

Preliminary Steps for Implementing a Land Grant Digital Information Infrastructure

Randy Heatley

Situation

It is evident from various meetings and conference calls that many institutions are purchasing content management systems or knowledge repositories. At the same time, there are other institutions that are unable to make this critical move. There is a possibility that none of these purchases will create an information environment in which knowledge flows more easily between institutions. Indeed, the silos of information may still exist within the Land Grant system they will just be better managed. Another concern must be the widening gap between those institutions that can develop a better knowledge management capacity and those who cannot.

It is not possible to create a single, interoperable Land Grant digital information infrastructure (LGDII) without some foundational elements being in place. This paper describes some of the possible first steps that could be considered. They are intended to help provide consensus as to what a Land Grant information infrastructure should look like. The suggested steps could also provide assistance to some institutions and build information management capacity. Lastly, the projects described below will provide an opportunity to gain experience to further develop and refine an information infrastructure.

Another intention of this paper is to create the first of a series of successive approximations toward an interoperable Land Grant information system. Behavioral scientists use this technique to guide people to a desired behavior in graduated steps with each step more similar to the desired goal. It may be institutions that have had autonomous information systems since their formation may also need to create interoperability in a series of steps.

Describe the Land Grant Digital Information Infrastructure

It will be necessary for ADEC to describe what it considers the LGDII to be or to develop a consensus among ADEC members as to what LGDII will be. In short, some sort of educational effort is required along with identification of current best practices. The desired outcome would be a clear vision of what a digital information infrastructure would consist of, how it would be used, how it would be expanded, and how it would be managed.

I offer this one precaution. It will be easy to focus on knowledge repositories, content management system, standards of one sort or another and a host of similar topics. These cannot be allowed to become the focus of the discussion although they will generate much discussion. The management and sharing of information is the primary focus of this effort. Should that focus be lost, all investment in any of the items previously mentioned will be wasted money and effort. In a previous document, I included a list of questions that could be considered in migrating to a digital information system. I believe these questions still have value and could be used in creating topics for educational efforts. As a convenience to the reader, the questions are included at the end of this document as Attachment A.

A kickoff video conference is one suggested step. Topics covered could be terminology, current implementations of knowledge repositories or content management systems, and issues that need to be addressed before, during and after an information management system is implemented.

An information management fair should be considered. Institutions that have information management systems in place could demonstrate the systems and answer questions. The bulk of the fair should not be show and tell but rather panel or individual discussions regarding what has been learned and what changes must be made in order for an information management system to succeed. I consider this format essential as it provides the best forum for one-on-one interaction and idea sharing. Ample opportunity must be provided for people to ask questions.

If these efforts are sufficient to create the desired common vision, ADEC could then create a group, use an existing group, or have a workshop to create specific steps to implement LDGII.

Create an Information Management Tool Specification/Application

Please note that I have chosen to talk about an information management tool rather than a content management system or knowledge repository. An information management tool could fit the definition of either CMS or KR, however, whether it does so depends on the information management context the institution creates for its use. For purposes of this discussion, an information management tool allows institutions to create metadata descriptions of information resources and then to manage and deliver those resources. It is the institutional information inventory and what the institution does with the inventory is its system. The tool may or may not provide archiving of resources and may or may not feed resources into preservation efforts. Technology-based information management tools do not create institutional information management systems they assist the information management system the institution creates.

There is no single information management tool common across Land Grant Institutions, a situation that is not likely to change any time soon. However, in order to have some expectation of at least limited interoperability, some set of specifications common to all information management tools is required. Eventually, all applications need updating and/or replacement. A Land Grant information management tool specification would assist in updates or replacements. The specification and standards necessary are described more fully in a previous paper, Plan to Develop a Digital Information Infrastructure to Manage Land Grant Information, so will not be copied here. In addition, the best practices that can be identified in the information management fair can be incorporated into the specification.

Some effort must be made to help institutions that do not have an information management tool. Assistance could take many forms. A specification compliant application could be created, licensed or bulk purchased to assist these institutions. A support system must also be provided to make the effort work. If the application is sufficiently robust it could provide a migration path for institutions that already have an information management tool.

