2006

Strategic Information Management Master Planning

Session notes and working papers

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Strategic Information Managemenet
Master Plan
2006

Introduction:
Transforming Minnesota Government

The challenge

State government in Minnesota is at a tipping point in its history. The convergence of four significant trends sets the stage for a major challenge to our continued viability in our constitutional and legislative missions.

The *demographics of our workforce* mean that a significant proportion of the knowledge workers in government will be at or past normal retirement age by 2015…a few short years from now. This means the skills, program knowledge and institutional history that keeps agencies, programs and systems operating will be gone. Even if there was money available to hire replacements, the loss of experience will be tremendous.

Population changes in Minnesota also present challenges. Our people are more diverse, so our government services must be designed and delivered in ways that acknowledge and accommodate their needs. Our population is also aging, which implies greater levels of service and more creative ways of delivering service. Finally, our population is becoming more technologically sophisticated, with an expectation of electronic delivery of government programs, which means we must redefine our business processes to support new ways of doing business.

Economic considerations have led our customers and their elected representatives to demand greater accountability for delivering value for tax dollars. This can happen through greater productivity and through improved efficiency. This demands that we reconsider our historic business processes and supporting systems to share information and emphasize leveraging investments in common processes.

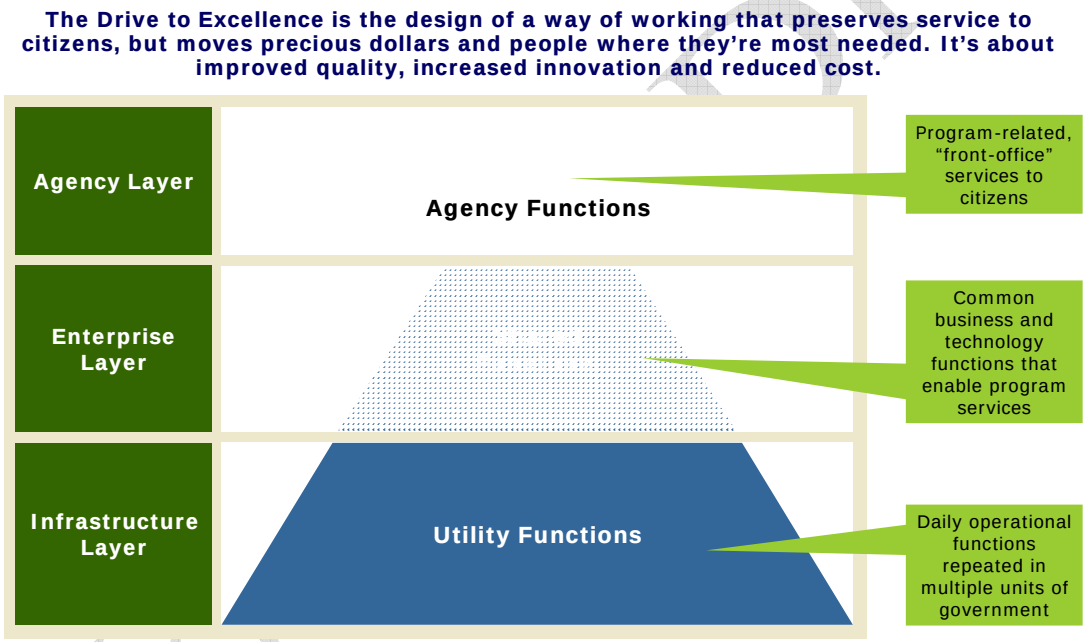
Our i*nformation infrastructure* – our computer systems and networks – will be the foundation for future services and business process improvements, yet some are fragile, antiquated, cumbersome or insecure. This will require both capital and human investments focused on the future, not on re-automating past practices – "paving the cowpaths" in redesign terms.

These are significant challenges, but they are also opportunities to recreate Minnesota government. If we are bold enough to look forward, we can use these pressures to impel us to positive change. If we are committed enough, we can harness the experience and dedication of our employees and their customers to design a new government. And if we are visionary enough, we can use the Minnesota traditions of public sector excellence and the enabling power of contemporary technology to transform the enterprise that is government.

Elements of transformation

To achieve transformation – dramatic increases in both quality and efficiency – it is not enough to take the safe route of limited vision. Changing only the organization structure yields nothing but activity. Changing only technology may result in doing more quickly that which ought not be done at all. Changing only the business processes without concomitant changes in technology limits the scope of improvement. And changing financial resources (up *or* down) merely changes the amount of current activity or production, not its quality, impact or efficiency. You cannot change one while holding the others constant and expect transformation.

This plan is not about changing technology for its own sake, or simply to modernize artifacts of the past to meet the needs of the present. It is instead a plan for leveraging the power of technology as a partner with process redesign and organizational development. The goal is to create a transformed future by converging on a more highly integrated government model consistent with the vision of the governor expressed in the Drive to Excellence model:



By transforming the support services for our business processes – from enterprise utility services to shared functions to common support processes, we create opportunities for improvements in the key business process that serve our customers.

Achieving new government for Minnesota will require a commitment to the public, a vision for a brighter future, a willingness to take risks, and a high degree of creativity. It will also take investment – investment of time and energy and of capital, in amounts consistent with developing and nurturing a critical business asset.

It requires leadership to define the future and management to get us there. Half measures and endless analysis of how we do things now will not prepare us for a future that will confront us

whether we want it or not. Change is inevitable in our environment; it falls to us to determine if we will manage it or it will control us.

This plan contains three sets of strategies around information and technology.

- *Transformation strategies* are leadership initiatives, fundamental strategies that define critical directions in support of the redesign of state government.
- *Information management strategies* are management initiatives that describe the enterprise direction, and which will support the agencies and their missions now and into the foreseeable future.
- *Community strategies address issues of concern to agencies generally*

Executive Summary

M.S. 16.03, Subd. 2, charges the State Chief Information Officer to, among other things, "design a master plan for information and telecommunications technology systems and services in the state and its political subdivisions and shall report on the plan to the governor and legislature at the beginning of each regular session"

Minnesota must prepare for major changes in the environmental drivers that define the role and program offerings for government and its business partners. The state's response to these changes will determine the success of future administrations and legislatures in leading the state. By anticipating and managing the change, we can define the future so the changes are positive in impact.

The purpose of this plan is to set strategic direction for information systems management for the enterprise that is Minnesota state government and its subdivisions. It is not a technical document, nor a specific set of budget or development initiatives, although all of these can be expected to flow from the plan. It will be used by the administration and individual agencies to set priorities, then begin to internalize the strategies and use them to guide convergence of business processes and systems development to better serve the interests of Minnesota citizens. The plan is designed with a five-year planning horizon; it will be updated annually to reflect changing circumstances and priorities.

Information is one of the most critical components of modern government operations. It is collected, processed and used in making decisions that affect millions of Minnesotans individually and collectively. It is the output and outcome of every government business process; it produces actions, measures results, documents accomplishments and activities. The costs for collecting, manipulating, storing and retrieving, using and distributing information account for nearly a half-billion dollars at the state level each year.

The impact of information on services to citizens and customers of government also is tremendous. On the basis of information managed by the state, decisions are made daily about nearly every aspect of our lives…about benefits eligibility, education, natural resources, public safety, business and professional licenses, transportation, public health, taxation and all the other programs that are the true "business" of government.

Pressures of budget and human resource availability, coupled with increasing customer pressure for service and efficiency sophistication, support *enterprise* management of information assets. Technology, combined with redesign of business processes and sharing of data and systems, holds great potential for improving government operation.

Governor Tim Pawlenty appointed Gopal Khanna to head the new Office of Enterprise Technology as the state's first cabinet-level Chief Information Officer (CIO) in 2005. Mr. Khanna's charge was to realize the governor's vision of leveraging technology to achieve dramatic improvements in government service and value for the citizens of Minnesota.

To provide a framework for planning and investment, the following strategies will need to be incorporated into agency business plans and information and technology development.

Integrating Themes

A set of foundational elements that are central to the planning process provide context for the information strategies. These state the underlying assumptions and philosophy for planning. These are:

- **An Enterprise View** –An "enterprise view" connotes a broad-based environment of public service functions, crossing organizational boundaries, hierarchies and jurisdictions to address the common needs of those entities that exist to serve the public interest.
- **Future Orientation** – It is essential to define a vision of the end state towards which the state will move. This will be the convergence point for technology and business process, an objective where business needs and information solutions are aligned for efficiency and impact.
- **A Commitment to Customer Service** – The range and variety of customer needs, services delivered and programs involved clearly indicates that there must be a continuum of service venues and delivery mechanisms to meet citizen needs, abilities, and preferences. Customer-centered decision and delivery processes bring customers' needs into consideration early and consistently, keeping in mind at all times the goal of improving interaction with government. As society places a premium on self service, location- and time-independence, customized, multi-channel service vehicles and other highly sophisticated modes of operation, responsive government entities must reflect demographic changes and challenges and adjust to the needs.
- **An Enterprise Architecture** – This is the integrative foundation upon which technology builds – the defined business processes. An Enterprise Architecture is a structured hierarchy of progressively more specific standards and requirements that govern information system design, development and operation across organizational and systems boundaries. By defining universal elements of business process, information and technology, the architecture enables integration and interoperability, improves business-IT alignment and allows for cross-organization sharing of systems and processes.
- **The Business Case Discipline** – The enterprise planning process involves starting with an objective analysis of the business need in a context of enterprise strategies and priorities, customer needs and the enterprise architecture. A well-done business case can support IT in offering the business side of government creative new alternatives if they work in concert. This is especially apparent in migration from current to future state for applications, systems and processes.
- **Learning from Others** – The experience of the private sector and of other progressive government organizations has been that technology must parallel business direction and anticipate business needs to add value, and the planning for the two domains must be closely linked. Similarly, oversight functions must integrate with planning, budgeting and implementation to add value and ensure compliance with the architecture, with best practices and with effective stewardship of public resources.

Information and Technology Strategies

Transformational Strategies

Transformation strategies are leadership initiatives, fundamental strategies that define critical directions in support of the redesign of state government.

Strategy 1: Business Process Redesign
Engage business and IT leadership in a structured program of Business Process Redesign (BPR).

Strategy 2: Shared Services & Agency centers of excellence
Invest in Centers of Excellence for consolidating specialized functions needed by a subset of agencies.

Strategy 3: Electronic Government Services
Aggressively move to create the unified and secure infrastructure and Web interfaces that will enable and support citizen access to government information and services independent of time, geography, and government organization.

Information Management Strategies

Information management strategies are management initiatives that describe the enterprise direction, and which will support the agencies and their missions now and into the foreseeable future.

Strategy 4: Funding Mechanisms
Create a coherent and realistic funding process and accounting structure for IT life cycle expenditures, including provision for cost management, reinvestment and replacement/migration.

Strategy 5: IT Portfolio Management
Institute and manage a statewide portfolio of technology projects, applications, staff and operations as enterprise assets to leverage technology and data for maximum efficiency and impact.

Strategy 6: Consolidation of utility functions
Move aggressively to centrally providing utility services to agencies and other entities currently providing them on a highly distributed basis.

Strategy 7: Integration of financial, payroll and purchasing
Integrate core business management systems of accounting, budget, payroll/personnel and procurement.

Strategy 8: Information Security
Implement a comprehensive and consistent state-wide security structure encompassing architecture, administration, monitoring, interception and remediation.

Strategy 9: Comprehensive Telecommunication Planning
Develop a comprehensive strategic plan for delivering and managing telecommunication access and services that promotes electronic delivery of services, unites communities of interest and encourages regional business development.

Community Strategies

Community strategies address issues of concern to agencies generally.

Consulting Services

A state provided consulting service (whether provided by OET or elsewhere) would be a useful and cost-beneficial alternative to private sector consulting. This must be competitive in skills and availability with private sector sources. To be successful, such a service must act like a private consulting business to cover costs and stay current with market demands.

Workforce

The most valuable and expensive IT asset is the workforce. The processes which support recruiting, training, deploying, updating and retaining IT staff are among the most important – and most problematic – in information management. The state needs to recognize this, and deal with it.

Data Practices

The continual tension between public access to data to which they are entitled while protecting private data from improper exposure is not new, but current technology exacerbates the complications. This is a separate issue from security, but the mechanisms of access and protection are complementary. Central administration of data practices policy and administration runs into conflict with highly specialized requirements of certain agencies and programs.

Background and Context

Information is one of the most critical components of modern government operations. As a raw material, it is collected, processed and used in making decisions that affect millions of Minnesotans individually and collectively. As a product, it is the output and outcome of every government business process; it produces actions, measures results, documents accomplishments and activities. As a state investment, the costs for collecting, manipulating, storing and retrieving, using and distributing information accounts for nearly a half-billion dollars at the state level each year.

The impact of information on services to citizens and customers of government also is tremendous. On the basis of information managed by the state, decisions are made daily about nearly every aspect of our lives…about benefits eligibility, education, natural resources, public safety, business and professional licenses, transportation, public health, taxation and all the other programs that are the true "business" of government.

Yet, for all of its cost and value, until fairly recently information management has rarely been viewed as a statewide priority or considered to be a statewide asset. Instead of being collective stewards of constituent data, governmental units tended to approach management of IT resources just as they did organization and services: as a need or mandate emerged, new business units and information systems were created to collect new data in new ways. This compartmentalized approach resulted in duplicated effort and duplicated data. This increased costs and led to confusion, inconsistent information and security vulnerability. As many observers have remarked, individual agencies each asked the same questions of the same people. In some cases the data elements were slightly different to reflect legitimately different needs, but in many cases there was no reason the data couldn't be collected and maintained centrally and shared with other legitimate users.

To manage the information and present it for use, functionally identical business processes were developed in multiple agencies for common tasks like licensing and registration, asset management, debt collection, processing paper and electronic documents and remittances and many more. Executive and legislative efforts to rationalize the processes and achieve greater efficiency and impact were confounded by the cost of migration, by conflicting regulations, bureaucratic resistance and system incompatibility.

Pressures of budget and human resource availability, coupled with increasing customer pressure for improvement and greater stakeholder sophistication, have only recently created a more positive environment for *enterprise* management of information assets. Governor Tim Pawlenty's vision for transformed government service was predicated on a degree of integration and coordination in information management that mirrored the best practices of public and private sector innovators around the world.

This vision and the executive and legislative directives that followed comprised both a challenge and an opportunity for government technology.

The *challenge* is to creatively harness the power, flexibility and ubiquity of information and enabling technology to change how government works – how it functions, how it

delivers services, how it tracks and measures and unites data to reduce the cost to citizens and the administrative burdens while improving agency performance. The integration of data, of functionality and of business process is key to organizational success. It will produce benefits to customers, employees and business partners. It will result in savings in development, maintenance, training and implementation.

The *opportunity* is to have a major "do over" – to redefine organizations and processes to operate the way we would create them anew to benefit our citizens. Economic conditions, emerging technologies and the inexorable pressure of demographics are combining to create a unique situation wherein the best solution is literally to change from an evolutionary approach to government to a revolutionary one.

The basis for this change must be at the business process level, not simply at an organization or service venue level. Business process redesign – a fundamental rethinking of the basic process of an organization – entails a coordinated and disciplined analysis of current and future needs, followed by a reengineering of the workflow and information systems support for those flows. Only by synchronizing our back-office and public-facing functions can we ensure that change yields improvement.

Technology for improving government operations is already available and, increasingly, agencies are rolling our web-accessible data and processes in increasing numbers. But government must deal with the "digital divide" and provide both traditional and technology-enabled service access. This is a problem of resources, because many new EGS systems parallel, not replace, traditional paper- or office-based services. However, this also provides an additional impetus for collaboration to minimize unique offerings and services in favor of high-volume electronic-access systems.

Shared and utility services

The IT governance team created in DTE helped identify and consider several alternative approaches to effective governance for Minnesota before recommending a "federated" model and clarifying roles and responsibilities within the general relationship described by that model.

The federated model provides for both centralized and distributed authority and resources, and acknowledges the importance of IT management function as an enabler of agency success and the primacy of business needs as drivers for IT decisions. This model is conceptually consistent with the goals and findings of DTE. It recognizes that a thoughtful mixture of central, shared and agency responsibilities can be crafted to further the missions of government.

Implementing a federated model of governance

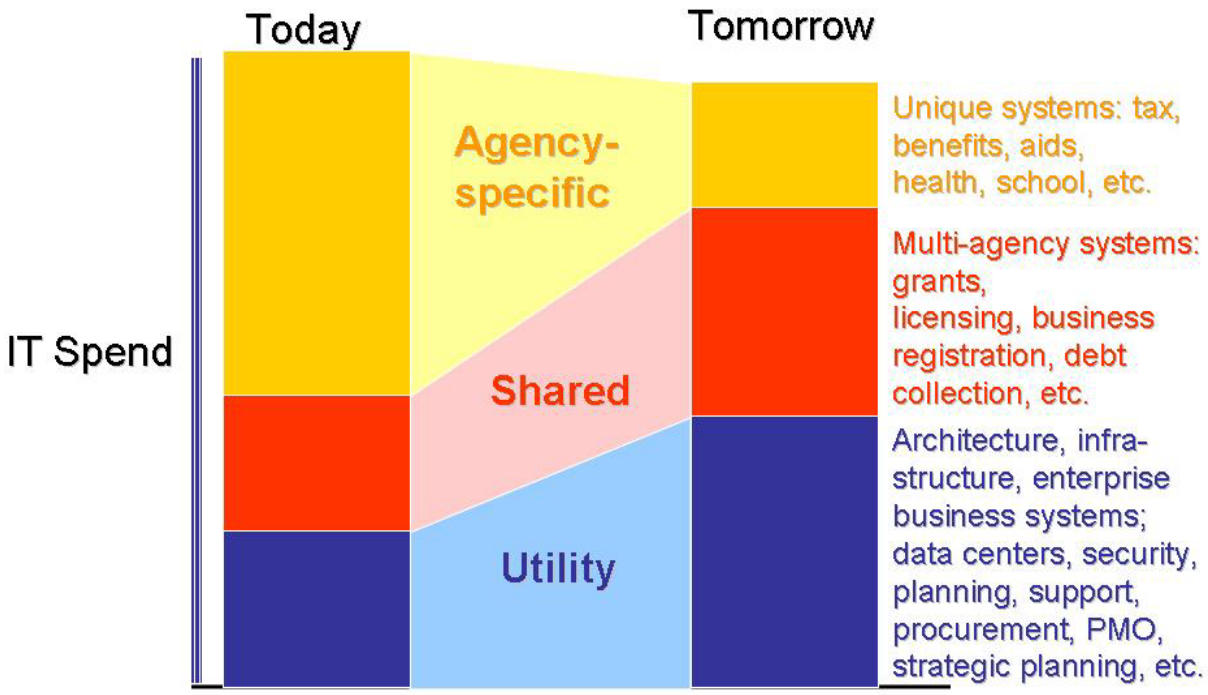
The federated model approved by Governor Pawlenty identifies some functions as the responsibility of a central services organization – in our case, OET. These include information management responsibilities common to the entire enterprise, such as establishing the state architecture and technology standards, information management

policies, setting of enterprise strategies and priorities, and operation of state enterprise common functions like data centers, networks, security and planning. These are commonly referred to as "utility" functions managed by one department – generally, but not necessarily, OET -- on behalf of all of the benefiting agencies.

A second group of processes, identified as "shared" services, are created and maintained by one agency, usually an existing center of excellence to service multiple agencies with similar functions to facilitate sharing of applications and data, based on the enterprise foundation of architecture, policies and programs. Examples might include business processes such as debt collection, grants management, licensing and business registration. This permits leveraging of investments, supports efficient operation of systems, reduces the administrative burden on citizens and promotes interchange of data.

Finally, agency-specific processes and systems meet the unique needs of agencies for customized programs to support their mission. While these applications must also adhere to the state architecture and policies, and meet state standards and best practices, their functionality is so individual in nature that sharing is unlikely to add value.

