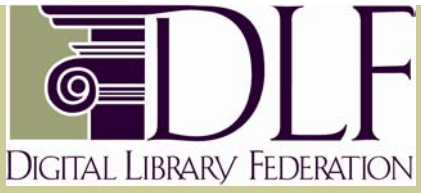

Harvard University

Report to the Digital Library Federation
October, 2004
Volume 5, Number 1. Fall 2004

http://www.diglib.org/pubs/news05_01/

TABLE OF CONTENTS

I. Collections, services, and systems

A. Collections

Asian Art Images

A collaborative project between Harvard University Art Museums (HUAM) and Fine Arts Library (FAL) to provide access to 3,600 Asian art images. All images were cataloged and digitized and records and images were exported for display through VIA. Direct digital photography of original artwork was used for HUAM collections while FAL images were converted from transparencies, glass plate, and film negatives. The project was completed in March 2004. View the collection in VIA: http://via.harvard.edu

Western China and Tibet: Hotspot of Diversity

This project integrates material from the collections of the Arnold Arboretum, the Harvard Map Collection, the Botany Libraries, the Museum of Comparative Zoology, the

Harvard-Yenching Institute and the Harvard University Herbaria to provide online access to a selection of Harvard's historic and contemporary ethnographic and natural history collections related to western China and Tibet. Beginning in 1924 with the Arnold Arboretum's Expedition to northwestern China and northeastern Tibet led by Joseph F. Rock, the historic collections include plant and bird specimens, as well as photographs of the region's landscape, architecture and people. The Herbaria have been collecting contemporary biological specimens from the same region. By relating the historic and contemporary material from various repositories, the project will provide students and scholars with access to information about the area's natural and ecological resources, as well as the social and cultural history of the region. The project was completed in July 2003.
http://arboretum.harvard.edu/library/tibet/expeditions.html

Maya Archaeological Photographs from the Carnegie Institute of Washington Collection, Phase I

With sponsorship from Tozzer Library, Phase I of this project will provide access through VIA to digital images of approximately 10,000 Maya archaeological photographs selected from the Carnegie Institute of Washington Collection in the Photographic Archives of the Peabody Museum of Archaeology and Ethnology. Many of the buildings, monuments, and artifacts that are recorded in the photographs no longer exist, are badly damaged or are so difficult to access that they are unavailable to researchers. The selected material represents all of the images from the sites of Chichen Itza and Copan, two of the most significant components of the collection. The digital images, descriptive cataloging records and searching capabilities will improve access to the photographs for government researchers working on accurate restoration and reconstruction of the sites, linguists needing undamaged scripts, archaeologists, historians, publishers, and producers. Phase I was completed in July 2003. Phase II will provide access to the remaining 30,000 images in the collection. View the images in VIA:
http://via.harvard.edu

Biomedical Image Library (BIL)

The goal of the project, a collaboration between the Countway Library and the Biomedical Imaging Laboratory at the Harvard School of Public Health, is to develop a central catalog and collection of biomedical images produced in support of basic biomedical research. Biologists, medical scientists, and clinicians will be able to use the Biomedical Image Library to distribute their work to the community or to identify and retrieve data for novel analysis. Moreover, educators and students will find a ready collection of images to support learning. The library also provides access to data such as stacks of serial sections that cannot be published through traditional means. The project was completed in July 2003. http://nrs.harvard.edu/urn-3:hul.eresource:bioimlib

Harvard/Radcliffe Online Historical Reference Shelf (H/R OHRS)

A joint venture of the Library Digital Initiative, the Harvard University Archives, and the Radcliffe Archives. The project was completed in September 2001. The new web site, located at http://hul.harvard.edu/huarc/refshelf/ provides electronic access to frequently consulted sources on the history of Harvard and Radcliffe. To date, the Reference Shelf includes: o annual reports of Harvard and Radcliffe presidents and treasurers from 1825 to 1995 o narrative histories o the current Harvard "Fact Book" o founding documents of both institutions To accomplish this, the Harvard College Library Digital Imaging Group has scanned over 105,000 pages of text from the Harvard University and Radcliffe Archives. The resulting digital images were sent to a vendor for full-text conversion using OCR and structural metadata was produced in XML (extensible mark-up language). All of the digital files are located in the Digital Repository Service (DRS). Using a set of HUL systems and services for management and delivery of digital library materials, researchers can now browse and search these resources online.
http://nrs.harvard.edu/urn-3:hul.eresource:hronhirf

