Creating the Innovation Economy

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Powerful trends reshape the world

- High-speed communications / Internet
- End of Cold War political constructions
- Removal of trade barriers
- Terrorist attacks; wars in Iraq, Afghanistan
- Emergence of technology-based economies around the world
- Sustained investment in higher education in nations like India and China

The world of 2020

- 8 billion people; a 25% increase over 2000
- Balance tipped toward urbanization
- Population in developed nations aging; "youth bulge" in underdeveloped nations
- Of a representative 100 people:
  - 56 will live in Asia
  - 16 will live in Africa
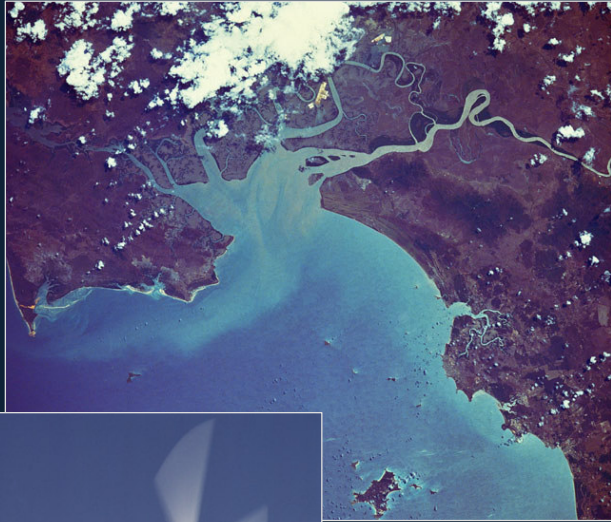 - 4 will live in the United States

Future issues

- ○ Water shortages
- ○ Global warming
- ○ Energy demands
- ○ New diseases
- ○ Increased competition for technology sector
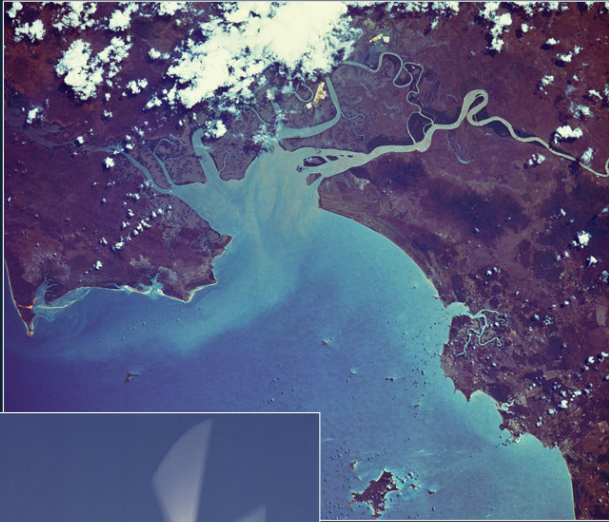
Future issues

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- New diseases
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- Biotechnology revolution
- Nanotechnology revolution
- Sustainable technology

"The U.S. is not graduating the volume of scientists and engineers, we do not have a lock on the infrastructure, we do not have a lock on the new ideas, and we are either flat-lining, or in real dollars cutting back, our investments in physical science and engineering. The only crisis the U.S. thinks it has today is the war on terrorism. It's not."

Craig Barrett
CEO, Intel

National Innovation Initiative

- Year-long discussion of how to create an economic environment conducive to innovation
- National Innovation Summit, Washington, D.C., December 14-15, 2004
- Report: "InnovateAmerica: Thriving in a world of challenge and change"
- 30 recommendations to promote innovation

"Innovation occurs at the intersection of invention and insight. It's about the application of invention – the fusion of new developments and new approaches to solve problems."

Sam Palmisano, IBM
Council on Competitiveness Annual Meeting
October 30, 2003

Council on Competitiveness

"Innovation fosters new ideas, tech-nologies, and processes that lead to better jobs, higher wages, and a higher standard of living. For advanced industrial nations no longer able to compete on cost, the capacity to innovate is the most critical elemental in sustaining competitiveness."