The advantage of this model is that, over time, a higher percentage of agency funds can be redirected to the mission elements of program and service as the financial resources for administering technology are reduced. The following graphic shows how this can work:



In reality, Minnesota has been operating under an implied federated governance model for almost twenty years. The creation and evolution of the Office of Technology and InterTechnologies group demonstrated the state's intent to set uniform information policy and priorities for the executive branch using the vehicle of a central authority. At the same time, the distribution of responsibility and resources throughout state agencies allowed for local implementation of these standards and priorities.

Supporting this high-level view of governance is an operational level where the principles of a federated model are put into practice. As it will be implemented in Minnesota, this governance strategy has these key components:

- Enterprise Strategic Planning
  Enterprise strategic planning processes incorporate statewide information management strategies, business needs and administration priorities, and ensure that IT plans and review processes are properly integrated into state budget processes and administration legislative packages.
- Enterprise Architecture
  A strong state architecture includes business, information, application and technology components. This framework provides guidance to agencies in designing and implementing systems, assures hardware compatibility of systems and provides a high measure of compatibility with best practices in such areas as security, supply chain management, strategic partnerships, networking, storage, and development.
- Enterprise Portfolio Management
  An enterprise portfolio management process ensures that IT investments and initiatives are aligned with state priorities and information strategies; that all IT projects follow accepted standards for design and development; that appropriate business case and risk management practices are observed; and that sound project management techniques including a phased approach, milestones, scope management, progress measurement, project performance review, and reporting routinely take place.
- Leveraged IT Standards Process
  An IT acquisition process that builds on the architecture and state standard leverages the buying power that goes with aggregation and focused procurement. Emphasized competition and energetic negotiation with vendors controls costs and delivers the greatest value to the state.
- Enterprise IT Funding Mechanism
  An enterprise funding mechanism accommodates investment life cycle management, provides for development of shared applications outside the normal departmental budget structure, and captures and reinvests savings attributable to improvements in information management programs and services.

In addition to directing the design, development or refinement of these IT-related governance processes, the State CIO is responsible for the management of enterprise and shared services operations, establishment of information policy and communicating with stakeholders about the contribution of information management to state operations and for advancing potential improvements in information administration.

In recent years, the changes in technology and information management practices and in market offerings have clearly demonstrated the business case for greater coordination and integration of IT directions in areas such as electronic delivery of services and IT security. A planned approach to enterprise technology has demonstrated improvements in efficiency, security and service without compromising the business operations which IT exists to support.

Trends and drivers

In devising IT strategic direction, care must be taken to observe the environmental conditions and circumstances that influence directions, options, needs, constraints and capabilities. The major categories for consideration, and a summary of expected planning impacts are as follows:

a. Organizational and intergovernmental
   The perception that government is an unchanging bureaucratic fossil incapable of learning and improving has thankfully begun to change, both because of creative and customer-oriented leadership and because of pressures from many interest groups to change. This perception is critical to transformation since it creates an environment of trust and support with customers and other stakeholders. Organization as a driver for the *status quo* is being supplanted by the appreciation of the need for organization to change and support, not control, the business processes of government. For example:
   - A foundation has been laid for governmental reforms in IT administration and policy at the federal, state and local levels.
   - Public and private sector best practices each acknowledge the need for integration of data and process.
   - At opposite ends of the change management spectrum, increasing sophistication about business process reengineering and continuous quality improvement is contributing to broader understanding of the need for planned change.
   - The value of performance metrics in assessing and managing organizations is commonly accepted, if not fully realized in practice.
   - Acceptance of generic business processes and supporting software is gradually moving from the private sector to public sector organizations with comparable functions.
   - Agency support for cross-agency initiatives, standards and resource sharing is growing since DTE pointed out many of the advantages to agencies, their business partners and customers.
   - The federated model of governance and collaborative activity has resulted in an improvement in enterprise-level decision-making.

b. IT asset portfolio and technology
   The business approach to technology and information management has taken government from the historical "technology = automation" mindset to a more contemporary "technology = empowerment" perspective. More than just labor-saving devices, information technologies now support *and* drive process improvements that benefit citizens. Examples of how this change is manifesting itself:
   - With the support from the governor and legislature, state investments in hardware, software, infrastructure and human resources are beginning to be considered as state assets to be deployed in support of priority needs.
   - The financial and operational benefits of common standards for software and hardware are being perceived as greater than a loss of pure autonomy. This includes reduction in initial costs as well as maintenance and interoperability.
   - Seeking synergies across department, programs and systems is now an accepted roll for central oversight.

- Recognition of the advantages of utility and shared service management in a large, complex environment has increased in program managers, who recognize the opportunity to leverage enterprise assets to the benefit of their customers and mission.
- Oversight and best practices education in areas like business case analysis, risk assessment and project management are producing both IT and business managers with a renewed appreciation for and commitment to proper discipline and method in implementing IT projects.
- The routine interplay between business and IT to produce alignment is replacing historical behaviors of sequential interest management, allowing IT to enable new business processes and business to exploit technology for the benefit of the enterprise customer.

c. Financial

Money – or more precisely amounts available – are fostering demands for greater efficiency and for more accountability in how funds are invested in new processes and technologies. Stakeholders at all levels are concerned with the "value proposition" – the overall return on investment in enabling technologies. While this is a positive direction, it can encourage disregard for fundamental "back office" systems in favor of highly visible, public-facing applications. Best practices in information management require attention to both to protect the integrity and effectiveness of the entire enterprise. Symptoms of this trend:

- Budget pressures are consistent at all levels, producing demands for more efficient deployment of IT resources, increasing scrutiny of value added by those investments, and more accountability for results.
- Measurement of inputs, activity, outputs and outcomes is becoming commonplace, replacing accounting and counting as surrogates for meaningful performance measurement.
- Economies of scale, competition, supply chain management and commoditization of technology are becoming expectations of policymakers.
- Increasing recognition of total cost of ownership, life cycle costing, investment planning and migration planning are setting the stage for improved asset management by budget and policy stakeholders.

d. Demographics

The face of Minnesota is changing – older, more diverse and more sophisticated about how government should work. This human factor in change plays out in the state government workforce in a number of ways.

- The profile of the workforce will be dramatically changing due to retirement and new hiring. The resulting loss of institutional knowledge and experience is forcing reconsideration of employee development, deployment, skill renewal and supporting technologies.
- The changes in population distribution mix among rural, exurban, suburban and urban will place new demands for change in service arrangements and information distribution mechanisms, infrastructure and physical plant.
- Changes in workforce language, culture and background will increasingly mirror societal changes; technology offers new ways to engage, prepare and support a new workforce.

e. Customer expectations

Just as the workforce is changing, so is the customer, and government must respond to address these changes:

- Customer service paradigms that have been developing for decades in the public sector have reached maturity, and the public has come to expect that their government will be as respectful of customer needs and priorities as it is its own convenience and administrative needs. In particular, the Internet business services model has transferred to government, and pressure to liberate government services from an office-bound schedule to true 7x24x365 is mounting.
- Customer demographics are changing dramatically as well. Citizen language, culture and experience with government is increasingly diverse, forcing public sector administrators to challenge internal operating practices and customer support methods.
- Citizens and their elected representatives increasingly demand accountability, forcing agencies to be as resourceful, secure, efficient, flexible and service-oriented as the best private-sector firms.

f. Markets

The marketplace both drives and reflects the changes in the environment. For Minnesota government:

- Labor markets compete with the state for a limited talent pool, but also make available to agencies the skills needed for specific tasks.
- Technology markets drive the development of new tools and technologies which have application to agency missions and to customer and employee needs. On the other hand, the rapid pace of change introduces both complexity and incompatibility, and marketing hype occasionally distracts from coldly objective determinations of value added.
- The demands of business markets for support and investment advantage means the state must compete with other locales on the basis of the technology infrastructure, efficiency of government processes and preparation for workforce and environmental needs, most of which are tied to technology.

A synopsis of observed trends and IT implications in a number of areas of government service and operation is attached as Appendix 3.

STATE INFORMATION MANAGEMENT PLANNING

Purpose and intent of the Master Plan

Under M.S. 16E.03, Subd.2(2) the State CIO must "design a master plan for information and telecommunications technology systems and services in the state and its political subdivisions and shall report on the plan to the governor and legislature at the beginning of each regular session;…"

The purpose of this master plan is to provide strategic leadership for information management. The goals of this plan are threefold:

- to set a guiding vision for the use of technology for improvement of government operations and service;
- to lay out the information and technology directions and expectations that will guide agency investments; and
- to set the priorities for new systems development around opportunities in the area of customer relations, shared services and governmental efficiency.

Agencies and program areas are ultimately accountable for effective planning and management of IT, but the State CIO has the responsibility for providing the stakeholder oversight in these efforts and for leading the state to realization of the vision advanced in the master plan.

Integrating Themes

A set of foundational elements that are central to the planning process provide context for the information strategies. These state the underlying assumptions and philosophy for planning. These are:

An Enterprise View –
The "enterprise" is similarly a flexible concept. It is more than just executive branch agencies, but smaller than the public sector. This ambiguity symbolizes both the complexity of our government environment, and the simultaneous commonalities and uniqueness of government institutions and services. An "enterprise view" connotes a broad-based environment of public service functions, crossing organizational boundaries, hierarchies and jurisdictions to address the common needs of those entities that exist to serve the public interest.

In the context of this plan, the term also reflects the authority and scope of responsibility of the State CIO. The clear intent of Governor Pawlenty's executive order and of the enabling statutes for OET was that the "enterprise view" should guide, direct and support the most thoughtful and efficient delivery of IT services possible. The "enterprise view" serves as a control mechanism for advancing the citizen's best interest and assures stakeholders that these interests are not subordinated to more parochial interests or to administrative inertia.

Future Orientation –

It is essential to define a vision of the end state towards which the state will move. This will be the convergence point for technology and business process, an objective where business needs and information solutions are aligned for efficiency and impact. If this convergence target is immediate, the migration costs and the disruption in service may be excessive; too distant, and the urgency and pertinence of the migration are easily dismissed, or the plans lack the specificity needed to make decisions and take actions. The planning horizon is, then, a compromise between these pressures. For purposes of this planning effort, a rolling five-year time frame has been adopted.

A Commitment to Customer Service –
The range and variety of customer needs, services delivered and programs involved clearly indicates that there must be a continuum of service venues and delivery mechanisms to meet citizen needs, abilities, and preferences. Customer-centered decision and delivery processes bring customers' needs into consideration early and consistently, keeping in mind at all times the goal of improving interaction with government. Like a successful business, government must continually improving operations, communications and service goals to create a quality customer experience with all of government.

As society places a premium on self service, location- and time-independence, customized, multichannel service vehicles and other highly sophisticated modes of operation, responsive government entities must reflect demographic changes and challenges and adjust to the needs. This creates disharmony between resources and priorities on the side of government and some dynamic balance of single point of access/no wrong door/portal technology approaches. This is a moving target from a customer benefit standpoint, as society continues to evolve.

An Enterprise Architecture –
A true essential element in effective information management is the existence of an Enterprise Architecture. This is the integrative foundation upon which technology builds – the defined business processes. An Enterprise Architecture is a structured hierarchy of progressively more specific standards and requirements that govern information system design, development and operation across organizational and systems boundaries. By defining universal elements of business process, information and technology, the architecture enables integration and interoperability, improves business-IT alignment and allows for cross-organization sharing of systems and processes.

In a large and complex organization like state government, the architecture must strike a balance between prescriptive standards and a *laissez-faire* acceptance of any solution that focuses on immediate considerations of resources and operational impacts. It best accomplishes this by disciplined adherence to a strategic direction and not simply consolidating current practices and investments in a static inventory. The architecture process takes advantage of existing knowledge and experience and existing investments, but is targeted on the future convergence point of the planning process.

This is not a situation where the "one-size fits all" solution supplants legitimate business needs; on the contrary, a healthy enterprise architecture should enable solutions, not constrain them. But designers need boundaries, and should have compelling business reasons for exceptions to the architecture.

The Business Case Discipline –
In managing for the future, it is imperative that investment decisions bring all of these themes together. The enterprise planning process involves starting with an objective analysis of the business need in a context of enterprise strategies and priorities, customer needs and the enterprise architecture. Design decisions in this environment allow for solutions that can leverage IT investments, allow organizations and programs to work together, exchange data, serve common customers and manage the full cost of doing business.

A well-done business case can support IT in offering the business side of government creative new alternatives if they work in concert. This is especially apparent in migration from current to future state for applications, systems and processes.

Learning from Others –
The experience of the private sector and of other progressive government organizations has been that technology must parallel business direction and anticipate business needs to add value, and the planning for the two domains must be closely linked. Similarly, oversight functions must integrate with planning, budgeting and implementation to add value and ensure compliance with the architecture, with best practices and with effective stewardship of public resources.

Information Management Strategies

Strategies are high-level, medium- to long-term directions established by the State CIO through the strategic planning process. The intent is to define key elements of a migration plan – to lead an enterprise-wide effort to change our practices and processes in government. By describing for policymakers and agency executives the expectations and deliverables which will guide administration decisions and investment priorities, this plan should set the parameters for government action in the area of information technology for years to come.

These are not specific proposals for individual systems, for immediate legislative policy action or for short-term agency process changes, but will provide the framework for all of these. A strategy should lead directly to actions consistent with the plan elements. Taken as a whole, it represents the blueprint for building a new information management environment.

Transformational Strategies from the State CIO

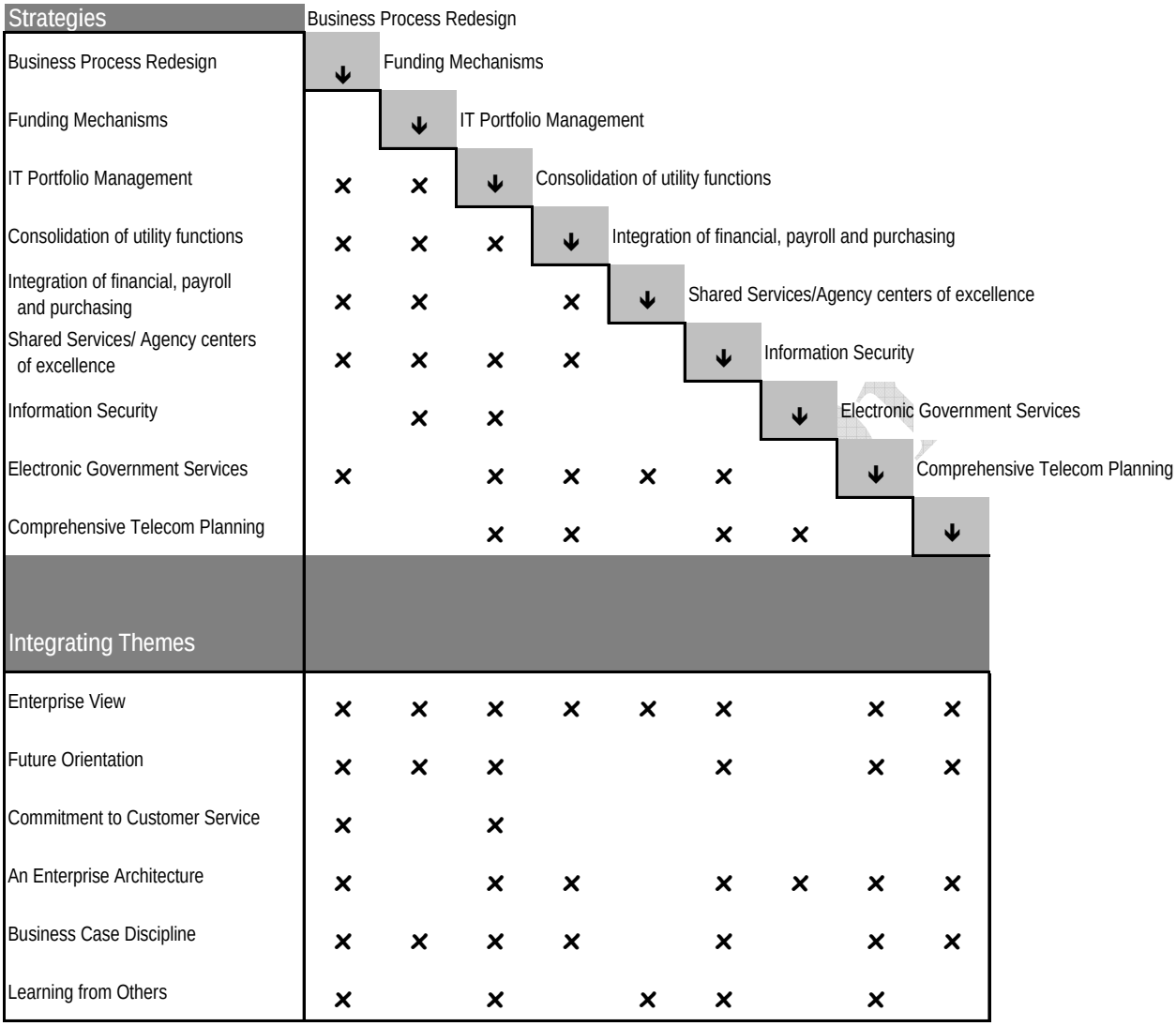
The first set of strategies are leadership initiatives, fundamental strategies that define critical directions in support of the redesign of state government. They represent the perspectives and priorities of the State CIO. These are items that were deemed to be of critical importance to advancing the vision described earlier in this document. The boundaries and definitions were influenced by both business and IT leaders in the agencies, by best practices in both public and private sector, by the policy goals of the governor, and by the vision for IT management articulated in the Drive to Excellence Transformation Roadmap.

Although the strategies stand alone and can be implemented independently and in any sequence, they are by design mutually reinforcing. Thus, the Portfolio Management strategy and Electronic Delivery of Services strategies are complementary, as are the Center of Excellence and Consolidation strategies. Similar synergies exist among other groups of strategies. They also build on the integrating themes identified above, which provide context and support for all of the strategies

For the most part, these strategies advance areas of special strategic significance not addressed elsewhere. For example, the enterprise desktop and laptop PC standards project was in prerelease stages when the master planning process began, but its immediate successes lead to agency support for extending this effort and building on its success. While undoubtedly this model will be further extended and its benefits realized in other areas as investments are made, it has moved into the operational realm and is not listed here. The principles involved – that the state should have a limited number of alternative manufacturers to balance competition with simplicity, with agencies choosing a department standard from this list, and that all purchases of software should be of standard configurations of the package, from a limited number of alternatives, aggregating demand by central price negotiations – are no longer in question.

The complementary relationships among plan elements can be seen from the following table:

Strategy Relationships



Strategies	Business Process Redesign	Funding Mechanisms	IT Portfolio Management	Consolidation of utility functions	Integration of financial, payroll and purchasing	Shared Services/Agency centers of excellence	Information Security	Electronic Government Services	Comprehensive Telecom Planning
Business Process Redesign	↓								
Funding Mechanisms		↓							
IT Portfolio Management	×	×	↓						
Consolidation of utility functions	×	×	×	↓					
Integration of financial, payroll and purchasing	×	×		×	↓				
Shared Services/ Agency centers of excellence	×	×	×	×		↓			
Information Security		×	×				↓		
Electronic Government Services	×		×	×	×	×		↓	
Comprehensive Telecom Planning			×	×		×	×		↓
Integrating Themes									
Enterprise View	×	×	×	×	×	×		×	×
Future Orientation	×	×	×			×		×	×
Commitment to Customer Service	×		×						
An Enterprise Architecture	×		×	×		×	×	×	×
Business Case Discipline	×	×	×	×		×		×	×
Learning from Others	×		×		×	×		×	

Strategy 1: Business Process Redesign

Engage business and IT leadership in a structured program of Business Process Redesign (BPR).

