State of Minnesota

Information and Telecommunications Technology

Systems and Services

Master Plan 2009

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Office of
Enterprise Technology
State of Minnesota

Innovation. Change. Transformation.

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Chief Information Officer
State of Minnesota

The State Chief Information Officer and Office of Enterprise Technology are responsible for providing strategic leadership, operational oversight, and support services on technology and information management to Minnesota state government. This responsibility, and the corresponding executive authority, are provided in Minnesota Statutes Chapter 16E and Executive Order 05-04, dated April 4, 2005.

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Technology Systems and Services**

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Introduction

The State Chief Information Officer (CIO) provides strategic leadership on information technology (IT) and information management for state agencies, and oversight on significant IT projects. The CIO is required by law to publish a strategic plan for technology for the whole of the executive branch. This plan is to be published every two years and presented to the Legislature in January of each odd-numbered year, preceding their biennial budget deliberations.

Unlike the individual agency strategic information systems plans, this document focuses on the enterprise-wide needs and strategies that affect all agencies. The plan represents a long-range vision to guide agency and enterprise decisions and investments.

Of paramount importance: that Minnesota be prepared to build upon the expanding "digital infrastructure," that critical package of the Internet and other elements of our technological environment. This cyber environment forms the nervous system that connects people, government and industries, providing real-time information for personal, operational and strategic decisions. The future of government programs and services and the well-being of our communities will demand an even more dependable and secure system as dependencies on these interlocking digital worlds grows.

The *2007 Enterprise Master Plan* was created with the help of over a hundred agency CIOs and technology and business leaders in a process that took nearly eight months. Current national trends and issues in the realm of information technology have validated the soundness of its overall direction, and it has been the basis for investment, policy and technical initiatives during the past two years. As with all strategic plans, its value comes not from the document, but from the planning process that created the document and from its utility in guiding decisions.

In 2008, discussions between the staff of the State CIO and the CIO Advisory Council about the process and product for the 2009 edition of the plan resulted in substantial agreement on several key points:

1. We should build on the substance of the 2007 document. While it needs updating and some refinement, it is still sound as a strategic document.

2. Specific shortcomings of the original plan, such as the lack of a compelling, enterprise-level vision for the future, will need to be addressed to provide a central focus for the strategies. Other needs may also emerge from agency suggestions.

3. Because the established governance process provided an effective forum for agency review and comment, development of the 2009 plan was much more streamlined than the 2007 process. Except for the final review, inputs and reactions to drafts will be handled via email and other electronic means.

4. The document itself will be more compact and straightforward. Included will be fewer details about the process and purpose of the plan, and less specific information about initiatives associated with the strategies.

It's important to remember that the *Master Plan* deals with **what** should be done to support the business of government through effective information management and information technology. The **when** and **how** questions are dealt with in the executive branch and agency decisions on initiatives and investments.

This plan was developed by the state CIO and the IT governance bodies, on behalf of the state agency business and IT communities. Final decisions on implementation of these strategies rests with the CIO and the governor.

Master Plan: Vision of the future

To plan effectively for future outcomes, organizations must have a clear understanding of what those outcomes involve. This vision for the future state of enterprise information management provides a framework for the plan and a set of objectives against which progress can be measured. This section describes that future state in terms of five important dimensions of achievement in information management.

1. Consolidation of services: future state

Minnesota will have state-of-the-art data and application hosting with robust disaster recovery capabilities, sized and configured to meet the business continuity demands of government customers. The number and location of hosting centers will be determined by practical concerns of business need, operational capability, performance requirements, available technologies, and funding.

Where a positive impact on the value derived from IT investments can be realized without compromising citizen and agency service levels, basic support elements of enterprise computing will be centrally managed. Consolidation and standardization of data center management, telecommunications, hosting, storage, common desktop support, and worker tools will allow agencies to focus on the application of technology to improve their business processes.

Security and access control will be managed at the enterprise level and administered locally. Utility services such as network management, basic productivity tools, and unified communications systems, will be reliable, responsive, dependable, economical, and efficient. Enterprise cost allocations for customer agencies will be appropriately indexed and transparently applied, and understood by all parties.

