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Financing Information Technology Investments in Minnesota

A Report to the Minnesota Legislature

November 1997

Executive Summary

State investment in information technology (IT) is critical to the delivery of effective government services to Minnesota citizens. Its importance will only grow. As our citizens become increasingly comfortable employing technology to improve their daily lives – at home, at work, and at play – they will come to demand similar capabilities from government. As government seeks innovative ways to respond to citizen's demand for both higher service levels and restrained growth in government, information technology is emerging as an effective tool to meet that demand.

Financing these future information technology investments poses a number of unique challenges for state government. Due to their complexity, many of these investments are expensive, requiring specific appropriations for both their development and ongoing operations. The rapid rate of innovation, and the need to keep pace with emerging standards, makes decisions concerning the direction of future investment particularly challenging. The very nature of IT also does not always blend well with traditional financing structures. IT's ability to build information bridges between organizations, to align the delivery of multiple programs with the needs of citizens, is not always well-supported by authorization of separate legislative appropriations to multiple organizations.

This report provides a framework for working through the challenging funding issues posed by IT. It develops an finance structure, recommends a budget format for presentation of IT initiatives, and recommends a series of policy changes designed to improve the financing of state IT infrastructure. Several principles guided the development of these recommendations:

1) IT Investments Provide Critical Support to Policies and Programs

2) IT Investments Are Assets That Supply Benefits Throughout their Useful Life

3) IT Investments Consist of Enterprise-Wide Infrastructure, Major Systems That Support Programs and Basic Agency Infrastructure

4) IT Investments Require Regular Modification and Upgrade

5) Collaborative IT Investments Pose Particular Financing Challenges

The financing of state information technology investments needs to be addressed at a number of levels, from how the State appropriates funds for information technology, to how agencies manage their technology resources, to how technology is purchased. Recommendations made in this report include:

Appropriating IT Resources

- Distribute the cost of major IT assets over the life of the investment.

- Equalize access to funding for basic IT infrastructure.
- Leverage federal and non-general funds to build enterprise-wide infrastructure.
- Provide full life-cycle funding of IT investments.
- Strongly link IT budgeting to program and policy issues.
- Modify the IT budget document to provide a strategic update, additional information on emerging technology issues, and additional information on collaborative initiatives. Detail on agency technology initiatives will be moved to the agency operating budget documents.

Managing IT Resources

- Promote careful information resource planning.
- Authorize dedicated IT accounts for carry-forward of agency funds across biennia.
- Encourage use of leasing, where cost-effective, for major hardware, software and maintenance agreement purchases.

Purchasing IT Resources

- Maximize the purchasing power of agencies.
- Remove barriers to purchasing innovative IT products and services.
- Adopt best-value purchasing criteria.
- Promote an appropriate mix of contracted and state IT employees, while enhancing the skills of state IT employees.

The Minnesota Office of Technology would like to acknowledge the Information Policy Council (IPC) for its role in developing the recommendations contained in this report. An advisory group composed of representatives from many state agencies, chaired by Barbara Anderson, Chief Information Officer of the Department of Human Services, provided invaluable assistance and support.

Per the requirements of Minnesota Statutes Chapter 3.197, the cost of preparing and printing this report is estimated to be $ 5,000.

Chapter 1

Principles of Information Technology Investment

Towards a Model of Information Technology Investment

Methods of financing information technology (IT) should be driven by sound economic principles as well as an understanding of how IT can improve the delivery of government goods and services. The following principles provide guidance in considering different financing mechanisms. While technology needs and opportunities may change, these principles will continue to provide a framework for considering methods of funding future IT proposals.

IT Investments Provide Critical Support to Policies and Programs

The value of information technology is its ability to improve business operations. Delivery of Minnesota government goods and services has become more effective, efficient, and customer-focused through the strategic application of information technology tools. State agencies have come to rely on technology solutions that provide data quickly and accurately, to not only provide information about the effect of programs and policies on citizens but to actually *deliver* government services. With the advent of electronic commerce capabilities, information technology will become even more intertwined with the actual delivery of government services.

It is critical, therefore, that decisions about information technology investments remain firmly linked to decisions about policies and programs. As agencies and policymakers consider policy and program changes, they must be cognizant of the role of IT in providing support for those changes. Likewise, agencies and policymakers struggling with the diverse array of technology currently available need to remain focused on how those technologies can improve the delivery of government services.

