

# Compete.

Higher Education and the Future of U.S. Competitiveness

Presentation to the Commission to Develop the  
Maryland Model for Funding Higher Education

July 23, 2007



## Higher Education and the Future of U.S. Competitiveness



### ▪ **What Do We Mean by Competitiveness**

- A Changing World
- How America Can Compete
- The Role of Higher Education
- The Next Discussion

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## Concerns about U.S. competitiveness now appear almost daily in the national news



- United States Has Crisis in Innovation *-Miami Herald*
- U.S. Competitiveness Is at Risk *-Washington Post*
- Solving the Innovation Shortfall *-New York Times*
- Is America Losing Its Edge? *-Foreign Affairs*
- Signs America's Scientific Edge is Slipping *-Denver Post*

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## The Council on Competitiveness brings together CEOs, University Presidents and Labor Leaders



- Founded in 1986
- Non-profit, non-partisan
- More than 170 members
- Mission is to set a public policy action agenda to:
  - Raise the standard of living for all Americans
  - Through productivity growth
  - And success in global markets

***“Our agenda is at the nexus of necessity and opportunity—and we all have an obligation to serve the nation.”***

**–Duane Ackerman, Former CEO, BellSouth Corporation, Former Chairman, Council on Competitiveness**

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## Our publications focus on national and regional competitiveness and innovation



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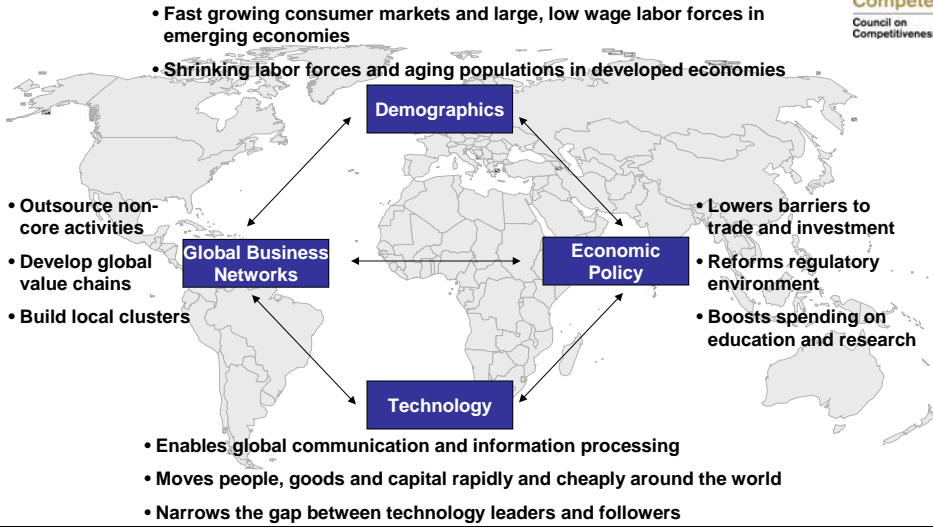
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## The global competitiveness environment has changed dramatically



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## The U.S. has lost its lead in high tech exports



### Emerging economies now lead

#### Top Ten High Tech Exporters (1986)

Billions of 1997 U.S. Dollars

1. United States \$65
2. Japan \$53
3. Germany \$31
4. United Kingdom \$24
5. France \$14
6. Netherlands \$9
7. Italy \$8
8. Switzerland \$8
9. Taiwan \$7
10. South Korea \$7

Emerging economies ►  
 Developed economies ►

#### Top Ten High Tech Exporters (2005)

Billions of 1997 U.S. Dollars

1. China \$406
2. United States \$284
3. Japan \$212
4. Germany \$183
5. South Korea \$167
6. Hong Kong \$157
7. Taiwan \$145
8. Singapore \$126
9. Malaysia \$99
10. United Kingdom \$95

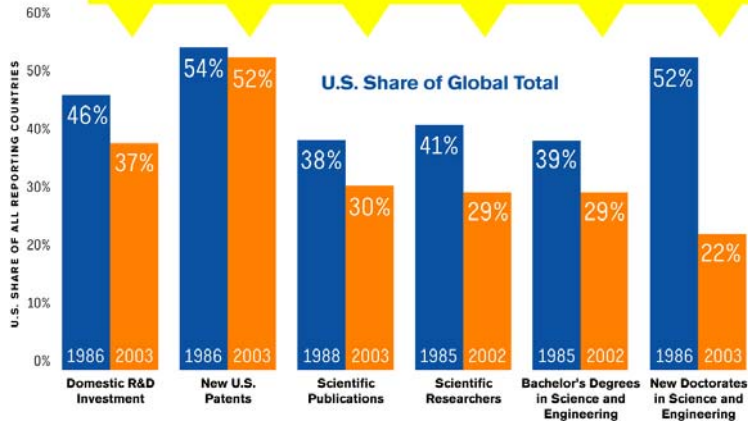
Source: Global Insight, Inc.

