Office of the Secretary of Technology

JCOTS ~ Secretary of Technology Annual Report

The Honorable Aneesh P. Chopra
Secretary of Technology

December 20th, 2007

Agenda for Discussion

I. A Year in Review

II. Kaine Administration Technology Priorities

III. Coda ~ Seeking Talent Within

A Year in Review

SoTech Fosters Public Sector Innovation Through No-Cost Partnerships

Google Site Maps
April 30, 2007

Virginia one of **4** states to partner with Google to implement site maps and enterprise search; **55 site maps** and **180K+** URLs uploaded, including sex offender registry as of **12/07**

Microsoft Virtual Earth
August 13, 2007

VHEPC
Virginia Higher Education Preparedness Consortium

Microsoft® Virtual Earth™
Locate. Integrate. Innovate.

NGA Center for BEST PRACTICES

MSFT agrees to train campus leaders on Virtual Earth **SDK** to support campus safety; application developed by **DGS** maps eVA-approved locations to acquire **emergency generators**

GED On Demand
October 12, 2007

Cox and Comcast began offering **GED® ON DEMAND** lectures at **no additional cost** to digital cable subscribers; **39** courses available today across **1MM** households

Virginia Employment Growth Strong, Driven by Technology Sector

Atop the Nation's States

- **Sixth** lowest unemployment rate in the nation **(3.1%** as of **July 2007)**
- In **2007** American Electronics Association noted Virginia has the **highest** concentration of tech workers in the nation
- Kaine Administration: **39,457** new jobs and **$5.3 Billion** in new investment

A Strong R&D Base

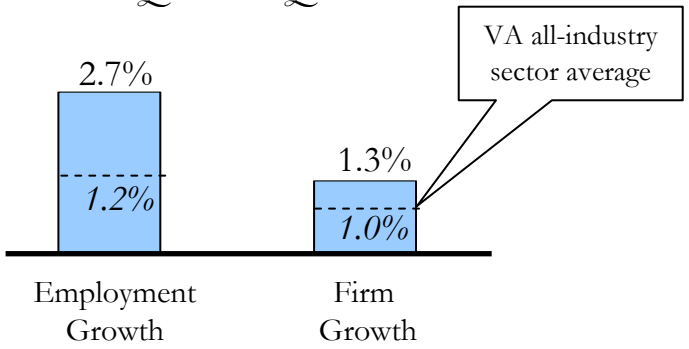
- **3rd** in **Federal** R&D spending & **SBIR** awards (NSF 2004)
- **12th** in **Total** R&D –$7.6 billion (NSF 2003)
- **14th** in **University** R&D – $914 million (NSF 2005)

A Burgeoning Tech Engine

- **34%** of all new jobs statewide created in the technology sector (year ending **Dec 2006**)
- Wages in the technology sector represent **29%** of all Virginia salaries (year ending **Dec 2006**)

VA Technology Economy

4Q05 vs. 4Q06



Source: Virginia Economic Trends, Chmura and Virginia Employment Commission; AeA Cyberstates 2006 Report

Technology Goals For Kaine Administration

Secretariat Goals Through 2010

I

Simplify Government Operations

#IT Infrastructure: Establish a benchmark to achieve greater customer satisfaction with centralized IT infrastructure services
Lead: Deputy Napier

#Productivity Improvement: Lower operating costs, decrease constituent transaction time or advance key outcomes measures in selected government operations
Lead: Director Feldmann

II

Advance the Governor's Agenda

#Healthcare IT: Promote transparency and accountability in healthcare through IT
Lead: Assistant Gates

#Broadband Assistance and Telework Promotion: Enroll 20% of eligible state workforce in telework and ensure universal broadband access for business by 2010
Lead: Director Jackson

#STEM Education: Support Governor's Career and Technical Academies to expand talent base for technology workforce
Lead: Assistant Gates

III

Promote the Technology Economy

#Seed-Stage Capital Access: Double the number of innovative companies funded at the seed stage
Lead: President Jobse

#Industry-Sponsored R&D: Achieve $1.2BN in public university R&D and leverage private investment for Commonwealth research funds
Lead: President Jobse

IT Infrastructure

A Healthy Year of Progress in the VITA/NG Partnership

Messaging Services

-Enterprise Exchange/Outlook Email
-Enterprise Collaboration Tools
-Active Directory, DNS
$25M Investment

Mainframe and Servers

-New IBM and Unisys Mainframes in New Data Center
-Consolidation and Refresh of Servers
-Migration of servers to the Data Center
$50M Investment