The Hedda Morrison Photographs of China

A project to provide access through VIA to a photographic collection from Harvard Yenching Library. Nearly 4,800 photographs made by German photographer Hedda Morrison were cataloged and digitized for teaching and research in the areas of East Asian studies, history, architecture, fine arts, sociology, religion and pop culture. Taken between 1933 and 1946, the collection documents the architecture, streetscapes, clothing, religious practices and crafts that in many cases have all but disappeared from modern China. The project was completed in April 2001.
http://hcl.harvard.edu/harvard-yenching/morrison/

Nineteenth-Century American Trade Cards

A project to catalog, digitize, and display through VIA 1,000 advertising trade cards selected from the Historical Collections at the Baker Library. The project was completed in September 2000. As an indicator of consumer habits, social values, and marketing techniques, trade cards are of interest to scholars of business history, American studies, graphic design and printing history, and social and cultural history. Trade cards play a unique role in American social and cultural history. More infomation, including a selection of trade cards from the project and searching strategies for the collection, can be found at the Historical Collections of Baker Library web site.
http://www.library.hbs.edu/hc/19th_century_tcard/

Harvard Daguerreotypes

In 1995, the Harvard University Library Preservation Center received a grant from the National Historical Publications and Records Commission to address the preservation and access needs of Harvard's daguerreotypes. These daguerreotypes offer primary evidence of early uses of photography as a tool for scientific methodology as well as artistic

expression in mid-nineteenth century America. 795 daguerreotypes have been photographed to 35mm color slide film; the slides were then used as photointermediates to produce continuous-tone microfilm and Kodak Photo CD digital images.
http://preserve.harvard.edu/news/hybrid/nhprcdags.html

The Nuremberg Trials Project

The Nuremberg Trials Project provides access to digitized documents from the Harvard Law School Library relating to the trial of military and political leaders of Nazi Germany before the International Military Tribunal (IMT) and to the trials of other accused war criminals before the US Nuremberg Military Tribunals (NMT).
http://nuremberg.law.harvard.edu/php/docs_swi.php?DI=1&text=overview

Loeb Design Library Electronic Finding Aids

In Phase I, the Frances Loeb Library of the Harvard Design School configured their database to enable the export of data as EAD formatted finding aids to OASIS and created and contributed 10 finding aids. In Phase II, 3 additional collections were processed, and finding aids for those collections were created and added to OASIS.
http://oasis.harvard.edu/des.html

Schlesinger Library Electronic Finding Aids

Schlesinger Library (Radcliffe Institute for Advanced Study) The library investigated, evaluated, and selected an EAD (Encoded Archival Description) markup methodology and then converted and contributed 235 finding aids to OASIS.
http://oasis.harvard.edu/sch.html

The Mercator Globes at Harvard Map Collection

This Harvard Map Collection exhibition offers a unique way of viewing two famous globes published in the 16th century by Gerard Mercator. This online exhibit allows the user to view the Terrestrial Globe and the Celestial Globe using an online tool, the Globe Navigator, which can provide a close-up view of any desired location on the surface of the globes. Any of 50 different constellations from the Celestial Globe and selected images from the Terrestrial Globe are accessible to view in greater detail.
http://hcl.harvard.edu/mercatorglobes/

B. Services

Harvard Libraries Web Site

The "Harvard Libraries" site is a comprehensive web interface and research portal that presents a single, organized view of web-accessible resources available to the Harvard community. The site also serves as an electronic gateway to Harvard's union catalogs and to comprehensive information about Harvard's libraries. In the past year, a series of

enhancements were made to assist faculty and students in finding and using the more than 6,000 e-resources now available from the portal. 4,269,955 user sessions on commercial electronic resources were logged through the web site in FY2004.
http://lib.harvard.edu

C. Systems

Digital Infrastructure Tools

Three new infrastructure tools were developed this year to assist library staff who interact with Harvard University Library (HUL) systems and services in the creation of metadata, the deposit of digital objects to the Digital Repository Service (DRS), and the management of commercially-licensed electronic resources.

