

VIRGINIA IN THE GLOBAL DIGITAL ECONOMY

Commonwealth of Virginia Strategic Plan for Technology

EXECUTIVE SUMMARY

The Honorable George C. Newstrom
Secretary of Technology



2002-2006



A MESSAGE FROM THE GOVERNOR



Most cities and states are recognized for excellence in a particular area—New York City for fighting crime, Norfolk for its shipping industry, Illinois for its public transportation systems, San Diego for its health initiatives. In the area of technology, Washington is known as a pioneer in digital government, California for developing a single look and feel for all state websites, Pennsylvania for “PA Open for Business,” Alaska for digital democracy. These cities and states have worked aggressively to achieve their goals and are often cited as models and best practices for others.

Known as the Internet Capital, Virginia has worked deliberately to take advantage of the prosperity of the information age and has many “firsts” and “bests” to its credit, including the first state Web portal, the first Cabinet-level Secretary of Technology, the best motor vehicles services program, the first to provide real time election results, the first to offer a suite of services through mobile devices and offer live help online. Just last month, the Center for Digital Government and *Government Technology* magazine named three Virginia programs “best of breed,” including the Regulatory Town Hall; Absentee Ballot Tracking; and eVA, Virginia’s electronic procurement solution. The Department of Taxation has won numerous national awards for its innovative Tax Partnership with American Management Systems that has resulted in improved customer service, unprecedented access to government, organizational efficiency, and a world-class suite of Web-based applications.

I am pleased to present another Virginia’s first—our statewide technology strategic plan. Though it is not the first technology strategic plan issued by a state, I contend that it is the best. Whereas others have focused on a single, landmark initiative, Virginia is launching a comprehensive, multi-faceted campaign to improve technology in the Commonwealth, attract investments to our growing technology-based economy, revolutionize government service delivery to our Virginia customers, and, most importantly, provide significant cost savings to assist in closing the unprecedented \$5.3 billion budget crisis I inherited.

As a key ingredient to do what is necessary to balance the budget and ensure fiscal integrity, my plan for technology in Virginia calls for increased cooperation across the Commonwealth—from agencies, localities, and the business community. Working together we can add to Virginia’s list of “firsts” and “bests.” We can save taxpayers millions of dollars while providing a more efficient, effective, and convenient state government. We can increase broadband deployment and rural economic development. We can consolidate and strengthen the information technology infrastructure within the Commonwealth, leverage the state’s buying power, and overhaul state administrative systems. We can fundamentally change the way technology is planned, funded, and accounted for.

Completing any one of these initiatives furthers Virginia’s role in the global digital economy and merits national and international attention. Completing all of these initiatives secures Virginia as a leader in the rapidly growing and evolving global digital economy while generating considerable cost-savings and cost-avoidance. In this time of fiscal crisis, technology is critical to our success, and is at the heart of my plan to balance Virginia’s budget and fulfill my commitment to the people of Virginia.

I urge you to support and participate in the execution of this plan to ensure Virginia thrives in the global digital economy—an economy marked by fiscal integrity, improved public education, economic growth throughout the Commonwealth, and a strengthened quality of life for all Virginians.

Mark R. Warner

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ACKNOWLEDGEMENTS

Secretary of Technology George C. Newstrom extends his appreciation and gratitude to each individual who contributed to *Virginia in the Global Digital Economy*. He commends the following individuals for their leadership, insight, expertise, and assistance:

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VIRGINIA IN THE GLOBAL DIGITAL ECONOMY

INTRODUCTION

The global digital economy is the result of decades of technological innovation, an increasingly networked economy, and the resulting breakdown of traditional geographic borders. More than the shift from a manufacturing- or product-oriented economy to one built on information and services, the global digital economy presents a significant cultural shift and a demand for fundamental change in communications and relationships, commerce, and government.

In the global digital economy and its “anytime, anywhere” nature, Virginia no longer competes on a regional, state, or national basis—it competes in the world marketplace, with Asia, Europe, South America, and Africa. Virginia cannot afford to step down as a leader in effective electronic government or curb its efforts to facilitate a technology-based economy.

Furthermore, the Virginia economy, shaken by the terror attacks and the rise and fall of the dotcom industry, demands increasingly careful stewardship of public monies and the public trust. Facing a \$3.8 billion budget gap over the next three years, Virginia’s 69th Governor Mark R. Warner called for across-the-board cuts and worked in partnership with the state legislature to shore up Virginia’s budget. Nonetheless, unprecedented revenue shortfalls and corporate accounting scandals have deepened the fiscal crisis by an additional \$1.5 billion.

Governor Warner has taken several critical steps. In addition to across-the-board cuts of up to 23 percent, establishing a process for setting government priorities, and taking concrete steps to control state spending, he has formed the Governor’s Commission on Efficiency and Effectiveness, chaired by former Governor L. Douglas Wilder. The “Wilder Commission” is charged with developing recommendations for streamlining and consolidating state government agencies and services to ensure government is cost-effective and efficient, particularly in the areas of management, procurement, and technology.

The initial recommendations of the Wilder Commission call for streamlining the procurement process to leverage the state’s buying power, developing a performance management model for state employees, and consolidating technology infrastructure. The Commission’s final report is expected in late 2002. The substance of Virginia’s strategic plan for technology in the Commonwealth stems from and is aligned with the discussions and initial recommendations of the Commission and its Information Technology Conceptual Analysis Team.

Secondly, Governor Warner appointed George C. Newstrom Secretary of Technology—one of only two cabinet-level technology officials in the nation. In addition to the Secretary’s duties to increase technology-based economic development throughout the state and to serve as the Chief Information Officer for the Commonwealth, Governor Warner charged Secretary Newstrom with developing Virginia’s first comprehensive strategic plan for technology based on his vision.



The global digital economy presents a significant cultural shift and a demand for fundamental change in communications and relationships, commerce, and government.



Governor Warner's vision is to ensure Virginia is competitive in and a leader of the rapidly evolving global digital economy.

GOVERNOR'S VISION FOR TECHNOLOGY IN THE COMMONWEALTH

Governor Warner is deeply committed to effective and efficient use of information technology by state government, a technology-friendly business climate across the Commonwealth, and economic development of Virginia's technology industry as a whole in the world marketplace. His vision is to ensure Virginia is competitive in and a leader of the rapidly evolving global digital economy. To that end, he provided the following three imperatives to guide the strategic planning effort:

1. Develop the role of the Chief Information Officer of Virginia so that the Commonwealth's technology resources are most effective, efficient, and meet the needs of our customers—the citizens of the Commonwealth of Virginia.
2. Ensure all of Virginia shares in the growth and success of our participation in the global market of the future.
3. Help develop Virginia as a major entity in the global economic marketplace of the future.