2. Resource management: future state

IT procurement will conform to established architectural and procurement standards, with cost containment achieved through common processes of acquisition and asset management. Funding and resource management, in turn, will identify and manage life-cycle costs and total cost of ownership for systems investments.

Effective asset management practices will ensure that stability, capacity, and performance requirements are met. Hardware and software will be maintained at as current and consistent a level as possible to ensure stable business processes, manage diversity, and provide robust information security. Achieving the goal of standardization for maximum interoperability and efficient maintenance will not prevent the enterprise from responding to new opportunities and threats. To enable agencies to make the most of teleconferencing, business continuation, and telecommuting, applications will support multiple means of access to portable services. Technology will allow for virtual meetings, hearings and consultations without regard to geography or travel considerations.

Effective information life-cycle management practices and tools will ensure that government data is easily accessible, secured, and efficiently managed. Essential data elements with common definition and broad application across the enterprise will be managed centrally for mutual benefit and shared securely across business functions. The public and their representatives will be confident that their data is protected and used appropriately.

3. Best practices in information management: future state

Minnesota government agencies will innovate for improvement, not merely for change, with resulting changes delivering maximum value for the taxpayer dollar. Business process improvement will drive agency and enterprise information resource planning. Resources for planning, project definition, project execution, and reporting will be available. Reengineering analysis will precede significant systems investments. Measurement of performance and analysis of improvement opportunities will be open, objective, and data-driven processes. Business process coordination and data and application sharing will be the norm across agencies and programs.

4. Governance: future state

Planning and decision-making across the enterprise will take place in a climate of collaboration and transparency. The IT governance process will coordinate, prioritize, and approve major IT initiatives across the executive branch. Statewide, executive branch and agency strategies will be mutually supportive and well coordinated, with decisions made on the basis of objective information at the appropriate level. Decisions will be documented and communicated.

Portfolio management is the discipline of analyzing, planning and prioritizing investments on the basis of comprehensive information on expenditures, applications, technologies and projects. Because this approach supports decision-making across organizational boundaries, opportunities for sharing information and applications can be more easily realized, and systems expenditures can be more highly leveraged. Portfolio management will be an integral part of agency and enterprise planning for application renewal, sharing, and retirement. Business needs and information technology services will be effectively integrated. Community shared oversight and distributed self-discipline in planning, project practices, and reporting will be accepted as good business practices. Architecture will be incorporated at the business, information, application and technology levels.

5. Service delivery: future state

Electronic Government Services will be the preferred means of service delivery for most citizen needs, reflecting the strong trend to self-service in both commercial and governmental business. The state's web presence will use a common architecture and platform and a common set of development and content management tools. The state's portal and websites will ensure that customers have a consistent navigation and content display experience while also promoting program and agency identity. Centers of excellence and shared applications will handle application management for similar functions. State-of-the-art tools for managing service delivery will contain the cost and burden of government, and will support accessible and high quality services.

State of the states: CIO priorities, IT trends and public policy issues for 2009

The inevitability of change may inspire fear, but the possibility of improvement inspires hope. How institutions and individuals react to change—whether to embrace and manage it or simply endure it—largely defines how it will affect them. It is the need to predict, define and manage change which drives strategic planning.

Are Minnesota's strategic priorities in line with those of other states?

The National Association of State Chief Information Officers (NASCIO) identified state information technology priorities, trends, and issues in a presentation at the federal Government Accounting Office Executive Council on Information Management and Technology on November 19, 2008.

Several of Minnesota's priorities are identical to the national list—including IT consolidation and security. However, while states may face similar challenges, because of their particular strengths and weaknesses, each may fashion unique solutions. It is also noteworthy that organizations in the private sector face nearly identical issues, and have instituted similar strategies to achieve a comparable set of outcomes.

For example, NASCIO's CIO priority #7 is "Green IT." In Minnesota, comparable activities are part of Governor Pawlenty's "Climate Savers Computing Initiative" which encompass policies for energy-efficient power management and procurement, and are included in the overall "resource management" priority.

