Capacity Building in (Digital) Archaeology

Eric Kansa
UC Berkeley / OpenContext.org

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Thousand Flowers

- Started in 2007
- Integrates and publishes various forms of archaeological documentation (structured data, media, documents)
- Not a repository, but archived with California Digital Library
- Interoperability via web services, increasing emphasis on Linked Data
Will mainly discuss the larger “information ecosystem” in archaeology
Archaeological data management is hard:
(1) Complexity
(2) Scalability
(3) Ethics, cultural property claims, IP
(4) Incentives
(5) Preservation

Image Credit: “Grand Canyon NPS” via Flickr (CC-By)
http://www.flickr.com/photos/grand_canyon_nps/5975537378/
May You Live in Interesting Times

- Traditional career paths harder (academia, government, commercial), less permanence
- More demanded from archaeology, often with fewer resources
- Need for new skills and professional outcomes
More Pressure for Openness

- Increasing demands for Open Access publishing (Open Government)
- Increasing demands for “Open Data” (or at least more data accountability)
- Costs, ethics, research opportunities / needs
Archaeology 2.0: New Approaches to Communication and Collaboration.

Notes on the HTML version.
Any of the text references that referred to live websites have been replaced with hyperlinks to the relevant website. If you see any text in bold it will contain a footnote – this has been done to preserve the flow of the text – if you hover your cursor over the text the footnote will appear.


Eric C. Kansa.

Editors, Contributors, Preface and Acknowledgements.

Section 1: A Web of Archaeological Data: Infrastructure, Services, and Interoperability.

Chapter 1
The Archaeology Data Service and the Archaeotools Project: Faceted Classification and Natural Language Processing.
Julian Richards, Stuart Jeffrey, Stewart Waller, Fabio Ciravegna, Sam Chapman, and Ziqi Zhang.

Chapter 2
Toward a Do It Yourself Cyberinfrastructure: Open Data, Incentives, and Reducing Costs
Shifts in Career Paths and Professions (#alt-academy)

- “Alt-Acs”, multidisciplinary / interdisciplinary programs
- Changing needs in expertise
- Evolving expectations for professional outputs
Rapidly Changing Research Environment

(1) Systems design and architecture
(2) Expectations and applications
(3) Sustainability beyond finance
Rapidly Changing Research Environment

(1) Systems design and architecture
(2) Expectations and applications
(3) Sustainability beyond finance
(Sir) Tim Berners-Lee
Inventing the Web

Invented the Web (with colleagues) 22+ year ago
Inventing the Web
First Literature / Narratives
First Literature / Narratives

(600+ years) Hopefully, better scholarly use of Web will be more rapid!
Koans of Wisdom (via YouTube)

Dan Cohen at the Coalition for Networked Information (2010)
http://www.youtube.com/watch?v=yeNjiuw-6gQ
Koans of Wisdom (via Twitter)

Erik Wilde @dret

system think and ecosystem think seem to be almost irreconcilable: suck everything in, or turn the inside out and expose all relevant parts.

Expand
Beyond the Silo

- Often too much emphasis on single systems, need to consider relationships across systems
- Even if one reaches some scale, it can't be isolated from the rest of the Web
- Machines are important "audiences" (e.g. RESTful Services: Atom, AtomPub, JSON, etc.)
Visible Past

- WordPress site
- Sorin Matei (Communications Prof., Purdue University)
- Some facilities for print-on-demand

Burial Remains in Roman Rough Cilicia Report

By Nicholas Rauh, Sorin Adam Matei, and Matthew Dillon

Home > Asia > Middle East > Burial Remains in Roman Rough Cilicia Report

Since 1996 the Rough Cilicia Archaeological Survey has examined an extensive area of western Rough Cilicia in order to obtain a more balanced appraisal of the historical process of Romanization in this peripheral region of the Eastern Mediterranean. The main purpose of the survey has been to identify cultural indicators of the indigenous population of western Rough Cilicia as these survive in the landscape and to assess the degree to which indigenous culture was shaped by offshore forces such as commerce and military conquest during antiquity. In peripheral areas such as western Rough Cilicia, evidence of native adoption of imported modes of economic production furnish a unique opportunity to view the development of an imperial world system through the lens of local societies. To date, the survey has investigated nine small urban sites characterized as “cities” or poleis, twelve “village” sites, and more than 100 non-urban loci of past human experience. The variety and the unique...
autochthonous and Anatolian throughout the Roman era. Along the coast land-holding elites who largely assimilated mainstream Greco-Roman culture were dominant; in the highlands an Isaurian-based laboring population appears to have prevailed. While the mixing of these two elements was inevitable, careful analysis of the in situ burial remains does seem to delineate the existence of two distinct cultural zones based on altitude.

