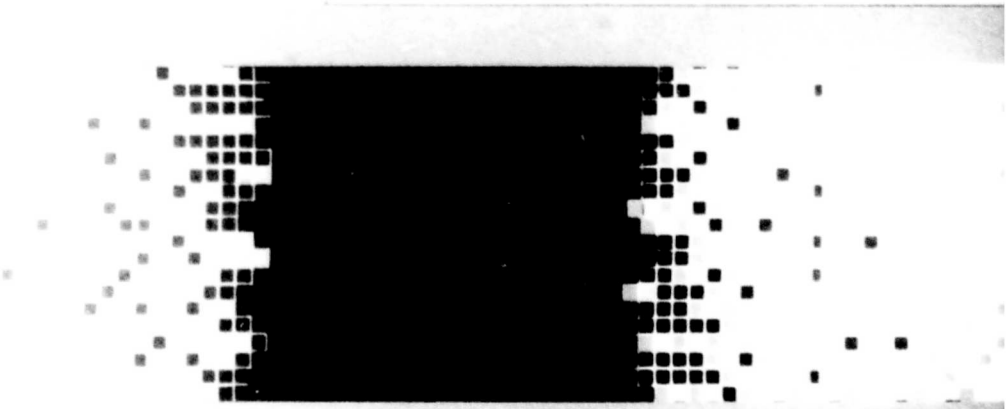
STATE OF MINNESOTA

Department of
Administration



PLANNING AND IMPLEMENTING MANAGEMENT INFORMATION SYSTEMS WITHIN LOCAL GOVERNMENT

FIFTEEN YEAR REPORT ON THE ACTIVITIES OF THE INTERGOVERNMENTAL INFORMATION SYSTEMS ADVISORY COUNCIL

Intergovernmental Information
Systems Advisory Council (IISAC)
Department of Administration
658 Cedar Street, 5th Floor
St. Paul, MN 55155
(612)297-2172

STATE OF MINNESOTA

Department of Administration

INFORMATION MANAGEMENT

IISAC

Intergovernmental Information Systems Advisory Council

Roger Sell
Exec. Director
(612)297-2172

FROM THE CHAIRPERSON . . .

This 15-year report highlights IISAC's development and accomplishments. As you read this report, you will learn about:

* How IISAC fostered local government forums to encourage information sharing between local jurisdictions.
* IISAC initiation of educational symposiums that keep local government decision-makers abreast of automation trends and products.
* How IISAC sponsored the development of accounting standards and a council to manage and update those standards.
* How IISAC spearheaded studies on counties' current information reporting and sharing practices, along with recommendations for enhancing the data-sharing environment.

IISAC has promoted networks to share information between local jurisdictions and state agencies. These networks allow local government to generate and share information in proven, cost-effective ways.

Through broadly-practiced financial reporting standards, the State now receives more uniform, accurate reports from all levels of government.

IISAC's mission is ongoing and evolving with the opportunities presented by the information age. Data-sharing and reporting standards will become increasingly important, as will the need to contain costs of information gathering.

Continuing assistance from IISAC to local governments and support to State agencies is essential in order to successfully manage the future's challenges.

Vernon R. Maack

Vernon R. Maack, Chairperson
IISAC

500 Centennial Office Building
658 Cedar Street
St. Paul, Minnesota 55155
(612) 296-6000

INTERGOVERNMENTAL INFORMATION SYSTEMS ADVISORY COUNCIL

1972 - 1987

Table of Contents

EXECUTIVE SUMMARY

IISAC has a demonstrated record of service to state and local government. In its fifteen years of operation, IISAC has promoted, supported, and instituted initiatives which foster intergovernmental information cooperation and information system sharing across county, city, and state lines. Over this period, the intergovernmental environment and information systems technology has evolved from one of single purpose, accounting-based programs, to involvement with automated systems in all aspects of day-to-day operations. Accompanying these changes has been a dramatic increase of investment by all government sectors in both automated hardware and information systems. In response to these growing and changing needs and opportunities, the IISAC has repeatedly changed its focus and program activities.

