

JCOTS
Nanotechnology-Manufacturing Advisory Committee
Nanotechnology- Research and Development Advisory Committee

Draft Whitepaper Outline

Purpose: Our working group was asked to develop a whitepaper to educate members of the General Assembly about nanotechnology and how it impacts the Commonwealth and to suggest the direction of this year's committee activities. The focus of the whitepaper will be the current and potential economic impact and the needs to meet our vision: *“Position Virginia in the forefront of nanotechnology from research to manufacturing with the ultimate goal of growing and attracting vibrant nanotechnology businesses thus creating a multitude of high technology jobs.”*

- I. Introduction
 - a. What is nanotechnology, etc
 - b. Potential impact of nanotechnology, market potential
- II. Current Impact of Nanotechnology on Virginia
 - a. Companies
 - b. Jobs
 - c. Applications/Products
 - d. Infrastructure
 - e. Investment
- III. Vision Statement: *“Position Virginia in the forefront of nanotechnology from research to manufacturing with the ultimate goal of growing and attracting vibrant nanotechnology businesses thus creating a multitude of high technology jobs.”*
- IV. Mission to Achieve Vision, (Roadmap)
 - a. Education
 - b. Research and Development
 - c. Business Development
 - d. Manufacturing
- V. Expected outcomes
 - a. Center of Excellence/ Cluster, etc
- VI. Conclusions and Recommendations

Developing the roadmap and priorities for each area in Section IV is the suggested task of the full committees for the remaining meetings. R&D to take a) Education and b) Research and Development. Manufacturing committee to take c) Business Development and d) Manufacturing.

Each should include a SWOT (Strengths Weaknesses Opportunities Threats) analysis and should address policy, infrastructure, funding, and leadership. Other suggested areas to include listed below:

A. Education

- a. Policy
- b. Infrastructure
- c. Funding
- d. Leadership
- e. K-12 and teacher training
- f. VCCS (Virginia Community College System)
- g. Undergraduate
- h. Graduate
- i. Professional (part time technician through graduate needs, certificate and degree)

B. Research and Development

- a. Policy
- b. Infrastructure
- c. Funding
 - i. Matching Funds
 - ii. Seed Funding
 - iii. SBIR/STTR (Small Business Innovation Research and Small Business Technology Transfer programs)
- d. Leadership
- e. Instrumentation
 - i. Special needs
 - ii. Users network for characterization and fabrication
- f. Liaison with federal agencies to promote VA and be positioned to respond to upcoming requests for proposals
- g. Facilitate Industry/University collaboration
- h. R&D tax incentives

C. Business Development

- a. Policy
- b. Infrastructure
- c. Funding
- d. Leadership
- e. Starting Businesses (Phase 0 grants – i.e. Ben Franklin Organization in PA)
- f. IP/ Technology transfer
- g. Business/University collaborations
- h. Industrial partnerships and associations
- i. Marketing of Virginia's nanotechnology businesses
- j. Recruitment
 - i. Best people
 - ii. New companies

D. Manufacturing

- a. Policy
- b. Infrastructure
- c. Funding
- d. Leadership
- e. Tax Policy
 - i. R&D tax incentives
 - ii. Other tax issues
- f. Education/Workforce
- g. Environmental Issues
- h. Users Network (*Foundry/ Hub we had several but seem similar to me*)
 - i. Facilities/instrumentation
 - ii. Other shared resources?
- i. Location – (is state competitive, economic development, *possible recommendation that State do study of itself, as state and within regions of the state for different aspects of nanotechnology*)