Georgia Institute of Technology

Economic Development & Technology Ventures

Our mission is to help Georgia business, industry, and communities become more competitive through science, technology, and innovation.

Georgia Institute of Technology

Organization Overview

- *We are a service and outreach organization that contributes directly to the transformation of enterprises and communities so they can better compete at home and abroad.*

- *We support our mission by providing Georgia's business community with a key connection to Georgia Tech.*

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Serving Clients Through Four Units

- ***Commercialization Services****: focuses on moving technology from the laboratory to the marketplace*
- ***Entrepreneur Services****: addresses the diverse needs of entrepreneur-based companies throughout Georgia*
- ***Business and Industry Services****: assists manufacturers and related enterprises across the state*
- ***Community Research and Policy Services****: works with governments, communities and economic developers to enhance local and state economic growth*

Georgia Institute of Technology

Regional Network

David Apple
Northwest

Karen Fite
Northeast

Craig Cochran
North Atlanta

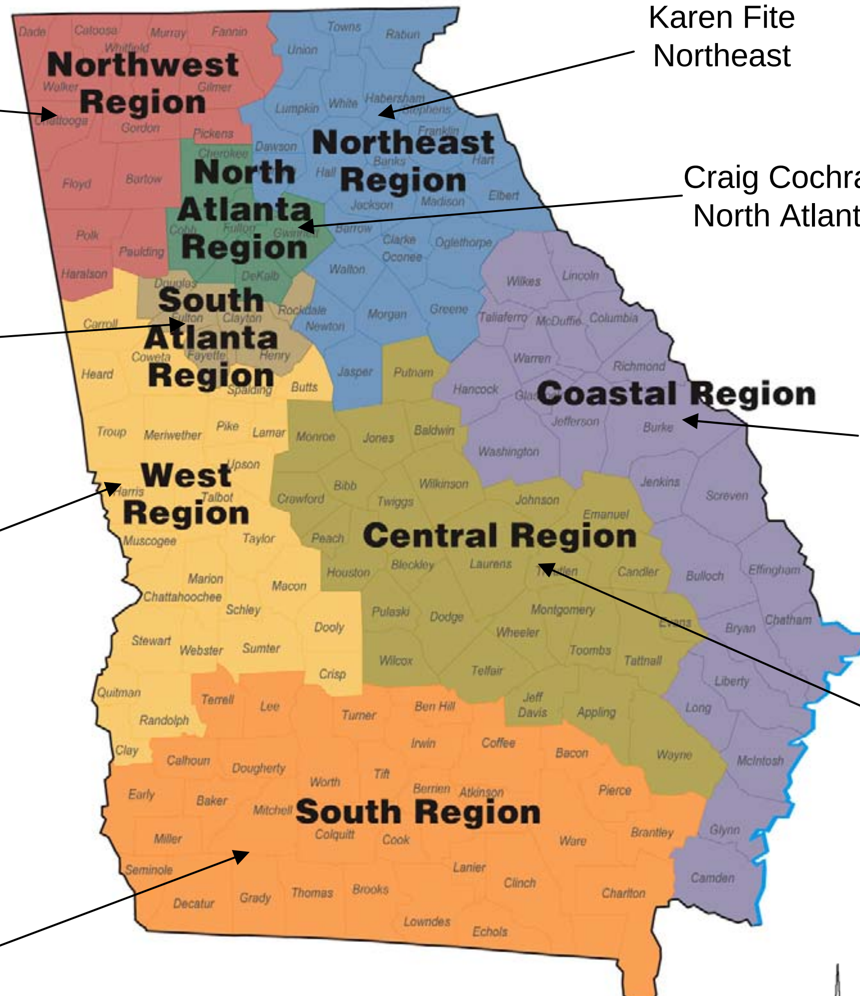
Larry Alford
South Atlanta

Vacant
Coastal

Jennifer Trapp-Lingenfelter
West

Alan Barfoot
Central

Art Ford
South



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Business and Industry Services

- ***Comprehensive set of services designed to help firms become more productive and competitive in world markets***
  - ***Strategic Business Services***
  - ***Lean & Quality Services***
  - ***Energy and Environmental Management***
  - ***Government Procurement Assistance***

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Georgia's Manufacturers

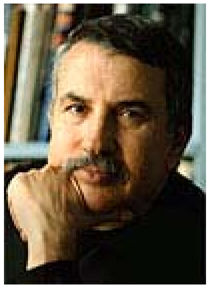
Competing in a Flat world!