IT Investments Are Assets That Supply Benefits Throughout their Useful Life

Information technology investments generate a number of benefits, including quicker access to information, improved accuracy of data and transactions, greater consistency and improved reliability of service delivery. While the useful lives of IT investments may vary – from the relatively short lifespan of desktop computers to the longer lifespan of mainframe computers and business critical applications – they continue to generate benefits to an organization throughout their useful lives.

In that sense, IT investments are similar to other capital assets, such as buildings and equipment. Many capital assets are financed in a manner that spreads the cost of the asset throughout its life, either through debt financing or regular amortization payments. The state of Minnesota finances buildings and land through its capital bonding program, and equipment such as automobiles and trucks are financed through various leasing arrangements.

The state, however, has largely purchased IT assets upfront. Major development and purchase costs are typically paid at the beginning of an IT asset's life-cycle, even though the majority of benefits will accrue to future years. Often the large initial costs of these investments are difficult to afford, particularly for organizations, such as state agencies, with relatively fixed sources of revenue.

IT Investments Consist of Enterprise-Wide Infrastructure, Major Systems That Support Programs and Basic Agency Infrastructure

State government's information technology infrastructure consists of three major types of investment, enterprise-wide infrastructure, major systems that support programs and basic agency infrastructure, each critical to the efficient delivery of government goods and services. Linked together, they have the potential to supply Minnesota citizens a highly effective means of conducting business with the State. Due to their nature, methods of financing may be different.

Enterprise-Wide Infrastructure

As government seeks to align delivery of its services directly to its citizens, instead of through specific agencies and programs, enterprise-wide IT components will play a growing role. Central web sites will provide a common platform for electronic commerce and other forms of government transactions. Telecommunications lines shared by multiple agencies will supply a cost-effective means of linking state systems to local governments. Other resources, like data warehouses, offsite work spaces, backup and storage facilities, and geographic information systems, can be shared by multiple state agencies, providing cost efficiencies.

Major Program-Specific Systems

While much IT has become standardized, such as desktop computers and network servers, organizations continue to require major software solutions and networked

systems to support specific business and program functions. They are dependent upon the existence of a basic infrastructure to deliver information to the desktop, and remain relatively expensive, highly specialized, often custom-programmed solutions that support an organization's business over a number of years.

Basic Agency Infrastructure

Early in the history of information systems development, most systems were custom-programmed, mainframe-based, and unique to an organization. With innovations such as the personal computer, standardized networking solutions, and the widespread use of the Internet, systems have become more standardized and capable of communicating with one another. The result has been the near "commodification" of a basic IT infrastructure. Nearly all workers, in every organization, now need a personal computer to conduct business, much in the same way they need a telephone. With growth in the Internet, and its ability to support electronic communication and commerce, workers will have even greater need to be connected via a network of information systems.

These three types of IT investments require different means of financing. Financing enterprise-wide infrastructure is challenging, due to the need to solicit contributions from various agencies, or to obtain legislative funding for projects that do not necessarily fit neatly into the legislative finance committee structure. Mechanisms that help these efforts receive funding, through either special appropriations or contributions from agencies, will ensure that these resources are developed.

Major program-specific systems typically have longer life spans, though they require regular modification and maintenance. Financing these investments is considerably challenging, given their cost and complexity. State agencies often find it necessary to submit requests for supplemental appropriations, which, facing intense competition from other worthy program and policy initiatives, may not be funded in a timely manner. Financing mechanisms that spread the cost of these systems across their life-cycle promote their careful management as assets, make them more affordable on an annual basis, and better reflect the stream of benefits that they generate throughout their useful lives.

Organizations must maintain a basic information infrastructure, both to enable employees to manage their daily workflow and to support the major, program-specific systems that support business functions. The basic infrastructure must be kept current, to take advantage of the benefits offered by common standards in hardware, applications, networks and communications, and organizations must plan for routine upgrades and maintenance.

IT Investments Require Regular Modification and Upgrade

While many IT investments pose large, upfront development costs, ongoing operating costs can also be significant. In addition to the expense of system operations – personnel, user training and data processing charges – changing operating environments require that hardware and software be continually modified and upgraded. These changes are driven by technological innovation that continues to make available new capabilities in data

processing, creating information systems that can process data faster and more reliably than yesterday's systems. The result is an environment where the standards that enable data sharing and collaboration are continually evolving.

