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February 1, 2000

The Honorable Jesse Ventura
Governor
130 State Capitol Building

Patrick E. Flahaven
Secretary of the Senate
231 State Capitol Building

Edward A. Burdick, Chief Clerk
House of Representatives
211 State Capitol Building

Gentlemen:

Pursuant to Minnesota Statutes, 16E.04, subd. 2(g), the Technology Policy Bureau of the Department of Administration, in consultation with the legislative reference library, is required to "recommend standards and guidelines regarding establishing methods and systems directed at reducing and eliminating redundant storage of data" to the chairs of the legislative committees responsible for this budget item by January 15, 2000. The enclosed report reflects the progress of these recommendations. This report is also available at <http://www.tpb.state.mn.us/reports/index.html>.

Very truly yours,

A handwritten signature in black ink, appearing to read "David F. Fisher", with a long horizontal line extending to the right.

David F. Fisher
Commissioner

Enclosure

- Minn. Stat. 16E.04 Subd. 2 -

- 1997 Minn. Laws Chap. 202
Sec. 10 Subd. 2 -

Eliminating Redundant Storage of Data



Technology Policy Bureau

January 15, 2000
Update

<http://www.state.mn.us/reports/index.html>

Minnesota Statutes 16E.04, Subd. 2, (h)

This information will be made available in an alternative format, such as Braille, large print, audio tape or computer diskette. It is also available on our Web site at <http://www.tpb.state.mn.us>. Our TTY number is 651.282.2228, or call 651-215-3878 to request this document in alternative an format. The Technology Policy Bureau, Minnesota Department of Administration, 332 Minnesota Street, Suite E1100, St. Paul, MN 55101 created this document.

Per the requirements of Minnesota Statutes Chapter 3.197, the cost of preparing and printing this report is estimated to be \$3,200 including the staff time of all agencies, and \$50 for printing.

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Introduction & Goals

Data are primary assets of the State of Minnesota. As the fundamental raw material of government business, the management of data is very important. Raw facts – captured, stored and transformed into meaningful information – are primary to every government function. However, storage of data can be costly and the management of these data very time consuming. Consequently, the issue of Redundant Storage of Data must be examined.

Ultimately, the goal of eliminating or reducing redundant storage of data is to make government a better steward of government information. Appropriate data storage, data access and data migration methodologies will allow government to be more efficient, effective and responsive to citizen needs.

Mandated Report and History

Minnesota Statutes 16E.04, Subd. 2(f) states “the office, in consultation with the intergovernmental information systems advisory council [IISAC] and the legislative reference library, shall recommend specific standards and guidelines for each state agency within a time period fixed by the office in regard to the following:

establishing methods and systems directed at reducing and ultimately eliminating redundant storage of data;”

Reference to “the office” means the former Office of Technology. The 1999 state legislature moved the office into the Department of Administration. As part of the integration of the office into Administration, a new name – the Technology Policy Bureau – and a new focus has been established. The Technology Policy Bureau (TPB or “the bureau”) remains responsible for the on-going duties and responsibilities of the former office.

The TPB provides support and leadership for solutions to myriad data management issues.

In the fall of 1997, the TPB established a task force to formulate a collaborative strategy to examine the issue of redundant data storage. The bureau presented that group’s recommendations to the Information Policy Council (IPC). Following a structure that was strategically established through the 1998 reorganization of the IPC, an IPC subcommittee, the Data Issues Group – Information Technology (DIG-IT) was created to explore data management issues including redundant storage of data.

The TPB provides support and leadership to DIG-IT as the subcommittee examines data management issues and creates opportunities and options for solutions to myriad data management issues. IISAC provided input through its membership on the IPC. IISAC’s funding expired on December 31, 1999, leaving

a void for local government entities' input on data management issues. The TPB will fill that void as resources permit.

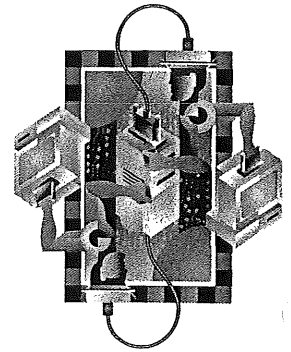
The TPB submitted the first data redundancy report, "A Quest for Data Quality – Eliminating Redundant Storage of Data" in January 1998. That report was subsequently updated in January, 1999. (These reports are available on the Web at <http://www.tpb.state.mn.us/reports/archive.html>.)

