

# Research at UNC

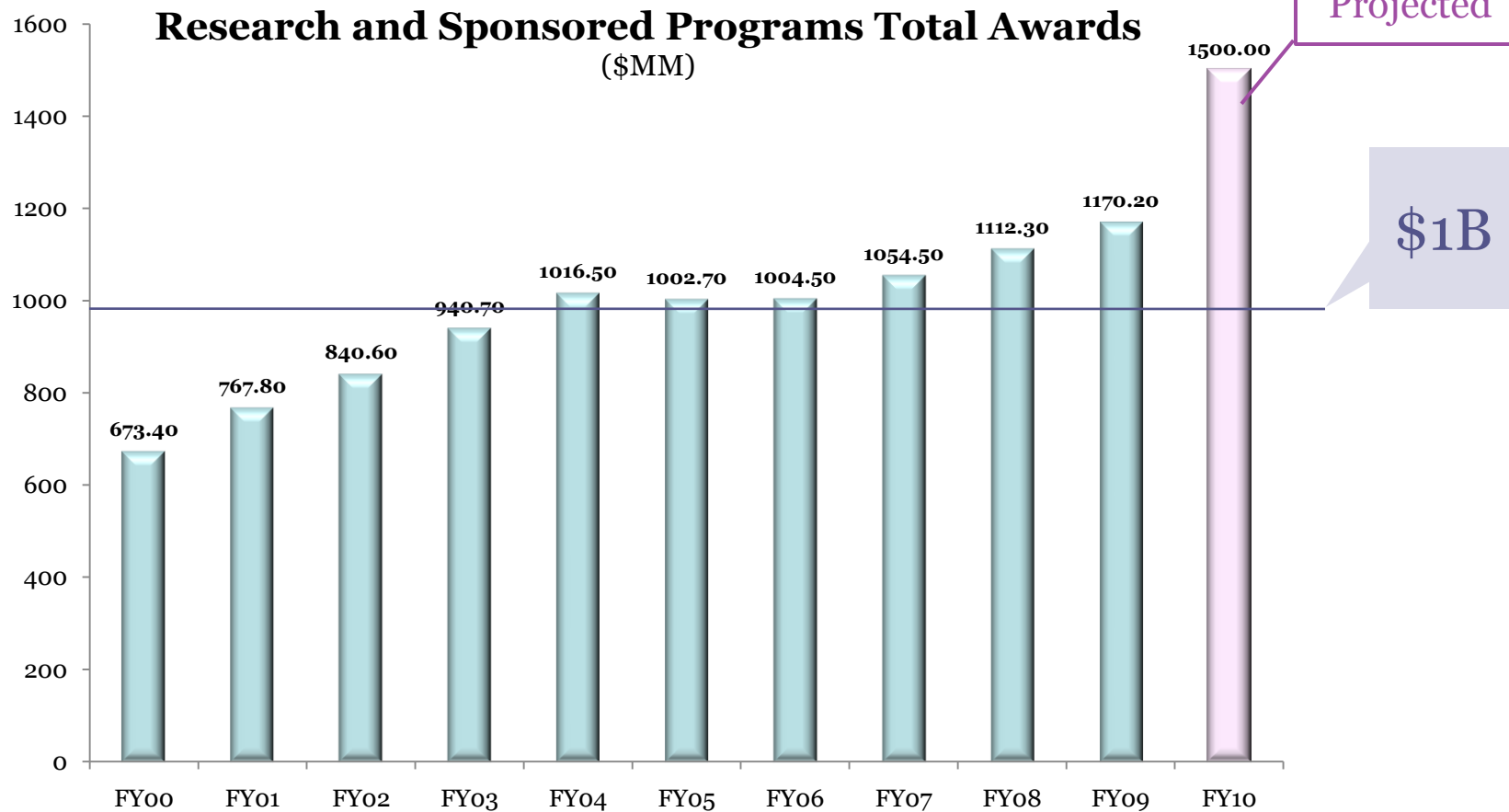
Presentation to the UNC Board of Governors