Organizations wishing to take advantage of the new IT capabilities, or even those wishing to stay current with existing standards, must be prepared to routinely modify and upgrade their IT infrastructure. Effective planning -- organizational, technological as well as budgetary – is critical.

Collaborative IT Investments Pose Particular Financing Challenges

One of the strengths of information technology is its ability to open lines of communication and collaboration between different organizations. Data vital to the business needs of multiple organizations can flow easily between them, and services can be delivered to the customer through a common system, linking the programs of different organizations. Some have envisioned a day when IT will make possible the transparent delivery of diverse government services, when citizens will no longer need to know the correct agency or level of government to approach with their needs, but will instead access government through a common access point. Collaborative projects will assure that citizens are provided a more efficient means of interacting with government, even while individual agency programs are being delivered and policies are being enforced.

The state of Minnesota, with leadership from the Information Policy Council, has made progress in promoting IT collaboration among its agencies. Recent projects include the North Star Project, the State's central web site, the Information Telecommunication Collaborative, an effort to extend data communications to all the state's counties more cheaply and effectively, and the Year 2000 Project, the State's collaborative effort to solve the looming difficulties posed by the century date change, as well as other efforts to address policy issues posed by IT.

As collaborative projects grow in both importance and number, however, the State will be challenged to find an approach to financing them. Financing these collaborative efforts from agency contributions can be challenging; agencies find it difficult to find the resources necessary to contribute, and some have concerns about ceding accountability for state resources for which they have been entrusted.

Collaborative projects may also not fit well with the traditional finance committee structure at the legislature. Budgetary decision-making at the legislature has been divided among various finance committees, dedicated to various policy areas, i.e. health and human services, economic development, taxes, etc., which are granted specific spending targets. Collaborative projects may link agencies from different policy clusters, leading to questions concerning responsibility for financing.

The state needs to consider ways of funding these projects that do not depend upon the concerted action of a number of different finance committees to guarantee their funding, perhaps making funds available prior to the establishment of individual committee spending targets.

Chapter 2

Funding IT

Policies for Appropriating IT Resources

Major IT investments whose expected life is two years or greater should be financed through a mechanism that distributes costs across their useful life. Funding for basic agency IT infrastructure should be, in most cases, the responsibility of individual agencies' operating budgets. Access to funding for basic infrastructure is, however, inconsistent across state agencies. Establishment of a dedicated agency infrastructure fund will guarantee that all state agencies possess a sufficient basic agency information infrastructure. Where possible, leverage of federal and non-general funds will enhance the building of enterprise-wide infrastructure. Providing full life-cycle funding through multi-year appropriations and/or through the funding of ongoing operational costs will provide agencies additional development flexibility and ensure that adequate resources are available for ongoing operations.

The state IT budget will be reconfigured to provide an update on the State's progress towards realizing its strategic information technology goals. Additional information regarding emerging IT issues will be provided, along with enhanced information on collaborative IT initiatives. Detailed information about individual agency IT initiatives will be included in the operating budget documents.

Cost of Major IT Assets Should be Distributed over the Life of the Investment

Major IT investments whose expected life spans are two years or greater should be financed using mechanisms that distribute cost across the life of the investment. These mechanisms could include:

- Amortization Funds
- Central Revolving Funds

State bonding, the financing method commonly used by the State to finance purchase of land and buildings, is not currently available to fund IT due to legal interpretation of constitutional restrictions on the use of bond proceeds, though several other states have used it.

Amortization Funds Would Set Aside Funds for Replacement, Modification

Replacement and/or modification of major, program-specific IT systems could be made more manageable through use of an amortization fund. The fund, a separate, dedicated account, would serve as a destination for annual amortization payments, designed to provide resources for the unavoidable modification and replacement cost of IT systems.

