# Strategic Partnerships Business Models with Other Organizations

**VCAT Meeting**
**October 28-29, 2008**
**Eric Steel**

## Strategic Partnerships
## Business Models with Other Organizations

The purpose of this session is to provide detailed examples of one of NIST's tools to accomplish its mission, namely external relationships, and to solicit advice on its use.

Key questions for the VCAT:

- Are these types of organizational relationships a useful way to fulfill the NIST mission?
- If NIST has the opportunity, should it expand the use of this tool or focus on internal research competencies?
- Are there other or better means for achieving these goals?

# Types of Partnerships

- University Centered
  - JILA (1962), JQI (2006), UMBI (1989)
    - Shared people, facilities/institutes
    - Coordinated management, projects and goals
- Other Agency Centered
  - HML (2000)
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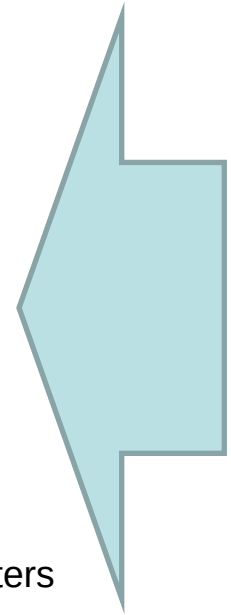
    - Shared NIST-Industry funding to University Centers



This Presentation
Research Partnerships

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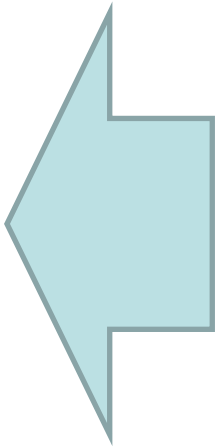
- NIST-State
  - MEP
    - Shared funding
- NIST-Industry-University
  - TIP
    - Shared funding
- NIST-Business
  - Baldrige



Already Discussed

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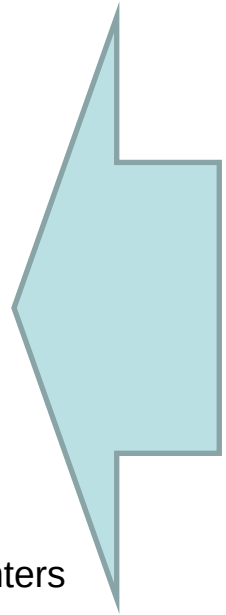

This Presentation
Organization to Organization
Research Partnerships

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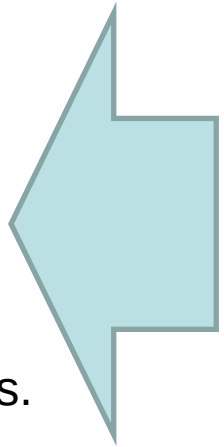
- Individual-to-individual
  - Guest researchers
- Facility users
  - NCNR and CNST
- Consortia
- State Weights & Measures
- Standards Developing Orgs.
- …



Many types of smaller scale interactions

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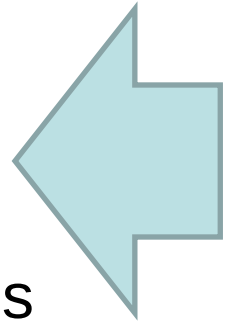


# Relationships with Universities

- NIST has 3 joint facilities with universities
  - JILA with University of Colorado
  - Joint Quantum Institute with University of Maryland
  - Center for Advanced Research in Biotechnology with University of Maryland Biological Institute (UMBI)
- JILA and JQI are based on the same model
- UMBI is an evolving model

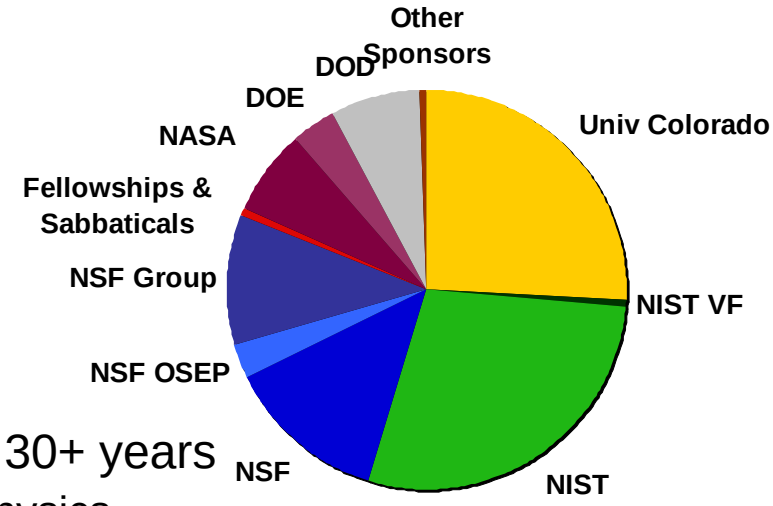
# Benefits of University Partnerships

University partnerships contribute to NIST's core mission by:

- Integrating research and education
  - encourage multiple collaborations and flexible interactions among faculty, postdocs, and students
  - e.g. JILA leverages10–15 NIST scientists by participating as an equal partner in an institute with ~200 University scientists, postdocs and students
- Enhancing person-to-person communication thru co-location and enabling novel collaborations and informal discussions by NIST and university researchers (tacit tech transfer)
  - Students change routinely, further enhancing interactions
- Providing a means of bringing in outstanding individuals who could not be hired under Civil Service procedures and salary limitations
- Producing fresh generations of scientists dedicated to precision measurement (e.g. 60 percent of JILA)
- Establishing a larger concentration of talent in synergistic disciplines than either institution could afford on its own

# What is JILA?

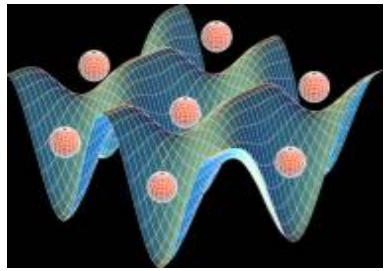
- A joint research institute between NIST and the University of Colorado
- $33M FY07 budget; 28 “JILA Fellows”
  - Approximately 250 total personnel
- Joint Institute for Laboratory Astrophysics
  - focus on measurements and analysis to support the space program
- In 1995, name change to ‘JILA’ reflects its breadth of research programs and new mission
  - astrophysics
  - atomic & molecular physics
  - biophysics
  - chemical physics
  - nanoscience
  - optical physics
  - precision measurement




- JILA’s has received funding by NSF for 30+ years
  - 2006 NSF Physics Frontier Center for AMO Physics

# What is JQI?

- A new institute between UMd, NIST, and NSA
  - designed to merge talent and experience in controlling and exploiting quantum phenomena
- $6M annual budget; 23 voting fellows
  - ~½ UMd; ~½ NIST
- Single institute combines AMO, condensed matter, and quantum information science
  - builds on the strengths of NIST, UMd, and NSA's Laboratory of Physical Science
- Goal to create world class research institute for controlling quantum phenomena and to enhance the nation's role in exploiting this revolutionary new technology
- 2008 NSF Physics Frontier Center for quantum information



# What is CARB/UMBI?

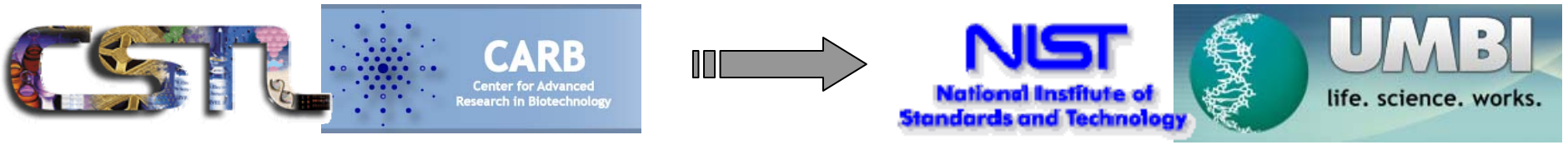
- In 1985, NIST's CSTL, the University of Maryland Biotechnology Institute (UMBI), and Montgomery County, MD established the Center for Advanced Research in Biotechnology (CARB)
- Combines NIST's expertise in metrology with UMD's expertise in biology – joint institute devoted to life sciences research
- Initial research focus
  - Work on the relationship between structure and function in biomolecules
  - Development of new technologies for the measurement, analysis and design of biomolecules

# An evolving model…..

While reasonably productive, it became apparent that the collaborative model initiated in 1985 has not fully leveraged the strengths of both organizations:

- CARB talent and capabilities have been somewhat isolated and not benefited fully from NIST capabilities and strengths
- NIST has not fully tapped into and benefited from the excellent and rapidly expanding capabilities at UMBI