Explanation and context

Reengineering -- the discipline of business process redesign, not the buzzword -- is a demanding and sometimes destructive course of change management. But even if total business process replacement isn't possible or realistic, we should always apply the principles of business process redesign analysis to our organization and its work processes before making decisions on what to do and what technologies to employ.

Business process redesign is a proven mechanism for organizational analysis and improvement. It is a complement to traditional continuous quality improvement methodology, and extends the effective life cycle of systems by anticipating and providing for future needs. Deterrents to more extensive use of this discipline are the additional cost of analysis, the challenge to the *status quo*, and the implications for the organization and its employees. The magnitude of changes in tasks and skills creates both challenges and opportunities, but the benefits can be significant.

The methodology includes:

- foregoing exhaustive documentation of how we currently do things and why, and focusing instead on where we want to be in the future and how we'll get there
- looking at the complete business process as the basis for design, not individual tasks
- identifying non-value adding work and ruthlessly eliminating it
- look at technology and business need in concert to see what new approaches can be enabled by new technologies...don't just reautomate or upgrade in place as an automatic strategy
- look across intra- and inter-agency boundaries and programs for opportunities to share common data, both for the sake of the state and for its citizens

“Putting lipstick on the pig", “paving the cowpaths” and "mounting a motor on the horse's back" are amusing aphorisms, but they hide a harsh reality...too often organizations strive for improvement without change or risk, creating a kind of bureaucratic entropy that must eventually be addressed. Re-automation – simply upgrading or replacing software without adding substantial value – too often perpetuates outdated practices and fails to take advantage of potential improvements in business process that are possible with new technologies or new perspectives on the work. Doing more quickly and efficiency work which ought not be done at all is not improvement.

Desired outcomes

- Reduction in the number of duplicate business processes in government
- Streamlining of customer interactions and workflow to benefit both citizens and agencies

- Sharing of information collected once and used multiple times
- Planned rapid migration away from paper-based processes to collection, manipulation and use of electronic data
- Use of empowering and integrating technologies to support information workers

Specific approaches/directions

- Develop a plan for independent, cross-agency or public/private examination of key business processes on an ongoing basis to identify opportunities for BPR.
- Routinely incorporate into project management requirements a framework for analysis of fundamental business processes that must be followed prior to IT investments
- Develop employee capabilities for business process redesign
- Focus agency and legislative assessment on the potential for improvement in agency processes prior to approval of change initiatives.
- Recognize in the funding stream the resource commitment for time and staffing for comprehensive business process analysis.

Considerations

- Business process redesign is easy to launch, but difficult to maintain over time without serious executive sponsorship and involvement – it demands follow-through and consistent support
- Most attention tends to be given to areas of direct public impact, as opposed to internal "back office" functions. In BPR, the focus must be on the total process to realize significant improvement.
- BPR must involve management, direct service staff and IT in a partnership from the beginning. Traditional sequential processes do not produce transformational improvements.
- Successful BPR requires that agencies understand and accept that all processes are imperfect and need critical analysis for true improvement.
- The fallout from BPR places a premium on clear communications and on addressing human issues about change early in the process – areas like career impacts, skills acquisition, reporting relationships and performance measurement, for example.
- BPR must be driven by business needs and customer and business partners and constituents – strong external drivers that make a compelling case.
- BPR loses momentum without proper support and resources. Conversely, speed is not a substitute for substance in analysis. The redesign process gains credibility from internal expertise and external perspectives.
- Success in any project demands that the organizationclearly define what problem we're trying to solve. BPR only accentuates that need.

Strategy 2: Shared Services & Agency centers of excellence
Invest in Centers of Excellence for consolidating specialized functions needed by a subset of agencies.

Explanation and context
The "Shared Service" component of the federated model Minnesota has embraced has as a major tenet the practical need to build on expertise, performance and capacity where we find it. Some of these are mature, others are emerging. The specialized skills, services and technologies of agencies – particularly large and technologically advanced agencies like DHS, Revenue, MnDOT, Public Safety and others -- are a major asset we can exploit. This saves money, gives us a running start at successful extension of these capabilities, and recognizes accomplishment. In many ways this is analogous to the utility services provided centrally by OET, but the costs and benefits accrue to a discrete group of agencies instead of the full enterprise. OET may be the center of excellence itself, may support a Center of Excellence, or may have little active involvement. The enterprise and its customers will benefit regardless.

Examples of technologies include data warehousing and data mining, geographic information systems, accounts receivable, knowledge management, remittance processing, document management, call centers and help desks.

Issues of equitable funding, priority management, data segregation (as well as sharing) and access are all issues to overcome in the service level agreements. In the case of new and emerging technologies, an explicit decision to invest state resources in a new Center of Excellence should follow an analysis of where it should most logically be established.

Funding streams likewise must reflect the shared cost/shared benefit in a manner which is responsive to full recognition of costs.

Desired outcomes

- The state builds on demonstrated expertise and capacity where it exists.
- The state develops new expertise or capacity for information investments so as to leverage the investment for greatest value and service
- Duplication of effort and investment is minimized.
- Integration of information and functionality is enhanced through use of shared services

Specific approaches/directions
- Use IT portfolio management system data to inventory, identify, and analyze potential leverage points for further development.
- Review new systems requests and match with existing resources, capacities and processes.
- Create model service level agreements and shared service plans to help in fairly setting priorities and pricing.

- Initiate discussions with other government agencies and levels for shared service opportunities.
- Solicit entrepreneurial agency proposals for public-private partnerships in emerging service offerings.
- Identify as part of the business and information architecture process the data standards and interoperability requirements that will permit greater cooperation in the future.

Considerations

- Relationships, responsibilities and technologies change and the business case for a specific shared service may change; the underlying principle is that good business decisions benefit all customers and parties to the arrangement.
- After a business case suggests a possible positive relationship, we should do a proof of concept pilot project as a precursor to commitment.
- The problem of reconciling priorities when the resource is not directly controlled by the user agency requires a contractual guarantee not unlike a vendor-provided service.
- An appropriate balance of flexibility, efficiency and customer service is best determined in the business case for each situation.

Strategy 3: Electronic Government Services
Aggressively move to create the unified and secure infrastructure and Web interfaces that will enable and support citizen access to government information and services independent of time, geography, and government organization.

Explanation and context

In March of 2000, a group of agency technology and business leaders issued a set of recommendations for electronic delivery of services. The accompanying report said:

> "The Internet has spurred the development of an entirely new paradigm for networking and computing across the world. Individual access to resources from desktop computers through network connections is rapidly becoming the norm of our society. No industry or government is exempt from the pressures of connecting and providing ever-increasing core functionality in this seamless, virtual method. It is simply not enough to deliver services to the citizens as consumers in key geographical locations. Delivery must be ubiquitous and instantaneous, similar to the delivery of television, radio, and telephone technologies that citizens have grown accustomed to and expect. Citizens in Greater Minnesota communities and metro communities are increasingly sophisticated in their use of the Internet. Expectations for more and more online government services will increase – the only question is how fast.
>
> "The Internet, and the user-friendly face of the World Wide Web using browser software have brought millions of people to the Internet. This era of major change brings significant opportunities for government to not only improve internal productivity, but also to improve customer services significantly. Internet technologies, such as electronic payments systems will allow government and its customers to access and use information and to transact government business more quickly and simply over broad geographical distances."
>
> "The State of Minnesota presence currently on the web is characterized as offering citizens information about the state and local government. The State is now ready to develop the next phase, which is the delivery of services online to the citizens of Minnesota from the perspective of services, not systems."

These findings, and the circumstances of government response to these pressures, have not changed; if anything, the pressures are greater and government's ability to respond more constrained by resource and organizational issues than they were seven years ago when the planning process was initiated.

Technology is only part of the solution, though. Although the commoditization of PCs has expanded ownership dramatically, a significant proportion of adults cannot use them effectively, don't see value in the still-significant cost for hardware, software and connectivity. This is the "digital divide" which places a wide chasm between the

population of computer users and those – often poor, elderly or rural – who do not and do not intend to use them for personal or civic business. This residual resistance is a complicating factor to improving government efficiency and electronic services.

The report went on to note that Minnesota citizens want, and will soon expect:

- More avenues for citizen communication and participation with their government
- Choice of online or traditional transaction methods for government services
- Convenience of electronic payment methods
- Speed, efficiency, few errors with online methods
- Convenience of being "online" rather than being "in-line"
- Avoidance of trips to government offices
- Avoidance of time off work to go to government offices

The accuracy of these observations is clearly evident in both commercial and government e-Commerce sites. For better or worse, electronic business is growing as quickly as Internet penetration into homes and businesses. The 2005 Minnesota Internet Study found that nearly 60% of Minnesota households have Internet connections and an even larger number have access through work, schools or other locations. This number has been stable for a number of years and appears unlikely to increase dramatically until PC penetration expands significantly beyond current levels. Particularly in rural areas, though, high-speed access lags significantly; the availability of inexpensive and dependable broadband remains an obstacle to increased use of e-Government services.

Electronic delivery of services goes beyond the customer-facing side of the organization. As many private sector companies have demonstrated, there are tremendous efficiency and productivity gains associated with introducing electronic transactions across the supply chain. These same benefits can accrue to government in our relations with vendors and suppliers, other levels of government and within state government. "Government-to-business" and "government-to-government" are key service concepts that parallel and extend the benefits of "government-to-citizen" paradigms. It also leverages the business process opportunities.

The conventional process of automation takes a business process and applies a technology to improve performance or quality, or to control cost. Moving to a higher level of service requires a more comprehensive planning and design model than has been common in many efforts to have the web-browser presentation layer but not change the underlying business processes and program logic.

More appropriate, and more consistent with overall needs for business process redesign, is an enterprise approach which analyzes state systems and programs across agencies to identify opportunities. These are instances with an identified business need, customer or employee service improvement, or outdated service delivery model. A comprehensive assessment can lead to solutions that improve customer satisfaction, increase productivity and reduce cost through appropriate contemporary technologies.

Electronic service delivery has unique requirements that may challenge legacy applications and conventional business processes. It needs to be able function in a heterogeneous and

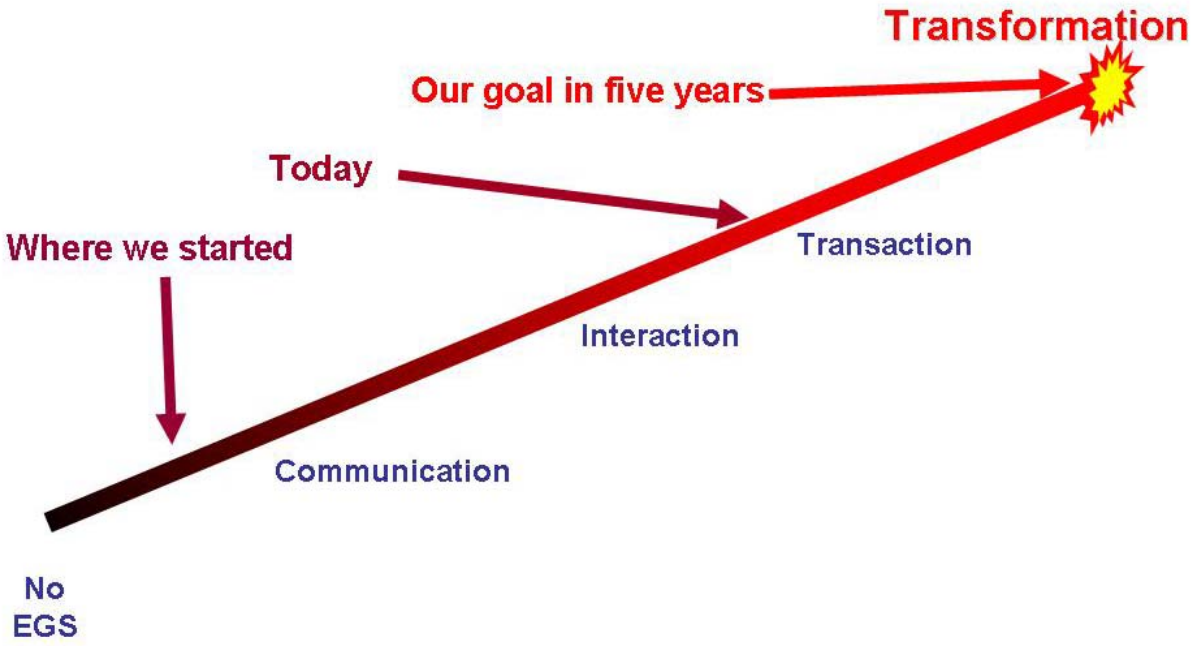
dynamic IT environment. It needs high availability, reliability, security, and 24x7 access. It creates design challenges to meet customer access, preference and experience variations – a more demanding environment than a controlled employee situation.

The time frame for web application development is continually accelerating as pressure builds for its deployment. Yet the same rules for development and project management must be observed to deliver quality products. Reconciling these pressures is not easy, but the outcome – particularly when done in concert with business process improvements – is gratifying.

The ubiquity and flexibility of the web also opens up opportunities for sharing front-end services with other entities and leveraging complementary investments.

Desired outcomes

The state's goal is to progress steadily along the continuum from traditional office-based services to "virtual" services. This progression can be illustrated thus:



The outcomes desired are simple but important:

- Migration from office services to virtual services.
- Migration from paper to electronic transactions for the majority of situations.
- Increased emphasis on citizen self-service and empowerment.
- Streamlining of business processes and retirement of redundant and outdated applications.
- Expectation of use of shared applications for multiple functions
- Use of uniform standards and processes for customer data gathering.

Specific approaches/directions

- Identify where greatest payback – customer service, process efficiency, performance – for each opportunity area: government-to-citizen, government-to-business, government-to-government
- Using portfolio and architecture data about these opportunities, analyze applications across and within agencies and plan convergence strategies.
- Develop enterprise-wide strategies for EGS support activities such as authentication, identification and processing – applications which are often not visible or glamorous, but critical to success.
- Design a services roadmap for high priority needs, using the portfolio business value/technical condition analysis.
- Capture savings from retired or reengineered processes for reinvestment.

Considerations

- Resist pressure for quick, superficial, or trendy applications with high visibility if they compromise process integrity and long-term goals. Use the business case for planning and development.
- We need to address user needs, preferences and relationships of varying kinds…to take the human dynamic into account in our planning and delivery. The "digital divide" is still in existence even though PC and Internet penetration is growing dramatically.
- Organizations will need to address and accept the work culture changes arising from putting the customer in charge of the relationship
- Decisions about dropping old service delivery vehicles that serve a small minority of customers will be difficult, but necessary.
- Making the transition to truly support a 7x24 model on 5x8 model government will require creativity, resource shifts and personal adjustments.

Limited English Proficiency, disability access, and issues with aging and other populations must be addressed before instituting disintermediation and customer-controlled interactions.

Information Management Strategies

Information management strategies are management initiatives that describe the enterprise direction, and which will support the agencies and their missions now and into the foreseeable future.

Strategy 4: Funding Mechanisms

Create a coherent and realistic funding process and accounting structure for IT life cycle expenditures, including provision for cost management, reinvestment and replacement/migration.

Explanation and context

Under current practices and statutes, planning for total life cycle costs and eventual retirement or replacement of an information system is limited by the biennial budget process. Similarly, there is no effective mechanism for capturing and reinvesting savings due to operational efficiencies or to reductions in purchase costs or total cost of ownership. The state needs to take an investment perspective on long-term funding for normal expenses of operation and maintenance, for end-of-use costs and for improvement in both business processes and supporting technologies. It also needs to take advantage of existing laws to create an effective investment pool, and to create agency incentives for cost savings.

Desired outcomes

- Executive and legislative decision processes recognize the need for acknowledging the costs of ownership in the planning process.
- Systems proposals for funding identify full development, implementation and operational costs prior to approval, and subsequently systems owners can rely on stable funding for the total cost of ownership for normal operation during the life cycle of the system.
- Systems owners can set aside dedicated funding from operational savings during the life of a system to facilitate retirement, upgrade or replacement of systems.
- An interagency investment pool operates for enterprise products and services outside the biennial budget process, with initial seed capital and a credible mechanism for capturing savings and reinvesting them to replenish this fund
- Reporting on true costs of developing and operating systems and business processes will be uniform, clear and accurate. Performance metrics will facilitate comparison with benchmarks and management targets.

Specific approaches/directions

- Examine funding mechanisms for other jurisdictions for best practices and model statutory language.
- Work with Finance and legislative staff to identify current language which can be built on or modified to help improve management of IT investments.
- Develop accounting structures to capture savings and investments in long-term technology investments.

- Require full cost analysis for all proposals for new or substantially modified information systems.
- Track operating costs against design parameters and cost estimates.
- Consider policy, program and systems investment implications as a integral package during budget preparation and legislative consideration.
- Rigorous investment analysis should be applied to existing applications on an ongoing basis, not just to proposals for new development.

Considerations

- Enterprise IT planning and budget analysis should be done in concert with Finance Department processes.
- Phased approach and migration strategies, not big-bang approach
- Need to recognize implications and complications of grants, fed funding
- Effective management of revenue streams and limitations of different funding mechanisms – the "strings" and restrictions (complications for leveraging attempts?)
- Need to take advantage of/work with changing culture of fed funding
- Have/have-not culture creates complications and inequities , but also limitations
- Technology initiative cross biennia
- Big issues…life cycle funding, TCO, value analysis
- Need to consider full process cost, not just technology cost
- Issues of infrastructure renewal
- Accountability and measurement for results in process and technology—"what difference did it make/what value did it provide"
- Need for enterprise/coordinated planning allow for better leveraging of assets
- We are accountable to our funding sources
- OET should form a partnership with agencies at the outset and throughout the process
- Marketing includes recognizing our advantages

Strategy 5: IT Portfolio Management
Institute and manage a statewide portfolio of technology projects, applications, staff and operations as enterprise assets to leverage technology and data for maximum efficiency and impact.

Explanation and context
The state has made huge investments in technology -- hardware, software, data and staff -- and has both an obligation and a need to treat these assets as state investments, not agency property. That includes cataloging and understanding basic facts about these resources and managing them throughout their useful life.

Underlying this is the basic reality that systems and resources are for the most part resources, just as buildings and other physical assets are at heart the property of the state, not an agency, program or user. Managing this portfolio is a statewide issue, but in the past has been done inconsistently across agencies, leaving policymakers in doubt about whether the money spent is properly deployed, effectively managed and prudently maintained throughout their life cycle.

In the past there have been efforts to collect and analyze data about projects and assets, but they have been plagued by methodological problems, inconsistent cooperation from agencies and a lack of resources to do anything with the data. So long as agencies individually have good project and asset management processes, the practical impact is *probably* limited, but so is the potential impact on state expenditures, operations and performance when there is no opportunity to look across agencies for improvements. In addition, the expense of system development and operation without independent oversight opens up the likelihood that lack of project management discipline or adherence to good design principles might create financial and legal problems.

There are five basic categories which can be addressed by portfolio management:

a. Projects being planned or proposed
   The current budget analysis process makes provision for reviewing technology requests by OET, but in fact this has been too often done out of context and without a strategic focus. The recommendations have dealt primarily with technical feasibility, not with business priority, opportunities for sharing and other enterprise-level considerations.

   More comprehensive documentation and analysis can, in conjunction with an enterprise plan, do a better job of assuring a relationship between priorities and resourcing recommendations.

b. Project management
   Project management is a robust and well-documented discipline for implementing technology. OET maintains a database of project management forms and best practices documentation, together with a largely voluntary progress reporting process.

Mandated standards of practice, required project reporting and resources for project audit and performance review can add significant value to enterprise projects management without compromising either current operations and projects.

c. Systems and application inventory
There is currently no useful process for routine and consistent assessment of the business value and technical condition of major applications and systems across the state. As with projects, some agencies have their own processes for this purpose, but also as with projects, there is little opportunity for analyzing the status of mission-critical systems to plan for replacement of consolidation.

