

Stories of Loss: Fragility in the Archive

The Endings Project | CSDH2019

bit.ly/csdh2019

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hcmc.uvic.ca/endings
projectendings.github.io

/e

https://conferences.ubc.ca/2019/

ABOUT PROJECTS PEOPLE RESOURCES V NAMES CONTACT

About Us

Building Sustainable Digital Humanities Projects

Despite the thousands of digital projects launched during the past 20 years, experts warn that many of these projects are at risk of becoming “dark data” — projects that have no clear purpose or value, and whose creators lack the resources to preserve and access that knowledge for the long haul.

These challenges extend across many domains, but they are particularly pressing for digital humanities (DH) projects. The challenge of preserving and future-proofing these projects is compounded by the fact that many of them were funded by private foundations. To continue to reap the benefits of these projects, we must invest in workable preservation and archiving strategies that ensure sustainable, user-friendly access for longer than the estimated 30-year lifespan of most current formats.

While a growing body of research on the closure and preservation of digital projects identifies the urgency and scale of these challenges, few practical solutions have been developed.

The University of Victoria’s extensive experience with a broad variety of SSHRC and CFDP-funded DH projects over the past 15 years gives our team a unique perspective to consider these questions. Each of our funded DH projects has well-developed scholarly content, useful to the scholarly community for the foreseeable future, and each poses different, representative problems for sustained digital conservation and usability.

“Endings: Concluding, Archiving, and Preserving Digital Projects for Long-Term Usability”

SSHRC Insight Grant - \$270,000 - 4 Years

About Us

Building Sustainable Digital Humanities Projects

Despite the thousands of digital projects that have sprung up over the past 20 years, experts warn of a new "digital dark age" as our ability to produce digital information threatens to outpace our ability to store it, leaving us with a vast amount of knowledge for the long haul.

These challenges extend across many domains, but they are particularly pressing for digital humanities (DH) projects. The challenge of preserving and future-proofing these projects—many based on bespoke technologies and customized code—prioritizes their future. To continue to reap the benefits of these projects, we must invest in sustainable infrastructure and ensure that the data and code used in these projects remain freely accessible for longer than the estimated 10-year lifespans of most current formats.

While a growing body of research on the curation and preservation of digital projects identifies the urgency and scale of these challenges, few practical solutions have been offered.

The University of Victoria's extensive experience with a broad variety of SSHRC and CIHR-funded DH projects over the past 15 years gives our team a unique perspective to consider these questions. Each of our funded DH projects has well-developed scholarly content used by the scholarly community for the foreseeable future, and each poses different, representative problems for sustainable digital conservation and usability.

Humanities Faculty

- Claire Carlin, *Le Mariage sous l'Ancien Régime*
- Ewa Czaykowska-Higgins, *The Nxa'amxcin Database and Dictionary*
- Janelle Jenstad, *The Map of Early Modern London*

Librarians

- Corey Davis, Systems Librarian
- John Durno, Head of Library Systems
- Lisa Goddard, Associate University Librarian for Digital Scholarship and Strategy
- J. Matthew Hculak, Digital Scholarship Librarian

Humanities Computing Media Centre (HCMC)

- Martin Holmes, Programmer Consultant
- Stewart ArNeil, Programmer Consultant
- Greg Newton, Programmer Consultant

Research Assistants

Emily Comeau, Sarah Kell, Daniel Martin, Tye Landels-Gruenewald, Jennifer Polack, Joseph Takeda



University
of Victoria

Libraries

Original projects

The screenshot shows the homepage of the website 'Le Mariage sous l'Ancien Régime'. The header features a watercolor background with blue and pink washes. A blue 'BETA' logo is in the top left corner. The main title 'LE MARIAGE SOUS L'ANCIEN RÉGIME' is centered, with 'LE MARIAGE' in large letters and 'SOUS L'ANCIEN RÉGIME' in smaller letters below it. Below the title are two small portraits of historical figures. The navigation bar at the bottom includes links for Accueil, Au sujet du site, Documents, Appareil critique, Recherche, and Renseignements.

Accueil

XML | Métagénéres

Le mariage, toujours générateur de controverses au XXI^e siècle, a connu une période de grands remous pendant la première modernité (XVI^e-XVII^e siècles) – en effet, le moment de la naissance du mariage moderne – d'où l'intérêt, sinon l'urgence, de comprendre « l'imaginaire nuptial » de l'époque. Cette anthologie se compose de divers genres textuels, chacun exposant à sa manière les hantises de la société d'Ancien Régime.

The screenshot shows a diary entry from May 16, 1935, from Robert Graves' diary. The diary page is dated 'May 1935' and shows a calendar for April and June. The entry for May 16, 1935, is highlighted in red. The text of the diary entry discusses a wedding breakfast in New Café, chocolate, enemas, cream ices, sherry, champagne, sponge-cakes, cigarettes, cigars, bags of sweets, and a round table game. It also mentions Karl returning from Palma and a visit to Gelat. The sidebar includes sections for 'DISPLAYED DIARY SCAN', 'EDITORIAL NOTES', and a note about editorial changes.