This concept would borrow from private sector practice by creating depreciation-like charges on IT systems and segregating these amounts in "amortization funds" to be used for system modification and/or replacement. Such a practice would explicitly recognize that IT systems are assets to be managed, with ongoing costs and benefits that accrue over a number of years. Authorizing these amortization funds to be saved and carried forward across biennia would provide agencies with a means to accumulate funds over a period of years to finance eventual system modification and/or replacement. These amortization funds would be most appropriate for support system investments with useful lives of two years or greater. System investments with useful lives of less than two years would be best funded from operating budget appropriations, as they would have little need to carry available funds across biennia.

A modification/replacement cost and estimated useful life would be forecasted for each qualifying system. Dividing the cost by the estimated number of years of useful life would produce the annual amortization charge to the agency budget. These amounts would be paid into separate Minnesota Accounting and Procurement System (MAPS) appropriation accounts, and accumulated until it was time to replace the system. The new system would then be acquired, with little impact to the current budget, and the process would repeat itself, calculating new depreciation charges on the replaced system.

While amortization payments could rely on existing agency budgets, the size and cost of major, program-specific systems would likely require an infusion of additional appropriations to support the amortization payments. At the end of the amortization period, the amount of additional appropriation could be reassessed and adjusted based on the next forecasted amortization schedule.

Central Revolving Fund Would Distribute IT Costs, Require Upfront Capitalization

An IT revolving loan fund, initially capitalized by an upfront, one-time appropriation of general fund resources, would permit agencies to finance needed IT investments at low or no interest, making the investments more affordable on an annual basis. Such a fund would offer an important advantage over an amortization fund: needed projects could be financed immediately, as opposed to when adequate funds had accumulated.

The revolving fund would be administered by a combination of executive branch steering committee and legislative committee oversight. Initially, the fund might be limited to providing loans for basic infrastructure projects or for those projects not requiring additional appropriations for repayment of the loan. The legislature would establish the size of the fund, as well as broad parameters governing its use, and requests for loans would be administered by a steering committee composed of representatives from the Information Policy Council (IPC), Office of Technology (OT), Department of Administration (DoA) and/or Department of Finance (DoF). Additional criteria would be developed to define more carefully the nature of projects eligible for loans from the fund. The loans would have a payback period of two to seven years. Such a fund would have the added

advantage of permitting agencies to respond more quickly to changing technology needs, as they would not need to await the two-year state budgeting cycle.

A larger fund, capitalized with a larger upfront appropriation, would permit loan funding for projects large enough to require additional appropriations to agencies for repayment of the loans, or for projects dependent upon statutory changes of policy or program. Legislative finance committees would then grant a loan from the fund balance, thus needing to finance only the additional appropriations required to pay back the loan over time.

Bond Financing for IT Not Currently Available

While several states have issued bonds to finance IT projects, bond financing for IT has not been interpreted by the State's bond counsel to be permissible under Minnesota's constitution. The Constitution states, in part, that state bonds may be issued *"to acquire and to better public land and buildings and other public improvements of a capital nature*".

Two considerations appear to preclude bond financing of IT projects. First, interpretation of which expenditures are capital in nature suggests that only fixed assets with a useful life of at least 10 years should qualify. Most IT systems and hardware probably have useful lives of less than 10 years, given the pace of technological change. Second the clause "other public improvements of a capital nature" has been interpreted by bond counsel to apply only to improvements to real property, i.e. lands and buildings. Therefore, while information systems components installed as part of the initial construction of a building are bondable expenses, new or replacement information systems not otherwise related to new construction are not.

Other states, however, have found issuance of state bonds for IT projects an attractive option. First, bond financing allows the cost of expensive systems development projects to be spread over a number of years, making them more affordable on an annual basis, while avoiding the large upfront cost of capitalizing a revolving loan fund. Bond financing is most appropriate when the estimated useful life of the systems being financed, and their expected benefits, would accrue over a number of years, typically seven to ten years. Financing IT with bonds is also relatively cheap; issuing general obligation bonds is typically the least expensive way for state government to borrow. Current annual interest costs on general obligation bonds issued by Minnesota are approximately 5 percent. The entire cost of the debt service also need not be borne by general funds. Other states issuing bonds for IT have used agency non-general fund appropriations or user charges to pay for a portion of the debt service on the bonds issued.

Bond Financing for IT: The Experience of Selected Other States

Montana In April of 1997, Montana authorized the sale of general obligation bonds to provide funding for several technology projects including MT PRRIME, the replacement for Montana's core administrative systems. $16 million was authorized to purchase and install a commercially available software package and all the related hardware, re-engineering, etc. Implementation of MT PRRIME is slated for 1999.