GUIDING PRINCIPLES

The Secretary of Technology identified seven guiding principles to provide a sound framework for developing and implementing the strategic plan, including:

1. **Exponential change, not incremental change.** To be effective in the fast-paced global economy and respond effectively to the findings of the Wilder Commission, Virginia must take bold strides forward, not small, incremental steps.
2. **Technology is not an end unto itself.** Technology supports the overall mission, or business, of government operations, and is a tool to increase capacity and create efficiencies, with the ultimate goal of providing more effective and convenient services to customers. Technology is not a separate discipline—there are no “technology projects.” Technology is an enabler and a component of “business” initiatives.
3. **Technology is complex.** Technology, particularly in the new global digital economy, is complex and evolves rapidly. In addition, information often has intangible value. As a corollary, technology is expensive, yet considerable cost-savings and cost-avoidance can be achieved through pooling resources and architecting standardized products and services.

4. **Performance measurement is at the crux of decision-making.** Responsible decision-making relies on quantitative and qualitative data to determine the effectiveness of existing practices, set direction and goals, and measure success in a continuous loop. The strategic plan contains metrics and milestones to gauge progress and inform decision-makers.
5. **Technology relies on increasing cooperation across traditional borders.** Today's increasingly networked environment requires cooperation and partnership—across agencies; among federal, state, and local governments; and between public and private sector organizations.
6. **Accountability drives results.** Government is accountable to its customers, and is accountable for the responsible stewardship of tax dollars. Similarly, the Office of the Secretary of Technology and its agencies, boards, and commissions are accountable for the implementation of the strategic plan. Each major action item includes the name, title, and organization of the person(s) accountable for successful execution.
7. **Urgency.** Virginia's fiscal crisis and the current state of technology demands urgent, strategic action. *We must act now.*

PROCESS

Virginia in The Global Digital Economy is the result of five, intensive months of planning. Starting in April 2002, key staff members from the Office of the Secretary of Technology, Department of Technology Planning, Department of Information Technology, Virginia Information Providers Network, and Virginia's Center for Innovative Technology met weekly. With the assistance of an internationally renowned technology thought-leader, the strategic planning team developed and fleshed out the goals and objectives, performed analyses, and brainstormed ideas to help position Virginia as a global leader.

Key stakeholders, including executive branch agencies, boards and commissions, and the technology business community contributed to the strategic plan, providing valuable data and input through the development process. Due to the significantly different business requirements and practices of education institutions, the education sector formed a workgroup made up of representatives from colleges and universities. The Education Sector Workgroup is developing recommendations to the Secretary in a parallel effort.



We must act now.



The following agencies within the Office of the Secretary of Technology are directed to implement the strategic plan:

- **Department of Technology Planning (DTP)**—Develops statewide technology plans, policies, standards, and guidelines with stakeholder input and provides CIO support to the Secretary of Technology.
- **Department of Information Technology (DIT)**—Provides state and local government with a central source for supporting IT needs, and operates a shared data center facility, manages the state's telecommunications services, supports enterprise-wide solutions, and provides a statewide network infrastructure supporting voice, data, video, and Internet applications.
- **Virginia Information Providers Network (VIPNet)**—Streamlines and enhances the ways that citizens and businesses access Virginia government, provides the Internet gateway to Virginia government information and services, and builds value-added services of interest to the business community.
- **Virginia's Center for Innovative Technology (CIT)**—Increases investment in the creation of knowledge, accelerates transfer of that knowledge into the global marketplace, and promotes the growth of entrepreneurial firms by helping to create, retain, and attract technology-based businesses, jobs, and research and development funding.



Two public advisory bodies provide assistance and guidance to the Secretary of Technology:

- **Council on Technology Services (COTS)**—advises and assists the Secretary of Technology with information technology planning and decision-making. COTS has up to 32 representatives from each Secretariat, institutions of higher education, and local government.
- **Chief Information Officer (CIO) Advisory Board**—advises the Secretary of Technology on the proper planning, practical acquisition, effective development, and efficient use of information technology to serve the needs of executive branch agencies and institutions of higher education. The CIO Advisory board is composed of twelve executives from top Virginia companies.

DTP is charged with monitoring the implementation of this strategic plan for technology and providing status reports. Proposed additions and modifications to the plan will be distributed annually on or about August 1. Final additions and modifications will be published by DTP annually on or about September 15. The full plan and executive summary are available for viewing or download at www.technology.state.va.us.

STRATEGIC PLAN HIGHLIGHTS

Based on the Governor's vision for technology and three imperatives, Secretary Newstrom identified eight significant initiatives, made up of thirteen agency projects. The eight initiatives are:

1. **Revolutionize service delivery to our customers** through implementation of a customer-facing Internet portal and increasing the quantity, quality, and adoption of online services, particularly in the area of online licensure and interactive forms.
2. **Consolidate IT infrastructure and provide centralized services** as a technology utility. The plan also calls for developing a comprehensive, statewide information security program and for overhauling state administrative systems in the area of finance, planning and budgeting, and human resources.
3. **Plan, budget, and track IT expenditures** by developing a capital planning and funding process for IT, developing a comprehensive technology management policy, and improving systems to track IT expenditures.
4. **Manage IT procurement** by developing and implementing a best practice model for effective and timely IT procurements.
5. **Increase federal research and development funding** to industry and Virginia's colleges and universities, including historically black colleges and universities (HBCUs).
6. **Increase commercialization of intellectual property** from Virginia's labs, entrepreneurs, and institutions of higher education, and grow entrepreneurial companies.
7. **Increase statewide broadband deployment**, especially in Virginia's rural areas, to enhance economic development.
8. **Promote technology-based economic development** in Virginia by "growing" technology companies. ■



The Honorable George C. Newstrom
Secretary of Technology





GOVERNOR'S IMPERATIVE

"DEVELOP THE ROLE OF THE CHIEF INFORMATION OFFICER SO THAT VIRGINIA'S TECHNOLOGY RESOURCES ARE EFFECTIVE, EFFICIENT, AND MEET THE NEEDS OF OUR CUSTOMERS — THE CITIZENS OF THE COMMONWEALTH OF VIRGINIA."

A strong CIO model is built in four dimensions:

Service—Excellent Delivery of Enterprise Technology Infrastructure and Services

Service delivery is the measure of competence for the CIO.

Strategy—Direction and Oversight

Strategy establishes credibility for the CIO.

Leadership—Innovation and Transformation Using Information Technology

Leadership follows from demonstrated competence and established credibility.

Governance—Involving Stakeholders in Decision-Making

Governance makes change possible, achievable, and sustainable.

SERVICE, STRATEGY, LEADERSHIP, AND GOVERNANCE HAVE CONVERGED IN THIS STRATEGIC PLAN

REVOLUTIONIZE SERVICE DELIVERY TO OUR CUSTOMERS

Citizens want government to be accountable, accessible, and convenient, and to deliver its services at lower cost—values that have always been central to the responsible, effective functioning of government. In response, Virginia is building “digital government.” Broader than “electronic government” or “e-government,” digital government is digitally enabled government from end-to-end that is:

Citizen-facing
Transformational
Accountable
Efficient
Fundamental

CHALLENGES AND OPPORTUNITIES

Virginia has received national and international recognition for innovative and effective use of technology, and is generally considered a leader in digital government service delivery. Virginia has also had its share of mixed reviews—in 2001 the Center for Digital Government ranked Virginia in the bottom 50 percent of all states in its Digital State Survey. In 2002 the Center for Digital Government named Virginia’s State web site “Best of the Web.”