September 17, 2009

Dr. Steven Leath, UNC Vice President for Research



# Research at UNC: a major enterprise

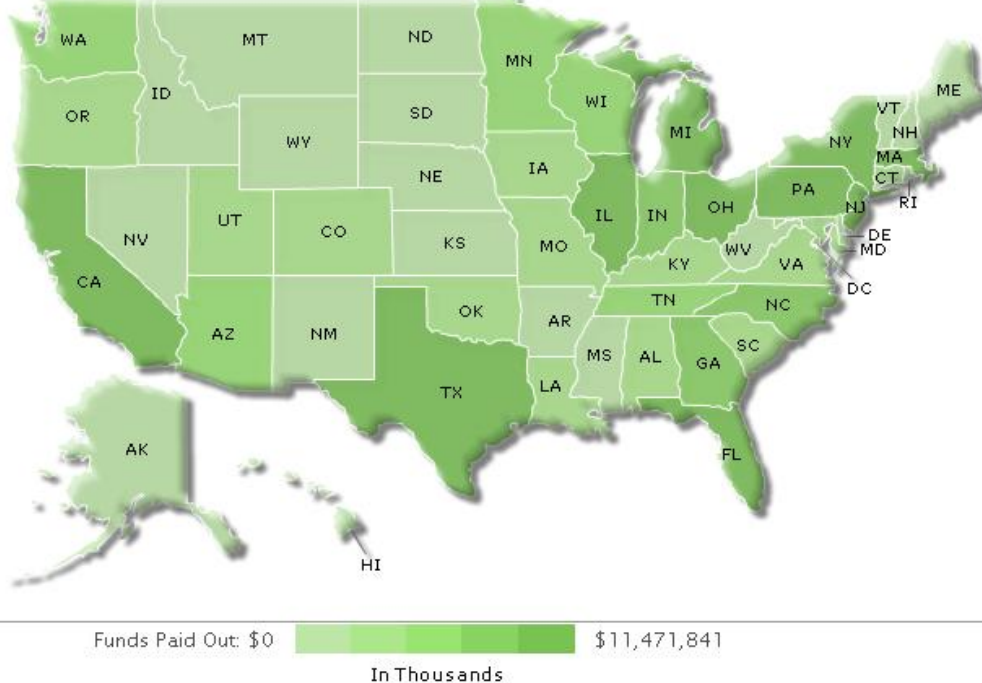


Research and sponsored programs comprises 15% of  
total UNC operating budget



# Research at UNC: nationally competitive

ARRA Funds Awarded by State



- NC one of 11 states to capture >\$2B in ARRA funding
  - >\$67M in competitive sponsored research captured by UNC schools
  - >\$1B in proposals submitted

## Notable Awards:

- \$15M NIST/NOAA award for MARBIONC facility at UNC Wilmington
- \$2M for biofuels research at NC State University
- \$900K for STEM teacher recruitment and training at East Carolina
- \$1.2M for genomics research at UNC Chapel Hill



# Research at UNC: organizing our efforts

Currently implementing electronic research administration tools to manage and support research operations

- Robust suite of tools combines to give us a better picture of UNC expertise

The screenshot shows the Vitae Profile Manager interface. The top navigation bar includes a Vitae logo and a user profile for Andrew S Johns (ajohns) with a Sign Out link. Below the navigation bar is a menu with options: My Profile, My Biosketches, Search Profiles, Give Permissions, Training Grants, Preferences, and Admin. The main content area is titled 'Basic Information' and is divided into two columns: 'Approved Version' and 'Pending Version'. The 'Approved Version' column displays a profile for Linda S Adair. The profile includes a placeholder for a picture (a silhouette with a question mark), a list of fields with their values, and input fields for additional information. The fields and their values are: Last Name: Adair, First Name: Linda, Middle Name: S, E-mail: linda\_adair@unc.edu, Position: Professor, Director, Primary Dept: Nutrition, Display Name: Linda S Adair, Rank: (empty), Birth Date: (empty), and eRA Commons Username: (empty). The 'Pending Version' column is currently empty.

