

**Small Business Innovation Research
(SBIR)**

**Small Business Technology Transfer
(STTR)**

Kesh S. Narayanan
Director Industrial Innovation
Engineering Directorate

SBIR Agencies



TOTAL ~ \$2.0B

- **DOD** **Defense**
- **HHS** **Health**
- **NASA** **Space**
- **DOE** **Energy**
- **NSF** **\$105 Million**
- **DHS** **Homeland Security**
- **USDA** **Agriculture**
- **DOC** **Commerce**
- **EPA** **Environment**
- **DOT** **Transportation**
- **DoED** **Education**



NSF and SBIR

NSF Vision:

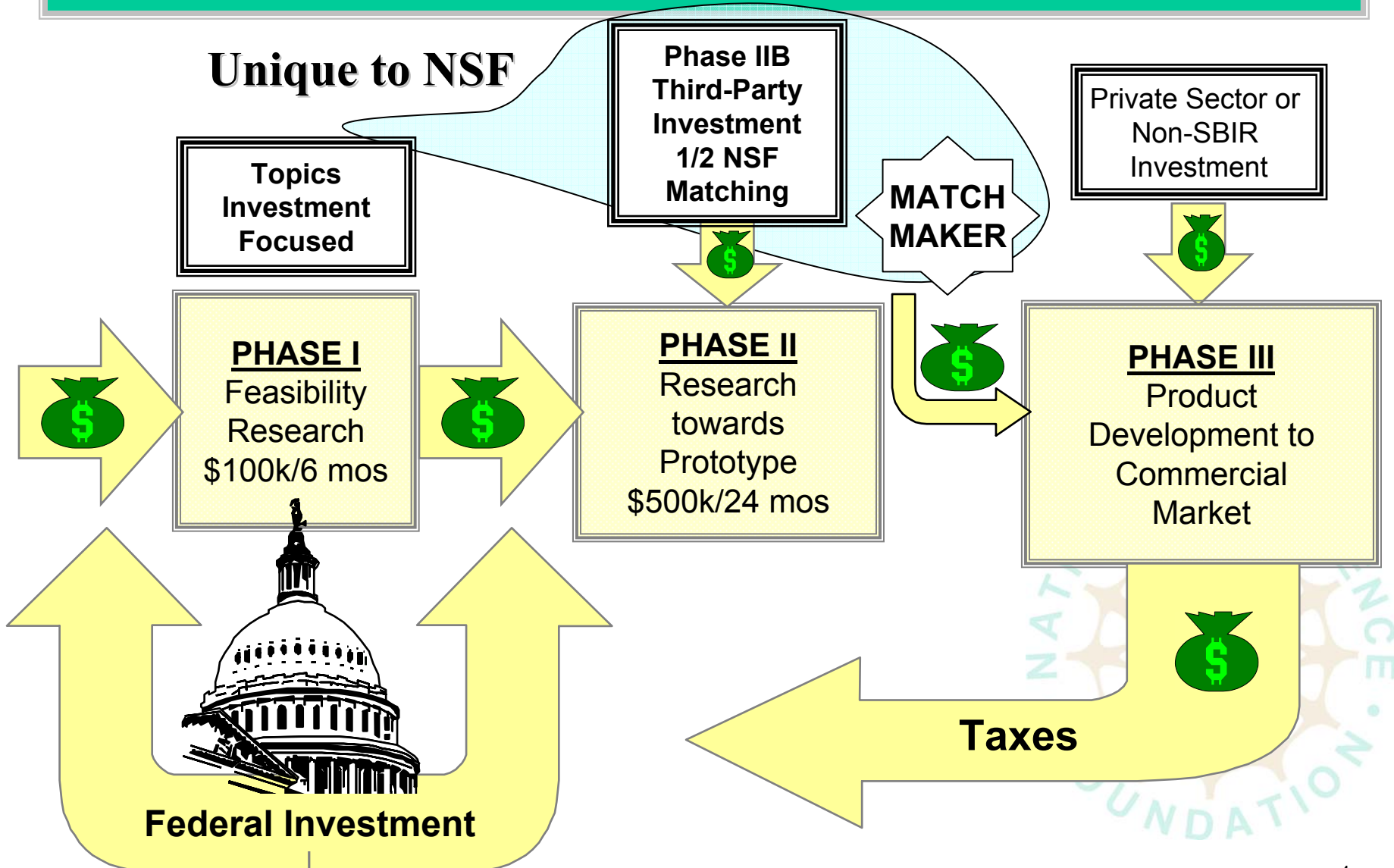
Enabling the Nation's future through discovery, learning, and *innovation*

