

Eight Imperatives

for Leaders in a Networked World:

[A Series of Guideline Papers for the Year 2000 and Beyond]



Imperative 4: Improve Budgeting and Financing for Promising IT Initiatives



THE HARVARD POLICY GROUP
ON NETWORK-ENABLED SERVICES AND GOVERNMENT
JOHN F. KENNEDY SCHOOL OF GOVERNMENT

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Overview

“The time is ripe for **public leaders** to engage information **technology** issues more deeply, directly, and successfully.”

PREFACE

As we enter the new millennium, everyone from futurists to the general public has observed that information technologies are changing our patterns of social, commercial, and political interactions. These changes raise profound opportunities and threats for people everywhere. It is a revolutionary period, with many issues not yet fully understood, let alone resolved.

Throughout this period, our public leaders—including elected and appointed officials and their overseers in all branches of government—have too often ignored technology issues or have delegated them to others. The conventional wisdom has been that technology is either not very important, or requires technical expertise rather than leadership, or is simply too risky for leaders to get personally involved.

These views are changing, however. Due primarily to the astonishing growth of the Internet and e-commerce, technology is now widely acknowledged as a critical force in shaping the future. The need for skillful and committed leadership has become obvious.

But the risks are still there.

As a result, public leaders—often under enormous and competing pressures—remain uncertain about how to successfully engage technology-related issues.

In response to these developments, Harvard University’s John F. Kennedy School of Government assembled a group of distinguished public leaders to explore what was being learned about computer networking and its impacts on the roles and responsibilities of government.

The Harvard Policy Group on Network-Enabled Services and Government (HPG) includes legislative and executive leaders, private-sector and public-sector leaders, technology managers and general managers, and public officials from federal, state, and local governments in the United States and Canada. Working over a three-year period, the HPG concludes that the time is ripe for public leaders to engage information technology issues more deeply, directly, and successfully. To improve the quality of engagement, the HPG has developed a set of eight imperatives for those who seek to lead in this critical period. Each of the individual imperatives addresses a significant leadership responsibility and is the subject of a separate paper (for a list of the papers, see the back page). Taken together, the HPG papers provide a framework to guide those who seek to develop successful information age leadership strategies.

The report you are reading explores imperative #4: *Improve budgeting and financing for promising IT initiatives*. In this report we suggest how government can identify valuable IT projects that are often overlooked in the traditional budget process—especially projects that require innovation and coordination among multiple agencies over several budget cycles. We also highlight some creative financing tools that can be used to support attractive but difficult-to-fund projects.

The HPG was made possible through a partnership among the Kennedy School of Government, American Management Systems, Cisco Systems, and IBM's Institute for Electronic Government. The views in these papers are those of the individual members of the HPG and not the institutional views of their home organizations or project sponsors. But it would have been impossible for the group to learn and to produce what it has without the opportunity provided by this partnership to meet together and to share insights over an extended period of time.

We sincerely hope that these papers will prove helpful to leaders and to the public at large.

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Government budgets are the result of a powerful and often brutally contested decision-making process in which programs face stiff competition for limited funds. As a result, the answer to many budget requests—and especially requests for new funds—is a disappointing “no.”

For many requests, of course, “no” is the right answer. The budget process must reject some proposals in order to make room for others. “No” is the wrong answer only when the budget fails to reflect society’s true priorities—when high-value initiatives are discarded in favor of those with less value.

But does government budgeting suffer from this sort of problem when considering IT? Are valuable IT-related initiatives overlooked as a result of the budget process? The short answer is “yes.” While government funding for IT continues to grow, it is still significantly lower than in the private sector.¹ More importantly, while governments are using IT to do many good things, budgets often fail to fund some of the most valuable IT-related opportunities, especially multi-year initiatives and those that require coordination among multiple organizations.

This paper explores why budgeting and financing IT is difficult in government then recommends guidelines to address the problem.

“...governments miss some of the most **promising** IT investments because **budget** preparation is not organized to look for them.”

GOVERNMENT BUDGETING AND FINANCING FOR IT: PROBLEMS OF MYOPIA

When governments build their budgets, they focus heavily on program-by-program estimates of what it will cost next year to do what they are doing this year. This annual (or biennial) process of decomposing the enterprise budget into smaller pieces simplifies choices and helps manage the enormous complexity of government.

But the same process that simplifies budgeting also tends to miss some of the most promising IT initiatives, such as:

- *Enterprise-wide integration and other cross-boundary initiatives.* The primary value of IT is not in automating existing services and processes, but in transforming the way government works—breaking down boundaries and coordinating services across agencies and jurisdictions. A program-by-program budget focus may miss valuable opportunities to integrate services across program, jurisdictional, or sectoral boundaries.
- *Initiatives with longer timelines.* While huge IT projects are giving way to projects that can be divided into smaller parts so as to quickly deliver value, many IT-related projects still require multi-year support through development, maintenance, and eventual retirement. An annual or biennial budget cycle may miss longer-term opportunities and fail to account for a system's full lifecycle.
- *Groundbreaking initiatives.* The most valuable e-government proposals are often aimed at fundamentally reinventing services. A process focused on incremental changes to the previous year's budget may miss key opportunities for such radical innovation.
- *Initiatives with non-financial benefits.* Many of the benefits of IT-related projects—productivity gains, service improvements, enhanced customer satisfaction, and service equity—are difficult to quantify in financial terms. When budget analysis focuses almost exclusively on whether front-end costs can be covered by downstream savings, governments may under-invest in non-financial benefits.

In general, governments miss some of the most promising IT investments because budget preparation is not organized to look for them. And even when attractive investments are identified, it can be difficult to finance them through the traditional tax-levy budget.

Do More

“We need budgets that **do more** than **occasionally** make room for exceptional projects.”

WHAT TO AVOID: RUSHING AHEAD WITHOUT CORRECTING FOR “BUDGET MYOPIA”

The myopic nature of traditional budgeting makes it hard to fund high-value IT initiatives. Many stakeholders in the budgeting process are so deeply immersed in the process that they fail to recognize the biases of program-by-program, year-at-a-time budgeting. They are not disturbed when innovative IT-related initiatives are not funded because they were not encouraged to look for them in the first place.

Other stakeholders are looking to integrate services across traditional boundaries, but give up when they see how hard it is to fund such projects. For example, the U.S. federal government spends hundreds of millions of dollars supporting state and local governments in pursuing IT-related projects in areas such as education, social services, and public safety. However, since the budget process is agency-based, state and local governments cannot use the money to fund high-value initiatives that integrate programs. The constraints of the past squeeze out opportunities for the future.

Still other stakeholders fight with some success for particularly attractive IT projects. Such project-by-project success, however, fails to correct for the ongoing budgetary bias against multi-year or enterprise-wide initiatives.

We need budgets that do more than occasionally make room for exceptional projects. We need to change government budgeting so it more consistently supports the innovative, cross-boundary, multi-year potential of IT.