NASCIO member CIOs identify their 2009 priorities as:

1. **Consolidation:** infrastructure, services, operations, resources
2. **Shared Services:** sharing resources, services, infrastructure
3. **Budget and Cost Control:** managing budget reduction, cost savings
4. **Security:** Tightening security safeguards, enterprise policies
5. **E-Records Management/Digital Preservation/E-discovery**
6. **ERP Strategy:** acquisition, implementation, expansion, upgrade
7. **Green IT:** policies, energy efficiency, power management, green procurement, e-waste
8. **Transparency:** open government, accountability, performance
9. **Health Information Technology:** Assessment, partnering, implementation
10. **Governance:** improving governance, data

States face challenges and obstacles

NASCIO also asked states to identify the challenges they face in addressing their top IT priorities, and to name the area of focus for the state's consolidation initiative. Although some states identified a single focus on people, network infrastructure, agency servers, data center, or email system, a significant 57 percent said that it included all areas.

Eighty-one percent of states identified operational cost reduction as the primary business driver for consolidation. Other drivers included disaster recovery, service level management, energy savings, and improved security, none of which garnered more than 8 percent.

For 46 percent of state CIOs, the biggest obstacle to realizing a consolidated technology infrastructure in 2009 is resistance from departmental/agency stakeholders who want to "control" their own networks. Another 25 percent cited a lack of internal IT resources to dedicate to planning and implementing the project. Cultural resistance to change was seen as the biggest obstacle by 21 percent. Lack of funding to implement the new design and higher priority projects were seen as lesser obstacles. Minnesota agency CIOs do not minimize the difficulty of putting consolidation into practice, but are supportive of consolidation of IT services where it makes business sense and where quality of service can be assured.

When CIOs were asked to name the top information security challenges they faced, 69 percent identified data protection – what, where and who has access; 43 percent identified the escalating number of cyber attacks as the greatest challenge; and 30 percent cited general education and awareness. Mobile devices, legacy applications and systems, web-based applications and regulatory compliance were also noted as security challenges.

Many states have made recent investments in information security initiatives and 39 percent now identify lack of policy development or enforcement as the biggest barrier to effective information security. Another 27 percent cite culture as the biggest barrier. Lack of budget (18 percent) and lack of staff (8 percent) are also noted. A small percent identified lack of executive support and legislation. Identified as increasingly common and extremely important by the NASCIO Systems Modernization Study was the movement toward true systems modernization, incorporating fundamental business process redesign in lieu of historic practices of technology upgrades to re-automate legacy business practices. In Minnesota, agency CIOs cited the ability to do reengineering together with user awareness and skill development as major areas that need to be addressed.

Issues to monitor in 2009

The state CIOs also identified issues they will be monitoring in 2009:

- Response to growing fiscal stress: budget cuts and bunker mentality, or opportunities for state CIOs to advance the enterprise agenda?
- Legacy system renovation/replacement
- E-records, digital preservation and e-discovery: new risks and management concerns
- Innovative funding, financing and options
- Statewide broadband initiatives

Master Plan: Current strategy statements

Have Minnesota's strategic priorities changed since the 2007 Master Plan was published?

The strategic priorities identified in the 2007 Master Plan remain fundamentally the same for 2009. This is to be expected in a long-range plan with a 10-year implementation horizon. What is also expected is that after two years, the priority assigned to a strategy may change, due to changes in the environment. A shift in priorities may also result from success in achieving certain objectives. Achieving or making significant progress toward the objectives of the first priority strategy may free up attention and resources for a strategy that had a lower profile two years ago.

The strategies have been recast as action statements to compel attention in each area. For example, what had been "Information Security "is now "Secure the state's information infrastructure." Also, the earlier plan listed "IT Governance" and "Resource Management" as separate strategies. This year, the two are combined under a single new strategy of "Optimize management of the information portfolio."

The strategies are listed here, together with the current objectives. It should be noted that the strategies and objectives are not isolated from one another. Initiatives undertaken are often aimed at accomplishing more than one strategy or objective. Similarly, strategies may affect many multiple areas of policy and operations. The Appendix provides a checklist of progress indicators for the last two years.