A statewide database of applications and an evaluation process that encourages consistent evaluations by business and IT managers combined with thoughtful analysis and planning programs will produce a more thoughtful sequencing and leveraging of major investments.

d. Hardware and software inventory
Current law requires an inventory of state technology without distinguishing among the many varieties and levels of investments. Under the law, the inventory must identify technology purchases from $200 personal information management devices to office-standard desktop PCs to million-dollar mainframes. The breadth and complexity of this inventory defeats both meaningful analysis and practical management, and unnecessarily duplicates many of the functions of normal asset management responsibilities within agencies.

More valuable would be an inventory of asset classes and general characteristics tied to the procurement and architecture processes. Evaluating these as part of planning for asset life cycle, training and support will aid in projecting future costs and present operating improvements.

e. Employee skills and experience
The knowledge and experience of state employees constitutes one of the most valuable – and expensive – state information assets. Even in light of the demographic profile and the succession planning that is needed, identifying what people have which experiences and training is very limited effort, and has little practical cross-agency value in trying to staff statewide priorities or even emergency response.

The state should undertake a coordinated process to define, validate and capture employee skills and experiences for project and disaster recovery reasons. Particularly in areas of limited supply and critical need, this is an asset-sharing opportunity that can save the state consultant fees and offer development assignments for state employees.

OET has the responsibility for developing and managing the data collection systems and analysis efforts about projects, systems and resources for both reporting and management oversight. Good project management can be provided using a variety of techniques and tools, so agencies have a variety of options that work for them. A standard set of

requirements that are reflective of universal best practices is therefore adequate for supporting agencies.

The purpose of portfolio management is not to impede progress or add meaningless, non-value-adding controls. Nor is it to catch people and assess blame with projects or acquisitions get into trouble. The benefit of portfolio management, as has been demonstrated in countless organizations, is to assure that projects are properly organized and that the fundamentals of project management best practices are incorporated into the project plan. This preparation, plus routine independent review of progress, helps to minimize the possibility of a project losing scope control or process integrity. This allows for mid-course correction rather than the drastic cancellation or project failure.

OET has adopted several principles to guide the portfolio management processes:

- Mandate only practices that are acknowledged fundamentals of good project management practice.
- Require only data that would be needed in any professionally managed project and for departmental oversight of internal projects.
- Be realistic in collecting information so we don't lose the full picture due to details that we can't possibly manage.
- Do something useful with the information; don't just collect it for the appearance of accomplishment
- Develop relationships and understanding of the business needs of the agencies to facilitate good decisions.

Desired outcomes

- Projects support the state's architecture and state priorities, and are managed according to PM best practices
- Systems are monitored for technical condition and business value to support decisions on reinvestment, extension or retirement.
- Issues of institutional capacity, responsiveness, security and stability are managed with an eye to the total environment.
- Resources like skills and experience are maximized without additional unnecessary expenditures.

Specific approaches/directions

- Define and direct the mandated submission of basic information on all significant proposed projects, then do an analysis of this portfolio for collaboration opportunities and business need.
- Develop a professional project management relationship between OET and agency project managers to keep OET updated on agency capabilities, intentions and priorities.
- Adopt an integrated set of standardized tools
- Define and direct a required project progress report for every major IT project, with periodic review conducted with agency PM staff.
- Conduct a biennial statewide survey of major IT systems and applications with a standardized scorecard to be completed by agency business and IT staff. Analyze

this data for insights on replacement schedules, life cycle management and opportunities for joint redevelopment.
- Work with DOER and exclusive representatives to develop a useful means of documenting skills and experience that may be broadly applicable.

Considerations

- Thresholds and requirements for reporting must be reasonable to avoid overwhelming agencies and causing a glut of data that doesn't lend itself to meaningful analysis.
- Adopting the standards for shared system, the state should support coordinated data gathering and documentation that serves the budget process, projects management, and acquisition purposes.
- The further development of recommended project methodologies, reporting tools, references and other resources needs to continue to help agencies with foundational elements of project management.
- Reporting and inventory information need not be of accounting quality to serve analytical and oversight needs.

Strategy 6: Consolidation of utility functions
Move aggressively to centrally providing utility services to agencies and other entities currently providing them on a highly distributed basis.

Explanation and context
The business of most government agencies is not running computers, but using computers and computerized data to facilitate delivery of services and information to citizens and support other organs of government. We can ease that effort by shifting focus on common areas on a centralized basis.

The benefit in doing this is clear. Instead of expending resources on supporting activities agencies would be able to focus on their mission, their core business processes and customers. The same level of support service can, in theory, be available from a service provide whose mission is to provide those services. Issues of capacity planning, support, cost containment and management would be handled more efficiently as resources are consolidated and needs addressed. The net savings should be significant for these activities, with most of the savings directed to program areas.

Besides the current level of mainframe and wide-area network support, there are a number of examples that show promise for central management:

- managing data centers
- providing enterprise-wide security and recovery capability
- business continuation/disaster recovery
- direct desktop and network help desks
- training and assistance for common functions performed by agencies
- data backup and storage
- web hosting
- data warehousing
- GIS systems
- maintaining email systems
- supporting data transfer and electronic transactions

Each of these, and potentially others, constitute an opportunity for improvement. For each, a clear business case would need to be made for doing an activity in our environment, and if so, a careful migration plan for convergence would be required. Service Level agreements and clear understandings about funding and authority need clarification; for example, there may be situations where centralization doesn't match the total cost of ownership or the performance metrics, and consolidation for the sake of uniformity shouldn't force an unproductive relationship on unwilling business partners. "Centralization" also doesn't necessarily mean these have to be done by OET for the enterprise. As in the case of shared services for groups of agencies, consolidation of enterprise-wide activities might be done by a Center of Excellence, or outsourced to another level of government or to the private sector. That decision should be the outcome of the business case analysis, and the criteria should reflect the highest value proposition.

Centralized management can take the form of physical centralization or centralization of policy and administration. The point is to reduce duplicative overhead, find the most efficient overall capacity levels, and provide the highest value of service for the tax dollar.

None of this suggests that agency resources will not still be needed for support under even this utility scenario...it isn't an "all or nothing" proposition. Some elements of service and control are highly individualized and need specialized or local attention, and in some cases the tradeoffs may not prove the value added. The key is collaboration -- partnership as opposed to a control/mandate approach. We can expect movement back and forth from shared to utility services as circumstances of technology, economics and performance dictate.

Desired outcomes

- Resources and services are provided in such a manner as to ensure an optimal mix of efficiency and performance.
- The operational cost of common utility type functions declines as an absolute and as a percentage of overall cost of government.
- Quality of service and consistency of support levels improves for utility functions across government.
- Service level agreements and business case analysis are employed routinely in making support resourcing decisions.

Specific approaches/directions

- Determine benchmark costs for utility services elsewhere and prepare proof-of-concept comparisons to help set the stage for discussions.
- Develop a detailed business case and, if called for, a properly staged multi-year plan for migration of each of the most promising categories of utility services and determining the value proposition for each instance of service provider-customer relationship opportunity.
- Negotiate individual service agreements for specific situations where a global business case cannot identify the cost/value issues for the circumstances.
- Develop utility funding mechanisms to permit leveraging external funding in a manner appropriate to the legal purpose.
- Develop consistent procedures for objectively determining priorities and resource allocation for utility functions (staffing and budget are major elements, but not the only ones)

Considerations

- An independent analysis must be done of the risks that attend to an enterprise commitment to a product or approach, and the mitigation strategies that address vendor dependency and diseconomies of scale.
- There are compromises involved in trading independence/flexibility for efficiency and interoperability. These must be weighed in the business case against the

benefits to agency customers, not just the financial cost of doing business. For this reason, both business and IT leadership must own consolidation decisions.

- There is a major education component for customers, legislators, vendors and the public about the practical management of policy/funding/service issues arising from centralization.
- Success demands a collaborative process and transparency of decisions.
- For some organizations, special circumstances may mean consolidated functions may cost more…if the overall enterprise benefits, some adjustment to protect customers and programs from cuts will be necessay to accommodate both local and enterprise interests.
- Outsourcing should, despite opposition from specific interests, remain an option if, and only if, the business case shows a clear enterprise advantage.

Strategy 7: Integration of financial, payroll and purchasing
Integrate core business management systems of accounting, budget, payroll/personnel and procurement.

Explanation and context

The Drive to Excellence recommendations for Enterprise Planning & Budgeting made a case for action for improvements to statewide planning, funding, and budgeting processes in order to "encourage careful planning, strategic leveraging of shared services, and cost-saving measures enterprisewide." It pointed out that, while each agency does an adequate job of agency-specific planning, and the central support agencies (Administration, Employee Relations and Finance) do a creditable job of managing at an enterprise level, significantly more cost savings, operational efficiencies, and improved service levels for those working for or doing business with the State could be realized through greater integration of functions and data, and by streamlining procedures.

The business case demonstrated the strong interdependency between shared services and the MAPS replacement. If the State chooses to move forward with shared services, a new system implementation will be critical to success. The current MAPS system was implemented in 1995, but was based on technologies and business processes that were a decade old at that time. The vendor has indicated that they will discontinue support for the version after 2005. In addition, MAPS has limited functionality in some areas compared to newer systems available in the market today. The agencies are asking for a system that satisfies more of their business requirements and allows them to leverage a central solution rather than developing similar systems across multiple agencies. There are clearly tradeoffs necessary between cost and functionality, but these should be done thoughtfully, as befits a mission-critical business asset.

Desired outcomes

- The state will have a highly functional and integrated accounting and procurement system that meets client agency needs.
- Current vulnerabilities and dependencies will be replaced by robust, integrated and practical functions.
- Procurement and accounting services will be contemporary in approach and will be consistent across agencies.
- The core systems will support the array of funding and measurement needs implicit in a federated model.
- Business processes for core functionality will be streamlined, support decision-making, eliminate redundancy and reduce customization for long-term cost control.
- Functions will support delegation, automation and self-service, with additional functionality that is cost justified.

Specific approaches/directions

- Perform a business case analysis of the various options for implementation (integrated or tightly coupled, loosely coupled "best of breed" system, or ERP-type "all in one" solution) would deliver the greatest value and performance.
- Perform a risk analysis on issues involving current procurement and accounting systems.
- Explore funding mechanisms for the most appropriate solution in FY2007 with a target implementation date of 2009.
- Redesign business processes to take advantage of software solutions
- Implement the new statewide system.

Considerations

- Integration of information and interoperability of functions are key to significant improvement in state functions.
- There is a need to balance user/client needs with efficiency and integrity of the central function.
- The interests of all stakeholders need to be considered, even if the compromises required for implementation can't accommodate all needs.
- Decisionmakers need to consider life cycle payback and total value proposition, not just initial cost.
- There are maintenance issues, stability and long term cost advantages and disadvantages to separate, linked and integrated systems.
- As a practical matter, the state should not expect that all of the arcane accounting methods and special needs for all program areas can economically be incorporated into the core system. Some standalone systems will still be indicated.

Strategy 8: Information Security
Implement a comprehensive and consistent state-wide security structure encompassing architecture, administration, monitoring, interception and remediation.

Explanation and context
The need for robust and comprehensive security is well documented and compelling. Existing central IT security resources are inadequate for dealing with the complexity, scale and risks of Minnesota's information management environment. The distributed nature of contemporary, Web-based applications and the growth in size and in geographical dispersion of connectivity in the state environment have far eclipsed the capabilities of the historic IT mainframe security function and the capabilities of OET and agency or campus security offices. The emphasis on e-Government and the ubiquity of financial transactions and highly sensitive data transmissions demand secure networks and systems…in fact, the entire concept of electronic government services, shared use of information and related transformational activities are absolutely dependent on a secure information environment. As pointed out in the OLA audit report, the state and its citizens have a substantial exposure to financial or personal damage in the event data is lost or damaged, or otherwise compromised.

Simply centralizing IT security staff from other agencies and bringing them under OET also is not workable; the distributed nature of application and network security requires agency security to be a key partner in enterprise affairs. The most desirable and practical solution is to create the desired IT security management environment without compromising ongoing operations that other agencies and citizens value and depend on. This includes policy, staff and technology working together.

Addressing the areas of security administration, engineering, risk management, security compliance and technical support will be a highly collaborative effort involving the entire executive branch of state government and MNSCU, with major implications for local government and public education entities operating on MNet as well.

This is all directed towards producing a higher degree of oversight, analysis, planning, integration and active management of IT security investments and operations across the enterprise. Failures of these areas anywhere within the enterprise compromise jeopardize throughout the organization.

Good security is both strategic and highly tactical, but well integrated for maximum coverage. A proper security strategy will create a universal set of standards for all agencies or campuses and all staff and users to protect the network, devices and data at the vulnerable point of contact.

This starts with a comprehensive security architecture, builds on thoughtful policies and procedures, and is realized in detailed security practices. For example, consider the following small elements to larger security landscape:

- Password administration
- Two-factor authentication
- Activity monitors with automatic logoff

- Encrypted and password protected portable data devices.
- Routine audit of access rights
- Annual refresher training on basic principles of security as a prerequisite for continued access.

None of these are individually oppressive steps, nor are they generally difficult to implement. But these types of routine items are essential for supplementing the higher-level security plans.

The rationale for greater security is simple: As we move towards greater integration and sharing of data, the risks and costs of carelessness or inattention grow in proportion. Citizens need to be assured of our careful stewardship of data and of tax-supported systems and information assets. Protecting the access and data complements network and system protections

Desired outcomes

- Coordinated central management of state government technology investments and assets across networks, platforms and technologies.
- Broader support for electronic government services.
- Expanded and more proactive planning, leadership and oversight for agency security.
- Replacement of passive or reactive security technologies and security strategies are not enough to protect data, assets and functions from damage or compromise.
- Implementation of new security technology infrastructure to control against intrusion or disruption of service.
- Administration of more stringent access and authentication policies, and establishment and management of an enterprise-wide security architecture and comprehensive cyber-security plan

Specific approaches/directions

- Develop a comprehensive enterprise security architecture to guide and direct convergence on security technologies.
- Designate a state Chief Information Security Officer (CISO) to develop and manage enterprise security under the authority of the State CIO.
- Identify and formalize the security responsibilities of the agency CIO (and agency CISOs) as part of enterprise security.
- Develop specific state policies and practices around topics of password administration, identity management, authentication and authorization, and related security domains.
- Develop specific enterprise plans for implementation of protective and responsive security technologies.
- Implement programs of security audit, penetration testing and business recovery testing.
- Coordinate with federal and local security and data protection leaders to assure seamless security.
- Establish and maintain universal employee and contractor basic security training consistently across state…initial and refresher, both awareness and practices

- Build in a qualitative security analysis into OET project approval processes.
- System projects or designs should have independent audit trail and security assessment built into the system budget before approval

Considerations

- Agencies need specific guidelines, not statements so general as to be of little practical value.
- Agencies and service providers need clear central support and mandates to support agency efforts to impose robust security.
- The security procedures and evaluations must represent a thoughtful balance of risk assessment and security arrived at cooperatively by business, IT and security leaders.
- The plan needs a realistic migration path to better security in areas where financial and operational impacts are significant
- Impacts of security also fall on customers, counties and other entities who are looking for guidance, support and authority for security issues. We need to provide for their involvement and interests in planning and implementation
- An independent security audit capability will be needed to identify issues for correction and quality control apart from central and agency resources.

Strategy 9: Comprehensive Telecommunication Planning
Develop a comprehensive strategic plan for delivering and managing telecommunication access and services that promotes electronic delivery of services, unites communities of interest and encourages regional business development.

Explanation and context
The historic separation of voice, video and data communications networks and technologies have diminished as markets, using common protocols and high-capacity telecommunications methods, forced convergence on the world. Like electricity, reliable communications networks are taken for granted in most areas. However, regional variations in capacity and quality of connectivity are still problematic.

There is ample room for public-private partnerships in this area. The state has provided connectivity for schools and local governments in many communities through the state infrastructure, while a variety of utility and telecommunications providers – telephone and cable companies primarily – reach out to businesses and homeowners. The technologies vary from wired to satellite to wireless, and at a variety of speeds, dependability and cost.

In the diversity and multiplicity lies the problem. Some areas of population concentration have duplicated services – both telecommunications capabilities and access to government offices and services. In other areas – especially in small communities and rural areas in Greater Minnesota – lack both high speed and geographical proximity. For these communities, a robust and affordable information infrastructure has major implications for economic viability, education and access to services.

The paradox of the market-based private services is that the areas that need additional service are often priced out of the market by low density and distance. Even in many urban areas, the cost of home or business access and limited availability of publicly accessible Internet workstations create problems for some economically challenged neighborhoods and populations. For special needs populations, easy access can make a significant difference in the quality of life.

These conditions are more than annoyances. High-speed, high-reliability connections are no longer an incentive for new business development, distance learning and e-Commerce…they are a basic requirement. Add in state and local movement to Internet-based e-Government and the case for a state-facilitated planning effort to provide uniform access statewide becomes defensible.

While a totally public solution to promotion of statewide access is probably infeasible financially and politically, coordination by the state – perhaps a joint effort by OET and the Departments of Employment and Economic Development, Human Services, Education, Public Safety and Transportation – would advance collective interests in making this state…with its tradition of entrepreneurship, technology and education…a leader in connectivity.

Desired Outcomes

- Cost-effective access to high-speed data, voice and video technology is available in all areas of the state.
- Economic development throughout Minnesota is viable because of the supporting infrastructure.
- Creative and affordable educational services are available to geographically distant areas of the state for enhanced learning supported by integrated telecommunications services.
- Support for users – training in basic technologies and convenient means of access – are available to all citizens to avail themselves of government services.

Specific approaches/directions

- Create a team of state, local communities and business stakeholders to establish specific strategies for universal basic access to web-based services and business offerings.
- Engage lawmakers and telecommunications providers in planning for realization of the strategies.
- Focus business incentive programs and regional development efforts on technology-intensive industries and maximizing statewide potential.

Considerations

- Creating government as a competitor to private sector businesses has economic, policy and political issues that deserve careful consideration.
- Justification for specific investments and capabilities must be supported by service offerings and reasonable return on public investments.
- Solutions should be compatible with existing services and delivery mechanisms to obtain maximum added value.
- These are not short-term projects; completion of infrastructure and of technology-enabled services must be in place and customer support provided before the behavioral and cultural adjustments can follow.

IT Community Strategies

In addition to the nine strategies advanced by the State CIO, participating agencies have advanced several related ideas with significant implications for the enterprise. These are all considered worthwhile initiatives, and the time spent developing them during this process was a wise investment. Many of these have been incorporated into the major strategies, or have influenced the direction of these strategies.

Several other areas emerged from the community discussions and are presented here as important developments, if more tactical than strategic. They are:

- **Consulting Services**
  A state provided consulting service (whether provided by OET or elsewhere) would be a useful and cost-beneficial alternative to private sector consulting. This must be competitive in skills and availability with private sector sources. To be successful, such a service must act like a private consulting business to cover costs and stay current with market demands.

  Agencies have many talented and experienced people, but making them more broadly available has been a problem given the commitment of most of them to high-priority internal projects. The goal of sharing staff across agencies has been a goal of both the executive branch and legislature for many years. This does exist to some degree – informally -- based on relationships as agencies go to trusted partners in other agencies for help. This "Virtual network" has had some value for short-term, limited scale support but has not been effective for long-term commitments or large-scale project.

  Examples of internal consulting exist in state government and higher education today. Administrations Management Analysis division is one; OET's project management consulting service is another. Both union and legislative interest in addressing our dependence on contract resource to supplement and extend existing agency capacity and skills argue for the creation of such an in-house capability. Costs would probably be lower and the process for acquiring help probably easier and faster.

  On the other hand...there are problems. The cost of developing and maintaining contemporary skills, covering costs of staff in times of limited activity and the issues of calculating optimal capacity and priorities are just a few of the problems.

