

Making and Marketing a University Tech Transfer Process

***President G. Wayne Clough
Georgia Tech***

Research at Georgia Tech

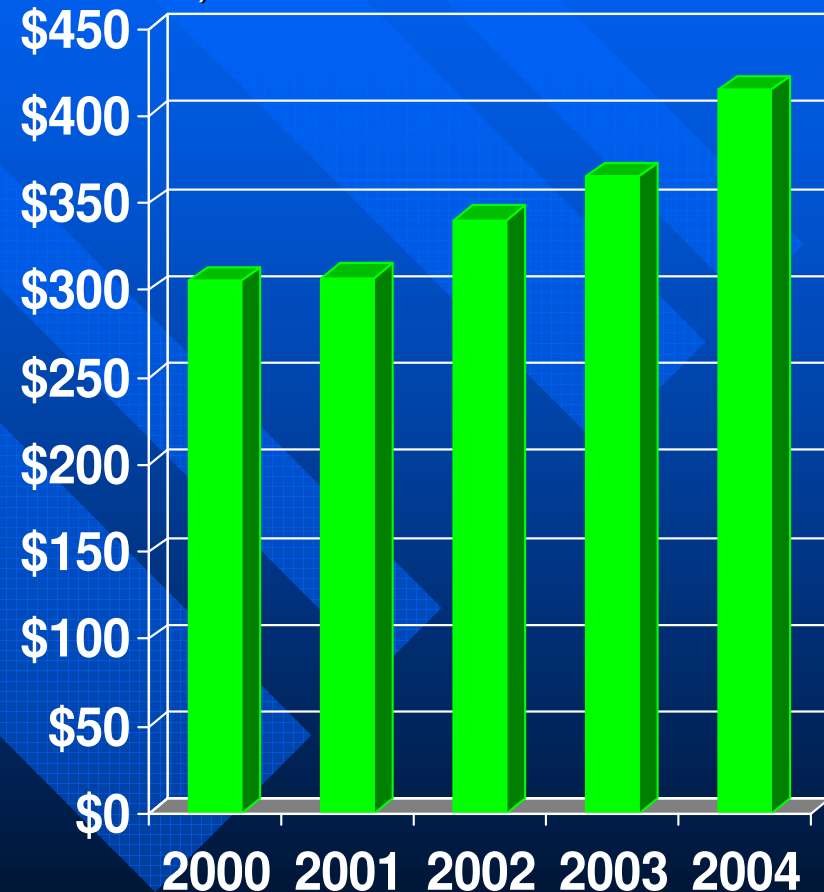
Awards

(in millions)



Expenditures*

(in millions)