The screenshot shows the homepage of the 'Map of Early Modern London' project. The header features a large, detailed woodcut-style map of London. Below the map, there are links for Map, Encyclopedia, Library, Stow, and About. There are four decorative icons: 'The Map' (a map of London), 'Encyclopedia' (a heraldic shield), 'Library' (a large letter 'J'), and 'Stow' (a heraldic shield). A bio for MoEML Director Janelle Jenstad is present, along with news and tweets sections.

INTERESTING SNIPPETS

The Mercers' Company was one of the twelve great companies of London. The

NEWS

MoEML Launches its Static Site with v.6.3 Release

TWEETS

Latest tweet by @MoEMLondon

Problem: web archiving

A screenshot of a web browser displaying the Wayback Machine interface. The URL in the address bar is <https://web.archive.org/web/20080322012253/http://graves...>. The page shows the Internet Archive logo and the Wayback Machine logo. A search bar at the top right contains the query http://graves.uvic.ca/xrequest.xq?new_search=true&action=Search. Below the search bar are two buttons: "Latest" and "Show All". A message in red text says "Hrm." followed by "The Wayback Machine has not archived that URL.". A yellow callout box contains the text "This page is available on the web!" and "Help make the Wayback Machine more complete! Save this url in the Wayback Machine". At the bottom, there is a link to search for all archived pages under <http://graves.uvic.ca/>. A footer note states: "The Wayback Machine is an initiative of the Internet Archive, a 501(c)(3) non-profit, building a digital library of Internet sites and other cultural artifacts in digital form. Other projects include Open Library & archive-it.org."

Solution: Hard linking



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The screenshot shows the source code of a web page from the University of Victoria's website. The code is displayed in a monospaced font, with line numbers on the left. A red arrow points to the line containing the URL 'gr01_0926_000.html'. This indicates that the link has been hard-coded into the page's source code.

Long-term accessibility

In Canada alone, SSHRC has invested \$15.8 million on 138 projects through its (former) ITST program.

How **DO** digital humanities projects conclude?

How **SHOULD** digital humanities projects conclude?

Short answer: They don't.



Surveys & interviews

- Survey of DH project leads: 127 responses
- In-depth interviews: 25 (currently being TEI encoded)



Survey Results

What year did your project begin? (If you have led more than one project, please choose one.)

Answer	Count	Percentage
1980-1990 (A1)	3	3.37%
1990-1995 (A2)	2	2.25%
1996-2000 (A3)	7	7.87%
2001-2005 (A4)	9	10.11%
2006-2010 (A5)	23	25.84%
2011-2016 (A6)	43	48.31%
No answer	2	2.25%

Answer	Count	Percentage
1980-1990 (A1)	0	0.00%
1990-1995 (A2)	0	0.00%
1996-2000 (A3)	0	0.00%
2001-2005 (A4)	0	0.00%
2006-2010 (A5)	9	10.11%
2011-2015 (A6)	12	13.48%
2016-2017 (A7)	13	14.61%
Still in progress (A8)	52	58.43%
No answer	3	3.37%



Career Stage

What career stage were you at when you began your digital project?

Answer	Count	Percentage
Graduate student (SQ001)	20	23.26%
Post-doctoral or research fellow/affiliate (SQ002)	9	10.47%
Independent scholar (SQ003)	2	2.33%
Unemployed or underemployed (SQ004)	1	1.16%
Early career (SQ005)	11	12.79%
Pre-tenure (SQ006)	14	16.28%
Tenured (SQ007)	17	19.77%
Retired and/or Emeritus (SQ008)	1	1.16%
Research chair (SQ009)	0	0.00%
Director or manager (SQ010)	10	11.63%
Other	2	2.33%

Did you have a timeline?

Did you have a precise timeline for accomplishing the project from the outset?

Answer	Count	Percentage
Yes (Y)	30	40.00%
No (N)	44	58.67%
No answer	1	1.33%



What questions were you thinking about?

As you were planning your project, which of the following did you consider? (Check all that apply.)

Answer	Count	Percentage
Research questions (SQ001)	64	86.49%
Timelines (SQ002)	47	63.51%
Endpoint (SQ004)	32	43.24%
Capturing metadata (SQ003)	44	59.46%
Documentation (SQ012)	53	71.62%
Where and how it was going to be archived (SQ011)	43	58.11%
Long-term formats (SQ010)	41	55.41%
Benchmarks for assessing progress towards completion (SQ009)	24	32.43%
Long-term users and use of your project (SQ008)	48	64.86%
Intellectual property issues (SQ007)	51	68.92%
Open access (SQ006)	56	75.68%
Sustainability (SQ005)	47	63.51%



Is the project complete & archived?

Is your project complete and archived?

