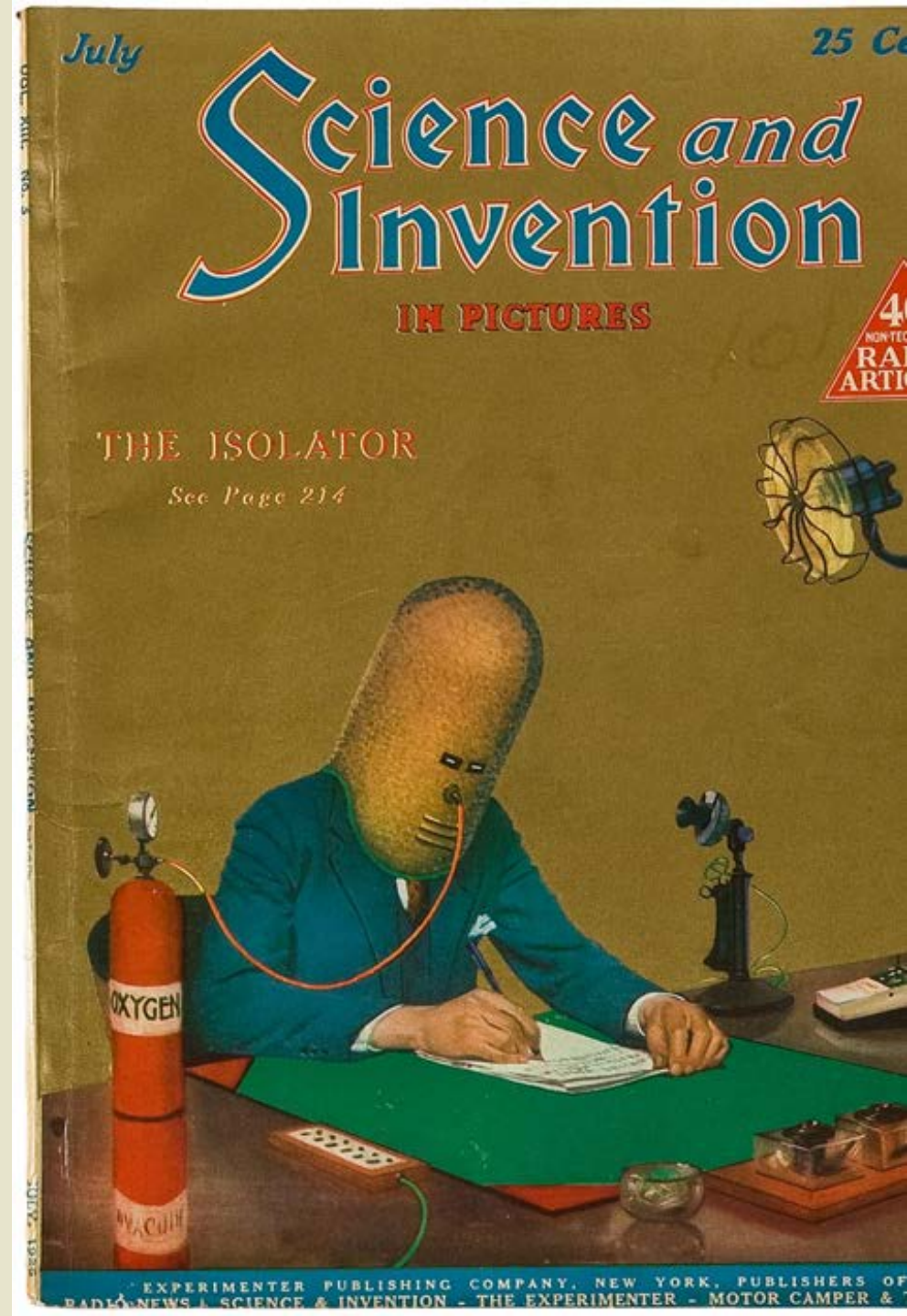


http://www.visual-literacy.org/periodic_table/periodic_table.html#

<https://github.com/>

FOCUS

Gernsback, Hugo. "The Isolator." *Science and Invention*. July 1925. E.D.W. Lynch. "The Isolator, a Bizarre Helmet Invented in 1925 Used to Help Increase Focus and Concentration." Laughing Squid. <http://laughingsquid.com/the-isolator-a-bizarre-helmet-invented-in-1925-used-to-help-increase-focus-and-concentration/>. Retrieved October 29, 2016.





ON TO DESIGN THINKING



HOW



STRATEGY

Daumiere, Honoré. *The Chess Players*. 1863. Oil on Canvas. The Yorck Project.. Distributed by DIRECTMEDIA Publishing. Digitized copy available on Wikipedia
https://commons.wikimedia.org/wiki/File:Honor%C3%A9_Daumier_032.jpg. Retrieved November 1, 2016