The success of agencies Web-enabling information and services is at the foundation of digital government. With the large number of agencies in state government, there is an equally large number of variations of web site presentation, often



within a single agency. The hodgepodge of Web sites results in a different look, feel, and navigation, which can impede finding information and services. Many agencies lack the resources and expertise to address accessibility and usability issues, particularly compliance with Section 508 of the Americans With Disabilities Act.

According to a recent statewide survey of agency forms, 50 percent of all citizen and business forms are accessible electronically. Most of these forms, however, are static and non-interactive. Fewer than five percent of Virginia’s 600,000 licensed professionals can renew their licenses online and none can file an initial application online.





STRATEGIC ACTION STEP: IMPLEMENT A CUSTOMER-FACING INTERNET PORTAL

Creating a customer-facing portal requires Virginia to implement enterprise solutions that focus on the needs of citizens and businesses. The Commonwealth's portal and all state agencies within the portal should have Web sites that are intuitive, easy to use, and accessible, without jargon, confusing program names, and acronyms.

VIPNet will implement a customer-facing Internet portal by creating:

- Common web site design templates for state agencies that comply with and exceed all accessibility and usability standards.
- A common look, feel, and navigation for agency Web sites.

STRATEGIC ACTION STEP: INCREASE THE QUANTITY, QUALITY, AND ADOPTION OF ONLINE SERVICES

Many governmental services can be performed more effectively and inexpensively through the Internet. Personnel are freed up from routine tasks and can provide better service to in-person customers or be redirected to higher level work flow activities. Online services also make interacting with government much more convenient for citizens and businesses.

VIPNet will work with stakeholders, the Secretary of Technology, and the Office of the Governor to:

- Develop a Governor's Executive Order directing executive branch agencies to provide business processes, including all licensing and permitting, in a fully interactive manner via the Internet.
- Develop and implement the electronic payments portal and other interactive services such as PIN-based user authentication, conference registration, constituent notification, activities calendar, shopping cart, and wireless enabled services.
- Increase the percentage of online applications and professional license renewal.
- Implement the Virginia Business Portal, a "one stop shop" portal.



MAJOR MILESTONES

2003	
January	Design accessibility and usability templates for agencies
April	Complete development of Web-enabled business processes
June	10 agencies deploy enterprise solutions, 20 agencies use templates 25 percent adoption rate for Web-enabled business processes
2004	
June	20 more agencies deploy enterprise solutions, 30 more agencies use templates Fully interactive, integrated online business processes by 100 percent of executive branch A 50 percent adoption rate for Web-enabled business processes, 100 percent online licensing Implement Virginia Business Portal



CASE STUDY

Thanks to the use of the Internet, kiosks, and the telephone, Virginia's Department of Motor Vehicles (DMV) has:

REDUCED CUSTOMER WAIT TIMES AND INCREASED CUSTOMER SERVICE.

- Knowledge Automated Testing System (KATS) has saved customers 1300 hours per day.
- Average wait time is less than 15 minutes.

REDUCED COSTS.

- Alternative means (mail-in, Internet, touchtone service) costs DMV \$2—a savings of \$3 per transaction. Nearly 2.7 million transactions through alternative means saves DMV \$8.1 million.

INCREASED EFFICIENCY IN AGENCY OPERATIONS.

- DMV's customer base has grown 29 percent since 1990 and revenue transactions have grown by 18 percent. DMV's staffing has only grown by 23 positions, or 1.1 percent.

INCREASED CUSTOMER SATISFACTION.

- Customers using DMV's web site rated the site as excellent or good (98 percent) and 100 percent would use it again.

CONSOLIDATE IT INFRASTRUCTURE AND PROVIDE CENTRALIZED SERVICES

With the pervasiveness of technology in our society and workplace, and increasing automation and integration of business processes, technology infrastructure has become a necessary utility for conducting state business. Every agency and institution relies on information technology and its infrastructure to deliver services, share information, and perform the majority of state business functions. Nearly every state employee relies on information technology, and millions of transactions are processed daily across the Commonwealth.

From the standpoint of its business operations, Virginia state government is a highly decentralized enterprise. Because technology is an enabler, best practices for decentralized enterprises call for centralization of administrative and support functions where economies of scale and efficiencies of operation can be realized. Virginia can achieve significant fiscal benefits from consolidating technology resources and providing centralized services. Moreover, consolidating technology can help move the organization toward developing baseline technology standards and utilize enterprise-oriented, centralized applications, resulting in seamless service and improved efficiency.

CHALLENGES AND OPPORTUNITIES

There are three significant areas in the realm of consolidation and centralized services that pose challenges and opportunities. These areas are technology resources, information security, and state administrative systems.

Technology Resources. The Commonwealth supports numerous technologies spread across multiple agencies within the executive branch. In this decentralized environment, enterprise-wide levels of IT services have not been established, resulting in inconsistent service levels, impeded access to state databases by local governments, duplication of effort, inefficient allocation of resources, millions of dollars spent unnecessarily, overcapacity, and non-standardization.

Since 1967, the findings and recommendations of multiple studies on IT in state government consistently point to the need for a coordinated approach to information technology planning, implementation, and integration. With the increased demand for seamless service delivery, the capability for centralized technology functions to support a decentralized environment, and the budget crisis, the time is ripe for consolidating technologies.

Information Security. In the realm of information security, denial of service attacks, viruses, web site hacking, attempted unauthorized access to databases, and malicious corruption of code have increased in recent years in both the public and private sectors. The responsibility for information security is vested with the leadership of each agency and institution, resulting in uneven security defenses and ability to respond.



...technology infrastructure has become a necessary utility for conducting state business.



With an increasingly networked government, it is crucial to protect the state's IT assets while ensuring a consistent, high level of security across the Commonwealth.

State Administrative Systems. The Commonwealth supports legacy systems for statewide budgeting, accounting, personnel, benefits, payroll, and fixed assets. These systems grew out of applications developed from the late 1960s through the mid-1980s. Though the systems have been enhanced over the years, agencies have developed their own in-house administrative systems and interfaces that feed the central systems with required data. According to agency strategic plans from 2001, there are 52 such systems, with another 35 enhancements or replacements planned.

A special report by the Auditor of Public Accounts found that the Commonwealth has spent \$556 million between 1996 and 2001 on financial management systems alone. According to the agency strategic plans for the 2002–2004 biennium (excluding higher education), an additional 13 financial management systems, three payroll systems, and three human resources systems are planned. Despite significant investments by individual agencies, the Commonwealth does not benefit from the increased efficiencies and effectiveness that are typically gained from centralized systems.

STRATEGIC ACTION STEP: CONSOLIDATE TECHNOLOGIES

Consolidation of technologies that provide utility functions—such as data centers, distributed computing assets, and help desks—will allow the Commonwealth to provide more effective services, reduce redundancy, and lower costs. The Commonwealth needs to define and implement appropriate levels of service and availability in order to fully realize the benefits of consolidation, including an increased ability to:

- Support citizen-centric government.
- Promote interoperability, cost- and resource-sharing, and IT centers of excellence.
- Develop partnerships and promote standardization.
- Implement effective cost controls.
- Leverage services and infrastructure.
- Cultivate greater alignment, integration, and extensibility.