Counteract

“We need to counteract the program-by-program, year-at-a-time **biases** that can cause **traditional** budgeting to miss so many good opportunities”

A LENS FOR BRINGING HIGH-VALUE IT INTO FOCUS

Despite their flaws, traditional budgets are of critical importance in government. They serve to focus resources on public priorities as identified through a democratic decision-making process. The challenge, as highlighted below in Figure 1, is to adjust the focus so they can more easily “see” high-value IT investments.

Focus of Traditional Government Budgeting	Characteristics of High-Value IT Investments
single-year (or biennial) expenditures	multi-year investments
program-by-program performance	enterprise or cross-boundary performance
financial costs/benefits	financial and non-financial costs/benefits
level of effort within existing workflows	changes in the flow of work
ongoing operations	“start-up” operations
control	innovation

Figure 1: Traditional Government Budgeting versus High-Value IT Investments

Earlier reports in this series focused on the transformational nature of high-value IT projects: Value is achieved through redefining and reinventing how government works. Traditional budgeting, however, is designed primarily for accountability and control, not innovation. Governments seek to avoid risks rather than profit from them. As a result, they often overlook the highest-value IT initiatives while spending money on safer but less valuable ideas.

As the value created by networks becomes evident, however, public leaders are looking for a better lens with which to search for and analyze projects with the characteristics described in the right hand column of Figure 1, especially innovations that redesign and integrate services across the boundaries of existing programs and agencies.

While the time may be ripe for such budget reform, it will not be easy. It will take a significant educational effort to highlight the need for reform in the first place. Furthermore, past efforts to insert more analysis and cross-boundary focus into budget preparation have bogged down, at least partly under the difficulties of assembling the information needed for analysis. While the challenges are still formidable, today's information technology makes it much easier to gather and analyze the necessary data.

Other factors may also help refocus budgeting on high-value IT. First, many program-specific IT initiatives have now been completed, making enterprise and other cross-program work visible as a logical next step. Furthermore, the risks of many enterprise-wide projects have been reduced by the fact that other institutions—largely, but not exclusively in the private sector—have forged ahead and proven their feasibility.

New financial tools are also making a difference. Many governments are exploring how to pay for IT through capital funds and leasing. Governments are also financing IT through more aggressive public-private relationships. These include share-in-revenues and share-in-savings agreements along with advertising and user fees. In the future, many IT initiatives in government may be based on non-tax financing.

As e-government continues to evolve and grow in importance, we need to counteract the program-by-program, year-at-a-time biases that cause traditional budgeting to miss so many good opportunities. This can be done partly through better budgeting and partly through better financing.

* *Imperative #1: Focus on How IT Can Reshape Work and Public Sector Strategies* and *Imperative #2: Use IT for Strategic Innovation, Not Simply Tactical Automation*, are available at www.ksg.harvard.edu/stratcom/hpg

Solution

“The solution we need is to **modify** budget methodologies and to rely more heavily on **creative financing**.”

GUIDELINES FOR BETTER IT BUDGETING AND FINANCING

In general, to improve how governments use IT we need to update the traditional budget process and take advantage of tools for creative financing.

1. Educate stakeholders to get the right people focused on the right issues.

Problem. IT budgeting is too often dominated by technology-oriented people and focused on the costs of technology. The challenge is to reach program managers along with executive and legislative overseers. These stakeholders need to understand and make judgments on the risks, returns, and tradeoffs associated with IT, especially for projects involving work redesign and cross-boundary service integration.

What to avoid. Do not allow budget discussions to focus exclusively on immediate financial costs and benefits. Work with the budget analysts to include a broader set of factors including productivity gains, improvements in customer satisfaction, and economic development.

What to do. Educate those who should be involved in IT budgeting—including budget analysts, executive leaders, and legislative overseers—highlighting how to assess the risks and returns of IT investments. Focus a significant portion of budget discussions on IT-related opportunities for transformational change.

An Example. Engaging HUD Managers through Decision-Support Software. Until recently, the U.S. Department of Housing and Urban Development (HUD) allocated their IT funds by giving each program a percentage of the total IT budget for their own initiatives. Since the programs made decisions in relative isolation, however, IT budgets in the aggregate typically failed to address HUD’s enterprise-wide priorities. Today, HUD uses a decision-support application (ExpertChoice) to help the agency make better IT investments. According to Debra Stouffer, Director of HUD’s Office of IT Reform, the decision-support software helps HUD identify priority projects by engaging senior managers in a collaborative process of weighting objectives and criteria—both tangible and intangible—from an enterprise-wide perspective. Having ranked their criteria, managers can also use the software to explore test scenarios and “what if” exercises, debating fully the risks, rewards, and tradeoffs involved. By promoting debate and discussion, the new process also gives the final decisions greater credibility and executive support.

An Example. Using Budget Instructions to Educate Stakeholders. In issuing annual budget instructions, the Office of Financial Management in the State of Washington highlights the importance of IT and the need to link each agency’s strategic plan to its IT investments. For example, in the 2001-2003 Operating Budget Instructions,² a section is dedicated to how

the strategic plans submitted as part of each agency's budget help drive capital and technology planning enterprise-wide, and how they are used by the Information Services Board in the IT portfolio management process (see page 7 below).

An Example. U.S. Congressional Internet Caucus. In 1996 a small group of legislators established the U.S. Congressional Internet Caucus as a bi-partisan group to educate their colleagues on the promise and perils of the Internet. Today, the Internet Caucus has more than 150 members. Working with the Congressional Internet Caucus Advisory Committee—a group of public interest, non-profit, and industry representatives—the Caucus hosts a regular speakers series and other events. Since 1996 similar educational groups have also been established in legislatures across the country and around the world.

2. Budget for IT-related strategic and organizational change.

Problem. While IT has become important in most organizations, it is widely considered a support tool rather than a strategic asset. As a result, budgeting fails to explore how IT can be used for strategic and organizational change.

What to avoid. Do not handle technology budgeting in isolation. If the IT budget is to identify high-value projects, it must be integrated with strategic planning and must be the product of a leadership team with financial, technological, and business responsibilities.

What to do. Develop a budgeting process that allocates significant time and resources to exploring how IT initiatives—especially enterprise-wide initiatives—could advance your mission, strategy, and organization. For example, look for ways to measure the contribution of IT to productivity improvements, enhanced quality, and customer satisfaction.

An Example. Georgia's Strategic Information Systems Planning Methodology. In August 2000, the Georgia Technology Authority (GTA) released a new IT strategic planning methodology for state agencies in Georgia. To ensure that “public policy goals, program goals, and documented business needs drive the selection of technology,” each agency must now submit an annual strategic plan to the GTA. These plans are used to evaluate procurement and budget requests. The GTA also uses agency plans for enterprise-wide IT planning and for identifying opportunities for collaboration across agency boundaries.