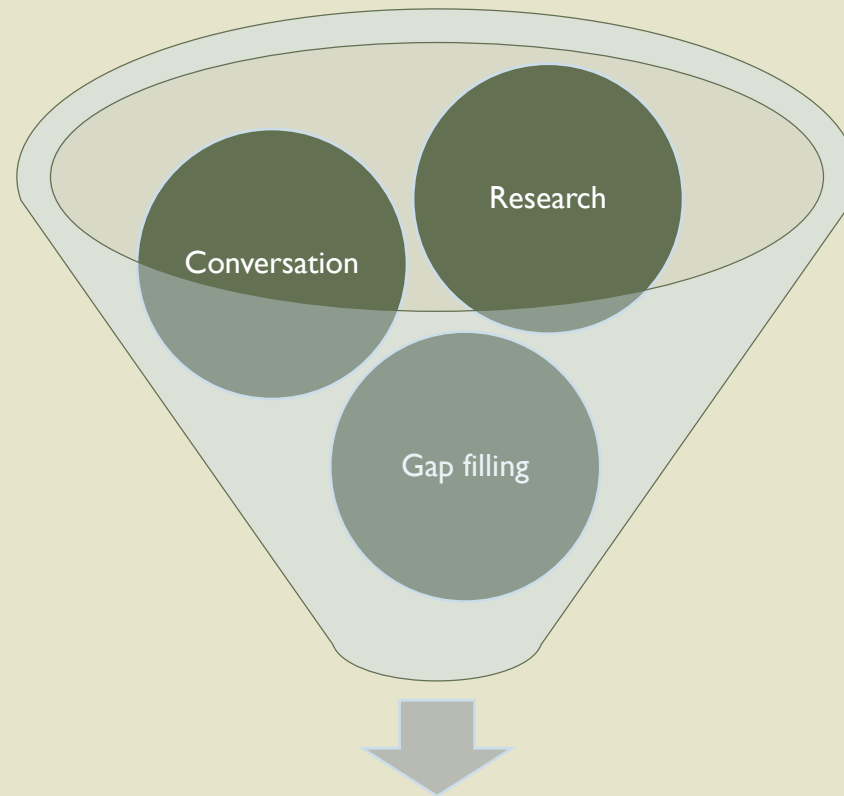


QUESTIONS





INFORMATION & KNOWLEDGE GATHERING



Ideas

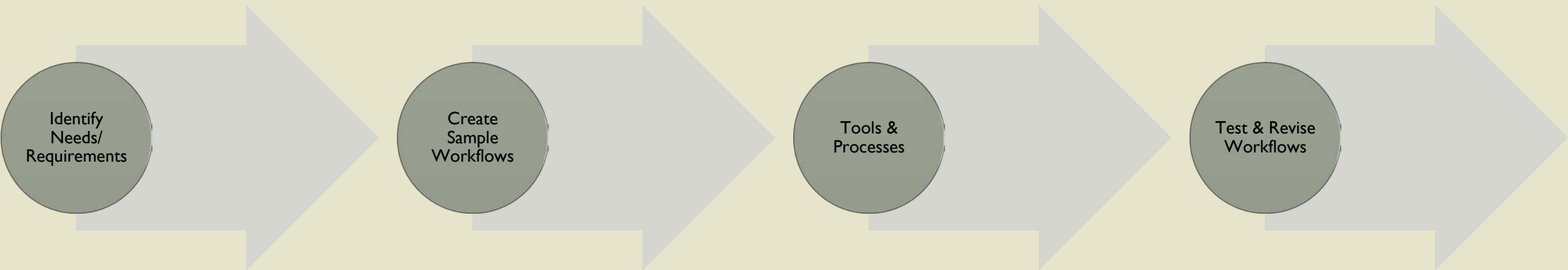
HYPOTHESIS / INSPIRATION / GIFT



Troup, Tammy. Billy and Jane. Light Bulb. October 2016. Personal Collection.