The IISAC's key areas of emphasis have included:

1.	Consortium Building	[City and County]
2.	Common Systems	[Property Tax, Utility Billing]
3.	Standards	[Geocode, Financial, Criminal Offense Reporting]
4.	Education	[Annual Local Government EDP Symposium]
5.	State Agency Systems	[Criminal Justice Information System, Trial Court Information System]

IISAC has operated, from its inception, with limited staff and financial resources, and has relied on project grants, seminars, and research efforts to foster cooperation between and among government jurisdictions. Consequently, the use of computer-based information systems is now widespread throughout the county and city sectors and is beginning to be adopted by townships.

The opportunities to capitalize on the current base of knowledge and systems during the 1990s are highlighted in the FUTURES section of this report. This section confirms the increasing need to promote PLANNING, INFORMATION SHARING, AND COORDINATED SYSTEM DEVELOPMENT to further enrich and build upon the existing dynamic intergovernmental environment.

INTRODUCTION

Minnesota statute 16B.42 specifies that the IISAC shall assist the Commissioner of Administration with -

- developing and updating intergovernmental information systems by recommending relevant policies and procedures, and reviewing existing systems
- encouraging cooperation among local governments in developing information systems
- fostering standards which are consistent with local prerogatives
- promoting education and training seminars to keep local government personnel abreast of the rapidly changing field of automation

This report provides you with:

> the IISAC mission statement and its philosophy

> the progress made in many critical areas

> the identification of critical issues

> the current goals and strategies of the IISAC

This is not a technical document, although a number of acronyms are used. For definitions of these acronyms and other topic specific terms, please see Appendix A.

SECTION I

MISSION, PHILOSOPHY, AND OPERATING POLICY

MISSION

The mission of the IISAC is to:

> promote and encourage the effective and efficient use and exchange of information between state agencies and local government

> provide liaison between local and state government in the area of information systems, so that uniform reporting is facilitated and government productivity is enhanced

> assist in data interchange activities among state agencies and/or local governments with the goal of reducing or limiting future costs

PHILOSOPHY

In order to fulfill its mission effectively, the IISAC must:

1. Develop supportive relationships with members of local government at all levels, as well as state agencies, the Information Policy Office, the Information Policy Council, and key legislators.

2. Establish steering committees which provide high level support and management expertise for each major IISAC project.

3. Plan for a coordinated approach which includes the needs of all levels of government.

4. Recognize and react to the changing opportunities within the intergovernmental sector as they arise.

OPERATING POLICY

The operating policy for the IISAC is one of COOPERATIVE PLANNING WITH DECENTRALIZED IMPLEMENTATION, that fosters:

> cost-effective use of current technology
> dramatic cost savings through system sharing
> uniform data collection and reporting through promotion of standards and telecommunication

These efforts are focused on meeting the diverse information needs of the:

> state legislature
> executive branch
> judicial branch
> local government

SECTION II

DRAFTING a blueprint for the future

With the creation of IISAC in 1972, the Minnesota Legislature anticipated the impact that burgeoning computer technology would have on the efficiency and effectiveness of local and state government.

New technology would give government the potential to transform data into a valuable resource. But to complete this metamorphosis, a blueprint was essential. Without it, the opportunity would vanish.

In the early 1970s, while individual governmental units were searching for ways to use computer technology within their own jurisdictions, a parallel demand was emerging--a need to coordinate systems that could be used across jurisdictions.

To answer this need, IISAC established and promoted an environment that would foster growth of intergovernmental systems within a common framework. Through the direction and financial support of IISAC, townships, cities, and counties now can take better advantage of opportunities created by the information age.

BUILDING the foundation

By providing full or partial grants to local government projects, IISAC has been able to encourage faster implementation of programs and systems. IISAC's seed money is important to many government associations, such as the Minnesota County Computer Consortium (MCCC), an association with 52 member counties. "Without IISAC, many of our projects wouldn't have been as extensive, and some would not have been done at all," says Charles S. Tremain, MCCC interim executive director. "Without this cooperation and planning encouraged by IISAC, our members would not have saved as many tax dollars."

To meet the needs of individual government groups, as well as the complex and diverse missions of all government units in the state, IISAC's focus includes the following immediate and long-term goals:

> increasing productivity by promoting the judicious use of information technology

> enhancing cooperation between local and state agencies by planning ways to gather and share information

> developing and improving standards for reporting financial information so that more informed management decisions can be made across local and state levels

DESIGNING for tomorrow

The future poses a great challenge to our use of information. But by planning today, we can direct the future. Working within its mission statement, IISAC will continue to address the changing needs of government and to develop the expanding potential for sharing data among governmental jurisdictions.