For more on Georgia's strategic planning methodology, visit www.gagta.com

An Example. The U.S. General Accounting Office's IT Investment Management Framework. The 1996 Clinger-Cohen Act requires agencies to adopt a result-oriented perspective when funding IT, and introduces rigor into how agencies analyze IT investments.³ The U.S. General Accounting Office (GAO) subsequently published its IT Investment Management Framework to help agencies select and manage IT investments. Within that framework, the GAO argues that projects should be assessed by a combination of program, financial, and IT managers. The GAO recommends that each agency establish an IT Investment Board whose members represent both IT and business knowledge. Each Board would have funding authority and

would be responsible for ensuring that the agency's budget is consistent with its mission and strategic goals. The GAO further recommends that the IT Investment Board receive formal sponsorship from the organization's chief executive—going so far as to incorporate the need for such support in the employment contracts of all chief executives.⁴

3. Budget for a portfolio of IT investments that balances risk against return.

Problem. Government budgeting is concerned—sometimes obsessively—with the costs and risks of specific projects. Considered in isolation, however, IT investments involving multi-year and cross-boundary coordination appear risky and may therefore be rejected—even though the risks may be more than offset by the potential for value creation.

What to avoid. Do not downplay costs or risks, but do not let the risks of individual projects discourage you unduly from investing in high-value IT. The risk of not spending on technology—and thus falling behind in productivity—is probably the larger risk for most governments today.

What to do. Consider IT investments as part of an overall portfolio of commitments, with elements of higher risk offset by elements of lower risk. Highlight how individual investments fit into the overall portfolio and how the portfolio contributes to your strategy and business objectives. Do not limit your thinking to individual programs or agencies. While portfolios are important for each program, enterprise-wide portfolios are perhaps even more important.

An Example. Portfolio Budgeting in the State of Washington. In designing a rigorous and accountable IT budgeting process that also encourages innovation, the State of Washington has adopted a portfolio-based framework. Within this framework, each agency has a portfolio of IT investments. Agencies check to be sure that new investments are aligned with strategic goals, using “safe” projects to offset the risks often associated with projects that offer higher returns.

For more information on Washington's IT portfolio management, visit www.wa.gov/dis/MOST/portfolio/index.htm

An Example. Managing IT Investments in the U.S. Federal Government. In outlining its recommended framework for managing IT investments, the General Accounting Office (GAO) identifies “developing a complete investment portfolio” as a critical step.

“An IT investment portfolio is not just a collection of projects but a conscious, proactive look at how the organization expends its limited resources on IT, what beneficial impacts these investments have on the organization, and a continuous search for investments that will better achieve the organization's mission... Taking a portfolio perspective enables the organization to consider its investments in a comprehensive manner so that the investments address the strategic goals, objectives, and mission of the organization. The organization develops its IT investment portfolio by combining all IT assets, resources, and investments owned by an organization, considering new proposals along with previously funded investments and identifying the appropriate mix of IT investments that best meet its mission needs and improvement priorities.”⁵

4. Budget for the “net total value” of IT, not just cost reduction.

Problem. When assessing the benefits of IT, traditional budgeting tends to focus on how projects reduce near-term costs to the government. This perspective tends to ignore value created in the long-term or through improvements in service, equity, privacy, and security. It also ignores benefits to other agencies and the public at large.

What to avoid. When assessing IT’s return on investment (ROI), do not ignore non-financial or qualitative results. These factors may prove decisive and often speak directly to strategic objectives.

What to do. Explicitly consider the full social costs and returns of IT. For example, what will the project do for service effectiveness and access? Will other programs benefit, perhaps through future uses of the information or infrastructure created? Can benchmarks be set to measure performance down the road?

An Example. Iowa’s Return on Investment Program (ROI). In Iowa, information technology projects are assessed in terms of the benefits to both government and citizens. In addition to “hard” costs and benefits (e.g. hardware and staff time), Iowa’s analysis estimates costs and benefits that are more difficult to quantify (and often ignored), including risks to citizen health, impacts on security and safety, and the time and energy required by citizens in fulfilling their roles in the process. By calculating ROI in this way, Iowa policy makers get a more complete picture of each project. This analysis helps in prioritizing projects and allocating budgets.

For more information, visit www.state.ia.us/government/its/

An Example. Cost/Benefit Analysis and Risk Assessment for IT Projects in New Jersey. In 2000, New Jersey’s Office of Management and Budget worked with the State CIO to implement a new Cost/Benefit and Risk Analysis (CBRA) tool for prioritizing information technology projects. Using the CBRA tool as part of the budget preparation process, agencies were required to complete a standardized set of spreadsheets detailing the costs, benefits, and risks associated with each project. Costs were reported in the context of the system’s lifecycle (development, training, operation, and maintenance), while benefits included both tangible and intangible benefits (e.g. better service, improved internal performance). Risk analysis focused on traditional areas of project failure including strategic alignment with mission, managerial commitment, operational impact, project management, technical capacity, and technical conformity with standards. While New Jersey plans to improve the CBRA for 2001, the experiment proved successful in focusing the budget process on the broader impacts of IT projects.

An Example. The Balanced Scorecard. Developed by Robert Kaplan and David Norton, the balanced scorecard is a tool to help managers look beyond the financial bottom-line, focusing on elements to measure customer satisfaction, internal business processes, and employee

learning and growth.⁶ While public managers have adapted the balanced scorecard in different ways, the common thread is a desire to measure and track value more accurately. For example, the U.S. Department of Defense's Health Affairs program uses a balanced scorecard as part of a methodology to quantify the impact of its benefits system.⁷ If appropriately connected to the budget process, a balanced scorecard can measure value that might otherwise be excluded from decision-making.

An Example. Activity-Based Costing in Texas. To deliver smaller, smarter government, Texas needed to know the true costs of its services. In response, the state Legislature called on the Comptroller to implement a pilot test of activity-based costing (ABC). ABC is a methodology that traces the full range of direct and indirect costs associated with delivering a service. While many of the savings identified in Texas were captured as improved service—and were not easily translatable into cost reductions—by accounting for all resources, including items such as fringe benefits, overhead, and depreciation of equipment, ABC enabled Texas to identify hard dollar savings within the five pilot agencies. For example, the study suggested that replacing the Department of Transportation's call center with a web-based system could save more than \$240,000 per year.

For more detail on the ABC pilot, see www.window.state.tx.us/specialrpt/abc

5. Budget for enterprise and other cross-boundary initiatives.

Problem. Traditional program-by-program, year-at-a-time budgeting does not pay much attention to finding and funding the type of cross-boundary IT initiatives that will transform government.

What to avoid. Do not think that setting up an enterprise-wide IT office to coordinate IT investments is enough if you do not also give it substantial budgeting authority. Individual agencies may cooperate with enterprise-wide initiatives, but rarely will they be able to fund them. When enterprise-oriented IT executives need to plan and implement projects, do not make them spend their time begging individual agencies for financial support.

What to do. Make sure the CIO has the power to review agency IT projects and direct financial resources toward cross-boundary initiatives. In this context, establish centrally allocated IT innovation or infrastructure funds. If possible, also establish legislative committees to encourage cross-boundary investments.

