Yale

Getting to Enterprise DAM in a Complex Organization

Office of Digital Assets & Infrastructure
DAMNY-06.2011

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Yale University
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Agenda

1. ODAI - The Charge
2. Yale, Culture, & Infrastructure
3. Digital Ecosystem
4. Getting to Enterprise DAM
1. ODAI - The Charge
Not a Library
Not ITS
Yale Timeline of Digital Stewardship & Dissemination

- ITS Digital Landscapes Group
- Provost’s Digital Inventory
- Library Integrated Access Program
- Collections Collaborative
- Provost’s Advisory Committee On Digital Landscapes
- LAM
- U. Council Committee on Digital Yale
- Digital Dissemination Task Force
- Office of Digital Dissemination
- ODAI

2002 2003 2004 2005 2006 2007 2008 2009
“Thus, the digital landscape is woven into the basic fabric of our activity, and it is not confined to one sector of the community. In essence, technology leverages the existing assets of the University. Those assets are, first and foremost human capital: student, faculty, and staff. This is followed by Yale’s collections and its global reputation.

–Draft report of the Digital Landscapes Committee
A New Model
Reporting

Yale University

About Yale | University leadership & organization

Yale home

About Yale
President’s welcome

Yale history

University governance & historic documents

Select policies & procedures

Financial overview

Other advisory bodies

Visiting Yale

Officers of the University

President
Richard Charles Levin, B.A., B.Litt., Ph.D.

Provost
Peter Salovey, A.B., M.A., Ph.D

Vice President and Secretary
Linda Koch Lorimer, B.A., J.D.

Vice President and General Counsel
Dorothy Kathryn Robinson, B.A., J.D.

Vice President for New Haven and State Affairs and Campus Development
Bruce Donald Alexander, B.A., J.D.

Related links
The Yale Corporation
University organizational chart
The Whole is Greater than the Sum
ODAI Mission

Drawing upon the extensive faculty and staff resources of the campus, accelerate the development of Yale’s digital content and infrastructure into a world-class resource that ensures Yale’s digital assets will be discoverable and accessible for teaching and research both now and in the future and that provides a platform for disseminating the University’s intellectual digital assets.
2. Yale, Culture, & Infrastructure

What is the relationship between culture and infrastructure?
Culture Of A Group

“...a pattern of shared basic assumptions that was learned by a group as it solved its problems…” (Schein, 2004).

1701: Yale Collegiate School Founded

By the said, in Council & Representation of the Majesty Colony of Connecticut in General Court Assembled, New Haven, Oct. 9, 1701.

An Act for liberty to erect a Collegiate School.

Whereas several importunities, and publick petitions of the several Regentes, for a place for upholding & propagating of the Christian Protestant Religion by a succession of learned and industrious men, have expressed by petition, these earnest desires that publick liberty and privilege be granted unto certain Universities for the founding, establishing, improving a Collegiate School within the Majesty Colony of Connecticut, where Youth may be instructed in the Arts & Sciences, and thereby the blessing of Almighty God may be sought for publick employment both in church & civil state; and the intent therefore that all due encouragement be given to such liberal resolutions and that no necessary religion or concerns concerning may be put forward supporting well managed.

Be it enacted, by the General Company of the Majesty Colony of Connecticut, in General Court now assembled, that it is enacted & ordained by the Authority of the same that there be so freely in full Liberty Right & Privilege granted unto the Governor
1718: Elihu Yale Donation Of Books & Goods
1722: Yale Seal

LUX ET VERITAS
1750: Connecticut Hall
1832: Yale University Art Gallery

1866: Peabody Museum of Natural History

1977: British Art Center
Bull-dog! Bull-dog! Bow, wow, wow, Eli Yale!
Bull-dog! Bull-dog! Bow, wow, wow,
Our team can never fail.
When the sons of Eli break through the line,
That is the sign we hail,
1930: Sterling Memorial Library
Library Centrally Located On Campus
Core Knowledge Infrastructure
Like all great research universities, Yale has a tripartite mission: to create, preserve, and disseminate knowledge. Yale aims to carry out each part of its mission at the highest level of excellence, on par with the best institutions in the world. Yale seeks to attract a diverse group of exceptionally talented men and women from across the nation and around the world and to educate them for leadership in scholarship, the professions, and society.
Cultural Commonality?
Individual School Missions

• stimulate artistic sensitivity and creative powers

• prepare for the lay and ordained ministries

• scientific principles and engineering practice

• conserving the beauty, diversity, and integrity of the natural world

• central role that the rule of law plays in a free society
Cultural Diversity?
Cultural Paradigm

A state of equilibrium between the cultural commonality in regard to infrastructure and the cultural diversity in regard to disciplinary practice.
3. Digital Ecosystem
21st Century Scholarly Ecosystem

Scholarship

Management
- Assets
- Collections
- Content
- Discourse
- Dissemination

Processing
- Analysis
- Compression
- Conversion
- Encryption
- Indexing

Utility
- Access
- Identification
- Description
- Persistence
- Rights

Facility
- Computers
- Equipment
- Instruments
- Networks
- Storage

Common Infrastructure
- Institutional Enablers: Policy & Shared Practices
- Technology Enablers: Standards & Protocols