Massachusetts Among the first to use bonds to finance IT, Massachusetts issued $100 million in state bonds in 1993. In 1996, $240 million in bonds were issued for IT projects that demonstrated a return on investment. Bonds were issued with 7-year maturities.

Tennessee Tennessee has issued a total of $85 million in capital bonds for IT projects since 1985, including $14 million for a new judiciary information system.

Vermont In 1997, Vermont issued $5 million in capital bonds for a number of IT projects, including a new revenue system, distance-learning activities for K-12 education, and other state administrative systems projects.

While several states have used bond financing for IT, its appropriateness is debatable. Bond financing for IT investments can be risky, given the uncertainty of future technology changes and the uncertain life span of major system investments. Today's cutting-edge technology can become obsolete quickly. It is possible that states who issue IT bonds may find themselves paying debt service on the bonds even after the systems they finance become obsolete and are retired. This risk could be mitigated through the use of a bond "pool", a single source of funding for multiple projects.

Access to IT Funding for Agency Infrastructure Should Be Equalized

While some agencies are able to access non-general state funds to help fund IT, other agencies are wholly dependent on the State's general fund to finance information technology expenditures. Given the intense competition for state general fund resources to fund new or expanded programs and policies, it is not surprising that these agencies have found it difficult to acquire funding for either basic IT infrastructure or program-specific system. A mechanism to provide small and general-funded agencies with access to additional IT funding sources might help mitigate this difference in access, insuring that all state agencies maintain at least a minimal level of IT competency.

IT Infrastructure Preservation and Replacement Account Would Help Equalize Access to Funding

A separate budgetary account, funded every two years with a general fund appropriation, could serve as a "dedicated fund" for small and general-funded agencies seeking additional IT financing. Modeled on the State's highly successful Capital Asset Preservation and Replacement Account (CAPRA), which is funded biennially by an appropriation in the bonding bill, an IT Infrastructure Preservation and Replacement Account (ITIPRA) would provide additional resources to help agencies keep their IT infrastructure current.

While this need could also be met by the revolving loan fund mentioned earlier, an ITIPRA funded biennially would avoid the large, upfront capitalization cost of a central revolving loan fund, though it would not be self-sustaining.

Federal and Non-General Funds Should Be Leveraged to Build Enterprise-Wide IT Infrastructure

As the State seeks to build information systems that link agencies together to align common business functions across state government, increased emphasis will be placed on building common IT components that can be shared by the entire state enterprise. Existing financing mechanisms that appropriate funds to separate agencies do not promote these types of investments, which can provide important enterprise-wide benefits in a more cost-effective manner.

Federal Grants May Provide Opportunities to Build Enterprise-Wide IT Infrastructure

States seeking to develop enterprise-wide IT components, to be shared by multiple agencies, should aggressively pursue opportunities to partner with federal agencies. Within the limits of federal program law, federal assistance might be leveraged in combination with state funds to build enterprise-wide IT infrastructure. Agencies with access to federal funds, like Department of Transportation and Department of Human Services, might sponsor the development of these enterprise-wide components.

Non-General Funds Should Be Permitted to Contribute to Building of Enterprise-Wide IT Infrastructure

Enterprise-wide IT infrastructure components, such as data warehouses, offsite work spaces, backup servers and storage facilities, central web directories and geographic information systems, will eventually be the key components of a seamless interface to Minnesota state government. While some might argue these are general government functions, best suited to funding by the state general fund, they will support programs and policies funded by other state operating funds.

Consequently, policymakers should consider mechanisms by which non-general funds might support the development of enterprise-wide IT infrastructure. An important first step would be a clarification of the authority of agencies to contribute non-general operating funds to these efforts. Even where state agencies have shown a willingness to contribute, they have been at times uncertain as to whether they are authorized to do so under current law. Permitting agencies to contribute these funds would provide yet another tool to finance critical enterprise-wide IT investments.

Full Life-Cycle Funding

Multi-year appropriations and ongoing funding for the operational portion of IT appropriations would permit greater flexibility during the development phase of a system and would guarantee availability of funding during its operations phase.