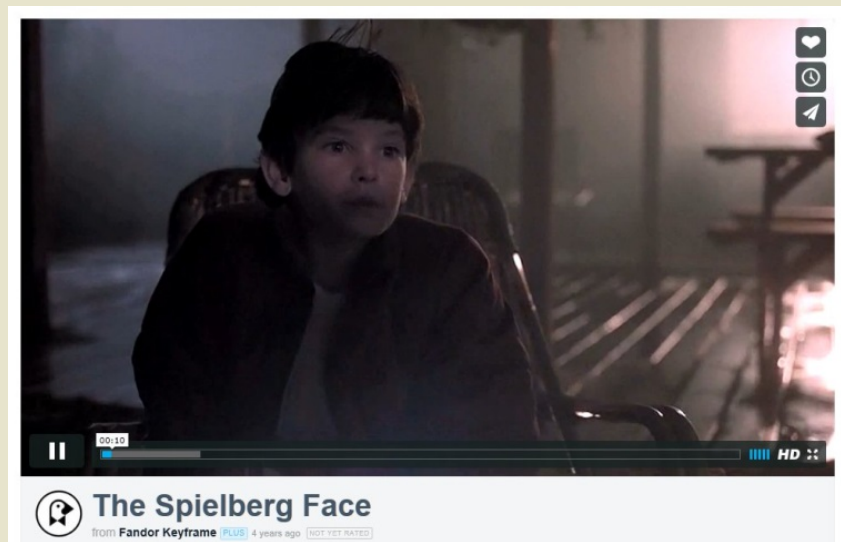


IMPLEMENTATION



SCHOLARLY OUTPUT

DH PRESENTATION



<https://vimeo.com/33617207>

DH ANALYSIS



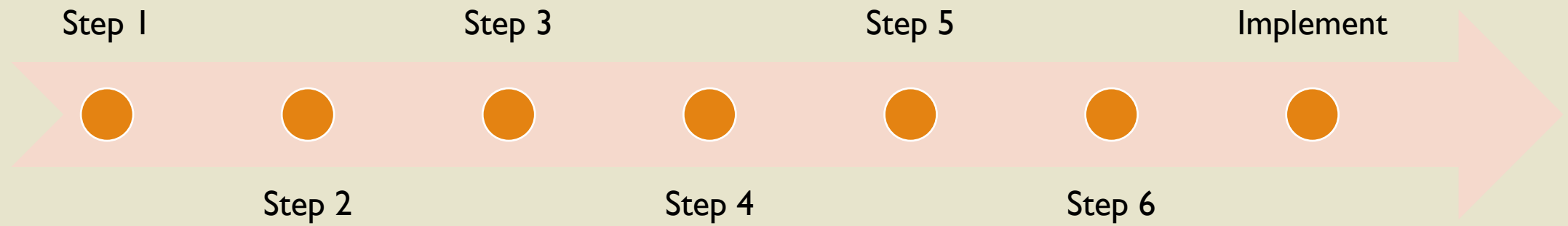
<http://www.marktwainproject.org/>



PROGRAMMATIC (COMPUTATIONAL) THINKING

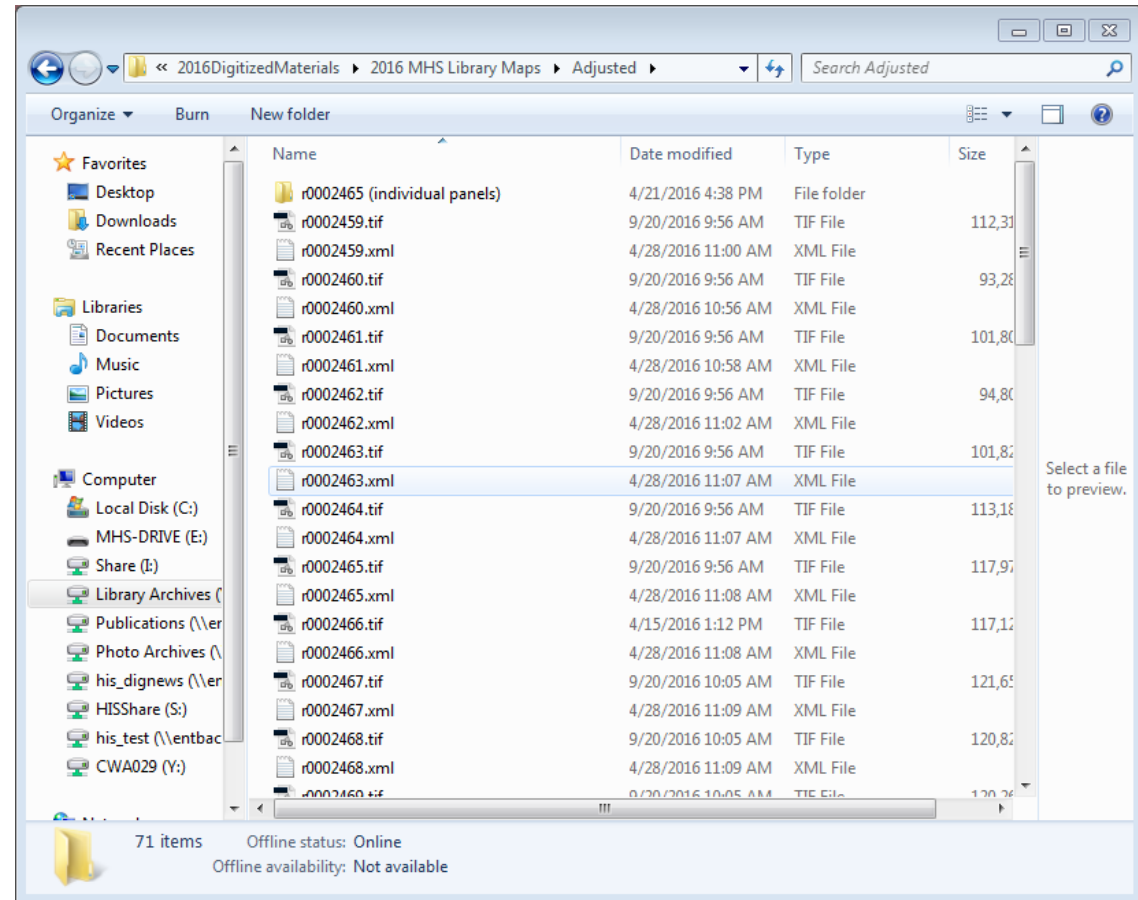


CLEARLY DEFINED STEPS



ONE SOLUTION => MANY APPLICATIONS

- Recognize Repetition or potential repetition
- Automate Tasks
- Seek batch applications
- Clean documentation





SAMPLE WORKFLOW

Export
MARCXML

Export
Embedded

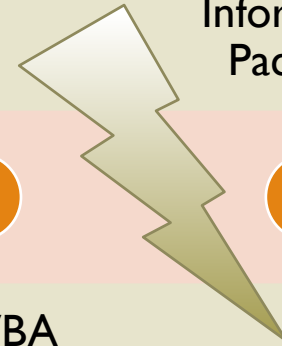
Import and
embed in
TIFFs

Bundle
Information
Packages

Transform
with XSL to
MODS & Key
fields

Organize data

Use VBA
script to
identify
OCLC
numbers with
file names.






MACHINE PROCESSES

Machines will do “it” faster

Machines will do “it” with greater accuracy

Machines will streamline processes and allow humans to do more



“...All the time that was taken up by the
mechanical act is freed to think.”

–SALMAN RUSHDIE

COHEN, PATRICIA. “FENDING OFF DIGITAL DECAY, BIT BY BIT.” 2010. NEW YORK TIMES
[HTTP://WWW.NYTIMES.COM/2010/03/16/BOOKS/16ARCHIVE.HTML?PAGEWANTED=ALL](http://www.nytimes.com/2010/03/16/books/16archive.html?pagewanted=all). RETRIEVED 26
OCTOBER 2016.