Visible Past
- Integrate textual narrative with various media (video, geospatial data)
- Draws upon a variety of Web Services
Thinking Ecosystem

1. Visible Past (Wordpress) pulls in data from Open Context
2. Narrative and structured data integrated together in argument
3. Easy to reintegrate in alternative arguments
Commerical Entrants
1. Data sharing, Management
2. Social Networking, Vetting
3. Version Controll, Collaboration
4. Search, Discovery
5. Visualization
6. Impact and Raking
Koans of Wisdom (via Twitter)

Erik Wilde @dret

system think and ecosystem think seem to be almost irreconcilable: suck everything in, or turn the inside out and expose all relevant parts.

Expand
Linked Open Data

A strategy to “turn the inside out and expose all the relevant parts”
Web of Data (2009)

Growing, Decentralized Innovation
Need Archaeology on the Map

Contributions should not be isolated from other communities
Archaeology is Increasingly on the Map

Pleiades (ISAW)  Nomisma.org (ANS)
Pelagios  Claros
British Museum  Arachne
Mekerte  Perseus Digital Library
FASTI Online  Etc....

Thanks to pioneering efforts of Sebastian Heath, Leif Isaksen, Sean Gillies, Tom Elliot and many others
- HTTP URIs to identify resources at a meaningful level of granularity ("a URL per potsherd")
- Use HTTP URIs published by others
- URIs act as "primary keys" allow data to be related
Thanks to NSF, we will be doing this for State Historical Preservation Office data (Stay tuned for Josh Wells and Steve Yerka)
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bag Number</td>
<td>100013</td>
</tr>
<tr>
<td>NISP</td>
<td>1</td>
</tr>
<tr>
<td>Taxon</td>
<td>Bos taurus</td>
</tr>
<tr>
<td>Common name</td>
<td>Cattle</td>
</tr>
<tr>
<td>Element</td>
<td>tibia</td>
</tr>
<tr>
<td>Part</td>
<td>dist shaft</td>
</tr>
<tr>
<td>% preserved</td>
<td>1/4 of complete bone present</td>
</tr>
<tr>
<td>Side</td>
<td>Left</td>
</tr>
<tr>
<td>Distal end fused?</td>
<td>no</td>
</tr>
<tr>
<td>Pathology (describe)</td>
<td>possible infection at lower part of caudal shaft—bone is slightly swollen and woven</td>
</tr>
<tr>
<td>Root etching?</td>
<td>yes</td>
</tr>
<tr>
<td>Breakage</td>
<td>ancient</td>
</tr>
<tr>
<td>Butchery marks</td>
<td>sawn across shaft transversally, at a slight angle, starting from medial side, and then ripped away at lateral before cut was finished (also has a saw slice on medial where the sawing began and then jumped to the final location)</td>
</tr>
<tr>
<td>Fragment length</td>
<td>110</td>
</tr>
<tr>
<td>Photo taken?</td>
<td>photo taken</td>
</tr>
</tbody>
</table>

**Item Notes**

For the specimen label and identification number, the first set of 6 numbers before the period refers to the bag number; the numbers following the period identify specimens within the bag.

**Suggested Citation:**
## Description (16 properties)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>335-37</td>
</tr>
<tr>
<td>Internal Find Number</td>
<td>221</td>
</tr>
<tr>
<td>Material</td>
<td>Dillon</td>
</tr>
<tr>
<td>Find Date</td>
<td>18/08/2005</td>
</tr>
<tr>
<td>Registration Date</td>
<td>04/09/2005</td>
</tr>
<tr>
<td>Artifact Name</td>
<td>Coin</td>
</tr>
<tr>
<td>Mint</td>
<td>SMANO Antioch</td>
</tr>
<tr>
<td>Description</td>
<td>Constantine II CBV: CONSTANTINVS IVN IOB C, laureate, cuirassed bust right REV: GLOR-IA EXERCV-ITVS, two soldiers holding spears and shields on ether side or standard.</td>
</tr>
<tr>
<td>Thickness</td>
<td>1.8</td>
</tr>
</tbody>
</table>