With the recent creation of the Information Policy Office (IPO) and the work of the Information Policy Council (IPC), the state of Minnesota signaled its intention to actively coordinate the growth of information systems within state agencies. IISAC applauds and supports the objectives of the IPO and IPC, and officially has endorsed the IPC's information management principles. IISAC stands ready to provide liaison between the IPC and the various levels of local government with which IISAC has worked closely over the past 15 years.

The recently formed Governor's Advisory Council on State and Local Relations (ACSLR) exemplifies the growth of cooperation between levels of government. According to ACSLR's project director, Jim Gelbmann, "State and local governments must work together in this day of dwindling resources to better meet both groups' needs." IISAC will continue to provide a forum for state-sponsored local government studies, such as ACSLR.

The Legislature's willingness to support lead information agencies, such as IPO and IISAC, is one of the cornerstones upon which Minnesota's strong information-sharing future is founded. That future holds the realization of a long-sought vision of everyone, from township clerks to state commissioners, who has worked toward more efficient government. The dream is to achieve, finally, uniform data reporting standards that transcend jurisdictional boundaries.

The impact of that potential may not be apparent immediately to the non-computer user. But imagine for a moment the number of computers in use in governments throughout Minnesota today, from desktop models to powerful mainframe systems. Every day, each of those computers collects, stores, and generates data for thousands of governmental purposes. From townships on up through the Legislature, each level of government requires information from the others. It's all there in the computers. Yet few governmental computer systems can "talk" to each other; most of them don't speak the same language. If they could, it would be a monumental breakthrough. It would be as if a nation of mutually unintelligible dialects finally was able to get all of its people to communicate with the same language. This kind of consistent communication, coupled with reporting standards, is what uniform data interchange is all about.

The potential benefits of uniform data interchange are enormous. They include huge reductions in waste, far timelier reports, and much tighter budgetary forecasting and control. But such miracles don't happen without strong leadership. Experience in other states has

Computer consortiums will continue to grow, as will governmental computer applications. But without clear, centralized standards and objectives, duplication, waste, and system ineffectiveness may proliferate. A crucial role that IISAC must continue to play is to ensure that each new system, when appropriate, will incorporate not only the capability for intergovernmental data interchange, but also use the same reporting standards. That is, the systems will speak the same language.

IISAC already is planning to help these visions become reality. But the power of information technology is growing at an exponential rate, and the demand for statewide coordination of information systems never has been greater. To realize the invaluable benefits of information sharing, there must be an active, effective lead agency, such as IISAC, coordinating intergovernmental system activities and promoting meaningful data-sharing.

SECTION III

THREE ERAS OF PROGRESS

OVERVIEW

(refer to the three era graphs on page 15)

1974-1978

"PROMOTE DATA PROCESSING COOPERATION"

A very strong recognition of the need to achieve a sharing attitude and capability between similar jurisdictions was held by all members of the IISAC. Both staff work and a preponderance of grant funds supported this primary goal. The level of activity in this area reflects this commitment, with the amount of grant funds targeted for Consortium Support at 55% and Transferable Systems at 22.8%.

1979-1983

"FACILITATE INCREASED USE OF COMMON SYSTEMS"

With the first major goal of the IISAC largely accomplished, that of building data processing cooperatives, a new point of focus emerged: to widen the breadth and depth of automated systems available to the cooperatives. The change in funding priorities indicates the support for this new vision--consortium support dwindled from 55% to 13.3%, while transferable system grants grew from 22.8% to 39.5%. Accompanying this major change was an increased sense of urgency for 1) the development (and implementation) of standards, and 2) statewide information system training and education.

1984-Present

"ENHANCE INTERGOVERNMENTAL DATA EXCHANGE"

In its third era, the IISAC tackled the emerging challenge to increase the ability of both state agencies and their respective local government jurisdictions to exchange useful information. This change in emphasis can be traced through the three eras by noting the amount of grant funds supporting information exchange: 9.2% in era #1, 9.8% in era #2, and 27.8% in era #3. The level of interest in providing training and educational opportunities for personnel from both state and local government also continued to grow.