Strategy 1: Secure the state's information infrastructure

We will implement a comprehensive program of protection from and reaction to threats to data, infrastructure, systems, and assets, and provide for continuation of operations in emergency situations.

Objectives

1. Develop a policy framework and a functional organizational structure for a comprehensive security program.
2. Develop clear security relationships and authority tied to both the business and IT communities in agencies.
3. Coordinate funding and deployment of security tools.
4. Educate employees and inform citizens regarding the importance of information security.
5. Consolidate executive branch data center capabilities into one or two new highly secure and stable Tier III data centers with a limited number of satellite data centers to provide backup and recovery capabilities for state systems and data.

Strategy 2: Deliver government services electronically

We will improve the delivery of services to citizens and business partners by means of convenient and secure self-service programs; by expanding the use of technology to minimize constraints of time and place, allowing customers an active role in managing their relationships with government; and by supporting sharing of information and applications among agencies and across jurisdictions.

Objectives

1. Review agency business processes to identify common transactions and customer services.
2. Create a common framework—business and information architecture—for electronic government services.
3. Implement foundational electronic government services and systems to be shared across agencies based on reengineered business processes and platforms for state agencies and their customers.

Strategy 3: Consolidate strategic IT services

The state will improve the quality and efficiency of IT programs and the functions they support by consolidating IT services commonly used across the enterprise, and by relying on shared services for provision of service offerings used by multiple agencies.

Objectives

1. Build upon the *Drive to Excellence* and Master Plan work group findings to continue to create and sustain a supportive environment within Minnesota government through concentration of shared and utility services.

2. Move aggressively to institute central management of IT data centers, introduce unified telecommunications services, and develop shared and utility applications to support efficient and consistent Minnesota government functions, thus expanding interoperability, reducing burden and providing better service to citizens.

3. Establish shared service staffing to provide analysis and planning for implementing this strategy.

4. Take advantage of existing and planned shared services to benefit additional customers. The following opportunities were identified during the Drive to Excellence and other planning efforts:

   a. Development of a highly integrated suite of central administrative applications for budgeting, procurement, accounting, and related services to complement and extend the existing human resources system.

   b. An integrated tax management system to service the tax and revenue administration and collection needs of multiple agencies.

   c. A coordinated geographic information system partnership to serve the data and analytical needs of many agencies and levels of government.

   d. Integrated business registration and support to meet the needs of new and changing businesses while reducing data collection burdens.

   e. Consolidated services for requesting and issuing professional, recreational, vehicle, and organization licenses.

   f. Consolidated operations for debt collection.

   g. Consolidated services for issuing payments and processing remittances.

5. Develop a strategic plan for integrated statewide telecommunications services across branches and levels of government.

Strategy 4: Modernize state systems and business processes

We will modernize existing legacy applications and business processes at both agency and enterprise levels by means of business process redesign, deployment of new technologies, and integration of related functions.

Objectives

1. Develop a Business Process Redesign resource center that will provide information, tools, and other support for successful business process redesign.
2. Develop and mandate use of a formal business process redesign model for both continuing and new business process assessment and system design.
3. Create funding options that both provide incentives for agency and enterprise reengineering initiatives and allow those initiatives to move forward as quickly as possible.
4. Modify Minnesota's budget and spending approval processes to require that requests for investments be accompanied by analyses of all affected business processes (both intra- and inter-agency), and how investments will be used to redesign, streamline, or eliminate them.
5. Encourage telecommuting in the public and private sectors when appropriate to take advantage of its benefits on budget, space management, customer service, data security, staff development and the environment.
6. Create partnerships with educational institutions to pilot new technologies.
7. Develop a "virtual consultation center" to enable knowledge gained through one agency's experience to be captured and shared across the enterprise.

Strategy 5: Optimize management of the information portfolio

We will centrally maintain and manage an integrated enterprise-wide information portfolio that supports governance and strategic decision-making, resulting in effective prioritization, improved accountability, and optimal alignment of strategies and business processes with available resources. The portfolio will be the foundation for best practices in analysis, planning, implementation, and performance measurement and will promote effective stewardship of the state's primary resources—people and money.