## Place: Antiochia/Theoupolis

http://pleiades.stoa.org/places/658381

An ancient place, cited: BAtlas 67 C4 Antiochia/Theoupolis
Further references at Pelagios

## Linked Media (25 files)

![Image of coin](image_url)

## Item Notes

(This item has no additional notes)

### Suggested Citation


## Associated People (1 items)

- **Evan Carlson** (Principle Author / Analyst)
Integrating the Pelagios API

Other References to "Antiochia/Theoupolis", outside Open Context:

- Arachne [206 references]
- Google Ancient Places [4 references]

Linking data provided by Pelagios
Text-mining literature to identify references to ancient places

2010 Google Digital Humanities Award: with Elton Barker, Leif Isaksen, Kate Byrne, Nick Rabinowitz (renewed 2012)
Texts (books, reports, journals) are important “linkable” data sources for archaeology.
Texts (books, reports, journals) are important “linkable” data sources for archaeology.
Linked Data is not a “Solved Problem”

- Provenance, semantics, trust, quality
- Complexity, technical challenges
- Sustainability

See also Brin and McManamon (2012)
Rapidly Changing Research Environment

(1) Systems design and architecture
(2) Expectations and applications
(3) Sustainability models
DIPIR (http://www.dipir.org)

- 3-Year project, Oct. 2010-Sept. 2013
- National Leadership Grant from the Institute for Museum and Library Services (LG-06-10-0140-10)
- Ixchel Faniel (PI), Elizabeth Yakel (Co-PI)
DIPIR Collaboration

- ICPSR
- Nancy McGovern
- ICPSR/MIT

- Elizabeth Yakel
- UM School of Information
- (Co-PI)

- Ixchel Faniel
- OCLC Research
- (PI)

- William Fink
- UM Museum of Zoology

- Eric Kansa
- Open Context
The Big DIPIR Questions

**Research Questions**

1. What are the significant properties of data that facilitate reuse by the designated communities at the three sites?

2. How can these significant properties be expressed as representation information to ensure the preservation of meaning and enable data reuse?
Open Context Interviewees

- 22 Ph.D. or graduate students interviewed
  - 13 men
  - 9 women
- Novices / Experts
  - 19 experts
  - 3 novices
- Interviewees who were curators or professors also with a curatorial role = 6
Some Observations

- Data sharing / reuse happening, but mainly through personal networks
- Want lots of documentation, but willing to put up with imperfection
- Want to communicate data to peers (want to use appropriate, recognized channels)
- Many goals (sharing, publishing, exhibition, archiving, search for comparanda, comparative analysis)

http://www.dipir.org
Data and Institutional Identity

(1) Many projects need to maintain their own systems

(2) Poggio Civitate: Open Context will index, accession in to CDL
This page lists the content of several collections presently curated at the Center. The data can be searched and browsed through a variety of options. A full-text search box is provided below. In addition, you can browse the collection by clicking on links to different filters provided in a list on the left side of the screen. Clicking on a search result takes you to a full record of that item.
Some Observations

- Lots of worry about the suitability of one's own data for outside consumption
- Concern over costs and effort required to clean up and share data

http://www.dipir.org
Raw Data Can Be Unappetizing
I use an Excel spreadsheet...which I ... inherited from my research advisers. ...my dissertation advisor was still recording data for each specimen on paper when I was in graduate school so that's what I started ...then quickly, I was like, "This is ridiculous.“... I just started using an Excel spreadsheet that has sort of slowly gotten bigger and bigger over time with more variables or columns...I've added ...color coding...I also use...a very sort of primitive numerical coding system, again, that I inherited from my research advisers...So, this little book that goes with me of codes which is sort of odd, but ...we all know that a 14 is a sheep.” (CCU13)
I use an Excel spreadsheet...which I ... inherited from my research advisers. ...my dissertation advisor was still recording data for each specimen on paper when I was in graduate school so that's what I started ...then quickly, I was like, "This is ridiculous.‘‘... I just started using an Excel spreadsheet that has sort of slowly gotten bigger and bigger over time with more variables or columns...I've added ...color coding...I also use...a very sort of primitive numerical coding system, again, that I inherited from my research advisers...So, this little book that goes with me of codes which is sort of odd, but ...we all know that a 14 is a sheep.” (CCU13)