SBIR Legislation:

Increase private-sector commercialization of *innovations* derived from federal R&D



NSF SBIR Innovation Model



SBIR/STTR Topic Portfolio

- Investment Focused (VCs, Angels)
 - Biotechnology (BT)
 - Electronics (EL)
 - Information Based Technology (IT)
- Industrial Market Driven (Strategic Partners)
 - Advanced Materials and Manufacturing (AM)
 - Chemical Based Technology (CT)
- Special Topics in Response to National Needs
 - Security Based Technology (ST)
 - Manufacturing Innovation (MI)

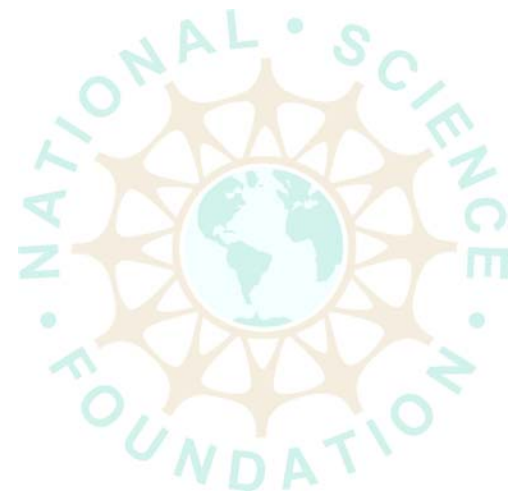
Two Current Topics

- Electronics
 - Broad technology coverage
 - 15 Subtopics divided further into numerous sub-subtopics!
- Security Technologies
 - Convergence of at least 2 of 3 technologies:
Nano/Bio/Info
 - 5 Subtopics with inputs from other federal agencies

