Making and Marketing a University Tech Transfer Process

President G. Wayne Clough
Georgia Tech
Research at Georgia Tech

Awards

Expenditures*

* #4 in nation among universities with no medical school.
Incorporating students

- Research is a learning process and enriches the experience of our students.
- 43% of GIT undergraduates participate in research for academic credit.
- 52% of GIT graduate students are supported by funding from sponsored research.
Forms of technology transfer

- Peer review publications
- Skilled graduates
- Continuing education
- Consulting
- Licenses to existing companies
- Licenses to start-up companies
“Virtually every combination of industry relationship or economic development activity can be found at Georgia Tech, and in a very real sense the school is an operating partner with Georgia state government. Perhaps more than any other research university in North America, economic development is an integral, critical component of the mission of the Georgia Institute of Technology, and this has been true from its very inception.”

Southern Growth Policies Board *Innovation U* study
GIT commercialization

FY 2004

- 277 invention disclosures filed
- 61 patents filed*
- 34 patents issued
- 22 software licenses**
- 15 new start-up companies

* GIT “bundles” related ideas for cost-effective patenting.
** Does not include small licenses less than $1,000.
Among Southeast’s 59 research universities, GIT is…

- #1 in start-up companies
- #4 in research expenditures
- #5 in patents issued
- #11 in licenses and options executed
1980 Bayh-Dole Act

- Allows universities to take title to any intellectual property (IP) generated by federally funded research.

- Requires universities to:
  - Commercialize the IP they patent.
  - Ensure the IP is reasonably available for public use.
  - Alleviate health or safety concerns.
  - Share any royalties with the inventors.
The commercialization process

Research → Invention disclosures → Opportunity assessment

Commercialization strategy ← IP protection

Agreements with existing companies ← Start-up companies

License monitoring
The success rate

Research: $200 billion

Discoveries: 100,000

Patent applications: 50,000

Opportunity assessment:
- Commercial potential
- Technical advantages
- Protectability
- Inventor profile

Licenses: 25,000

Start-ups: 125

Estimated based on 2002 data.
Research universities must...

- Pay attention to their faculty inventors
  - Royalty streams
  - Equity exit strategies
  - A well-run tech transfer office is critical to recruiting and retaining top-tier faculty
- Be true to their non-profit roots & status
  - Be passive share-holders
- Act with institutional integrity
  - Arms-length relationships with licensees
  - Manage potential faculty conflicts of interest
  - Manage institutional conflicts of interest
GIT commercialization resources

- **VentureLab:**
  - Identifies faculty discoveries with market potential and guides them through commercialization process.
  - Experienced entrepreneurs are mentors.
  - Pre-seed funding for prototype or proof-of-concept.

- **Georgia Tech Research Corporation:**
  - Contracting agent for sponsored research.
  - Protects GIT’s intellectual property.
  - Evaluates potential licensees, negotiates license and start-up agreements, conducts “due diligence” on licensees/start-ups.
  - Administers research support programs.

- **Advanced Technology Development Center**
  - Incubates technology start-ups.
  - Provides seed-funding for faculty start-ups.
Benefiting Georgia’s economy

- Over the past 3 years at Georgia Tech:
  - 71.6% of licenses issued were in-state.
  - 86% of start-up companies located in-state.

- Why do some go out of state?
  - Universities are bound by law to commercialize federally funded research, and a viable in-state licensee may not be available.
  - Intellectual property from industry-sponsored research is licensed, under appropriate terms, to the company that sponsored the research.
  - Many high-tech companies incorporate in Delaware, even though their facilities are located in Georgia.
The Radatec story

- **Problem:** gas turbines in power plants
  - To shut down for inspection/maintenance costs $500,000.
  - Breakdown costs $4 million per incident.

- **GIT researchers Scott Billington, Jon Geisheimer** developed sensor technology:
  - “Sees” inside machinery while operating.
  - Operates at extremely high temperatures.
  - Unaffected by oil, dust, carbon deposits.
  - Immune to electromagnetic interference.
Sensor showcased at GIT Technology Day 2003, sponsored by VentureLab.

Began testing in 2004 with industry partners (hydroelectric generator at a Ga dam and motors on diesel-electric railroad locomotives).

Commercial release this year.
The CardioMEMS story

- GIT Professor Mark Allen is a recognized authority on micro-electro-mechanical systems (MEMS), which are electro-mechanical structures at the micron level (one-millionth of a meter).

- With funding from the federal Defense Advanced Research Projects Agency (DARPA), he developed a micro-sensor to measure pressure of air turbulence in jet engines on military drone aircraft.
CardioMEMS story, cont.

- Problem: CT scan the only tool for heart patients requiring life-long monitoring
  - Expensive, time-consuming
  - Repeated radiation exposure; uses dyes that are toxic to kidneys
- EndoSensor implanted with heart stent
  - Electronic wand waved in front of chest sends radiowaves that activate the EndoSensor.
  - EndoSensor takes measurements and sends results by radiowaves to external monitor.
CardioMEMS story, cont.

- Company now has 30 employees.
  - 1/3 are GIT grads or GIT students working part-time.
- Raised $16.5 million in venture capital since 2001 in very difficult investment climate.
- EndoSensor now in FDA-authorized clinical trials with patients.