Larry Alford

Georgia Tech Industrial Services

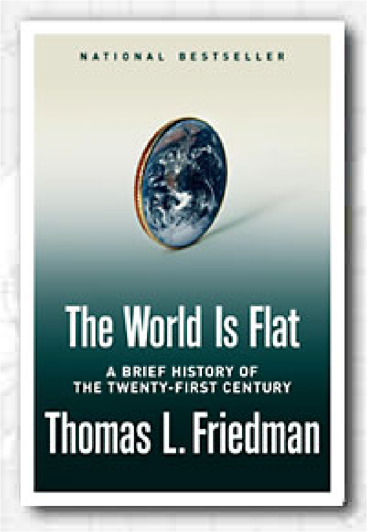
Georgia Institute of Technology

The global economic playing field is being leveled, and the U.S. is not ready!



In the new global world, individuals rather than countries or companies are able to share knowledge and work regardless of time, distance, geography and language.

The emergence of India, China and Russia onto the world economic stage has brought 300 million new workers into competition: Two times the size of the U.S. Workforce.

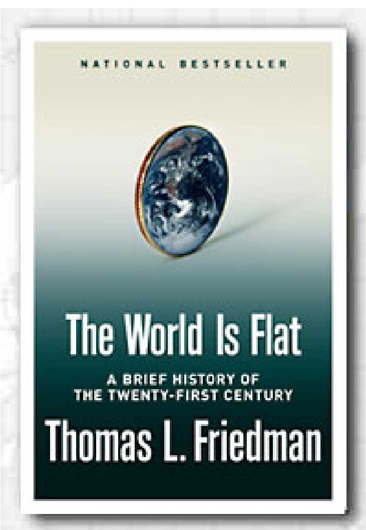


There is no such thing as an American job!

http://www.thomaslfriedman.com

10 Flatteners

- *The Berlin wall came down as the Windows came up*
- *Netscape*
- *Workflow software*

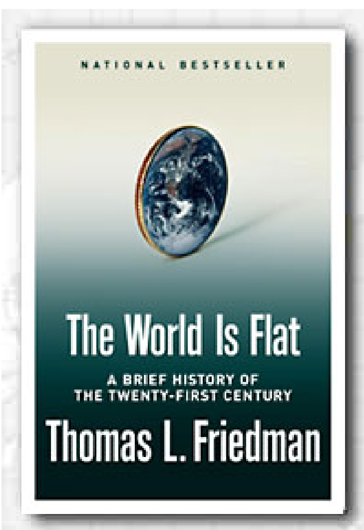


- *Outsourcing*
- *Off-shoring*
- *Open Sourcing*
- *Supply Chaining*
- *In-sourcing*
- *Informing / Search*
- *The Steroids – VoIP, wireless, file sharing*

When Tom was a child he was told: "Finish your meal because there are people starving in China."

Now he tells his children, "Finish your homework because people in India and China are hungry for your job!"

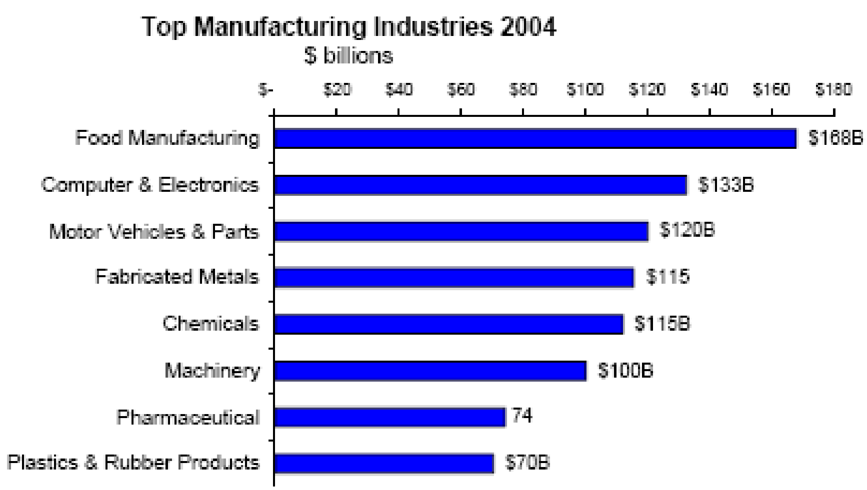
In a flat world, everything is commoditized, except the imagination.