This report provides new information regarding the collaborative effort to establish methods and systems directed at reducing, and ultimately eliminating, redundant storage of data within state government.

Background

While there has been some progress toward "data sharing" and "eliminating redundant storage of data" in Minnesota government, we continue to face the barriers and challenges of:

- technological constraints;
- inadequate core infrastructure;
- ineffective collaboration; and
- legal constraints.



Because of statutory restrictions or limitations, reuse as a means of reducing redundant storage of data is not always an option. Therefore, data continue to be collected and stored in multiple mediums and at multiple locations. Technology is not capable of addressing all the issues that arise when trying to reduce redundant data. The state continues to need realistic solutions that meet all of its business needs – not just one solution for reducing redundant data. Other considerations include the issues of:

- balancing the "right to know" with the right to privacy;
- protecting record security;
- assuring accountability for information accuracy about citizens; and
- providing value to the citizen.

During the next year, the bureau will issue specific standards and guidelines regarding means to eliminate redundant storage of data.

In addition, the Information Policy Analysis division of the Department of Administration is working with the Minnesota Historical Society in creating a records retention policy, schedule and program for the cataloguing, storage and elimination of aging documents. TPB will be engaged in this effort as well, and will coordinate the effort with principles designed to eliminate redundant storage of data.

On-going Activities Underway to Achieve Goal

Overall Data Management

The Technology Policy Bureau provides agencies with Information Resource Management policies, standards and guidelines. They include specific data management efforts to avoid inappropriate or unplanned redundant data and to address the identified barriers to eliminating redundant data. These data are managed just as the state manages its other resources, such as money or property. The resource is protected, tracked and valued.

Data management is one aspect of information resource management. It applies resource management practices to the state's investments in hardware, software, people and data that support the business functions of state agencies. It is necessary to look at this whole system to successfully address the concerns about redundant storage of data.

All of this is not to say that solutions to the issue of data storage redundancy are not being sought or implemented. The following are examples of activity occurring around this topic.

Current Focus

As a part of the effort to build awareness of the issues in the matter of redundant storage of data, the TPB has provided training to state agency personnel in the following categories:

- Business Object Modeling Sessions – 25 state personnel
- Business Process Modeling Sessions – 15 state personnel
- Business Event Modeling Sessions – 12 state personnel
- Managing by Project Sessions – 60 state personnel
- Strategic Information Resource Planning – 60 state personnel

In addition to training, the TPB participates in and supports the Information Policy Council data subcommittee, Data Issues Group-Information Technology (DIG-IT), whose mission is:

To promote the importance of data as a vital state asset requiring management of its creation, use, storage, dissemination, documentation, and disposition. The subcommittee will work in conjunction with the Office of Technology and the IPC to facilitate data sharing, data security, and data access within the state. By sharing collective experiences and expertise, we hope to improve the quality and efficiency of data administration within our respective state agencies and state government entities. We will accomplish this purpose by developing and defining standards related to data and data modeling, by periodically reviewing and

revising these standards, and by providing technical advice about data to the Information Policy Council (IPC).

The DIG-IT subcommittee works in conjunction with the TPB and IPC to facilitate data sharing, data security and data access within the state. The goal of this collaborative DIG-IT/IPC/TPB effort is to continue work that results in improved data sharing and reduced collection/storage of redundant data. It is not possible to share data without multiple steps. To reach this goal the state must also take into consideration the Minnesota Government Data Practices Act. Three classes of data projects have been identified:

1. Logical Data Components
2. Data Elements (Physical Level)
3. Data Pool Formats

Sharing and redundancy of data issues will not be addressed without significant work. Several projects that address the three data class areas identified are being studied by DIG-IT. Work on each of these data-class areas is necessary – and underway - to initiate achievement of the goal. (Note: Items 1-3 represent a partial list of current action areas.) The identified projects require resources in terms of time and dollars.

1. Logical Data Components

Data must be identified and cataloged for sharing and reuse to occur.

