

Preliminary Conclusions: Metadata in Minnesota Government State Archives Department, Minnesota Historical Society

Background

The State Archives is actively engaged in studying, identifying, and advocating good metadata standards and practices for use in government. Metadata is usually defined as "data about data." It allows users to locate and evaluate data without each having to discover it anew with every use. Its basic elements are a structured format and a controlled vocabulary, which together allow for a precise description of content, location, and value.

The State Archives needs metadata in order to fulfill its mission: to identify, collect, preserve, and make available the historically valuable records of government in Minnesota. Archivists cannot expect to appraise personally every record created by every one of the thousands of offices in government; archivists need to be able to sift through accurate metadata in order to determine where they can best apply their limited resources.

This is especially critical for electronic records. Any one who has suffered the exercise in irrelevance offered by an Internet search engine will appreciate the value of precise metadata. Because data in an electronic format is only legible through the use of intermediary hardware and software, the role of metadata in information technology is fundamentally important to all users. In any system, given the volume of information contained, the uses to which it can be put, and the costs involved, metadata is the basic tool for efficiency and effectiveness. Whatever people want to do with information, whether protect its confidentiality, present it as evidence, provide citizens access to it, broadcast it, share it, preserve it, or destroy it, their goal will be feasible only if they can understand and rely upon the metadata describing the information in question.

But not all records are created equal and not all metadata is worth the investment in time, energy, and resources it demands. Determining when metadata is necessary and which standards are appropriate are key steps towards making sure that metadata meets real business needs.

State Archives Activities

To understand how to get the most out of metadata, the State Archives has worked with and on a variety of agencies and projects. It has collaborated with the Department of Natural Resources (DNR) Foundations Project; on a number of GIS related activities with the Land Management Information Center (LMIC) and other agencies; and with the Information Policy Council (IPC) and IPC related groups and subcommittees. It has also sponsored a number of educational efforts, among other things, bringing in speakers on government information locators, presenting at numerous conferences, and hosting a web based resources site (<http://www.mnhs.org/preserve/records/metadata.html>).

The Archives is currently coordinating a Recordkeeping Metadata Study Committee which was formed at the recommendation of the Data Issues Group for Information Technology (DIG-IT) and the Minnesota Government Records and Information Network (MN GRIN). Under the

proposal presented to, and accepted by, the IPC, the committee is charged with studying the Recordkeeping Metadata Standard for Commonwealth Agencies, developed by the National Archives of Australia, to see if the standard is suitable for adaptation in Minnesota. The group will report its recommendations to the IPC in December 2000.

Metadata also plays a central role in two key electronic government services projects in which the State Archives participates. The Electronic Real Estate Recording Task Force, headed by the Secretary of State, is investigating the potential of an electronic real estate recording system, defined as:

a publicly owned and managed county system, defined by statewide standards, that requires neither paper nor “wet” signatures, and under which real estate documents may be electronically: created, executed, and authenticated; delivered to, as well as indexed, archived, and retrieved by, county recorders and registrars of title; and retrieved by anyone from both on- and off-site locations.

As the draft of the project work plan indicates, the role of metadata has to be thoroughly explored: the task force will “consider how to build a framework for sharing and communicating information that would rely on existing, recognized policies and standards for technology, metadata, or data, and that would best support and improve procedures for recording, gaining access to, searching, preserving and retrieving real estate records.”

As well, the State Archives is working with a consortium of local government entities, led by the City of Minneapolis and the League of Cities, that plans to introduce a bill allowing for the use of the Web for official publications. Several significant objections to this proposal center on metadata: the lack of any standards in Minnesota government for ensuring access to and management of electronic records means that web publications do not meet evidentiary needs. Currently, citizens cannot easily find what they need on government web sites, nor can they expect government agencies to reproduce what information and instructions were online at any one point in time. Citizens use the government’s web pages at their own risk, as a variety of agency legal disclaimers emphasize.

Given all these issues, in May 2000, the State Archives began a collaboration with the META Group to look more closely at metadata and its potential role in government. The catalyst was the April 2000 Enterprise Architecture Immersion Workshop presented by META Group and sponsored by the Office of Technology. The concept of an “enterprise architecture” and, particularly an “information architecture,” deserved further attention. META Group distinguishes an information architecture from other definitions of the term by separating it from “data architecture.” Information architecture consists of the policies, standards, and practices that support and implement data architecture. Metadata supports information architecture.

In conversations after the Enterprise Architecture Immersion Workshop, State Archives and META Group staff members identified ways to investigate how metadata could specifically support an information architecture in Minnesota. The State Archives was especially concerned

with understanding what possible roles it could play in raising the general level of understanding about metadata and its potential in government.