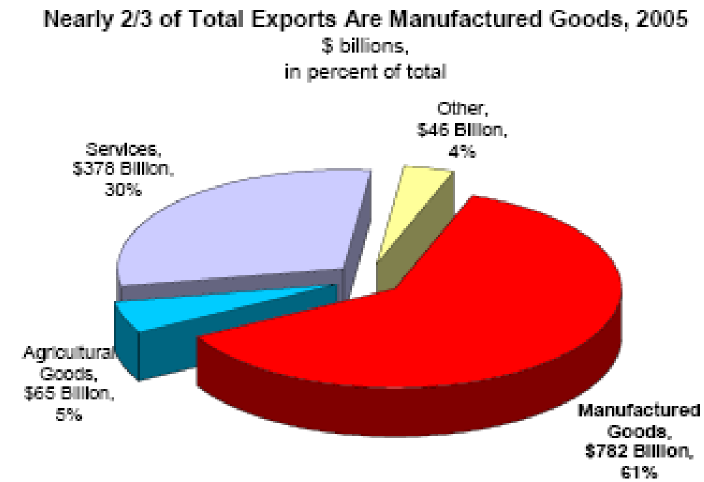


Our success will depend on how we use the common, available tools to create a more valuable solution. We must be open, collaborative and creative. And we must invest!

Employees, October 2005 Employees, 2000	14,257,000 17,181,000
Manufacturing businesses, 2004	378,142
Average manufacturing compensation*, 2004 Average national compensation*, 2004 */includes wages and benefits	$64,854 $52,553

Gross Domestic Product ($ billions)	$11,665
Manufacturing share of the economy ($ billions)	$1,494
Manufacturing as percent of GDP	13%





- Manufacturing is the largest contributor to the economy
- Employs 14.3 million people or 11% of the labor force (Oct. 2005)
- Pays an average 23% more than other industries
- American farmers export about $60 billion a year. Manufacturers export about that much every month!

Sources: U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, U.S. Census Bureau and Commerce Department