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## U.S. Share of Global Output Has Fallen Across a Range of Science and Technology Metrics



**Narrowing lead across all categories**



Source: NSF, Science and Engineering Indicators (2006), OECD, Main Science and Technology Indicators (2006), U.S. Patent and Trademark Office

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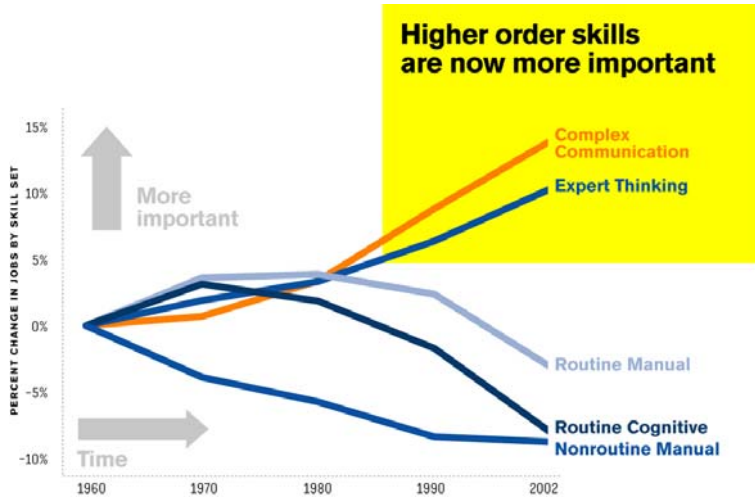
## Multinational corporations innovate through global networks



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## Higher order skills continue to increase in importance across ALL occupations



Source: Updated version of Figure 1 in David H. Autor, Frank Levy, and Richard J. Murnane, "The Skill Content of Recent Technological Change: An Empirical Exploration," Quarterly Journal of Economics, 118(4), November, 2003.

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## Innovation will be the key to America's prosperity



**Innovation** is the source of U.S. economic leadership and the foundation for our competitiveness in the global economy.

– *Bill Gates*

By investing in **research and development**, unleashing the innovative spirit of America's **entrepreneurs**, and making sure that our economy has workers highly skilled in **math and science**, we will lay the foundation for lasting economic prosperity.”

– *President George W. Bush*

United States economic growth in the 21<sup>st</sup> century will be driven by our nation's **ability to innovate**.

– *Gov. Janet Napolitano*

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## The National Innovation Initiative made recommendations across three platforms



### TALENT

- Build the Base of **Scientists and Engineers**
- Catalyze the **Next Generation of American Innovators**
- Empower **Workers** to Succeed in the Global Economy

### INVESTMENT

- Revitalize **Frontier and Multidisciplinary Research**
- Energize the **Entrepreneurial Economy**
- Reinforce **Risk-Taking and Long-Term Investment**

### INFRASTRUCTURE

- Create a **21<sup>st</sup> Century Intellectual Property Regime**
- Strengthen America's **Manufacturing Capacity**
- Build **21<sup>st</sup> Century Innovation Infrastructures**

Source: Council on Competitiveness, *Innovate America: Thriving in a World of Challenge and Change* (2004)

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## Regions – the real locus of competitiveness – commonly face five major challenges



### Building and retaining talent

Many regions are losing young, educated workers to more attractive regions and struggling to retrain displaced workers.

### Networking knowledge assets

Many regions fail to leverage their research institutions by not linking them to the resources they need to commercialize ideas.

### Energizing the entrepreneurial economy

Many regions lack adequate support services for entrepreneurs and access to start-up funding.

### Transitioning to advanced industries

Regions that are losing jobs in traditional industries need to find new ways to compete globally through innovation.