  Multiple needs and services exist; in some cases what is needed is an intellectual triage function to help organize and plan projects, or to offer advice on proposals and business cases. Critical need areas include project management; business needs definition, user requirements, and business case analysis; risk analysis; data base analysts; systems architects; web designers and programmers; security auditors and designers; and reengineering and business process redesign experts.

  One difficulty is the funding structure; whether by revolving fund or interagency agreement, it will be difficult retaining staff through frequent "boom or bust" project funding variations. The model works with steady demand, but problematic in down times -

- it requires atypically good forecasting of demand and opportunities to keep the skill levels current and market-related.

Some aspects of this opportunity area may be addressed when the human resources functions in the enterprise portfolio process captures data for referrals on specific skill areas; a skills inventory would help with sharing skills, but this is not an immediate priority.

- **Workforce**
  The most valuable and expensive IT asset is the workforce. The processes which support recruiting, training, deploying, updating and retaining IT staff are among the most important – and most problematic – in information management. The discouraging demographics of an aging workforce only highlight a problem facing both public and private sector: the success of our systems is dependent upon having a skilled, committed workforce to design and manage them. A high "churn rate" in technology staffing may be common across industries and sectors, but it adds to the cost and risk of IT projects and operations. The state needs to recognize this, and deal with it.

  The reality is that "technology people" are no more interchangeable than physicians, attorneys or engineers – their skills and experience are focused and specialized. That they are not fungible assets is a problem affecting both the employees, the state and the market. In a rapidly evolving and extremely complex environment like technology, recognizing the often subtle differences among specialties challenges both human resource professionals, managers and bargaining units. Add to this the problems of ongoing funding in a project-based budget process and a clearer picture of the practical realities of staff management begins to emerge.

  It is important to keep skills current through a combination of formal development, job assignments, networking and new hiring. But the interacting needs of employers and employees go beyond the development area. Among the actions which help keep a healthy workforce are:
    - Exploring opportunities for shared training opportunities, distance learning, OJT and mentoring to "grow our own" staff
    - Routinely doing workforce planning/succession planning/shared staffing
    - Invest in knowledge transfer/Knowledge Management systems to capture, share and leverage institutional knowledge and experience.
    - Do more effective marketing of public service career options, compensation, opportunity, development and work conditions to counter negative perceptions and misinformation about state jobs.
    - Provide more flexible approaches to employment (telecommuting, flex time, recycling staff who have retired)
    - Balance contract, "in-source" and in-house staffing plans for productivity and value, and for transfer of knowledge.
    - Make technology investment decisions with workforce issues in mind for both service offerings and supply issues
    - Provide career planning/redirection and redeployment counseling to keep employees on track in a changing world
    - Provide contemporary career paths for emerging and retiring specialties

- Ensure that the personnel system understands contemporary practices in classification/compensation
- Change emphasis from task-based to knowledge-based classification – elements of wisdom, experience, judgment, and capacity, not just current requirements… and disconnect classification from resources

- **Data Practices**

  The continual tension between public access to data to which they are entitled while protecting private data from improper exposure is not new, but technology exacerbates the complications. This is a separate issue from security, but the mechanisms of access and protection are complementary. Central administration of data practices policy and administration runs into conflict with highly specialized requirements of certain agencies and programs, and changes in law and policy are frequently made at multiple levels of government and disseminated without clear understanding of what information is needed, and by whom. Recent examples of the impact and uncertainty of liability in situations of exposure of private data by public entities point out the need to address notification issues about data release.

  Responsibility for comprehensive monitoring, analysis, education and management is distributed widely, and coordination comes from multiple locations – an administrative contradiction; certainly it is understaffed for full execution of responsibilities in this important area. As a result, activity tends to be reactive, analyzing specific situations and interpreting statutes. For agencies responsible for designing access management and data privacy, the lack of specific proactive guidance creates difficulties.

  In spite of agency attempts at education and frequent policy updates, there is little consistent knowledge about basics of data practices in the part of employees, the media, the public and policymakers. Some steps that can help address this problem:
  - Develop general training for all employees about data practices basics, with annual refresher training on both data access and data practices.
  - Current statutes should be comprehensively reviewed and revised to reflect modern technology.
  - The state should explore and develop policies and procedures governing data warehousing/data mining regarding information use and abuse
  - The state should examine and codify stricter contractual requirements on people who collect or buy data about citizens.
  - The state should reexamine the data practices provisions of statute in recognition of the problems with disclosure of data collected or generated about citizens by government.

Action Plans: What comes next?

It's important to understand what this document is *not.*

The Master Plan is not a specific program or investment proposal. It isn't a marketing tool, or a political statement, or a budget document, tied to specific deliverables in a short time frame. It may help shape these and inspire them, and certainly should influence decisions about them.

It's also important to understand what this document *is.*

This is a plan, and it is strategic. One definition of *strategic plan* is, "A high-level design to guide activities for the accomplishment of an objective." That definition fits nicely.

The plan is strategic in that it looks at the present in the context of the future. It identifies ways to achieve efficiency, security, responsiveness and accountability in managing information resources and deploying them to enable, support and control government business processes. For the Master Plan to have impact, agencies and policymakers need to understand it, use it in assessing requests and projects, and build its concepts into their business and IT planning processes.

This document will evolve as circumstances and priorities change, and as strategies are operationalized by agencies.

Appendices

1: The State CIO and the Office of Enterprise Technology

The Office of Enterprise Technology, a cabinet-level state agency, was established on July 1, 2005 by enabling legislation that directs the office to "…provide oversight, leadership, and direction for information and telecommunications technology policy and the management, delivery, and security of information and telecommunications technology systems and services in Minnesota. The office shall manage strategic investments in information and telecommunications technology systems and services to encourage the development of a technically literate society, to ensure sufficient access to and efficient delivery of government services, and to maximize benefits for the state government as an enterprise."

On July 25, 2005, Governor Tim Pawlenty appointed Gopal Khanna to head the new agency as the state's first cabinet-level Chief Information Officer (CIO), effective August 15. Mr. Khanna's charge was to realize the governor's vision of leveraging technology to achieve dramatic improvements in government service and value for the citizens of Minnesota.

The Office of Enterprise Technology (OET) initially combines two divisions formally within the Department of Administration - the Office of Technology and InterTechnologies Group. The new department is more than a combination of two former organizations. Through focused reorganization, establishment of a unifying mission and strategic plan, and broad involvement of business and IT leadership in other state agencies and other levels of government, OET has redefined its purpose and its personality to reflect the governor's and legislature's expectations.

The mission of the Office of Enterprise Technology (OET) is to "Support transformation of public services by effective information management and efficient delivery of information to government and its customers." OET will accomplish this by developing enterprise information strategies, policies and standards; by overseeing information technology investments; and by creating a secure and efficient information management environment. This must be done in the proper context of business strategies and operational requirements.

The objectives of OET are simple: to create an information environment where:

- Stakeholders and customers are routinely engaged in establishing the enterprise priorities, strategies, and policies that are the basis for effective information management
- Business needs, enterprise architecture and standards guide investment decisions to achieve highest value
- Effective portfolio management ensures prudent system development decisions and practices
- Effective use of shared and utility IT applications is the preferred mode of operation
- Customers have fast, secure access to data, applications, and services.

OET also serves a critical need as a central repository for information policy in technical and operational areas. There has existed for some time pressure for a collaborative process for policy review and development. This was formerly provided in part by the Office of Technology and by the Information Policy Council. Now, in conjunction with the governance process described below, the role of facilitating this process falls to OET. This is appropriate, because policy development needs its own process and support mechanisms, with education and rollout procedures.

The agency CIO community noted that there also needs to be a quality control (audit) and compliance component to policy implementation, and a process for refining and retiring old policies that may have need for reconsideration. Areas for policy attention include project management (currently under development), security, development standards and disaster recovery.

OET's first strategic plan, issued in February of 2006, identified a set of strategies for the agency closely linked to the provisions of the Master Plan. They are:

- Transform OET/organization & workforce development
- Define the scope and offerings of services
- Transform decision-making processes
- Implement enterprise security and id management programs
- Leverage it contracting and procurement processes for best value
- Develop comprehensive funding mechanisms for enterprise it
- Embrace a strong portfolio management program
- Lead the development of an enterprise architecture
- Provide the foundation for seamless integration of e-government services

A copy of the text of the OET Strategic Plan is attached as appendix 5 to this document.

2. **Governance**

During the Drive to Excellence (DTE) project in 2004-2005, the need for a thoughtful, disciplined enterprise IT governance process was identified as a key component of successful transformation. This was reflected in the Transformation Roadmap by the priority given to a commissioner-level CIO and to enterprise planning and management of information resources. There were two major reasons for this emphasis: first, because IT is a critical enabler of process improvement efforts, and second, because effective management of enterprise IT was in itself a major opportunity for process improvement and cost containment.

"Governance" is the set of authorities, processes and procedures whereby strategic and key operational decisions are made for, and on behalf of, the enterprise. The Governor's executive order, the enabling legislation creating the Office of Enterprise Technology (OET) and the DTE governance recommendations all vest responsibility for leading statewide IT in OET and in the person of the State CIO. They directed the State CIO to have a formal consultative relationship with the Commissioners of key agencies, and to develop similar informal bodies to engage agencies and the private sector in discussions of market trends and best practices, and to provide a forum for independent review and comment on state strategic plans and information policies.

The communication and consultation groups set up by the State CIO will help assure that an optimal mixture of both a truly enterprise view and agency unique concerns are considered in IT planning and operation.

To accomplish the intent of the governance perspectives provided in the Governor's Executive Order 05-04, in Minnesota Statutes MS 16E.01 and subsequent sections, and in the DTE recommendations, the State CIO has a single advisory body of cabinet-level commissioners supplemented by two industry and agency advisory groups.

The members of the first board, to be designated by the State CIO, convene as the Commissioners Technology Advisory Board. This group will provide review, consultation and feedback to the State CIO about enterprise IT strategies and policies. It will also review the budget and performance metrics of enterprise and OET systems. This board will include a mix of seven rotating members to ensure continuity and congruence of IT strategies with the Governor's vision along with agency business perspectives. This will assure that agency needs are represented on an enterprise-wide basis, and that understanding of IT issues and directions is shared across the executive branch. This group should meet periodically throughout the year. The Commissioners Technology Advisor Board will be chaired by the State CIO.

The State CIO will create and maintain additional ongoing input mechanisms for feedback from a broad array of governmental entities to ensure enterprise-wide collaboration and consideration of broader needs in devising statewide strategies, and to provide a balanced perspective on technology markets, trends and practices.

In addition to the Commissioners' Technology Advisory Board, two other advisory groups are being constituted as permanent features of the State CIO's consultant structure.

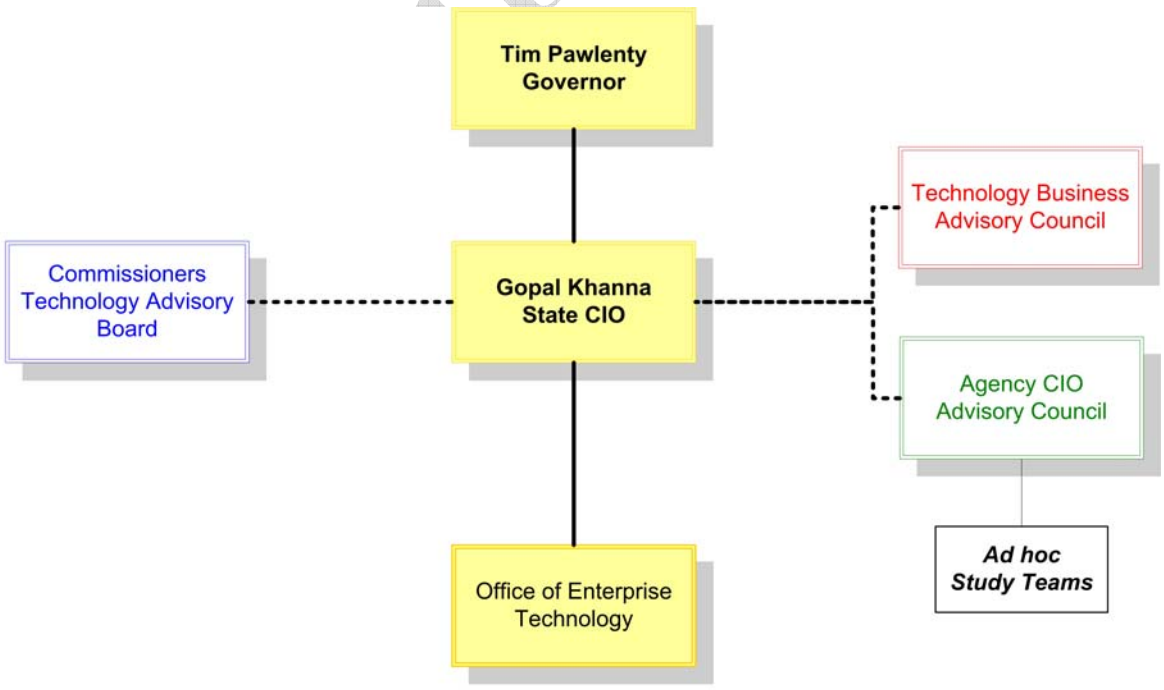
First, a council of seven agency CIOs or equivalents will be chosen from the executive branch and appointed by the State CIO as an advisory and planning group for the State CIO. This group, designated the Agency CIO Advisory Council, will be chaired by the state's Chief Technology Officer. It will provide advice to the State CIO on issues of IT policy and practices, and can sponsor ad hoc subcommittees and subject matter expert teams to address special interest topics such as local government, education, architecture, security and other topics of interest. This structure will provide a framework for *ad hoc* "skunkworks" teams to address opportunities or problems.

The State CIO will also conduct quarterly meetings with the entire group of CIOs or equivalents from all agencies and boards comprising state government.

The second advisory group will be the Technology Business Advisory Council. It will be made up of private sector CEOs, CIOs, COOs, and other senior executives from innovative companies in industries such as information technology, banking, insurance, health care, manufacturing, and venture capital management. Chaired by the State CIO, this advisory council will be created to advise the State CIO on technology and information management strategies, and to suggest areas of emphasis and process improvement for state agency processes impacting the business community. The members of the council will be appointed by the State CIO.

The administrative support for the Commissioners Technology Advisory Board and for the two advisory councils will be provided by the Office of Enterprise Technology.

This organization chart summarizes the governance structure:



3. **The role of strategic planning**

Strategic planning (as in this Master Plan) is done to create the future, not predict it. Crystal balls and Tarot cards may be tools of choice for prognosticators, but they ill serve the best interests of government and its owners. For their purposes the best plans are those created in an environment of shared exploration of needs, priorities, business drivers and constraints, spurred on by a common vision and a determination to achieve common goals.

In the case of the Strategic Information Management Master Plan, there are two major components to the planning process: a top-down, administration-side executive-level set of strategies, and an complementary process for consolidating agency-specific business strategies (drawn from their mission, stakeholder needs and organization philosophy) and their information management counterparts.

The executive-level strategic IM plan is the product of the Office of the State CIO, and incorporates the governor's goals and priorities. But although it is top-down, it isn't created in isolation; it is informed by environmental scanning, by public and private sector best practices and by agency needs. This participative model involves many communities of interest, but the responsibility for a successful outcome ultimately rests with the CIO.

The state SIMMP should provide a combination of specific direction, governing principles and expectations, as well as actionable priorities for investment. It is the start and end of an ongoing planning cycle that intersects at key points with agencies and with enterprise budgeting and policy development. With the state enterprise architecture and project management functions, it defines the development and operating environment for agency and enterprise IT investments.

Agency strategic planning is highly individualized, with good reason. It represents the interplay of agency history, culture, organization, maturity level, management style and stakeholder relationships. But the accountability for good strategic management of an agency rests with their managers, not with OET. This can result in additional complexity in that the different formats and processes used by agencies in planning makes seeing connections and contradictions more difficult for central support agencies. However, this can be managed if OET and agencies jointly define a common set of deliverables and they are properly mapped and related for use at an enterprise level.

One of OET's primary tasks is to understand agency missions and IT environments, consider their business strategies, and collect and analyze key reportable data about systems investments and plans. Since the value of a strategic plan is in its applicability – its ability to generate focused action around its desired outcomes – the creation by OET of common definitions and reporting requirements becomes essential.. To be meaningful, in devising strategies OET must:

- acknowledge the individualized nature of agency missions and planning protocols;
- educate them about the purpose of enterprise IM planning;
- help them understand state oversight needs and core requirements;
- define the planning process deliverables; and

- provide constructive feedback on the strategic plan outputs from each agency

By reporting the key elements of agency plans and systems, agencies help craft a statewide statement of vision, direction and approach embodied in the statewide SIMMP. At the same time, OET provides guidance to agencies on investments, approaches and expectations. For example, strategies like interoperability of related systems, exchange of data, customer-side access improvements and responsible project management methodologies are so common as to be taken as givens. As strong advocates for change, OET can support business process redesign approaches rather that re-automation; for expanding involvement to agencies with like processes, and to establishment of strategic partnerships with other agencies, other levels of government and the private sector.

These considerations form the basis for an enterprise-wide evaluation of budget requests for conformance to architecture and administration priorities.

Why go to all this trouble when we could just set priorities and mandate cooperation centrally? Because successful futures are built on cooperation, not just acquiescence. Agencies and their customers must know that the enterprise understands, respects and tries to accommodate their needs even as the master plan sets IT directions and enterprise-level priorities. The goal of strategic management of information resources requires dialogue, not pronouncements.

There is a long history of unrealized attempts to impose a strategic IM planning model on agencies. While OET needs to understand and acknowledge agency skepticism, the enterprise as a whole also needs to learn from the past and move with confidence towards a truly integrated information future.

For OET, this means a genuine collaboration with the agencies that collectively are the reason why government exists. OET's role...guidance, service, control and review...must dovetail with agency roles and stakeholders' expectations to be effective. At that point state government can be truly strategic and enterprise-wide in its thinking and provide meaningful guidance (and useful controls) for the state.

Participating agencies and entities

A total of 20 state agency CIOs were invited to represent their agencies in the active planning process, together with CIOs from MnSCU and the University of Minnesota. Executive staff members from associations representing counties, cities and school districts were also invited to participate. In addition, comments and suggestions were solicited from leaders and staff from virtually every board, commission and constituent group involved with the executive branch. The specific agencies and organizations invited to participate are listed in Appendix 2. Taken together, the bodies involved represent 95% of the estimated collective IT expenditures for the public sector in Minnesota.

Some of the invitees participated actively in planning sessions and electronic discussions, while others submitted perspectives and ideas for consideration by the planning team. The result was exposure of strategic issues to a broadly based customer population.

The primary driver for the State CIO's decisions, strategies and policies is, of course, provided by Minnesota's laws and statutes. A second primary source of direction comes from the Governor in his business strategies, priorities and policy directives. But there are other sources as well:

- The needs and concerns of our citizens and their preferences for service delivery are key influences on priority and directional decisions, both directly and indirectly.
- Agency business plans and the services these organizations provide must be coordinated and integrated for greatest efficiency, but not at the expense of agency effectiveness in achieving their missions.
- Market trends and industry best practices inform the decisions of the State CIO and help the state keep current with developments in business process reengineering, information management practices in industry and in other public and private organizations.
- Finally, the practical impact of economic and demographic trends, national policies and local events must be considered in both strategic and operational decisions.