Answer	Count	Percentage
Yes (Y)	13	18.31%
No (N)	57	80.28%
No answer	1	1.41%



If complete, where is it archived?

Where is it archived?

Answer	Count	Percentage
At a stable and currently accessible URL (SQ001)	10	76.92%
In an institutional repository (SQ004)	5	38.46%
On GitHub (SQ003)	3	23.08%
In a discipline-specific repository (e.g., NINES, OLAC, etc.) (SQ002)	1	7.69%
Other	2	15.38%



Preservation Plan

Did your project have a long-term preservation plan from the beginning of the funding cycle?

Answer	Count	Percentage
Yes (Y)	31	43.66%
No (N)	38	53.52%
No answer	2	2.82%



Availability of Data

Is your project data still available online?

Answer	Count	Percentage
Yes (Y)	60	74.07%
No (N)	19	23.46%
No answer	2	2.47%



File Formats

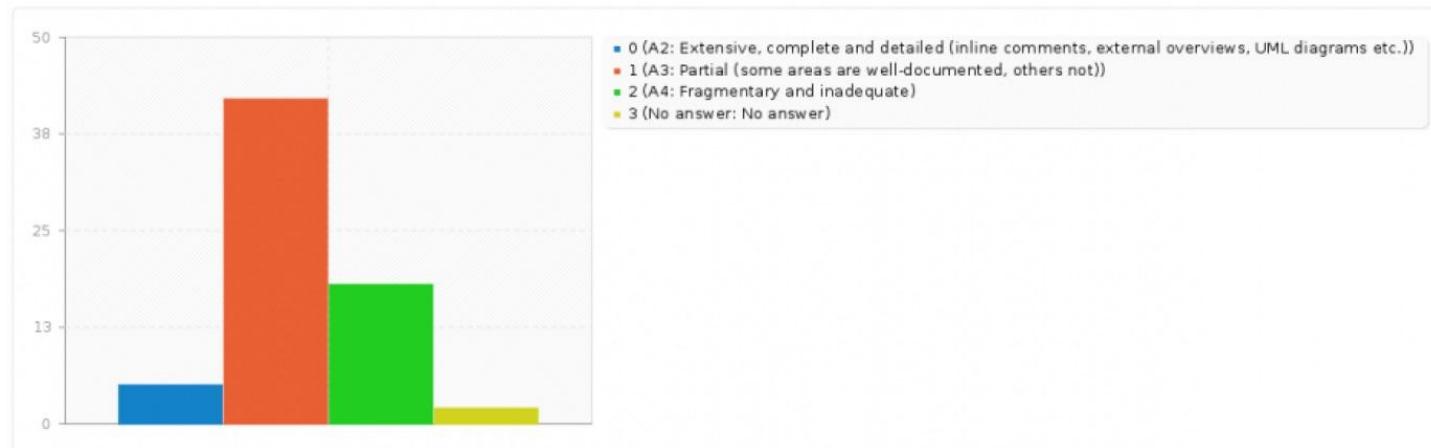
Which file formats were part of your final project output? (Check all that apply.)

Answer	Count	Percentage
HTML (SQ001)	48	67.61%
PDF (SQ011)	32	45.07%
JPGs (SQ010)	46	64.79%
TIFFs (SQ009)	22	30.99%
MP4s (SQ008)	16	22.54%
MP3s (SQ007)	16	22.54%
TXT (SQ006)	13	18.31%
JSON (SQ005)	10	14.08%
word processor files (SQ004)	13	18.31%
spreadsheets or CSV (SQ003)	26	36.62%
XML (SQ002)	27	38.03%
Other	14	19.72%