SOLVING PROBLEMS

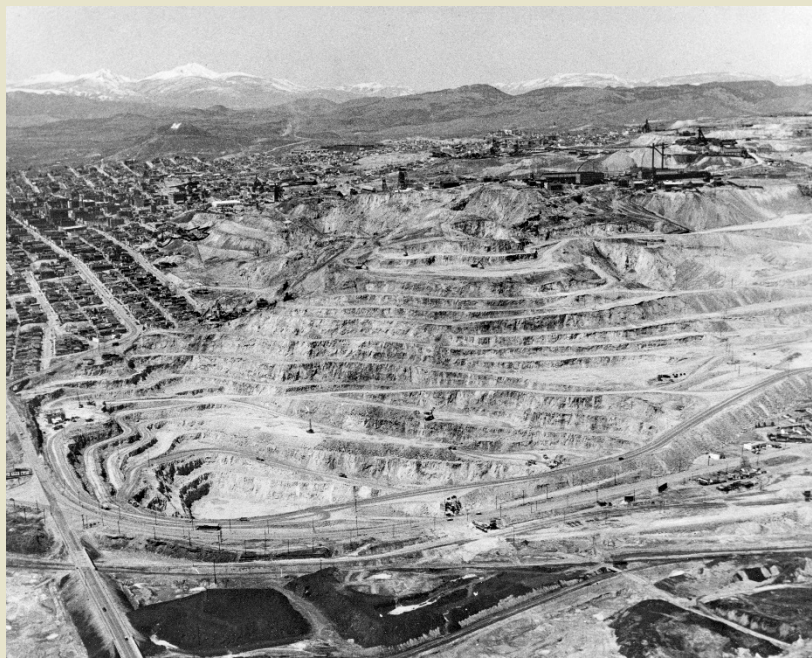


“CULTURE EATS STRATEGY FOR BREAKFAST”

Hegley, Douglas. “The Agile Museum.” 2016. Museums and the Web 2016
<http://mw2016.museumsandtheweb.com/paper/the-agile-museum/>. Retrieved 26 October 2016.



PEOPLE FIRST



Unidentified photographer. Berkeley Pit. [no date]. Lot 26 Mining Collection
ACM. Montana Historical Society Photo Archives.

BUILD THE GOVERNANCE



Unidentified photographer. Montana State Capitol – West Wing addition. 1910.
Catalog #952-672. Montana Historical Society Photo Archives.

EXPECTATIONS



Party of bicyclists climbing the terraces at Mammoth Hot Springs, Yellowstone National Park. James A. Moss, party, Ft. Missoula, Mont. "October 7, 1896 [August 1896 per Moss's diary]

Haynes, F.J. Bicycle Corps at Mammoth Hot Springs. 1896. Catalog #H-3615. Montana Historical Society Photo Archives.

SKILL BUILDING (PROFESSIONAL DEVELOPMENT)



"Children skiing in winter, Yellowstone National Park."
Haynes, F.J. Children Skiing. 1894. Catalog #H-3285. Montana Historical Society
Photo Archives.

TOLERATE AMBIGUITY



Trailblazers, Wilson and Rich teams. East Main Street, Bozeman.
Unidentified photographer. "Trailblazers." 1872. Montana Historical Society Photo Archives.



PLAN AHEAD



Unidentified photographer. Unidentified hunter looking through binoculars.
No date. Catalog #Pac 95-65 Box 44. Montana Historical Society Research
Center Photograph Archives. Helena, Montana.

COMMUNICATE



Huffman, L.A. White Bull Interview. June 20, 1901. Catalog #981-150. Montana Historical Society Research Center Photo Archives. Helena, Montana.

EXCHANGE KNOWLEDGE NOT HABITS



"Showing how the paths of the old Bozeman trail has washed into deep ruts"
Unidentified photographer. "Bozeman trail." [no date]. Montana Historical Society Photo Archives.

SHARE WORKFLOWS



Haynes, F.J. "Northern Pacific Railroad Switchback over Cascade Range" [1890]. Montana Historical Society Photo Archives.

STRUCTURE INFORMATION FOR SHARING



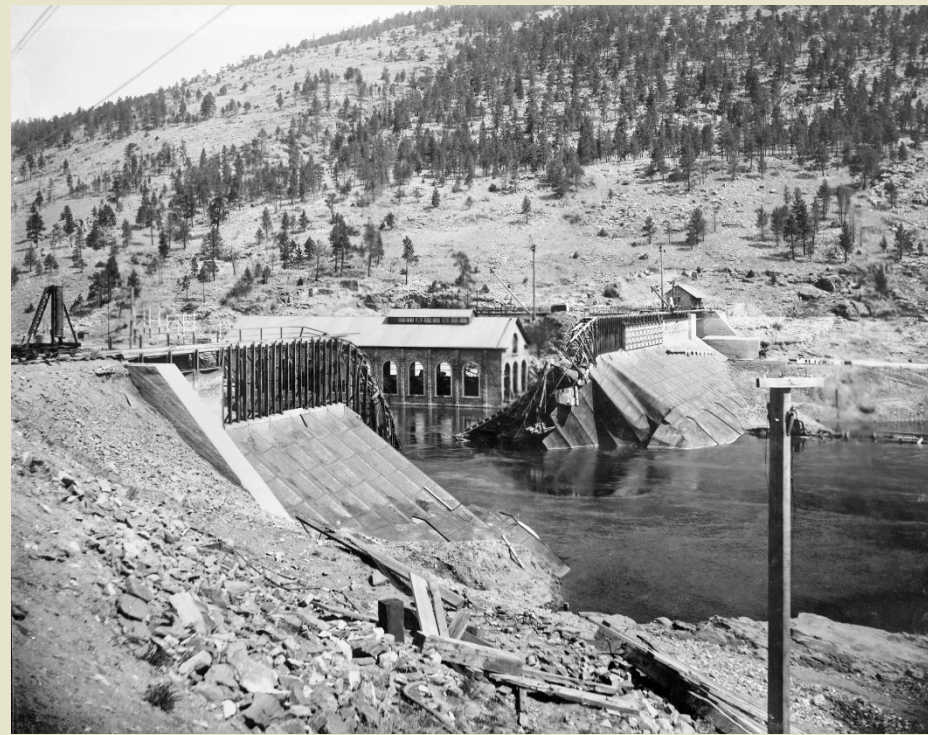
“John Henry Price, Dowson, and Evans on horseback, sharing a bottle, in front of log structure with sod roof at Crown W ranch.”
Cameron, Evelyn. “Price, Dowson, and Evans sharing a bottle.” [1903]. Montana Historical Society Photo Archives.

PLAY



Piano crate used as a playhouse by Kimball girls and their friends. Unidentified photographer. Children in Crate. [no date] Catalog #943-210. Montana Historical Society Photo Archives.