Execution of this initiative will require:

- Prioritizing targets of opportunity into three phases and developing the business case.
- Consolidating technologies into one or more IT service centers.
- Completing the Commonwealth’s enterprise architecture.
- Implementing enterprise-wide applications.
- Deploying infrastructure that supports common utilities.
- Establishing service level and availability standards for consolidated systems.
- Establishing methods for measuring user satisfaction.
- Establishing standard technology products and services to be used in the consolidated environment.



EXECUTIVE BRANCH IT INFRASTRUCTURE SUMMARY

FOCUS AREA	CURRENT TECHNOLOGY INFRASTRUCTURE INFORMATION
Mainframes	6 mainframes, 3,540 GB, 172 applications 52 mid-range computers, 7,956 GB, 224 applications
Servers	2,329 servers, 95,933 GB 66.8 percent small servers, average annual cost \$4,912 33.2 percent enterprise servers, average annual cost \$11,325
Distributed Computing Assets	1,420 LANs with 92,717 devices at \$49.3 million annually 52,190 desktop, portable, and PDA, 42 percent replaced over 3 years 34,515 peripherals, 15,464 replaced over 3 years 6,012 network devices, 2,048 replaced over 3 years
ERP Applications	830 agency needs not currently met by central systems: Financial, Personnel, Inventory
IT Human Resources	IT FTEs 2,286 with annual cost \$132.9 million 1,572 classified staff, average \$48,445 per year 85 hourly staff, average \$26,160 per year 450 contractors, average \$109,840 per year



Proposed Governance Model. The consolidation effort requires cooperation across Secretariats, agencies, and institutions. As such, the governance and oversight of this effort needs to be a part of the overall governance of the Commonwealth. Oversight, management, and implementation teams will be defined, authorized, and deployed to direct, monitor, and control the consolidation project, including:

- An Executive Oversight Committee, comprised of deputy secretaries, to oversee the implementation.
- A full-time IT services director to report to DIT and provide information to the Executive Oversight Committee.
- A dedicated team of key Commonwealth agency personnel and consultants to implement the consolidation.



FOCUS AREAS FOR CONSOLIDATION

Higher Opportunity	Lower Opportunity
Data Center Consolidation	Application Stacking
Server Consolidation	Application Consolidation
Vendor Platform Consolidation	Process Consolidation
Mainframe Consolidation	Network Consolidation
Storage Consolidation	Systems Management Consolidation
Help Desk Consolidation	Messaging/Tool Set/GUI
	IT Human Resources Consolidation
	Backup Consolidation
	Development Environments

STRATEGIC ACTION STEP:**DEVELOP A PROGRAM FOR STATEWIDE INFORMATION TECHNOLOGY SECURITY**

The very real risks of security breaches demand that the Commonwealth have a sound, consistent base of IT security that transcends the limitations of and variability among agencies. The statewide security program will ensure a consistent level of IT security, provide high-level IT security skills, communicate IT security alerts and best practices, and respond to and recover from cyber incidents. The program will facilitate collaboration with other entities—such as law enforcement, public affairs and the media, Internet service providers, and other service providers—for rapid response to breaches.

DTP will undertake the tasks required to:

- Design, develop, and implement a statewide security program and associated services.
- Create a statewide information security office to include a cyber-incident response team and an IT security audit function.
- Formalize the involvement of higher education in the statewide security program.
- Develop evaluation tools for measuring cost savings.

STRATEGIC ACTION STEP: OVERHAUL STATE ADMINISTRATIVE SYSTEMS

The Commonwealth will renew its focus on increased efficiencies and effectiveness that should be gained from centralization and consolidation of state administrative systems. Use of standardized enterprise resource planning (ERP) systems has become a recognized business best practice.

DTP will work with key stakeholders to initiate the process for replacing statewide administrative systems with a suite of ERP modules by:

- Developing a business case for modernizing the Commonwealth's financial and human resource information processes and systems.
- Developing a Governor's Executive Order requiring the Secretaries of Technology, Finance, and Administration to jointly develop a strategic plan and schedule for overhauling the existing statewide administrative systems.

STATEWIDE ADMINISTRATIVE SYSTEMS

Budgeting
Program Budgeting System (PROBUD)

Accounting
Commonwealth Accounting and Reporting System (CARS)

Personnel
Personnel Management Information System (PMIS)

Benefits
Benefits Eligibility System (BES)

Payroll
Commonwealth Integrated Payroll/Personnel System (CIPPS)

Fixed Assets
Fixed Asset Accounting and Control System (FAACS)





MAJOR MILESTONES



2002

- September Charter state administrative systems planning team
Consolidation Model deployed
- October Implement security safeguards and emergency recovery procedures for critical infrastructure
- November Begin security audits
- December Complete business case for modernization of administrative systems

2003

- January Prioritize consolidation targets and complete business cases
Implement IT security direct response services
Identify strategies, schedule, and costs for administrative systems
- April Publish plan for administrative systems
- July Establish statewide IT security service level agreements with all executive branch agencies (excluding higher education)
- November Implement standard products and services
- December Complete security audits for all executive branch agencies

2004

- June Complete consolidation of Phase I priorities

2005

- June Complete consolidation of Phase II priorities

2006

- June Complete consolidation of Phase III priorities

PLAN, BUDGET, AND TRACK IT EXPENDITURES

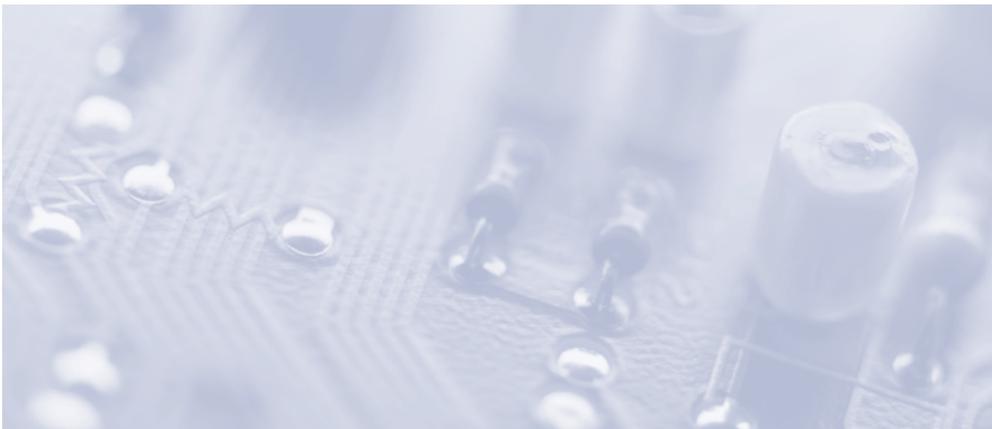
CHALLENGES AND OPPORTUNITIES

The Commonwealth should plan, budget, and track information technology to encourage investment and return on investment—the best value for the price paid. Effective investment in and implementation of information technology could lead to potential savings in annual costs. The current biennial budget cycle hinders the concept of viewing IT resources as investments, and there is no funding mechanism for enterprise-wide projects. Major technology projects have been halted and ongoing maintenance deferred indefinitely as agencies struggle to find resources. Incentives to save dollars is lacking, as year-end savings are swept up.