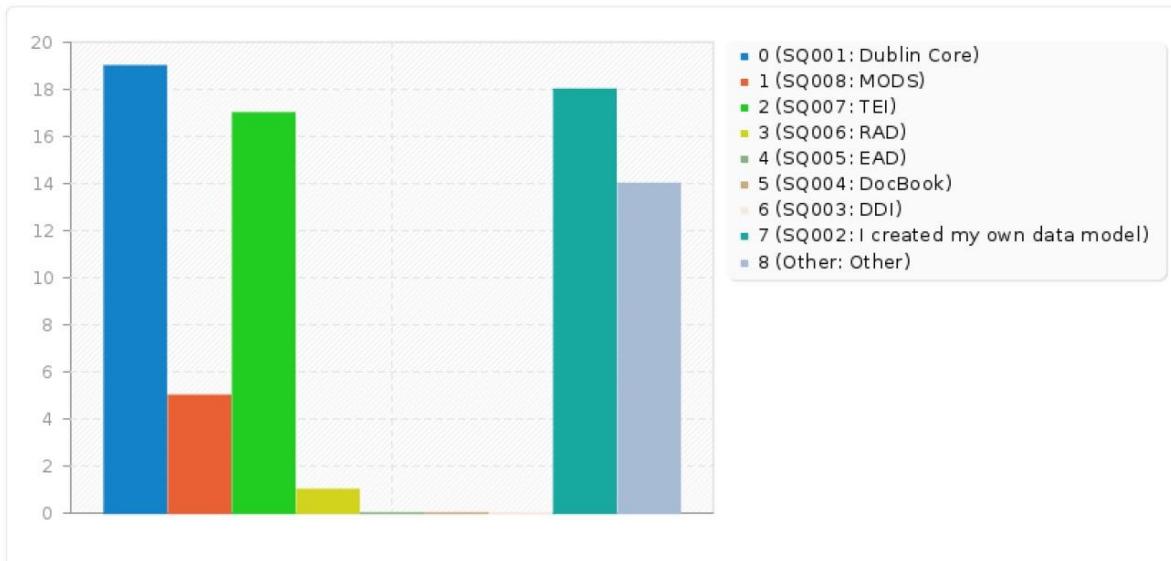
Documentation

If a new developer had to pick up this project five years from now and extend it, how do you think they would describe the technical documentation?



Data models

Which of the following standardized data models did you use in your project? (Check all that apply.)



Follow-up interviews

25, 1-hour interviews conducted with those who self-identified as being willing to meet via Skype

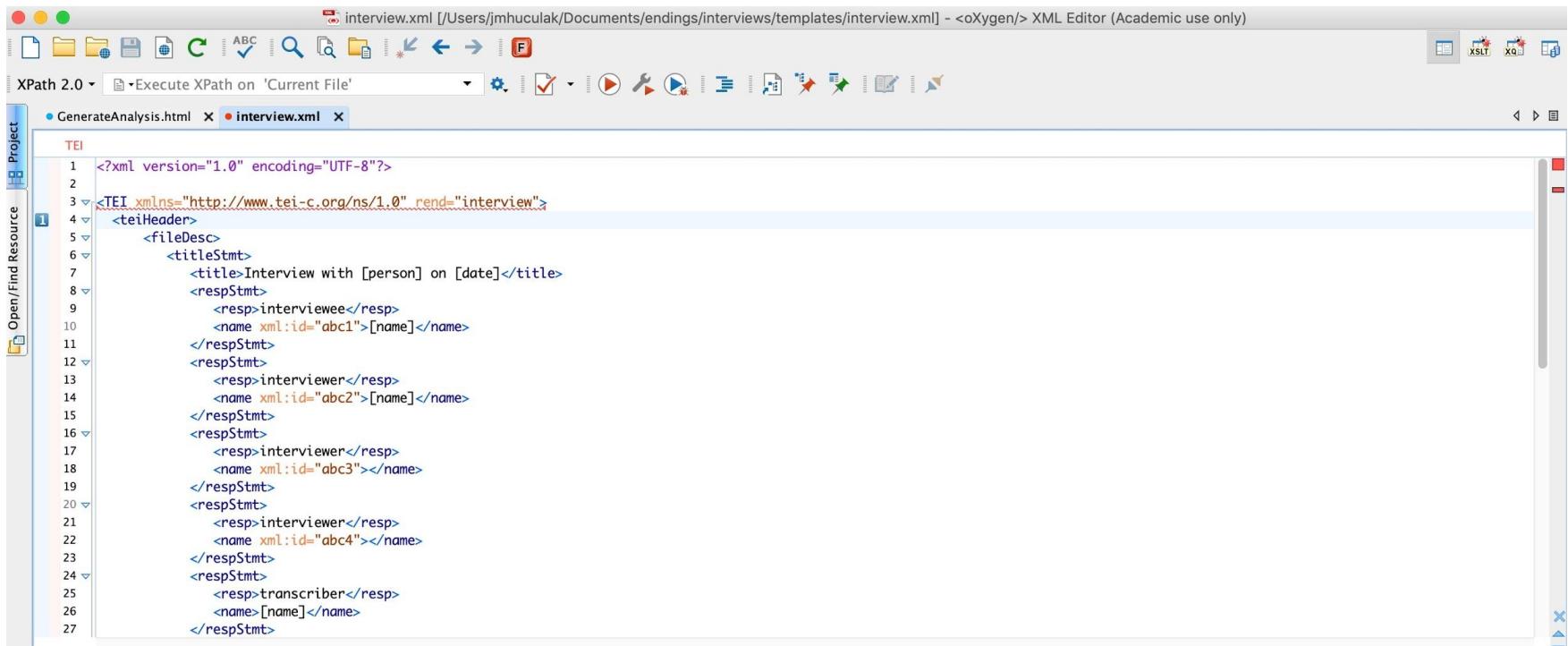


Categories

- Data
- Documentation
- Funding
- Hosting
- Institutional
- Project Management
- Project Outputs
- Rights
- Scholarly/academic issues
- Storage, backup, and preservation
- Team