4. Planning process invitee list

DEPARTMENT	REPRESENTATIVE
Administration	Bob Olsen
Agriculture	Larry Palmer
Commerce	Catherine Hennessey
Corrections	Lon Erickson
DEED	Ed Valencia
DHS	Johanna Berg
DNR	Jack Shea
DOER	Steve Jorgenson
Education	Cathy Wagner
Finance	Jean Henning
Health	Wendy Nelson
Housing Finance	Terry Holmes
Labor & Industry	Cindy Valentine
MnDOT	Mjyke Nelson
MNSCU	Ken Niemi
OET	John Lally
OET	Steve Stedman
PCA	Ed Meyer
Public Safety	Janet Cain
Revenue	Steve Kraatz
U of M	Steve Cawley
Veteran Affairs	Lee Peterson
League of Cities	Ann Gergen
Minnesota School Boards Associaton	Kelly Martell
Association. of Minnesota Counties	Jim Mulder

5. Trends and implications

Minnesota in transition:
Effects of changes in our environment
on policy, tools and technology-enabled business processes

This is an intentionally unfinished and essentially uncritical document -- an ongoing summary of observers' musings and articles about the trends and prospects in tax system administration, and some of the implications of these trends for the technologies that will support them. No attempt has been made to reconcile conflicting viewpoints, and it is not in any way the result of a structured polling or focus group process. The presence of technology in our work is so pervasive and integrated that many trends have multiple implications, and many solutions are themselves precursors to other considerations.

Looking ahead to all the possible changes that may affect our work, our tools and our environment, what general developments do we see that are (a) highly likely; (b) advance our mission; and (c) enhance our lives? Because these issues and implications are drawn from many sources, some duplication, highly targeted perspectives and even contradictions may be present. The key is to focus on the customer needs and the service requirements of our customers. Technology provides the means to extend the citizen's reach into government and leverage the already considerable investments made in government services.

This scanning document is organized by major topic area:

- The Customers
- The Workplace
- The Mission
- The Tools
- The Workers

Change	*Implications and Responses*
The customers	
Increased direct customer involvement in managing their own affairs	*Greater reliance on customer-centered applications, access methods available to the public through Internet, telephone, other technologies that advance "self-service" strategies - Need a migration strategy for web access and security changes.*
Reduced employee resources to answer questions or provide assistance	*Migration of customer service functions to the web or telephony-based self-help; management of customer expectations about service levels. - Need to rewrite dialogues and instructions for increased clarity.*
Growth in hight transient customer populations, and those who are in and out of government programs across jurisdictional boundaries.	*Increasing attention in systems and policy design to accurate identification and comparability of data across systems and borders.*
Growth of customers from non-English speaking populations, and those with historic cultural or experiential barriers to working with governmental organizations, programs and systems.	*Increasing pressure to provide translators, cultural sensitivity preparation and communications and program design to break down the barriers to service and support.*
Reduction in support for policy research and data collection and presentation done for customers because of budget cuts	*Movement of data to customer-accessible data storage and retrieval tools like web-accessible data warehouse;increased pressure on staff and budgets to provide FOI-type information increase in need for robust authentication tools and intrusion prevention. - Need to increase commitment to resources for customer service; examine feasibility of cost accounting and fee services.*
Constraints on employed persons' ability to work with government offices in traditional ways without losing wages or even jobs	*Government will have to be more flexible in places, times and means of providing service. We cannot place administrative convenience above the needs of the people we serve. Move more functions to web-based and moderated self service; more emphasis on data analysis of TP entries*
Broader array of support for customer communities in non-traditional government settings and through intermediaries	*Comprehensive front end processing; simplified data collection, common identifiers, common registration and eligibility applications available anytime, anywhere; increased access to data by citizens and their representatives*

Continued, if diminishing, presence of a "digital divide" based on geographic, generational, cultural, philosophical, economic, ability or language characteristics	*Maintenance of traditional conduits and processes for customers who cannot or will not jump on the cyber-bandwagon; conversely, more people able to help themselves using the Web. Streamline administrative processes for remaining paper to reduce resource drain.*
An aging population will need information, tools and access methods more directly serving their limitations in areas of vision, mobility, and support	*Much more flexible presentation and access methods that are respectful of this population's needs and limitations. - Build in presentation layer new specs for vision impaired alternatives.*
Increasing diversity of languages, cultures and communications capabilities	*Support electronically and in writing for services to non-English speaking populations or persons with handicaps; increased training for staff on cultural differences and language difficulties; access to self-help tools and translation assistance*
Customers and workers will need services at places and times convenient to them (farm workers, cultural enclaves, disabled and elderly shut-ins)	*Expansion of resources to schools, cultural centers, shopping centers, mobile centers for focused services*
More targeted, proactive programs to seek subsets of our customers	*Greater focus on marketing, communications, data sharing and data quality; security and disclosure issues; integration, coordination and simplification or rules and of state- and local-delivery systems*
Active outreach programs to support non-tradition access	*Advanced support for multiple dial-in, web and network connections*
More coordination and accountability for multiple services delivered by different agencies and their business partners	*Greater information sharing, process simplification, desktop access to multiple data sources; elimination of conflicting and duplicative requirements*
Demise of place and time - citizens who don't want imposed constraints by bureaucracy on their work and leisure activities - more independence	*Government will have to accommodate citizen schedules, locations, contract preferences - not the reverse*
Financial pressures will require commercial and governmental applications to adhere to common standards and protocols, and to cooperate with industry formats for reporting and information transfer	*Existing applications and proprietary or specialized formats will give way to standardized formats for information exchange; political pressures on government to be more attuned to the burden of compliance will grow.*
Disintermediation of commerce carries over to citizen's involvement with civic responsibilities.	*Provide capability for more direct involvement in decisions and processes affecting their lives, and ability to manage their transactions for economy, privacy and speed.*
Increasing requirements akin to federal Chapter 508 for dealing with citizens with limitations on their physical ability to use computers – vision, hearing or manipulative impairment	*Greater technical and fiscal challenges for accessibility to ensure all citizens have the same access to information and services*

Ubiquity of technology means all customers and business partners will be dependent upon COTS and custom computer applications for much of their work	*Auditors, investigators and analysts will need to master more data and application integration technologies; new systems and upgrades will have to follow standard architectures for compatibility; and higher levels of organizational planning must focus on business/system integration both internally and externally.*
Falling cost of entry-level computers, portable devices, high-speed and wireless internet access and other technologies	*More ubiquitous digital presence…greater familiarity with using computers to manage transactions and relationships*
The workplace	
Tighter budgets	*More focus on extending/enhancing existing system; COTS (Commercial Off-the-Shelf software with accommodations will replace custom applications; shared databases and common applications wil grow in importance; institutional growth will be replaced by resizing, focusing resources and enterprise sharing; need to make choices about options for servicing diverse needs of customers and employees*
Unpredictability of budgets and likelihood of major changes to base	*Organizations will need to do more and better strategic thinking to ensure that persistent downsizing and inability to reinvest in the department doesn't result in unplanned dissapation of resources, energy and will; more emphasis on investing, not just spending; additional business case-type analysis to measure impact and efficiency will be needed for successful accomplishment of a streamlined mission.*
Mobile workforce	*Greater need for internal communications and social connection using technology; need to support collaborative work settings; redesign supervisory and non-supervisor jobs; implications for remote processing sites, portable access, security, office management; need to manage benefits of personal mobility technology against direct/indirect costs*
Higher degree of oversight and micromanagement by authorizers, stakeholders and public interest groups.	*Greater attention to transparency, documentation, performance metrics and effective reporting*
More sharing of work areas with other public sector entities as space is available and budgets shrink	*New approaches to managing document and system security; increased budget costs for continuous office management changes;in remote offices, increased need for cross-training, communication and service enhancements.*

Increased health and social problems brought to management attention, arising from workplace design, capacity, lighting, environmental problems	*Quality of work spaces and environment must improve; space issues associated with redirection of work force towards virtual processes*
Greater financial pressure to better manage facilities plus reductions in IT footprint results in more generic office spaces, reduced workstation size	*More flexible spaces with modular connections for the greatest possible potential configurations; more use of hoteling, more minimalist workstations as a norm for employees in significant travel status. Need to plan for efficient use of space as organization structure changes, as process and workforce changes allow recapture of space and shift to other tenants or uses.*
Roles of different levels of government and types of organizations with legitimate roles in service delivery will evolve and create the need to expand the potential population of workers that need access to systems.	*Reduce dependence upon dedicated networks and geographically limited access points; need for ubiquitous and generic interfaces that minimize training and support needs.*
Increased competitive pressure for contract services results in more changes in vendors, processes	*Services and processes must be made flexible, global and transferable so service providers are transparent to users. Service level agreements and performance audits will be critical both for agency- and contractor-provided services. Reform of procurement services to reflect the complexity and hidden costs of procurement and ensure both manageable cost and measurable value.*
Increased complexity of commercial and industrial technologies (medicine, communications, education, workforce)	*Agencies must dedicate greater resources to training, keeping current with trends in regulated or affected customer groups, understanding citizen impacts.*
Increases in the effective cost of implementing, maintaining and supporting information technology consumes a greater share of the organization's resources as our dependence on systems support increases.	*Organizations must find ways to offset IT cost increases by making better use of their IT investments, whether by improving productivity of non-IT operations, finding ways to raise or accurately allocate resources, or reducing non-IT-based functions.*
Growth in dependence upon technology increases vulnerability to damage (intentional or otherwise) to systems, data and processes)	*Increased pressure to have secure, fault-resistant systems, environments and controls.*
The mission	
More personal contact through technology, enabling person-to-person contact and increased personal and/or team responsibility for customer relations.	*Greater reliance on multi-media capacity at the customer level; implications for facilities (acoustics, lighting, V/V/D), bandwidth. Significant implications for data security, transmission, reliability.*
Time- and location-independent services	*Portable devices; 7x24 operation; flexible connectivity*
Continued decentralization of service delivery	*Retraining and redeployment of workforce; job enhancement through application of supportive technologies*

Department and advocacy workers travel to homes, businesses, community centers, or use mobile offices	*Use of small laptops with cellular modems/Palmtops with applications and wireless comm., smarter data gathering and data sharing.*
Increased demand for accountability for effectiveness of programs in improving the customer's long-term well-being	*Coordination of performance tracking, measurement, systems integration and customer identification*
Increased emphasis on targeting services to a specific audience of customers	*Pressure to provide feedback about quality of service; demand for customer identification (conflict with data privacy issues)*
Multi-agency approach to service delivery	*Improved data sharing and common data collection and verification processes*
Collaborative case manager model	*Front-line access to data in non-traditional settings*
Decentralization, redeployment and outsourcing of services	*Greater demand for flexible, secure, accessible high-speed infrastructure statewide*
Rapid and significant changes in programs, decision structures, resourcing and delivery at state, federal, local levels	*More front-end flexibility, shorter reaction time, shorter migration time, more powerful analytical and decision support services*
The tools	
Portable data on laptops, handheld devices through burnable discs, portable storage devices and online access	*More attention to security issues, training, prescient policies, audits and multi-level protection for telecom*
The gap in technology and business practices between government and the private sector are shrinking as government adopts business processes and COTS software for its own use	*There are increased opportunities for outsourcing, for adoption of generic tools and common business processes, with BPR of agency operations reflecting private sector best practices.*
Tremendous rate of change in vendors, technologies and relationships in both private industries and public/private partnerships	*Great creativity and niche developments, but with increased risk of technologies becoming marginalized by market, and concurrent risk of failure of systems which are not viable over the long term.*
Exponential growth in electronic services is jeopardized by the increasing threat of viruses and related malware, by identity theft through phishing, pharming and increasingly sophisticated intrusions into networks and databases.	*Much greater emphasis on system and data security, with much more attention paid in designing, implementing and operating prevention and detection systems.*
Remote services	*Platform independence and higher-speed connections*
Ability to provide personalized services through web portals	*Directory-based, secure personalization of browser-accessible data and services; use of middleware, directory services and browsers to bring added functionality to taxpayers*
Data capture replaces data entry	*More capacity for V/V/D integration, voice recognition, pre-populated electronic forms and other technology enabled data management*
Virtual data replaces paper records	*Electronic document management replaces paper storage*
Data integrated across entities	*Common data formats, architecture, EDI*
More teleconferencing	*High-capacity telecom systems; improvements in workplace*
Emergence of fast, cheap high-capacity devices for capture and storage of data and images	*Reduction in paper files means easier transfer of centralized data to user, but with greater issues of data privacy and security*

EFT/EDI/EGS	*More robust, redundant, secure networks and applications; transitions for workers; cross-agency standards*
Desktop technology changes	*More need for desktop integration, integrated communications*
Extended conversion in legacy systems	*Provision for multiple generations of connectivity*
Tighter budgets	*More focus on extending/enhancing existing system; COTS,*
Tremendous growth in stored and retrieved digital information (images, data, emails)	*Improvements in storage capacity, data management and backup/restore; legal and policy issues about disclosure, retention, etc. ; increases in bandwidth to accommodate growth*
Greater use of email, groupware, video and voice conferencing on customer and agency matters	*Better integration of V/V/D; statewide infrastructure improved; higher capacity PC's and laptops with advanced multimedia*
Growing federal and state mandates enterprise- or business- wide standards, protocols, tools, architectures and products, affecting our freedom to design, deliver and administer organization-based or customer-based systems	*Potential improvements in connectivity and data sharing, but also will potentially conflict between controlling entities and significant conversion and operational costs for existing systems and customers/business partners.*
Growing speed and reliability of wireless communications	*Portability of devices and availability of wireless makes home visits and remote site services more practical; combined with emergence of PDA-like interfaces, this means less intimidating data collection, better availability of decision support resources, and more immediate response to applicants and questions.*
Developments in messaging/middleware/integrating software and design tools	*Extend the life of current applications and reduce costs and problems of integrating related data across systems - makes effective customer-centered case management a more realizable goal.*
The workers	
Knowledge workers (multi function with local authority replace single-function, process-only workers)	*Greater need for information at the contact point with customers; need for artificial intelligence or knowledge management software to provide "virtual assistants" on line; new organization structures for customer service, shared specialized talents, comprehensive case approaches*
Mobile workforce	*Greater need for mobile computing capacity, improved versatility and security of access, and better integrated applications*
Politics and budget will force reduction in use of contractors with advanced skill sets.	*Major investment in training/retraining/long term development, reward and recognition of employees; more aggressive hiring and movement within the system.*
Knowledge management systems and less formal blogging and FAQ techniques enable informal sharing of information previously only narrowly communicated.	*New software makes sharing of experiences, techniques and approaches available to other employees, improving the capture and dissemination of institutional knowledge, resulting in greater efficiency, quicker learning curves and protection of professional learning.*

Computer-literate workers and customers	*Higher entry skill levels; expectations of quality design of systems, interfaces; expectations of value-adding computers and systems; expectations of greater personal responsibility and freedom to act.*
Employee turnover	*More emphasis on user-friendly software, online training and help; knowledge-based systems; systems integration; better work conditions; flexible access*
Recruiting problems require more flexibility of work locations, work times, IT tools and work styles	*More flexibility of work locations, work times; increased need for high-speed communications, data and hardware security*
Workforce challenges encourage use of employees with limiting conditions, language barriers or cultural needs	*Emphasis on accessible systems and facilities, for job design accommodations and for new processing solutions for materials movement. Diversityprograms must be institutionalized in job expectations and performance plans.*
Reduction in gross number of employees	*More multiskilled workers cross-trained for mutual support means more training, greater degree of common interfaces across systems.*
Fewer workers; consolidation of offices	*Change in support profile of employees; modifications of workplace to accommodate more workstations (power, bandwidth, environmental, psychological*
Workforce mobility and lifestyle change	*Increased reliance on job-share, part-time workers, telecommuting and contractors; policy and investment decisions on facilities, PC's, access, liability, and supervisory models*
High turnover of staff at all levels	*Use of knowledge-ware, artificial intelligence, continuing education in the workspace*
Legacy workforce lacks currently needed skills in a rapidly changing, knowledge-worker environment	*Increased employee development costs and/or elimination or downward reclassification of jobs for long-time workers who cannot or will not adapt to the new techniques and skills the new workplace requires.*
Much greater diversity of backgrounds, cultures, beliefs and behaviors in our workforce	*More time and support for diversity, greater attention to integrating approaches and attitudes, potential disruption and accommodations for hitherto unrepresented populations in workforce.*
Less career commitment of incoming workers to government service	*Changes in retention incentives, more investment in training, higher costs for attracting new employees*

6. Authority: OET Statute

STATUTORY FOUNDATION FOR OET

16E.01 Office of Enterprise Technology.

Subdivision 1. **Creation; chief information officer.** The Office of Enterprise Technology, referred to in this chapter as the "office," is an agency in the executive branch headed by the state chief information officer. The appointment of the chief information officer is subject to the advice and consent of the senate under section 15.066.

Subd. 1a. **Responsibilities.** The office shall provide oversight, leadership, and direction for information and telecommunications technology policy and the management, delivery, and security of information and telecommunications technology systems and services in Minnesota. The office shall manage strategic investments in information and telecommunications technology systems and services to encourage the development of a technically literate society, to ensure sufficient access to and efficient delivery of government services, and to maximize benefits for the state government as an enterprise.

Subd. 2. **Discretionary powers.** The office may:

(1) enter into contracts for goods or services with public or private organizations and charge fees for services it provides;

(2) apply for, receive, and expend money from public agencies;

(3) apply for, accept, and disburse grants and other aids from the federal government and other public or private sources;

(4) enter into contracts with agencies of the federal government, local governmental units, the University of Minnesota and other educational institutions, and private persons and other nongovernmental organizations as necessary to perform its statutory duties;

(5) appoint committees and task forces of not more than two years' duration to assist the office in carrying out its duties;

(6) sponsor and conduct conferences and studies, collect and disseminate information, and issue reports relating to information and communications technology issues;

(7) participate in the activities of standards bodies and other appropriate conferences related to information and communications technology issues;

(8) review the technology infrastructure of regions of the state and cooperate with and make recommendations to the governor, legislature, state agencies, local governments, local technology development agencies, the federal government, private businesses, and individuals for the realization of information and communications technology infrastructure development potential;

(9) sponsor, support, and facilitate innovative and collaborative economic and community development and government services projects, including technology initiatives related to culture and the arts, with public and private organizations; and

(10) review and recommend alternative sourcing strategies

for state information and communications systems.

Subd. 3. **Duties.** (a) The office **shall**:

(1) manage the efficient and effective use of available federal, state, local, and public-private resources to develop statewide information and telecommunications technology systems and services and its infrastructure;

(2) approve state agency and intergovernmental information and telecommunications technology systems and services development efforts involving state or intergovernmental funding, including federal funding, provide information to the legislature regarding projects reviewed, and recommend projects for inclusion in the governor's budget under section 16A.11;

(3) ensure cooperation and collaboration among state and local governments in developing intergovernmental information and telecommunications technology systems and services, and define the structure and responsibilities of a representative governance structure;

(4) cooperate and collaborate with the legislative and judicial branches in the development of information and communications systems in those branches;

(5) continue the development of North Star, the state's official comprehensive on-line service and information initiative;

(6) promote and collaborate with the state's agencies in the state's transition to an effectively competitive telecommunications market;

(7) collaborate with entities carrying out education and lifelong learning initiatives to assist Minnesotans in developing technical literacy and obtaining access to ongoing learning resources;

(8) promote and coordinate public information access and network initiatives, consistent with chapter 13, to connect Minnesota's citizens and communities to each other, to their governments, and to the world;

(9) promote and coordinate electronic commerce initiatives to ensure that Minnesota businesses and citizens can successfully compete in the global economy;

(10) manage and promote the regular and periodic reinvestment in the information and telecommunications technology systems and services infrastructure so that state and local government agencies can effectively and efficiently serve their customers;

(11) facilitate the cooperative development of and ensure compliance with standards and policies for information and telecommunications technology systems and services, electronic data practices and privacy, and electronic commerce among international, national, state, and local public and private organizations;

(12) eliminate unnecessary duplication of existing information and telecommunications technology systems and services provided by other public and private organizations while building on the existing governmental, educational, business, health care, and economic development infrastructures;

(13) identify, sponsor, develop, and execute shared information and telecommunications technology projects and ongoing operations; and

(14) ensure overall security of the state's information and

technology systems and services.