Facilities Tier 3 and Tier 2

-New Data Center/Office Building in Chesterfield
-New Disaster Recovery Center and Help Desk in Russell County
$60M Investment

Desktop

-Mass Desktop Refresh Projects
-Network Printer Consolidation and Refresh
-Enterprise Desktop Management Systems
$35M Investment

Transformation

$270 Million Investment

Reliable, High Performance, Enterprise-Wide IT Infrastructure

"People – Process – Tools"

Network

-New Commonwealth-wide MPLS Core WAN
-LAN upgrades to Local Switches/Routers as Needed
-Network Re-addressing of IP, DHCP
$60M Investment

Help Desk

-Enterprise Help Desk in Russell and Chesterfield Counties
-Field Based Agents and Technicians for Level 3
-Enterprise Help Desk System (Peregrine)
$10M Investment

Security

-Enterprise Security Operations Center
-Computer Security Incident Response Center
-Secure Internet Gateway
$10M Investment

Voice / Video

-Voice over IP Network Optimized for Voice and Video Traffic
$20M Investment

Productivity Improvement

A Portfolio Management Approach to Deliver Productivity Investments

Our Purpose
Elevate Performance

Cost Savings (17 Initiatives)

- **Productivity Investment Fund**
  - **$1.4M** investment
  - 6 Projects
  - Projected **4x** ROI
- **Operational Reviews**
  - 11 Projects
  - All volunteer staff (no investment)

Service Improvements (6 Initiatives)

- **Digital Platforms ("One-Stops")**
  - **$440K** investment
  - 4 Projects
  - Projected **40-50%** reduction in constituent transaction times
- **Process Improvements**
  - **$85k** investment
  - 2 Projects
  - Lower costs for industry and improve functionality

Enterprise Seed Capital (5 Initiatives)

- **Shared Operating Services**
  - **$156K** investment*
  - 3 Projects
  - Multi-agency effort underway
- **Public-Private Partnerships**
  - **$461K** investment
  - 2 Projects
  - Public-private effort underway

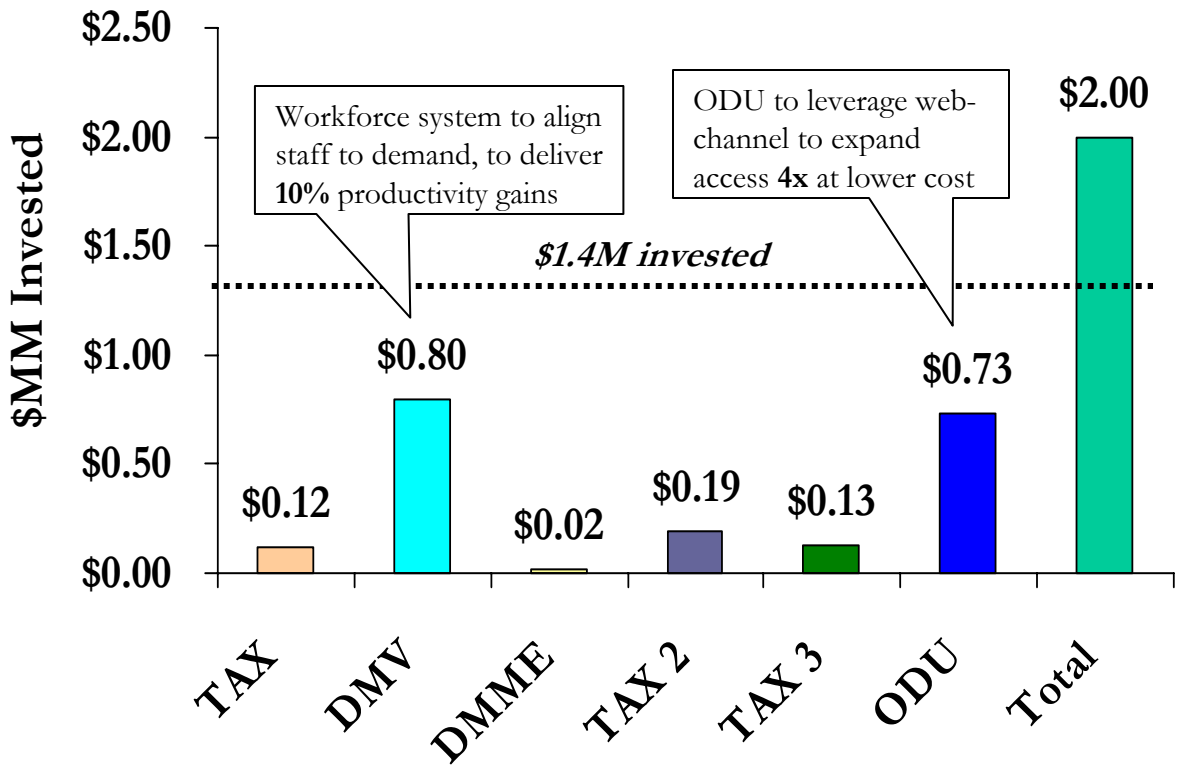
Effective Public & Private Sector Governance
(Enterprise Solutions Oversight Board & Productivity Advisory Committee)