Transcription & TEI



The screenshot shows the oXygen XML Editor interface. The title bar reads "interview.xml [/Users/jmhuculak/Documents/endings/interviews/templates/interview.xml] - <oXygen/> XML Editor (Academic use only)". The toolbar includes standard file operations (New, Open, Save) and various editing tools. A dropdown menu for "XPath 2.0" is open, showing "Execute XPath on 'Current File'". The main workspace displays the XML code for "interview.xml". The code is structured as follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<TEI xmlns="http://www.tei-c.org/ns/1.0" rend="interview">
  <teiHeader>
    <fileDesc>
      <title>Interview with [person] on [date]</title>
      <respStmt>
        <resp>interviewee</resp>
        <name xml:id="abc1">[name]</name>
      </respStmt>
      <respStmt>
        <resp>interviewer</resp>
        <name xml:id="abc2">[name]</name>
      </respStmt>
      <respStmt>
        <resp>interviewer</resp>
        <name xml:id="abc3"></name>
      </respStmt>
      <respStmt>
        <resp>interviewer</resp>
        <name xml:id="abc4"></name>
      </respStmt>
      <respStmt>
        <resp>transcriber</resp>
        <name>[name]</name>
      </respStmt>
```



Transcription & TEI

(file:///Users/jmhuculak/Documents/endings/interviews/html/baer_trish_2018-06-22.html

Analysis categories used

- Data (76 tags)
 - Archive of data (4 tags)
 - Data collection (2 tags)
 - Database (1 tags)
 - Data design (5 tags)
 - Digitization decisions (11 tags)
 - File formats (4 tags)
 - Findability (3 tags)
 - Finding aids (3 tags)
 - Image data (14 tags)
 - Metadata (also in Documentation) (12 tags)
 - Data management plan (13 tags)
 - Text data (3 tags)
- Documentation (11 tags)
 - Documentation write-up (6 tags)
 - Metadata (also in Data) (2 tags)
 - Text as documentation (3 tags)
- Funding (4 tags)
 - Funding difficulties (1 tags)
 - Institutional financial support (1 tags)
 - Lack of funding (2 tags)
- Hosting (5 tags)
 - Hosted on an institutional server (2 tags)
 - Hosted in a University repository (3 tags)
- Institutional (28 tags)
