Library Connection

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CAPTURING YOUR INTELLECTUAL ASSETS

How Institutional Repositories Are Part of the Solution

Colorado State University

Capturing Your Intellectual Assets

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Researchers poring over ancient manuscripts or medieval incunabulum can still read the words set down by famous scholars of the past. Take a simple stroll through the moveable shelves of Morgan Library and one might stumble upon the original volumes of *Nature*, first published in 1870. The pages are a bit fragile, tinged a shade of ochre, but one can clearly read the discoveries of Alfred Wallace and J.W. Dawson or a recounting of Mr. Darwin's lecture at the French Institute. As the old adage says, "It's the printed word that lasts forever."

In today's world, every day we generate billons of digital files. In fact, the intellectual output of more and more of our top researchers and academics across the nation is born in digital form. Yet, what are we doing to capture those files and make sure that the basis of our current thinking will be preserved for generations? Who is to say that the research data you are gathering for your current project will be available ten years from now when you or a colleague would like to pick it back up again and examine some other angle of your thesis? Who can guarantee that the presentation you gave at a most recent conference will be accessible so that a colleague or student might be inspired by your discoveries sometime into the future?

Libraries have long been the institutions relied upon to preserve the intellectual and cultural record. Research libraries, in particular, have developed sophisticated systems for preserving current scholarship for generations. Yet, what used to be a matter of climate control, space, and providing systems of searchability and access has evolved into a much more complicated problem of capturing the thousands of rapidly shifting file formats floating around on servers, hard drives, flash-drives, and other yet-to-be invented storage devices. It's libraries that are once again rising to the challenge. This issue of *Library Connection* explores one piece of the solution—institutional repositories. These new library services are designed to centrally store, index, manage, disseminate, and preserve knowledge assets in digital, and therefore widely accessible, form.

Collecting the Digital You: The Birth of Digital Archives

Take a moment to think about all that is born in a digital format. Our daily interactions often happen as email. Photographs and videos are taken digitally. Books, papers and articles are mostly written on computers. Most sound recordings are made digitally. The human experience—our thinking and discovery—is now primarily recorded in digital form.

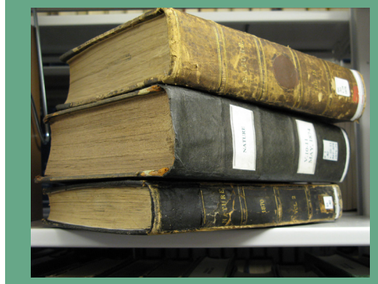
Some of the most important research collections are the personal papers, diaries, notes, and journals of famous thinkers. For example, the Cambridge University Library houses Darwin's personal papers and a collection of printed books with his annotations handwritten in the margins. Both collections are some of the most often viewed by scholars.

Years from now, in the absence of paper, how might future generations view the same work of today's famous thinkers? In a scholarly context, the question becomes even more urgent. What will become of the products of your research and teaching, which are now, more often than not, digital?

In 2003, Hewlett-Packard and Massachusetts Institute of Technology (MIT) researchers set out on a joint venture to solve some of the digital storage dilemmas facing research institutions. Known as DSpace, the software platform "captures, stores, indexes, preserves, and redistributes an organization's research data."[1] DSpace quickly became a place where the "MIT faculty (could) deposit their digital assets."[2] At the same time, teams of researchers at the University of Virginia and Cornell were developing the Fedora project with similar aims.[3] Library information systems provider Ex Libris was also working on their product, DigiTool.[4]

More importantly, at the time the first software platforms were being developed, the concept that institutions needed to permanently and securely store their intellectual capital in one central, easily accessible digital "location" began to take hold. Today, these digital storehouses are known as institutional repositories (IRs). Their missions are basic—preserve the intellectual output created by faculty and students so that it can be freely and readily accessed by current and future scholars. According to the Registry of Open Access Repositories, of the 221 registered repositories in the US, 126 are digital repositories based at institutions. This includes MIT's DSpace@MIT (which now contains dozens of research materials of MIT faculty, researchers, departments, labs, and centers and over 14,000 theses), Cornell's eCommons@Cornell, Georgia Tech's SMARTech; and the University of Kansas' KU ScholarWorks, among dozens of others nationwide.[5]

The contents of these IRs are vast and varied—often they include pre-prints or post-prints of published papers, research data, conference presentations, public performances and exhibitions, theses and dissertations, and other multi-media work. Their potential impact on scholarly communications and how research is being done is just now beginning to emerge.