JHOVE (JSTOR/Harvard Object Validation Environment)

In FY 2004, The Office for Information Systems (OIS) in collaboration with JSTOR and funded in part by a grant from the Andrew W. Mellon Foundation, developed JHOVE (pronounced "jove"), an extensible framework for format-specific identification, validation, and characterization. Identification is the process of determining the format in which a given digital object is encoded ("I have a digital object; what format is it?"); validation is the process of determining whether a formatted object is encoded correctly ("I have an object that purports to be of format F; is it?"); and characterization is the process of determining the salient technical properties of a formatted object ("I have an object of format F; what are its pertinent characteristics?").

JHOVE, can be used to determine the format in which a digital object has been encoded and whether a formatted object has been encoded properly. It can also extract the internal technical properties of a digital object. JHOVE currently works with the majority of the data formats supported by DRS. In the future it will be enhanced to provide complete coverage of all DRS-supported formats, to ensure that objects submitted for deposit are consistent with externally supplied technical metadata, and to accept only objects that are correctly encoded with respect to their format into the repository.

JHOVE is made freely available to the public under an Open Source license, and is being used internationally by major national, academic, and research libraries and archives, other library-related organizations, and repository projects such as Cambridge University (UK), INEC Group (Russia), OCLC, Oracle Corporation, Leiden University (Netherlands), Metropolis Informatics SA (Greece), Library of Congress, National library of New Zealand, Access Computing Limited (Hong Kong) and Alaska Department of Natural Resources. The Fall 2003 DLF Forum slide presentation on JHOVE is available at: http://www.diglib.org/forums/fall2003/fallforum03.htm#p2
http://hul.harvard.edu/jhove/

Harvard E-Resource Management System (ERM)

The phenomenal growth of electronic resources purchased and licensed centrally by the Harvard libraries has led to the local development this year of a much-needed system for the management and fiscal control of these resources. Phase 1 of the system was completed in June 2004 and includes the following features:

- a data model which supports individual resources, packages, and interfaces at the appropriate level
- tables for shared data, such as vendor contact information, which can be entered and maintained in one place for all related resources
- the ability to view all resources connected to a particular vendor's package or interface
- the ability to electronically maintain license data including terms, conditions and renewal information; and administrative data, such as user names and passwords the integration of information on trial resources with production resources
- a separate librarian's view of relevant information for remote access to the system
- improvements to troubleshooting and problem-solving
- improvements to reporting including management information

See *Section II. Projects* for more information about Harvard's work on electronic resource management.

DMART (DRS METS Archive Tool)

DMART is a software tool used for automating the creation of complex audio packages for deposit in DRS. In order to facilitate future preservation efforts, an audio object is stored in DRS as a package of individual files, including one or more high-resolution uncompressed AIFF (Audio Interchange File Format) archival and production masters; lower-resolution compressed RealAudio delivery files; miscellaneous files produced as a byproduct of audio processing; a SMIL (Synchronous Multimedia Integration Language) file, used to "stitch together" segments of audio from various files into a coherent unit; and metadata files documenting the technical properties of all of the audio material and the workflow processes used to produce that material; and an XML-encoded description file that provides pointers to the individual components of the package. DMART (DRS METS Archive Tool) is used for the automated creation of this complicated audio package. DMART is a Java-based tool that is made freely available to the public under an Open Source license. The audio metadata used by DRS, and understood by DMART, is in the process of being formalized into an international standard by the Audio Engineering Society (AES) with input from Harvard staff at the Loeb Music Library and OIS.
http://hul.harvard.edu/ois/systems/drs/dmart/current/

Catalogs and Discovery Systems

HOLLIS (Harvard Online Library Information System)