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

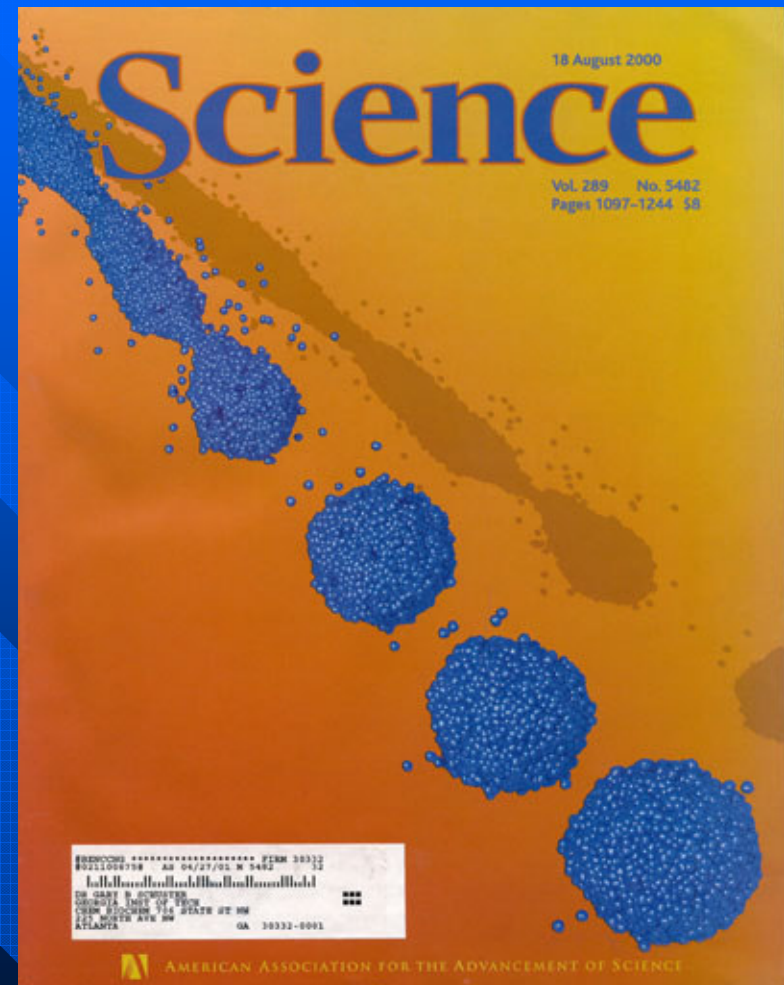


Incorporating students

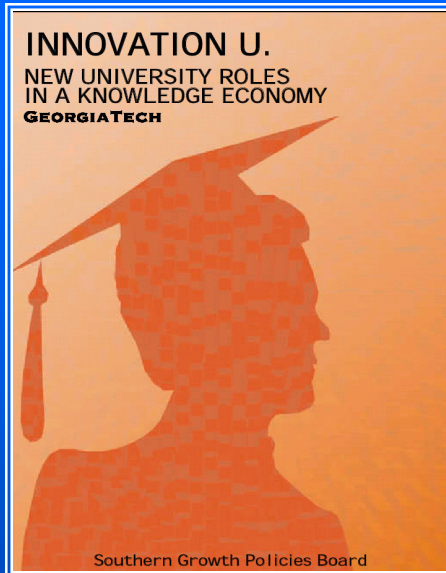
- Research is a learning process and enriches the experience of our students.
- 43% of GIT undergraduates participate in research for academic credit.
- 52% of GIT graduate students are supported by funding from sponsored research.

Forms of technology transfer

- Peer review publications
- Skilled graduates
- Continuing education
- Consulting
- Licenses to existing companies
- Licenses to start-up companies



Technology transfer



“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.

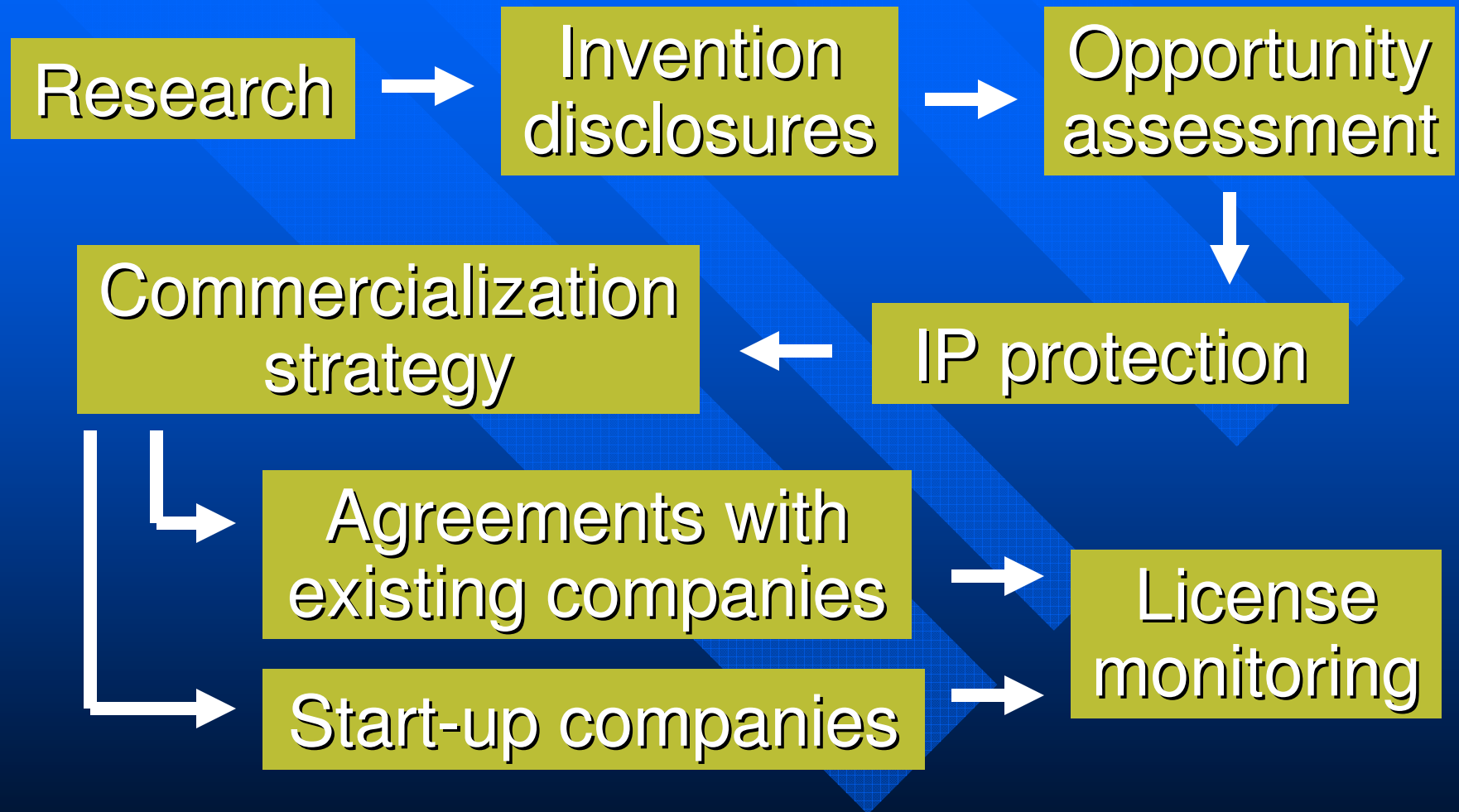
Among Southeast's 59 research universities, GIT is...