A long way to go before we get usable, intelligible data
Sometimes data is better served cooked.
Data sharing as publication
My Precious Data

Image Credit: “Lord of the Rings” (2003, New Line), All Rights Reserved Copyright
Adapt “publishing” (or exhibition) metaphor to digital data
Selected Correspondence from the Papers of Thomas Pettigrew (1791-1865), Surgeon and Antiquary

Context Spatial coverage of data UK (54 00 N, 2 00 W) and Holland (52 30 N, 5 45 E) Temporal coverage of data 1817AD-1859AD Methods Steps The dataset was collected by transcribing original letters from the period 1817-59 into an MS Word document. The letters form part of the Pettigrew Papers held by the Beinecke Rare Book and Manuscript Library at Yale University, which has created a detailed c...

Latest papers

Selected Correspondence from the Papers of Thomas Pettigrew (1791-1865), Surgeon and Antiquary

MAY 11, 2012

The papers of the nineteenth century antiquary and surgeon Thomas Pettigrew are of considerable interest in the histories of science, medicine and archaeology. The letters presented here were received by Pettigrew between 1817 and 1859, and form part of the Pettigrew Papers held at Yale University. They were transcribed during research into Pettigrew's life and work, focusing in particular on his contributions to archaeology and Egyptology, and are presented in the form of texts. They are likely to be of interest and use to scholars of early nineteenth century intellectual history, and historians of archaeology in particular.
EDITORIAL POLICIES
& AUTHOR GUIDELINES

EDITORIAL POLICIES
Focus & Scope
Archiving & Indexing
Open Access Policy
Citation
Peer Review
Turnaround Time
Ethics Statement
Intellectual Property, Privacy, and Ethics

AUTHOR GUIDELINES
How it Works: Publishing your Dataset in Open Context
Preparing your Dataset for Publication
  Required Information
    Data Publication, General
    Scientific Review Criteria by Content Type
Data Publication Checklist
Publishing Fees
Copyright Agreement
Data Quality and Standards Alignment

1. Check consistency
2. Edit functions
3. Align to common standards ("Linked Data" if applicable)
4. Issue tracking, version control
# Open-Context-Data

## Commit History

### Jul 01, 2012

- **Kenan Tepe document/logs files for all areas but F**
  - ekansa authored a month ago
  - Commit: 31564d1db2
  - [Browse code](#)

- **Media metadata files for Kenan Tepe update (all areas but F)**
  - ekansa authored a month ago
  - Commit: 4f71bf3137
  - [Browse code](#)

- **Fixed minor error with project root query path**
  - ekansa authored a month ago
  - Commit: 7a587d39be
  - [Browse code](#)

- **Update to Kenan Tepe project description, root links fixed and added ...**
  - ekansa authored a month ago
  - Commit: 550e83dc27
  - [Browse code](#)

- **Kenan Tepe Location + Object records, all areas but F**
  - ekansa authored a month ago
  - Commit: 1e199d8e75
  - [Browse code](#)

### Jun 30, 2012

- **Initial Commit of Rough Cilicia**
  - ekansa authored a month ago
  - Commit: 0b73627ffe
  - [Browse code](#)
Data Publishing

Tools of the Trade

1. Google Refine (check, edit, consistency)
2. Mantis (issue-tracker, coordinate edits, metadata creation)
Open Context Entity Reconciliation

Authors / Editors relate project-specific terminologies to global terminologies.