A small group of people, with experience in the use of information management tools could put together a draft specification in a short time. Creating or purchasing tool would take somewhat longer and would of necessity require some compromise between functionality and the specification unless funds were available to make all necessary modification.

Describe and Develop Information Sharing Protocols

As indicated earlier, providing excellent information management capacity, without providing the means to share the information could simply result in better managed information silos. The effort described here is also the first of the successive approximations toward institutional interoperability. As institutions are unlikely to have fully interoperable information management systems for some time, some intermediate step is necessary. This section describes one possible scenario.

There are a number of functions that must be in place for this to work.

Institutions must be able to selectively export metadata records from their information management systems. Selectivity may be based on subject, resource type, thesaurus terms or other fields that may be part of the metadata record.

The exported records are then imported into one or more information management systems. As part of the import process, the metadata records are scanned by the import software to find terms used in the thesaurus of the importing system. Thus, imported records are semi-standardized according to a thesaurus. In addition, the imported records will have standard field names.

Where the capability exists, imported records could be examined by information centers covering particular topics. The importing entity could notify the information center when new records are received that are pertinent to the center's subject coverage.

The three steps described above may be already under consideration by AgNIC as their intelligent harvesting effort.

ADEC, perhaps in partnership with AgNIC, will need to describe the exporting protocol. It may be possible to provide a suitable application that could be modified by institutions. Development of the harvesting tool should not be complicated but it must obviously have a host. How the importing tool processes the metadata records will require some input from the library community. Resources included in the central system should be those the institution intends to maintain online for some period of time. Whether or not the central system hosts a copy of the resource is an addition issue that must be considered. The standards used to process and host the imported records must also be developed. Such standards, including thesauri, fields and the like have been discussed many times and should be easily created.

Describe and Host the Land Grant CIO Function

All of these efforts will require some coordination and support. Again, these have been described in Plan to Develop a Digital Information Infrastructure to Manage Land Grant Information. The continuity provided by a stable, ongoing entity is essential for success. That does not mean each and every function must be provided by the same entity. Certainly some of the functions pertaining to metadata harvesting could be distributed. ADEC, having gone this far with the project is the most suitable host.

Attachment A

Management Questions

- To what extent do silos of information exist within the institution?
- Is information regarded as a primary organizational resource and managed as such?
- What are the various types of information generated throughout the organization?
- Do managers understand how information flows through the organization?
- Is the current information management system based on legacy publication management systems?
- Is the current information management system driven by technology acquisition and management issues?
- How difficult is it to actually find a document or resource without first finding a unit and person who knows where the resource is located?
- Is there a culture of information stewardship in the organization so that resources are not lost for future uses?
- How many information resources are hosted on web sites that are not the “official” organizational web site?
- Do managers know how many web sites actually store or deliver information within the organization?
- Do managers know how much of the information originating within the organization is stored or delivered on web sites outside the organization?
- Do current information management systems discourage authors or resource providers by insisting on excessive hoop jumping or by causing excessive delay between resource creation and actual delivery? If so, has this created an information underground in which authors circumvent the system thus making it difficult to find or manage resources?
- Who manages the information flow through the organization and into repositories or preservation programs?
- If an information management plan and system are developed, what training programs will be needed to assist staff in using the resulting system?
- What other organizations at the institution will be critical partners in the development of an information management plan and system?

Resource Questions

- Is there a plan or process to evaluate resources that may be lost as employees retire or otherwise leave the organization?
- How do resources get evaluated for inclusion in preservation or repository efforts?
- Are resources consistently archived, made available on line, or described in a central repository according to standard procedures and old formats become obsolete?
- Are resources saved in standard formats? Can these formats be migrated as new formats become available?
- How will resources from outside the organization or institution be evaluated for inclusion into repositories?

- How can the resources in the repository be used by students and what additional support must be provided to faculty and students to facilitate such use?
- Who decides when resources are purged from the active repository and placed in an archive?
- Are there electronic workspaces available to enhance the ability of staff to create additional resources and then move them into the repository?

Delivery Questions

- How will internal resources be kept separate from those available to external audiences?
- What standard search tools will be developed for searching single or multiple repositories?
- What level of interoperability with other institutions is desired or acceptable?