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This paper is available online at <<http://www.rmcdonald.info/ir/iratfsu2.pdf>>.

I. Executive Summary

A growing body of the scholarly information and instructional materials produced at the Florida State University exists primarily in digital format. In order to provide more coordinated, sustainable management and access for this new generation of information, the FSU Libraries are proposing a pilot program to construct an institutional digital repository and assets management archive for the unlimited benefit of the students and faculty of FSU. This program will consist of a suite of standards, systems, services and partnerships. The following narrative examines the current digital landscape at Florida State University and proposes a cooperative campus digital repository solution.

II. The Current Digital Landscape at FSU

Surveying the Florida State University campus today, one already might discover rich and heterogeneous locally-produced digital content such as images, maps, electronic texts, audio and video files, archives inventories, research data, departmental reports, scholarly literature, digital presentations and instructional tools. Many of these collections and initiatives are supported and used by particular user communities within specific disciplines.

Unfortunately, many such distributed resources are less well known, and generally are less discoverable, to a wider audience. The historical absence of incentives and mechanisms for coordination and data-sharing among FSU campus units has resulted in a low probability of interoperability among these distributed resources. Combined with the inability of campus “search engines” to index content within databases, or to satisfactorily index anything but the simplest text encoding, this means that most of the unique and valuable digital content created on campus is essentially undiscoverable by the average online user.

Upon further examination, the long-term survival of much of this existing digital content is questionable. Over time, departmental and faculty interests shift, electronic formats and platforms change, and the long-term support and processes needed for digital archiving often are not part of the initial planning for specific projects. Though much of the digital scholarly output of FSU is of enduring value and interest, myriad competing demands on time and resources, a lack of adequate documentation, and other constraints are endangering the survival of much of this content. With new initiatives sprouting continually, and the acceleration of digital content being produced, steps must be taken soon to prevent such loss and to preserve the unique intellectual capital of our institution.

An extended consideration of the campus digital initiatives landscape also produces the realization that many potential digital collections never materialize because of barriers to entry for campus units and faculty. Shifting technologies and standards, the high costs of developing and maintaining adequate systems, general uncertainty about best practices, and few guarantees of success can be very intimidating. As a result, many useful and valuable potential collections are not being created or shared with others at the university or with the wider world of scholars.

III. Identified Needs

Two needs, then, are evident. First, the campus needs partnerships, standards, and mechanisms for information sharing, so that units that manage distributed assets can be sure their content is both persistent and widely discoverable. Secondly, FSU needs a center of expertise and services that will enable other campus units and faculty to place new digital publications and collections online with minimized redundancy and low entry costs. In the simplest terms, the need is for centralized mechanisms that can point users to distributed resources, and also host content for campus units that cannot mount and sustain their own digital assets.

IV. A Scalable and Extensible Solution

A well designed solution for the needs identified above should be both scalable and extensible. In terms of scalability, the selected system architecture and functionality will rapidly incorporate large amounts of both digital content and metadata with no discernible degradation of performance in discovery and retrieval. True scalability also must ensure that all associated processes and workflow can accommodate a growing digital repository of content and metadata that is portable enough to migrate over time to dissimilar systems and architecture. In this context, extensibility means the flexibility to ingest, manage, and deliver heterogeneous content, with varying access and use conditions, for a wide variety of uses.

The proliferation of new digital content on campus already is demonstrating the need for robust services and expertise to make digital assets sustainable and discoverable. Existing partnerships and responsibilities, conditions of sponsored research, and a desire to manage and leverage FSU's digital output all further argue the need for such services and expertise. In a time of economic hardship, the University must realize that this need will not wait for better economic times. This proposal offers a viable, affordable option to minimize redundancy and maximize benefits.

V. An Institutional Digital Repository: Building Upon Existing Strengths and Efforts

In response to the needs identified earlier, the FSU Libraries proposes developing an institutional digital repository and content discovery system, the FSU Digital Repository. The campus library already is the traditional starting point for information seekers. Why not reaffirm this centralized, well-known virtual space as the place to discover the rich body of locally-produced digital assets? For years, research libraries have collected similar things. The same types of journals, books, and media can be found in most of the larger research libraries in North America. However, the grey literature of our institutions, unpublished papers, large data sets, course content and learning objects, have only a temporary functional lifespan. The FSU Digital Repository would promote open access² to the intellectual capital of the Florida State University. The library already is working with the Office of Graduate Studies to provide digital archiving and open access

to the theses and dissertations of the university.¹ Why not extend this initiative to much more of the digital information created on campus everyday by faculty, staff, and students?