Accelerating Information Exchange: The Role of Institutional Repositories in the Research Marketplace

There is no question that electronic publishing has profoundly impacted research and teaching. It is simply astounding that most current scholarship is literally at your fingertips and can be located within seconds, most often seamlessly made available to you by libraries. This sea change has prompted many in the research, publishing, and library fields to question traditional practices, and the implications and effects of new emerging digital information sharing tools have yet to be fully discovered. Yet, one immediate and undisputed benefit of institutional repositories is that they are filling a critical place in the digital information gap, providing a safe space to house information that would otherwise be lost or inaccessible.

Institutional repositories provide faculty a free, secure, permanent and centralized database in which to store their work. As an online archive accessible worldwide, institutional repositories also increase readership and visibility. Perhaps most innovative in the development of the IR is the idea that instead of articles or books being the only point for scholarly exchange, IRs create an environment where other forms of thinking can be accessed, shared, and widely distributed with one click of the mouse.

Ann Green and Myron Gutmann in their paper, "Building Partnerships Among Social Science Researchers: Institution-based Repositories and Domain Specific Data Archives," point out that repositories benefit researchers in all phases of the research lifecycle and more than just through the housing of "eprints" of published work that may exist only in paper form. Institutional Repositories "seek to provide safe harbors for a more inclusive interpretation of the intellectual output of local faculty-driven research and teaching, by including pre- and post-prints, working papers, research reports, datasets, course materials, personal image collections, among other types of content." [6]

1. Introducing DSpace. (2002-2007) MIT Libraries & Hewlett-Packard Company. Retrieved on October 11, 2007 from http://www.dspace.org/introduction/index.html.
2. DSpace: Preserving Digital Data for the Ages. (2003) HP Labs News. Retreived on October 10, 2007 from http://hpl.hp.com/news/2003/july_sept/dspace.html.
3. Fedora: About/History. (2005-2007) Fedora Project. Retrieved on October 10, 2007 from http://www.fedora.info/about/history.shtml.
4. DigiTool at Leiden University: Oldest Dutch University Buys Youngest Ex Libris Product. (2007) ExLibris LTD. Retrieved on October 11, 2007 from http://www.exlibrisgroup.com/newsdetails.htm?nid=50.
5. Registry of Open Access Repositories (ROAR). (2005-2007) Tom Brody, University of South Hampton, UK. Retrieved on October 11, 2007 from http://roar.eprints.org/.
6. Green, A. and M. Gutmann. (2007) "Intuitional Repositories: Building Partnerships among social science researchers, institution-based repositories and domain specific data archives." International Digital Library Perspectives. 23.1: p.35-53.

Images: (Left) "Marylin Monroe" by Gianni Bortolotti. From the International Poster Collection. http://lib.colostate.edu/posters/. (Right) A photograph of the original volumes of *Nature* located in the basement of Morgan Library.

The New Faculty of CSU Libraries

Coordinator,
Research and Development
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Naomi Dushay recently joined CSU Libraries as the Coordinator for Research and Development. In her position, Naomi will develop tools and technologies to improve information discovery for the CSU campus. She believes more attention should be paid to the variety of library user and information seeking tasks, as determined by observing different categories of users in situ, in a variety of subject areas. She is also keenly interested in the evolving best practices for software developers.

Naomi received bachelor's degrees in Computer Science and Music from Cornell University and a master's degree in horn performance from Northwestern University. She has been working in library technology and digital libraries for 16 years, both in research and production contexts.

Metadata Librarian/Database Management Specialist
Daniel.Draper@Colostate.edu

Daniel Draper recently joined CSU Libraries as a Metadata Librarian/Database Management Specialist. Daniel's professional responsibilities include maintaining the Libraries' online catalog database and creating metadata for the Libraries' digital resources.

Daniel holds a BA in Art History and History and a MLS from the University of Illinois at Urbana-Champaign. Prior to his appointment, Daniel worked in Technical Services at the University of Colorado Law Library. He also acted as lead researcher in developing the Wounded Knee Museum. Daniel began his library work as a Research Assistant at the University of Illinois Map and Geography Library.

"It's not enough anymore to just publish in a research journal," said Steve Harnad in his recent interview with *Times* reporter Matt Baker.[7] Harnad is Professor of Cognitive Science at Southampton University and his department of electronics and computer science was the first in the world to adopt a non-commercial self-archiving mandate. He goes on to add that "authors who have put their work in a repository have twice as many citations as those who don't self-archive."[8]

"A rich part of the knowledge process…This is the future of where we're heading in research," adds Dr. Ceasar L. McDowell, who uses MIT's institutional repository DSpace@MIT as a way to share, organize, and distribute data for his work in the Center for Reflective Community Practice.[9]

Secondarily, institutional repositories serve as meaningful markers of an institution's academic quality. They help showcase the work of faculty and students and provide tangible examples of work being accomplished. "Where this increased visibility reflects a high quality of scholarship," noted Richard K. Johnson, Enterprise Director of SPARC (the Scholarly Publishing and Academic Resources Coalition), "this demonstration of value can translate into tangible benefits including funding—from both public and private sources—that derives in part form an institution's status and reputation."[10]

Some faculty have been slow to embrace self-archiving or their institutional repository. "One reason for this cautious approach," writes Baker in his interview with Paul Ayris, Director of Library Services at University College London, "is the misconception that open access means lack of peer-review."