Authorization of appropriations that would be available until expended would provide additional flexibility to systems development efforts. Oversight of development efforts are addressed by periodic reviews or risk assessments. Continued funding of the operational share of specific IT appropriations ensure that agencies have the resources necessary to maintain and operate IT systems. Agencies would be permitted only those amounts documented as operational costs in their initial proposal.

IT Budgeting Should Remain Closely Tied to Program and Policy Decisions

IT investments, whether components of a basic infrastructure or major, program-specific systems, are justified only to the extent they contribute to helping an organization do its business more efficiently and more effectively. Particularly for major, program-specific systems, it is essential that agencies and policymakers understand that program and policy directions guide future IT investments. The Legislature should continue to debate the merits of these type of IT initiatives within the finance and policy committees that consider an agency's policies and programs.

IT Budget Format Will Emphasize Strategic Direction, Education, and Community Initiatives

In 1997, Governor Carlson presented the Legislature with the State's first information technology budget. The budget compiled the Governor's proposed technology initiatives and presented additional information about the proposals which emphasized agency preparation and planning, long-term costs, and system benefits.

With the creation of the Minnesota Office of Technology, and its charge to provide strategic direction for state IT investments, there exists an opportunity to reconsider the focus of the IT budget, and modify it to provide a more useful perspective on state information technology issues. The focus of the next IT budget will be largely strategic and educational, providing an update of the State's progress in realizing the vision set forth in the State's IT master plan, *Connecting Minnesota Through Information and Communications Technologies*, and providing additional information on emerging technology issues.

Individual agency proposals will be incorporated into the regular operating budgets of the requesting agencies to ensure that budget decisions on IT proposals remain firmly connected to the policies and programs that they support. The IT budget will contain expanded information about community IT proposals, those initiatives proposing investments that will be shared by multiple agencies or which are dependent on funding by more than one legislative finance committee.

IT Master Plan Will Provide Statewide Strategic Vision; IT Budget Will Provide Update

The Minnesota Office of Technology's responsibilities include the preparation of a state master plan to guide IT investments, as well as a biennial update of the State's progress in realizing its vision. The state master plan, to be released November, 1997, will define a series of goals and strategies designed to position the State for the technological opportunities of the new millenium. The state IT budget will update progress in applying the strategies to meet the plan's goals.

IT Budget Will Provide Forum for Education in Emerging Technology Issues

Because of the rapid pace of change in information technology, it is critical that attention be paid to the opportunities made available by emerging technologies. The IT budget will provide a forum to identify these emerging issues, and to educate policymakers about their potential to improve the lives of Minnesota citizens. This education needs to be ongoing. Besides providing an opportunity for new legislators to become familiar with technology issues, some for the first time, the IT budget will provide existing legislators with an update of this rapidly changing sector of our economy. The IT budget will also provide a means for legislative staff to develop an expertise in technology issues, in

conjunction with other educational opportunities sponsored by the Information Policy Council and Office of Technology.

IT Budget Will Showcase Enterprise-Wide and Collaborative Initiatives

As the State works to align its business functions with its customers, our citizens, using technology to link agency programs and policies together, increasing emphasis will be placed on enterprise-wide initiatives. These initiatives, which typically involve multiple agencies and can require coordination of multiple funding streams, will be identified in the IT budget, in order to highlight their importance to the state enterprise, as well as to identify any dependencies that may exist among multiple agency requests.

Detailed Information on Agency Technology Initiatives Will Be Incorporated into Agency Operating Budgets

To reduce the amount of documentation presented to policymakers, detailed information about IT initiatives will be incorporated into agency's operating budget requests. Policymakers will no longer have to refer to the IT budget to obtain additional information on these agency-specific requests.

The Office of Technology is currently reviewing the state information resource management (IRM) structure, to incorporate the latest thinking about how organizations should plan for and execute their IT functions. These new methods will more actively promote the development of increasing levels of competency within state agencies. In addition, they may lead to a new understanding of the factors that should considered in evaluating and recommending IT investments. As these methods develop, they will be incorporated into IT initiative review requirements, and standardized budget forms will be developed prior to the issuance of budget instructions in early spring of 1998.