FAILURE IS LEARNING



Unidentified photographer. Hauser Dam failure. 1908. Hauser Dam
Box 1 Folder 1. Montana Historical Society Photo Archives.

SMALL GROUP DISCUSSION 2



PRESENTATION AND ANALYSIS

DIGITAL COLLECTIONS IF WE BUILT IT WOULD THEY COME?



Graylight. Field of Corn in Ohio. September 11, 2006. Wikipedia. Retrieved November 1, 2016 https://commons.wikimedia.org/wiki/File:Corn_field_ohio.jpg



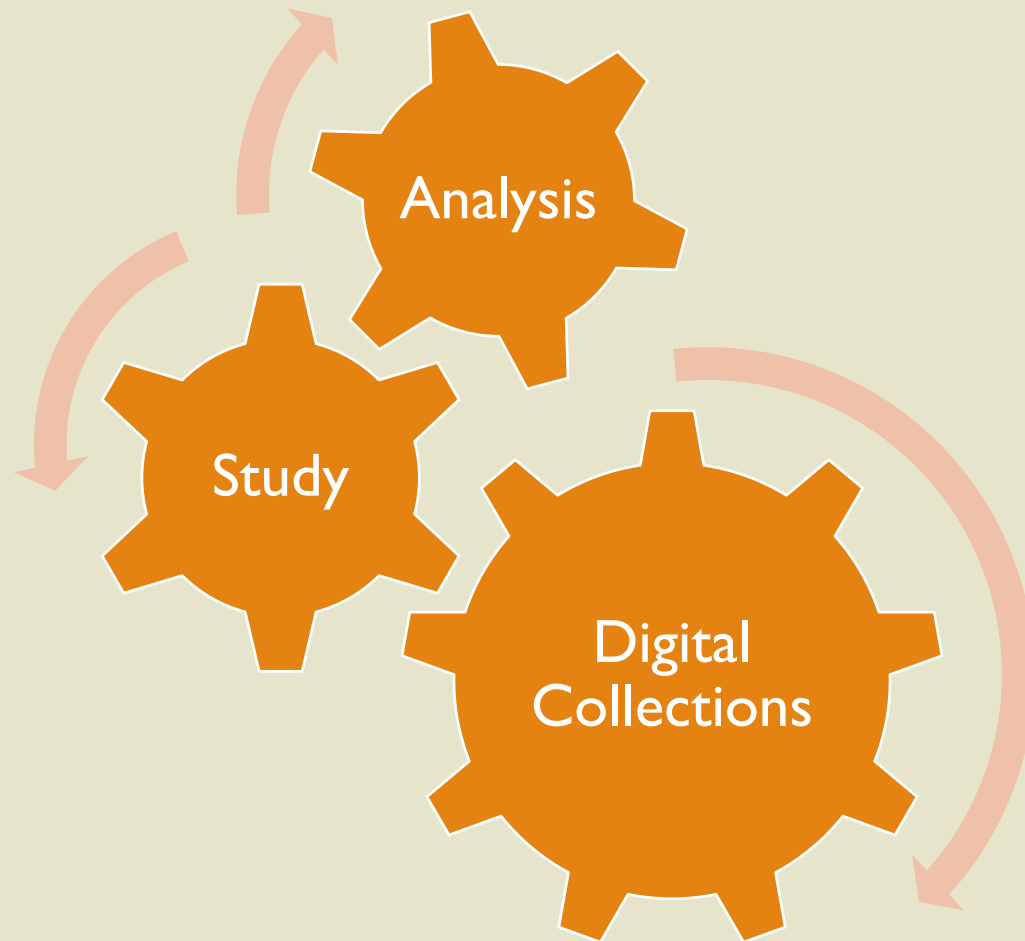
...AND THEY FOUND OUR COLLECTIONS



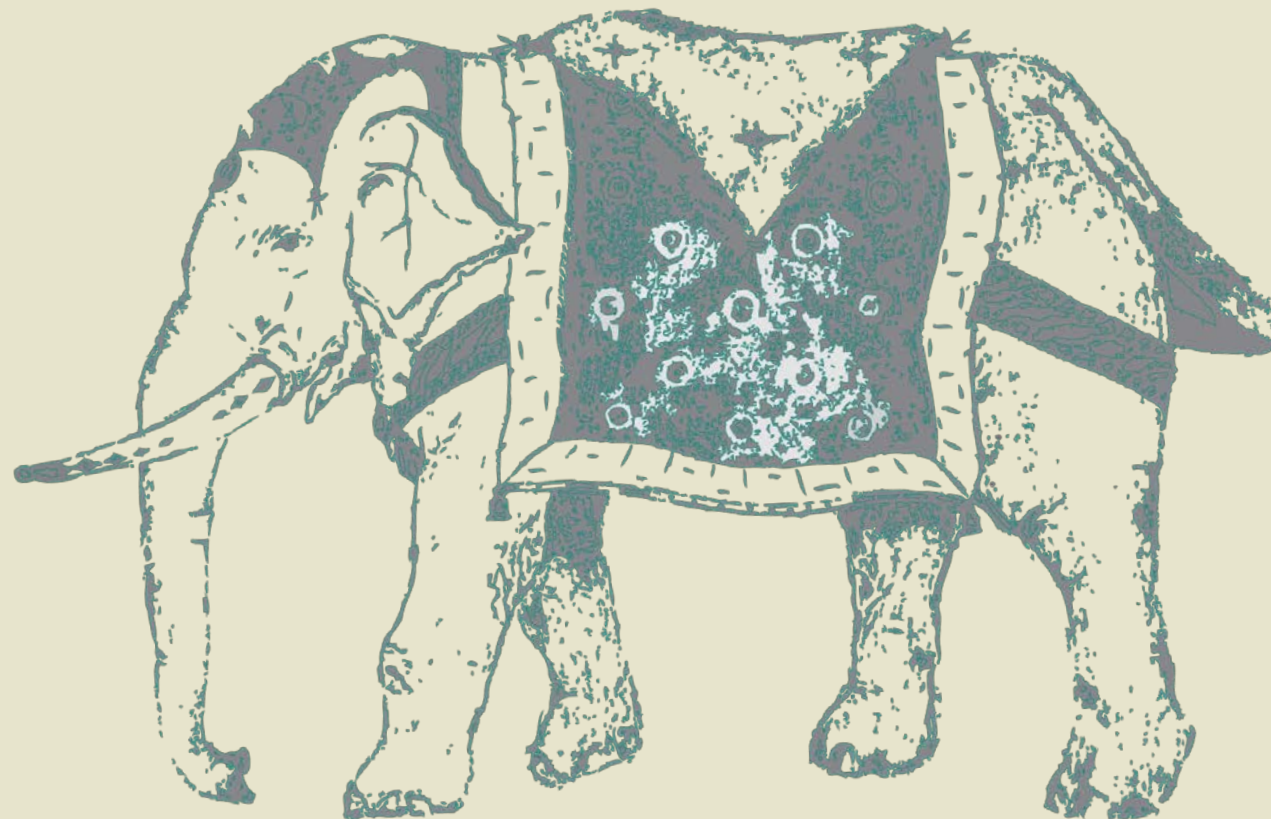
Troup, Tammy. Billy and Jane. Digital Image. October 2016. Personal Collection.