Harvard's HOLLIS Catalog is a database containing over 9 million records for books, journals, electronic resources, manuscripts, government documents, maps, microforms, music scores, sound recordings, visual materials, and data files owned by the University and its libraries. In FY2004, the system provided access to 2,211 items on e-reserves for 176 courses and over 2,706,000 keyword searches were logged.
http://holliscatalog.harvard.edu

VIA (Visual Information Access)

VIA is Harvard's web-based union catalog of visual resources in art, architecture, and material culture. VIA records include descriptive information about slides, photographs, drawings, paintings, objects, and other artifacts held by the university's libraries, museums, and archives. Many records include thumbnails and links to digital images.A new release of VIA was made available to the public on June 15, 2004. With an improved interface design, the new version of VIA includes options for viewing search results as a grid of thumbnail-sized images or as a partial grid of thumbnails alongside a pane for previewing each record. Users can now create multiple named portfolios, or sets of saved records, for export to personal databases and course tools. The catalog also features improved browsing and the addition of cross-references for the names of people, places, and organizations. As a result of conversion projects, the new VIA contains over 240,000 records and more digital images of the slides, photographs, drawings, paintings, objects, and other artifacts held by the university's libraries, museums, and archives.
http://via.harvard.edu

OLIVIA

OLIVIA is a visual resources cataloging system for the creation of descriptive metadata that will be exported to VIA for public access. In FY 2004, 65 catalogers worked in OLIVIA.
http://hul.harvard.edu/ois/systems/olivia

OASIS

OASIS is Harvard's online catalog of electronic finding aids, which provide detailed information about the University's archival and manuscript collections. OASIS contributors are increasingly providing links within electronic finding aids to digital content such as correspondence, audio recordings, photographs, and other images. 18 repositories have contributed over 2,000 finding aids to OASIS.
http://oasis.harvard.edu

Harvard Geospatial Library (HGL)

HGL is both a discovery tool and a data-mining environment for geospatial data sets. Unique to the digital library world, HGL provides researchers with detailed information about geospatial data and with the tools necessary to capture and deliver subsets of the data into their research environments. In FY2004, the interface was reprogrammed to improve stability, scalability and access speeds and to add new new user features including additional base maps and keyword indices. The system contains 4,231 data layers and logged 250,971 requests in FY2004.
http://hgl.harvard.edu

TED (Templated Database Service)

(TED) A centrally supported web-based database, TED can be customized for collections or catalogs that do not fit within the scope of existing library catalogs at Harvard. TED offers collection managers an opportunity to create specialized databases that will be supported and upgraded along with other centralized systems such as VIA and OASIS. In FY2004, two new databases were added in: the Milman Parry Collection of Oral Literature and the MCZ Ernst Mayr Library collection, Jaques Burkhardt and the Thayer Expedition to Brazil (1865-1866).
http://hul.harvard.edu/ois/systems/ted

Full-Text Search Service (FTS)

FTS is a discovery tool that provides researchers with the ability to search full text associated with scanned images.
http://hul.harvard.edu/ois/systems/#fts

Find It @ Harvard

Find It @ Harvard is Harvard's implementation of SFX, a research tool from Ex Libris. The tool uses resource-linking technology based on the OpenURL standard to allow users of external research databases to link directly from an article citation or abstract to the full text of an article (if available to Harvard users) or to local holdings in the HOLLIS catalog. During this past academic year, use of the tool averaged close to 3,000 hits per day. Several additional sources, including MathSciNet and SilverPlatter, were activated during the year. Version 2 of Find It @ Harvard was implemented in May and included enhancements such as full Unicode compliance, loading of CONSER records in the database, a redesigned KnowledgeBase and Find It @ Harvard Administration Center, and upgrades to EJ2, the supplementary list of e-journals.
http://lib.harvard.edu/find_it/find_it_message.html

Harvard Cross-Catalog Search

The Harvard Cross-Catalog Search is a high-level resource discovery tool which allows the user to search simultaneously across five of Harvard's catalogs, including HOLLIS,

Baker, VIA, OASIS, and HGL. During FY2004, use of the cross-catalog search averaged 400 sessions and 1050 per month.
http://crosscatalog.harvard.edu

Delivery Service Systems

Harvard University Library offers a number of format-specific delivery services developed to enable the delivery of digital objects stored in DRS to web browsers. These services include:

- **Image Delivery Service (IDS)** for delivery of still and dynamic image files. IDS has been enhanced to provide the ability to zoom, pan, and rotate images including those accessed through HUL union catalogs such as VIA and OASIS. This enhancement is predicated on the use of JPEG 2000, a new ISO standard format that permits both lossless and lossy wavelet-based compression, and the dynamic generation of sub regions of image data at various resolutions. IDS now includes a JPEG 2000 server that can dynamically manipulate a JPEG 2000 image and send the appropriately processed image to a user's browser in the form a JPEG image, which can be rendered natively by all common web browsers. The new dynamic behaviors -- zoom, pan, rotate -- are only applicable to images stored as JPEG 2000 objects in DRS; TIFF, JPEG, GIF, and PhotoCD objects cannot take advantage of these features. In the future OIS will be offering a conversion service that will automate the creation of JPEG 2000 objects from existing image formats.
  http://hul.harvard.edu/ois/systems/ids/index.html
- **Page Delivery Service (PDS)** for delivery of scanned page images within the context of logical navigation-in other words, PDS mimics the page-turning functionality of a book.
  http://hul.harvard.edu/ois/systems/pds/
- **Streaming Delivery Service (SDS)** delivers streamed media to web browsers. Note: SDS currently delivers audio files, but it is capable of delivering video as well.
- **Asynchronous Delivery Service (ADS)** allows users to request large objects or sets of objects from DRS for downloading upon e-mail notification. Note: This service is primarily used to deliver large image files.

Storage and Management Systems

Digital Repository Service (DRS)

DRS is an integrated set of services to manage, maintain, preserve, and deliver Harvard's digital materials. In FY 2003, LDI upgraded the system to support audio files and established processes and procedures for auditing all copies of each digital object stored. Note: As a utility, DRS is not visible to researchers and most curators.
http://hul.harvard.edu/ois/systems/drs

Name Resolution Service (NRS)

Harvard's NRS assigns persistent identifiers to digital objects. Persistent identifiers provide curators and researchers with confidence that the URL they cite will always work. In FY2004, NRS was enhanced to accommodate new parameters that enable dynamic delivery in IDS.
http://hul.harvard.edu/ois/systems/nrs

Access Management Service (AMS)

AMS provides secured access to Harvard's licensed or copyrighted materials. Using the University Personal Identification Number (PIN) and Directory Services, AMS protects the electronic assets of the University from unlawful access and also restricts access to the Harvard community as required by curators.

II. Projects and programs

A. Projects

New Project Announcements

AIHT (Archive Ingestion and Handling Test)

The Harvard University Library Office for Information Systems (HUL-OIS) is participating in a test of repository object ingestion and handling organized by the Library of Congress as part of its National Digital Information Infrastructure Preservation Program (NDIIPP). The NDIIPP initiative proposes a decentralized preservation environment in which there will be a free flow of digital collections between institutions and organizations as necessary to provide appropriate preservation services. The purpose of AIHT is to test the viability of large-scale transfers of digital material between repositories utilizing radically different technological infrastructures without compromising the bit-level integrity of the data. The corpus used for the test is a collection of approximately 57,000 files (13 TB) in more than 100 different data formats. This data was delivered with minimal accompanying metadata limited to a file count and individual file checksums. In Phase I of the test in FY2004, this material was transferred from its hard disk distribution media, staged on a Windows host for verification of the collection manifest and virus checking, and placed on a Unix host for subsequent processing by JHOVE, which will be used to extract technical metadata before deposit into DRS. Phase II of AIHT will entail exporting a copying of the test collection from DRS to the other three institutions participating in the test and in turn receiving exports from them. All of the various copies of the collection data -- on the original hard disk, deposited in DRS with enriched metadata, and received from the three test partners -- should be kept bit-for-bit identical to one another. Phase III will test transformations of TIFF and JPEG images to the JPEG 2000 format. DRS policy and operational workflows employ a strong gatekeeper function under which material is accepted only from known, pre-vetted organizational units and only if the material meets established standards for

acceptable quality. AIHT provides a valuable opportunity to learn the types of difficulties likely to be encountered with large-scale deposits of digital material of unknown provenance.
http://www.digitalpreservation.gov/about/pr_060904.html

Electronic Resource Management: Verde

Harvard has been working closely with MIT and with Ex Libris staff on the development of Verde, a commercial e-resource management system to be offered by Ex Libris. This work has been largely influenced by Harvard's participation in a related project, the Digital Library Federation's Electronic Resource Management Initiative (See "Update on Existing Projects" below).