The following three sections provide more detail on the specific activities undertaken in each era.

ERA #1 (1974-78)

"PROMOTE DATA PROCESSING COOPERATIVES"

CONSORTIUM SUPPORT

Major thrust — demonstrate the belief that cooperation in the complex area of data processing was achievable in the Minnesota environment

- assist with the creation of an education-based consortium (METRO II)
- help a group of metro cities acquire, modify, and install its initial software packages (LOGIS)
- assist with the creation, through joint-powers agreements, of a county-based consortium
- study the feasibility for the city of Rochester to provide data processing services to surrounding units of local government
- assist with the development of a common mental health center information system

TRANSFERABLE SYSTEMS

Major thrust — promote activities which foster sharing of common, generalized information systems

- help in the initial development and implementation of a potential regionally-based Human Services Information System
- assist with the implementation of a city-based system to be run at four northern cities
- partially fund a study to develop alternative approaches to automation for the city of St. Paul
- study the feasibility of one common city system for southern cities
- assist with the modification of the ad valorem tax system for two northern counties
- provide staff support for a study of county land assessment techniques

STANDARDS

Major thrust — spearhead efforts to establish standards for data collection and reporting which would have widespread impact

- provide staff support to analyze land record assessment issues
- develop financial standards for Human Services
- develop a standard Human Services system

- develop a standard Land Records system
- publish and distribute a recommended standard for parcel identification
- study the possibility for the development of a county-based financial standard

INFORMATION EXCHANGE

Major thrust — undertake efforts to expand the potential sharing of information within Minnesota government

- expand the state-oriented data base at MAPS
- develop a regional based Land Use and Permit System
- develop a pilot Records Retention System for the city of Minneapolis
- study existing Land Use systems by CURA for planning purposes
- study the feasibility of a multi-county, multi-agency Human Services system
- review City Financial Reporting practices
- assist with examiner fees relating to Data Privacy issues

ERA #2 1979-83

"FACILITATE INCREASED USE OF COMMON SYSTEMS"

TRANSFERABLE SYSTEMS

Major thrust — accelerate the adoption of common systems by small-and medium-sized counties and cities

- assist with the development of a pilot Computer Assisted Appraisal System
- enhance the capabilities of a multi-county Child Support System
- spearhead the design of a county general ledger system
- assist with the design of the Minnesota Community Action Data System for use by the Minnesota Community Action Agencies
- design and implement a microcomputer-based Utility Billing System for small cities
- ease the acquisition effort of a common accounting system which meets COFARS requirements by small and medium sized counties

STANDARDS

Major thrust — develop and promote the standard county chart of accounts (COFARS)

CONSORTIUM SUPPORT

Major thrust — assist several government units[1] with pilot organizational studies and/or system development tasks

INFORMATION EXCHANGE

Major thrust — conduct studies to determine potential benefits of 1) forming a new computer consortium, and 2) developing a county-based centralized automated city salary survey system

TRAINING AND EDUCATION

Major thrust — principal activities: 1) investigative study to determine the various needs for information system training within the local government sector, 2) plan and conduct the indicated training, and 3) promote the first Local Government EDP Symposium

---

[1]Computer Management for Human Services, Hiawatha Land Computer Consortium, Arrowhead Regional Development Commission, LOGIS, MCIS, Blue Earth County, Minnesota Small (under 5,000 population) Cities

ERA #3 1984-PRESENT

"ENHANCE INTERGOVERNMENTAL DATA EXCHANGE"

INFORMATION EXCHANGE

Major thrust — augment the capabilities of local governments to utilize automation technology

- develop a cash basis financial primer for small cities
- study the health of information systems of major state agencies which interact with local governments
- study the feasibility of an automated interchange of data between the Supreme Court's TCIS (Trial Court Information System) and Public Safety's ENFORS (a multiple-function, integrated computerized system for Public Safety and law enforcement agencies)
- modify the state-run Community Services Information System (CSIS) to better meet county needs
- accelerate conversion of Public Safety's Criminal Justice Information System (CJIS) to the SNA telecommunication standard
- modify the city-based automated salary survey system to enhance its overall usefulness and to centralize its operation at the League of Minnesota Cities

CONSORTIUM SUPPORT

Major thrust — conduct a study to determine the opportunities for cooperation between two major county consortiums