Efficacy

Innovation

Efficiency
- Productivity
- Stewardship
- Capacity
4. Getting to Enterprise DAM
Digital Content Architecture

Catalogue & Collection

- Institutional Repository
- AMEEL
- Content DM
- Digital Library
- eCatalogue
- eMU
- Finding Aids Database
- NetCast
- Orbis
- Research Labs
- Shared Shelf

Content Stewardship

- Digital Asset Management
- Research Data Management
- Preservation Data Management
- Persistent Linking
- Link Relationships
- CCD Metadata Harvesting
- CCD Search & Discovery
- Messaging

Dissemination Enablers

- External CDN
- Hosted Kaltura
- Media Streaming
- Data / Media Serving
- Media Access

Publishing Venues

- DAM Portal
- Institutional Repository
- Discover YDC
- Classes"v2
- Drupal - Web Content Mgmt.
- Mozilla
- Yale Web Sites
- External Web Sites
- iTunesU
- YouTube
- AMEEL

Internal Devices:

- Replication • Location • Virtualization
- Cloud Disk Tiers
- Tape Tiers

External Services:

- Identity Services
- Registrar
- Single Sign On

NOTES

1. Structured Metadata approach to collections
2. Yet to be defined

MESSAGING

REFERENCE
Change Management*

1. Develop a **systematic process** for change

2. **Manage equilibrium** and mutual adaptation of organization, technology, and business process

3. Determine whether there is enough **energy for change**

4. Analyze **size of change** effort

5. Analyze and manage **stakeholder commitment**

6. Major change **requires a champion** – know what one does

7. **Prototype** organizational response

8. Build **change reviews** into the management process

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Yale Digital Commons - Phase 1

Community
- Museums
- Cultural Heritage Stewards
- Digital Imaging Professionals

Technology
- Artesia DAM
- Isilon Mass Storage
- Rapid Ingest
- Collection System Interoperability
- Single Sign-On

Content
- Images
- Documents
- Text

Policy and Shared Practice
- Digital Imaging Guidelines
- Information Packaging Standard
- Metadata Standards
- Open Access Policy
## DAM Phased Approach

<table>
<thead>
<tr>
<th>Communities of Practice</th>
<th>PHASE 1</th>
</tr>
</thead>
</table>
| **A**                   | - Museums  
                          - Cultural Heritage Stewards  
                          - Digital Imaging Professionals |
| **B**                   | - Libraries  
                          - Digital Media Professionals |

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- Documents and Text |

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- Isilon Mass Storage  
- Rapid Ingest  
- Collection System Interoperability  
- Single Sign-On |
# DAM Phased Approach

<table>
<thead>
<tr>
<th>Communities of Practice</th>
<th>PHASE 1</th>
<th>PHASE 2</th>
<th>PHASE 3 (Proposed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>• Museums • Cultural Heritage Stewards • Digital Imaging Professionals</td>
<td>• Digital Media Producers • Communications Professionals</td>
<td>• Teachers and Learners • Researchers • Consumers</td>
</tr>
<tr>
<td>B</td>
<td>• Libraries • Digital Media Professionals</td>
<td>• Academic Support Professionals • Teachers and Learners • Researchers • Professional Schools</td>
<td>• Non-Yale Collaborators</td>
</tr>
<tr>
<td>Content</td>
<td>• Images - Surrogates • Documents and Text</td>
<td>• Audio • Video</td>
<td>• Complex Objects</td>
</tr>
<tr>
<td>Policy and Shared Practice</td>
<td>• Digital Imaging Guidelines • Information Packaging Standard • Metadata Standards • Open Access Policy</td>
<td>• A/V Production Guidelines • Channel Publishing Guidelines • Metadata Standards • Permissions Guidelines</td>
<td>• IP Policy – Classroom Materials • Metadata Standards • Access Policy – Non-Yale</td>
</tr>
<tr>
<td>Technology</td>
<td>• Artesia DAM • Isilon Mass Storage • Rapid Ingest • Collection System Interoperability • Single Sign-On</td>
<td>• Scalable Architecture • A/V Capability • Transcoding Services • Streaming Services • Automated/Mass Exporters</td>
<td>• High Performance Environment • Permissions from Registrar • Interoperability w/ Class Mgmt. • Interoperability w/ Web 2.0+</td>
</tr>
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Yale Digital Commons (YDC) Components

Collection Management Systems
- YUL/Beinecke-ORBIS, DL, etc.
- Peabody-eMU
- YCBA-TMS
- YUAG-TMS

Persistent Linking

DAM

YUL & BRBL
- 650,000 Images Since August
- 90,000 / Month
- 30TB / Month Storage
- Increasing Ingest 3x