META Group Project

These conversations led to the State Archives' commissioning META Group to do further research. The original concern was to connect explicitly metadata to the larger question of an enterprise architecture, but the uncertainties related to the scope of that issue led to a decision to narrow the focus to an emphasis on metadata. The State Archives felt that many in government understood and appreciated the value of metadata at some level, but that the fragmented nature of government meant that both IT projects and metadata efforts were proceeding with little coordination. It was likely, then, that metadata schemes would often be ad hoc and idiosyncratic, appropriate to one project, but incompatible with any other.

What the State Archives proposed was a study of metadata, with a focus on five areas where sophisticated work was already being done in the state: 1) data models; 2) data warehouses; 3) web page metadata; 4) GIS; and 5) trustworthy information systems. META Group would provide an independent, third party evaluation of the situation and would identify ways of coordinating activities and deriving the best return on investment. The evaluation would also point to practices in comparable states or organizations that could serve as models. To the extent possible, it would make references to larger architectural concerns in the process. Finally, it would keep in mind at all points the critical need to minimize costs, develop sustainable programs, and allow for incremental development.

To accomplish this, the State Archives hosted a series of meetings in June, bringing together META Group consultants and government subject matter experts in the areas noted above. After these meetings, META Group engaged in a period of research, discussion, and analysis, putting what it had learned from the meetings into a framework that would make sense to Minnesota government. Its report was completed in early November and circulated for review. On 7 November 2000, Elliot Chikofsky and Steve Schwarz of META Group presented their work to a group of government and State Archives staff members. The agenda from and a list of responses to specific questions raised at the meeting are appended to this report. The full text of META Group's report and the PowerPoint presentation from the meeting are available online at the State Archives' web site.

Recommendations and Conclusions

The clear consensus of the group and the message of the report are that metadata will play a critical role in the development of an information architecture for Minnesota government. There is a critical and immediate need for guidance. Given that, however, there are still some choices to make. There is an imperfect understanding of metadata and its value, particularly among members of government's higher level management. As well, there is no general agreement about which types of data and records are most important to describe. Together, these issues point to a need for education that is based on the legal mandates and the business practices of government.

Education will be an ongoing need as information technology continues to change. There are, though, some immediate needs that have to be addressed. As participants in the November meeting noted, it is very important to develop a standard or guideline of core metadata fields, which are flexible and extensible so that individual agencies can customize them as appropriate. The current study of the Australian Recordkeeping Metadata Standard for Commonwealth Agencies has the best potential to meet this need.

This standard has the additional advantage of building on the legal mandates for metadata that already exist. The State of Minnesota and the State Archives rely on metadata to evaluate the records created by government agencies and offices. This metadata is produced in the records management and data practices processes, which have traditionally been oriented towards and based on the use of paper records. The advent of information technology poses new questions about electronic records management and practices, but the extant legal and administrative framework can be successfully adapted to address these. The work of the Government Records Information Network and the Data Issues Group for Information Technology already demonstrate how working alliances among IT staff and records management staff can be developed. This grass roots collaboration needs to be fostered and its achievements publicized.

The State Archives can play a major role in education. It can also identify and support projects that feature metadata as part of their implementation plans. The work with the Australian Recordkeeping Metadata Standard is a model. The State Archives staff coordinates the analysis and evaluation of the standard. If the Information Policy Council approves the recommendations to do further work, the State Archives can also coordinate a pilot project to apply the standard.

Along with the Information Policy Analysis Division of the Department of Administration, the State Archives can build on the foundation of records management practices and organizations to include better practices for electronic records, especially the use of consistent metadata standards. The promotion of a stewardship program, wherein all agencies and all state employees learn their responsibilities for metadata and data practices, would be an important step forward in a strategy that emphasizes incremental progress and focuses on meeting business needs. This is particularly important as new legislation, such as the Uniform Electronic Transactions Act and E-Sign, make metadata and records management key elements of the design of any system that transacts government business with citizens.

The State Archives can foster an educational effort that combines metadata with an essential tool to make it work: XML. The example of the GIS programs shows that a full complement of activities are necessary to build a successful, mutually supportive community: education, standards, and applications. XML at present offers the best way to combine a metadata standard with a means to implement it. An educational program focusing on both metadata and XML will help archivists to reach the electronic records creators who are their key constituencies and provide the means to form with those constituencies the communities of learning that will support and sustain long term collaboration.

To advance this effort, the State Archives has applied for a grant from the National Historical Publications and Records Commission. It has received authorization and funding, contingent on an appropriation from Congress for the federal agency. As this project begins to take shape, the State Archives will work with its partners in government to enact it as a central component of an educational program.