In terms of technology and project management, a comprehensive technology management policy does not currently exist. Current practices provide little, if any, guidance on how technology investment decisions should be made. The Commonwealth has many successful implementations of major technology systems, and many notable, multi-million dollar failures. Project management practices throughout state government are inconsistent and often lack clear accountability.

Improving Commonwealth systems to track technology budgeting and expenditures is essential to sound business investment decisions. The Commonwealth Technology Portfolio—the repository for agency IT investments—supports strategic planning, but is not integrated with the Commonwealth Accounting and Reporting System (CARS). CARS expenditure codes have proven inadequate for capturing technology expenditures.

The Department of Technology Planning (DTP) has worked with the Department of Planning and Budget, the Department of Accounts, and the Department of Information Technology to update the coding structure in May 2002 as a stop-gap measure. A long-term solution that is fully integrated into the Version 2 upgrade of the Commonwealth Technology Portfolio is essential.



CASE STUDY

The Department of Taxation created the award-winning Tax Partnership with American Management Systems to creatively finance and complete the development of citizen-facing systems. Due to the budget cycle, the implementation will have taken nearly 14 years and no resources have been identified for maintenance and growth.

TIMELINE

- 1992—Joint Legislative Audit and Review Commission calls for significant change.
- 1994 & 1995—Unsuccessful attempts at gaining line item funding.
- 1996—Approval for innovative Tax Partnership.
- 1998—Contract let to AMS.
- 2000 to present—Tax Partnership program receives awards and national and international acclaim.
- 2005—Tax Partnership expected to cover all development costs.
- 2006—Money for maintenance or Growth?



STRATEGIC ACTION STEP:

DEVELOP A CAPITAL PLANNING AND FUNDING PROCESS FOR INFORMATION TECHNOLOGY

Funding for IT should be evaluated and managed as an investment in assets contributing to the overall benefit of the Commonwealth. A capital planning and funding process should be established to ensure funding decisions are based on and aligned with appropriate investment return rates over acceptable time periods. Establishing a technology fund for enterprise-wide projects will enable agencies to move from a reactive spending model to a proactive one, based on the strategic planning process set forth by the Secretaries of Technology and Finance. Projects that benefit the enterprise will have a central source of funding.

DTP will work with key stakeholders to:

- Redesign the Commonwealth's IT capital planning and funding process to emphasize strategic investments in enterprise-wide IT projects.
- Establish a fund for enterprise-wide IT projects.
- Publish policies, standards, and guidelines for IT capital planning and funding processes.



STRATEGIC ACTION STEP: DEVELOP A COMPREHENSIVE TECHNOLOGY MANAGEMENT POLICY

A comprehensive technology management policy establishes an IT investment management-based IT strategic planning methodology for selecting, controlling, and evaluating IT investments that support the business needs of the Commonwealth. The policy and its tools will result in standard, repeatable processes; improved support to agencies; accountability for technology investments; and identification and management of risks.

DTP will work with key stakeholders to:

- Establish a methodology for selecting, controlling, and evaluating IT investments.
- Provide a framework for the migration from the current business and technology architecture to the desired architecture.
- Define a process to ensure IT projects deliver business value on time and within budget.
- Publish a comprehensive Commonwealth Technology Management policy to include IT strategic planning, enterprise program management, and Commonwealth project management components.
- Implement supporting Commonwealth Technology Management tools.

STRATEGIC ACTION STEP: IMPROVE SYSTEMS TO TRACK IT EXPENDITURES

A long-term solution to accurate accounting of technology expenditures will be incorporated into a Version 2 upgrade of the Commonwealth Technology Portfolio. Version 2 will require integration with CARS, the Fixed Asset Accounting and Control System, Personnel Management Information System, Program Budgeting System, the Commonwealth Procurement and Project Approval Request System, and the Commonwealth Major IT Project Status Reporting System “Dashboard.”

- Develop a Governor’s Executive Order to require the Secretaries of Technology and Finance to jointly develop systems that accurately budget and account for IT expenditures.
- Implement Version 2 of the Commonwealth Technology Portfolio.

MAJOR MILESTONES

2002	
September	Submit legislative proposal for capital planning/funding Publish Commonwealth Technology Management Policy and Glossary Standard
October	Define changes to current expenditure reporting systems
November	Complete Version 2 requirements
December	Publish Commonwealth Technology Management Project Management Guideline
2003	
January	Introduce legislation for capital planning/funding
February	Complete Version 2 data analysis/modeling/design
March	Develop appropriate IT portfolio management and reporting standards and guidelines
April	Complete Version 2 development
May	Publish IT Strategic Planning Standard
June	Complete Version 2 rollout to agencies
July	Legislation effective for capital planning/funding Publish guidance to implement capital planning/funding
September	Adoption of IT capital planning/funding by executive branch agencies





MANAGE IT PROCUREMENT

In an effort to centralize IT procurement, House Bill 519 was enacted and became effective on July 1, 2002. The legislation transfers sole authority to procure IT goods and services to the Department of Information Technology and provides opportunities to make significant improvements to the existing IT procurement process that are unique to IT.

CHALLENGES AND OPPORTUNITIES

Approximately 100 statewide contracts for IT goods and services are in place, yet measurements are generally incomplete, unavailable, or difficult to obtain. Use of statewide contracts is not mandatory except for telecommunications services. The required compliance with the Administrative Process Act is expected to decrease the speed of implementation of new procurement policies and procedures.

Business partner input indicates a need to update the “terms and conditions” language in state contracts that places unlimited liability on the shoulders of the vendor/partner. In addition, procurements tend to be slow and price-based, not flexible and value-based.



STRATEGIC ACTION STEP: DEVELOP AND IMPLEMENT A BEST PRACTICE MODEL FOR IT PROCUREMENT

The Department of Information Technology (DIT) will work with stakeholders to:

- Determine the opportunities for consolidating and leveraging technology purchases across the Commonwealth.
- Research, define, and implement a best practices business model for delivery of technology procurements and contracts that will support the consolidation and leveraging of the Commonwealth’s purchasing power while streamlining the time required for conducting the procurement process.
- Involve customers and vendors/partners in the technology procurement business process to ensure that the deliverables meet or exceed customer expectations and establish and maintain best practices contracts/agreements with vendors/partners.
- Expand the use and usefulness of statewide technology contracts by focusing those contracts on the products and services of greatest need and marketing the availability of those contracts.



MAJOR MILESTONES

2002	
September	Complete assessment of procurement practices
October	Establish new procurement procedures Develop legislative proposal for expedited IT procurement
2003	
January	Introduce legislation Complete recommendations for changes to terms and conditions of technology contracts Define all requirements for new procurement business model
February	Initiate action plan
July	Legislation effective Average time to process IFB or RFP will improve by 10%
November	Update policies, procedures, and vendor procurement manual.