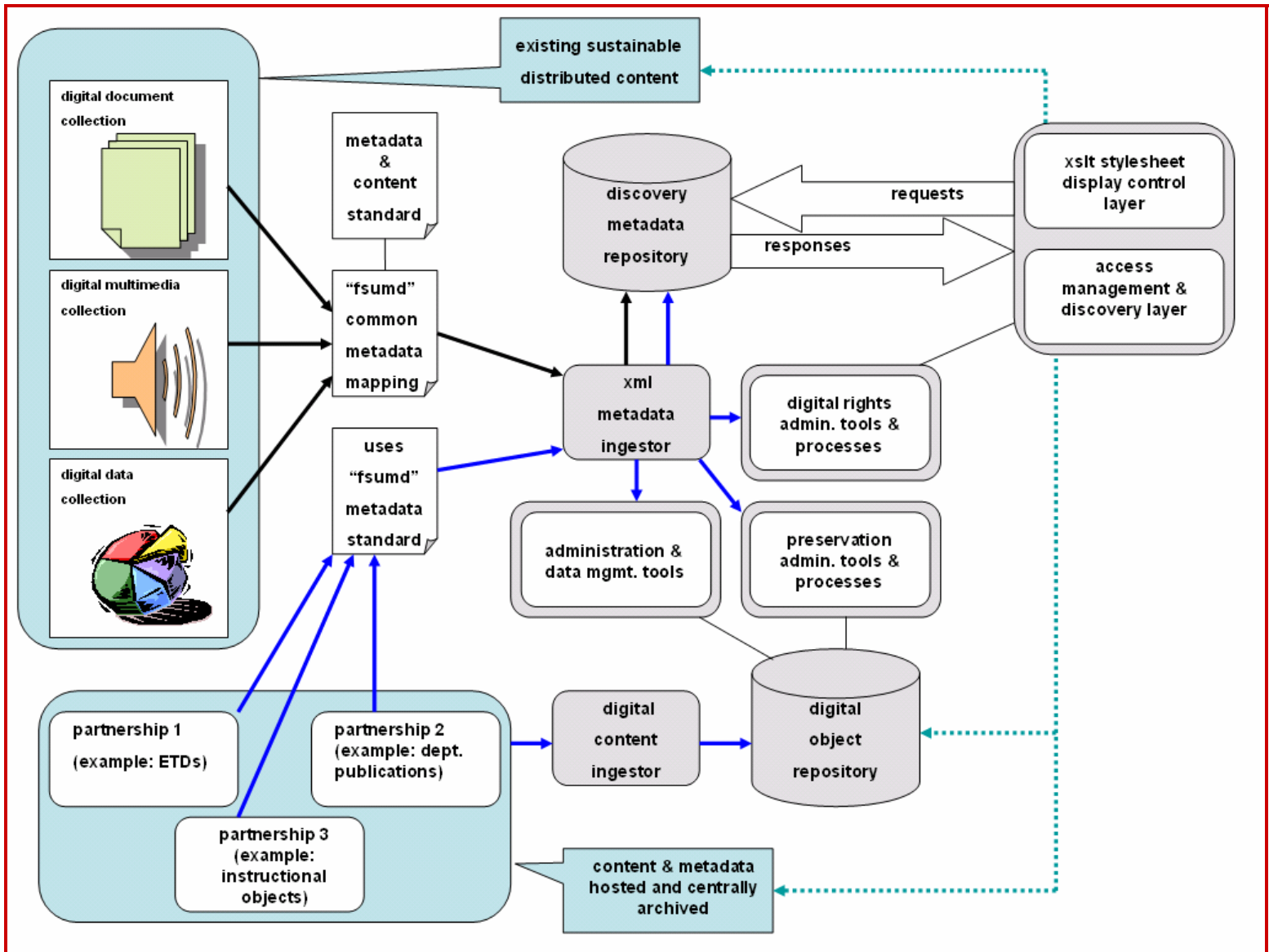
1. What Is an Institutional Digital Repository?

In recent months, a flurry of excitement and activity has surrounded the stated desire by scholars, academic libraries, and universities to reclaim the scholarly communication process from the sole control of the predominantly privately held commercial publishing industry. The paper, “The Case for Institutional Repositories: A SPARC Position Paper,” defined and introduced the concept of “institutional repositories” to a wide audience as digital collections that capture and preserve the intellectual output of a single or multi-university community, providing a compelling response to two strategic issues facing academic institutions. Such repositories:

- *Provide a critical component in reforming the system of scholarly communication—a component that expands access to research, reasserts control over scholarship by the academy, increases competition and reduces the monopoly power of journals, and brings economic relief and heightened relevance to the institutions and libraries that support them; and*
- *Have the potential to serve as tangible indicators of a university’s quality and to demonstrate the scientific, societal, and economic relevance of its research activities, thus increasing the institution’s visibility, status, and public value.³*

The FSU Digital Repository would be an expansion upon the functionality and purposes adopted by the global community building institutional repositories. Our local system would also accommodate the existence of digital collections distributed across campus, that are deemed to be sufficiently sustainable to warrant inclusion through sophisticated metadata sharing and partnerships and will only serve to promote these unique collections and enable other scholars both regionally, nationally, and internationally the benefit of our collected research and knowledge.