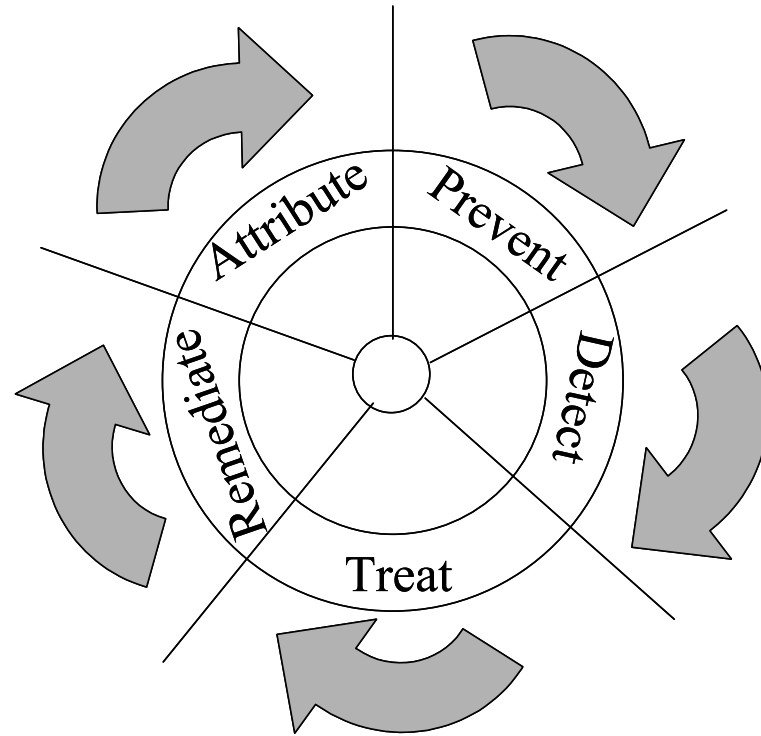


Electronics

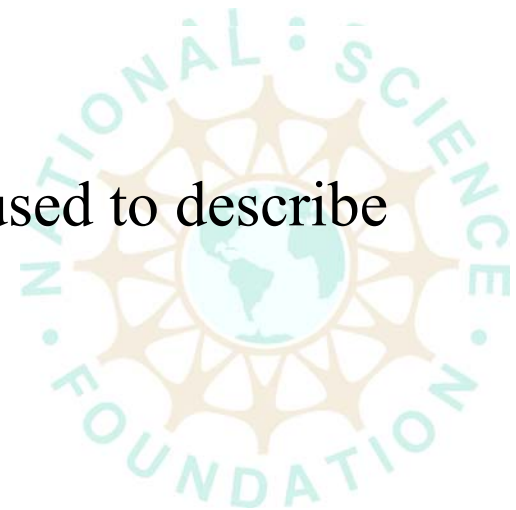
- Devices
- Nano
- Instrumentation
- Materials
- Manufacturing



Security Technologies 5 Broad Areas



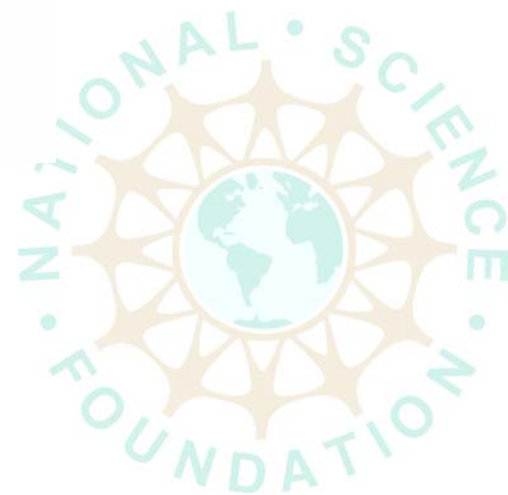
5 components can be arranged in a framework used to describe security-enhancing cycle



Anthrax Detector for Mail Sorting Systems



J. Raman Spectroscopy, 35, 82-86 (2004)
SPIE, 5269, 9-15 (2004)



Partnerships Opportunities in SBIR/STTR

- SBIR – Partnership Optional
 - Small Business “Prime”
 - Phase I up to 1/3 of budget can be out-sourced
 - Phase II up to 1/2 of budget can be out-sourced
- STTR – Partnership Required
 - 40% to 70% of the research by the Small Business
 - 30% to 60% of the research by **Academia/FFRDC***