(b) The chief information officer in consultation with the commissioner of finance must determine when it is cost-effective for agencies to develop and use shared information and telecommunications technology systems and services for the delivery of electronic government services. The chief information officer may require agencies to use shared information and telecommunications technology systems and services. The chief information officer shall establish reimbursement rates in cooperation with the commissioner of finance to be billed to agencies and other governmental entities sufficient to cover the actual development, operating, maintenance, and administrative costs of the shared systems. The methodology for billing may include the use of interagency agreements, or other means as allowed by law.

HIST: 1997 c 202 art 3 s 7; 1998 c 366 s 41; 1999 c 250 art 1 s 68; 1Sp2003 c 1 art 2 s 58; 2005 c 156 art 5 s 6,7

16E.02 Office of Enterprise Technology; structure and personnel.

Subdivision 1. **Office management and structure.** (a) The chief information officer is appointed by the governor. The chief information officer serves in the unclassified service at the pleasure of the governor. The chief information officer must have experience leading enterprise-level information technology organizations. The chief information officer is the state's chief information officer and information and telecommunications technology advisor to the governor.

(b) The chief information officer may appoint other employees of the office. The staff of the office must include individuals knowledgeable in information and telecommunications technology systems and services and individuals with specialized training in information security.

Subd. 1a. **Accountability.** The chief information officer reports to the governor. The chief information officer must consult regularly with the commissioners of administration, finance, human services, revenue, and other commissioners as designated by the governor, on technology projects, standards, and services as well as management of resources and staff utilization.

Subd. 2. **Intergovernmental participation.** The chief information officer or the chief information officer's designee shall serve as a member of the Geographic Information Systems Council and the Library Planning Task Force or their respective successor organizations and as a nonvoting member of the Minnesota Health Data Institute.

Subd. 3. **Administrative support.** The commissioner of administration must provide office space and administrative support services to the office. The office must reimburse the commissioner for these services.

HIST: 1997 c 202 art 3 s 8; 1999 c 250 art 1 s 69; 2000 c 260 s 8; 2005 c 156 art 5 s 8

16E.03 Administration of state information and communications systems.

Subdivision 1. **Definitions.** For the purposes of chapter 16E, the following terms have the meanings given them.

(a) "Information and telecommunications technology systems and services" means all computing and telecommunications hardware and software, the activities undertaken to secure that hardware and software, and the activities undertaken to acquire, transport, process, analyze, store, and disseminate information electronically. "Information and telecommunications technology systems and services" includes all proposed expenditures for computing and telecommunications hardware and software, security for that hardware and software, and related consulting or other professional services.

(b) "Information and telecommunications technology project" means an effort to acquire or produce information and telecommunications technology systems and services.

(c) "Telecommunications" means voice, video, and data electronic transmissions transported by wire, wireless, fiber-optic, radio, or other available transport technology.

(d) "Cyber security" means the protection of data and systems in networks connected to the Internet.

(e) "State agency" means an agency in the executive branch of state government and includes the Minnesota Higher Education Services Office, but does not include the Minnesota State Colleges and Universities unless specifically provided elsewhere in this chapter.

Subd. 2. **Chief information officer's responsibility.** The chief information officer shall coordinate the state's information and telecommunications technology systems and services to serve the needs of the state government. The chief information officer shall:

(1) design a master plan for information and telecommunications technology systems and services in the state and its political subdivisions and shall report on the plan to the governor and legislature at the beginning of each regular session;

(2) coordinate, review, and approve all information and telecommunications technology projects and oversee the state's information and telecommunications technology systems and services;

(3) establish and enforce compliance with standards for information and telecommunications technology systems and services that are cost-effective and support open systems environments and that are compatible with state, national, and international standards;

(4) maintain a library of systems and programs developed by the state and its political subdivisions for use by agencies of government;

(5) direct and manage the shared operations of the state's information and telecommunications technology systems and services; and

(6) establish and enforce standards and ensure acquisition of hardware and software necessary to protect data and systems in state agency networks connected to the Internet.

Subd. 3. **Evaluation and approval.** A state agency may not undertake an information and telecommunications technology project until it has been evaluated according to the procedures developed under subdivision 4. The chief information officer shall give written approval of the proposed project. When notified by the chief information officer that a project has not

been approved, the commissioner of finance shall cancel the unencumbered balance of any appropriation allotted for the project.

Subd. 4. **Evaluation procedure.** The chief information officer shall establish and, as necessary, update and modify procedures to evaluate information and communications projects proposed by state agencies. The evaluation procedure must assess the necessity, design and plan for development, ability to meet user requirements, feasibility, and flexibility of the proposed data processing device or system, its relationship to other state data processing devices or systems, and its costs and benefits when considered by itself and when compared with other options.

Subd. 5. **Report to legislature.** The chief information officer shall submit to the legislature, at the same time as the governor's budget required by section 16A.11, a concise narrative explanation of any information and communication technology project that involves collaboration between state agencies and an explanation of how the budget requests of the several agencies collaborating on the project relate to each other.

Subd. 6. **System development methods.** The chief information officer shall establish and, as necessary, update and modify methods for developing information and communications systems appropriate to the specific needs of individual state agencies. The development methods shall be used to define the design, programming, and implementation of systems. The development methods must also enable and require a data processing system to be defined in terms of its computer programs, input requirements, output formats, administrative procedures, and processing frequencies.

Subd. 7. **Cyber security systems.** In consultation with the attorney general and appropriate agency heads, the chief information officer shall develop cyber security policies, guidelines, and standards, and shall install and administer state data security systems on the state's computer facilities consistent with these policies, guidelines, standards, and state law to ensure the integrity of computer-based and other data and to ensure applicable limitations on access to data, consistent with the public's right to know as defined in chapter 13. The chief information officer is responsible for overall security of state agency networks connected to the Internet. Each department or agency head is responsible for the security of the department's or agency's data within the guidelines of established enterprise policy.

Subd. 8. **Joint actions.** The chief information officer may join with the federal government, other states, local governments, and organizations representing those groups either jointly or severally in the development and implementation of systems analysis, information services, and computerization projects.

HIST: 1997 c 202 art 3 s 9; 1997 c 212 s 3,4; 1998 c 359 s 15; 1998 c 366 s 42-45; 1999 c 250 art 1 s 114; 2005 c 156 art 5 s 9-12,23

16E.035 Technology inventory.

The chief information officer must prepare an inventory of

technology owned or leased by state agencies. The inventory must include: (1) information on how the technology fits into the state's information technology architecture; and (2) a projected replacement schedule. **The chief information officer must report the inventory to the legislative committees with primary jurisdiction over state technology issues by July 1 of each even-numbered year.**

HIST: 1Sp2001 c 10 art 2 s 44; 2005 c 156 art 5 s 23

16E.04 Information and telecommunications technology policy.

Subdivision 1. **Development.** The office shall develop, establish, and enforce policies and standards for state agencies to follow in developing and purchasing information and telecommunications technology systems and services and training appropriate persons in their use. The office shall develop, promote, and manage state technology, architecture, standards and guidelines, information needs analysis techniques, contracts for the purchase of equipment and services, and training of state agency personnel on these issues.

Subd. 2. **Responsibilities.** (a) In addition to other activities prescribed by law, the office shall carry out the duties set out in this subdivision.

(b) The office shall develop and establish a state information architecture to ensure that state agency development and purchase of information and communications systems, equipment, and services is designed to ensure that individual agency information systems complement and do not needlessly duplicate or conflict with the systems of other agencies. When state agencies have need for the same or similar public data, the chief information officer, in coordination with the affected agencies, shall manage the most efficient and cost-effective method of producing and storing data for or sharing data between those agencies. The development of this information architecture must include the establishment of standards and guidelines to be followed by state agencies. The office shall ensure compliance with the architecture.

(c) The office shall assist state agencies in the planning and management of information systems so that an individual information system reflects and supports the state agency's mission and the state's requirements and functions. The office shall review and approve agency technology plans to ensure consistency with enterprise information and telecommunications technology strategy.

(d) The office shall review and approve agency requests for funding for the development or purchase of information systems equipment or software before the requests may be included in the governor's budget.

(e) The office shall review major purchases of information systems equipment to:

(1) ensure that the equipment follows the standards and guidelines of the state information architecture;

(2) ensure the agency's proposed purchase reflects a cost-effective policy regarding volume purchasing; and

(3) ensure that the equipment is consistent with other systems in other state agencies so that data can be shared among agencies, unless the office determines that the agency

purchasing the equipment has special needs justifying the inconsistency.

(f) The office shall review the operation of information systems by state agencies and ensure that these systems are operated efficiently and securely and continually meet the standards and guidelines established by the office. The standards and guidelines must emphasize uniformity that is cost-effective for the enterprise, that encourages information interchange, open systems environments, and portability of information whenever practicable and consistent with an agency's authority and chapter 13.

(g) The office shall conduct a comprehensive review at least every three years of the information systems investments that have been made by state agencies and higher education institutions. The review must include recommendations on any information systems applications that could be provided in a more cost-beneficial manner by an outside source. The office must report the results of its review to the legislature and the governor.

Subd. 3. **Risk assessment and mitigation.** (a) A risk assessment and risk mitigation plan are required for all information systems development projects undertaken by a state agency in the executive or judicial branch or by a constitutional officer. The chief information officer must contract with an entity outside of state government to conduct the initial assessment and prepare the mitigation plan for a project estimated to cost more than $5,000,000. The outside entity conducting the risk assessment and preparing the mitigation plan must not have any other direct or indirect financial interest in the project. The risk assessment and risk mitigation plan must provide for periodic monitoring by the commissioner until the project is completed.

(b) The risk assessment and risk mitigation plan must be paid for with money appropriated for the information and telecommunications technology project. The chief information officer must notify the commissioner of finance when work has begun on a project and must identify the proposed budget for the project. The commissioner of finance shall ensure that no more than ten percent of the proposed budget be spent on the project, other than the money spent on the risk assessment and risk mitigation plan, is spent until the risk assessment and mitigation plan are reported to the chief information officer and the chief information officer has approved the risk mitigation plan.

HIST: 1997 c 202 art 3 s 10; 1999 c 250 art 1 s 114; 2000 c 488 art 12 s 17; 2001 c 7 s 11; 1Sp2001 c 10 art 2 s 45; 2005 c 156 art 5 s 13

16E.0465 Technology approval.

Subdivision 1. **Application.** This section applies to an appropriation of more than $1,000,000 of state or federal funds to a state agency for any information and telecommunications technology project or for any phase of such a project, device, or system. For purposes of this section, an appropriation of state or federal funds to a state agency includes an appropriation:

(1) to a constitutional officer;

(2) for a project that includes both a state agency and units of local government; and

(3) to a state agency for grants to be made to other entities.

Subd. 2. **Required review and approval.** (a) A state agency receiving an appropriation for an information and telecommunications technology project subject to this section must divide the project into phases.

(b) The commissioner of finance may not authorize the encumbrance or expenditure of an appropriation of state funds to a state agency for any phase of a project, device, or system subject to this section unless the Office of Enterprise Technology has reviewed each phase of the project, device, or system, and based on this review, the chief information officer has determined for each phase that:

(1) the project is compatible with the state information architecture and other policies and standards established by the chief information officer;

(2) the agency is able to accomplish the goals of the phase of the project with the funds appropriated; and

(3) the project supports the enterprise information technology strategy.

Subd. 3. Repealed, 2005 c 156 art 5 s 24

HIST: 1Sp2001 c 10 art 2 s 46; 2005 c 156 art 5 s 14,15

16E.05 Government information access.

Subdivision 1. **Duties.** The office, in consultation with interested persons, shall:

(1) coordinate statewide efforts by units of state and local government to plan for and develop a system for providing access to government services;

(2) make recommendations to facilitate coordination and assistance of demonstration projects; and

(3) explore ways and means to improve citizen and business access to public services, including implementation of technological improvements.

Subd. 2. **Approval of state agency initiatives.** A state agency shall coordinate with the office when implementing a new initiative for providing electronic access to state government information.

Subd. 3. **Capital investment.** No state agency may propose or implement a capital investment plan for a state office building unless:

(1) the agency has developed a plan for increasing telecommuting by employees who would normally work in the building, or the agency has prepared a statement describing why such a plan is not practicable; and

(2) the plan or statement has been reviewed by the office.

HIST: 1997 c 202 art 3 s 11

16E.055 Electronic government services.

A state agency that implements electronic government services for fees, licenses, sales, or other purposes must use the single entry site created by the chief information officer for all agencies to use for electronic government services.

HIST: 1Sp2001 c 10 art 2 s 47; 2005 c 156 art 5 s 16

16E.06 Data privacy.

The following data submitted to the office by businesses are private data on individuals or nonpublic data: financial statements, business plans, income and expense projections, customer lists, and market and feasibility studies not paid for with public funds.

HIST: 1997 c 202 art 3 s 12

16E.07 North Star.

Subdivision 1. **Definitions.** (a) The definitions in this subdivision apply to this section.

(b) **Core services.** "Core services" means information system applications required to provide secure information services and on-line applications and content to the public from government units. On-line applications may include, but are not limited to:

(1) standardized public directory services and standardized content services;

(2) on-line search systems;

(3) general technical services to support government unit on-line services;

(4) electronic conferencing and communication services;

(5) secure electronic transaction services;

(6) digital audio, video, and multimedia services; and

(7) government intranet content and service development.

(c) **Government unit.** "Government unit" means a state department, agency, commission, council, board, task force, or committee; a constitutional office; a court entity; the Minnesota State Colleges and Universities; a county, statutory or home rule charter city, or town; a school district; a special district; or any other board, commission, district, or authority created under law, local ordinance, or charter provision.

Subd. 2. **Established.** The office shall establish "North Star" as the state's comprehensive government on-line information service. North Star is the state's governmental framework for coordinating and collaborating in providing on-line government information and services. Government agencies that provide electronic access to government information are requested to make available to North Star their most frequently requested public data.

Subd. 3. **Access to data.** The legislature determines that the greatest possible access to certain government information and data is essential to allow citizens to participate fully in a democratic system of government. Certain information and data, including, but not limited to the following, must be provided free of charge or for a nominal cost associated with reproducing the information or data:

(1) directories of government services and institutions, including an electronic version of the guidebook to state agency services published by the commissioner of administration;

(2) legislative and rulemaking information, including an electronic version of the State Register, public information newsletters, bill text and summaries, bill status information, rule status information, meeting schedules, and the text of statutes and rules;

(3) Supreme Court and Court of Appeals opinions and general judicial information;

(4) opinions of the attorney general;
(5) Campaign Finance and Public Disclosure Board and election information;
(6) public budget information;
(7) local government documents, such as codes, ordinances, minutes, meeting schedules, and other notices in the public interest;
(8) official documents, releases, speeches, and other public information issued by government agencies; and
(9) the text of other government documents and publications that government agencies determine are important to public understanding of government activities.

Subd. 4. **Staff.** The chief information officer shall appoint the manager of the North Star on-line information service and hire staff to carry out the responsibilities of the service.

Subd. 5. **Participation; consultation; guidelines.** The North Star staff shall consult with governmental and nongovernmental organizations to establish rules for participation in the North Star service. Government units planning, developing, or providing publicly accessible on-line services shall provide access through and collaborate with North Star and formally register with the office. The University of Minnesota is requested to establish on-line connections and collaborate with North Star. Units of the legislature shall make their services available through North Star. Government units may be required to submit standardized directory and general content for core services but are not required to purchase core services from North Star. North Star shall promote broad public access to the sources of on-line information or services through multiple technologies.

Subd. 6. **Fees.** The office shall establish fees for technical and transaction services for government units through North Star. Fees must be credited to the North Star account. The office may not charge a fee for viewing or inspecting data made available through North Star or linked facilities, unless specifically authorized by law.

Subd. 7. **North Star account.** The North Star account is created in the special revenue fund. The account consists of:
(1) grants received from nonstate entities;
(2) fees and charges collected by the office;
(3) gifts, donations, and bequests made to the office; and
(4) other money credited to the account by law.

Money in the account is appropriated to the office to be used to continue the development of the North Star project.

Subd. 8. **Secure transaction system.** The office shall plan and develop a secure transaction system to support delivery of government services electronically. A state agency that implements electronic government services for fees, licenses, sales, or other purposes must use the secure transaction system developed in accordance with this section.

Subd. 9. **Aggregation of service demand.** The office shall identify opportunities to aggregate demand for technical services required by government units for on-line activities and may contract with governmental or nongovernmental entities to provide services. These contracts are not subject to the requirements of chapters 16B and 16C, except sections 16C.04,

16C.08, and 16C.09.

Subd. 10. **Outreach.** The office may promote the availability of government on-line information and services through public outreach and education. Public network expansion in communities through libraries, schools, colleges, local government, and other community access points must include access to North Star. North Star may make materials available to those public sites to promote awareness of the service.

Subd. 11. **Advanced development collaboration.** The office shall identify information technology services with broad public impact and advanced development requirements. Those services shall assist in the development of and utilization of core services to the greatest extent possible where appropriate, cost-effective, and technically feasible. This includes, but is not limited to, higher education, statewide on-line library, economic and community development, and K-12 educational technology services. North Star shall participate in electronic commerce research and development initiatives with the University of Minnesota and other partners. The statewide on-line library service shall consult, collaborate, and work with North Star to ensure development of proposals for advanced government information locator and electronic depository and archive systems.

HIST: 1997 c 202 art 2 s 63; art 3 s 13; 1998 c 366 s 46; 1998 c 386 art 2 s 15; 1999 c 250 art 1 s 114; 1Sp2003 c 1 art 2 s 59; 2005 c 156 art 5 s 17,23

16E.14 Enterprise technology revolving fund.

Subdivision 1. **Creation.** The enterprise technology revolving fund is created in the state treasury.

Subd. 2. **Appropriation and uses of fund.** Money in the enterprise technology revolving fund is appropriated annually to the chief information officer to operate information and telecommunications services, including management, consultation, and design services.

Subd. 3. **Reimbursements.** Except as specifically provided otherwise by law, each agency shall reimburse the enterprise technology revolving fund for the cost of all services, supplies, materials, labor, and depreciation of equipment, including reasonable overhead costs, which the chief information officer is authorized and directed to furnish an agency. The chief information officer shall report the rates to be charged for the revolving fund no later than July 1 each year to the chair of the committee or division in the senate and house of representatives with primary jurisdiction over the budget of the Office of Enterprise Technology.

Subd. 4. **Cash flow.** The commissioner of finance shall make appropriate transfers to the revolving fund when requested by the chief information officer. The chief information officer may make allotments and encumbrances in anticipation of such transfers. In addition, the chief information officer, with the approval of the commissioner of finance, may require an agency to make advance payments to the revolving fund sufficient to cover the office's estimated obligation for a period of at least 60 days. All reimbursements and other money received by the chief information officer under this section must be deposited in the enterprise technology

revolving fund.

Subd. 5. **Liquidation.** If the enterprise technology revolving fund is abolished or liquidated, the total net profit from the operation of the fund must be distributed to the various funds from which purchases were made. The amount to be distributed to each fund must bear to the net profit the same ratio as the total purchases from each fund bears to the total purchases from all the funds during the same period of time.

HIST: 2005 c 156 art 5 s 18

16E.15 Software sales.

Subdivision 1. **Authorization.** The chief information officer may sell or license computer software products or services developed by state agencies or custom developed by a vendor, through whatever sales method the chief information officer considers appropriate. Prices for the software products or services may be based on market considerations.

Subd. 2. **Software sale fund.** (a) Except as provided in paragraphs (b) and (c), proceeds of the sale or licensing of software products or services by the chief information officer must be credited to the intertechnologies revolving fund. If a state agency other than the Department of Administration has contributed to the development of software sold or licensed under this section, the chief information officer may reimburse the agency by discounting computer services provided to that agency.

(b) Proceeds of the sale or licensing of software products or services developed by the Pollution Control Agency, or custom developed by a vendor for the agency, must be credited to the environmental fund.

