Organizational Change for a Sustainable Digital Ecosystem: Building the Yale Digital Commons (Through Collaboration)

Office of Digital Assets & Infrastructure
ARL Forum 10 - 2010

Meg Bellinger, Director

http://odai.research.yale.edu/
odai@yale.edu
Agenda

• Information Ecology
• Environmental Transformations
• Change
• Digital Asset Ecosystem
INFORMATION ECOLOGY
“Ecological concepts are not new, the term ecology was coined in 1869. Derived from the Greek oikos or home, ecology literally means the study of organisms in their homes. Today we usually define ecology as the study of the relationships between organisms and their environment.”
References

An Ecological Approach to Repository and Service Interactions
R. John Robertson, Mahendra Mahey, Julie Allinson; Version 1.2, March 2008

Information Ecologies: Using Technology with Heart
Bonnie Nardi and Vicki O'Day; MIT Press, 1999
Chapter 4 in First Monday, Volume 4, Number 5 - 3 May 1999

Managing the Digital Ecosystem
Joel M. Smith and Jared L. Cohen, Issues in Science and Technology, Fall 2005

Envisioning a Transformed University
James J. Duderstadt, Wm. A. Wulf, Robert Zemsky, Issues in Science and Technology, Fall 2005

Between a Rock and a Hard Place: Organizational Change and Performance Under Conditions of Fundamental Environmental Transformation

Understanding the Game of the Environment.
An Illustration Guide to Understanding Ecological Principles
"We define an information ecology to be a system of people, practices, values, and technologies in a particular local environment. In information ecologies, the spotlight is not on technology, but on human activities that are served by technology."

*Nardi and O’Day*
“A system of people, technologies, practices, and values in a local setting.”

Nardi and O’Day
Library Centrally Located On Campus
Core Information Infrastructure

The Library is the heart of the University
CHANGE
Disseminate, Generate, Apply

• Unprecedented access to the accumulated knowledge of civilization.
• Growth in the use of powerful, sophisticated computational instruments.
• Creation of new collaborative communities of interaction; human to information and human to human.

--Duderstadt
Internationalization and Global Dissemination

Yale Global Online

Yale Center for the Study of Globalization

The Center
e-Science: Three Cores of Advanced Research

Three Cores: One Way to Leverage Technology at West Campus

Yale Center for Genome Analysis (W-B36)
- Healthy DNA
- DNA from cancer patient
- RNA Snippets
- VARIANT GENE
- Cell Imaging

High Throughput Cell Biology (W-B31 & W-B24)
- RNA Interference
- VARIANT GENE

Small Molecule Discovery Center (W-B27)
- Molecules
- Variant Gene
- Variant Protein
- Restore healthy function and block cancer

Center scans tens of millions of DNA base-pairs of healthy subjects and liver cancer patients searching for gene variants associated with the disease.

Using high precision microscopy, scientists study what happens in a cell by using snippets of RNA to block activity of each gene in a cell. Variants critical to disease can be used to identify biomarker's for disease, targets for new drugs or even novel new therapies.

Scientists test tens of thousands of small molecules to see which can block proteins produced by gene variants associated with liver cancer. These small molecules will form the basis of new cancer drugs.
Ventures In e-Publishing

Yale Press Log

Yale University Press

New and Notable

Shakespearean Summer

For many, Shakespeare is synonymous with summer (or vice versa), with performances nationwide filling outdoor stages and parks for productions of his most popular plays. The Shakespeare Center in Los Angeles may have cancelled their summer show this year, but in New York, Central Park is the location of choice with The Winter’s Tale and The Merchant of Venice. Rostro has Othello, Twelfth Night in DC, and A Midsummer Night’s Dream and Much Ado About Nothing for Innovation, to name a few.

One of the most mysterious literary figures in any language, Shakespeare, for his ambiguity, has for centuries received the praise and attention of many. Over the ages, he has been regarded as a ‘modern’ visionary, with the plurality of his meanings reappropriated by general readers, critics, and scholars for various causes to promote their beliefs and reinforce his plays as being for all time. Naturally, different productions of each play have distinct interpretations of how to present Shakespeare’s characters and themes: whether by portraying Ariel from The Tempest as male or female, or casting Shylock as a black capitalist in The Merchant of Venice, modern audiences have the delight of seeing how Shakespeare’s work can be applied to contemporary social and political situations.

Yale University Press

TAKE THE CITY TOUR

Yale University Press

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Results: Fragmentation

• Exciting times with high energy and great leaps in scholarship and scientific progress

But....

• Independent technological solutions and systems

• Absence of a coherent institutional framework

• Distributed centers of content production, sharing, publishing

• Collections developing within silos
Results: Deficiencies and Stress

• Resource challenges
• Compromised access
• Systems failures
• Policy confusion
• Cultural stress on communities of practice
STRATEGY
“When an organization undertakes nontrivial change, it must learn new patterns of communication to facilitate the flow of different information, it must integrate new members and learn new work routines in order to fill new job functions and manage the altered flow of work, and it must forge new relations with suppliers and clients.” -- Haveman
Eight Constraints of Change for Established Organizations

The internal constraints are:

• investment in plant, equipment, and specialized personnel;
• limits on the internal information received by decision makers;
• internal political constraints supportive of vested interests; and
• organizational history,

The external pressures for stability are:

• legal and economic barriers to entry into new areas of activity;
• constraints on the external information gathered by decision makers;
• legitimacy considerations; and
• the problem of collective rationality and the general equilibrium.