Does not include **$11M dedicated towards VEAP Project Planning*

Cost Savings ~ Productivity Investment Fund

Cost Savings Portfolio Expected to Return 4x ROI After Three Years

Annualized Savings Potential – Base Case



Productivity Investment Fund in Brief

Capital: Governor Kaine established **$3M** fund in **January** to simplify government operations

Goals: In addition to **operating cost savings**, PIF encourages agencies to **lower constituent transaction time** and advance the Governor's **key performance measures**

Portfolio: Across two rounds, we have invested **$1.4M** to fund the following savings initiatives:

- Dept of Tax: Image Cash Letter
- DMV: Workforce Mgmt System
- DMME: Field GIS
- Tax 2: Corporate E-File
- Tax 3: Eliminate Vouchers
- ODU: VIDEO-D-U

Using the base case, the 3-year return per dollar invested is approximately $4

Service Improvements

Pilot Projects Leverage Digital Platform to Improve Service

Pilot Project	Description
Business One Stop	New website designed to streamline myriad forms required to start a new business in Virginia and avoid data entry duplication; of **37** most common forms, **445** data fields include **324** duplicates
Mining Permit e-Forms	New web-based multi-year mining permit process will reduce **90 day** wait time to **14 days**; DMME will also begin accepting **digital signatures** further lowering industry regulation costs
Streamlined Application Processes	New web-based **Medicaid** application for aged, blind and disabled to dramatically lower time to determine eligibility; current **90 day** period to fall to **45 days**; an enhanced **Employment Commission** website will ensure more accurate applications lowering review time

$525K investment should lower constituent transaction time 40-50%, saving citizens time and money

Enterprise Seed Capital

Seed Capital to Plan for Streamlined Enterprise Operations

Governor's Agenda
Enterprise Initiatives

Portfolio

Shared Operating Services

#Virginia Enterprise Applications Partnership– a shared service approach to lowering "back-office" operating costs

#"Paperless Government" – an enterprise standard to convert paper records into an automated workflow

#**e-Payments** – an enterprise approach to convert paper checks to electronic payment systems

Public-Private Partnerships

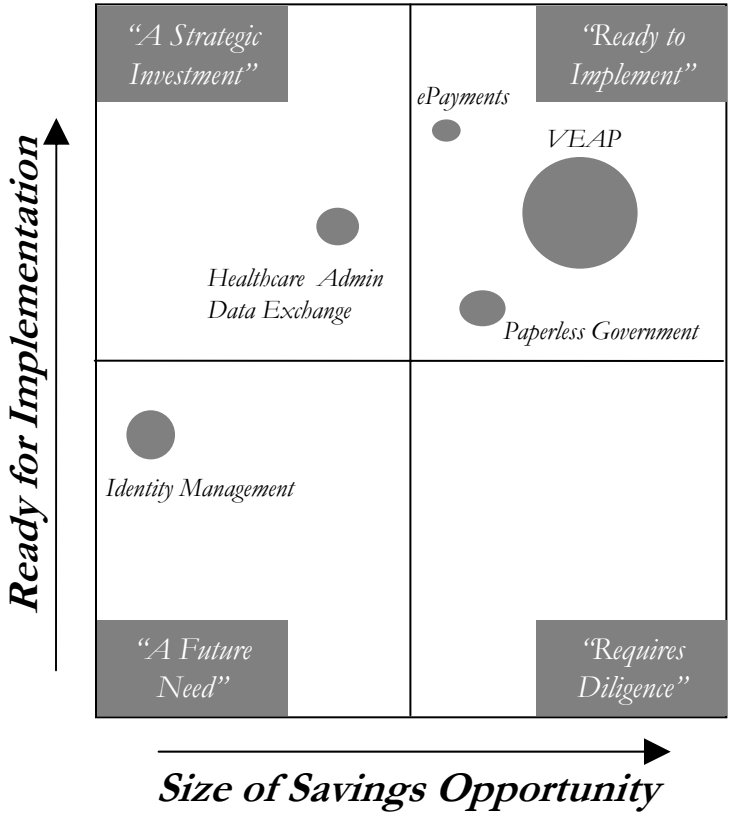
#Healthcare Administrative Data Exchange– a public-private partnership to leverage electronic medicaid claims submission to lower administrative costs for all payers