### Promoting regionalism

Multiple political jurisdictions within a region tend to hinder collaboration.

Source: Council on Competitiveness, *Regional Innovation/ National Prosperity* (2006).

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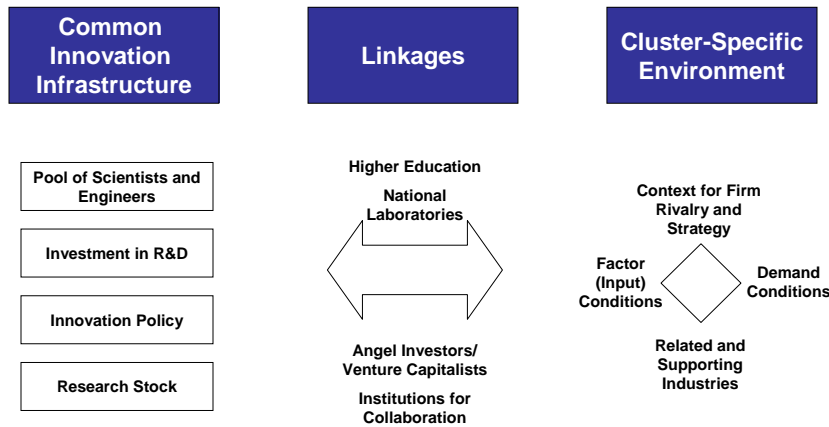
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## Firm-level competitiveness depends on the innovation environment



Source: Adapted from Jeffrey L. Furman, Michael E. Porter, Scott Stern, "The Determinants of National Innovative Capacity," *Research Policy* 31 (2002), pp. 899-933.

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## Higher education can help regions address their major challenges



<b>Building and retaining talent</b>	Attracts talented people to the region, develops talent and can partner with other organizations to meet workforce needs
<b>Networking knowledge assets</b>	Can serve as the hub of innovation networks, linking academic researchers, corporate researchers, entrepreneurs and investors
<b>Energizing the entrepreneurial economy</b>	Increasingly active in supporting entrepreneurship through incubators and accelerators, courses and organizing angel networks
<b>Transitioning to advanced industries</b>	Helps industry develop advanced capabilities through faculty consulting, industry-focused research and sector-specific initiatives
<b>Promoting regionalism</b>	Convenes regional stakeholders, helps develop regional strategies, builds regional identity

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## What are employers really looking for?



**Knowledge and skills expected to increase in importance over the next five years:**

1. **Critical thinking/ Problem solving**
2. **Information technology application**
3. **Teamwork/ Collaboration**
4. **Creativity/ Innovation**
5. **Diversity**
6. **Leadership**
7. **Oral Communications**
- ...
13. **Mathematics**
16. **Science**

Source: The Conference Board, "Are They Really Ready to Work? Employers' Perspectives on the Basic Knowledge and Applied Skills of the New Entrants to the 21<sup>st</sup> Century Workforce" (2006)

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## Rethinking advanced science degrees



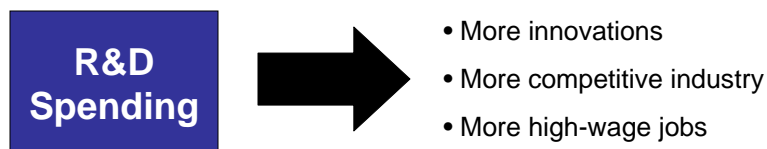
- Combines rigorous graduate study in science or mathematics with skills-based coursework in management, policy, or law
- Emphasizes the written and verbal communication skills, leadership, and team-building required in professional settings
- Most PSM degrees require a collaborative research project, as well as an internship in a business or the public sector

“Industry needs employees who not only understand the technical nature of their projects, but the business and legal aspects as well, and are able to communicate their mission to broad audiences. Students in this unique program learn just that.”

IBM Executive

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## How can we increase the national and regional economic impact of R&D?



But all of these benefits depend on:

- How global corporations choose to develop and commercialize new innovations
- The degree to which universities can help to translate basic research into innovations

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**It's not enough just to increase spending –  
when it comes to innovation, quality is even  
more important than quantity**



- Strive for world-class quality in teaching and research
- Strategically link higher education to regional industry
- Support higher education engagement in regional development

Accomplishing these will not only give you  
“more bang for the buck” but will also help you  
make the case for increased investment

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Council on  
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