**VITAE**  
Profile Manager

Andrew S Johns (ajohns)  
Sign Out

My Profile | My Biosketches | **Search Profiles** | Give Permissions | Training Grants | Preferences | Admin

**SEARCH PROFILES**

- > Search Profiles
- > Advanced Search
- Linda S Adair
  - > **General**
    - > **Basic Info**
    - > Supplemental Info
    - > Departments
    - > Degree Programs
    - > Training Programs
    - > Centers
    - > Education
    - > Employment
  - > Research / Professional
  - > Teaching
  - > Service
  - > Biosketches

**Basic Information**

(Approved Version) (Pending Version)

Picture

\* Last Name: Adair

\* First Name: Linda

Middle Name: S

\* E-mail: linda\_adair@unc.edu

\* Position: Professor, Director

\* Primary Dept: Nutrition

Display Name: Linda S Adair

Rank:

Birth Date:

(ex: XX/XX/XXXX)

eRA Commons Username:

Vitae captures information about faculty:

- Publications
- Teaching
- Innovations

## Institutional Research Profiles:

Home > Expert search by concept

Search experts by concept

e.g. stroke, zebra fish, glucose

by last name

e.g. Smith

Q

20 Experts found

→ Bangdiwala, Shrikant I

→ Chambless, Lloyd E

→ Maeda, Nobuyo

→ Couper, David J

→ Rosamond, Wayne D

→ Pomp, Daniel

→ Nakamura, Jun

→ Ammerman, Alice S

→ Vupputuri, Suma

→ Jennette, John C

→ Beck, James D

→ Catellier, Diane J

→ Prazma, Jiri

→ Berry, Diane C

→ Clarke-Pearson, Daniel L

→ Runge, Marshall S

→ Keagy, Blair A

→ Samuel-Hodge, Carmen D

→ Weinberger, Morris

→ Patterson, Winston Campbell (Cam) C

Your search terms

Diabetes Complications

Hypertension

Obesity

remove

remove

remove

Refine search by adding Concepts

Disorders

Coronary Disease

Atherosclerosis

Overweight

Body Mass Index

add

add

add

add

Chemicals & Drugs

Smoke

Blood Coagulation Factors

Lipoprotein(a)

Factor VIII

von Willebrand Factor

Fibrinogen

Cholesterol, HDL

add

add

add

add

add

add

add

Procedures

Nutrition Surveys

Risk Assessment

Education

add

add

add

# Research at UNC: focused on issues



- UNC operates >170 research centers
  - Research centers have a combined operating budget of \$450M, 85% of which is non-state funds
- Proposed changes to UNC center and institute regulation 400.5 will prepare and empower campuses to form and manage strategic, inter-disciplinary and collaborative work
- Of 15 NSF Engineering Research Centers nationally, 2 have been awarded to UNC campuses:
  - ERC for Revolutionizing Metallic Biomaterials at North Carolina A&T
  - ERC for Future Renewable Electric Energy Delivery and Management at NC State
- UNC Chapel Hill one of 14 academic health centers nationally awarded the NIH Clinical and Translational Science Award - \$61M over 5 years

# Research at UNC: focused on issues



## North Carolina Research Center in Kannapolis



- Research center now open and operating with 94 UNC researchers and support staff
  - including >12 graduate students
- DHMRI core labs now operational
- Partners are coming on-board: RCCC and private industry
  - Dole
  - Sensory Spectrum
  - Lovelace Respiratory
  - Anatomics
  - Carolinas Healthcare
  - Cabarrus Health Alliance



# Research at UNC:

transferring technology - research results in products and services



## From UNC Chapel Hill technology:

- Entegriion Stasilon® wound dressing
- Tornier Intrafocal Pin Plate



## From North Carolina State University technology:

- Bio UD™ Insect Repellant
- SmartFresh™ Quality System for produce
- Invincibelle™ Spirit Hydrangea