"This is not true," Ayris explains. "Academics see peer-review as the gold standard of academic excellence, and there is no wish to lose it. Papers in open-access journals can be peer-reviewed just as rigorously as materials in commercial subscription journals. Where publishers' copyright policies allow, that published peer-reviewed literature is deposited in open-access repositories."[11]

Although the rise of repositories has prompted some to see the digital tool as a threat to the traditional revenue streams of publishing, an important point to note is that institutional and other digital repositories don't necessarily compete with scholarly journals. They house more than just the types of materials published by societies and publishing houses, which is what many argue makes IRs so innovative and important to scholarly exchange.

When faculty do participate in institutional repositories, the increase in visibility can be profound. In May of this year, Brunel University reported 17,000 downloads in three months from Bura (Brunel University Research Archive). "It's a great way of showcasing work to the public and other researchers. We encourage everyone to self-archive," says Geoff Rodgers, Dean of Brunel University's Graduate School.[12]

7. Baker, M. (2007) "Out in the open, it'll net a high return." The Times Higher Education Supplement. 1792: p. 23.
8. Ibid, p23.
9. DSpace: Faculty Profiles: Dr. Ceasar L. McDowell. (2002-2006) MIT Libraries & Hewlett-Packard. Retrieved on October 11, 2007 from http://libraries.mit.edu/dspace-mit/about/mcdowell.html.
10. Johnson, R.K. (2002). "Institutional Repositories: Partnering with Faculty to Enhance Scholarly Communication." D-Lib Magazine. 8.11: p. 1-7.
11. Baker, M. p. 23.
12. Ibid. p. 23.

Your Work at The World's Fingertips: CSU's Digital Repository

Recognizing the benefits of an institutional repository, Colorado State University Libraries is implementing the creation of CSU's own institution-based digital repository. CSU's Digital Repository (DR) will house the scholarly work of CSU faculty including papers, research data, conference presentations, public performances and exhibitions, as well as "eprints" of peer-reviewed publications as publishers allow; publically funded research results published by CSU; theses and dissertations of graduate students; undergraduate research projects; and CSU produced publications. The aim of the DR will be to help the CSU community manage the products of your research and teaching and help you share that information with colleagues around the world.

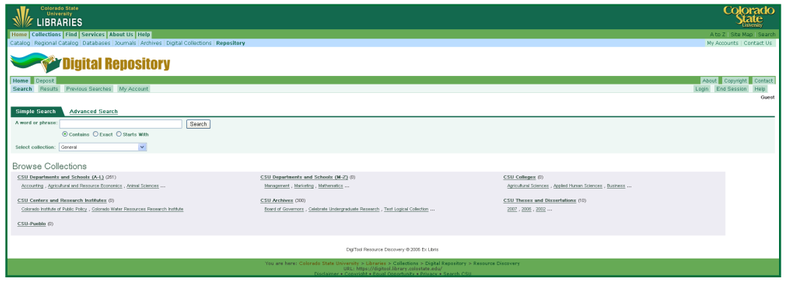
"The digital repository is a fit with CSU's strategic plan for research and discovery," notes Camel Bush, Assistant Dean for Digital Services at CSU Libraries. "It provides services that give reliable access to CSU research through one searchable interface."

"The repository also fits with the Libraries' strategic agenda to provide broad access to scholarly content and preserve that content for future generations of scholars," notes Dean Catherine Murray-Rust.

The Libraries hopes that the DR will revolutionize the storing and accessibility of CSU's intellectual output. For faculty, the digital repository provides world-wide distribution of their works and enhances their visibility. "Because the DR is open-access, work will more broadly appear in Google and other Internet search engines," notes Dawn Bastian, Coordinator of Digital Repositories at CSU.

The DR also offers a platform for housing an entire body of work in one central location. "The repository will preserve content from a variety of sources including peer-reviewed scholarly works that are commercially published but not archived," adds Bastian. This is an important part of making sure born-digital materials are preserved and accessible into the future.