SUPPORT FOR STUDY

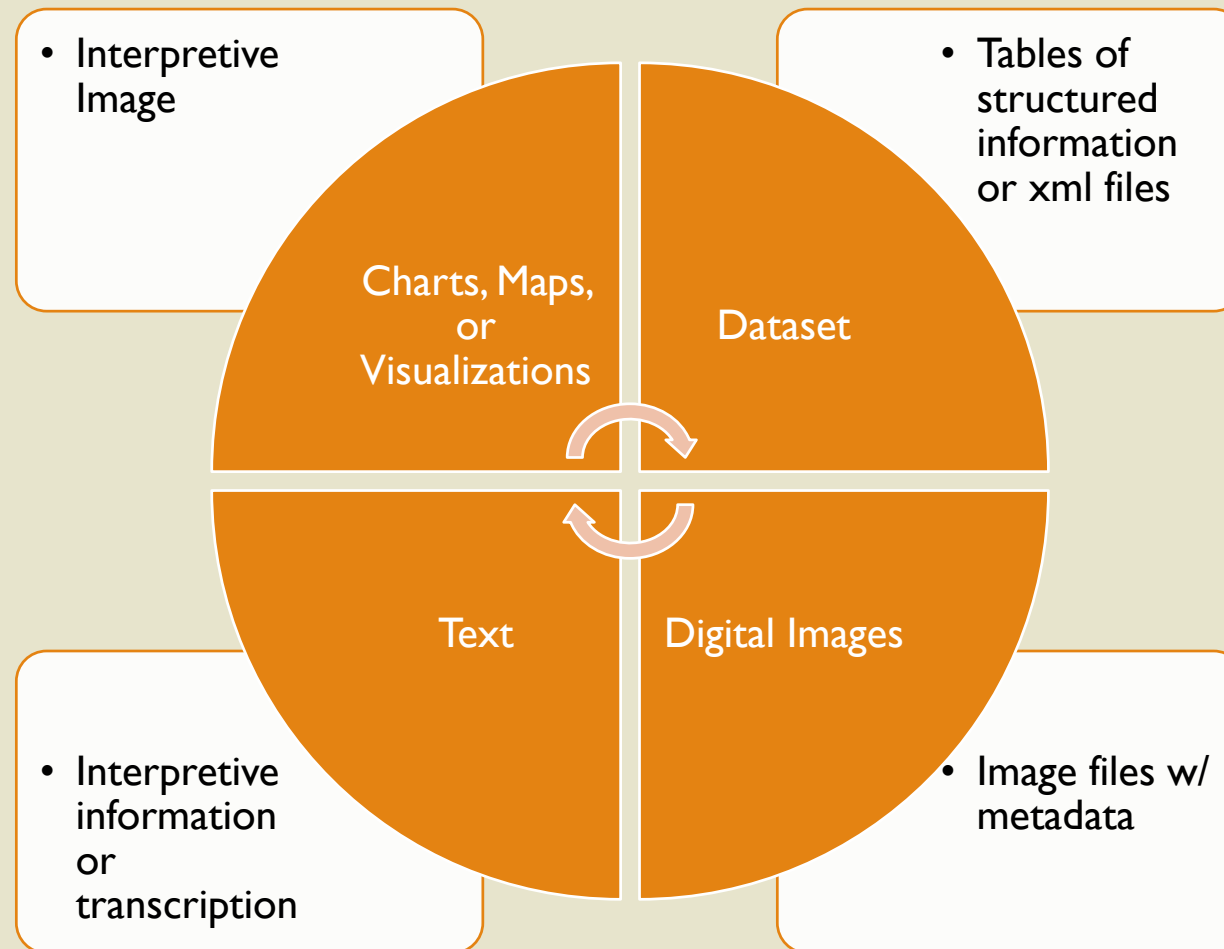


SO VERY LIKE AN ELEPHANT



Troup, Tammy. Very Like an Elephant. Digital Image. December 2015. Personal Collection.

DATA OR CONTENT?





CONTEXT



DATA





CONTENT



CONTENT WITHIN CONTEXT



Healy, C., Ramaswamy, S. Visualizing Twitter Sentiment. Web Application. North Carolina State University.
https://www.csc.ncsu.edu/faculty/healey/tweet_viz/. Retrieved October 29, 2016.