**A new model was needed**



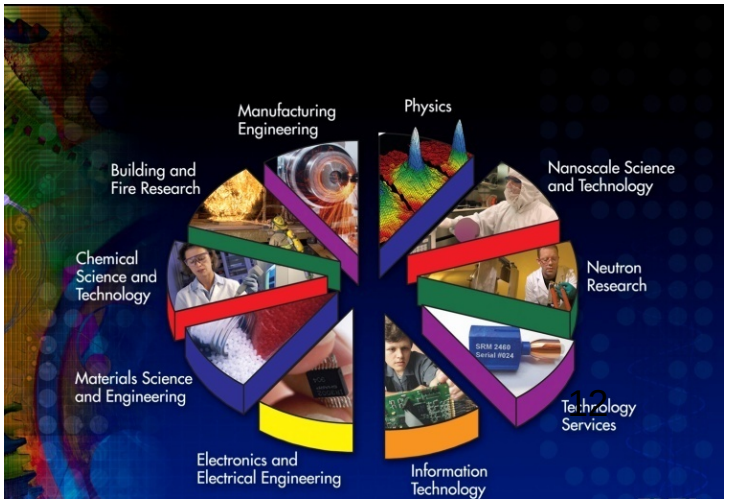
# Actions to Strengthen and Leverage this Partnership

***New MOU signed in August 2007***

- ***Partnership expanded to include:***
  - ***all four UMBI Centers, not CARB only***
    - Center for Advanced Research in Biotechnology
    - Center for Biosystems Research
    - Center of Marine Biotechnology
    - Medical Biotechnology Center

UMBI President, Dr. Jennie Hunter-Cevera, signs agreement expanding joint research and educational activities with NIST Director, Dr. William Jeffrey.

- ***Partnership will complement NIST expertise and facilities in areas of strategic program expansion***
  - *bioenergy*
  - *bioimaging*
  - *bioinformatics*
  - *protein measurement science*



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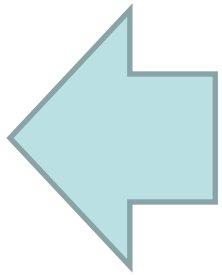

# What is Hollings Marine Laboratory ?

- Partners
  - Academic:  MUSC and CofC provide access to faculty and to undergraduate, graduate, and post-doctorate students
  - Federal Agencies:  NIST and NOAA
  - South Carolina Department of Natural Resources
- Est. in 1995 in Charleston, SC as the Marine Environmental Health Research Laboratory (MEHRL)
  - 78,000 square foot state-of-the-art research facility completed in Feb 2002
- Overarching Joint Project Agreement clearly defines:
  - Partnership and roles
  - Process for strategic alignment of goals
  - Executive and Science Boards collaboratively define strategic research directions

# Hollings Marine Laboratory

By having part of its staff located at the HML and working collaboratively with scientists from partner institutions:

- NIST is better able to develop programs within its mission that respond to the needs of the marine research community
- NIST is able to leverage its expertise in measurement science to address biological problems of national and global importance.
- Through its association with two institutions of higher learning, NIST is able to influence and contribute to the training and development of the nation's future scientists.