“Species : Sheep / Goat” ≈ http://eol.org/pages/2851411 (“Caprinae”)
Many project-specific terms related to global terminologies

<table>
<thead>
<tr>
<th>Project Specific Property</th>
<th>EOL Link (Global Terminology)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species: Sheep / Goat</td>
<td><a href="http://eol.org/pages/2851411">http://eol.org/pages/2851411</a> (Caprinae)</td>
</tr>
<tr>
<td>Taxon: Bos taurus</td>
<td><a href="http://eol.org/pages/328699">http://eol.org/pages/328699</a> (Bos taurus)</td>
</tr>
<tr>
<td>Species: Deer</td>
<td><a href="http://eol.org/pages/38816">http://eol.org/pages/38816</a> (Dama)</td>
</tr>
<tr>
<td>Type: Deer</td>
<td><a href="http://eol.org/pages/34547">http://eol.org/pages/34547</a> (Odocoileus)</td>
</tr>
<tr>
<td>Taxon: Ovis / Capra</td>
<td><a href="http://eol.org/pages/2851411">http://eol.org/pages/2851411</a> (Caprinae)</td>
</tr>
<tr>
<td>Species: Cattle</td>
<td><a href="http://eol.org/pages/328699">http://eol.org/pages/328699</a> (Bos taurus)</td>
</tr>
<tr>
<td>Species: Goat</td>
<td><a href="http://eol.org/pages/328660">http://eol.org/pages/328660</a> (Capra hircus)</td>
</tr>
</tbody>
</table>
Open Context Entity Reconciliation

Authors / Editors relate project-specific terminologies to global terminologies

Many project-specific terms related to global terminologies

Relationships between terminologies are data, can be queried in a service

“What biological taxon relates to ‘sheep’?”

Open Context
Open Context Entity Reconciliation

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Relationships between terminologies are data, can be queried in a service

“What biological taxon relates to ‘sheep’?”

<table>
<thead>
<tr>
<th>Count</th>
<th>EOL Link (Global Terminology)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1212</td>
<td><a href="http://eol.org/pages/311906">http://eol.org/pages/311906</a> (Ovis aries)</td>
</tr>
<tr>
<td>510</td>
<td><a href="http://eol.org/pages/328658">http://eol.org/pages/328658</a> (Ovis canadensis)</td>
</tr>
<tr>
<td>28</td>
<td><a href="http://eol.org/pages/13845095">http://eol.org/pages/13845095</a> (Ovis orientalis)</td>
</tr>
</tbody>
</table>
Open Context Entity Reconciliation

Make it cheaper and easier to align to shared concepts, linking informal terminologies to formal vocabularies.

“What biological taxon relates to ‘sheep’?”

<table>
<thead>
<tr>
<th>Count</th>
<th>EOL Link (Global Terminology)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1212</td>
<td><a href="http://eol.org/pages/311906">http://eol.org/pages/311906</a> (Ovis aries)</td>
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<tr>
<td>28</td>
<td><a href="http://eol.org/pages/13845095">http://eol.org/pages/13845095</a> (Ovis orientalis)</td>
</tr>
</tbody>
</table>
Results in Google Refine

<table>
<thead>
<tr>
<th>Latin Name</th>
<th>EOL URIs for Latin Name</th>
<th>EOL title / label</th>
<th>Element</th>
<th>Part</th>
<th>Age Group</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ovis aries / Capra hircus</td>
<td>[EOL link 1]</td>
<td>Caprinae</td>
<td>Scapula</td>
<td>proximal and diaphysis/middle</td>
<td>sub-adult</td>
<td>1251-1300</td>
</tr>
<tr>
<td>Ovis aries / Capra hircus</td>
<td>[EOL link 2]</td>
<td>Caprinae</td>
<td>Costa</td>
<td>complete</td>
<td>adult</td>
<td>1251-1300</td>
</tr>
<tr>
<td>Ovis aries / Capra hircus</td>
<td>[EOL link 3]</td>
<td>Caprinae</td>
<td>Costa</td>
<td>diaphysis/middle</td>
<td>adult</td>
<td>1251-1300</td>
</tr>
<tr>
<td>Ovis aries / Capra hircus</td>
<td>[EOL link 4]</td>
<td>Caprinae</td>
<td>Tibia</td>
<td>diaphysis/middle and distal</td>
<td>sub-adult</td>
<td>1251-1300</td>
</tr>
<tr>
<td>Ovis aries / Capra hircus</td>
<td>[EOL link 5]</td>
<td>Caprinae</td>
<td>Mandibula</td>
<td>proximal and diaphysis/middle</td>
<td>sub-adult</td>
<td>1251-1300</td>
</tr>
<tr>
<td>Ovis aries / Capra hircus</td>
<td>[EOL link 6]</td>
<td>Caprinae</td>
<td>Scapula</td>
<td>complete</td>
<td>adult</td>
<td>975-1025</td>
</tr>
<tr>
<td>Ovis aries / Capra hircus</td>
<td>[EOL link 7]</td>
<td>Caprinae</td>
<td>Costa</td>
<td>distal</td>
<td>sub-adult</td>
<td>975-1025</td>
</tr>
<tr>
<td>Ovis aries / Capra hircus</td>
<td>[EOL link 8]</td>
<td>Caprinae</td>
<td>Mandibula</td>
<td>diaphysis/middle and distal</td>
<td>juvenile</td>
<td>975-1025</td>
</tr>
<tr>
<td>Ovis aries / Capra hircus</td>
<td>[EOL link 9]</td>
<td>Caprinae</td>
<td>Mandibula</td>
<td>complete</td>
<td>adult</td>
<td>975-1025</td>
</tr>
</tbody>
</table>