Haveman
Timeline of Digital Management Planning

- **2002**: ITS Digital Landscapes Group
- **2003**: Provost’s Digital Inventory
- **2004**: Provost’s Advisory Committee On Digital Landscapes
- **2005**: Collections Collaborative
- **2006**: Library Integrated Access Program
- **2007**: Office of Digital Dissemination
- **2008**: Digital Dissemination Task Force
- **2009**: U. Council Committee on Digital Yale

- **ODAI**

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Objectives

• Lead and engage the Yale community [digital creators and stewards] in the development of a vision for a coherent digital content environment for the University.
• Define and develop foundational tools, systems and platforms based on open, interoperable architecture that will meet the digital content management needs of faculty, staff, and future learners and that will address pressing needs of the collections.
• Leverage University investments in digital content initiatives through the coordination and selective centralization of digital infrastructure resources to minimize redundant effort.
• Ensure the means to identify and protect Yale digital assets for use now and in the future.
1. What is ODAI?
First, what it is not
Not a Library
Not ITS
A New Model
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.
Digital Ecosystem At Yale

- Content
- Sustainability
- Technology
- Community
- Policy & Shared Practice

Infrastructure
Reporting

About Yale | University leadership & organization

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.

Vice President for Development
Ingeborg Theresia Reichenbach, STAATSEXAMEN

Vice President for Finance and Business Operations
Shauna Ryan King, B.S., M.B.A.

Vice President for West Campus Planning and Program Development
The Whole is Greater than the Sum
Organizing for Collaboration

Digital Asset Infrastructure Strategy
Strategic priorities, resource identification, and policy approval.

ODAI Advisory Committee

Prioritizes work and appoints WG. Write/commissions policy recommendations

Steering Committee on Policy & Shared Practice

Shared platforms and tools tactical priorities. Represents dept goals. Aligns with campus goals. IDs project teams.

Advisory Committee on Yale Digital Commons

Collections Collaborative Redux

COLLECTIONS

Collections and Educational Technology

Planning Committee for Digital Preservation

Library-YDC SC

YDC users’ group

Pt Pt Project Teams

Working group
ODAI Goals

- Deliver business plans
- Leverage investments to meet business objectives
- Create and support a culture of digital sustainability and compliance
ODAI will develop a long term strategic plan and business plans for managing digital content at Yale.
• Define what is a digital “asset” of the University.
• Conduct data assessments to determine the volume of current and future data creation.
• Determine the total cost of ownership for digital data.
• Identify for consolidation the current range of independent asset management solutions across campus.
• Prioritize the development of shared tools for data management.
ODAI will organize and simplify the management of Yale’s digital data and reduce overall costs.
• Develop policy and practice on selection and retention.
• Lead the departments to abandon unnecessary and costly technical customizations.
• Obtain agreement on tool and platform investments and negotiate for best prices or shared development.
• Build upon investment in the DAM and storage to develop a hybrid digital preservation repository.
• Deliver Cross-Collection Discovery services.
• Act as the central point of contact for content management services to reduce overhead for ITS.
ODAI will develop a response to the growing pressure from the federal government to comply and share data created from federal funding.
• Track the legislative impact at Yale.
• Communicate and support IP adherence.
• Develop simple, central resources for data management plans to accompany all grant applications.
• Develop and support an institutional repository for data management and for staging compliance for depositing to federal and disciplinary repositories.
• Develop and support data curation services.
Yale Digital Commons
Core Principles

• Encourage appropriate sharing of digital content across the university
• Respect domain differences while sharing common infrastructure
• Identify shared outcomes requiring digital content management infrastructure through collaboration and produce them
• Support common needs and share best practices
• Inform Yale’s long-term planning for digital content management
• Improve sustainability of technical solutions through larger-scale adoptions
• Eliminate redundant efforts
• Ensure end-of-life migration plans
“An ecological approach to repository and service interactions allows a variety of types of information to be expressed. It can take a comprehensive view of repositories' contexts that addresses cultural, political, and financial influences as well as technical protocols. As an approach, ecology is aware that it is capturing a dynamic system, with continually evolving processes and with this awareness can try to indicate what and where change is occurring.”

– R. John Robertson, Mahendra Mahey, and Julie Allinson
Elements of Ecosystems

- Complexity of systems ✓
- Diversity ✓
- Co-evolution ✓
- Agents/Keystone species ✓
- Locality ✓
- Life cycle management ✓
“Change in an ecology is systemic. When one element is changed, effects can be felt throughout the whole system. Local changes can disappear without a trace if they are incompatible with the rest of the system.”

Nardi and O’Day
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