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SI 615 Digital Libraries Seminar

Week 5 – Research Agendas
Themes of this week

Themes

- Context of research agendas
- Waters/Garrett and Levy
- Digital preservation (Hedstrom)
- Usability and interoperability
- Research and practice

“The challenge ahead is to bring our best technical skills to bear on the problem of digital preservation without losing sight of the ultimate human purposes these efforts serve...”

Research Model, NSF/DELOS

http://www.dli2.nsf.gov/internationalprojects/working_group_reports/digital_imagery.html
Next Decade of NSF Research

- Expand what can be searched
- Use context for information retrieval
- Integrate information spaces into everyday life
- Reduce data to actionable information
- Improve productivity through information access

NSF Knowledge Lost in Information (2003)
http://www.sis.pitt.edu/%7Edlwkshop/
Preserving Digital Information

- Commission on Preservation and Access + Research Libraries Group
- Don Waters and John Garrett + 19
- Five contributions
  - Deep infrastructure
  - Integrity
  - Trusted archives
  - Certification
  - Rescue
- Preservation of “whole and singular works” – most problematical issue
A decade of development

- [Deep Infrastructure] Cyberinfrastructure
- [Integrity] OAIS and PREMIS
- [Trusted Archives] Repositories
- [Certification] TRAC and DRAMBORA
- [Rescue] Orphaned works

How do we communicate trust?
Levy's Critique

- David M. Levy, Xerox PARC
- First scholar to question the premise
- Question “lure of the technical”
- Fixed and fluid documents
- Preservation through creative re-use
Hedstrom on Digital Preservation, 2003

- Technical architecture
- Attributes of archival collections
- Digital archiving tools and technologies
- Organizational, economic and policy issues

Usability (Anderson & Choudhury)

These issues and opportunities will be the heart of our research agenda:

- Quantitative methods for digital library usability
- Location of user population and test participants
- Diversity of user population and test participants
- Testing part vs. whole digital library
- Test environment (natural vs. lab settings)
- Balance between user feedback and librarian expertise
Interoperability (Lynch & Garcia-Molina, 1995)

- **use of common tools and interfaces**
  
  'provide a superficial uniformity for navigation and access but rely almost entirely on human intelligence to provide any coherence of content'

- **syntactic interoperability**
  
  'the interchange of metadata and the use of digital object transmission protocols and formats based on this metadata rather than simply common navigation, query, and viewing interfaces as a means of providing limited coherence of content, supplemented by human interpretation.'

- **deep semantic interoperability**
  
  'to access, consistently and coherently, similar (though autonomously defined and managed) classes of digital objects and services, distributed across heterogeneous repositories, with federating or mediating software compensating for site-by-site variations.'
Research Model, DELOS

- Applications
  - Health DigLibs
- User
  - User Interface, Personalization
- Systems
  - Architectures, Info Access, Audio/Video
- Foundations
  - Reference Model for DLS

Evaluation
- Infrastructure
- Methodology
- Repository
- Preservation
DPE Research Roadmap, 2007

“The analysis of the last 16 years of effort in the area of digital preservation and the input from the online delphi survey support our claim that while much work has been done on the periphery, the central problems of digital preservation have yet to be resolved.” (p. 25)
DPE Research Areas (recommended)

- Restoration
- Conservation
- Management
- Risk
- Significant Properties of Digital Objects
- Interoperability
- Automation
- Context
- Storage
- Experimentation
### Hedstrom on Digital Preservation, 2002

<table>
<thead>
<tr>
<th>Research is inspired by</th>
<th>Considerations of Use?</th>
</tr>
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<tbody>
<tr>
<td>Quest for fundamental understanding?</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>Pure basic Research (Bohr)</td>
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<tr>
<td>No</td>
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Thank you!

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