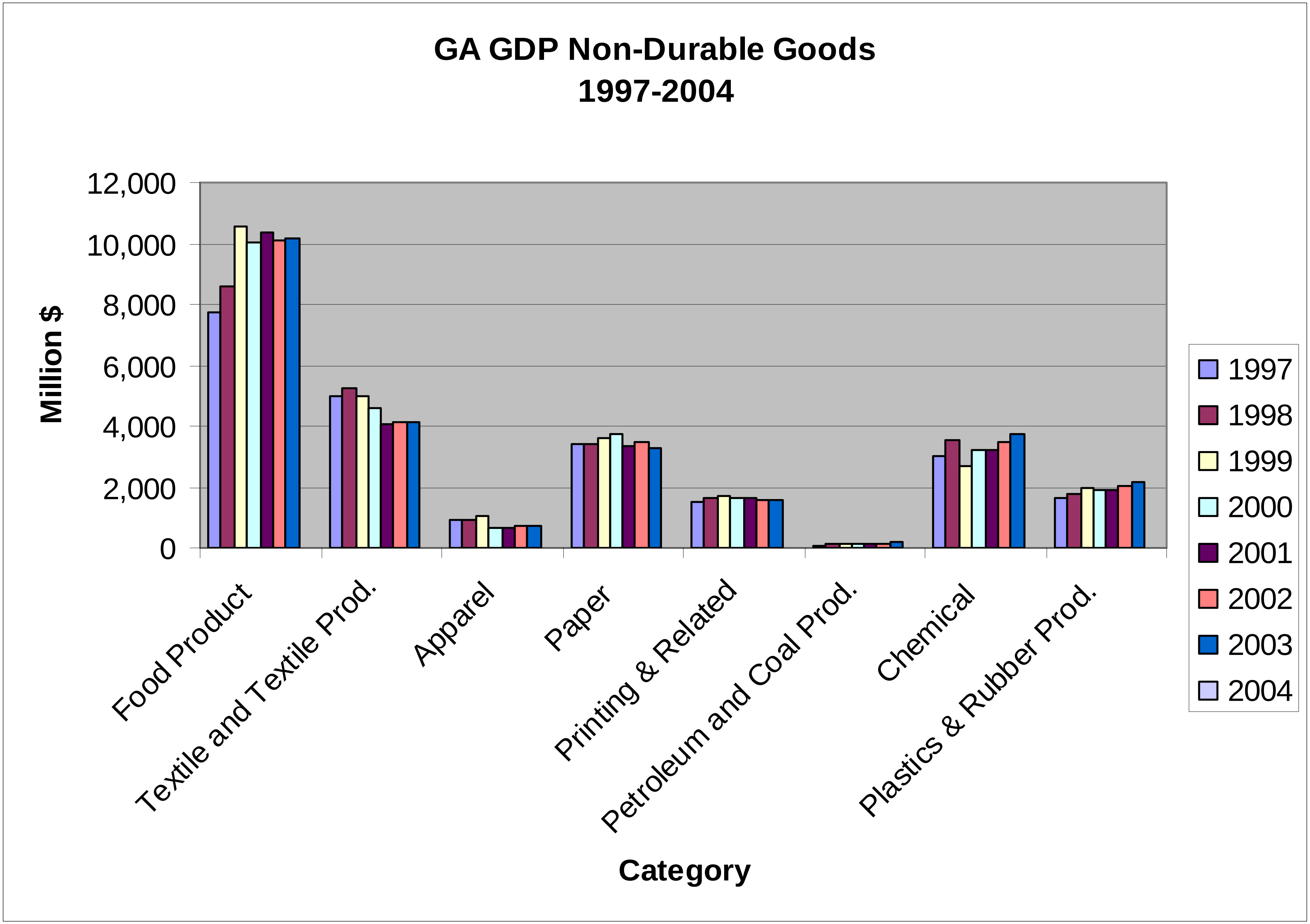
National Association of Manufacturers

February 2006