Vision Statement
National Innovation Initiative
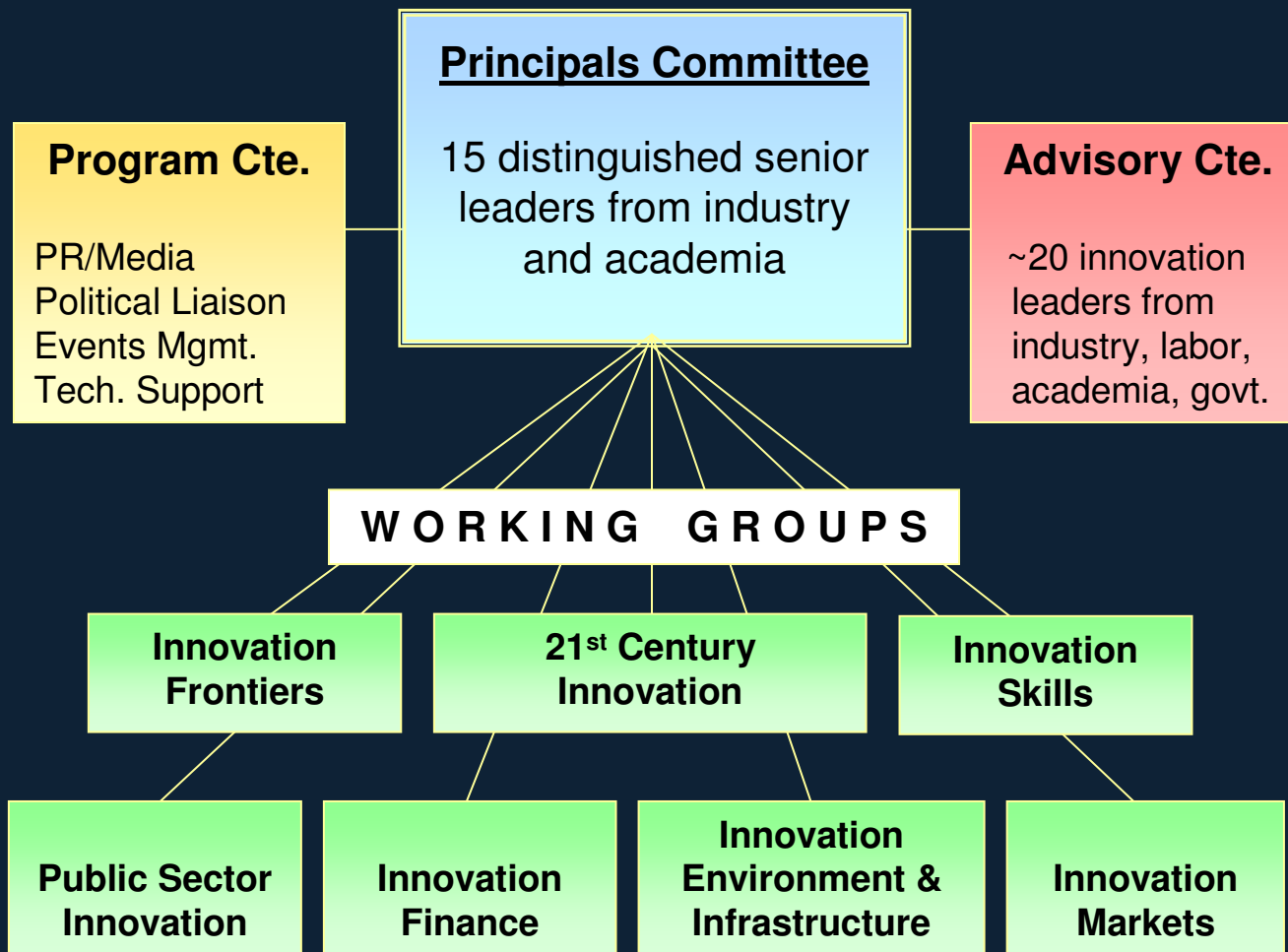
Challenges and opportunities

- The bar for innovation is rising
  - Multi-disciplinary and complex
  - Diffusing at an increasingly rapid pace
  - Collaborative between creators and users
  - Global in scope
- Appropriate balances are more critical
  - Between competition and collaboration
  - Between security and openness
  - Between nationalism and globality
  - Between analysis and ambiguity