Chapter
3

Managing IT

Policies for Managing IT Resources

Once granted funds for IT investments, agencies must carefully manage their resources to maximize return on the State's investment. Agency management of IT will be improved by:

- Careful information resource planning.
- Limited carry-forward authority of funds across biennia, dedicated to financing IT.
- Expanded use of existing leasing arrangements for hardware, software and maintenance agreements.

Information Resource Planning Critical to Effective Use of IT Resources

Effective deployment of IT resources requires careful strategic planning, both to insure that IT investments truly support an agency's programs and policies, as well as to manage the complex mix of personnel and equipment that comprise today's information systems. An organization's information systems portfolio must be regularly assessed to determine if its systems continue to add value in the delivery of goods and services, if changing environmental conditions merit changes in the portfolio, or if there is technical risk of system failure.

This planning needs to occur at the highest levels of an organization, and it must be supported by adequate resources. IT managers need to provide input into the direction of an organization's programs and policies, manage the myriad of projects that comprise an information systems plan, and model and simulate the transactions and exchange of information that constitute an organization's method of doing business.

Limited Carry-forward Authority Would Promote Efficient Use of Existing Resources

Permitting agencies to carry-forward unspent appropriations across biennia will encourage agencies to plan and save for needed IT investments as well as provide additional resources. While IT infrastructure investments are recurring and can be planned for, they are often "lumpy", meaning that their costs often cannot be absorbed within a single year's appropriation. Permitting the carry-forward across biennia of funds dedicated to IT investment gives agencies the flexibility to save for the needed investments using their regular operating appropriations.

In addition, providing the ability to save eliminates the incentive for agencies to engage in the "use it or lose it" phenomenon, whereby agencies scramble to procure items prior to the close of a biennium to avoid canceling unspent appropriations. Anecdotal evidence indicates that significant IT expenditures on desktop computers and peripherals are taking place during the last months of the biennium; permitting carry-forward authority would encourage a more planned approach to these purchases.

Currently, state law allows agencies to carry unspent operating fund direct appropriations from the first fiscal year of a biennium to the second year. Funds unobligated and unspent at the *end* of a biennium, however, cancel to the fund from which the appropriation was made. Currently, the Department of Finance estimates that $15 million in general fund appropriations will cancel at the end of the 1998-99 and 2000-01 biennia. Additional monies will cancel in other state direct appropriated operating funds. This option will carry a budgetary cost; the loss of most of this projected cancellation would need to be recognized at the end of the biennium in which the carry-forward authority is granted.

Expanded Use of Leasing Would Help Finance Basic Infrastructure Costs

Agencies seeking the means to upgrade expensive, large-scale equipment, such as network servers and peripherals, are encouraged to take advantage of the State's current leasing arrangements where doing so is cost-effective. While these leases do not permit financing of the contractor and personnel portions of system development, they provide a means to spread the cost of hardware, software and maintenance agreements across the life-cycle of the investment.

The Department of Finance currently administers a program for agencies to use lease-purchase financing to acquire equipment. Agencies order equipment from vendors, providing a list of the equipment to Finance. Finance issues a Request for Proposal (RFP) to financing companies who provide the funding for the equipment purchases. Agencies must make payments semi-annually to Finance from their operating budget appropriations to pay off the loans. The existing program finances capital equipment with a useful life greater than one year, with payment terms between three and five years. Current interest rates are approximately 6 percent. Software and maintenance agreement costs may be included with the equipment purchases. While this leasing mechanism is available for use with state funds, it may not be permissible by other funding streams, i.e. federal grants, where certain restrictions prohibit the use of federal funds for interest payments.

Chapter
4

Purchasing IT

Policies for Buying IT Resources

Changes in IT procurement practices are important to ensure the State:

- Gets the most for its money,
- Responds quickly to new technological opportunities and changes in operating environments,
- Partners with IT vendors to develop innovative products and services.
- Accesses needed IT skills while helping state employees acquire those skills.

The Procurement Reform Initiative, under the leadership of the Department of Administration, has developed a number of proposals to improve procurement practices for all goods and services. Several of these will be particularly useful for procuring information technology.

Maximize Purchasing Power of Agencies

Expand Volume Purchasing Contracts

The state should continue to actively pursue the concept of multi-state consortiums and contracts for information resource commodities to improve buying power and to gain access to more products and services. As information resource commodities become more standardized, organizations can best maximize their purchasing power not only by competitive bidding, but by leveraging their purchasing power through larger purchasing consortiums that offer lower prices in exchange for a guaranteed minimum level of sales for the vendor. An IT purchasing consortia could be modeled on the prescription drug purchasing consortia currently sponsored by the state of Minnesota and involving many other states.