## From East Carolina University technology:

- SpeechEasy® anti-stuttering device
- Early stage Multiple Sclerosis vaccine

## From UNC Greensboro:

- Prevention Strategies Drug and Alcohol Program
- Learning Together (L2)™

Speech Easy Video



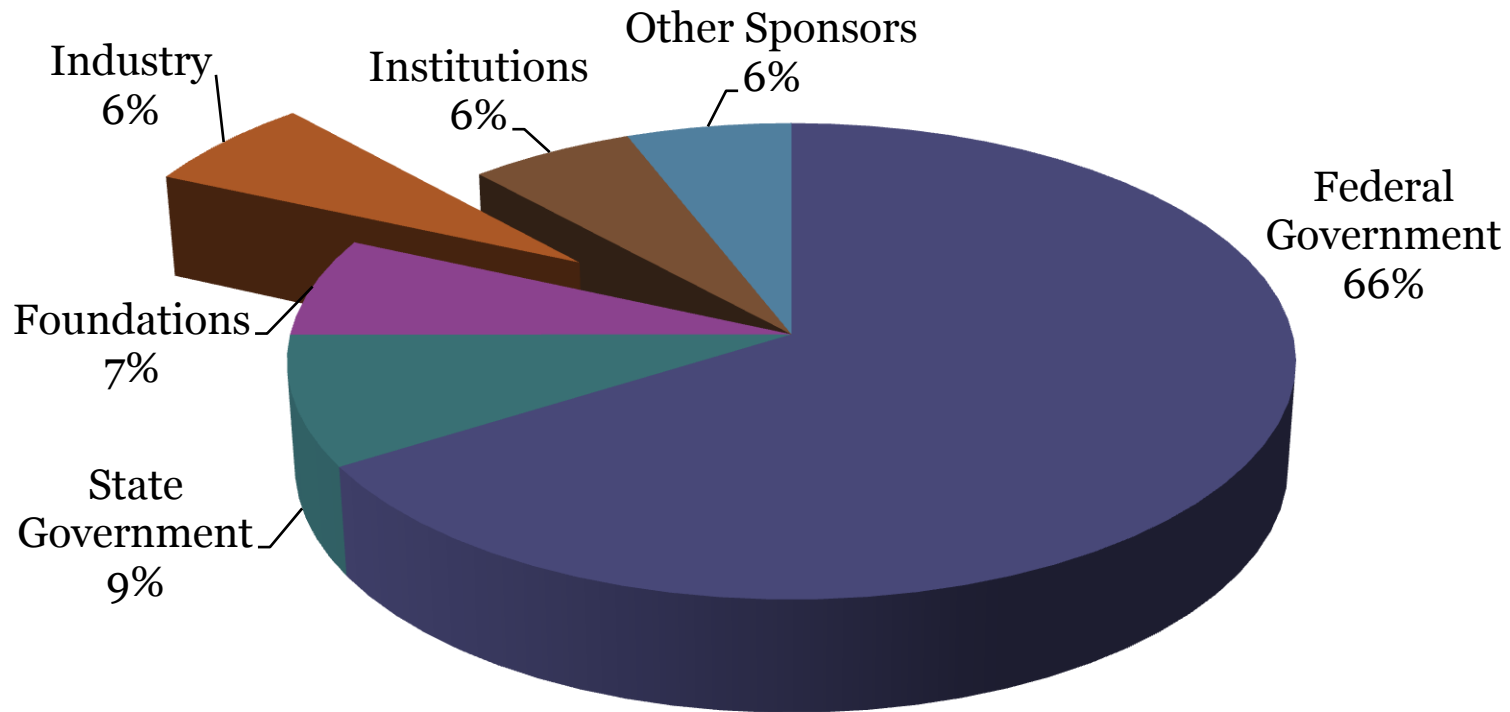
# Research at UNC: licenses and startups



- In 2006 six UNC campuses disclosed 435 inventions and filed 272 patent applications
  - Generated revenues of \$5.4M from companies licensing UNC technology
- In the last 10 years, UNC has formed >100 startup companies
  - Startups develop in-house from licensable UNC technology



# Research at UNC: expanding our portfolio



UNC FYo8 Sponsors

# Research at UNC: implications from UNC Tomorrow



- North Carolina citizens expect UNC to contribute more to the well-being of the state overall
- The report of the UNC Tomorrow Commission charges UNC to
  - Expand the state's economy through increased and improved translation and commercialization of university discoveries
  - Translate research and scholarship to broader audiences

UNIVERSITY of NORTH CAROLINA TOMORROW

# Innovation and Technology Development



Through the Innovation and Technology Development Initiative, UNC is working to become the world leader for research partnerships that result in real-life solutions to some of society's toughest problems