Isilon Mass Storage

C1  C2
Digital Asset Management
Digital Asset Management

Open Text Media Manager

Model: Cultural Objects

- Asset Description
  - Description: 
  - Date: Imported: 04/04/2011
  - Date: Properties Last Modified: 04/04/2011
  - IPTC Keywords (view/edit):
  - Date: Properties Final Modified:
  - ID: ed01c31c6d33086f4f3774c1f1821825a7ed1f09

- File Properties
  - File Size: 304.52 KB
  - Pixel Dimensions X: 2604
  - Pixel Dimensions Y: 3882
  - Application: Adobe Photoshop CS3 Macintosh
  - Bit depth: 16 16 16
  - Color Mode: RGB
  - Date created:
  - Date file created: 12/03/2008
  - Date file modified: 12/09/2008
  - Document type: ImageTiff
  - Filename: SS10409.tif
  - Metadata/Checksums: c1f3acfb67f012093d9e56a3290df11826f
  - Orientation: Horizontal
  - Resolution Units: Inches
  - Resolution: 300

Categories:
- Anthropology
  - Botany
  - Entomology
  - Exhibitions and Events
  - Historical Scientific Instruments
  - Invertebrate Paleontology
  - Invertebrate Zoology
  - Mammals and Primates
  - Mineralogy
  - Paleobotany
  - People and Organizations
  - Sites and Spaces
  - Vertebrate Paleontology
  - Vertebrate Zoology
  - YUAG
  - YUL
  - Repository

Detail View

[Image of a digital asset management interface with a cultural object and metadata details]
Portrait of a bearded man

Artist: Unknown
Date: 2nd century A.D.
Medium: Tempera on wood
Dimensions: 27.9 x 13.5 cm (11 x 5 5/16 in.)
Classification: Paintings
Work Type: Paintings
Period: Roman Period
Culture: Egyptian
Credit Line: Gift of the Associates in Fine Arts
Rights: Contact the Yale University Art Gallery
Accession Number: 36683
Collection: Ancient Art
Repository: Yale University Art Gallery
Tags: No Tags, Be the first to tag this record!
Yale Center for British Art

**Search Details**

**Creator**  
Francesco Renaldi, 1756-after 1798, Italian, active in Britain (from 1777)

**Title**  
Muslim Lady Reclining

**Date**  
1789

**Medium**  
Oil on canvas

**Dimensions**  
22 x 27 1/2 inches (55.9 x 69.9 cm)

**Inscription(s)/Marks/Lettering**  
No inscription. Signed and dated in black, lower right: "Fr. RENALDI PINXIT [Dated 7...9]"

**Credit Line**  
Yale Center for British Art. Paul Mellon Collection

**Accession Number**  
Br981.25319

**Collection**  
Paintings and Sculpture

**Subject Terms**  
reclining | Orientalism | girl | woman | Indian | jewel | silver | doors | window | stool | rug | pillow | scarf | bracelets | necklaces | anklets | earrings | hookah | slippers | tray | genre subject | nose ring | Dacca | India | Interior (space)

**Citation**  
Show | Text or SMS | Email

Yale

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Paul Mellon Centre for Studies in British Art
DAM Phase 2 Architecture

Access
- Yale Network
- Internet
- Network
- Router
- Firewall
- Yale Users
- Browser / Desktop
- Upload Station
- External Users

Presentation
- Web Server(s)
- Apache Load Balancer
- Hot Folder Input
- FTP Server
- Video Delivery
- Apache / IIS
- Flash Media Server

Media Management Tiers
- Ingest Servers
- Media Management
- Ingest Monitor
- User & Export Services
- Media Management
- EPS
- Media Portal(s)
- Yale Web Services

Front End
- Application

Back End
- Application
- Database
- SOL 2008 (64-bit)
- User Directory
- Video Transcode
- Rhogez Carbon Coder
- Rhogez Carbon Server

Data
- Search Index Storage
- TMxx database pieces
- Index files
- Full Text Index Storage
- Bag Ingest Staging
- Repository & Working File Storage
- Isilon Shared Storage (NAS / SAN)
- Thumbnail Storage
- Preview images
- Renditions (e.g. PDFs)
- Original content files

Storage Network

VMware Environment
- ESX Server(s)
- VMFS Storage
DAM Phase 2 Detail

- **2011 Phase 2 Performance Targets**
  - Process 250k high-resolution images per month and export to multiple channels
  - Process 250 audio or video assets/month and deliver to multiple channels
  - Provide web application for up to 1,000 concurrent users
  - Support A/V approval workflows

- **Phase 2 Systems**
  - 15 Machines in a blended physical and VM PROD environment
  - Vertical scaling: database, indexing, and enterprise process services
  - Horizontal scaling: ingest, export, image conversion, transcoding, web application, web services, and streaming
  - Load balancing for web application, web services, and exports
Points

- Cultural understanding is essential to enterprise DAM implementation.
- The digital ecosystem is a good metaphor for understanding a process that involves the facets of community, content, policy & practice, and technology.
- Shared infrastructure is defined by the intersection of these facets.
- The ecosystem model can be successfully applied to change management planning and implementation for enterprise DAM.
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