#Identity Management– a review of existing identity management activities to assess viability of public-private Real-ID leveraged shared service

$617K investment yielded four viable projects

**Separately funded and project launched*

Mapping Enterprise Opportunities
By Size of Implementation Cost



Denotes Size of Investment Cost at Full Implementation

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Healthcare IT

A Federal, State & Non-Profit Collaborative to Drive Health IT

Health IT Innovation Grants
Round One Results

MEDVIRGINIA

care spark

CCNV
Community Care Network of Virginia, Inc.

National Health Information Network (NHIN II)

- **CareSpark** and **MedVirginia** awarded **$2.5M each** to implement "use case scenarios" described in NHIN II
- Results: **10-1** leverage on **$500K** Health IT investment

High Impact EMR Adoption for CCNV

- **CCNV** awarded **$1.7M** to defray implementation cost for EMRs at all Federally Qualified Centers and support kiosks
- Results: **7-1** leverage on **$250K** Health IT investment

Commonwealth Resources
2007-8 Public Funds

1 Health IT Council Grantees

-Community Care Network of Virginia	$1.95M
-CareSpark (NHIN II)	$2.85M
-MedVirginia (NHIN II)	$2.75M
-Round Two Funds Available in 2008	$0.25M

2 HRSA

-TeleStroke (VDH)	$1.1M

3 FCC Telemedicine Grant

-Virginia Telehealth Network	$2.7M
-VTN Matching Funds	$1.6M
Total	**$13.2M**

VHEN Charter

On **October 10th, 2007, 18** health systems and health plans signed a charter to promote administrative simplification through data exchange; scope of work includes adopting the **CAQH Core** standard and evaluate additional approaches to streamline overhead

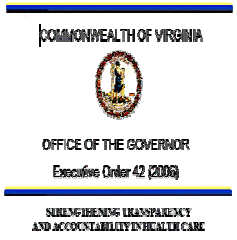
Office of the Secretary of Technology

The Path Forward

Kaine Administration Seeking Innovative Approach to Health IT

Accountability, Transparency and Standards
Commonwealth Policy

HB 2198 requires that all Health Records Systems purchased by the Commonwealth adhere to accepted standards of interoperability.



Executive Order 42 calls for standards compliance for all public health IT procurements and improved transparency on pricing and quality

Value-Based Healthcare
2009-10 Biennial Budget

The Challenge: DHRM shall explore options within the health insurance plan for state employees to promote value-based health choices aimed at creating greater employee satisfaction with lower overall health care costs

Gainsharing: It is the General Assembly's intent that any savings associated with this employee health care initiative be retained and used towards funding state employee salary or fringe benefit cost increases

Clarifying the PPEA

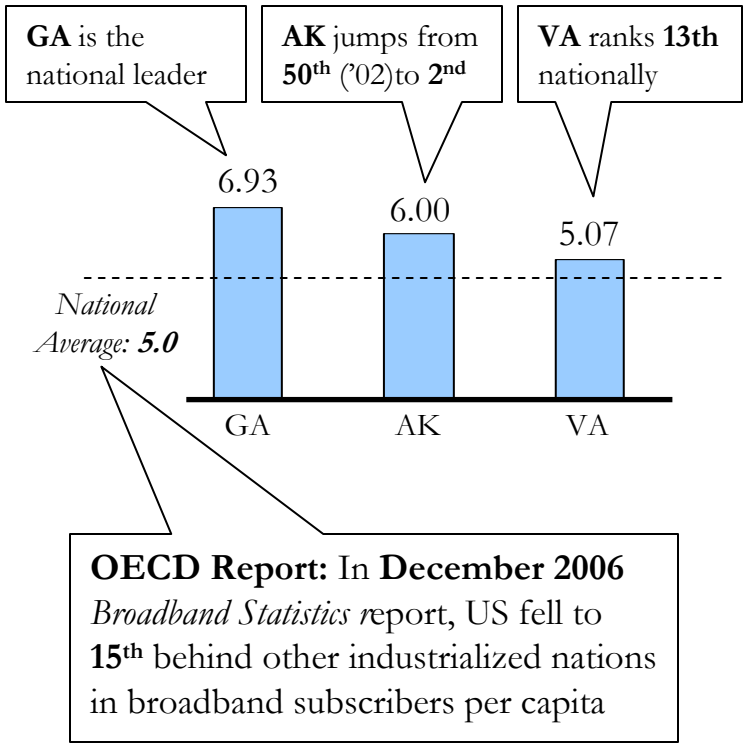
Notwithstanding any other provision of law, including but not limited to the definition of "qualifying project" provided in § 56-575.1 of the Code of Virginia, the **Governor** or his designee may authorize any state agency to purchase goods or services aimed at increasing state government **productivity or efficiency** using the procurement procedures outlined in the Public-Private Educational Facilities and Infrastructure Act of 2002, codified at §56-575.1 et seq., Code of Virginia.