STANDARDS

Major thrust — push for increased use of standards within 1) the Minnesota Criminal Justice sector, and 2) Counties

- assist with the statewide implementation of new Minnesota-specific criminal offense codes
- assist with the maintenance effort for the County Financial Accounting and Reporting Standard (COFARS)
- promote the development of a model county information architecture

TRANSFERABLE SYSTEMS

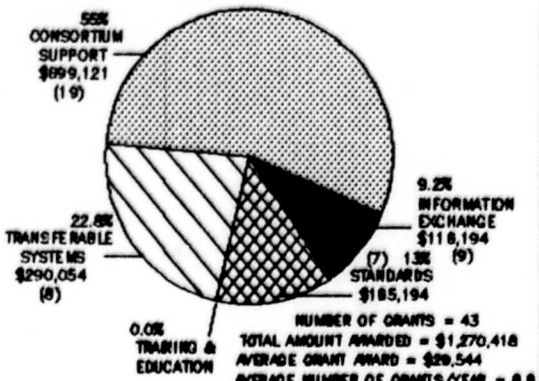
Major thrust — foster greater use of common systems within the judicial, county, and small-city sectors

- accelerate the implementation of the regionally-based TCIS in judicial districts #5 & #8
- augment microcomputer training efforts of county engineers
- introduce standard automated accounting tools to townships and very small cities
- enhance the small city Utility Billing System to meet the needs of more Minnesota cities
- assist with an effort to develop and implement a multi-county community health service system
- demonstrate the capability of the microcomputer to handle the accounting and payroll needs of small cities
- assist with the development of a computer-assisted assessment system to run on the IBM S/36

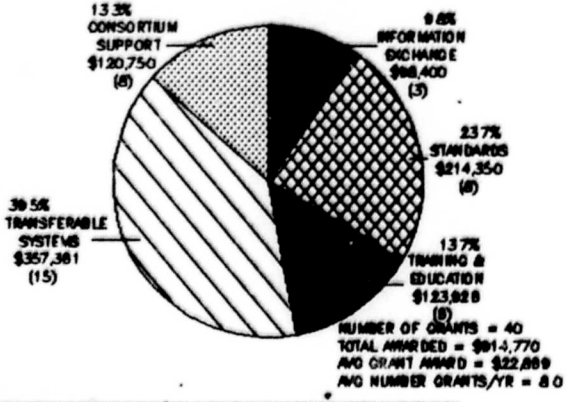
TRAINING AND EDUCATION

Major thrust — plan and implement a series of EDP seminars for the purpose of providing information on 1) technological advances, and 2) successes of Minnesota local governments in utilizing computer technology, to personnel from both the metro and greater Minnesota areas

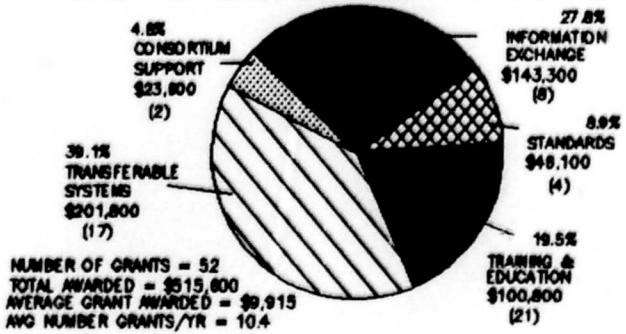
IISAC FIVE YEAR PLAN FOR FY'S 1974–78



IISAC FIVE YEAR PLAN FOR FY'S 1979–83



IISAC FIVE YEAR PLAN FOR FY'S 1984–88



APPENDICES

APPENDIX A

ACRONYMS

COFARS County Financial Accounting and Reporting Standard
- a financial standard adopted by the State Auditor's Office and implemented in a majority of counties

CSIS Community Service Information System
- services the welfare related information needs of approximately 80 counties

CURA Center of Urban and Regional Affairs, University of Minnesota

IISAC Intergovernmental Information Systems Advisory Council

LOGIS Local Government Information Systems
- services the automation needs of 26 cities

MAPS Minnesota Analysis Planning System

MCCC Minnesota County Computer Cooperative
- services the automation needs of 41 counties