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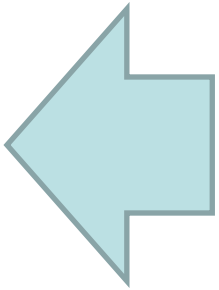
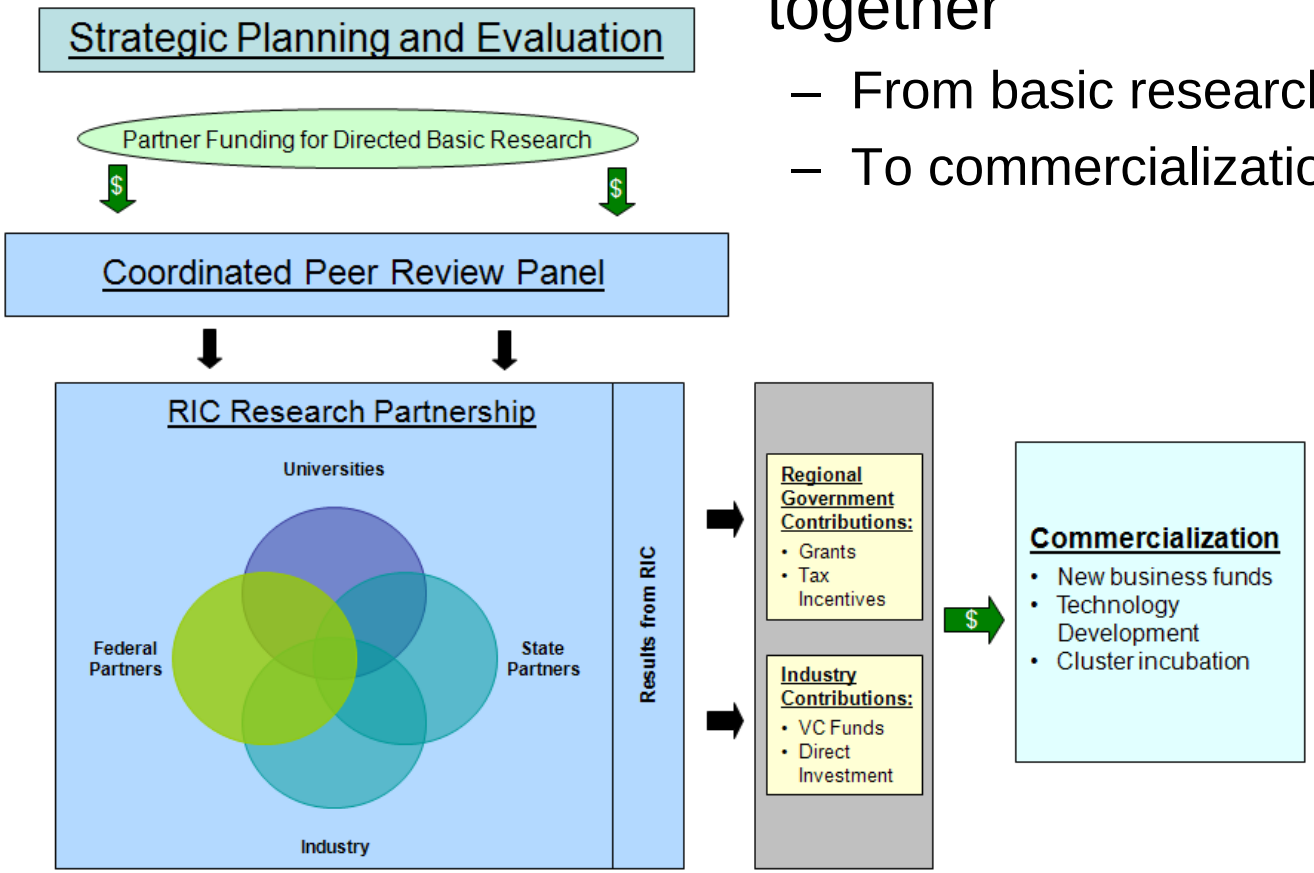


# Rapid Innovation & Competitiveness initiative

- A business model that attempts to put the whole technology process together
  - From basic research, use inspired
  - To commercialization



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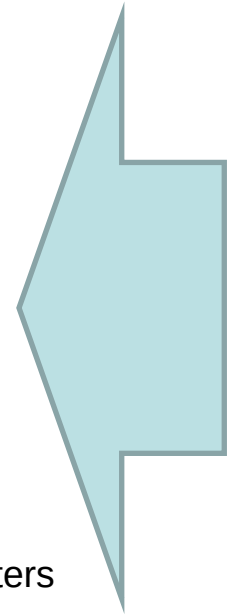

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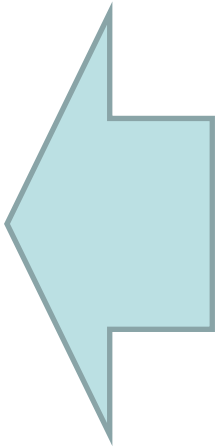

Already Discussed

# SRC- NRI and University of Colorado Guests

# Issues with Partnerships?

- **Need for flexibility/reinvent partnership every ~10-20 years?**
- **Need for co-location?**
  - **Does new communication technology take the place of co-location**
  - **Communication is hard**
- **IP Issues?**
  - **Tension among federal, industry, and university roles in IP**
- **Other University Partnerships?**
- **More Other Agency Partnerships?**
- **Other RICs?**
  - **Bio**
    - **Personalized health care or toxicology**
  - **Robotics**
  - **?**
- **International Partnerships**

## Key questions for the VCAT:

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