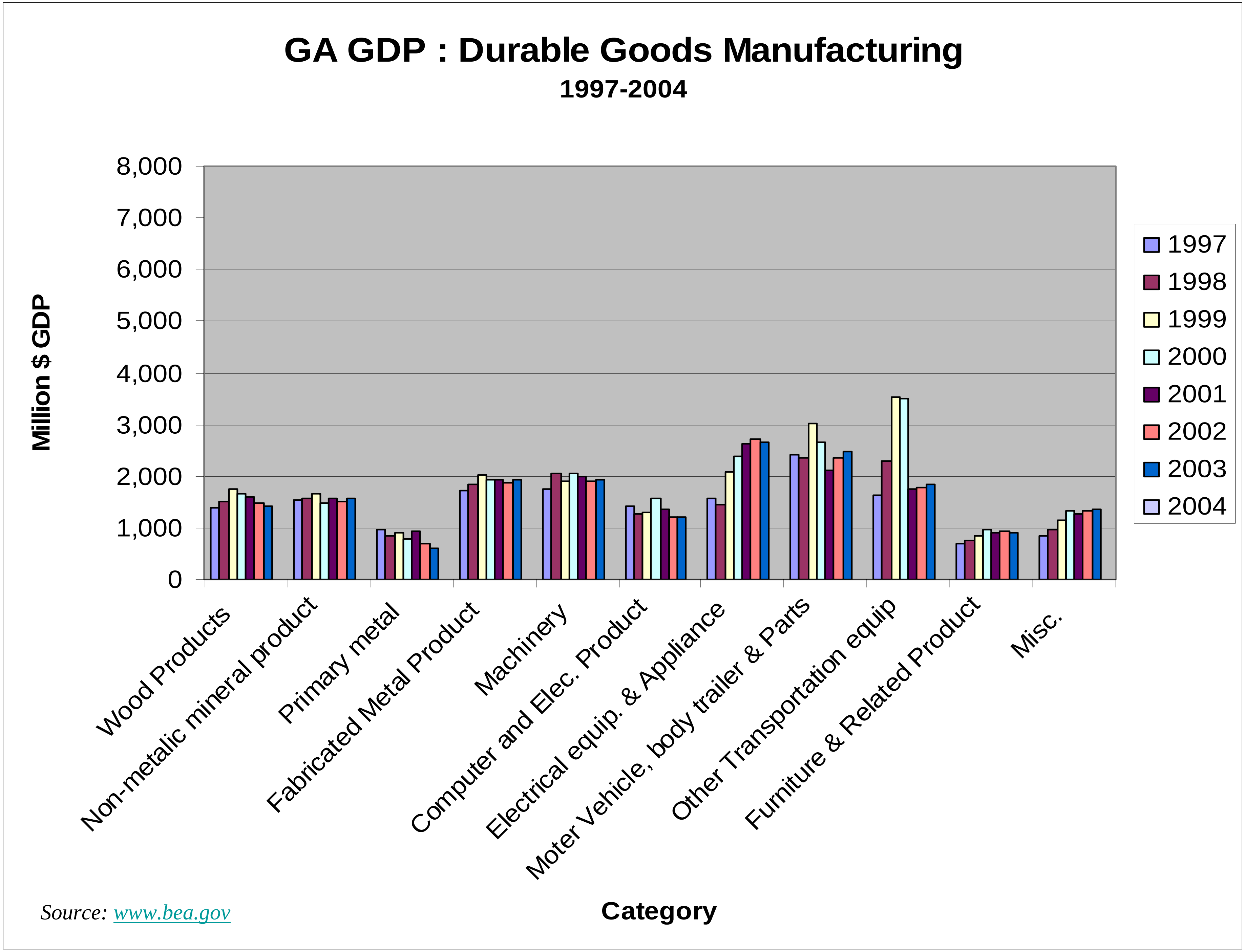
Georgia: 2004 Gross State Product by Industry Category