# Innovation and Technology Development



## The UNC Innovation and Technology Development Initiative in collaboration with IBM

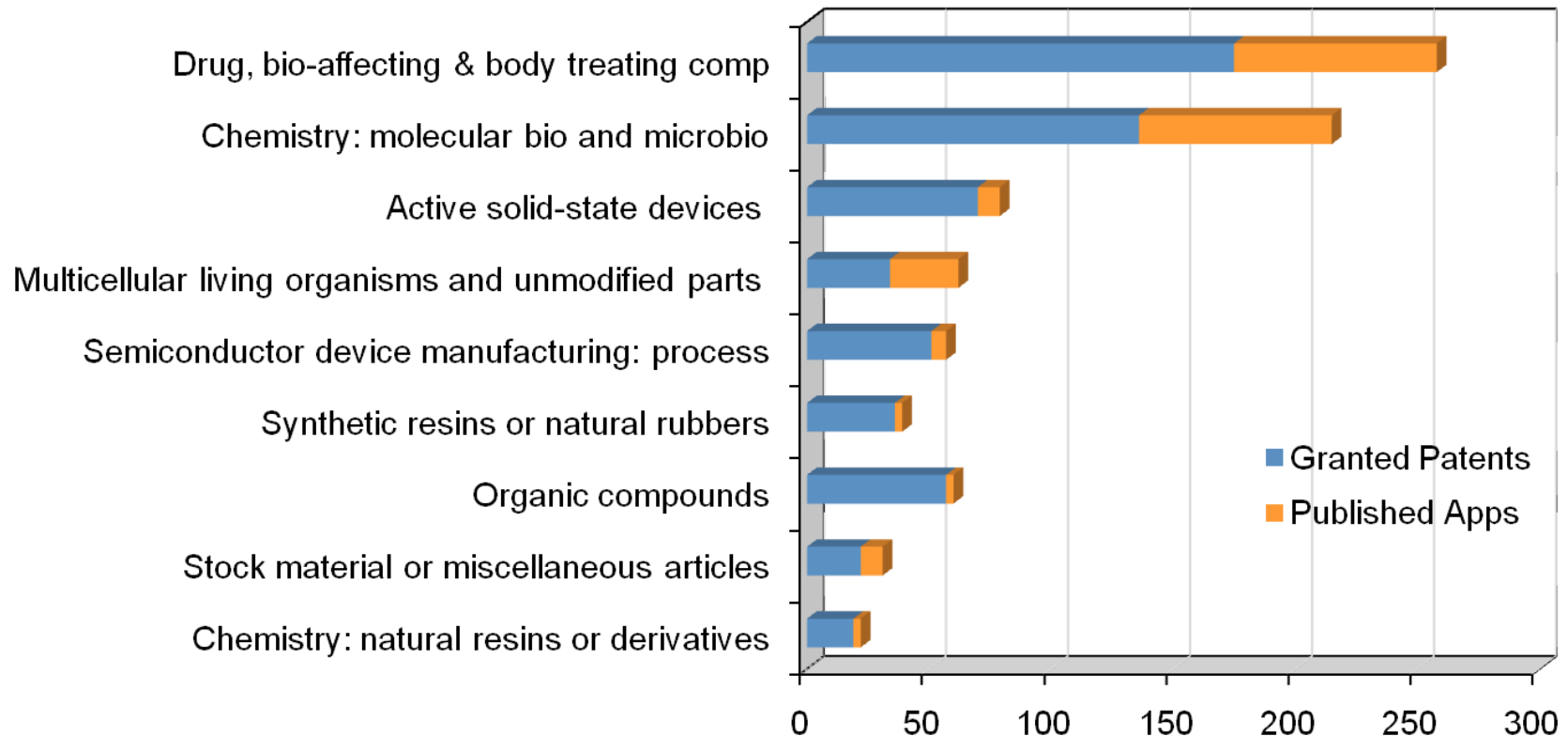
- A mission to pioneer new ways to innovate and commercialize technologies in collaboration with industry and other partners
- Six recommendations in three focus areas for increasing and deepening the impact and benefits of UNC research for the University and North Carolina overall
  - Excel in Strategic Research Areas
  - Support Innovative Individuals
  - Model Inspired, Efficient Technology Development Processes

# Innovation and Technology Development



## UNC System Patent Classification

Analysis of top primary US patent classifications indicates majority of patent activity focused in Drug and Chemistry areas