Update on Existing Projects

Electronic Resource Management Initiative (DLF ERMI)

Harvard's participation in the DLF ERMI continued for a second year, with documents due for publication in the fall of 2004. The DLF ERMI project has sought to analyze and describe the functional requirements, workflows and data structures required to integrated electronic resources into a library's online systems and operations. The project's work has been widely discussed within library circles and is responsible for the emerging development in 2004 of new online systems devoted to electronic resource management by all of the major library system vendors currently active in the marketplace, including Ex Libris.

PREMIS (Preservation Metadata Implementation Strategies)

Effective preservation of a digital object requires a fault-tolerant storage mechanism to maintain the bit-level integrity of the object and appropriate descriptive, administrative, and technical metadata necessary for proper interpretation, and possible manipulation, of the information content of the object. Robin Wendler, the LDI Metadata Analyst at Harvard University is an active participant of the PREMIS working group charged with preparing recommendations and best practices for preservation metadata. This group's work is a follow-up to the 2002 OCLC/RLG white paper A Metadata Framework to Support the Preservation of Digital Objects. The working group has developed a data model for high-level entities capturing the properties of objects, events, agents, rights and permissions, and the relationships between these entities, and is working towards detailed descriptions of the specific preservation properties encapsulated by these entities.
http://www.oclc.org/research/projects/pmwg/

PDF/A

Adobe's Portable Document Format (PDF) has become the de-facto standard for web-based delivery of electronic documents. The International Organization for Standardization (ISO) has initiated an effort to create an standard for an archival profile

of PDF that is amendable for long-term preservation. This standard, PDF/A, is intended to provide an unambiguous definition of the requirements necessary for the reliable and predictable future rendering of archived PDF documents. The second draft of the PDF/A standard was released in May 2004 and is currently undergoing a comment period by experts from the constituent national bodies of ISO. Stephen Abrams, the LDI Digital Library Program Manager at Harvard University, is the project leader and document editor for the ISO PDF/A joint working group.
http://www.aiim.org/standards.asp?ID=25013

GDFR (Global Digital Format Registry)

Almost all aspects of digital repository operation are dependent upon intimate knowledge of the data formats in which the repository's objects are encoded. Without such knowledge, these objects are merely opaque sequences of uninterpretable bits. Dale Flecker, Associate Director for Planning and Systems, Harvard University Library and Stephen Abrams, LDI Digital Library Program Manager, Harvard University Library, have been leaders in the DLF-sponsored effort to establish a Global Digital Format Registry (GDFR) that will be a sustainable resource for authoritative information about data formats for the digital library and preservation community.
http://hul.harvard.edu/gdfr/

RLG/NARA Task Group on Digital Repository Certification

In FY2004, the RLG/NARA Task Group on Digital Repository Certification continued its charge to recommend a certification process and requirements by which a repository intending to serve as a permanent archive of digital materials can be judged to be "trustworthy." The criteria for trustworthiness include both technical and organizational metrics. The intent of certification is to assure those depositing in a repository that it can be trusted with valuable digital resources. It is expected that even repositories that do not go through a formal process of certification will find the criteria useful for self evaluation.
http://www.rlg.org/en/page.php?Page_ID=580

LOCKSS (Lots of Copies Keeps Stuff Safe)