Explore Partnering Incentives to Maximize Vendor Performance, Share Risk

State agencies should be encouraged, where appropriate, to enter partnership agreements for major systems development projects. Partnering can help manage risk and improve vendor performance. Contractors could be rewarded with incentives based

upon performance and assessed damages if their performance does not meet pre-determined expectations. Factors critical to the success of partnering include selective matching of needs with expertise, information sharing, role specification, carefully negotiated contract definitions, exit provisions, sharing of benefits and risk, and contract term and fixed price commitments. With partnering, agencies would be required to provide a statement of work that clearly outlines measurable outcomes and results, which would also help the State evaluate past performance. Performance-based contracting requires structuring the acquisition around the work to be performed and should be the standard for all non-commodity based contracts. Information on a vendor's past performance also could be a critical factor in risk assessment for future projects.

Remove Barriers to Purchase of Innovative IT Products and Services

Reduce Technology Purchase Lag

The rapid rate of change in IT, and its importance to the delivery of goods and services, places unique pressures on organizations to respond quickly to needs for IT skills and products.

In order to reduce the time and cost for the requesting agency to obtain specific information technology skills, the State should expand vendor pre-qualification for core information technology skills, using the existing authority to establish master contracts.

The state should actively pursue the development of electronic commerce capabilities, to enable electronic processing of contracts, speed the selection of vendors, encourage a more diverse pool of respondents and promote increased competition for state business.

Standard, yet customizable contract language should be developed in both electronic and paper formats for both commodity and professional/technical service contracts to reduce processing time, protect the State's contractual interests and encourage electronic contract transactions.

Explore Strategic Alliances for Joint Development of Unique Products and Services

Where agencies seeking innovative IT products or services cannot find them using standard competitive bidding practices, they should be permitted to establish development alliances with individual vendors. These unique contracts would be used selectively, and would permit agencies to share the risk of development with partner vendors, resulting in innovative products and services not currently available. Both vendor and client would share in the risk as well as the reward.

Adopt "Best Value" Purchasing Criteria

Consistent with the recommendation of the Procurement Reform Initiative, the State should officially adopt the concept of best value procurement versus awarding contracts to

the lowest bid, especially for non-commodities, and should encourage its continued successful use. The following best-value criteria could be used for evaluating data processing, telecommunications and systems integration procurements: product quality, vendor financial stability, environmental considerations, past performance and experience with projects of similar scope and complexity, reliability of vendor's delivery and implementation schedules, the extent of integration and data exchange with existing systems, warranties, guarantees and return policies and operational costs if the bid or response is accepted.

Promote Appropriate Mix of Contracts, State Employees

Reduce Limitations on Contracting for IT Resources

Consistent with the recommendation of the Procurement Reform Initiative, Minnesota Statutes Chapter 16B should be amended to permit use of best value criteria, performance measurements and incentives, and additional managerial discretion in the awarding of contracts to vendors. Current procurement practices inhibit the State from distributing the risk associated with major IT development and discourage innovative approaches to IT products and services. The state should continue to explore, where appropriate cost-effective means of outsourcing technology larger technology services. In addition, the State should encourage and support the continued implementation of an electronic commerce infrastructure, to enable both government transactions with citizens as well as government purchasing of products and services.

Retain, Train State IT Professionals

State agencies contract with outside contractors for a number of valid reasons, including the need for flexibility and the acquisition of specialized skills. The rapid pace of technological change is creating skill gaps throughout state agency information resource management staff. State agencies, out of necessity, seek certain skill sets outside of state government, through vendor contracts. Unfortunately, contracting for these essential services can be more expensive than hiring state employees.

Consequently, the State should explore ways to help existing state IT professionals to acquire the skill sets often sought through vendor contracts. One method would be to require knowledge and skill transfer in professional/technical service contracts. That skill transfer could be evaluated as a contract performance measure. The state should also explore the creation of a job pool of information resource specialists. Members of the pool could be deployed to various projects, acquiring additional skills and adding to their expertise.