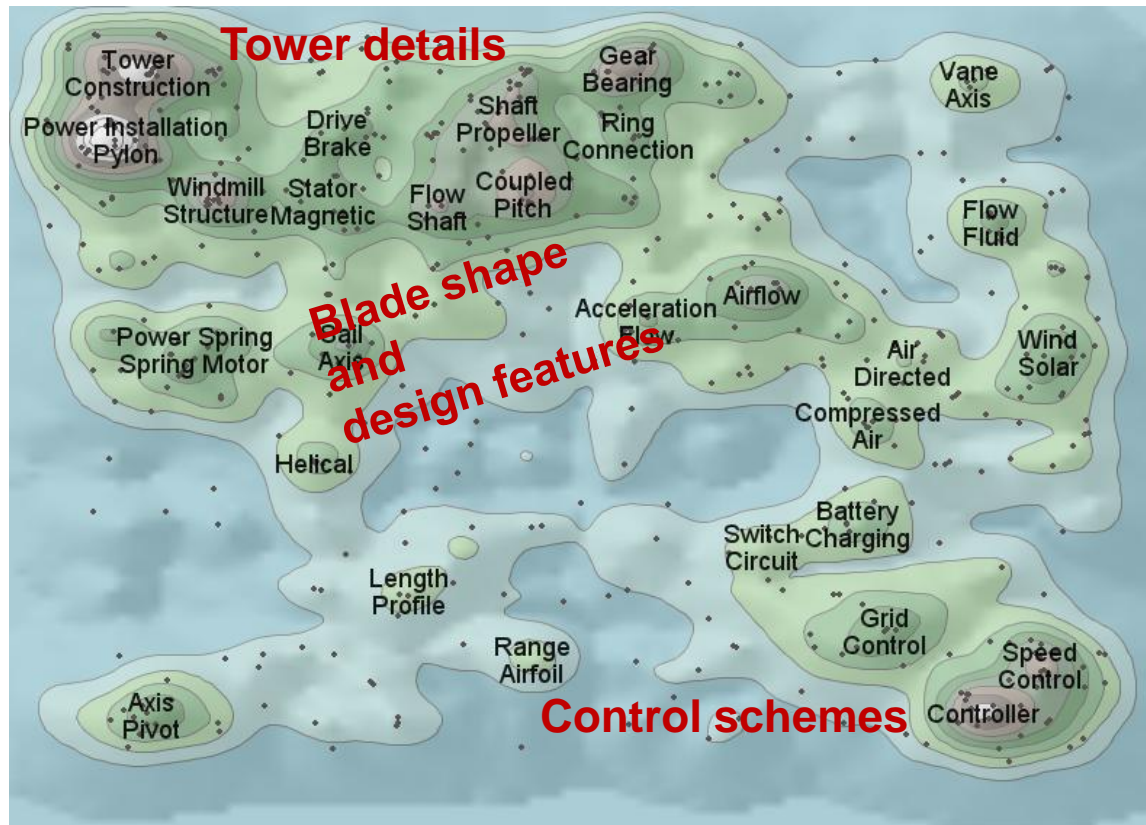




# Innovation and Technology Development



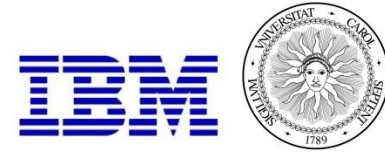
## Wind Power - ThemeScape View



- An overview of the landscape, based on patent titles and abstracts, indicates general themes associated with control schemes, blade shape and design, tower construction
- Ability to drill down further into thematic areas, analyze by time period, etc.