LOCKSS is a system that makes use of redundant, distributed harvesting and persistent storage of web-accessible e-journals. HUL-OIS cooperated in the development of LOCKSS by being a beta-tester. In FY2004, OIS began participating with a 13 member consortium of academic and research libraries that is conducting a test of the LOCKSS system to collect and store a number of born-digital e-journals in the humanities. This will require the creation of a LOCKSS "plug-in" module for the following journals: Applied Semiotics/Sémiotique Appliquée, Journal of Religion and Society, Lodestar Quarterly, Paumanok Review, and World Haiku Review. Once created, these plug-ins will be made available to the other participants of the test; HUL-OIS will, in turn, receive the plug-ins created by other institutions. By working with actual e-journal data this test will provide valuable empirical data on the cost in time and human and machine

resources necessary to use LOCKSS as an archiving vehicle.
http://lockss.stanford.edu/humanities.htm

B. Programs

The Library Digital Initiative (LDI)

Harvard University launched the LDI in July 1998 to develop the University's capacity to manage digital information by creating a robust technical infrastructure for the acquisition, organization, delivery, and archiving of digital library materials; by providing a team of specialists to advise librarians and others in the University community on key issues in the digital environment; by providing librarians and staff with experience in digital library projects; and by enriching the Harvard University Library system with a significant set of digital resources. Now in its seventh year, LDI is making it easier for Harvard's libraries to maintain their collections and services in the digital era, without each library having to individually acquire the expertise and systems needed to support digital resources. The development of the collections, systems and services documented in this report were funded by LDI.
http://hul.harvard.edu/ldi

The Digital Acquisitions Program

Initiated as part of LDI, the Digital Acquisitions Program supports the shared purchase and licensing of commercially available digital resources for Harvard's libraries. Program services include the organization of prospective and ongoing product evaluation, license negotiation, access implementation and administration, and vendor relationship management. Consulting assistance is also offered to libraries that negotiate license agreements for their local collections. Program staff are also involved in assisting libraries with collection decisions involving print resources, such as canceling unneeded duplicate print journal subscriptions in order to control acquisitions costs.

Harvard libraries continued to acquire digital resources at a steady pace during FY 2004. Approximately 830 new resources - including 730 e-journals and 100 databases - were licensed and made available to the Harvard community through the Harvard Libraries web site.
http://hul.harvard.edu/digacq/

LDI Internal Challenge Grant Program

Managers and staff throughout Harvard’s libraries, archives, museums and special collections have participated in LDI through the Internal Challenge Grant Program. They have assisted LDI by prioritizing, testing and demonstrating new systems and services while contributing valuable online content for research and education. Projects have had a range of goals including basic digital conversion of a single collection; the creation of a virtual collection by digitizing related material from multiple repositories; and the development of new delivery systems for natively digital material. Many projects have

focused on providing access to previously inaccessible collections and making them available online for use by students and scholars at Harvard and around the world. Over the last six years 39 projects were funded through the grant program and over 200 Harvard staff members gained experience working with digital projects. In FY 2004, four projects were completed and six were newly funded. Completed projects are reported in *Section I.A.Collections* of this report. Beginning in fiscal year 2005, LDI will focus project work in five initiative areas: integration projects, priority digital resources, archiving born-digital material, digital preservation, and assessment and measurement.
http://hul.harvard.edu/ldi/html/funded_projects.html

Open Collections Program (OCP)

With an initial grant from the William and Flora Hewlett Foundation, the OCP was established in the Fall of 2002. The goal of the Open Collections Program (OCP) is to increase the availability and use of Harvard's extraordinary textual and visual historical resources for teaching, learning, and research by selecting resources from the Harvard Libraries in broad topic areas, putting them in digital format, and providing access to them through the web and the Harvard library catalogs. In FY 2004 the Program made significant progress toward creating comprehensive subject-based collections that contain freely accessible, high-quality digital resources. Production began this year in OCP's first open collection, Women Working, 1870-1930.
http://ocp.hul.harvard.edu/

Women Working, 1870-1930

This collection explores women's roles in the US economy between the Civil War and the Great Depression. Working conditions, conditions in the home, costs of living, recreation, health and hygiene, conduct of life, policies and regulations governing the workplace, and social issues are all well documented. Working within the topic as defined by Harvard's faculty and library committees, the Open Collections Program selected materials for Women Working from across Harvard's libraries, archives, and museums to begin the creation of a deep, subject-based digital resource. From the 6,000 books, serials and pamphlets reviewed, 2,250 were selected for digitization during the year. This collection now includes over 2,000 published works, several thousand pages of unpublished manuscripts and over 1,000 photographs.
http://ocp.hul.harvard.edu/ww