An Example. Pennsylvania's Investment Review Program. According to Charles Gerhards, Deputy Secretary of Technology for the Commonwealth of Pennsylvania, centralized funding has been integral to the success of inter-agency projects. Projects such as the integrated criminal justice computer network (JNET) succeeded in large part because of the budget authority vested in the Office for Information Technology—an annual budget that has grown from \$20 million to \$137 million in the past six years. Pennsylvania's Investment Review Program also helps drive inter-agency initiatives. Under the IRP, IT proposals greater than \$250,000 are evaluated by the Office for Information Technology in search of cross-

agency opportunities. When these opportunities are identified, the budget office places the money in one budget under the authority of Gerhards, rather than distributing smaller amounts to each agency. In Gerhards' opinion, "the number-one reason we've been able to succeed in a lot of these projects is this funding model."⁸

An Example. Illinois VentureTech. VentureTech is Governor George Ryan's five-year strategy to develop the technology and human capital necessary for Illinois to compete in the networked world. A \$1.9 billion investment, VentureTech is a centralized innovation fund aimed at developing the workforce, advancing technology research, wiring communities, and promoting e-government. According to state CTO Mary Barber Reynolds, centralized funds such as VentureTech are especially valuable because they can be used to reward people who work together across organizational boundaries.⁹

For more information, visit www.state.il.us/tech/venture.htm

An Example. Wisconsin Joint Committee on Finance. In Wisconsin, as in many jurisdictions, budgeting is complicated by the need for the House and the Senate to approve the budget separately. Oftentimes this requirement leads to each chamber making different trade-offs and compromises. In an effort to coordinate budget deliberations, representatives from the House and Senate in Wisconsin sit on a Joint Committee on Finance. This committee is especially valuable for enterprise-wide IT projects, as the relevant legislators can jointly and comprehensively consider the merits of each proposal.

An Example. U.S. Federal E-government Fund. In recent years, cross-boundary IT initiatives in the U.S. federal government have been supported with "pass the hat" funds raised by interagency councils.¹⁰ In his 2001 budget proposal, however, President Bush has proposed an e-government fund for interagency initiatives with the potential to transform government's ability to meet citizen needs and expectations. While the level of investment is still a subject of debate, it is widely acknowledged that establishing the centralized fund is important for advancing e-government as an enterprise-wide challenge.

6. Leverage multi-year funding vehicles such as capital budgets and leases.

Problem. For many IT projects, costs must be incurred up-front while benefits are realized over a longer period of time. Such projects require bridge financing that is difficult to secure within year-at-a-time government budgeting.

What to avoid. Do not analyze or try to finance multi-year IT investments solely in the context of an annual (or biennial) budget. When alternative longer-term financing sources are used to align costs with benefits, do not overlook future lifecycle costs that occur from implementation through to the retirement of the system.

What to do. Use multi-year financing vehicles such as leasing and share-in-savings agreements to finance projects where up-front costs lead to downstream benefits. When using

debt financing to align costs with benefits, remember that debt is always followed by interest charges that make total costs higher than they would have been without borrowing.

An Example. Massachusetts Capital Budget. Observing that many IT projects had attractive return-on-investment (ROI) ratios when they were viewed as traditional capital investments, Massachusetts executives asked the legislature to finance those projects using capital funds. It worked—at a time when legislative support for operating budgets was weak, the legislature was receptive to the bond proposal. The result was the Information Technology Bond Bill, enacted in 1992 to fund over twenty IT projects. Building on the success of these capital projects, Massachusetts passed another IT bond bill in 1996—this time with 112 projects totaling over \$300 million. Without capital budgeting, the state may have had to postpone or do without some highly valuable investments.

An Example. Using Capital Notes in Hennepin County, Minnesota. For major expenses such as medical equipment and large pieces of IT, legislation in Hennepin County permits the board to issue capital notes valued up to one percent of the County's annual budget in any given year. The cost of the equipment is then paid over its useful life. For smaller IT purchases, the County uses a leaseback program where departments must cover the depreciation expense of all equipment each year. The depreciation expense revenues collected by the IT department are then accumulated and used to replace the equipment at the end of its useful life.

An Example. "Renting" Enterprise Applications: Application or Managed Service Providers (ASPs or MSPs). To spread costs and share risk, governments have been renting personal computers (PCs) for several years. A related phenomenon is now gaining momentum with enterprise software applications. Rather than fronting expensive development, implementation, and maintenance, governments are turning to application and managed service providers (ASPs and MSPs) to host and manage enterprise applications. For example, the U.S. Department of the Interior's Minerals Management Service hired Usinternetworking Inc. to host and manage a new PeopleSoft application. According to project director Ken Madsen, "Since PeopleSoft is not an application unique to us, we figure we can take advantage of the economies of scale that come with this arrangement and lower our costs."¹¹ Similarly, the State of Virginia opted for an ASP-solution for its e-procurement system eVA. Rather than building from scratch, Virginia agreed that AMS would deliver and host the ASP-solution at no cost to the state in return for a share of transaction and registration fees. Finally, in British Columbia, Canada, municipal governments across the province are working together through a non-profit called CivicInfo to build and deliver electronic services. Pooling their resources, municipal governments are using an ASP model to share costs and related infrastructure.

For more about Virginia's eVA e-procurement system, visit www.eva.state.va.us

For more about British Columbia's CivicInfo site, visit www.civicinfo.bc.ca

*An Example. **Ralph Shoemaker and the California Franchise Tax Board.*** In 1993, largely under the leadership of Deputy Tax Commissioner Ralph Shoemaker, the Franchise Tax Board (FTB) pursued a shared-risk investment with the private sector for collecting business taxes. Instead of contracting for the delivery of specified computer applications, the FTB contracted to share the increased revenues generated if the applications were successful. Both vendor and government thus had a strong incentive to revise work processes so the department could collect revenues that were previously uncollectable. Working together they succeeded, bringing in revenues to fund this high-value technology investment.¹²

7. Use non-tax financing tools including fees and public-private partnerships.

Problem. The traditional tax levy budget in most governments is under enormous pressure that is likely to grow even worse. Relying too heavily on traditional financing will thus make it impossible to fund enough high-value IT initiatives.

What to avoid. Do not assume that taxes are the only appropriate revenue source for government IT. Other sources may be available and—in some cases—more appropriate. At the same time, do not jump at new revenue sources without carefully considering the trade-offs.

What to do. To the extent that private users (rather than the general public) benefit from an IT-related initiative, consider financing it through private funds (rather than public taxes). Private support could include fees and/or a variety of public-private partnerships (e.g. shared ownership, share-in-savings, sponsorship, and advertising). These non-traditional financing options are likely to be controversial, but may also be effective. As new funding models arise, learn from others and consider the implications for your own jurisdiction. Will the revenue be consistent? What authority must be shared? What are the implications for privacy, access, security, or equity? Make sure the business case is clear for the project and for the financing model chosen.