- Registration (no effort to control or reuse)
- Data Fragment Reuse
- Library of parts to reuse (e.g. model fragments)
- Conglomerate Data (business Object) Component Identification

2. Data Elements

Data must be verified and standards applied for sharing and non-redundancy issues to be addressed.

- Registration (determine if data element already exists)
- Data Naming
 - Formal Name
 - Legal Programming Name
 - Short/Long Label
 - Prototypical Name
 - Standard Name Usage
 - Structure of a Name
 - Token Conventions
 - Data Type Names
 - Logical Names
 - Source Name
- Data Format

-Conventions

3. Data Pool Formats

Data must be categorized, pooled and disseminated for sharing and non-redundancy to occur.

- Registration (what live data exists and what is it)
- Meta-Data (Data-set Meta-data)
- Indexing (tool to search meta-data or location)
- Shared Access (including synchronization and security)
- Shared Data (the data all exists in one place)
- Non-Redundancy (no logical redundancy)

The classes of data projects are the type of work being done to reach the goal. The joint effort underway is intended to identify key projects that will begin to implement the many steps to achieve the goal.

Trustworthy Systems

One aspect of the IPC/DIG-IT/TPB data redundancy elimination issue is well underway at the Minnesota Historical Society. The Society's State Archives Department has been leading and coordinating a collaborative effort that addresses – in a practical way – the issues of information system trustworthiness. Recently issued is the *Trustworthy Information Systems Handbook* that offers guidance to state and local government agencies for evaluating the "trustworthiness" of their information systems. (The *Trustworthy Information Systems Handbook* can be accessed at <http://www.mnhs.org/preserve/records/tis/tableofcontents.html>.)

System trustworthiness ensures that computer-based information systems create reliable and authentic records to meet a variety of policy concerns, primarily legal, fiscal, and statutory. The Handbook covers issues of data storage, data access, and data migration, all of which are relevant to the elimination of redundant data storage. The Handbook also addresses pertinent issues of data practices, records management, records preservation, technology standards, rules of evidence, and a variety of infrastructure needs. Through this collaborative effort, several state and local government agencies participated in the project to ensure that the trustworthiness criteria were practical and added value to the business of government.

Considerations

The legislature's commitment to making available electronically access to Minnesota government information and services has had a huge impact on the issue of data – how it is collected; for what purpose; what is done with the

collected data; how is it used; how is it shared; how is it stored. In addition to Chapter 13 (Minnesota Government Data practices Act) considerations, the public has become increasingly aware of the value of this individual and collective data. Recent lawsuits have drawn the public's attention to the potential abuse of personal data that is collected and stored by government.

As the state continues to address data redundancy issue, it acknowledges that there is no "off the shelf" solution. The TPB will continue to provide guidelines, standards, tools and training to assist agencies' efforts to eliminate redundant storage of data. While policies, standards and guidelines can provide agency decision-makers direction for making data storage decisions, individual agencies' policies and statutory limitations regarding the sharing of data among government entities ensure that data redundancy will be an issue for the near future.

Recommendations

Based on the research and efforts currently under way, the state must continue to reevaluate laws, organizational structures, funding mechanisms, budgets, and practices, as well as data-oriented legislation. Any such assessment should examine whether or not the legislatively stated goals are current and evaluate their collective implications.

The TPB will work within existing frameworks to establish standards and provide statewide leadership in matters of data retention and redundancy elimination. The TPB expects to further report to the Legislature on progress in this regard within the next year.

Finally, the state should continue to regard its defined data goals as far-reaching and strategic, representing a long-term commitment and requiring a long-term solution.

Conclusion

The TPB has just completed a new assessment of needs regarding data management. This was done through a collaborative effort of the DIG-IT, IPC and TPB and utilized out-sourced expertise.

The bureau will continue to support and promote agency personnel training as well as the collaboration effort currently underway in this important area of data management. Through the IPC/DIG-IT/TPB collaboration, the multiple steps delineated in the "focus" section of this report will be aggressively pursued. Such

effort should result in establishing the standards and guidelines necessary to reduce the redundant storage of data by the end of calendar year, 2003.

Implementation of a comprehensive program to truly eliminate redundant storage of data by Minnesota government entities will require a large commitment of resources, both human and fiscal.