# Innovation and Technology Development



Niche Specialties, Collective Strengths

## Center for Rapid Product Realization at WCU

- Working with businesses and universities to design and implement products

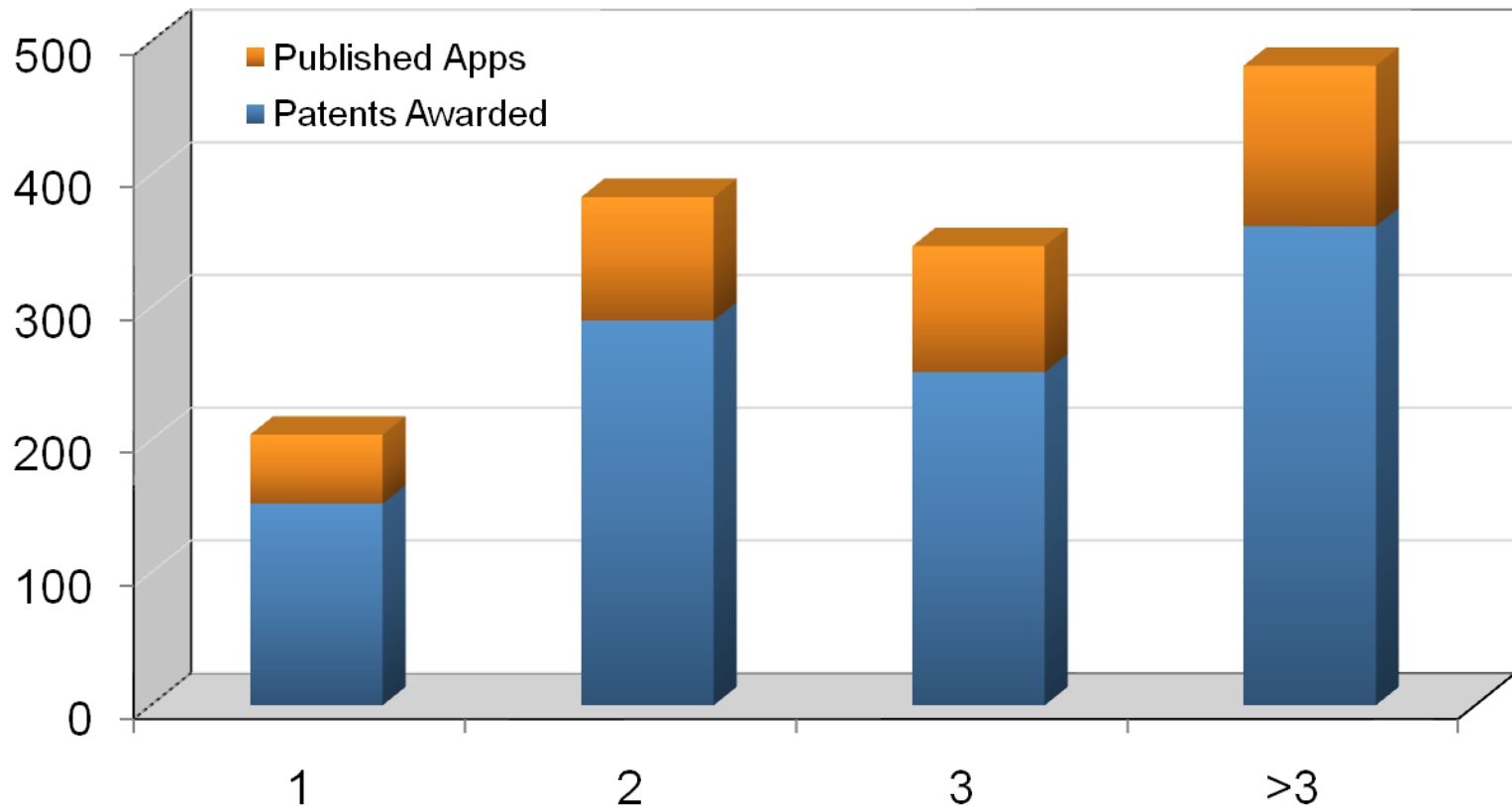


# Innovation and Technology Development



## Number of Inventors Per Patent

Collaboration among UNC System inventors - 14% single inventor, 27% two inventors, 24% three inventors and 34% have more than 3 inventors. Therefore, almost 60% of all activity in collaboration with 3 or more inventors