APPENDIX B

IISAC MEMBERS

Connie Ardin
Accountant
Hennepin Technical Center
(612/559-3535)

***John Asmus**
Director, Information Systems
Department of Revenue
(612/296-0180)

William Bassett
City Manager
City of Mankato
(507/625-3161)

Merry Beckman
Personnel/Data Management Coordinator
Association of MN Counties
(612/224-3344)

Fred Boethin
Director, County Audits
State Auditors Office
(612/296-2551)

Pat Bonniwell
Clerk-Treasurer-Administrator
City of Dassel
(612/275-2454)

***Marvin Brunsell**
Finance Director
City of St. Cloud
(612-255-7208)

Carol Carlson
Director, Administrative Services
City of New Hope
(612/533-1521)

Chuck Coskran
Director, Data Systems
Department of Education
(612/297-3752)

Ken Hasledalen
Director, Systems Management Division
Department of Human Services
(612/296-6665)

Ronald Hildeen
Systems Analyst, Information
City of Minneapolis
(612/348-8731)

William F. Jokela
City Administrator
Sandstone
(612/245-5241)

Roy Larson
Director, Information Systems
Metropolitan Council
(612/291-6480)

Vernon R. Maack, Chairperson
Consultant
Alexandria Tech-Vocational School
(612/763-3014)

***Willis Miller**
Director, Telecom. & Technology
Department of Administration
(612/296-6428)

Tracy S. Page
Manager, Systems & Programming
Dakota County Human Services
(612/438-4290)

Helen Palm
Supvervisor, EDP Unit
Legislative Auditor Office
(612/296-8492)

***Dale Palmer**
Auditor
Sherburne County
(612/441-1441)

Alan Robinette
Director, Land Mgmt. Info.Center
State Planning Agency
(612/296-1209)

***Helen Schendel**, ViceChairperson
Associate Director
League of Minnesota Cities
(612/227-5600)

Eugene Schiller
Finance Director
City of St. Paul
(612-298-4637)

***Jerry Schmidt**
Court Administrator
8th Judicial District
(612/589-4764)

Gerald Splinter
City Manager
Brooklyn Center
(612/561-5440)

Terry Stone
Executive Director, Region 9
Regional Development Commission
(507/387-5643)

APPENDIX C

STATUTE GOVERNING IISAC

"Updated by the 1986-87 Legislature"

16B.42 Intergovernmental Information Systems Advisory Council

Subdivision 1. **COMPOSITION.** The commissioner of administration shall appoint an intergovernmental information systems advisory council, to serve at the pleasure of the commissioner of administration, consisting of 25 members. Fourteen members shall be appointed or elected officials of local governments, seven shall be representatives of state agencies, and four shall be selected from the community at large. Further, the council shall be composed of (1) two members from each of the following groups: counties outside of the seven county metropolitan area, cities of the second and third class outside the metropolitan area, cities of the second and third class within the metropolitan area, and cities of the fourth class; (2) one member from each of the following groups: the metropolitan council, an outstate regional body, counties within the metropolitan area, cities of the first class, school districts in the metropolitan area, and school districts outside the metropolitan area; (3) one member each from the state departments of administration, education, human services, revenue, planning and the legislative auditor; (4) one member from the office of the state auditor; and (5) four members from the state community at large. To the extent permitted by available resources the commissioner shall furnish staff and other assistance as requested by the council. The council shall expire and the terms, compensation, and removal of members of the advisory council shall be as provided in section 15.059.

Subdivision 2. **DUTIES.** The council shall assist the commissioner in developing and updating intergovernmental information systems, including data definitions, format, and retention standards; recommend to the commissioner policies and procedures governing the collection, security, and confidentiality of data; review intergovernmental information and computer systems involving intergovernmental funding; encourage cooperative efforts among local governments in developing information systems to meet individual and collective, operational, and external needs; bring about the necessary degree of standardization consistent with local prerogatives; yield fiscal and other information required by state and federal laws and regulations in readily usable form; foster the efficient use of available federal, state, local, and private resources for the development of systems; keep local governments abreast of the state of the art in information systems, and prepare guidelines for intergovernmental systems.

