Leveraging The Innovation Ecosystem to Enable Industry Transformation

Georgia Tech Translational Research

IPST Executive Conference
April 19, 2013

Don McConnell
Executive Director, Industry Collaboration & Commercialization
Enabling expansion of the commercial enterprise in the Southeast is Tech’s founding purpose.

Established in 1888 to Expand Industrial Capacity in the Southeast

Today: Largest Engineering College in the US
Ranked #4 Among Engineering Colleges
22,000 Students, 1041 Academic Faculty, 1426 Research Faculty
$640M in Research Volume
Where research and academics combine to provide unmatched expertise, capabilities, and know-how in solving the toughest problems facing society, government and industry.

Academics and Research
- College of Architecture
- College of Business
- College of Computing
- College of Science
- College of Engineering

Applied Research
Georgia Tech Research Institute (GTRI)
Market Focused Translational Research

Economic Development
- Enterprise Innovation Institute
- Advanced Technology Development Center
- Venture Lab

Professional Education
- Global Learning Center
- On Site, On Demand
- Savannah, France, Ireland, China . . .
Georgia Tech By The Numbers

FY 12 Research Awards ($M)

<table>
<thead>
<tr>
<th>Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Research</td>
<td>$334M</td>
</tr>
<tr>
<td>GTRI</td>
<td>$306M</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$640.0</strong></td>
</tr>
</tbody>
</table>

Academic & Research Faculty

<table>
<thead>
<tr>
<th>Faculty Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional Faculty</td>
<td>1,041</td>
</tr>
<tr>
<td>Research Faculty</td>
<td>1,326</td>
</tr>
<tr>
<td>Total Student Enrollment</td>
<td>22,000</td>
</tr>
</tbody>
</table>

Academic College Rankings

<table>
<thead>
<tr>
<th>Category</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Universities</td>
<td>#7</td>
</tr>
<tr>
<td>Graduate Engineering (U.S.)</td>
<td>#4</td>
</tr>
<tr>
<td>Undergraduate Engineering (U.S)</td>
<td>#4</td>
</tr>
<tr>
<td>Minority Engineering Degrees</td>
<td>#2</td>
</tr>
<tr>
<td>US News &amp; World Report</td>
<td></td>
</tr>
<tr>
<td>International Ranking</td>
<td>#27</td>
</tr>
<tr>
<td>Times Higher Education World University Rankings</td>
<td></td>
</tr>
</tbody>
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Tech’s Research Strategy

Create Transformative Opportunities

Strong & Sustained Collaborative Partnerships

Enhance Economic and Societal Impact
Current industrial S&T strategies assume a growing central role for external technology in an “open innovation” environment.

**IRI Study: Accessing External Technology**  
*(McConnell & Slowinski, 1998)*

**Key Roles for External Technology**

1. Access to breakthrough/transforming technology for strategic positioning in growing markets
2. Re-position current product/process to next-generation technology
3. Virtual R&D Center: leverage partner assets
4. Window on evolving/competitive technology
5. Complements value of internal core research
6. Accelerate commercialization via partnering to gain skill or market access
7. Critical technical problem resolution
Tech’s research spans from discovery to application providing a wellspring for industry transformation.

Exploration
Discovery
Global Sourcing
International Sources
Corporate Labs
Collaborative Research
Federal Research
Research Universities
Cross Industry Sources

Translation
Maturation/Development
Gap Assessment
Assess
Develop
Integration

Productization
Application
Product Platform
Customer Drives
Unmet Customer Needs

Commercial Alliances
Science Programs
Technology Programs
Ventures
Georgia Tech’s research strategy positions it well to span continuum from discovery to commercialization collaboration.

Source: Strategic Energy Institute Study, January 2012
GT’s Interdisciplinary Research Institutes (IRIs) are focal points for transformational industry relationships

<table>
<thead>
<tr>
<th>Topic</th>
<th>Institute Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Big Data”</td>
<td>Institute for Data and High Performance Computing</td>
</tr>
<tr>
<td>Bioengineering and Bioscience</td>
<td>Institute for Bioengineering and Bioscience</td>
</tr>
<tr>
<td>Electronics and Nanotechnology</td>
<td>Institute for Electronics and Nanotechnology</td>
</tr>
<tr>
<td>Energy and Sustainable Infrastructure</td>
<td>Strategic Energy Institute, Institute for Sustainable Systems</td>
</tr>
<tr>
<td>Manufacturing, Trade, and Logistics</td>
<td>GT Manufacturing Institute</td>
</tr>
<tr>
<td>Materials</td>
<td>Institute for Materials (FY14 start)</td>
</tr>
<tr>
<td>National Security</td>
<td>National Security Institute (GTRI led)</td>
</tr>
<tr>
<td>Paper Science and Technology</td>
<td>Institute for Paper Science and Technology</td>
</tr>
<tr>
<td>People and Technology</td>
<td>Institute of People and Technology</td>
</tr>
<tr>
<td>Public Service, Leadership, and Policy</td>
<td>Ivan Allen Institute</td>
</tr>
<tr>
<td>Robotics</td>
<td>Institute for Robotics and Autonomous Systems (FY14 start)</td>
</tr>
<tr>
<td>Systems</td>
<td>No IRC per se (need served by GTRI and ASDL)</td>
</tr>
</tbody>
</table>
Georgia Tech Contracts Continuum is tailored to enable translational research

Before March, 2013:
Single basic research agreement had to be customized every time research fell outside traditional exploratory / academic research context

Today:
Four targeted agreements carefully crafted to:
• Address industry challenges
• Streamline contracting process
• Provide straightforward IP terms
• Enable translational research
Contract Continuum: 4 Contract Mechanisms Tailored to Meet Industry Needs

- **Basic Research Agreement**
  - Explore potential solutions in a broad technical area
  - Default IP license is non-exclusive
  - Option to negotiate exclusive license IP

- **Applied Research Agreement**
  - Identify solutions to targeted problems
  - Default IP license is non-exclusive
  - Option to negotiate exclusive rights in return for single fee payment at contract signing
  - Exclusive license negotiated at end of option period

- **Demonstration Agreement**
  - Develop incremental improvements for an existing technology: company owned or licensed GT IP
  - All improvements licensed without additional IP fees

- **Specialized Testing Agreement**
  - Access to unique GT technical assets to evaluate new and existing products
  - Sole deliverable is test report: no IP rights transfer
<table>
<thead>
<tr>
<th>IP Terms</th>
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</table>
| **Basic Research** | • Company is granted a nonexclusive, royalty free commercial license to project IP  
• Company also has the option to negotiate an exclusive license in defined field of use |
| **Applied Research** | • Up-front IP fee covers IP developed (5% per field of use)  
• Company receives time-limited commercial right to practice IP  
• Upon termination of time-limited right to use, can negotiate license within the declared field of use  
• Company receives an option to project IP in other fields of use |
| **Demonstration** | • No further negotiation required regarding improvements  
• For company background IP – company granted fully paid exclusive rights to all improvements  
• For IP licensed from GTRC – all improvements will be included in original license agreement |
| **Specialized Testing** | • Test results owned by company  
• No further IP development expected |