2. Diagram of a Digital Institutional Repository



3. Envisioning a Campus Digital Repository in Action

Imagine, for a moment:

Students who begin their projects from where the last class left off.

Students at other universities evaluating their research against the backdrop of research being conducted at FSU.

Graduate Students that know they want to continue their research at FSU because their undergraduate or master's thesis contained a majority of citations from the FSU research conducted in their discipline.

Regional and global digital libraries that link back to our institutional repository comprising the best resources on high magnetic research and engineering outside of the respective print journals.

The unprecedented ability to find in one place how to access the collective digital output of the entire Florida State University.

The satisfaction of knowing the campus has invested in a secure, sustainable strategy for preserving and making available the permanent digital intellectual heritage of FSU.

All of these scenarios are possible with adequate support for an institutional digital repository. The university would gain an invaluable knowledge base. No amount of money could purchase the university libraries a comparable database of information, because such a digital library will be a reflection of the entire range of research and scholarship being conducted at FSU. Other universities will have similar content but will not contain the unique combination of expertise and disciplines as FSU.

The FSU Digital Repository will provide tools for initial discovery of both deposited and distributed digital content. It will achieve an appropriate balance between the benefits of centralized finding tools, and the understandable needs of content owners to control their assets. The Digital Repository will exploit the University Libraries' strengths in enhancing information organization, and will be the nexus around which partnerships and standards for information sharing emerge. The Digital Repository also will serve as the institutional repository that can be trusted to permanently archive, steward, and manage access to digital content produced by scholars, students, and campus units. To strengthen this effort, the FSU Libraries also will develop a suite of tools to support the diverse needs of both content creators and users.

The FSU Libraries' primary effort will be to guide the development of a campus digital repository. However, this does not mean that it would be irrelevant for owners and managers of digital collections already existing on a distributed basis on campus. While the FSU Libraries would like to promote its digital repository as an electronic archiving

and access service for the entire campus, it is understood that some campus units will prefer to create, maintain and steward their own digital collections. The Digital Repository solution will provide strong support for distributed content, and through metadata shared about distributed resources, will always provide “escape links” to permit users to instantaneously leave the Digital Repository environment and enter the described distributed resource’s independent navigation schema and home Web site.

VI. Tackling Digital Asset Preservation & Selling a Campus Digital Repository

Since the advent of ubiquitous personal computing, the digital preservation challenge has been a *time bomb* threatening the informational output and intellectual creations of individuals and institutions. In recent years, several research interests have come together to address this issue. From their work, it is evident that centralized institutional repositories offer the best hope for universities to avoid critical knowledge loss.⁴ However, digital repositories are feasible only if they are managed by planners familiar with the available technologies, strategies and techniques at our disposal. The FSU Digital Repository, as proposed, will draw upon the existing strengths and expertise of the University Libraries and its partners, to plan and implement a programmatic approach to tackling the challenge of digital asset management on campus. The FSU Digital Repository will attract participation through incentives, policies and assurances that content owners and their rights to their content will not be compromised.

VII. Plan of Action

To prepare for a viable institutional digital repository, the Libraries propose to:

1. Establish a standard metadata structure of descriptive, technical, structural and administrative descriptors as the basis for management and discovery of digital assets. This metadata core standard also will be the common schema through which commonalities and mappings are established for sharing information about existing, distributed resources.
2. Convene representative group of experts to approve metadata core standard.
3. Implement metadata standard as the descriptive standard for all new digital content produced within the University Libraries including electronic theses and dissertations. Retrospectively convert existing metadata for previously digitized or “born digital” assets already being stored.
4. Craft functional requirements and system architecture that meets the requirements of the FSU Digital Repository. Solution must build upon existing commitments (such as FCLA⁵ metadata sharing requirements) and available infrastructure (such as freely available FCLA “dark archive”).
5. Implement a pilot test in order to stay current on trends and issues and to offer the university a working model from which to build upon.