		% Change 1997-04
Government	12.9%	50.4%
Real estate, rental, and leasing	11.2%	52.3%
Non-durable goods manufacturing	**8.1%**	**19.5%**
Wholesale trade	7.5%	32.2%
Retail trade	6.7%	35.6%
Information	6.5%	64.2%
Finance and insurance	6.4%	74.2%
Professional and technical services	6.0%	54.5%
Durable goods manufacturing	**5.8%**	**24.2%**
Health care and social assistance	5.7%	63.4%
Construction	5.0%	60.0%
Transportation and warehousing	3.8%	36.1%
Administrative and waste services	3.2%	64.4%
Accommodation and food services	2.5%	45.1%
Other services	2.1%	36.4%
Utilities	2.0%	23.8%
Management of companies	2.0%	35.7%
Agriculture, forestry, fishing, and hunting	1.0%	**-0.2%**
Educational services	0.7%	115.7%
Arts, entertainment, and recreation	0.6%	43.2%
Mining	0.3%	9.5%

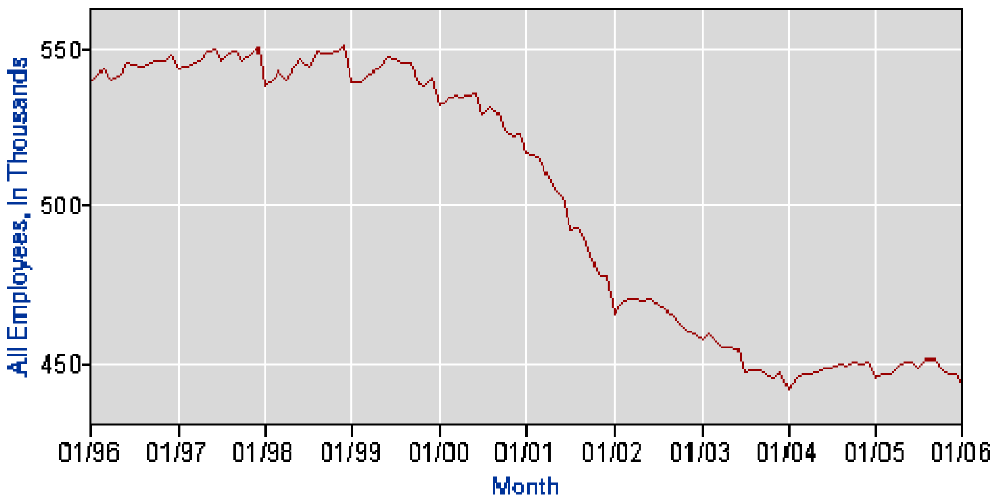
Source: www.bea.gov



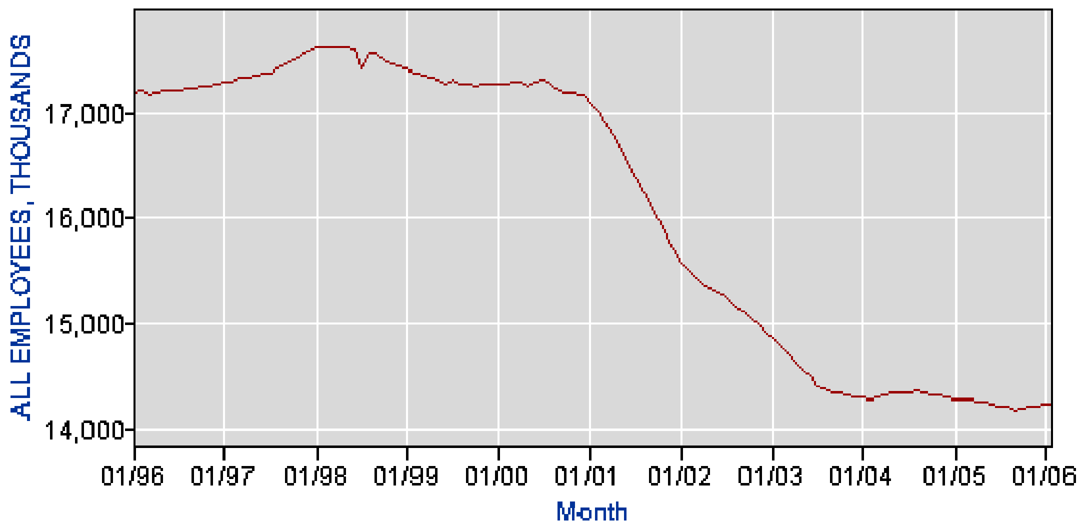
Source: www.bea.gov


GA GDP : Durable Goods Manufacturing
1997-2004
Million $ GDP
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Wood Products
Non-metalic mineral product
Primary metal
Fabricated Metal Product
Machinery
Computer and Elec. Product
Electrical equip. & Appliance
Moter Vehicle, body trailer & Parts
Other Transportation equip
Furniture & Related Product
Misc.
1997
1998
1999
2000
2001
2002
2003
2004
Category
Source: www.bea.gov