III. Specific Digital Library Challenges

Integration with Educational Technology

During the past several years under the auspices of the Library Digital Initiative (LDI), the Harvard libraries have been developing a rich collection of high-quality commercial and local digital library content to support research and teaching. At the same time, the ongoing development and enhancement of the Harvard course management platform, instructional tools, and portal software by the Office of the Provost and by the Instructional Computing Group (ICG) in the Faculty of Arts and Sciences has been significant. Going forward, an important goal for the Harvard libraries is continued collaboration with these groups on a number of initiatives to integrate library resources more fully into the course management sites and portal environments on campus.

Beginning in fiscal year 2005, one of the focused areas of LDI project work will be integration projects predominantly oriented towards integrating library digital resources and services with Harvard's central academic computing initiatives. The intent of this initiative is to encourage the use of library materials by presenting them conveniently and prominently in the web environments used by Harvard's students and faculty.

Work has already begun in this area. During FY 2003, a new facility in VIA, the image collection catalog, allowed instructors to use export images for use in a course tool for creating slide shows. In FY2004, a new tool was added to the Instructors' Toolkit so that a HOLLIS Catalog search box enabling direct searching in the OPAC could be added to course website pages. Another larger shared project currently underway is the development of a Reading List Tool, incorporating reserves, for both the instructor and the library to facilitate the compilation and display of course reading lists on course web sites. A prototype of the Reading List Tool is planned to be available for Spring 2005.

The topic of integration between library digital content and instructional technology platforms is receiving widespread attention outside of Harvard in both the digital library and educational technology arenas. There is concern in the library domain especially that libraries and their high-quality digital content are largely missing thus far from established course management sites. In order to further progress in this area, the Andrew W. Mellon Foundation provided support for an ad hoc group of digital librarians, course management system developers, and publishers to meet and discuss some useful next steps to increase the integration of existing digital resources into the working environments of instructors in higher education. This group was co-chaired by Dale Flecker and issued a paper in July 2004 entitled Digital Library Content and Course Management Systems: Issues of Interoperation (http://www.diglib.org/pubs/cmsdl0407). The report strongly recommends that the Mellon Foundation pursue an initiative to support meaningful demonstration projects in this area.

IV. Digital library publications, policies, working papers, and other documents

- Chapman, Stephen. "Techniques for Creating Sustainable Digital Collections." Library Technology Reports. Vol. 40, No. 5, September/October 2004. www.techsource.ala.org
- Jewell, Timothy D. and Anderson, Ivy et al. "Electronic Resource Management The Report of the DLF Initiative" DLF August 2004. http://www.diglib.org/pubs/dlfermi0408/
- Flecker, Dale. "Digital Library Content and Course Management Systems: Issues of Interoperation Report of a study group." DLF, July, 2004. http://www.diglib.org/pubs/cmsdl0407/
- Kriegsman, Sue and Lee Mandell. "Digital Archiving without Preservation is Just Storage: Education is the First Step to Achieving Preservation Goals" IS&T's 2004 Archiving Conference San Antonio, Texas; April 20, 2004; p. 32-35; ISBN / ISSN: 0-89208-251-8. http://www.imaging.org/store/epub.cfm?abstrid=30283

Additional digital library information, documentation and publications are linked from the following web sites:

- The Library Digital Initiative (LDI) site focuses on information about the initiative including technical developments, advisory services, and the grant program. http://hul.harvard.edu/ldi
- The Office for Information Systems site contains information about available Harvard University Library systems and services, including resources for the staff at Harvard's libraries, museums, and archives and for information technology offices using LDI systems and services. http://hul.harvard.edu/ois

The Library Preservation at Harvard site is a collaborative effort of the Weissman Preservation Center in the Harvard University Library and the Preservation & Imaging Department in the Harvard College Library Harvard. The site includes information about preservation and imaging services for both traditional and digital materials. http://preserve.harvard.edu