Broadband Assistance and Telework Promotion

Virginia (Not Quite Yet) Leading the Way in Broadband

Broadband Deployment

*2007 Composite Score**



OECD Report: In **December 2006** *Broadband Statistics r*eport, US fell to **15th** behind other industrialized nations in broadband subscribers per capita

Broadband Roundtable

Final Report to be Delivered July 2008

Sub-Committees in Brief

-*Broadband Adoption Measurement*: Surface innovative models to measure adoption and offer target areas for investment

-*Technology Blueprint:* Identify existing and emerging technologies that are suitable for delivering affordable services across Virginia

-*Innovative Applications:* Highlight broadband-dependent applications including telework, telemedicine, distance learning, public safety interoperability and social empowerment

-*Business Models:* Develop community oriented models to finance deployment and provide long-term sustainability with a specific emphasis on ensuring access to all Virginia businesses

-*Community Outreach:* Coordinate outreach strategies to encourage business and resident adoption

*ITIF New Economy Index: Score represents weighted measure of broadband lines per household and business based on 2005 FCC deployment data

Measuring Broadband Adoption

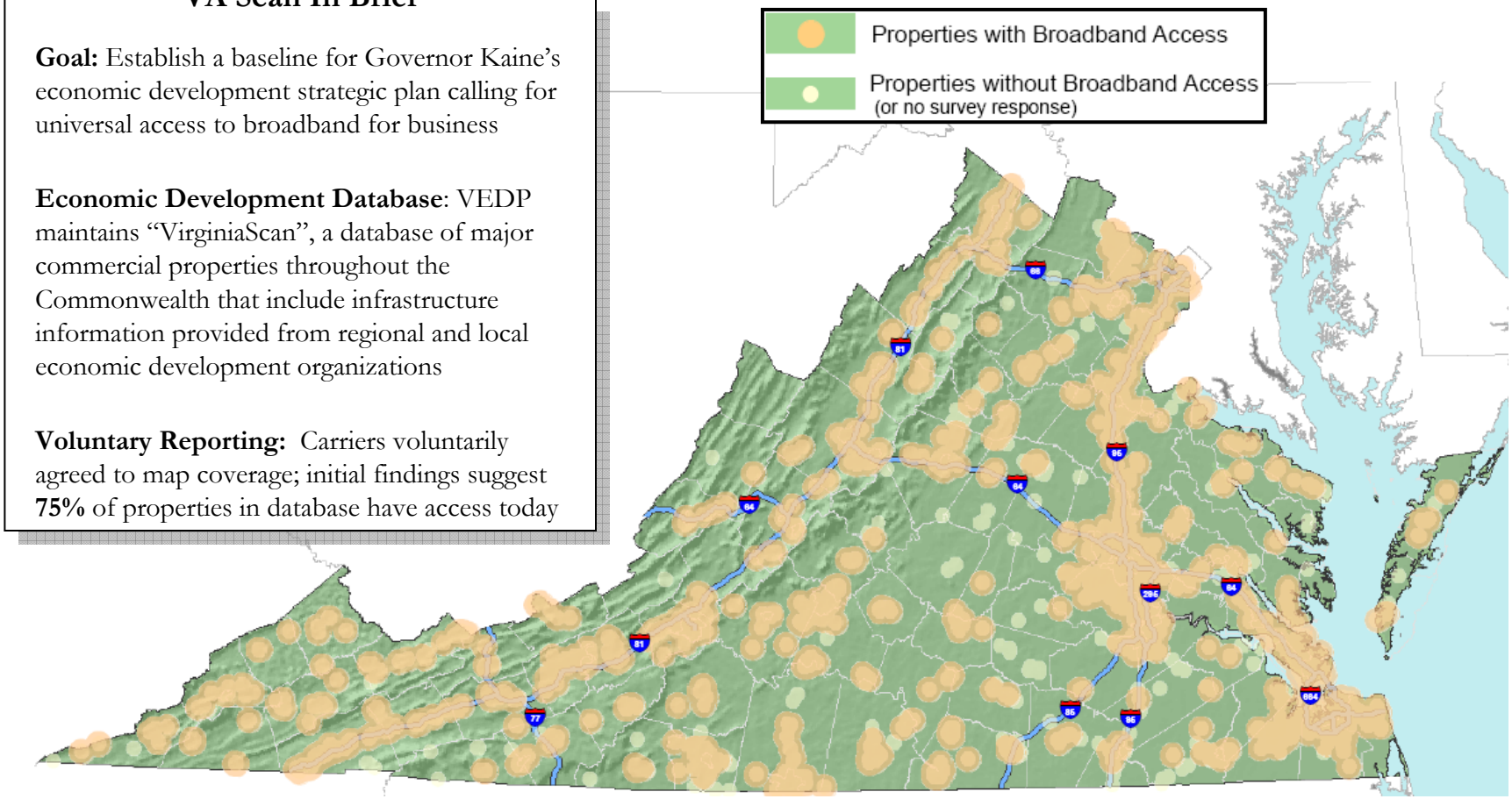
Preliminary Data Suggests Healthy Coverage Across Industrial Sites