(c) Proceeds of the sale or licensing of software products or services developed by the Department of Education, or custom developed by a vendor for the agency, to support the achieved savings assessment program, must be appropriated to the commissioner of education and credited to the weatherization program to support weatherization activities.

HIST: 1987 c 365 s 12; 1990 c 506 art 2 s 12; 1991 c 199 art 1 s 6; 1995 c 220 s 27; 1999 c 205 art 4 s 1; 2003 c 130 s 12; 2005 c 156 art 5 s 23

16E.16 Modification of operating and management procedures.

When improved program effectiveness, better use of services, and greater efficiency and economy in state government can be demonstrated, the chief information officer with the approval of the governor may require a state agency to adjust its operating and management procedures to take advantage of improved systems, procedures, and methods resulting from systems analysis and information science technology.

HIST: 1984 c 544 s 49; 2005 c 156 art 5 s 23

16E.17 Telecommunication; powers.

The chief information officer shall supervise and control all state telecommunication facilities and services, including any transmission, emission, or reception of signs, signals, writing, images, and sounds or intelligence of any nature by wire, radio, optical, or other electromagnetic systems. Nothing

in this section or section 16E.18 modifies, amends, or abridges any powers and duties presently vested in or imposed upon the commissioner of transportation or the commissioner of public safety relating to telecommunications facilities or the commissioner of transportation relating only to radio air navigation facilities or other air navigation facilities.

HIST: 1984 c 544 s 51; 1999 c 250 art 1 s 60; 2005 c 156 art 5 s 23

16E.18 State information infrastructure.

Subdivision 1. **Policy.** (a) The state through its departments and agencies shall seek ways to meet its telecommunications needs in a manner that will help to promote investment and growth of the private sector information infrastructure throughout the state.

(b) The chief information officer shall ensure that telecommunications services are acquired in a manner that:

(1) promotes the availability of technologies with statewide high-speed or advanced telecommunications capability for both public and private customers in a reasonable and timely fashion;

(2) enables the cost-effective provision of telecommunications services to the entities identified in this section;

(3) uses standards-based open, interoperable networks to the extent practicable;

(4) promotes fair and open competition in the delivery of telecommunications services;

(5) allows effective state information infrastructure network management, responsiveness, and fault protection;

(6) provides networkwide security and confidentiality as appropriate for promoting public safety, health, and welfare; and

(7) meets performance standards that are reasonable and necessary.

(c) The state may purchase, own, or lease customer premises equipment. Customer premises equipment consists of terminal and associated equipment and inside wire located at an end user's premises and connected with communication channels at the point established in a building or a complex to separate customer equipment from the network. Customer premises equipment also includes, but is not limited to, communications devices eligible for distribution to communications impaired persons under section 237.51, subdivision 1.

(d) This section does not prohibit the chief information officer or other governmental entity from owning, leasing, operating, and staffing a network operation center that allows the chief information officer to test, troubleshoot, and maintain network operations.

Subd. 2. **Creation.** Except as provided in subdivision 4, the chief information officer, through the state information infrastructure, shall arrange for the provision of voice, data, video, and other telecommunications transmission services to state agencies. The state information infrastructure may also serve educational institutions, including public schools as defined in section 120A.05, subdivisions 9, 11, 13, and 17, nonpublic, church or religious organization schools that provide

instruction in compliance with sections 120A.22, 120A.24, and 120A.41, and private colleges; public corporations; Indian tribal governments; state political subdivisions; and public noncommercial educational television broadcast stations as defined in section 129D.12, subdivision 2. It is not a telephone company for purposes of chapter 237. The chief information officer may purchase, own, or lease any telecommunications network facilities or equipment after first seeking bids or proposals and having determined that the private sector cannot, will not, or is unable to provide these services, facilities, or equipment as bid or proposed in a reasonable or timely fashion consistent with policy set forth in this section. The chief information officer shall not resell or sublease any services or facilities to nonpublic entities except to serve private schools and colleges. The chief information officer has the responsibility for planning, development, and operations of the state information infrastructure in order to provide cost-effective telecommunications transmission services to state information infrastructure users consistent with the policy set forth in this section.

Subd. 3. **Duties.** (a) The chief information officer shall:

(1) arrange for voice, data, video, and other telecommunications transmission services to the state and to political subdivisions through an account in the intertechnologies revolving fund;

(2) manage vendor relationships, network function, and capacity planning in order to be responsive to the needs of the state information infrastructure users;

(3) set rates and fees for services;

(4) approve contracts for services, facilities, or equipment relating to the system;

(5) develop a system plan and the annual program and fiscal plans for the system; and

(6) in consultation with the commissioner of education in regard to schools, assist state agencies, political subdivisions of the state, and higher education institutions, including private colleges and public and private schools, to identify their telecommunication needs, and develop plans for interoperability of the network consistent with the policies in subdivision 1, paragraphs (a) and (b). When requested, the chief information officer may also assist in identifying, purchasing, or leasing their customer premises equipment.

(b) The chief information officer may purchase, own, or lease any telecommunications network facilities or equipment after first seeking bids or proposals and having determined that the private sector cannot, will not, or is unable to provide these services, facilities, or equipment as bid or proposed in a reasonable and timely fashion consistent with the policy set forth in this section.

Subd. 4. **Program participation.** The chief information officer may require the participation of state agencies and the commissioner of education, and may request the participation of the Board of Regents of the University of Minnesota and the Board of Trustees of the Minnesota State Colleges and Universities, in the planning and implementation of the network to provide interconnective technologies. The Board

of Trustees of the Minnesota State Colleges and Universities may opt out of participation as a subscriber on the network, in whole or in part, if the board is able to secure telecommunications services from another source that ensures it will achieve the policy objectives set forth in subdivision 1.

Subd. 5. **Alternative aggregation.** The chief information officer may, but is not required to, approve community-based aggregation of demand for telecommunications services for state agencies, including Minnesota State Colleges and Universities. To be considered a community-based aggregation project:

(1) the project must aggregate telecommunications demands of state agencies with that of the private sector in a community or a group of communities in a geographic region to the extent permitted by law; and

(2) the aggregation must result in telecommunications infrastructure improvements that ensure the policy set forth in subdivision 1, paragraphs (a) and (b).

Subd. 6. **Rates.** (a) The chief information officer shall establish reimbursement rates in cooperation with the commissioner of finance to be billed to participating agencies and educational institutions sufficient to cover the operating, maintenance, and administrative costs of the system.

(b) Except as otherwise provided in subdivision 4, a direct appropriation made to an educational institution for usage costs associated with the state information infrastructure must only be used by the educational institution for payment of usage costs of the network as billed by the chief information officer.

Subd. 7. **Appropriation.** Money appropriated for the state information infrastructure and fees for telecommunications services must be deposited in an account in the intertechnologies fund. Money in the account is appropriated annually to the chief information officer to carry out the purposes of this section.

Subd. 8. **Exemption.** The system is exempt from the five-year limitation on contracts set by sections 16C.05, subdivision 2, paragraph (b), 16C.08, subdivision 3, clause (5), and 16C.09, clause (6).

HIST: 1989 c 246 s 2; 1989 c 335 art 1 s 64; 1990 c 594 art 1 s 47; 1991 c 345 art 1 s 64; 1992 c 514 s 10-12; 1994 c 634 art 1 s 8,9; 1Sp1995 c 3 art 12 s 1; 1996 c 398 s 15; 1997 c 202 art 3 s 4; 1998 c 359 s 9; 1998 c 386 art 2 s 14; 1998 c 397 art 11 s 3; 1998 c 398 art 5 s 55; 1999 c 86 art 1 s 10; 1999 c 214 art 2 s 1; 1999 c 250 art 1 s 61; 2001 c 162 s 5; 2003 c 130 s 12; 1Sp2003 c 1 art 2 s 41,42; 2005 c 156 art 5 s 23

16E.19 Administration of state computer facilities.

Subdivision 1. **Chief information officer's responsibility.** The chief information officer shall integrate and operate the state's centralized computer facilities to serve the needs of state government. The chief information officer shall provide technical assistance to state agencies in the design, development, and operation of their computer systems.

Subd. 2. **Joint actions.** The chief information officer may, within available funding, join with the federal government, other states, local governments, and organizations representing those groups either jointly or severally in the

development and implementation of systems analysis, information services, and computerization projects.

HIST: 1997 c 202 art 3 s 5; 2005 c 156 art 5 s 23

16E.20 Electronic conduct of state business.

The chief information officer shall develop and implement a system under which:

(1) state business can be conducted and permits or licenses obtained through electronic communication with the appropriate state agencies; and

(2) applications for grants can be made electronically to state agencies when feasible.

HIST: 1994 c 559 s 2; 1997 c 202 art 3 s 6; 2000 c 332 s 2; 2005 c 156 art 5 s 23

7. Executive Order

EXECUTIVE ORDER 05-04 – April 4, 2005
PROVIDING DIRECTION TO STATE DEPARTMENTS
REGARDING INFORMATION TECHNOLOGY GOVERNANCE

I, TIM PAWLENTY, GOVERNOR OF THE STATE OF MINNESOTA, by virtue of the authority vested in me by the Constitution and applicable statutes, do hereby issue this executive order:

WHEREAS, as Governor, it is important that I provide clear direction to commissioners and state departments to take important steps, consistent with applicable law, to implement strategies that will make the provision of governmental services more efficient and cost-effective; and

WHEREAS, the Drive to Excellence Reform Initiative provides the State of Minnesota with a unique opportunity to fundamentally change the operation of state government; and

WHEREAS, the Drive to Excellence and the strategic plan set forth in the Transformation Roadmap outline methods for state government to provide faster, more reliable, and cost-effective services to Minnesota's citizens and businesses; and

WHEREAS, state departments and services need to be viewed as an integrated whole and as an enterprise, working together to support Minnesota as one organization with overall goals and objectives; and

WHEREAS, information technology is a utility function that supports operations in every state department,

WHEREAS, an enterprise strategy and structure is necessary to equalize information technology systems, eliminate redundant expenditures, strengthen security, and increase compatibility; and

WHEREAS, the recommendations in the Transformation Roadmap call for creating an enterprise-wide structure for managing information technology that will leverage investments, consolidate data collection, develop shared applications, accelerate the use of electronic forms, use enterprise-wide licensing software, and other reforms; and

WHEREAS, materials developed through the Drive to Excellence document the improved effectiveness and efficiency that can be gained from an enterprise orientation to the provision of government services;

NOW, THEREFORE, I hereby order and direct state departments to support implementation activities of the Drive to Excellence Reform Initiative by taking the following specific actions:

1. Consistent with the Commissioner of Administration's responsibilities and authority under Minnesota Statutes Chapters 16B, 16C, and 16E, the Commissioner will designate a State Chief Information Officer ("CIO") as a member of the Department's executive staff. The CIO will manage the Information Technology ("IT") resources of the State, develop and implement policies, procedures, and standards ensuring the optimal leveraging of IT across the state enterprise, and manage consistency and efficiency in IT activities including standardization of policies, procedures, data, and tools.

2. The State CIO will immediately begin to implement the IT governance recommendations of the Transformation Roadmap and report to the Governor's Subcabinet on the Drive to Excellence in 30 days, and each month thereafter, on progress toward achieving an enterprise IT Governance system.

3. The State CIO will develop and implement a plan to reorganize InterTechnologies Group, the Office of Technology, and other units as necessary and make available other resources as required to create the enterprise program management office, the central IT organization, and other organizational units necessary to implement the IT governance recommendations of the Transformation Roadmap, as appropriate.

4. The State CIO will leverage the work of the Drive to Excellence program staff and will direct adequate resources from the new enterprise IT organizational units, the Information Policy Council, and other state departments to implement the enterprise IT governance recommendations of the Transformation Roadmap, as appropriate. The State CIO will:

a. Refine the vision and structure of IT governance including roles and responsibilities for both central IT and state departments;

b. Design and implement a robust enterprise-wide IT organization and track associated savings with aligned processes, management, and administrative practices;

c. Define a decision-making process that will be used to set standards for enterprise-wide IT, with an initial emphasis on common processes, policies, and systems;

d. Define and implement a Service Level Agreement process for defining, developing, and delivering common infrastructure services;

e. Define an exception approval process for any department- or program-specific needs determined to be inconsistent with established state architecture, technology or process standards;

f. Define a process for coordinating shared IT planning, program management, performance measurement, and application development among departments; and

g. Use reorganization orders, statutory changes and other agreements consistent with state law to achieve the goals of this order.

5. The State CIO will establish a steering committee of project stakeholders to oversee the implementation of the IT governance recommendations, ensure that business requirements are met, monitor project status, and remove obstacles to project success.

6. All other commissioners, departments, or employees of the executive branch will work with the State CIO and the Commissioner of Administration to develop, implement, and utilize strategic information technology policies, procedures, systems and services:

a. At the request of the State CIO, departments will appoint representatives that can commit resources and speak with the authority of the department to participate in the development of policies, procedures, standards, systems, and services;

b. As directed by the State CIO, departments may be required to relinquish delegated authority to develop and manage IT services identified to be applicable to the enterprise; and

c. As directed by the State CIO, departments will provide resources and assist with the achievement of strategic enterprise objectives.

7. The Commissioner of Finance will work with the State CIO to develop appropriate funding models and control mechanisms to ensure the implementation of IT governance recommendations and finance enterprise IT functions and organization.

8. On or before December 15, 2005, and annually thereafter, the State CIO will summarize and report to the Governor the results of this initiative, including information regarding:

a. The number, total amount, and nature of IT investments managed by the state;

b. Savings and service improvements attributable to enterprise-wide management of IT; and

c. Any conclusions or recommendations regarding Minnesota's success with an enterprise-wide approach to IT.

Pursuant to Minnesota Statutes 2004, section 4.035, subdivision 2, this Executive Order will be effective fifteen (15) days after publication in the State Register and filing with the Secretary of State and will remain in effect in accordance with Minnesota Statutes 2004, section 4.035, subdivision 3.

8. **OET Strategic Plan**

Strategic Plan 2006

Gopal K. Khanna
State Chief Information Officer

January 2006

OUR MISSION

Support transformation of public services by effective information management and efficient delivery of services to government and its customers.

We do this by developing enterprise information strategies, policies, and standards; by overseeing information technology investments; and by creating a secure and efficient information management environment.

OUR VISION

An efficient information technology environment in which:

- Customers have fast, secure access to data, applications, and services.
- Business needs, enterprise architecture, and standards guide investment decisions to achieve highest value.
- Effective use of shared information technology (IT) applications and services is the preferred mode of operation.
- Effective process management ensures prudent investment decisions and practices.
- Customers are routinely consulted when establishing the enterprise priorities, strategies, and policies that are the basis for effective information management.

OUR VALUES

In carrying out our responsibilities, we will:

- Work in close collaboration with our stakeholders and customers to identify and provide optimal solutions.
- Make decisions that are in the best interest of the people of the state of Minnesota.
- Act at all times in a manner consistent with our obligation to be thoughtful stewards of the public trust.
- Continuously seek out innovative technologies and business practices that improve public sector performance and service levels.
- Maintain an enterprise perspective and a future orientation on both business and technology matters.
- Observe process integrity in our management of projects and programs.
- Make decisions that are fact based, data driven, and objective.
- Observe the highest standards of ethical behavior as individuals and as an organization, and treat all persons with consideration and respect.

OUR STAKEHOLDERS

We exist to serve the needs and interests of the citizens of the state.
We are accountable to them through the governor, legislature, and other elected officials who serve them; and to the public sector entities that administer programs to serve the citizens.

OUR CUSTOMERS

Our principal customers include the citizens of Minnesota, state agencies and constitutional officers, public school systems and higher education institutions, and the local political subdivisions of the state. A positive relationship with customers, based on involvement and mutual respect, is essential to our success.

OUR STRATEGIES

- **TRANSFORM OET/ORGANIZATION & WORKFORCE DEVELOPMENT**

  Outcome: OET is a restructured, enterprise-focused agency whose employees have the skills and tools to support the OET mission.

  Approach: Redesign or refine business processes, encourage innovation, clarify and realign resources, provide targeted staff development, clearly define performance measures, and strengthen customer relationships.

- **DEFINE THE SCOPE AND OFFERINGS OF SERVICES**

  Outcome: OET offers a portfolio of service offerings keyed to customer needs — the shared/utility business model, the governance structure, and the enterprise information management strategies.

  Approach: Analyze our operations and customer needs, redefine products and services from customer and partnership perspectives, and identify enterprise oversight needs.

- **TRANSFORM DECISION-MAKING PROCESSES**

  Outcome: OET supports a business-centered, decision-making structure using parallel processing. We emphasize an action-oriented, collaborative, and communicative culture.

  Approach: Define internal management practices around service elements, engage stakeholders in a collaborative planning environment, and implement a responsive, effective operational environment.

- **IMPLEMENT ENTERPRISE SECURITY AND ID MANAGEMENT PROGRAMS**

  Outcome: OET manages a stable, secure, and responsive computing environment that supports information sharing and electronic service delivery.

  Approach: Create and manage a comprehensive program of enterprise-wide security access, identification, authorization, and intrusion detection which assures citizens of data, process, and transactional integrity.

- **LEVERAGE IT CONTRACTING AND PROCUREMENT PROCESSES FOR BEST VALUE**

  Outcome: OET creates and oversees opportunities for economies of scale and improvements in support through standardization.

  Approach: Develop policies to support enterprise-wide acquisition of technology and staff resources and assess agency needs for best value.

- **DEVELOP COMPREHENSIVE FUNDING MECHANISMS FOR ENTERPRISE IT**

  Outcome: Funding sources for OET and agency-centered shared services are stable and reflect the value and scope of services provided to other agencies and customers.

  Approach: Explore new mechanisms for funding enterprise-wide investments, identify reinvestment opportunities, develop a funding model for both shared and direct services, encourage understanding of enterprise-wide Total Cost of Ownership and life-cycle funding, develop internal accountability methods, and develop well-designed asset and investment tracking processes.

- **EMBRACE A STRONG PORTFOLIO MANAGEMENT PROGRAM**

  Outcome: OET, in partnership with agencies, provides oversight of enterprise IT investments, projects, and policies on behalf of its stakeholders.

  Approach: Develop the infrastructure; collect, analyze, and evaluate data; institute a phased-approach development model; construct evaluation and monitoring processes for major IT projects and acquisitions; and support best practices for agency development.

- **LEAD THE DEVELOPMENT OF AN ENTERPRISE ARCHITECTURE**

  Outcome: OET leads in the definition and maintenance of a structured information architecture for the state, for good investment decisions, and for enterprise-wide leveraging of information and technology.

  Approach: Utilize the existing technical architecture and collaborative standards-setting processes to define integrated, standards-based business and information architectures.

- **PROVIDE THE FOUNDATION FOR SEAMLESS INTEGRATION OF E-GOVERNMENT SERVICES**

  Outcome: OET is aligned with agency business needs by providing technology services that enhance agency systems, resulting in seamless information sharing, technology standardization, and reduced costs.

  Approach: Establish an OET e-Government leadership team, partner with customers, and align with the enterprise architecture to define reusable components for e-Government service development and integration. Guided by enterprise policies and standards, ensure that e-Government service designs are secure, scalable, and intuitive.

9. Information Management Principles Endorsed by the Information Policy Council

In November, 1986, the Information Policy Council adopted the following Principles. The Information Policy Council advised the Commissioner of Administration on information management in the executive branch. The members -- mainly deputy and assistant commissioners -- recommended and reviewed information policy. The Council created the following principles and promotes their implementation. They are still valid and important.

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.

The Management Principle:
Information systems should support an organization's mission.

Top management is responsible for linking mission and functions to information systems coherently.

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.

The Data Principle:
State government data is a resource of the state to be managed and shared across organizational lines.

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.

The People Principle:
Information is a resource for people, to extend human capabilities to better serve the public.

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.

The Standards Principle:
State information resources and tools must be managed using enough standards so that the necessary linkages among state agencies and between state and local government are supported.

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:

- a 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.