*An Example. **Advertising and Sponsorship in Honolulu.*** When Honolulu built its Internet portal, it decided to keep transaction costs at a minimum by allowing advertising and sponsorships on the site. While the deputy director of Honolulu's Department of Information Technology, Courtney Harrington, acknowledges that unforeseen issues may yet arise, there have not been many complaints to date. At the same time, however, "revenues from advertising aren't adding up to much." Other jurisdictions considering advertising or sponsorships include Florida, Ohio, Fairfax County, and Salt Lake City. Virginia Governor James Gilmore, for example, will release guidelines for advertising on state web sites in Spring 2001. Meanwhile, Iowa is reviewing responses to an RFP for sponsorship of its web site.¹³

*An Example. **LaGrange (Georgia) Internet Television Initiative.*** In 1998, city officials in LaGrange partnered with Charter Communications—the local cable provider—to create a \$9.5 million hybrid fiber-optic and cable network that connects every home and business

in the city to the Internet. Forming another partnership with WorldGate Communications, in 2000 the city provided every home with a wireless keyboard and TV-based Internet service. Since the city does not collect property taxes, it is funding the first-year costs (\$300,000 operating and \$125,000 capital) using profits from the sale of telecommunications services to businesses. Because of this project, La Grange was awarded the World Teleport Association's "Intelligent City of the Year" award for 2000.

An Example. Value Engineering in the U.S. Department of Education. The U.S. Department of Education (DoE) has engaged in share-in-savings (SIS) arrangements with financial institutions to recover payments from defaulted student loans. While these initiatives might be more accurately described as share-in-revenue arrangements, a recent DoE project to re-engineer loan administration is being financed through a pure share-in-savings model. Partnering with Andersen Consulting (now Accenture), the Department has improved efficiency and enhanced productivity by reorganizing the business processes for loan servicing. Under the "value engineering" arrangement, DoE pays for the contract out of savings realized through re-engineering. While still early, the contract projects savings of more than \$31 million, with Accenture's share capped at \$14 million.¹⁵

An Example. ServiceArizona. Lacking start-up resources for developing online services, the State of Arizona Motor Vehicle Division approached IBM about establishing a web site and dial-up service for vehicle registration. In the model that has emerged, the State manages the back-end database, system interfaces, and customer service, while IBM built and manages the front-end application including credit card transactions and security. Revenues from a transaction-based fee are shared between IBM and the State. As an entrepreneurial start-up, ServiceArizona has supplied the resources and flexibility needed for success. In its first year, five percent of Arizona residents used ServiceArizona, giving it a 99 percent positive rating. For the State MVD, the cost of processing a vehicle registration is now 76 percent lower than it was under the old face-to-face model.

For more information, visit ServiceArizona at www.servicearizona.com

An Example. In-Q-Tel. In-Q-Tel is a private not-for-profit "venture capital" firm chartered by the U.S. Central Intelligence Agency (CIA) to promote the development of information technologies that support its mission of gathering foreign intelligence to protect national security. Cutting-edge information technology has always been a competitive edge for the CIA. As the speed of IT innovation accelerated through the 1990s, however, the CIA needed to find new ways to turn private-sector capacity, creativity, and expertise toward Agency goals. Through venture funding of promising IT initiatives, In-Q-Tel gives the CIA a means to do this.¹⁷

For more information about In-Q-Tel, visit www.in-q-tel.com

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Opportunities for using IT to transform government are many and growing. But they are often expensive and risky, requiring multi-year investments and coordination across program, agency, and jurisdictional boundaries. Funds for such initiatives are tight. While more money is likely to become available as the pressure for e-government rises, the solution we need is to modify budget methodologies and to rely more heavily on creative financing. Key guidelines are summarized in Figure 2.

1. Educate stakeholders to get the right people focused on the right issues.
2. Budget for IT-related strategic and organizational change.
3. Budget for a portfolio of IT investments that balances risk against return.
4. Budget for the “net total value” of IT, not just cost reduction.
5. Budget for enterprise and other cross-boundary initiatives.
6. Leverage multi-year funding vehicles such as capital budgets and leases.
7. Use non-tax financing tools including fees and public-private partnerships.

In sum: Improve traditional budgeting and use creative financing where appropriate.

Figure 2: Guidelines for Implementing IT Initiatives in the Public Sector

Next Steps

“What **steps** should you take to improve how you budget for and **finance IT**?”

NEXT STEPS

What steps should you take to improve how you budget for and finance IT?

1. Assess how effective you are at getting good IT projects funded. Before you make the case for changing how you budget for IT, find out where you stand. Take stock of your current IT initiatives and compare them with those of e-government leaders. Do you have the right infrastructure and enterprise-wide applications? If not, think about why such initiatives are not being funded.

2. Assess and improve how you “make the case.” Make sure your budgeting examines multi-year, cross-boundary initiatives from the perspective of all relevant stakeholders. Who is involved in analyzing your IT portfolio? What is the relationship between your CIO and other executives? Are IT projects considered in the light of your strategic vision and business priorities? After answering these questions, explore the “total value” of your IT and assess your risks in the context of a full and balanced portfolio of IT projects.

3. Look beyond the tax-levy budget for funds. Broadly-based e-government does not emerge easily from within traditional budgets. You may need to reach out and tap private resources through capital budgets, leases, fees, advertising, and other creative financing.

Brief advice for a variety of stakeholders can be found in Figure 3 (next page).

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As the tie between IT and government strategy becomes increasingly strong and clear, it is important to make funding available for IT. To meet this challenge, we can correct the program-by-program, year-at-a-time myopia that causes budgeting to overlook some of the most valuable IT investments, especially multi-year and enterprise-wide innovations. We can also use creative financing options available outside the tax-levy budget.

This report has offered guidelines for finding and funding high-value IT initiatives in government. Subsequent reports will explore other imperatives for successful leadership in a networked world. Our next report will examine the challenging privacy and security issues that e-government is bringing to the fore.

The President. The White House is perfectly positioned to help find and fund enterprise-wide and other cross-program initiatives. Use your budget authority to promote high-value initiatives.

Legislators. Do not prevent cross-program integration through accountability that is too narrowly defined, or otherwise make innovation harder than it already is. Do not overlook the benefits that are difficult to quantify.

Governors. Use your authority to promote high-value, cross-boundary initiatives, creating a central fund for these if necessary.

Local government leaders. Explore funding models outside the traditional tax-levy budget. Make sure these new models promote high-value projects and encourage cooperation with other jurisdictions.

Judges. Given the proliferation of budgeting authorities within the criminal justice system, encourage cooperation across organizational boundaries. Take advantage of the Center for Technology in Government's study *And Justice for All: Designing Your Business Case for Integrated Justice Information*.

Budget directors. Coordinate budget planning with strategic planning. Work with your CIO to ensure that high-value IT opportunities are not overlooked.