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

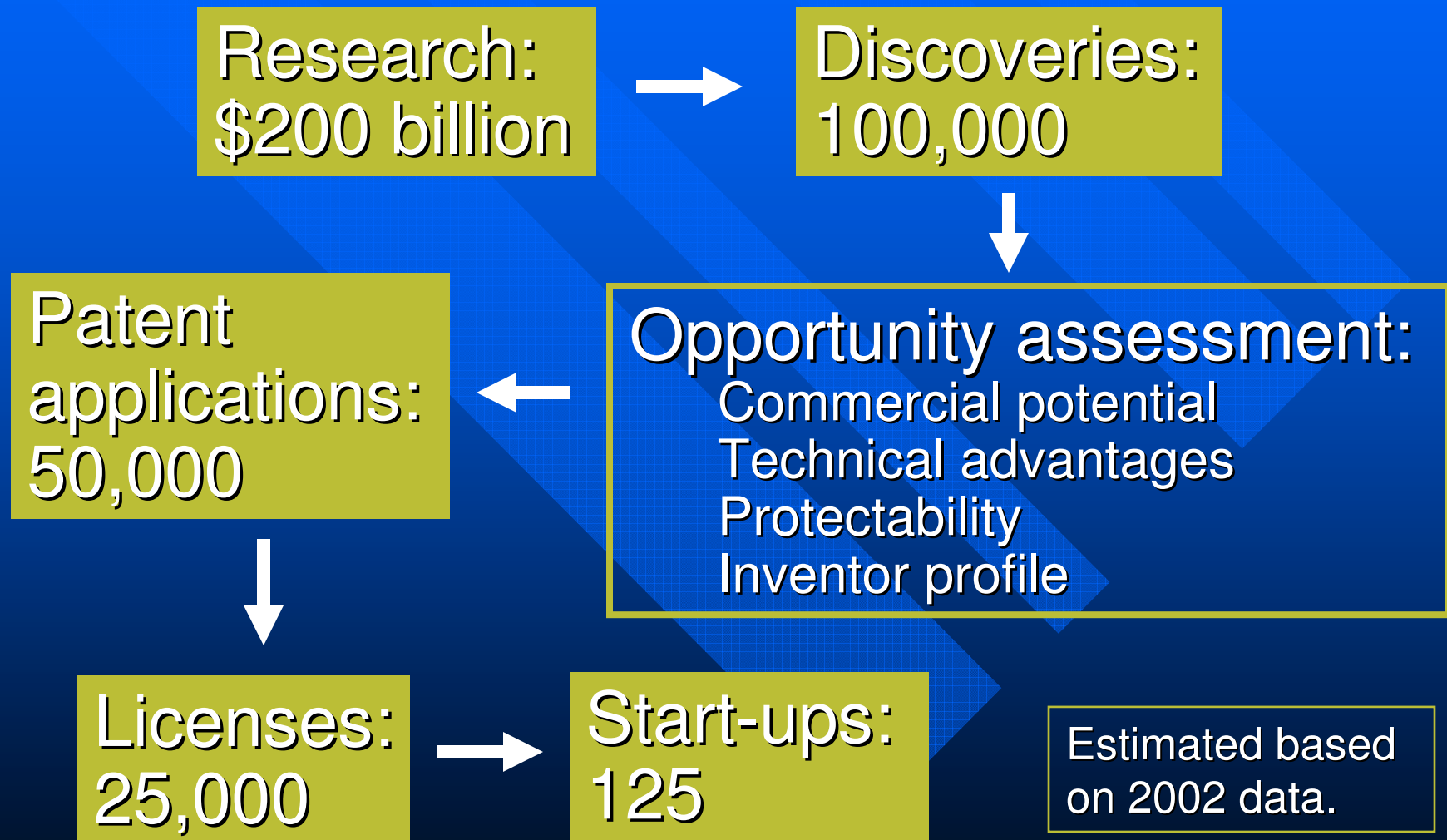
1980 Bayh-Dole Act

- 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



The success rate



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.



Radatec story, cont.

- 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.