The innovation ecosystem
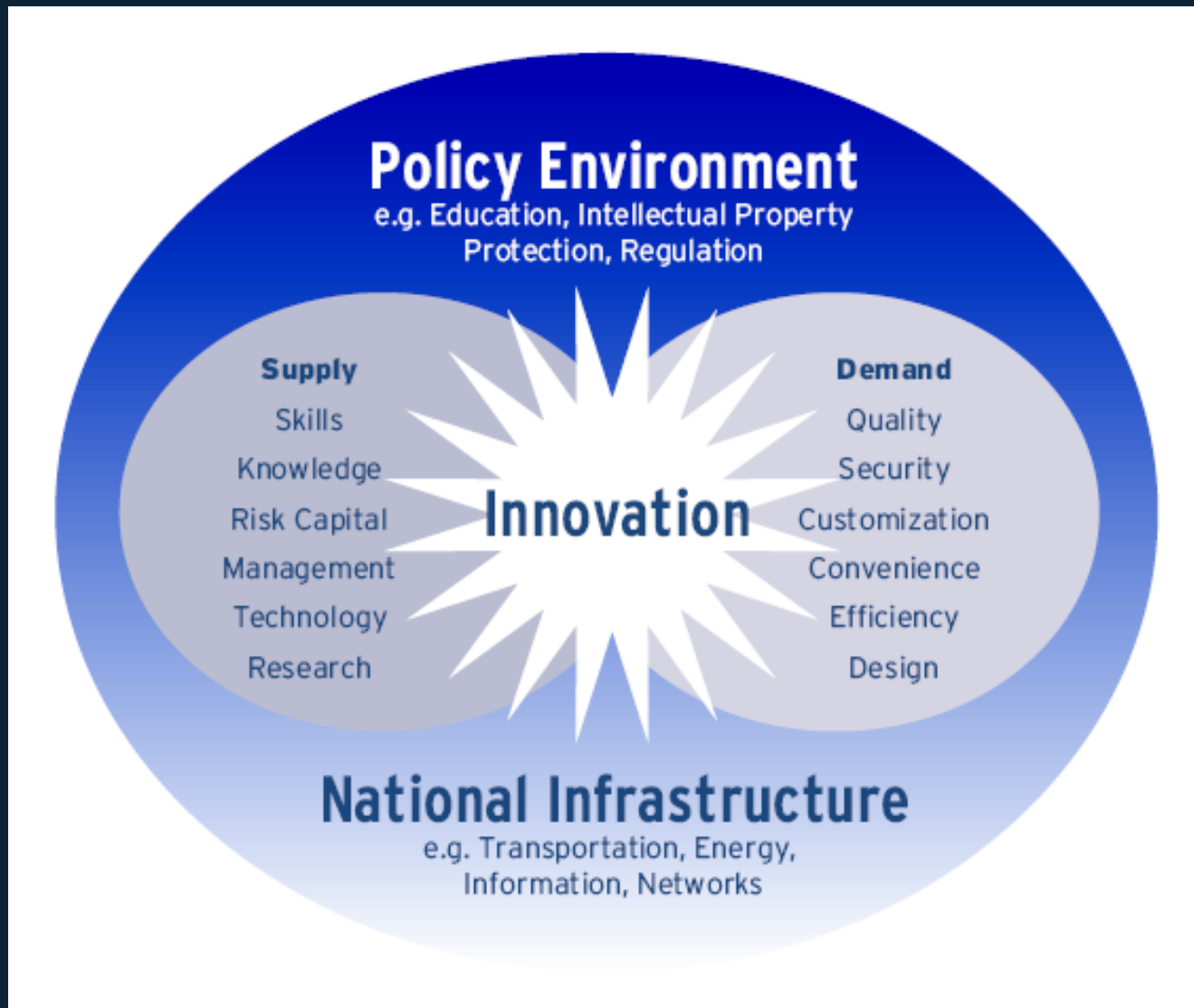
Optimizing for innovation

○ Talent, the human dimension

○ Investment, the financial dimension

○ Infrastructure, the physical and policy dimension

Talent, the human dimension

o Build the base of scientists and engineers

o Catalyze the next generation of American innovators

o Empower workers to succeed in today's global economy

Investment, the financial dimension

o Revitalize frontier and multi-disciplinary research

o Energize the entrepreneurial economy

o Reinforce risk-taking and long-term investment

Universities as drivers of innovation

- Educate the talent

- Conduct fundamental research that provides discoveries and knowledge

- Promote technology transfer and commercialization

Universities as drivers of conversation

o Interdisciplinary collaboration

o IT networks

o Policy expertise

o Openness and diversity

o Open-ended discussions about the next Big Things

NLR National Fiber Network
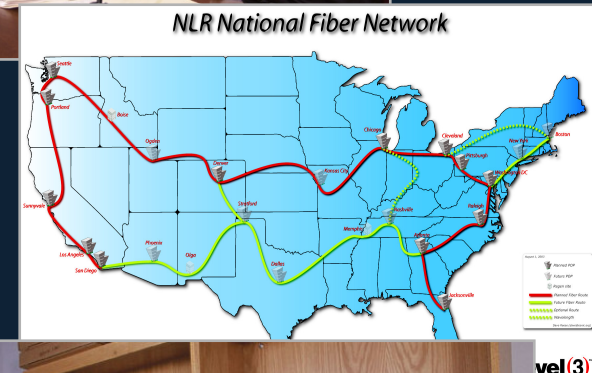
Generating innovation
at a 120-year old institution