Subdivision 3. **OTHER DUTIES.** The intergovernmental information systems advisory council shall (1) recommend to the commissioners of state departments, the legislative auditor, and the state auditor a method for the expeditious gathering and reporting of information and data between agencies and units of

local government in accordance with cooperatively developed standards; (2) elect an executive committee, not to exceed seven members from its membership; (3) develop an annual plan, to include administration and evaluation of grants, in compliance with applicable rules; (4) provide technical information systems assistance or guidance to local governments for development, implementation, and modification of automated systems, including formation of consortiums for those systems.

Subdivision 4. **FUNDING**. Appropriations and other funds made available to the council for staff, operational expenses, and grants must be administered through the department of administration. Fees charged to local units of government for the administrative costs of the council and revenue derived from royalties, reimbursements, or other fees from software programs, systems, or technical services arising out of activities funded by current or prior state appropriations must be credited to an account in the special revenue fund and are appropriated to the council for the purposes enumerated in subdivision 2. General fund appropriations for the council may also be credited by the commissioner of administration to the account in the special revenue fund. The unencumbered balance of an appropriation for grants in the first year of the biennium does not cancel but is available for the second year of the biennium.

APPENDIX D

MINNESOTA INFORMATION MANAGEMENT PRINCIPLES

Unanimously endorsed by the Information Policy Council November, 1986

Management of state government will be greatly enhanced with better management of its information. The gains will not only be in the efficiency of operation but also in taking fuller advantage of information when making critical decisions. This will be accomplished when we consider information as a state resource and cooperate toward a common direction for the state's information facilities, networks, and data.

To that end, these general principles represent a foundation of understanding and agreement. These principles will assist agencies in accomplishing their legislatively mandated responsibilities while also contributing effectively to the collective needs of the state.

MANAGEMENT PRINCIPLE: Information systems, like other important resources such as personnel and budget, are fundamental management responsibilities which should not be merely delegated to operations staff. An information system should reflect and support an organization's mission and functions. This linkage between information systems and organizational mission and functions is accomplished through an assessment called enterprise analysis in which an agency formally defines what it does and matches its information requirements to that charge. This can only be done when management assumes responsibility to make that linkage, develop plans for systems to produce that information, and effectively implement those plans.

DATA PRINCIPLE: All data collected, generated and used by state government must be treated as a resource of the state to be managed and shared across organizational lines. It shall be available for use by anyone within appropriate security and privacy guidelines. This implies that:

- All data is owned by the state, not the particular agency that collects or uses it.

- Data must be considered from a much broader organizational perspective than the immediate uses for which it is collected. Data shall be organized and collected based upon the processes which create and use the data rather than on an organizational basis.

- Data is used for setting strategic direction, for ongoing management and for operations. All three uses are equally legitimate and must be taken into account when organizing data collection and processing.

In order to accomplish this, these conditions must be met:

- Reciprocity: all data flows into the state pool of data, and all data may be drawn from it.

- Accessibility: data is made available. This may require statute changes. Good security and privacy guidelines are essential in order to protect the rights of people about whom data is collected.

- Participation: there must be opportunity to be involved in the planning decisions that lead up to data collection and storage so that the ideas of reciprocity and accessibility are successful.

- Quality: data is accurate, up-to-date and well-defined. In order for this resource to be of value, quality control is essential.

STANDARDS PRINCIPLE: In managing state data, just as in managing state finances, personnel, and buildings, the state must function as a common community that needs and wants to cooperate for mutual benefit. The components of information management (enterprise analysis, applications, data and technology) to be managed and used must be integrated in a way that supports the necessary linkages among state agencies and between state and local government.

To ensure statewide management of information, two items must be established and presented:

- technology architecture (a model) of the state direction in computer equipment, network, and support software.

- the protocols and conventions that will be used for information management.

PEOPLE PRINCIPLE: The purpose of information management systems is to provide information to people in an organized manner that will assist them in making decisions. These decisions are made by people, for people in order to improve the delivery of services, the management of resources or the development of products.

Information management has no independent life: its use is to extend human capabilities. Information systems will do this when management (people) define the purposes of their organization and structure the design and use of information to implement those purposes. To use information effectively, people must:

- recognize the value of information used in decision-making and program management,

- have confidence in the data,

- develop skills in the use of current technology to analyze data and develop options,

- regularly search for innovative methods to use information in decision-making and redefining programs, and

- share information with others so that management practices may be improved.