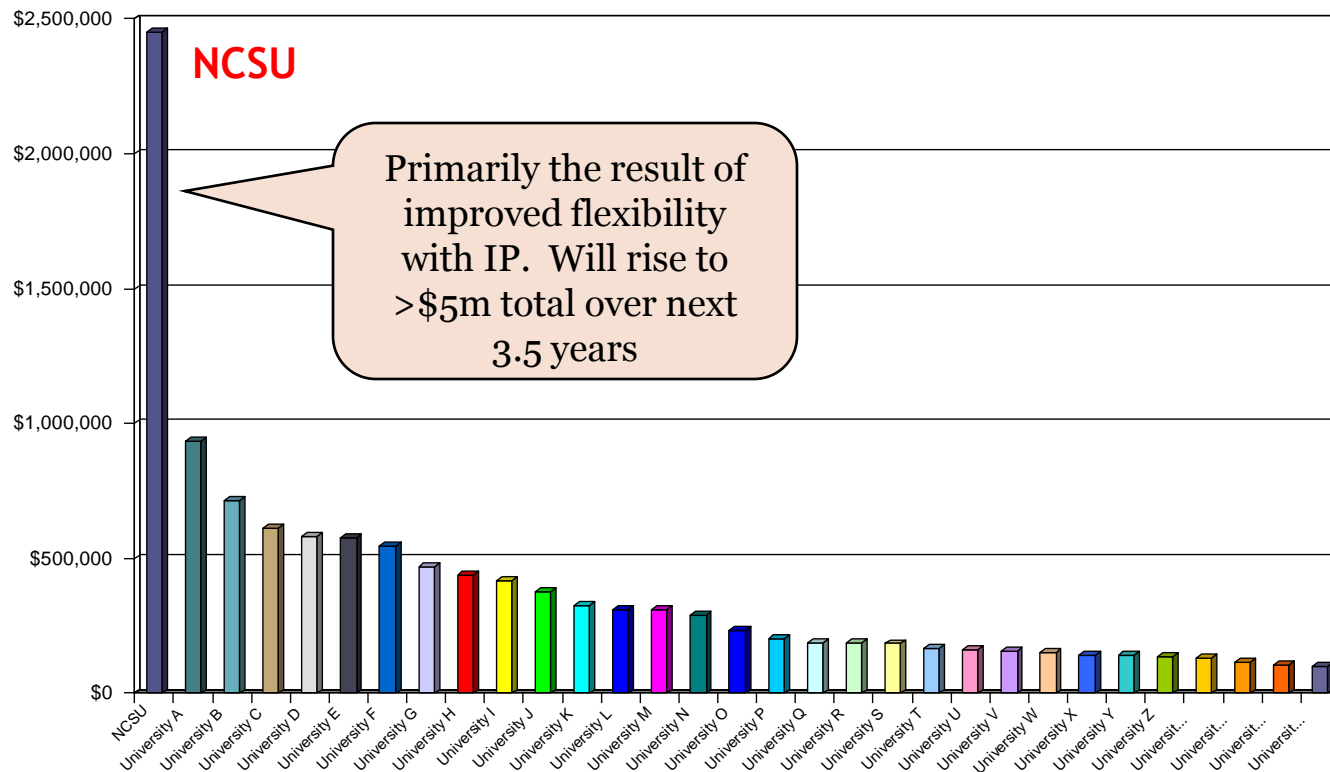


# Innovation and Technology Development

NC STATE UNIVERSITY



Bayer Environmental Science: Grant in Aid, by University; 2000 - 2009



Building long-standing, robust relationships with industry benefits the university, the industry and the people of NC

# Innovation and Technology Development



- Administered by UNC Wilmington's Center for Marine Science, MARBIONC develops marine biotechnology discoveries into health, food and energy products, rather than licensing the intellectual property before development
- This process helps the university capture more of the discovery's value
- MARBIONC was recently awarded a \$15M ARRA grant for a new facility



# Innovation and Technology Development



Implementation throughout the year will result in:

- Identification and expansion of campus' unique research strengths
- Increased inter-and intra-campus collaboration towards strategic goals
- Recognition of faculty entrepreneurial activity in RPT
- Simplification of IP negotiations towards improved industry partnerships

# Innovation and Technology Development

UNC has a vision to be better, faster, friendlier  
and simpler to work with – to be the “go to”  
University companies come to first for research  
collaborations and innovations.



# Research at UNC: summary

- Supporting robust campus research operations
  - New eResearch Administration tools
  - Grants administration, export control, overall campus operational support
- Enabling opportunities for timely, issue-focused UNC research centers and projects
  - NC Research Center at Kannapolis
  - NSF, NIH, and other inter-disciplinary centers
- Translating UNC discoveries and innovations for the benefit of NC citizens
  - Innovation and Technology Development initiative
- Growing the Research Enterprise
  - American Recovery and Reinvestment opportunities
  - Developing strategic growth areas
  - Mentoring smaller campuses

UNC research operations directly support the UNC Tomorrow initiative