Brian Ott, Associate Professor for Speech Communication at CSU, has already taken advantage of the Libraries' call for materials during this early implementation of the DR and has submitted several of his research materials for posting. "Dramatic changes in the production, format, and flow of information—fueled by the rapid development and proliferation of IT—suggest that ideas, insights, and scholarship will increasingly be stored, distributed, and circulated electronically in the global village of the 21st century," notes Ott. "I want my work to be easily available internationally. I believe the repository will help facilitate and sustain a new era of international collaboration and global academic networks."



Images: (Left) A CSU student accessing materials while conducting research on the Poudre River. From CSU Photography. (Right) A screen shot of CSU's Digital Repository currently under development.

Know Your Author Rights: Answers for Copyright Questions and Posting Published Work in Digital Repositories

How can you publish in leading journals while retaining the right to place your articles in CSU's developing digital repository?

SPARC, the Scholarly Publishing and Academic Resources Coalition (http://www.arl.org/sparc/), has developed one tool to assist authors in keeping key rights to the articles that they publish. Their Author Rights brochure (enclosed) details the Author Addendum, a legal instrument that authors may use to modify their publication agreements with publishers. The Author Rights Addendum can be downloaded at http://www.arl.org/sparc/bm%7Edoc/Access-Reuse_Addendum.pdf as one element of the informative Author Rights pages (http://www.arl.org/sparc/author/) made available by SPARC, an international alliance of academic and research libraries working to correct imbalances in the scholarly publishing system.

If you did not receive a brochure, please visit the SPARC Web site (http://www.arl.org/sparc/author/) to download one.

The New Faculty of CSU Libraries

Collection Assessment & Management Librarian
Teresa.Negrucci@Colostate.edu

Teresa Negrucci recently joined CSU Libraries as the Collection Assessment and Management Librarian. The Collection Management group facilitates the efforts of the College Liaison Librarians to identify, evaluate, and select research materials and information resources to support the University's mission of teaching, research, and service. Teresa will be using emerging collection evaluation tools and standards to assess and manage the print and electronic collections to ensure cost-effective delivery of information resources to the University community.

Teresa earned her bachelor's degree in Classical and Near Eastern Archaeology from Bryn Mawr College, and a Master's degree in Library and Information Science from UCLA. Prior to her appointment, Teresa served as the Research Associate for Collection Development for the Conservation Collection at the Getty Research Institute Library.

Digital Repositories Librarian
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Yongli Zhou assists in the development, management, and promotion of campus and cooperative digital repositories and services. Currently, she is focused on implementing CSU's digital repository, an online, searchable, web-accessible database containing works of research deposited by CSU faculty, staff, and students. The purpose of the repository is to increase access to scholarship, maximize use of instructional materials, and facilitate long-term preservation of CSU's intellectual output.

Yongli graduated from the University of Iowa with a Master of Arts in Library and Information Science. She also holds a bachelor's degree in Computer Science and minor in Fine Arts.

For students the digital repository offers exposure for their work. It especially addresses the requests the Libraries has had to support electronic theses and dissertations. With a DR, students can share their work with prospective employers with one click of the mouse and the DR will provide a platform for accessing their research long after graduation.

For the CSU community, the digital repository showcases the works of the faculty, other researchers, and students in an open, global environment that makes it easy for researchers and other interested parties (such as organizations that fund research or have partnerships with CSU) to find CSU works. "As a vehicle that tangibly demonstrates the quality of CSU's work, the implications for raising support, both private and public, for CSU research may be profound," notes Murray-Rust.

The DR will be maintained by CSU Libraries and accessible via the World Wide Web. The Libraries will provide a full-range of self-archiving services for faculty and students interested in posting their materials so that they are not burdened with the process. Formats such as Word documents, PDF files, images, and PowerPoint will initially be accepted by the Libraries for posting; other formats will be accepted in the future, including audio, video, datasets, and others. Libraries staff are working to implement the DR and populate it for demonstration purposes by the end of the fall semester. The Libraries hopes to make the DR fully accessible and open for deposit during Spring 2008, at which time it plans to also launch a pilot electronic theses and dissertation (ETD) submission program. As file formats change, the Libraries will provide long-term storage and accessibility solutions. For all content deposited, the Libraries will maintain a persistent URL (one that will never disappear or become defunct) and the files and metadata associated with it, provide secure storage and backup of materials, and monitor format changes and migrate to succeeding format(s) when necessary and possible.

Partnerships for the Future: Library Services to Help Disseminate Intellectual Output

When asked about the biggest challenges for implementing the DR, Assistant Dean Bush notes, "There are technical challenges to overcome, but the experience of other universities shows that recruitment of content is a major challenge." Most importantly, the Libraries wants the DR to be a tool that aligns organically with the research process. "We expect that implementation will help identify new digital and repository services to develop to better meet the needs of users," adds Bush.