Georgia Manufacturing Employment

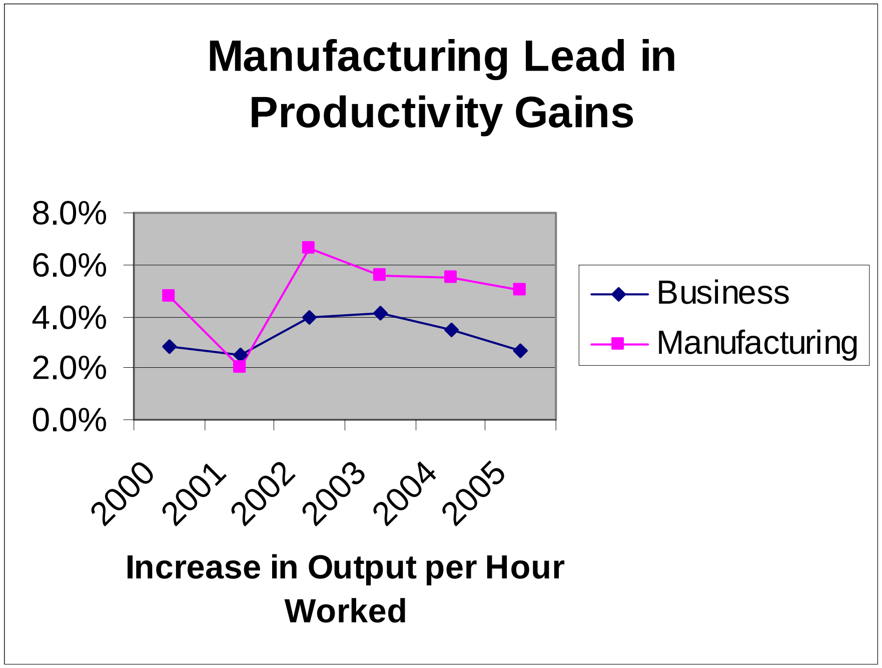


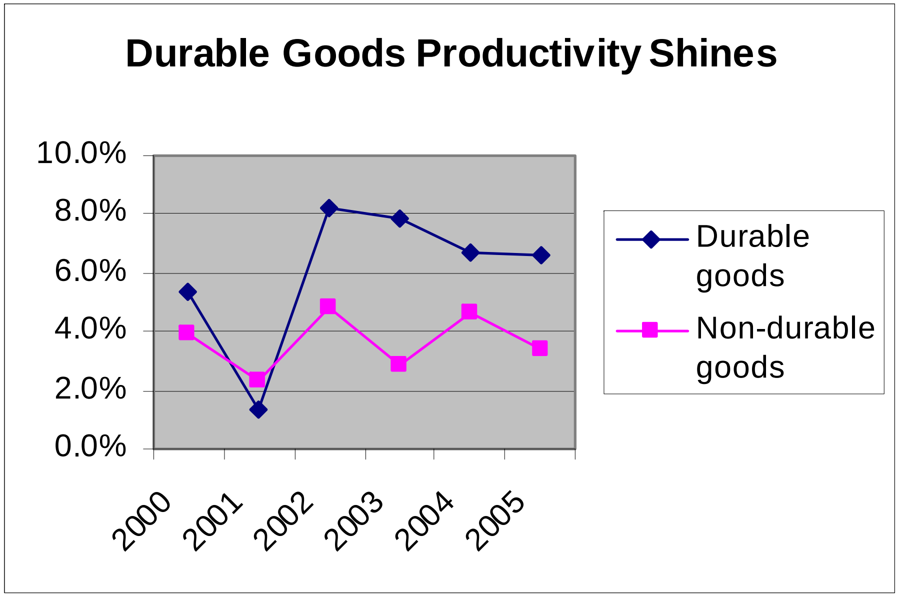
US Manufacturing Employment



Source: www.bls.gov

Productivity Gains Account for Much of the Job Loss



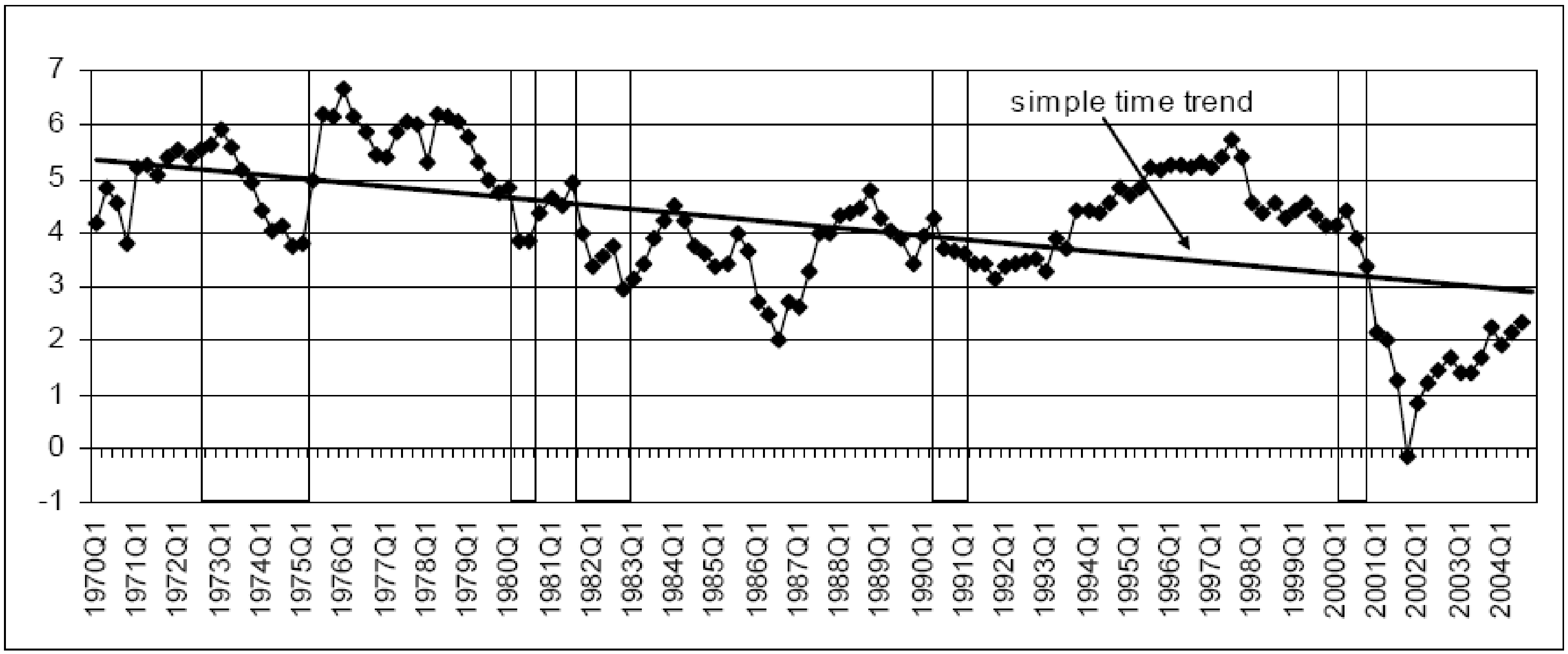


Source: www.bls.gov

Why are U.S. manufacturers locating capacity elsewhere?