Vision for Georgia Tech

Define the technological research university of the twenty-first century

Key Facts About Georgia Tech

- Ranked among top ten public universities
- SAT of entering freshmen among top three public universities
- Research expenditures over $400 million
- Graduates largest numbers of engineers, women engineers, African American engineers
- One of the nation's largest co-op programs

Four campuses on three continents

Georgia Tech-Atlanta

Georgia Tech-Lorraine

Georgia Tech-Savannah

Georgia Tech-Singapore

Interdisciplinary degrees

- Human-computer interaction

- Bioinformatics

- Quantitative and computational finance

- Prosthetics and orthotics

- Digital media

- Biomedical engineering

Interdisciplinary research
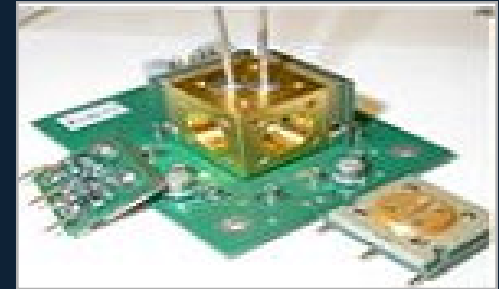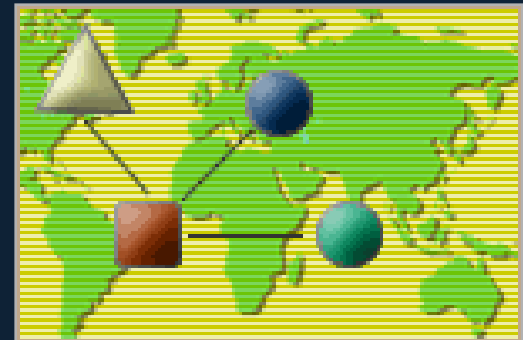
Sustainable technology

Nanotechnology

Biotechnology/ nanomedicine

Microelectronics/ telecommunications

Logistics
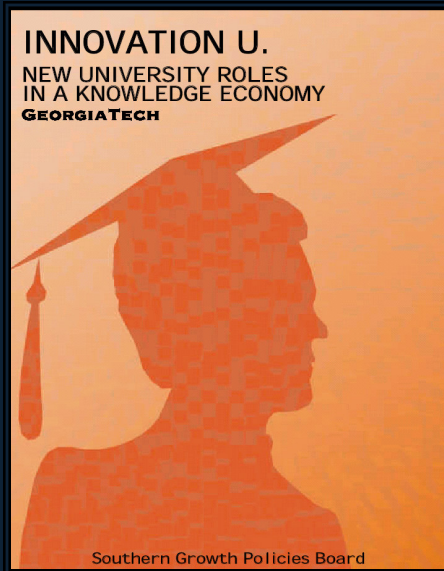
Photonics/optics

Manufacturing

Innovative Collaborations

- Emory/Georgia Tech Biomedical Engineering
- National Nanotechnology Infrastructure Network
- NSF Centers of Excellence:
  - Tissue Engineering
  - Electronic Packaging
  - Photonics
- National Lamba Rail
- Product Lifetime Management Center of Excellence
- The Enterprise Transformation Institute

International programs

○ Study Abroad: a third of undergraduates

○ Global Learning and Conference Center delivers education around the world

○ Global MBA with partner universities in France and Argentina

○ Sam Nunn School of International Affairs

○ Research and education partnerships:
Israel   Germany
Great Britain   Singapore
France   China

Technology transfer

INNOVATION U.
NEW UNIVERSITY ROLES
IN A KNOWLEDGE ECONOMY
GEORGIATECH

Southern Growth Policies Board

"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 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

VentureLab

Guiding faculty inventions and discoveries through commercialization

Jacket Micro Devices

Advanced Technology Development Center

Award-winning incubator for high-tech start-ups

- o 25th anniversary; nation's oldest university-based incubator
- o Member and graduate companies had revenues of $1.75 billion in 2003; employed 4,300

"Just as energy is the basis of life itself and ideas the source of innovation, so is innovation the vital spark of all human change, improvement, and progress."

Theodore Levitt
Edward W. Carter Professor Emeritus
Harvard University