GOVERNOR'S IMPERATIVE

*"ENSURE ALL OF VIRGINIA SHARES IN THE GROWTH AND SUCCESS OF
OUR PARTICIPATION IN THE GLOBAL MARKET OF THE FUTURE."*

Virginia state government's commitment to technology extends beyond efficient and effective use of information technology to improve internal government operations.

An external obligation exists to foster a technology-friendly business climate across the entire Commonwealth. It is clear that all of Virginia must participate in the benefits of economic development and that all Virginians — students, workers, and seniors—must be provided the opportunity to excel in the 21st century world.

In some cases, this will include reaching out to underserved regions and populations to make sure they are included in opportunities for economic development, education, and government contracts. Coupled with the understanding of the power and promise that technology-based economic development holds, we can create "One Virginia," propelled by technology offering prosperity for all.

INCREASE FEDERAL RESEARCH AND DEVELOPMENT DOLLARS

A vibrant and well-funded statewide research and development infrastructure is essential to create “One Virginia.” Given its geographic proximity to the federal government and its strong record of attracting funds for government and industry, Virginia needs to attract more than its fair share of research and development (R&D) funding to its colleges and universities, and the industries and communities that work with and support them. These institutions and their satellite centers and offices are located throughout the Commonwealth. As a result, benefits from additional R&D funding will generate capital investments and increased employment throughout Virginia.

CHALLENGES AND OPPORTUNITIES

When compared to other states, Virginia has no institutions of higher education ranked in the top 50 listing of R&D expenditures compiled by the National Science Foundation (NSF). Part of the reason for Virginia’s relatively weak national rankings may be that Virginia’s congressional delegation has historically been reluctant to earmark funds for higher education. The Commonwealth ranked 38th among the states in Congressional earmarking. The practice has increased recently, and Virginia ranked 25th among states in Congressional earmarking for 2001.

The Small Business Administration’s Small Business Innovation Research (SBIR) program and the Commerce Department’s Advanced Technology Program (ATP) are other important sources of federal funds for early or high-risk R&D stages when traditional venture funding is difficult to acquire. Virginia has consistently done well in SBIR funding, with actual dollars static at about six percent of the national total. Only 30 Virginia companies have participated in the ATP since 1990.



A vibrant and well-funded statewide research and development infrastructure is essential to create “One Virginia.”



2000 RANKINGS OF R&D EXPENDITURE AT VIRGINIA'S COLLEGES AND UNIVERSITIES

- 51. Virginia Tech
- 58. University of Virginia
- 106. Virginia Commonwealth University
- 157. College of William and Mary
- 173. George Mason University
- 180. Old Dominion University
- 188. Eastern Virginia Medical College

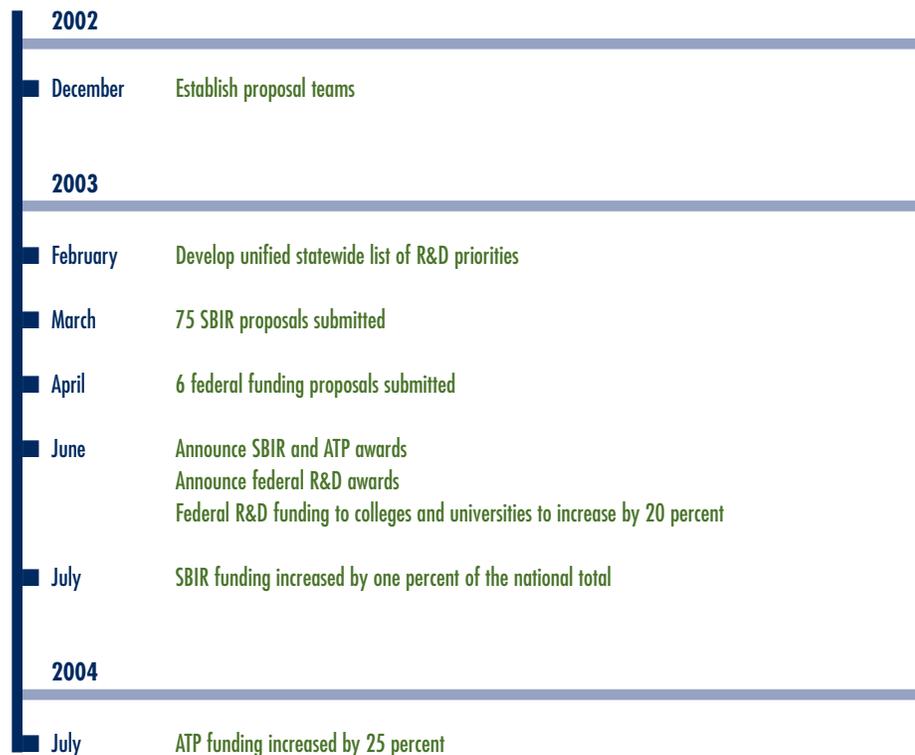
SOURCE
National Science Foundation, Division of Science Resources Statistics, *Academic Research and Development Expenditures: Fiscal Year 2000*

STRATEGIC ACTION STEP: INCREASE FEDERAL RESEARCH AND DEVELOPMENT DOLLARS

Major stakeholders will commit to an exceptional level of cooperation and collaboration, with Virginia's Center for Innovative Technology coordinating their efforts to:

- Increase research and development funding for Virginia's colleges and universities, including the historically black colleges and universities.
- Increase Virginia's SBIR funding.
- Increase Virginia's ATP funding.
- Develop a unified statewide list of R&D priorities.

MAJOR MILESTONES





GOVERNOR'S IMPERATIVE

*"HELP DEVELOP VIRGINIA AS A MAJOR ENTITY IN
THE GLOBAL ECONOMIC MARKETPLACE OF THE FUTURE."*

The Commonwealth's commitment to technology also extends to an external obligation to develop Virginia's technology industry as a whole in the world marketplace. The Governor's imperative builds on Virginia's long-standing commitment to this external obligation.

Virginia has experienced increasing success in attracting and growing entrepreneurial technology companies, averaging 7.9 percent growth in technology companies over the past decade. As it responds to the Governor's imperative to develop as a major global competitor, Virginia must focus on growing and attracting entrepreneurial technology companies. These companies tend to be small and young, although larger, older companies, particularly in the technology field, can also be entrepreneurial.

Some of these companies have had the foresight to expand in rural and underserved communities or to form partnerships with Virginia's colleges and universities. Other companies spin out of the Commonwealth's colleges and universities or develop from technologies licensed from these facilities. In terms of the dollar return for research dollars expended, Virginia schools are not as well known as some of the larger and more established schools, but some Virginia schools have become quite competitive in their technology transfer efforts. In addition to increased commercialization, entrepreneurial technology companies need the infrastructure in place that enables them to expand throughout the Commonwealth. Thus, the need for ubiquitous access to affordable broadband services is a key component of the Governor's imperative.