Objectives

1. Ensure that oversight and management of the state information technology portfolio by the State CIO and the IT governance process improves enterprise accountability for customer-driven business priorities, strategic investments, and outcome assessment.

2. Involve appropriate decision-makers in priority setting for IT investments in order to maximize value to Minnesotans.

3. Institute a process of ongoing, rigorous analysis of investments, values, and business processes for both existing applications and proposals for new development.

4. Establish specific metrics and means of collecting data and providing analytical reports to support the governance process.

5. Use project management standards and methodology to increase the likelihood of project success.

6. Expand and mandate the use of standards-based purchasing to keep procurement costs to a minimum and to reduce life-cycle costs through cost-effective maintenance programs.

7. Provide adequate funding to modernize all state hardware and infrastructure.

8. Develop new approaches for funding to provide for life-cycle total cost of ownership for software development with a significant projected life span.

9. Expand the existing enterprise technology fund to provide initial seed capital.

10. Reflect market conditions affecting competition for specialized skills in reengineering, security, project management, and emerging technology.

11. Integrate the planning, oversight and coordination of new application development across agencies by expanding the role of agency CIOs to include greater responsibility for implementing enterprise strategies in agency operations, decision-making, and development.

Strategy 6: Develop and follow a comprehensive, enterprise-wide information architecture and accompanying standards and practices

We will establish and mandate use of enterprise tools to guide design, development, and operation of IT systems to enable appropriate interoperability and information sharing.

Objectives

1. Develop and implement an enterprise architecture to guide both new IT development and investments in existing applications. This will include the business, information, application security, and platform architecture as well as the domains of the technical architecture.

2. Establish and implement a plan for moving to national open standards formats for data storage to ensure long-term availability and interoperability of data across organizations and programs.

3. Adopt and implement a standard software development methodology and set of approved tools and procedures for defining, modeling, designing, developing, testing, and documenting new applications.

4. Maintain a documented project management methodology for IT projects that meets the needs of the various state agencies and organizations and provides for required project oversight.

5. Require that all purchases of commodity hardware and software be centralized and conform to statewide hardware and software standards.

6. Incorporate in purchasing practices and procurement specifications appropriate consideration for "Green IT" — energy efficiency and environmentally-conscious acquisition and disposal practices.

7. Implement and centrally manage an IT architecture and standards review board composed of business and IT leaders to continually review, refine, and enforce state IT standards.

Strategy 7: Strengthen information management practices

We will increase sharing of common information across programs and jurisdictions, ensure consistent and appropriate protection of personal information, and promote understandability of information to reduce burdens on citizens and improve the efficiency of government operations.

Objectives

1. Invest in improved training and communication about data practice laws and policies.
2. Review and clarify information management policies to reflect current circumstances.
3. Provide practical guidance to agencies for addressing data practice questions.
4. Advance effective communications and design practices to address the needs of an increasingly diverse customer population.
5. Require information sharing across applications and agencies to be managed as part of any business process design, systems development, or program initiation.
6. Improve coordination between data practices and information security policy and operations in the areas of authentication, access, and authorization.

Appendix: Progress Indicators

Information Security

OET developed the first Enterprise Security Strategic Plan for the State of Minnesota. This plan sets priorities for management, control, and protection of the state's information assets. The five-year vision includes 19 high-level strategic objectives grouped into the categories of **improved situational awareness**, which includes continuous system monitoring and continuous assessment of controls; **proactive risk management**, such as solidly articulated requirements and ongoing security training; and **robust crisis and security incident management**, which allows critical services to continue uninterrupted in a crisis.

This plan also outlines eight key initiatives that have been prioritized for delivery during the next two years. The plan is available online at

http://www.state.mn.us/mn/externalDocs/OET/Enterprise_Strategic_Plan_091008101051_EnterpriseSecurityStrategicPlan_FY2009-2013.pdf

Electronic Government Services

E-Licensing is an online "one-stop shop" where citizens, businesses and professionals can quickly, easily and securely obtain or renew state licenses and permits. The project, managed by OET, as part of the Drive to Excellence Program, is nearing completion of its pilot phase with the implementation of online licensing for the Peace Officers Standards & Training Board (POST) and the Emergency Medical Services Regulatory Board (EMS).