VA Scan In Brief

Goal: Establish a baseline for Governor Kaine's economic development strategic plan calling for universal access to broadband for business

Economic Development Database: VEDP maintains "VirginiaScan", a database of major commercial properties throughout the Commonwealth that include infrastructure information provided from regional and local economic development organizations

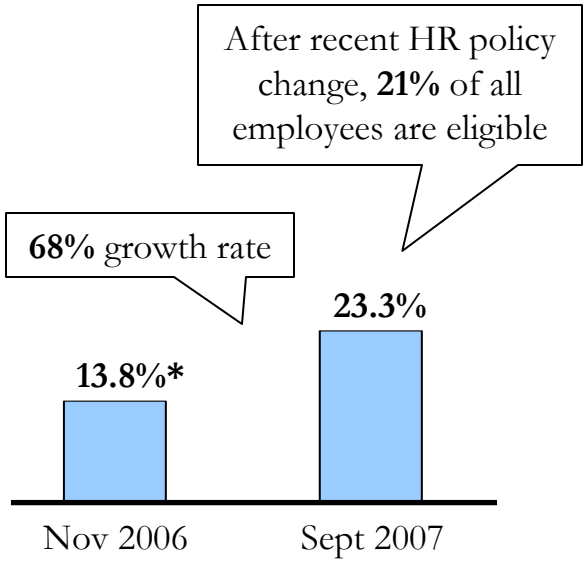
Voluntary Reporting: Carriers voluntarily agreed to map coverage; initial findings suggest **75%** of properties in database have access today



Telework

On Track to Achieve Governor Kaine's Telework Goals by 2010

State Employee Teleworkers
% Eligible



Policy Lever	FY2007
Increase Employee Eligibility	Developed and deployed tools to assist in management policies and eligibility decisions regarding telework
Maximize Telework Enrollment	Celebrated best practice agencies like TAX and initiated annual Governor's "Telework Award"
Encourage Private Sector Adoption	More than 30 companies in NoVA signed the "Telework Pledge" promising to increase/implement Telework initiatives

Governor Kaine on Telework

Governor Kaine calls for **20%** of eligible Virginian state workers to telework by **2010**; "Telework is a family-friendly, business-friendly public policy that helps us recruit and retain a high-quality workforce in a competitive job market."

**Adjusted based on Sept 2007 eligible positions*

STEM Education

Career and Technical Education a Strong Platform to Address Gap

Theoretical Physics ⟷ Experimental Physics

Mathematician	Scientist	Engineer	Engineering Technologist*	Trades
Algebraist Geometer Topologist Statistician	Physicist Chemist Biologist Lab Physicians Astronomer	Aerospace Automotive Electronics Computer Civil	Wind Tunnel Aircraft Maint Airframe/Powerplant Particle Detectors Integrated Circuits	***Traditional*** Welding HVAC Electricity ***21st Century*** A+ Comp Repair Comp Network Adm Model & Sim
"Discover languages to quantitatively describe existing world"	*"Discover & describe existing world"*	*"Design & build new systems"*	*"Design & build new components"*	*"Build or fix existing systems/components"*