SCHOLARLY PROCESS – PRESENTATION

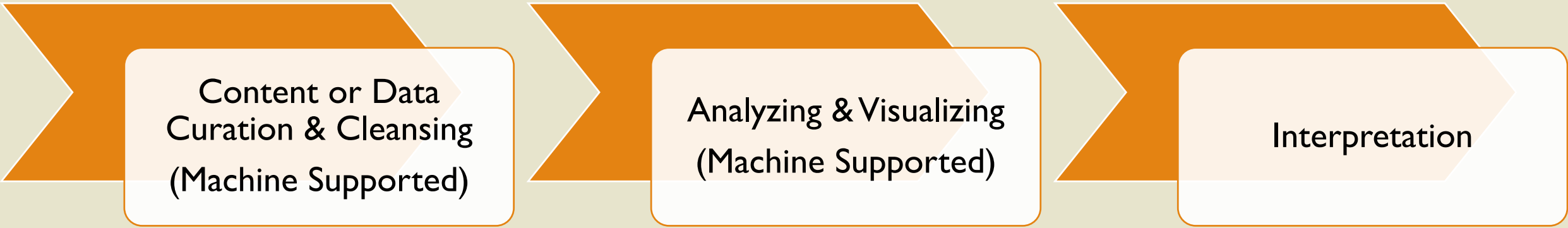


Data Development
(Machine Supported)

Content Curation
(Machine Supported)

Interpretation

SCHOLARLY PROCESS – ANALYSIS



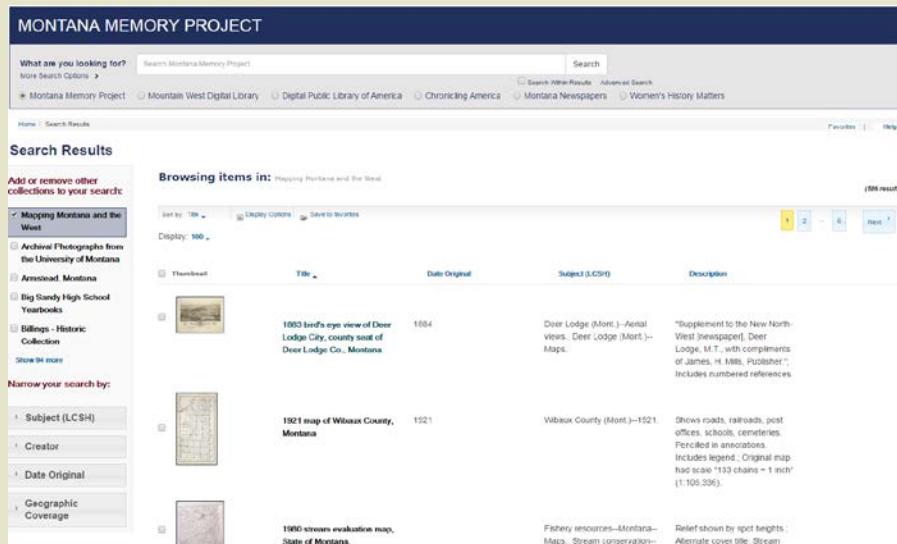
Content or Data
Curation & Cleansing
(Machine Supported)

Analyzing & Visualizing
(Machine Supported)

Interpretation

DIGITAL PROJECT TYPE

PROJECT



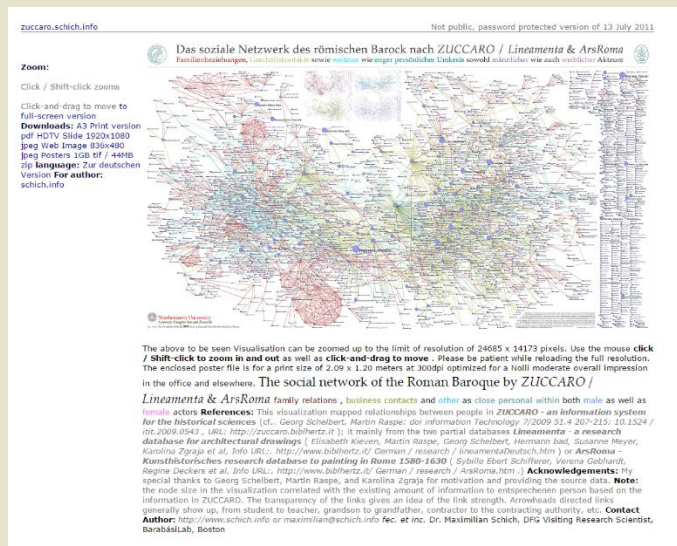
(digital collection) Montana Historical Society and Montana State University.
Mapping Montana and the West. 2012-2016.
<http://mtmemory.org/cdm/search/collection/p15018coll5>

PROCESSES/TOOLS

- Built on CONTENTdm
- Also see Omeka, MDID, Collection Space, Open Exhibitsetc.
- Data collection and cleanup,
- Metadata development.

DIGITAL PROJECT TYPE

PROJECT



(zoomable online map) Das soziale Netzwerk des römischen Barock. (350 Megapixel map) [The social network of the Roman Baroque] Bibliotheca Hertziana (Max-Planck Institute for Art History), Rome, Italy (July 2011) Zoomable URL: <http://zuccaro.schich.info/>

PROCESSES/TOOLS

- Project built with Gephi,
- Close reading,
- Historical research & analysis,
- Data collection and cleanup,

DIGITAL PROJECT TYPES

PROJECT



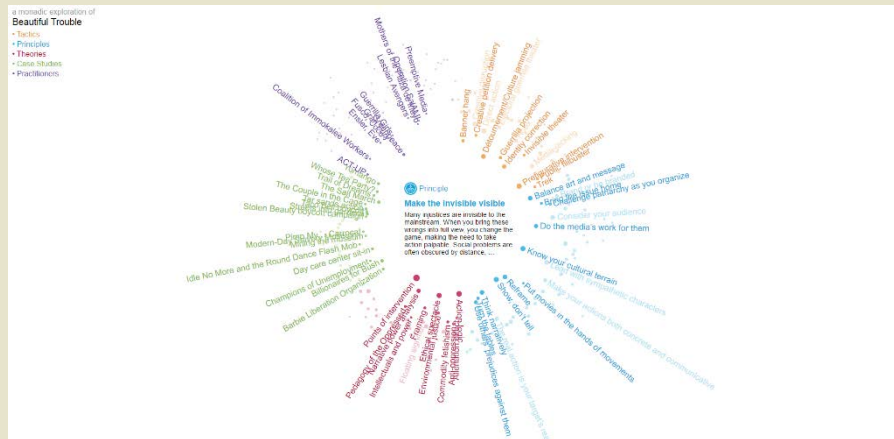
(Video Essay) Adam Westbrook. The Man Who Turned Paper into Pixels. 2011. Delve. <https://vimeo.com/98345492>.