Note: 7++ represents an additional note or identifier.
Some Observations

- Lots of worry about the suitability of one's own data for outside consumption
- Concern over costs and effort required to clean up and share data

http://www.dipir.org
Outcomes of Publishing Data:

1. Iterative “coproduction” between contributors and editors
2. Communicate and set expectations about content and quality
3. Organize workflows to improve data quality and usability
4. Make “datasets” first class citizens in world of scholarly communications
Motivating Data Publishing

- Comprehensive *exhibition* (Kenan Tepe: 30K photos, documents, object descriptions)
- Added capabilities (search, analysis, visualization)
- More attractive, usable data
- Interactions with data editors improve data
Data Publishing Projects

EOL (2012) funding for publishing additional zooarchaeology datasets (Neolithic Anatolia), in project led by Ben Arbuckle (Baylor University)
NEH (2012) funding for publishing trade + exchange related datasets (Bronze-Iron Age Mediterranean)
Projects are driven by research interests, publication goals among researchers wanting to compare datasets.
Complement Conventional Publishing

- Sarah Kansa (SAA publications committee, ICAZ, Lockwood Press Series Editor)
- Lockwood Press ("Archaeobiology Series"), Cotsen Institute Press (UCLA)
Rapidly Changing Research Environment

(1) Systems design and architecture
(2) Expectations and applications
(3) Sustainability beyond finance
Business Models
- Absolute necessity (disciplines and builds trust)
- Need to be compatible with basic mission of provisioning “public goods” (knowledge)
- Fundamentally a public policy issue
Shared services and data can reduce costs
**Preservation Infrastructure**

- Data preservation services
- Persistent identifiers (DOIs, ARKs, etc. for DataCite)

University of California (System) Repository, All disciplines (UC-funded library, grants)
CDL Archiving Service
- EZID for persistent Identity: DOIs (aggregate resources), ARKs (granular resources) and Merritt Repository
- Helps build trust in community
Sustainability is hard without a healthy information ecosystem
Preservation Infrastructure

- Open Context needs tDAR, CDL, and others for data curation
- Other Web-based systems have similar needs
Policy Commitment
- Preservation of public goods
- Multiple memory institutions, with different sources of support, may offer resilience
“One Ring to Rule Them All” Unlikely, Undesirable

- Don't want to lose “ownership”, branding and identity
- Diversity of needs (semantic, interface, access controls, licensing, etc.)
- Huge value in experimentation and diversity
Data (and services) are components of new interpretations and narratives. Most outcomes will be shared over the Web.
Community and Sustainability

- Need researchers with skills and interest in using shared data
- Web data specializations as important as GIS, zooarchaeology, etc.
- No matter how great your system, some will always need to programatically interact with data
Informatics teaching programs (MSU-Matix, Indiana State South Bend, York, South Hampton, etc.)
Point of “sustainability” is not to lock-in specific systems or institutions, but rather to enable tomorrow's efforts to build upon and surpass current efforts.
Summary

(1) Communicating the past (including preserving for the future) is increasingly Web-centric

(2) The Web is not a zero-sum game. Linked Data & shared services foster collaboration — the growth of other systems helps your own project

(3) Need to cultivate skills and outlooks for archaeologists to thrive with the Web
Thank you!

Special Thanks!

Shawn Ross, Adela Sobotkova, NeCTAR, FAIMS Project