Agency and program heads. Work with other agencies, especially when centralized pools of money are available. If you do not have a centralized fund, contribute when the "hat is passed" for cross-boundary investments.

Chief Information Officers. Work closely with your CFO and other executives to establish IT as a strategic tool and to focus on IT-enabled strategic opportunities within the budget process.

Technology community. Help educate legislators and other budget participants about the strategic value of IT and the constraints of governmental budgeting.

Associations and interest groups. Develop better forms of cost-benefit analysis and other ways to make the case for IT-related initiatives.

The press. Look for stories of "cross-boundary" IT initiatives and of valuable IT initiatives that are stuck in bureaucratic politics and the budget process.

The public. Keep up the pressure to do more with less – demand and expect government to invest in high-value IT initiatives.

Figure 3: Advice to Stakeholders: How to Improve Budgeting and Financing for Promising IT Initiatives

Appendix A

MEMBERSHIP OF THE HARVARD POLICY GROUP
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Mr. Paul D. Joseph	<i>Chairman, State and Local Enterprise Solutions Committee, Information Technology Association of America*</i>
Mr. William Keller	<i>Deputy Commissioner, Department of Information Technology and Telecommunications, City of New York*</i>
Mr. John Kelly	<i>CIO and Director, Government Information Technology Agency, State of Arizona*</i>
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 Mr. Rock Regan *Chief Information Officer, State of Connecticut*
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 Hon. Marlin Schneider *State Representative, State of Wisconsin*
 Mr. Larry J. Singer *Chief Information Officer, State of Georgia*
 Mr. Phil Smith *Director, State Federal Relations, State of Iowa**
 Ms. Anne F. Thomson Reed *Chief Information Officer, U.S. Department of Agriculture*
 Hon. Barbara Todd *Commissioner, Pinellas County, Florida*
 Mr. Richard J. Varn *Chief Information Officer, State of Iowa*
 Hon. J.D. Williams *Controller, State of Idaho*
 Mr. Terry Wood *Councilman, City of Jacksonville, Florida**
 Mr. Robert J. Woods *Commissioner of Federal Telecommunication Services, U.S. General Services Administration**
 Mr. Gregory Woods *Chief Operating Officer, Student Financial Assistance, U.S. Department of Education*

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Appendix B

READINGS AND RESOURCES

Barrett, Katherine, and Richard Greene. *Powering Up: How Public Managers Can Take Control of Information Technology*. Washington D.C.: CQ Press, 2001.

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Mechling, Jerry, and Victoria Sweeney. *Overcoming Budget Barriers: Funding IT Projects in the Public Sector*. Cambridge, MA: Program on Strategic Computing and Telecommunications in the Public Sector, Harvard University, 1997.

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GLOSSARY

Application Service Provider (ASP)—A third-party organization that provides software-based services to clients from a single location over a wide-area network. Represents an outsourcing option for governments who cannot or do not want to deliver and support enterprise applications. Also referred to as Managed Service Providers (MSP) when the software is both delivered and managed by the third-party organization.

Asynchronous Communication—A communication pattern in which the two (or more) parties involved are not communicating at the same time. Telephone conversations are an example of synchronous communication—both parties must be on the telephone at the same time. An email message is an example of asynchronous communication—one party can send a message and the other can read it hours or days later.

Broadband—A general term for high-volume, multiple-channel telecommunications capacity available via a single medium (e.g. a wire or cable). While narrowband (the equivalent of one telephone voice channel) is adequate for the transmission of text and numerical data, broadband connections allow the efficient and reliable delivery of voice, data, and video over one integrated network. Because multimedia content is seen as vital to businesses and consumers alike, electronic networks are increasingly moving to broadband, which in turn will have important long-term implications for commercial development and civic life.

Database—A set of data structured to support the storage, retrieval, and analysis of information, often custom-designed for specific business applications. Databases are central to information processing since they allow new and more efficient ways of assembling records and organizing work. A key step in developing databases is implementing consistent definitions or standards so that data can be meaningfully shared among users. Examples include standard charts of accounts for financial data, standard methods of coding geographical information, and standard templates for archiving audio and video material. (See also: Standards.)

Digital—Data that has been created, transmitted, or stored as a string of signals coded as “1”s (on) or “0”s (off). Data in digital form (text, numbers, graphics, voice, video, etc.) can be stored and processed by computers and communicated at high speed over electronic networks with complete accuracy and reliability. Exact copies of digital data can be made in which the nth copy is indistinguishable from the original.

E-government—A term commonly used to describe the interaction between government and citizens over the Internet. E-government has evolved rapidly from merely publishing or disseminating government information electronically, to online interactions and transactions between government and citizens. As governments begin to reorganize and integrate their work processes to take advantage of computer networks, e-government may come to define a new or transformed relationship between citizens and government enabled by networks.

Electronic Benefits Transfer (EBT)—Refers to the transfer of government benefits (funds or resources) to individuals through the use of a card technology. Individuals access their benefits through Automated Teller Machines or retail point-of-sale terminals.

Electronic commerce (or e-commerce)—Transactions where money is exchanged for valuable goods and services with either the money and/or the goods and services transported over computer networks.

Encryption—The act of scrambling information into a form called a cipher, usually to keep it from being read or modified by unauthorized parties. This is achieved through the use of algorithmic “keys” that scramble the information at one end and unscramble it at the other. Computer-based encryption can be used both for purposes that society wants to prevent (criminal and terrorist communications) as well as those it wants to support (private and secure social and commercial communications).

Enterprise Application—A software application that is used throughout an organization (or enterprise). For example, payroll systems or resource management systems that are used by multiple departments or an online payment processing application that is used across organizational boundaries are all enterprise applications. Such applications are important for realizing economies of scale and for ensuring information can be shared.

Fast Follower(ship)—In the context of innovation diffusion, a fast follower is one who adopts an innovation shortly after the initial innovator (or first mover), but appreciably before the majority of those who eventually implement the innovation. For a more detailed discussion of innovation diffusion see Everett M. Rogers, *Diffusion of Innovations*, Third Edition. New York: The Free Press, 1983.

Geographic Information System (GIS)—A set of hardware and software tools used to gather, manipulate, and analyze geographically referenced data. GIS are used by many government agencies. For example, transportation departments use GIS to determine the most efficient corridors for highway construction, and housing departments use GIS to help select the best locations for urban renewal projects.

Geographic Positioning System (GPS)—A system that uses satellites and small, portable receivers to determine the physical position of an object or person. Increasingly ubiquitous, GPS are used to track the locations of airplanes, boats, cars, and even individuals to within an accuracy of a few meters.

Hardware—Broadly, the physical components of information technology: computers, peripheral devices such as printers, disks, and scanners, and the cables and switches that link digital networks. The key components of computer hardware are microprocessor chips, which have doubled in productivity every 18 months, as measured by instructions executed per dollar (a phenomenon referred to as Moore's law). (See also: Software.)

HTML—Hypertext markup language. See: World Wide Web.