PROCESSES/TOOLS

- FinalCut Pro, Adobe Premiere, etc.
- Image creation, management, and editing (Still & Moving),
- Historical research & analysis,
- Close Reading,
- Audio and Video editing.

DIGITAL PROJECT TYPE

PROJECT



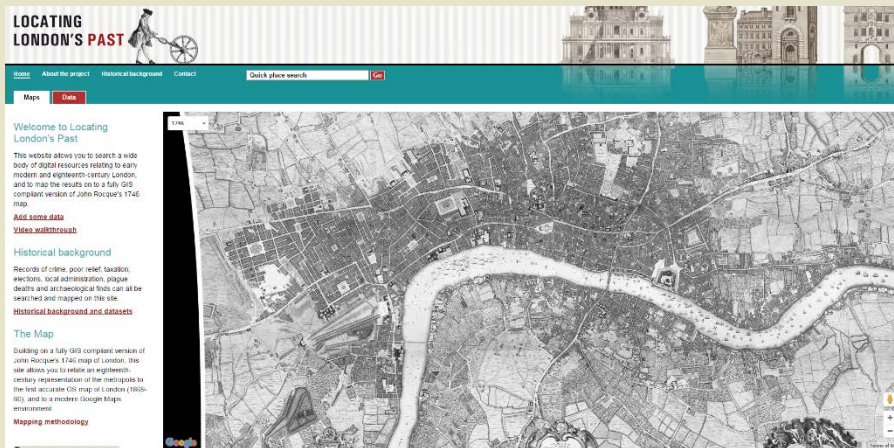
(data visualization) Marian Dörk. Beautiful Trouble. 2013. Explore Beautiful Trouble. explore.beautifultrouble.org

PROCESSES/TOOLS

- Built with JavaScript and SVG, also review
- D3.js and HTML5 (e.g., Here Is Today),
- Dozens of software and online visualization tools
- Data collection and cleanup

DIGITAL PROJECT TYPE

PROJECT



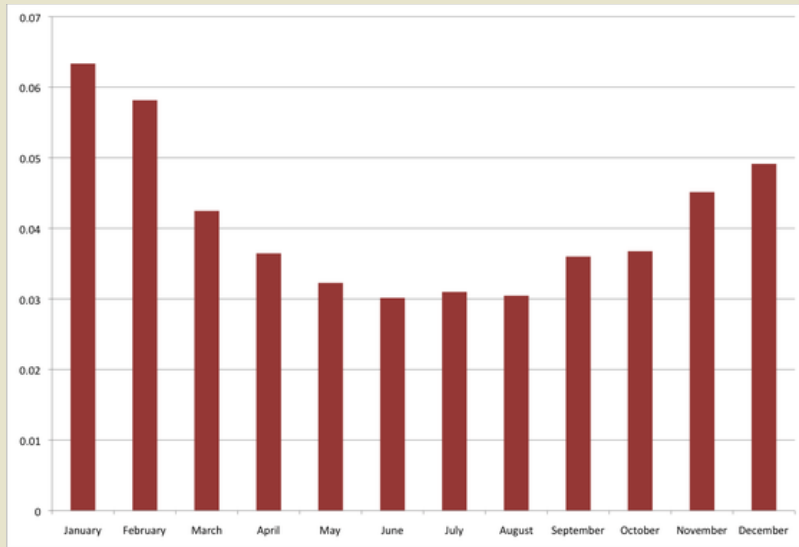
(Interactive Map) Locating London's Past. 2011. University of Hertfordshire, the Institute of Historical Research, University of London, and the University of Sheffield. <https://www.locatinglondon.org/index.html>.

PROCESSES/TOOLS

- Built with Geocoder (Java servlet, controlled via AJAX-style interface),
- Dozens of online mapping software,
- Georeferencing,
- Data collection and cleanup,
- Historical research and analysis

DIGITAL PROJECT TYPES

PROJECT



(Topic Modeling) Cameron Belvins. Topic Modelling Martha Ballard's Diary. 2010. <http://www.cameronblevins.org/posts/topic-modeling-martha-ballards-diary/>

PROCESSES/TOOLS

- Built with MALLET (Machine Learning for Language ToolkiT) (Java software)
- Also see R, programming language and dozens of other online software (Voyant, Lexos, etc.)
- Close reading,
- Data collection and cleanup,

SMALL GROUP ACTIVITY 3

IN-STATE RESOURCES

- MSU Libraries <https://www.lib.msu.edu/>
- MHS Research Center <http://mhs.mt.gov/research>
 - MONTANA NEWSPAPERS <http://montananewspapers.org>
 - Chronicling America <http://http://chroniclingamerica.loc.gov/>
 - ExploreBig <http://explorebig.org/>
- MHS and State Library <http://montanamemory.org/>
- Montana State Library <https://archive.org/details/MontanaStateLibrary>
- Digital Public Library of America <https://dp.la/>

/DIGITAL HUMANITIES

Tools and Technologies for the Study of the American West

Tammy Troup, Digital Services Manager

Montana Historical Society

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