2000 COMPARATIVE LICENSING AND PATENT DATA

INVENTION DISCLOSURES

MIT	425
Johns Hopkins	355
Virginia Universities	329
Stanford	252

PATENT APPLICATIONS

Johns Hopkins	331
MIT	316
Virginia Universities	299
Stanford	240

NEW LICENSE & OPTIONS

Stanford	162
Johns Hopkins	127
MIT	102
Virginia Universities	98

LICENSES PROVIDING INCOME

Stanford	378
MIT	362
Virginia Universities	180
Johns Hopkins	166

START-UP COMPANIES CREATED

MIT	31
Virginia Universities	13
Johns Hopkins	10
Stanford	8

TOTAL PATENT/LICENSING INCOME

Stanford University	\$34.6M
MIT	\$30.2M
Johns Hopkins	\$14.4M
Virginia Universities	\$6.7M

INCREASE COMMERCIALIZATION OF INTELLECTUAL PROPERTY

The contribution of small, fast-growing entrepreneurial companies has been documented by economists at the Massachusetts Institute of Technology and the National Commission on Entrepreneurship. These high growth companies create at least two-thirds of all new jobs, account for at least two-thirds of the innovation, and act as agents of change. Many of these companies spin out of colleges and universities or are attracted to the intellectual resources, research facilities, and academic environment available at institutions of higher education. The successful transfer of intellectual property (IP) created and protected by colleges and universities is inextricably tied to the growth of these entrepreneurial firms.

CHALLENGES AND OPPORTUNITIES

Although most of Virginia's colleges and universities have some form of technology transfer office, only four Virginia institutions reported licensing and patent data in a 2000 survey conducted by the Association of University Technology Managers (AUTM). Total income reported was \$6.67 million. Fifty-three percent of the University of Virginia's 2000 and 2001 licenses went to Virginia companies; only about 33% of Virginia Commonwealth University's (VCU) licenses went to Virginia companies. The institutions acknowledged that technology transfer operations are, at best, a break-even proposition in terms of income earned from technology transfer activities.

Virginia's federal laboratories also create intellectual property that is available for licensing. In many cases, these laboratories attract new companies to their outskirts in ways similar to college and universities. NASA Langley, which is one of the largest federal laboratories, annually averages 130 disclosures, 28 patents issued, 8 patent licenses executed, and 12 commercial research and development agreements.

The creation of companies by faculty and students spun out of colleges and universities is one measure of entrepreneurial maturity for that geographic area. Virginia Polytechnic Institute and State University lists nearly 80 companies started by its faculty; VCU, 25. The University of Virginia has spun out several dozen faculty companies and recently opened its second research park to accommodate increased demand for office space and facilities.



STRATEGIC ACTION STEP:

COMMERCIALIZE INTELLECTUAL PROPERTY FROM COLLEGES, UNIVERSITIES, AND LABORATORIES

Technology transfer operations at Virginia’s institutions of higher education will contribute to Virginia’s economic development goals and will place a higher priority on Virginia-based deals. Intellectual property will be transferred and commercialized much more easily as best practices are identified, catalogued, and disseminated, resulting in the creation and growth of entrepreneurial companies in Virginia.

Virginia’s Center for Innovative Technology (CIT) will work with stakeholders to:

- Publish a guidebook of best practices.
- Make university and laboratory IP easily accessible to interested companies by augmenting the marketing process through training and electronic channels.
- Increase the licensing of IP at institutions and federal labs.
- Identify university-based centers of excellence to serve as sources of technology available for commercialization.
- Increase the number of technology start-up companies in Virginia as a whole, especially the number of companies spun out of Virginia’s colleges and universities.



Technology transfer operations at Virginia’s institutions of higher education will contribute to Virginia’s economic development goals and will place a higher priority on Virginia-based deals.

MAJOR MILESTONES

2002	
September	Perform a baseline study to evaluate technology transfer Identify 30 companies for potential licenses and identify 15 technologies to promote from universities and federal labs (Quarterly)
2003	
March	Publish university IP data on InnovationAvenue web site
June	Publish entrepreneurship guidebook Set goals for increasing licenses and new company formations Establish memoranda of understanding with major federal labs on technology transfer activities Identify current and future university-based centers of excellence Facilitate a 10 percent increase in technology start-ups statewide and a 20 percent increase in university-based start-up or spin-off technology companies
2004	
June	Increase the percentage of licenses to Virginia companies to 40 percent of statewide total



INCREASE STATEWIDE BROADBAND DEPLOYMENT

Most localities, particularly rural localities, have considerable interest in improving their communities through technology-based economic development. Access to the Internet through high-speed, high-quality, affordable communications services, also known as broadband, is widely recognized as a critical component to providing the underlying infrastructure for “One Virginia.”

CHALLENGES AND OPPORTUNITIES

Virginia’s executive and legislative branches have been working for years on the issue of expanding broadband and other IT services in Virginia. As a result, three programs that provide broadband are available:

- Virginia’s Center for Innovative Technology administers Virginia Link. This program permits private businesses and localities in Virginia to purchase advanced telecommunications services from commercial providers at reduced rates negotiated by CIT.
- Virginia Polytechnic Institute and State University administers Net.work.Virginia, providing telecommunications services primarily to Virginia’s schools and institutions of higher education.
- The Department of Information Technology administers COVANet, which permits public bodies of the Commonwealth to purchase broadband from commercial providers.

None of these entities, however, has authority to require providers to expand their service areas.

At the policy level, many studies are requested and bills introduced related to broadband during every legislative session. One such study, passed during the 2002 Session, is House Joint Resolution 163. The study requests the Center for Innovative Technology and the Secretary of Technology to “study the means for advancing affordable, high-bandwidth electronic networks in rural Virginia.” Meetings of the study committee are being held throughout the 2002 interim. A final report is due November 30, 2002.



STRATEGIC ACTION STEP: CONSOLIDATE RESPONSIBILITY FOR STATEWIDE BROADBAND DEPLOYMENT

Every household and business in Virginia will be provided with the opportunity to purchase high-speed, high-quality, affordable broadband. Successful development will require a monumental effort by government and industry, not unlike implementation of rural telephone service and electricity in previous generations. The entire Commonwealth will benefit economically as a result of providing superior quality, affordable broadband services throughout Virginia.

Working in partnership with key stakeholders, Virginia’s Center for Innovative Technology and Department of Information Technology will:

- Designate an entity to be responsible for statewide broadband deployment, develop and coordinate broadband initiatives between the public and private sectors, create and implement incentives for commercial providers to increase their service areas, and serve as a central clearinghouse for existing broadband programs.
- Develop maps of broadband coverage in Virginia that include service providers reporting to the Federal Communications Commission, those included in the Virginia Link, Net.work.Virginia, and COVANet contracts, and locations of local exchange carrier central offices plotted against demographic data from the latest census report.
- Benchmark access to broadband and demand for broadband.
- Develop a business case for consolidation of the Commonwealth’s administration of telecommunications services contracts into a single entity.
- Create and implement incentives for commercial providers to increase service areas. The intent of the incentives will be to give commercial providers the necessary customer base to offer broadband to private citizens and businesses in Virginia’s underserved areas.
- Develop a business case for expanding contract coverage of networks administered by the Commonwealth to include non-public entities.
- Increase demand for broadband by Virginia’s citizens and businesses.