Information infrastructure—The interdependent capacities and standards for digital communication and data processing (both hardware and software) that support the flow of information, much as a highway infrastructure supports the flow of vehicles. (Hence, the vernacular catchphrase, "Information Superhighway," as a general reference to the interconnected system of computer networks exemplified by the Internet.) The ongoing expansion of this information infrastructure raises vital issues about when and how to establish and refine the technical standards on which it operates, including important related questions about funding, security, privacy, and collective democratic values.

Information technology (IT)—The umbrella term that encompasses the entire field of computer-based information processing: computer equipment, applications and services, telecommunication links and networks, digital databases, and the integrated technical specifications that enable these systems to function interactively. (See also: Information infrastructure.) The rapid development and expansion of these technologies over the last twenty years has ushered in the current historical period widely referred to as the "Information Age" or "Information Revolution," comparable in economic and social magnitude to the Industrial Revolution of the early 19th century. The profound transformations brought about by computer networking have made information processing (rather than industrial manufacturing) the key factor in economic productivity and global commerce, thereby supplanting large segments of the traditional blue-collar labor market with a white-collar force of information or knowledge workers.

Internet—The vast network-of-networks that uses open rather than proprietary standards to support computer-based communications at an incredibly large and efficient worldwide scale. Originally developed by the U.S. Defense Department for use in research in the 1960s, the Internet has become the foundation of our information infrastructure, an ever-expanding universe of network services and applications organized in geographically dispersed rather than centralized form.

Kaizen—Originally defined in Masaaki Imai's book *Kaizen: The Key to Japan's Competitive Success*, *kaizen* refers to a process of continuous improvement through small sustainable steps.

Knowledge-based economy—A term used to describe an economy in which the defining factor of production is knowledge. The 19th century saw the rise of the industrial-based economy in which goods were produced in large industrial manufacturing plants. Today, a growing number of people produce, use, and share knowledge in their day-to-day work. Since information can be expressed digitally, computer networks have enabled the rapid growth of the knowledge-based economy.

Leadership—Any act by an individual member on the behalf of a group, with the intent to get the group to better meet its goals. Leadership for previously known problems relies heavily on authority and technical expertise, while leadership for new or adaptive problems relies on getting the group to confront the inadequacies of its old values and routines, and thereby develop more effective solutions. In general, the challenges of the information age (which involve a high degree of confusion and conflict resolution) call for adaptive leadership.

Lifecycle Costs—The costs of developing, maintaining, operating, and eventually retiring an IT system or application. When budgeting for IT initiatives, stakeholders often focus on development costs, overlooking future costs that can represent a larger percentage of the full lifecycle costs.

Managed (or Management) Service Provider (MSP)—See: Application Service Provider (ASP).

Marginal cost—The cost of the next in a series of products. Typically, first products cost more because of the expenditures required to set up the production process, with the unit cost then falling over time as the volume of activity increases. For most manufactured goods, however, diminishing returns-to-scale eventually cause marginal costs to rise. With information-technology products, by contrast, the dynamics are dramatically different: extremely high set-up costs (hundreds of millions of dollars for some software products) followed by almost zero costs for extra copies and no diminishing returns-to-scale for extremely high production volumes. Pricing policies for information goods are thus markedly different than for traditional industrial goods, and pricing policies in the economy at large are likely to change as the Information Age progresses.

Network—A set of communication paths (or channels) and the points (or nodes) they connect, including switches to determine which channel will be used when more than one is available. Computer networks, like telephone networks, can be thought of as telecommunications highways over which information travels. Networks benefit greatly from economies of scope and scale. Digital networks typically use packet-switching rather than circuit-switching to greatly increase efficiency and throughput. (See also: Switching)

Open-source—Computer programs that are distributed as open-source are distributed along with access to the source code—the program instructions as written by the programmer. Once distributed, the author of the program must allow users to modify the code and redistribute it freely, while users are prohibited from selling the program or any derivative thereof without the accompanying source code. The open-source nature of the program is usually protected by an open-source license such as the GNU General Public License (GPL). The rationale behind open-source is that a larger community of programmers will use, improve, and develop the program.

Pen-based Computer—A computer that the user interacts with via an electronic pen or stylus rather than a keyboard or mouse. Most PDAs (see below) or hand-held computers are pen-based computers.

Personal Digital Assistant (PDA)—A small hand-held computer that can be carried around by an individual, and that is most commonly used for personal management tasks such as storing phone numbers, reading email, or scheduling. As wireless technologies continue to develop, PDAs are also being used to communicate over networks.

Portal (or Internet Portal)—On one level, a gateway or single point of entry through which the user can access related information from a variety of sources. For example, many governments are launching portals as a single point of entry to government information. It is interesting to note, however, that as governments adjust to the concept of a single point of entry, they are beginning to rethink how they interact with constituents. Rather than organizing the user's experience around agency boundaries, they are breaking down these boundaries to organize information and interactions around the user's needs.

Productivity—The ratio of goods produced in relation to the resources expended in production. Increasing living standards largely depend upon increasing productivity. Production processes that use information efficiently will typically be much more productive overall than older industrial production methods. This is the principal driving force behind the commercial, social, and political changes catalyzed by information technologies.

Prototype—A pre-production, functioning model of a system or application. A prototype is generally used for the evaluation of design, performance, or production potential.

Public goods—Goods with impacts that “spill over” beyond those directly involved in buying and selling, thus weakening market forces as the mechanism for efficient resource allocation. Computer-based services have the potential of providing many positive spillovers to the public sector, since the marginal cost of IT production over time is virtually zero. One of the paramount political questions of the Information Age is where to draw the boundary between public and private benefits and, therefore, who should pay.

Scope Creep—The gradual accumulation of new or expanded requirements after a project plan (project scope) has been agreed upon by all parties. Scope creep is a significant risk to implementation success as it increases cost and extends project timelines.

Server—A computer program that provides services to other programs or computers. This term is also used to describe the computer on which such a program operates. In the “client-server” network model, client programs make requests from servers connected to the same network. On the World Wide Web (see below) a browser acts as a client program, making requests for files or other information from web servers. These servers can be located any place in the world that is connected to the Internet.

Share-in-Savings/Revenue—A financing strategy whereby government compensates a private-sector partner with a share of funds saved/raised as a result of the partnership. This financing strategy is commonly used when the private-sector partner agrees to cover the up-front costs of a project. It is also used to align incentives with desired outcomes.

Slow Trigger, Fast Bullet—An analogy used to describe an implementation strategy in which careful project planning and preparation (the slow trigger) is followed by swift and decisive action steps (the fast bullet) that quickly move the project to a stage that safely demonstrates value.

Smart Card—A small electronic device or token (often the size of a credit card) that stores information in a memory chip. Information can be added, read, or changed using a smart card reader.

Software—A catchall term for the sets of instructions (programs) used to operate computer hardware. Software production and maintenance today has become a primary determinant in the success or failure of business and government organizations.