Consolidation of IT Services

As part of the Drive to Excellence Program, Enterprise Email, managed by OET, will replace 26 agency-based email systems on four platforms with one statewide system, thus improving and simplifying communications and calendaring through a statewide directory and a highly secure and redundant system. Five pilot agencies and several smaller state entities, with more than 5,000 email boxes, were successfully migrated to the new OET system in 2008.

In order to reduce the state's IT vulnerability, increase efficiency, reduce costs, expand service options and upgrade security, an enterprise approach is underway for a statewide initiative to consolidate state data centers in a phased migration.

Systems and Business Process Modernization

A major advance in systems and business process modernization is the Integrated Tax System being implemented by the Department of Revenue that supports all tax processing, enforcement and reporting functions performed by a tax agency. It consolidates taxpayer or business registration, tax return and payment processing, accounting, auditing, delinquent tax collection and reporting functions of the 28 tax types administered by the agency into a single system. The system replaces the aging, fragmented patchwork of systems that now exist for each type of tax.

IT Governance

Enterprise IT governance structures and processes are evolving. Minnesota's "federated" model for IT management consists of agency unique, shared, and utility functions. OET leads enterprise IT policy development, strategies, and planning with the input and collaboration of state agencies and stakeholders. The state Chief Information Officer (CIO) is responsible for managing the enterprise planning and shared service operations, advised by the Commissioners Technology Advisory Board. Additional advisory groups—the Agency CIO Advisory Council (made up of representative agency CIOs) and the Technology Business Advisory Council (comprised of private sector business leaders) provide additional

input and working group support on priority issues and initiatives and the implementation of the Master Plan. Also emerging is an emphasis on the customer relations function of OET and "service governance" with OET customers more actively involved in refining the types of services offered at the enterprise and in the requirements for service delivery.

IT Architecture, Standards and Practices

Key Enterprise Architecture activities include the launch of an Enterprise Architecture board and the development of a plan to develop a baseline and migration plan. The Board has set goals of providing consistency between sub-architectures, identifying reusable components and enforcement of architecture compliance in a flexible architecture that meets changing business needs and leverages new technologies. The group recognizes that it has set aggressive goals but is infused with a new sense of purpose and direction.

OET planned, authored and distributed a major national study on open standards for application data files to promote vendor independence, improved accessibility to records, and more efficient and economical sharing of information. In addition, OET participated in a collaboration to promote objective consideration of Open Source applications in government, both as a potential cost-savings strategy and as an economic development tool for Minnesota's emerging software industry.

Information Management

OET has developed and maintains the Enterprise Information Technology Portfolio. Reports from the repository fulfill legislative requirements for reporting, specifically on strategic planning assistance given to agencies and on IT investments and are used to provide context for the evaluation of IT budget change items. The Enterprise IT Portfolio is the primary source of information to support prioritization and decision-making about strategic investments in information technology in order to maximize value and mitigate risks.

Resource Management

OET conducted a study to explore alternative methods of funding for IT investments in Minnesota state government. In 2008, OET published the report, *IT Funding Strategies for the 21st Century: building a comprehensive array of investment tools*. The report describes the characteristics of a sound financing process to serve both executive and legislative needs; looks at the life cycle of systems, and suggests appropriate matchups between stages of development and the funding alternatives.

The IT Products and Standards program is an enterprise effort that offers standards-based pricing for select categories of IT products and information about other IT-related vendor contracts available to Minnesota state agencies and other governmental entities (counties, cities, judicial bodies, legislative offices, libraries, K-12 and higher education institutions). Through negotiated state contracts the program streamlines the IT purchasing process. Products offered via these contracts are available to state agencies as well as units of government that are members of the Admin/MMD Cooperative Purchasing Venture (CPV) program. For more information about the IT Products program, see IT Products and Standards program information.

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