4-yr college (+) **4-yr college (+)** — "Traditional Academic"

4-yr college (+) **2-yr college/OJT** — Current K-12 "Gap"

HS with national certifications — CTE

Skill Components

THEORY ⟷ HANDS-ON

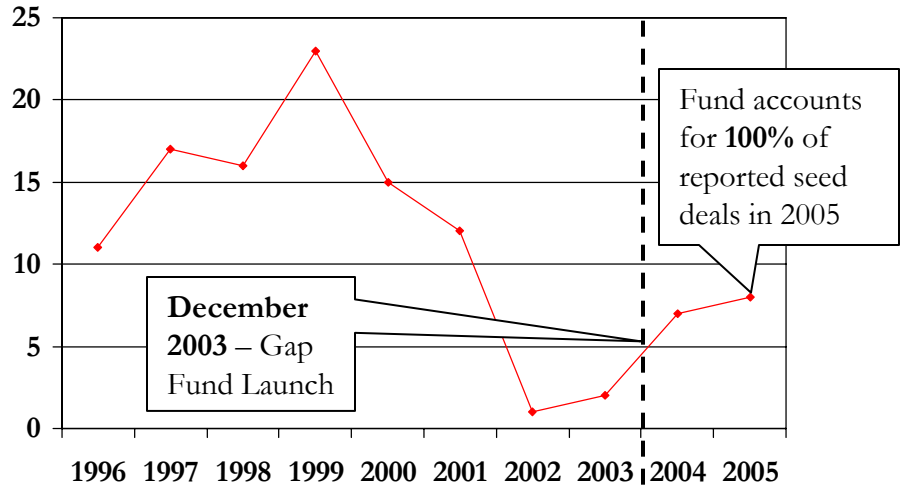
* Sometimes "Instrument Maker"

Seed-Stage Capital Access

CIT "Gap" Fund On Pace to Double State's Seed Investments

Seed Stage/Early Stage Financing

Number of Virginia Transactions



VA South Technology Acceleration Fund

CIT Pilot Program

- Investment in Gretna's ***Piedmont BioProducts***, an alternative fuel developer
- Investment in Saltville's ***Engineered Products***, a high technology electrical distribution components manufacturer
- Both companies are 'on track' to create high growth enterprises

CIT Funds In Brief

Gap Fund: Launched in **December, 2003**, CIT began seed-stage investments up to $100K in convertible debt; a seasoned "Investment Advisory Board" guides decisions; **450+** applicants to date, **21** investments totaling **$2M** that have leveraged another **$13M** of private capital.

Virginia South Technology Acceleration Pilot Fund: Launched in **2006**, this pilot aims to stimulate the growth of technology-based business as our economy makes needed structural change in rural markets, currently seeking Tobacco Commission investment.

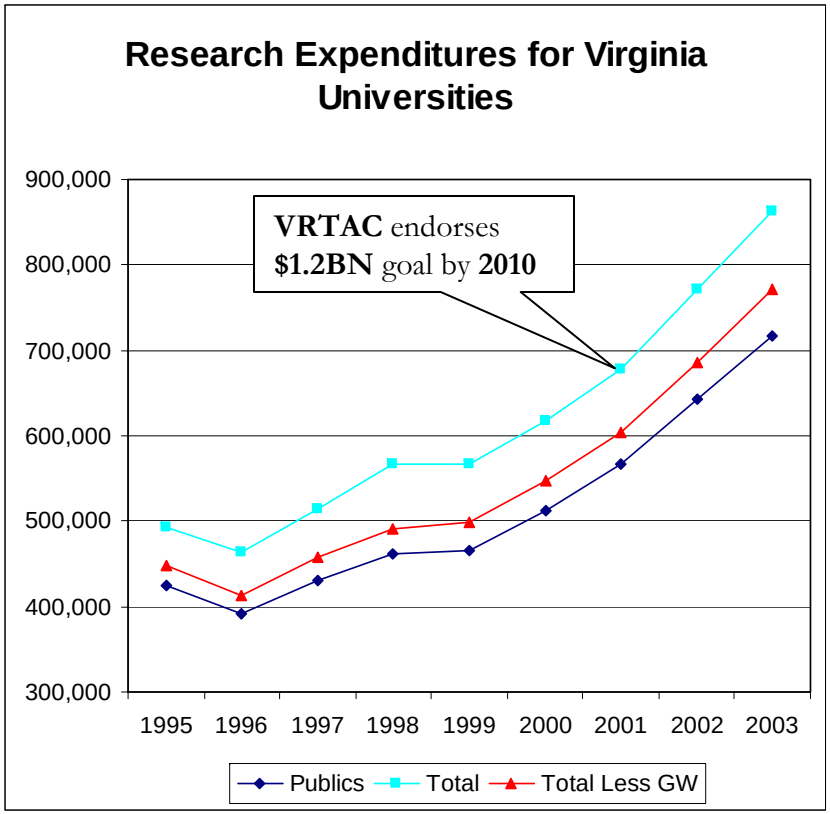
Source: PricewaterhouseCoopers/National Venture Capital Association MoneyTree(tm) Report