 - Access (2 tags)
 - Institutional hosting (1 tags)
 - Institutional infrastructure (1 tags)
 - Integration (1 tags)
 - Institutional knowledge (1 tags)
 - Library support (3 tags)

pleases the Icelandic academics, but I sort of [clears throat] made it mean My Norse Digital Image Repository and it was part of my PhD. I did an interdisciplinary PhD- PhD so that I could do this repository and also write about the illustrations {#JJ: mhm} and uh I had two case studies, one on an Icelandic artist and who worked in paper manuscripts uh Jakob Sigurðsson and uh the second one on the uh Norwegian uh national treasure Heimskringla the History of the Kings of Norway which was preserved in Icelandic so {#JJ: mhm} and illustrated by um six Norwegian artists when they uh translated it into Norwegian. So-

Janelle Jenstad Mhm. What is the status of your project now?

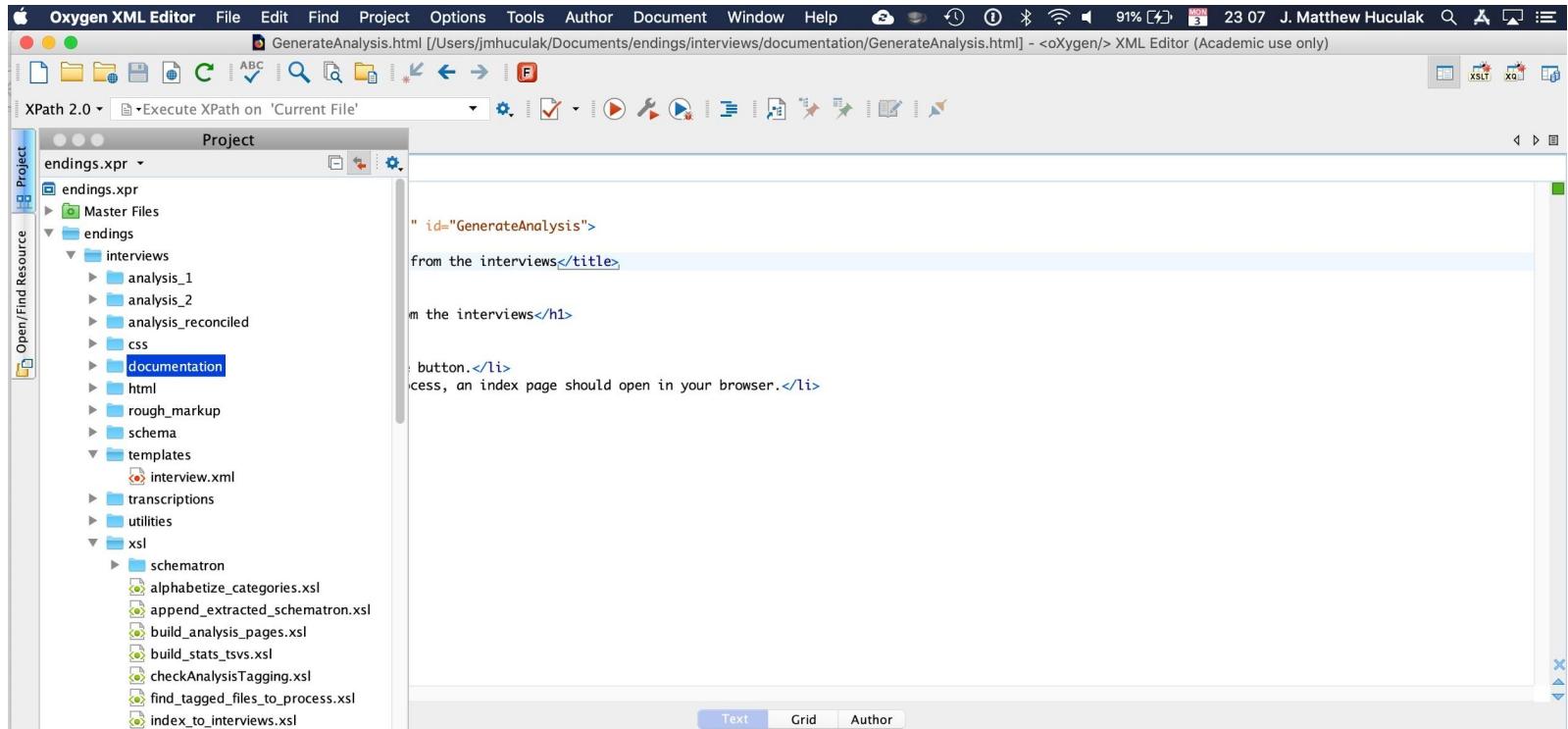
Trish Baer It is online {#JJ: mhm} um has been since 2013 when I finished my PhD uh I've been slowly working on it when time allows by adding uh images and um recently we've been able to update the images so that the uh manuscripts from Iceland and Denmark are now full size {#JJ: mhm}. They had initially restricted the size that I could use and um we are going to, Martin Holmes and I, mostly Martin I must say {#JJ: {laughs}} [laughs] are going to uh fix it because the uh it has a scrollable strip of thumbnails that doesn't work properly on iPhones and iPads and tablets in general I suppose so {#JJ: mhm} we're going to have to redesign that aspect of the site.

Janelle Jenstad mhm okay thank you. Well let's flip the questions then {#TB: mm okay} Alright, so um our new first question: What decisions, plans and measures proved effective and beneficial?

Trish Baer Well, number one was, this was back in 2006 uh when digital humanities was not as common as it is today, so we started off by getting a letter of support um from the Dean uh and Peter Liddell so that I could work with uh Martin in the Humanities Computing and Media Centre, Martin Holmes. So I designed um this how I wanted the