The Commonwealth Research & Technology Strategic Roadmap

Aligning Virginia’s Research Investments with Commonwealth Priorities

presented to
Eastern States
Legislative Fiscal Officers Association

by
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Background

- Established in 1984 as the Innovative Technology Authority (ITA)
- Seven chartered objectives:
  - Attract high technology business
  - Apply technology for productivity
  - Support new product development
  - Expand university R&D
  - Expand knowledge of R&D
  - Attract R&D
  - Facilitate marketing R&D
Center for Innovative Technology

Assists early-stage Virginia based technology companies to secure private and federal funding sources

Accelerates the socio-economic growth of Virginia’s rural and underserved areas through the application and use of broadband telecommunications

Dedicated to helping large-scale federal and corporate consumers of technology identify and assimilate innovation created in private sector start-up companies. GSA MOBIS Schedule

Facilitates world-class research and development programs that create new industry clusters
§ 2.2-2221.2. Commonwealth Research and Technology Strategic Roadmap

Develop the Roadmap…to use to identify research areas worthy of institutional focus and Commonwealth investment in order to promote commercialization and economic development efforts in the Commonwealth.

§ 2.2-2233.1. Commonwealth Research Commercialization Fund (CRCF)

Awards from the Fund shall only be made to applications that further the goals set forth in the Commonwealth Research and Technology Strategic Roadmap.
R&T Roadmap

• Identify key industry sectors for potential investment

• Identify basic and applied research opportunities with commercial promise in these sectors

• Encourage commercialization and economic development in these sectors

• Help ensure that investments in research are made prudently in focused areas with significant potential for commercialization and economic growth
R&T Roadmap (Continued)

- Develop IP policy for CRCF awards
- Engage R&T Investment Advisory Committee (RTIAC)
- Recommend alignments for R&D and economic growth; make recommendations to Six-Year Capital Outlay Plan Advisory Committee
- Update Roadmap at least every 3 years
Accelerating Commercialization

Research & Technology Strategic Roadmap

- Eminent Researcher Recruitment Fund
- Research Matching Fund
- SBIR Matching Fund

Research & Concept Development
- Proof of Concept or Invention
- Early Stage Development
- Product Development

- GAP Fund
- Commercialization Fund
- Facility Enhancement Loan Fund
Roadmap Development

Program Development

- Secretary of Education
- Tech Councils
- VEDP
- SCHEV
- CIT / Secretary of Technology
- Secretary of Commerce & Trade
- Universities

- RTIAC
- Schedule
- CRCF Structure
- Roadmap
- RFI
# R&T Roadmap

**R&T Roadmap Objective:** Identify research areas worthy of institutional focus and Commonwealth investment

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<td>Identify critical statewide industry sectors based on supportable capabilities and projections</td>
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<td>Identify common research focus areas in academia to guide commercialization investments</td>
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- Industry Priorities: Innovation Index      |                                                                                |
- Economic Data: Chmura                       |                                                                                |
- VEDP Priorities                             |                                                                                |
| Academia                                     | Identify core capabilities and priorities of key research institutes in Virginia |
| Other R&D Assets                             | Develop a CRCF standard IP commercialization agreement                       |
| Intellectual Property                        | Position Virginia for strategic, targeted and new R&D initiatives and funding   |
| Assessment & Recommendations                |                                                                               |
Roadmap / CRCF Intersection

• Industry Opportunities / Eligible Sectors
  • Advanced Manufacturing
  • Aerospace
  • Communications
  • Cyber Security
  • Energy
  • Environment
  • Information Technology
  • Life Sciences
  • Modeling and Simulation
  • Nuclear Physics
  • Transportation

Industry

Approach
• Industry perspective – Innovation Index / bottom-up process identifying key industries
• Economic development priorities – VEDP
• Statistical foundation – Chmura Economics & Analytics

Findings
• High level – economic indicators support several sectors identified in Index, including Aerospace, Energy (including green tech), Environment, IT (including cyber security and modeling & simulation) Life Sciences, Transportation
Findings

- Wireless RF
- Cognitive radio
- Nuclear plant life
- Med isotopes
- Integrated comms
- Sensor / measurement
- Energy storage
- Biomass conversion
- Drug research
- Biothreat defense
- Information assurance
- Educational software
- Cyber security
- National defense
- Smart grid
- Semiconductors
- Bioinformatics
- Health IT
- Defense intelligence
- Cyber security
- Information assurance
- Biotech
- Health IT
- Med devices
- Secure telework
- Defense logistics
- Cyber security
- Information assurance
- Green tech
- Green construction
- Power electronics
- Smart construction
- Bioinformatics
- Remote patient care
- Intermodal ports
- Smart sensing
- Cyber security
- Data management / analytics
- Smart grid and analytics
- Surface engineering
- Biotechnology
- Med devices
- Coal bed methane conversion
- Biomass
- Plug-less power
- Personalized medicine
- Tobacco-cultured vaccine
- Application software
- Health IT
- Data imaging
- Hybrid conversion
- Energy storage
- Uranium mining
- Nano solar cells
- M&S
- National defense / homeland security
- Smart grid and analytics
- Semiconductors
- Aerospace
- Health IT
Academia

Approach
• Survey Virginia public and private research universities on strategic research priorities, commercialization
• Identify common themes among academia and with industry and other research organizations
• Coordinate with synergistic initiatives, including Six-Year Plan

Findings
• Common themes: Aerospace, Communications, Energy / Environment, IT (including bioinformatics, cyber security and modeling & simulation), Life Sciences, Nanotechnology, and Transportation
Other R&D Assets

Approach

• Identify strengths and priorities of key research institutes

• Selected and interviewed six research institutes
  • JLab, NASA LaRC, NSCWDD
  • CCAM, NIA, SRI CADRE

Findings

• R&D supports key sectors, including: Advanced Manufacturing, Aerospace, Energy, Defense / National Security, IT, Life Sciences

• Basic research is eager for translational partnerships
Status

FY2012 CRCF awards
• Reinforced Roadmap priorities
• 181 applications addressed all target industry sectors
• 47 investments in 9 target sectors
• $5.85M invested in research-related programs
• $4.0M invested in company formation / capital generation

Ongoing Commitment
• FY2013 / 2014 CRCF appropriations
• FY2013 Roadmap refresh underway
  • Validate priorities
  • Identify FY2013 CRCF opportunities
• Engage with leadership
  • General Assembly, Administration, tech community
## Roadmap Application

### Value Add

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Key Program Drivers

• Roadmap – long-term focus eliminates trending expenditures
• Roadmap – community owned & developed
• Roadmap – CIT facilitated, reinforced Roadmap priorities
• Investments – linked to Roadmap
• Investments – serve only as seed capital
• Investments – diligence as a “contact sport”