Industry-Sponsored R&D

Job Creation Increasingly Linked to University Research Investments

University Research & Development

All Sources



A New Model

World-Leading Aerospace Firm investing in Prince George: Rolls Royce commits **$100 million** to establish aero engines expected to create **500** jobs; key lever a research collaborative between **UVA** and **Virginia Tech** to support advanced manufacturing

A Global R&D Leader Builds in Rural Virginia: The inventors of the computer mouse, robotic surgery, HDTV, and more plan to hire **100** researchers at the **Center for Advanced Drug Research** in the Valley

The Path Forward

Public Sector Incentives a Strategic Lever to Align University/Industry

Building the R&D Agenda

2007 VRTAC Priorities

Modeling & Simulation

1 Energy | **2 Life Sciences** | **3 Semiconductors**

Nanotechnology

Priorities selected by reviewing **existing strengths**, **revenue growth potential**, and **alignment to industry**

"Mega"-R&D Deals

Missed Opportunities

- **$500M** partnership with **UC-Berkeley, U.** of **IL, BP-Amoco** to create the Energy Biosciences Institute; BP invited **5** universities to bid; **$70M** in state incentives
- **$435M** public-private partnership to seed **INDEX** with **SUNY-Albany, Harvard, Yale, MIT, AMD, Freescale, IBM, Intel, Micron, TI** to focus on "Bell Labs for Semiconductors"; **$80M** in state incentives

Innovation Economy Package

2009-10 Biennial Budget

Career and Technical Academies	Governor to name **6** "Academies" modeled on the Governor's Schools seeded by **NGA grant** to uncover hidden talent in pursuit of **technical careers**
CIT GAP Fund	Governor continues funding for **seed-stage** equity investments in technology and life science firms; CIT on plan to create **25** new high potential companies including new rural high tech starts
Higher Education Competitive Research Grants	Governor proposes **$1.6BN bond package**, continues **CRI** at **$29M**; introduces **$40.5M** competitive grant program to encourage collaboration, private sector investment, and support for economically-distressed areas

*Source: "*Research and Development Strategies and Directions for the Commonwealth of Virginia", VRTAC, Dr. R. Ariel Gomez, VP, Research, UVA; Dr. Lydia Thomas, President and CEO, Mitretek Systems (**1/6/07);** *VRTAC Research Subcommittee Report, September 2007*

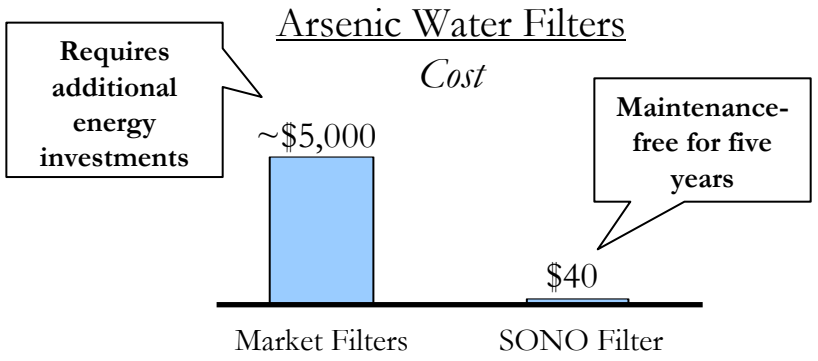
Coda ~ Seeking Talent Within

Virginia Professor Removes Arsenic for 99% Less Than Market Rate

An Inspired Dream

Public Sector Innovation

Goal: Develop low-cost method to remove arsenic from water; 10+ million people suffer without treatment

Solution: A simple, maintenance-free system that uses sand, charcoal, bits of brick and shards of a type of cast iron; each filter has 20 pounds of porous iron, which forms a chemical bond with arsenic

Results: GMU Professor Abul Hussam wins **$1M** Grainger Prize for $40 solution; donates **70%** to buy filters for Third World