*Federally Funded Research and Development Centers

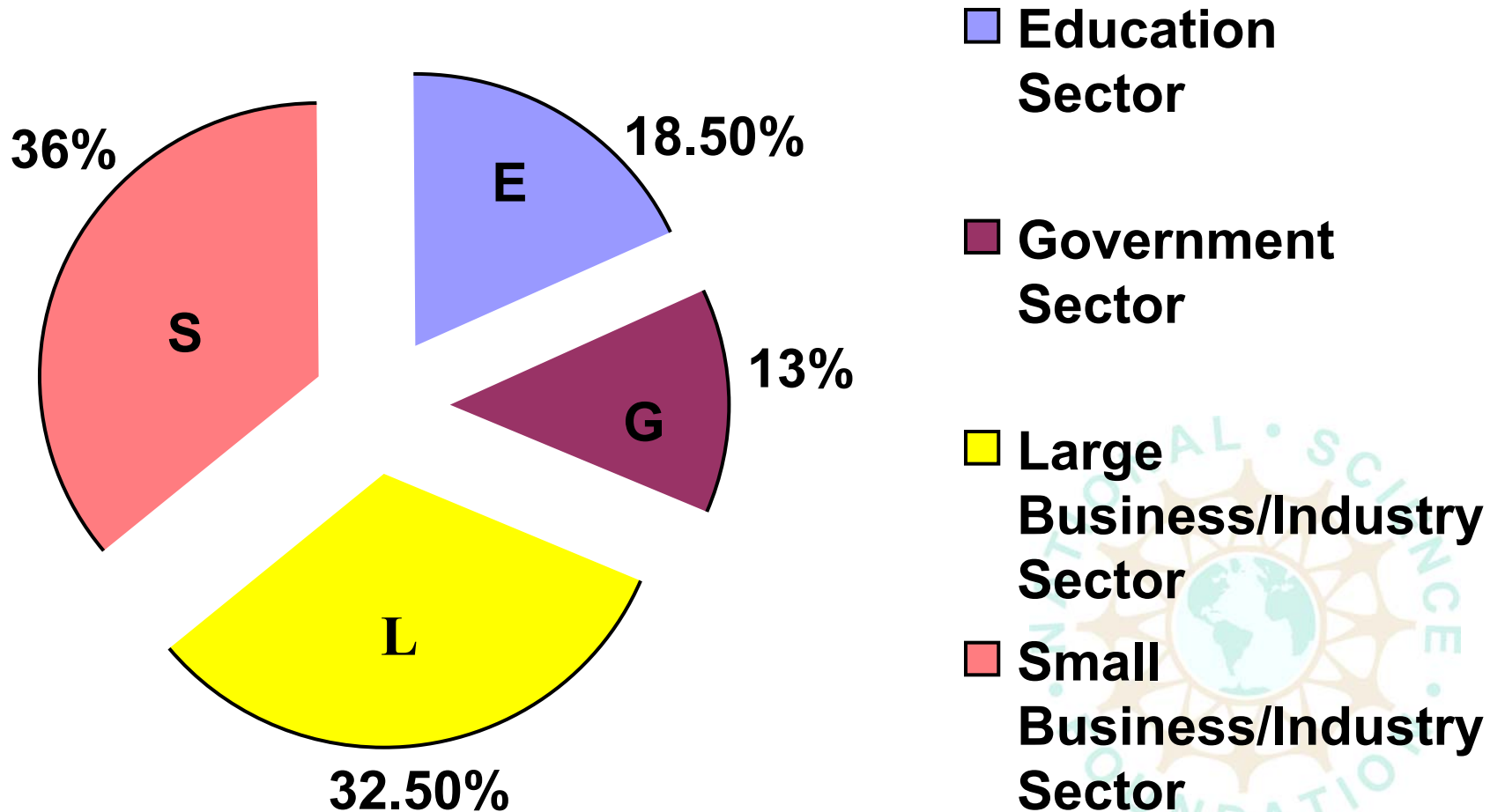
Faculty Partnership in Small Business

- Faculty members can own small firms
- Faculty members can be “Senior Personnel” on the grant budget
- Faculty members can consult
- Faculty members can be Principal Investigators (with official leave from university)
- Faculty members can be part of a university subcontract
- University laboratories can provide analytical testing and other support services

Roles for Students & Teachers in Small Business Grants

- Supplemental Grants to SBIR/STTR companies
- REU – Research Experience for Undergraduates
 - Typically \$6,000 support per student
 - 1-2 students per year per grant
- RET – Research Experience for Teachers (K – Community College Faculty)
 - Typically \$10,000 support per teacher
 - 1-2 teacher per year per grant

Employment of Scientists and Engineers*



* Data from NSF Science Indicators

Links

- Current Solicitation Closes June 8, 2005
 - Electronics
 - Security Technologies
- Solicitation NSF 05-557
- <http://www.nsf.gov/eng/sbir>