In addition to providing a digital storehouse for materials, the Libraries anticipates that it may eventually offer services through collaborative partnerships such as conference production processes, digital collections building, audio/video capture of lecture series speakers, symposia, and instructor lectures, technical support of virtual forums and communities, scanning and conversion of resources to digital form, and more.

"When we get diverse scholars exchanging ideas it enhances and enriches everyone's work," says Professor Ott. "The greatest barrier to effective collaboration right now is a lack of easy searchability and access. To be able to easily locate the corpus of a scholar's work will greatly improve the academic conversation on issues of pressing social and political significance."

CSU's Digital Repository is offering one way of capturing scholarly materials that are increasingly ephemeral in a digital age, and providing such guaranteed access to a local, national, and global community of users.

WHAT'S NEW FOR YOU @ CSU LIBRARIES

Expanded E-Access to Elsevier's ScienceDirect Journals

Imagine having the ability to search a historical archive of over eight million articles directly from your desktop. This is exactly what CSU Libraries, through its partnerships with the Colorado Alliance of Research Libraries, has recently made available to the faculty, students, and staff of CSU through the cooperative purchasing of the ScienceDirect Backfiles. Now you can electronically access the complete collection back to volume 1, issue 1 of journals in ScienceDirect packages in research areas such as the Environmental Sciences, The Lancet, and many more. (See the complete list of added collections below.)

Users can search the titles and abstracts in the backfiles collections with full text electronic access. References are linked to the full text articles with full citation linking to and from recently published articles. "An excellent support tool for teaching and research with sophisticated search options and personalization features," notes one ScienceDirect patron.

The Colorado Alliance of Research Libraries, known as "the Alliance," consists of ten institutions representing twelve major libraries located in Colorado and Wyoming. The consortium has enabled CSU to purchase a wide array of electronic resources that CSU would not have otherwise been able to afford. This most recent purchase involved leveraging the monies each library had already spent on portions of backfile collections combined with new monies provided by the University of Wyoming. Prior to this year, CSU had already purchased 22 of Elsevier's ScienceDirect journal backfile packages on its own. Now without CSU spending any additional funds, the deal helped expand access to backfile collections by 9 packages and includes 385 unique journal titles.

Visit the ScienceDirect Database (http://lib.colostate.edu/databases/permlink.php?id=215) from the Libraries' Web site to begin your research. (Off campus users may be prompted to the Libraries authentication login screen prior to viewing articles. You will be asked to enter your name, CSU ID, and PIN. Help with off-campus access is available at http://lib.colostate.edu/users/distance/faq.html.)

The newly added collections include:

- Energy and Power
- Environmental Sciences
- High Energy/Nuclear Physics and Astronomy
- The Lancet
- Materials Science
- Medicine and Dentistry
- Nursing and Health Professions
- Pharmacology, Toxicology and Pharmaceutics
- Physics General

ScienceDirect™
makes sense.

The New Faculty of CSU Libraries

Assistant Dean, Scholarly Communications
Chris.Sugnet@Colostate.edu

Chris Sugnet recently joined Colorado State University Libraries as the Assistant Dean for Scholarly Communications. In his position, Chris will lead the implementation of programs and services to facilitate greater information exchange and knowledge sharing among scholars and researchers on the CSU campus. He is an enthusiastic supporter of open access initiatives and is very interested in getting to know his new colleagues in Colorado and to explore possibilities for collaboration.

Chris holds a BA in English and a MLS from SUNY Geneseo, and a MA in Anthropology from the University of Arizona. Since 1974 he has held library positions at Cornell, New Mexico, UCSD, and Arizona. As the University Librarian, he was a member of the American University of Beirut start-up team for the American University of Sharjah, United Arab Emirates. Most recently, he was Director of Collection Management at UNLV Libraries. Chris has also been active on ALA ALCTS committees and has co-authored a number of Guides for ALCTS. A former elected member of the Executive Board of the EPSCoR Science Information Group, Chris continues to serve as an accreditation evaluator for the Northwest Commission on Colleges and Universities.

Put Your Work at the World's Fingertips

If you would like to post your work in CSU's digital repository to maximize the impact of your research, appear in Google and other search engines, reach new audiences, and provide stable, permanent access to the products or your research and teaching, contact us!

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What Are Your Thoughts?

Log on to the *Library Connection* Weblog (http://lib.colostate.edu/blogs/libraryconnection) to post your comments on this issue.

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