In summary, the State Archives has a business need for metadata. Because of the limitations on its resources, it cannot develop metadata for all the records, especially the electronic records, created by government. It can, though, play a role as advocate, educator, and facilitator for metadata, using it to help government offices to meet their business and statutory needs to manage information. Collaboration and partnerships are the only way to achieve this. The State Archives plans to work closely with the Information Policy Analysis Division to build on the records management infrastructure; it plans to increase the awareness of metadata through educational efforts and collaborative projects; and it plans to serve as a catalyst and agent in the development of appropriate standards and guidelines. It will use its web site as a primary means of documenting its work and delivering its products. Finally, it looks towards making incremental progress, with an emphasis on practical results and approaches.

The end result should be a program that is beneficial both to the State Archives and to its partners in government. At the same time, Minnesota's citizens will benefit from the development of tools that will protect, preserve, and/or provide access to the information and records they need to maintain their rights and to hold government accountable.

Appendix A

Agenda: 7 November 2000 Meeting

Present: Elliot Chikofsky, Sue Hamre, Steve Schwarz (META Group); Bruce Abbott, Michael Fox, Marsha Haagenon, Bob Horton, Jennifer Johnson, Mary Klauda, Robbie LaFleur, Jim Mack, Randi Madisen, Eileen Quam, Steve Ring, Shawn Rounds, Ellen Schwandt, Craig Steiner, Nina Terhaar, Brian Zaidman.

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| 12-12.30 | Lunch |
| 12.30-12.45 | Introductions, Welcome |
| 12.45-1.00 | View from the State Archives: Why We're Interested in Metadata
Shawn Rounds |
| 1.00-2.30 | Metadata: State of the Art, Directions, and Opportunity
Elliot Chikofsky, Steve Schwarz META Group |
| | <ul style="list-style-type: none">- Metadata - what and why- The Role of Metadata- Metadata Levels, Formats and Content Standards- Architectures- Supporting Structured and Unstructured Content- Metadata Management- Value of Metadata to Minnesota State Agencies- Metadata Strategies for the State Archives- Trends and Issues of the Metadata Marketplace- Direction of Metadata Marketplace- Relationship Between Metadata and XML |
| 2.30-2.45 | Break |
| 2.45-4.15 | Focused Discussion of Metadata Strategy
Bob Horton, Elliot Chikofsky |
| 4.15-4.30 | Next Steps |

Appendix B

Discussion notes

1. What are your most important concerns? What are the most important things you heard today?

How do we make metadata work within an organization? One standard or many?

Knowledge management

Development of a standard – push forward a draft of core metadata, flexible and extensible. (State Archives strongly encouraged to take the lead in this by the group, later related to the Australian record keeping metadata standards)

What makes data valuable to the Archives? How does the Archives appraise electronic records? What makes data valuable to agencies? Business needs foremost

MnDOT moving ahead with its own metadata plans

META Group report oriented towards emphasis on databases and systems: need to apply to all data types

Need standard applicable to every agency and function: extensible core that will cross all systems, from database to document, etc.

Must move beyond the need to justify metadata

Need to sell funding for metadata

Selling metadata: legal risk/ fear. Refer to statutes, data classification and privacy, tied to agency mission, But note legislature, which may not view data sharing favorably

Opposition to sharing (Big Brother)

Pro sharing: efficiency, collaboration

Systems develop and evolve faster than inventories

Everyone has data and metadata responsibilities – policies and laws (e.g., MGDPA) should set rules for how data is handled, which metadata can help achieve.

Role of education v. control

Architecture needs resources to work

What do we need to know in order to make decisions?

Big picture is overwhelming

Software applications that have their own metadata functions – any chance of developing a standard set of RFP criteria?

Effect of state and federal legislation – e.g., Uniform Electronic Transactions Act and E-Sign, as noted on www.uctaonline.com

Australian record keeping metadata standards

IPC could commit to data architecture with metadata component, with high level buy-in

This will take time – incremental development

Opportunity to start is now.

Build on records management infrastructure – what we do with paper

Stewardship? Commissioners/responsible authorities are owners, everybody else is a steward.

How to get to the next system

What are the next steps for the State Archives?

Promote stewardship program, building on the records management foundation, with records managers as stewards

Promote central data administrator position for state

Develop educational tools for managers and resource allocators, based on business needs

Start a pilot project – based at an agency

Address privacy concerns – involve data practices upfront, while protecting sharing between agencies

Detail implications of evolution from paper to electronic

Use GIS as an example - a working system of data sharing, metadata standardization, education and tools, but the whole took years to establish.