Source Code—See: Open-source.

Standards—In the context of electronics, standardized technical specifications allow functions to be coordinated by automatically adhering to the set standard. Thus, standards for the voltages used for signaling allow devices to “talk to one another” in a consistent format, and standards for financial accounting allow for the meaningful aggregation and analysis of financial databases. With information technologies there is an inherent tension between the creation of new capabilities through innovation (a few people trying new ways to do things) and the subsequent applications of those capabilities through standardization (many people following established ways of doing things). Determining when and how to set standards is therefore a critical leadership issue, as is deciding whether such standards should be “open” for use by the general public or whether they should be protected by copyright or patent statutes.

Switching—The engineering mechanism that designates alternate channels or paths in a telecommunications network. Historically, telephone networks have used circuit-switching, where an entire channel between two connections is made available for the duration of the communication. Most computer networks, by contrast, have been designed to use packet-switching, which breaks up the transmitted data into individual units or “packets,” each of which contains the destination address of the data. The packets are then independently routed through the network and reassembled by the computer at the destination address. Packet-switching allows data from multiple users to efficiently use the same path on the network. Major developments are now underway to enable packet-switched networks to carry digital voice and video more effectively.

Total Quality Management (TQM)—A management philosophy that became popular in the 1980s and 1990s. TQM is focused on continuously improving the performance of all individuals and processes in achieving customer satisfaction.

World Wide Web (www or Web)—Standardized tools and software that allow non-technical users to find, display, and communicate text, graphics, voice, and video located on the Internet. The Web’s fundamental components include HTML (hypertext markup language), pointers or hyperlinks (that rapidly access specific material that may reside on computers halfway around the world), and browsers (software that allows users to display and interact with Web content). Web technology is credited with democratizing the Internet by simplifying and streamlining key networking tools and functions for the general public.

END NOTES

¹ According to a study by the market-research firm Input, e-gov expenditures are growing at 10 percent a year while traditional government IT budgets are growing at just 5 percent a year. These increases compare with private-sector e-business investments that are growing at a rate of 20-25 percent a year. Reference to study from Input in Joshua Dean, "Federal spending on e-gov efforts expected to grow," *GovExec.com*, 7 December 2000 (www.govexec.com/dailyfed/1200/120700j1.htm).

² To view the budget instructions visit www.ofm.wa.gov/budinst01-03/budinst01-03part1/budinst01-03part1.htm

³ Other laws and executive orders that support the move toward greater structure, accountability, and strategic focus include the Government Performance and Results Act (1993), the Paperwork Reduction Act (1996), and Executive Order 13011 (1996) which states that executive agencies shall "refocus information technology management to support directly their strategic missions, implement an investment review process that drives budget formulation and execution for information systems, and rethink and restructure the way they perform their functions before investing in information technology to support that work."

⁴ United States General Accounting Office. *Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity*. Exposure Draft. May 2000. (GAO/AIMD-10.1.23).

⁵ United States General Accounting Office. *Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity*. Exposure Draft. May 2000, p. 9 and 65. (GAO/AIMD-10.1.23).

⁶ Robert S. Kaplan and David P. Norton. *The Balanced Scorecard: Translating Strategy into Action*. Boston: Harvard Business School Press, 1996.

⁷ For more examples see Jonathan Walters, "The Buzz Over Balance," *Governing Magazine*, May 2000.

⁸ Quote from Steve Towns, "Dollars and Sense: Several States are attempting to overhaul funding for enterprise IT projects," *Government Technology*, January 2001.

⁹ Quote from Steve Towns, "Dollars and Sense: Several States are attempting to overhaul funding for enterprise IT projects," *Government Technology*, January 2001.

¹⁰ In 1995 the Information Technology Innovation Fund was established to support government-wide IT investments in the U.S. federal government. Supported by the General Services Administration, the ITIF was funded with money funneled from agency fees paid to the GSA for administering the procurement of long-distance telephone service. After the rules that required agencies to use the GSA for purchasing long-distance service were changed, the GSA decided to stop supporting the fund, noting that it was no longer fair to support a cross-agency fund with money from a select group of agencies.

¹¹ Quoted in Heather Hayes, "Available for rent: Enterprise applications," *Federal Computer Week*, 20 March 2000.

¹² For more information on the California Franchise Tax Board, visit www.ftb.ca.gov. Also see Ralph Shoemaker, "Problem solving partnerships and joint-ventures to share risks and benefits in developing large system technology projects," at www.arnet.gov/References/Best_Pract_Docs/textsource/caftb.txt

¹³ Information about Honolulu's experience can be found in Ellen Perlman, "Taking the Ad Plunge," *Governing Magazine*, November 2000 (www.governing.com/11talk.htm), and at www.govads.com. Other articles about advertising on government websites include, Dibya Sarkar, "Mixed messages: Are ads a great moneymaker, or a conflict of interest for public sites?" *civic.com*, 8 January 2001, (<http://www.fcw.com/civic/articles/2001/jan/civ-mixed-01-01.asp>); Dibya Sarkar, "Ohio takes a commercial break," *civic.com*, 8 January 2001 (www.fcw.com/civic/articles/2001/jan/civ-mixedbx2-01-01.asp); Joni James, "State Weighs Selling Ads on Web Site," *Wall Street Journal*, 20 September 2000; and Dibya Sarkar, "Survey: Ads better than fees," *civic.com*, 21 September 2000 (<http://www.fcw.com/civic/articles/2000/0918/web-govads-09-21-00.asp>).

¹⁴ For more information, see Daniel Keegan, "Internet for Everyone: Georgia City Finds a Way," *civic.com*, 1 May 2000 (fcw.com/civic/articles/2000/may/civ-comm1-05-00.asp); Dibya Sarkar, "Ga. Town 'Intelligent City of the Year,'" *civic.com*, 22 August 2000 (fcw.com/civic/articles/2000/0821/web-city-08-22-00.asp); and Michelle Delio, "A City With a Broadband Future," *Wired News*, 22 August 2000 (www.wirednews.com/news/culture/0.1284.38346-2.00.html).

¹⁵ Acquisition Solutions and Mary Beaulieu, "Share in Savings: Summary of Interviews and Comparison to Federal Agencies' Missions." Prepared for the Council for Excellence in Government and the Federal Technology Service. December 2000. See also, Greg Langlois, "An equal slice of success: Education share-in-savings contract grades A," *Federal Computer Week*, 14 May 2001.

¹⁶ The original convenience fee of \$6.95 was paid to IBM, and IBM accepted the credit card fees. In October 1998 all convenience fees were removed in accordance with guidance from the Governor and the Legislature. IBM now receives a percentage of the vehicle license tax, and MVD pays the credit card fees.

¹⁷ See also, Rick E. Yannuzzi, "In-Q-Tel: A New Partnership Between the CIA and the Private Sector," *Defense Intelligence Journal*, 9:1 (Winter 2000). Available at www.cia.gov/cia/publications/inqtel/index.html

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