6. Create necessary policies to guide partnerships and management of the Digital Repository.
7. Extend the Digital Repository beyond its initial implementation to serve as campus digital depository and access mechanism for content such as Electronic Theses and Dissertations, electronic reserves, and faculty research that will benefit from more robust and common administration. This development phase will be characterized by strong input from university partners and potential partners.
8. Begin to market services that will enable campus community to build a body of digital content (digitization services, consultant services, promotion of local metadata standard, content hosting service for scholarly output, metadata cataloging)
9. Solicit pilot projects from campus units/faculty, such as groups of technical reports, grey literature, image collections, research data, etc.
10. Begin regular series of awareness events and training opportunities for campus, including training on the basics of building sustainable digital collections. Showcasing the capabilities and benefits of the FSU Digital Repository can be a component of such outreach.

VIII. The FSU Digital Repository in a Larger Context

Many of our peer institutions⁶ already are working on institutional repository initiatives because the existence of some of our most valuable assets - namely the secondary or *grey* scholarship such as proceedings, whitepapers, presentations, working papers, and data-sets - are being lost. Such scholarly material often is not documented or preserved in the formal channels of scholarly communication unless it is vetted through a peer-review process. Neither are the numerous online digital collections and databases that exemplify the type of research activity at FSU. Even then many of the secondary materials are not reproduced due to the limitations of print publication. This material is either forgotten or remains on personal storage devices awaiting death by obsolescence of technology.

What happens to the information that does not reside within formal channels of scholarly communication? Often, it is housed in unstable electronic environments, with inadequate attention over time, where the advantage of access is not being leveraged by the university community. Why not join other universities in taking control of this situation, by providing a permanent digital archive for this material? In reaching out to individual university colleges, schools, departments, and institutes we can give them a permanent home to both store and retrieve the University's intellectual content. Perhaps more importantly, the Libraries can leverage our investment to take part in worldwide efforts to improve upon the established modes of scholarly communication.

IX. Summary

For a minimal financial investment the university could become a participant in the larger wave of open access initiatives⁷ and institutional digital repositories being adopted by scholars and universities worldwide. Could this initiative not become the center for local research and activity concerning the scholarly communication process?⁸ Could FSU take this opportunity to influence the re-invention of scholarly communication, in a model that would serve its community and other universities instead of the interests of commercial publishers? FSU has the faculty and expertise to become the largest Southeast participant in these types of initiatives. The University Libraries in partnership with other units on campus could drive a resource center that would function much like Project Prism at Cornell University⁹ or the DSpace Project at MIT.¹⁰

This proposed initiative and the research garnered from implementing institutional repository systems and procedures will influence strongly the future of libraries as informational repositories. By investing a relatively small amount now the university would be positioning itself strategically to exploit the efficiencies, assurances, and enhanced access that an institutional digital repository would offer. This enhanced access would lead to core silos of FSU knowledge and expertise being cited in the most prestigious academic literature that would elevate the prominence of the university's research brand.

X. End Notes

1. See ETD Project@FSU, <<http://etds.fsu.edu>>.
2. The term “open access” is defined by the Budapest Open Access Initiative as access to information that is freely available on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited. For more information see, the Budapest Open Access Initiative Web site, <<http://www.earlham.edu/~peters/fos/boaifaq.htm#openaccess>>.
- Open access will be a foundational principle of the FSU Digital Repository, but this proposal acknowledges and respects the wishes of many content owners who may want to deposit their information and data into a centralized system, but may wish to exercise their rights to limit to some extent the liberal uses envisioned in the Budapest Open Access Initiative. The FSU Digital Repository will encourage contributors to make content as openly available and usable, but it is envisioned as a more functional system that also will serve as a key piece of the University’s digital asset management infrastructure.
3. Taken from *The Case for Institutional Repositories: A SPARC Position Paper* by Raym Crow, <<http://www.arl.org/sparc/IR/ir.html>>.
4. See *Ensuring the Longevity of Digital Information* by Jeff Rothenberg, <<http://www.clir.org/pubs/archives/ensuring.pdf>>.
5. The Florida Center for Library Automation maintains several digital library collections that the University Libraries contribute to on a regular basis.
6. See the Open Knowledge Initiative Web site at MIT, <<http://web.mit.edu/oki/proj/edu2002/index.html>> and the Budapest Open Access Initiative Web site <<http://www.soros.org/openaccess/>>.
7. See Projects by the University of California System <<http://escholarship.cdlib.org/>>, the Massachusetts Institute of Technology <<http://web.mit.edu/dspace/live/>>, and the Virginia Polytechnic Institute <<http://scholar.lib.vt.edu/>>.
8. See project at the University of Kansas <<http://www.arl.org/newsltr/202/shulenburger.html>>.
9. See the Project Prism Web site, <<http://www.prism.cornell.edu/>>.
10. See reference no. 6.