site to look and and function and did the XML markup, took a lot of the images with my own camera, travelled and did that {#JJ: mhm} and Martin made the things work the way I wanted them to {#JJ: {laughs}} which is tremendous. Otherwise you wouldn't see anything at all {#JJ: mhm}. Um, so yes that letter was very important um I mean I think people are being encouraged to do digital projects these days so they don't have to look for such support and I wanted from the start to use XML and TEI. I like the flexibility. I did look at other um other things such as uh let me see [door opens] I have to look at my notes here for such as status [ruffling through pages] [Someone walks in]Hello. Oh, pardon me! I'm in the wrong room[door closes] {#JJ: mhm} Yeah, umm, where am I? [flipping pages] Manuscript yeah...oh dear.



Analysis reconciliation



The screenshot shows the Oxygen XML Editor interface. The title bar reads "Oxygen XML Editor" and "GenerateAnalysis.html [J:/Users/jmhuculak/Documents/endings/interviews/documentation/GenerateAnalysis.html] - <oXygen/> XML Editor (Academic use only)". The toolbar includes standard file operations like Open, Save, Find, and Print, along with specific XML and XSLT icons. A status bar at the bottom shows battery level (91%), signal strength, date (23 07), and time.

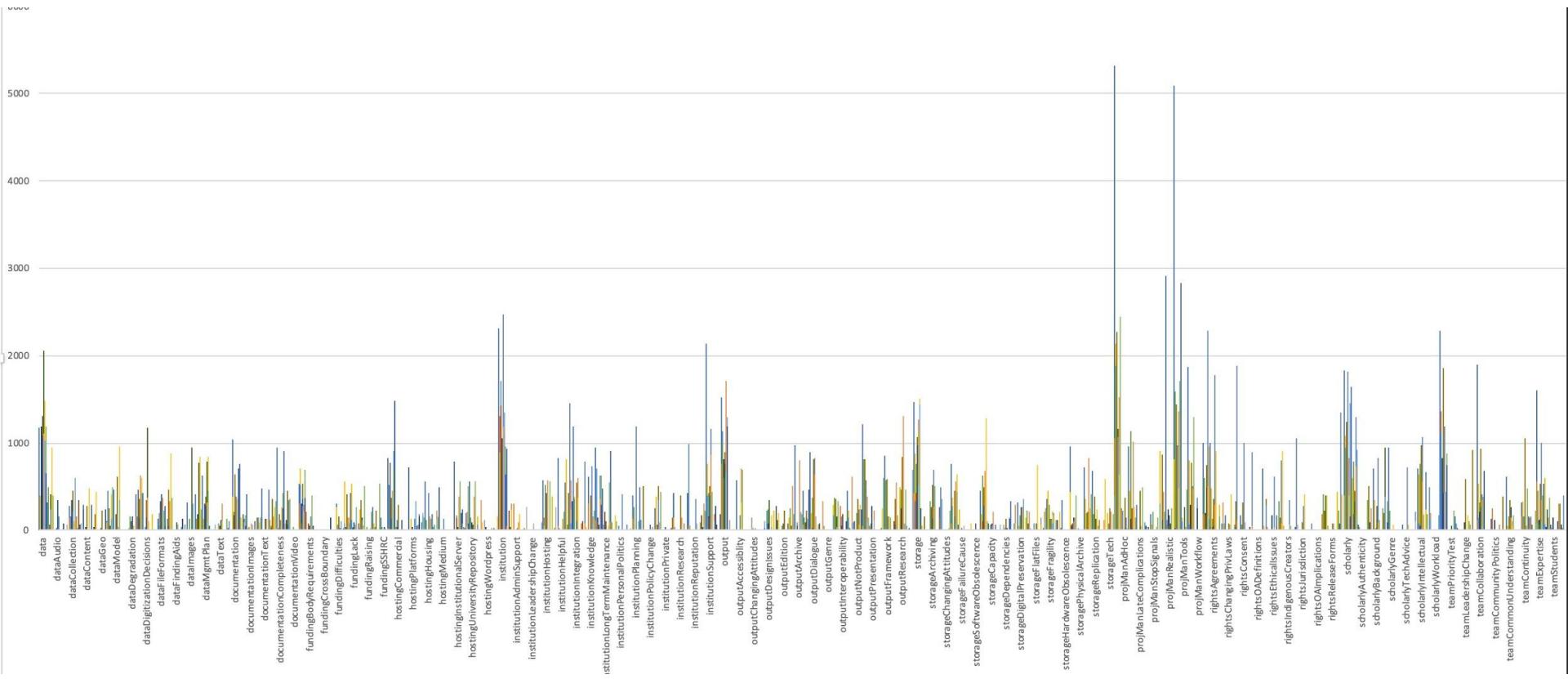
The main window has two panes. The left pane, titled "Project", shows a hierarchical tree of files and folders under the project "endings.xpr". The "endings" folder contains "interviews", "analysis_1", "analysis_2", "analysis_reconciled", "css", "documentation" (which is currently selected), "html", "rough_markup", "schema", "templates", "transcriptions", "utilities", and "xsl". The "xsl" folder contains "schematron" and several XSLT files: "alphabetize_categories.xsl", "append_extracted_schematron.xsl", "build_analysis_pages.xsl", "build_stats_tsvs.xsl", "checkAnalysisTagging.xsl", "find_tagged_files_to_process.xsl", and "index_to_interviews.xsl".

The right pane displays the XSLT code for "GenerateAnalysis.html". The code includes:

```
" id="GenerateAnalysis">  
from the interviews</title>  
  
in the interviews</h1>  
  
<li>  
button.</li>  
cess, an index page should open in your browser.</li>
```



Preliminary Instance Counts



Preliminary results-Team

- [View](#) [] the project uh sort of kept going for awhile, like the PI sort of kept contributing stuff to it, but in 2006 he passed away uh the server though s- remained up.
- [View](#) [] neither me nor another person involved in the project could get into the server anymore to set it back up again.



Preliminary results- Team

- [View](#)  I think we're all really committed to to the idea of it, so I think it was...we are in it together as **six equals**. And it's funny because it was very um hard to...we continually have to reiterate that I guess I should say, because we often like if one of us is the person that somebody's met who works on **[REDACTED]** they'll say we're the PI and we're like well, no. Like not not exactly mhm um I'm one-sixth PI and/or [laughs] um however you wanna put that. But um but that kind of notion of **evenly distributed responsibility** certainly one thing just on a practical level that it has helped us with is that over the course of the five years, we've had various different leaves and um you know for d- for various reasons, maternity leaves or whatever or like personal leaves or even just like times when people are you know up for tenure and don't have a moment to work on this yeah or whatever it is. So having six people who have equal access to the kind of um decision-making apparatus and to the whole thing means that we're never in a position where um



Preliminary results- Storage

- View we initially didn't really have much of a clue about archiving or preservation or any of those issues.
- View there was only one full-time faculty member on our team to begin with, so we didn't have the sort of access to institutional support in terms of um preservation or mhm um any of those issues through the libraries because we weren't necessarily all kind of currently in our positions yet.



Preliminary results- Storage

- [View](#) it's relying on us as individuals still, which is very fragile. Um at least putting the data in GitHub means it should be available until Microsoft [laugh] ... with GitHub. Um you know so the th- I mean we I should put a copy of the data somewhere else as well um uh eventually.
- [View](#) the only way people can get access to the data of the [REDACTED] was through uh the Wayback Machine



Preliminary results- Storage

- [View](#)  the archiving um resources are very thin. So in particular, I'm trained to be a researcher, not an archivist



Preliminary results- Storage

- [View](#)  In the shorter term, we continue to wrestle with um the, the uh gradual obsolescence of all these different little components that we so cleverly decided to use



Personal Observations

- People want to follow best practices but are not trained/experts in all the moving parts of making a project last.
- People have good-faith intentions that override complexities of human relationships.
 - Loss of data usually follows a loss in a personal relationship due to death/change of professional status, etc.
- Library and archive support uneven (depending on status of PI, resources of institution, etc.).
- Reluctance to separate idea of “website” from “data.”



Endings principles

How to fail gracefully



Endings principles

1. Data
2. Products
3. Processing
4. Documentation
5. Release management



Data (is not your website)

Data is the expression of the source information, knowledge, and expertise of our researchers. The following principles apply to data:

- Data is stored only in formats which conform to open standards and which are amenable to processing (TEI XML, GML, ODF, TXT).
- Data is subject to version control (Subversion, Git).
- Data is continually subject to validation and diagnostic analysis.

Products

Products are the project output intended for end-users, typically in the form of websites or print documents.

- **No dependence on server-side software:** build a static website with no databases, no PHP, no Python.
- **No boutique or fashionable technologies:** use only standards with support across all platforms, whose long-term viability is assured. Our choices are HTML5, JavaScript and CSS.
- **No query strings:** every entity in the site has a unique page with a simple URL.
- **Graceful failure:** every page should still basically work even in the absence of JavaScript or CSS support.

Documentation

- **Data models**, including field names, descriptions, and controlled values, should be clearly documented in a static document that is maintained with the data, and should also form part of the products.
- All rights and **intellectual property** issues should be clearly documented. Where possible the Data and Products should be released under open licenses (Creative Commons, GNU, BSD, MPL).

Release Management

Release management handles the public release of products. Without good release management, a project can never end gracefully; it can only falter and die.

- Releases should be periodical and carefully planned. The “rolling release” model should be avoided.
- A release should only be made when the entire product set is coherent, consistent and complete (passing all validation and diagnostic tests).
- Like editions of print works, each release of a web resource should be clearly identified on every page by its build date and some kind of version number.
- Web resources should include detailed instructions for citation, so that end-users can unambiguously cite a specific page from a specific edition.

companies of London. The Mercers were first in the order of precedence established in 1515. The Worshipful Company of Mercers is still active and maintains a website at <http://www.mercers.co.uk/> that includes a history and bibliography....

[Read more](#)



[Read more](#)

MoEML v.6.3, svn rev. 12049 2018-06-19 18:56:50 -0700 (Tue, 19 Jun 2018).

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TCP



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Project Outputs

- Four digital editions finished and archived.
- Toolkit for creating static version of websites.
- Diagnostic tools
 - help track tasks to completion
 - produce documentation
- Set of principles/guidelines for ending and archiving projects.
- Training materials for DH researchers.



Indicator of being “endings compliant”



How sustainable is my DH project?

[Bookmark](#)[Restart](#)[Undo](#)

Welcome to the Project Endings Sustainability Questionnaire.

This questionnaire is designed as a tool to help project planners, managers and teams assess how likely their Digital Humanities project is to survive in a useful form in the long term (where the long term is defined as several decades). The questionnaire should take around 15 minutes to complete, and will give you scores designed to help you focus on areas which may negatively affect the likelihood that the products and data from your project will survive.

[Start](#)

Endings: How to end (and archive) your digital edition

Course outline

PREPARATION FOR THE COURSE (TWO WEEKS OUT): Send the URL of the current incarnation of your site. We'll run it through the [Internet Archive](#).

Day One (Monday). "O, make an end of what I have begun" ... without falling on a sword

Morning (10:15-12:00): Introductions

- Introduction to the course and each other (Martin and Janelle)
- Handout: Ontology of digital editions
- Exercise: Learning about each other's projects
- Presentation: What does it mean to end a project? (Martin)

Afternoon (1:30-4:00)

- Demonstration: Case studies of existing Endings projects and how they got finished ([Graves Diary](#); [Mariage](#))
 - Exercise: What should "remain on the shelf" in 20 years? (Pair work)
 - Presentation: Claire Carlin presents "Mistakes were made"
-

Thank you

questions?



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of Victoria

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