Every household and business in Virginia will be provided with the opportunity to purchase high-speed, high-quality, affordable broadband.





MAJOR MILESTONES



2002

- September Submit legislative proposal
- October Develop maps of broadband coverage

2003

- January Introduce legislation
- July Legislation effective
Initiate workshops to increase demand
- August Complete business case for consolidated contract administration
- September Determine incentives for providers
- October Complete business case for expanded contract coverage
- November Begin benchmarking analysis

2006

- January 100 percent of households and businesses that request access in Virginia will be provided with the opportunity to purchase high-speed, high-quality, affordable broadband

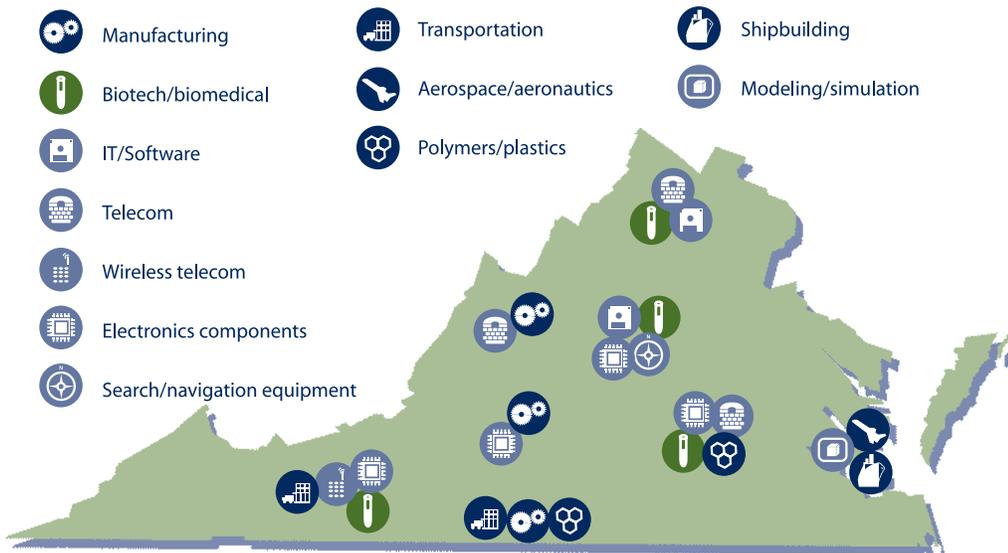
PROMOTE TECHNOLOGY-BASED ECONOMIC DEVELOPMENT

Entrepreneurial growth companies contribute almost two-thirds of all new jobs and growth to the economy. Improving their success rates and longevity will produce positive economic impact in Virginia. In addition, wages in the high technology industry far outpace average wages in other industries. A focus on improving the survival rates of technology start-up firms will yield measurable returns to Virginia's economy. Expanding the horizons of technology companies to find new markets overseas and to attract foreign interest in their products and services will enhance their chances of success in the competitive global marketplace.



Entrepreneurial growth companies contribute almost two-thirds of all new jobs and growth to the economy.

Technology in Virginia's Regions





SNAPSHOT OF VIRGINIA'S TECHNOLOGY SECTOR

High quality jobs with salaries double that of Virginia's statewide average salary.

12,280 Technology firms, employing 320,534 individuals in Q4 2001 (*Chmura Economics*)

Ranked 6th nationally in high-tech employment

Ranked 11th nationally for venture capital investment with \$117.9 million in deals for the state in Q2 2002 (*PricewaterhouseCoopers MoneyTree Survey*)

CHALLENGES AND OPPORTUNITIES

Virginia's emphasis on growing technology companies has resulted in near doubling the number of technology firms in the Commonwealth from some 6,600 in 1995 to more than 12,000 in 2001. These companies collectively employ more than 300,000 people. A key component of this growth has been the continued influx of technology start-ups. Even in the difficult economic days of 2001, nearly 2,500 technology companies were started through the third quarter.

CIT currently works with more than 1,500 companies through its network of nine regional offices and partner organizations. In addition to typical business assistance activities, the regional directors provide technology firms with access to expertise at Virginia's institutions of higher education and federal laboratories. They also act as a clearinghouse for information and expertise from other state organizations, such as the Virginia Economic Development Partnership, the Department of Business Assistance, and the Small Business Development Centers.

STRATEGIC STEP: GROW TECHNOLOGY COMPANIES

Virginia will offer a premier business development environment where new companies easily access assistance in tapping the global marketplace and state organizations work together seamlessly to attract new companies and assist companies to grow, particularly those in the early stages of development.

Virginia's Center for Innovative Technology, in partnership with key stakeholders, will:

- Increase the net number of Virginia's technology businesses.
- Increase the economic activity of Virginia's businesses.
- Build entrepreneurial networks in the form of e-business villages to help build entrepreneurial networks that foster and encourage start-ups and innovation among small, rural companies.
- Collaborate with the Virginia Economic Development Partnership to reach out to smaller companies through the delivery of a series of workshops on export procedures and opportunities.

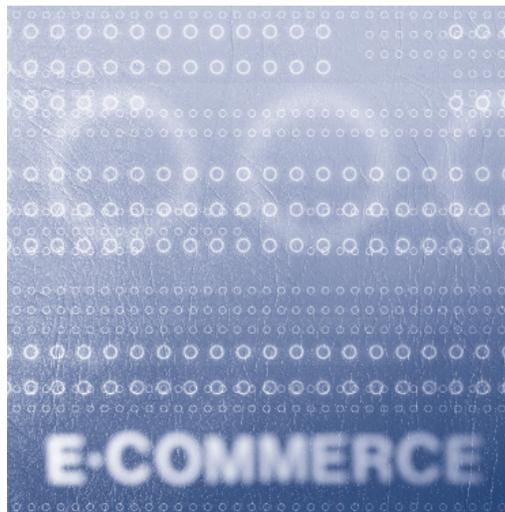
MAJOR MILESTONES

2002

- October Work with VEDP to target opportunities
- December Develop information templates to be shared among service providers

2003

- February Hold export conference on new markets
- March Establish one new e-business village and two new e-forums in rural Virginia
- June Hold export conference on mechanics of exporting technology
Assist 1,500 companies with 600 responding to survey
Increase the net number of technology companies in Virginia by 1,200 and employees by 8,000
Add \$250 million in increased sales, cost savings, and private capital
Increase participation in the e-business villages and e-forums by 15 percent





CONCLUSION

Virginia in the Global Digital Economy supports and enables the Governor's vision for technology in the Commonwealth, and fulfills his imperatives for a strengthened CIO role, ensuring all of Virginia benefits from the prosperity of the global digital marketplace, and fostering technology-based economic growth. By implementing the eight significant initiatives, Virginia is poised to save millions of dollars annually while revolutionizing service delivery. As a result, Virginia will be poised to take and sustain a leadership position in the global digital economy. ■



Direct comments and questions about this plan to SOTECH@gov.state.va.us or
Office of the Secretary of Technology, 202 N. 9th Street, Suite 506, Richmond, VA 23219