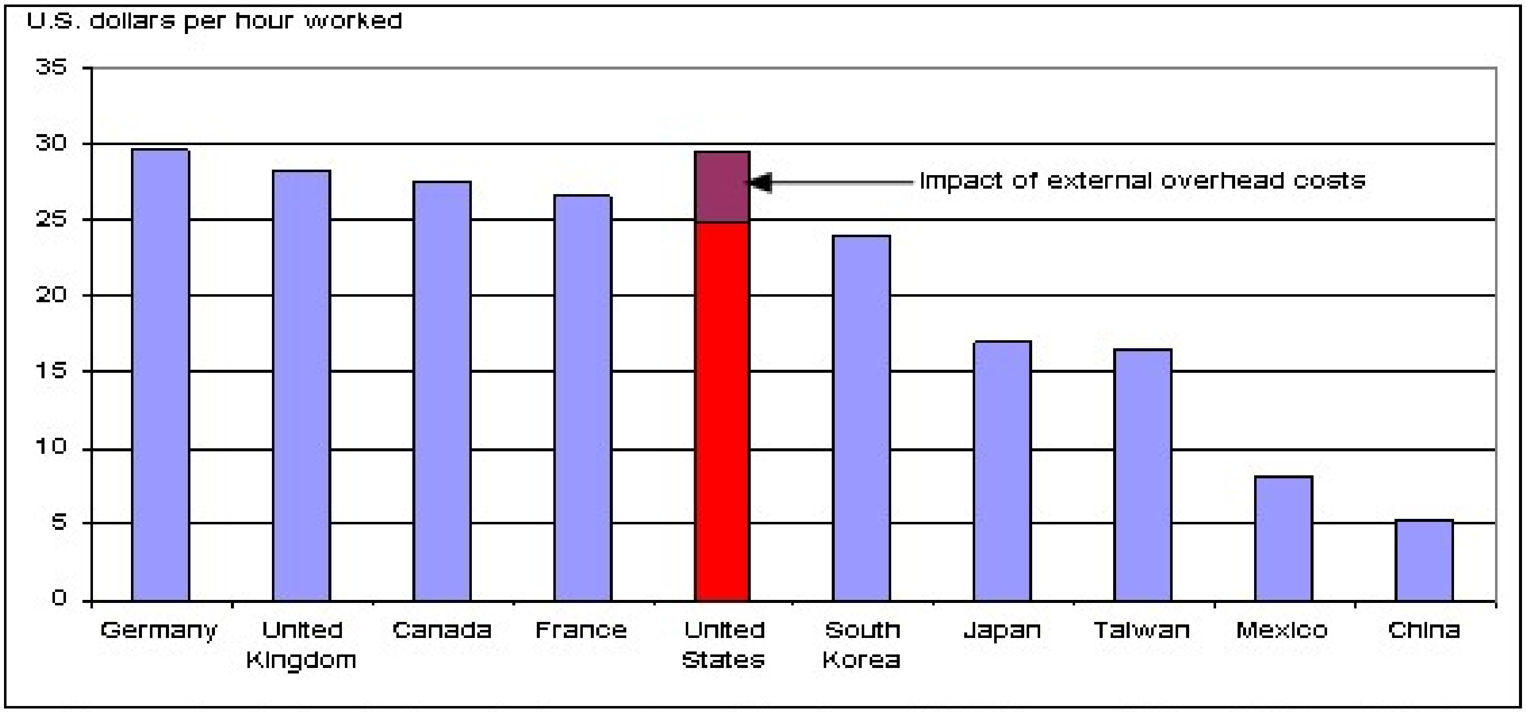
- *Seek and serve markets/customers*
- *Access resources*
- *Increase profits*

Manufacturing Profit Rate, 1970–2004
(cents per dollar of sales)



Source: U.S. Bureau of Economic Analysis (profits) and U.S. Bureau of the Census (sales)

Raw Cost Position of the United States
And Its Nine Largest Trading Partners, 2002



Source: Organization for Economic Cooperation and Development, U.S. Bureau of Labor Statistics, National Statistics of Taiwan, UN Industrial Development Organization, and author's calculations.

The rise of China: not just about labor

- *Currency policy*

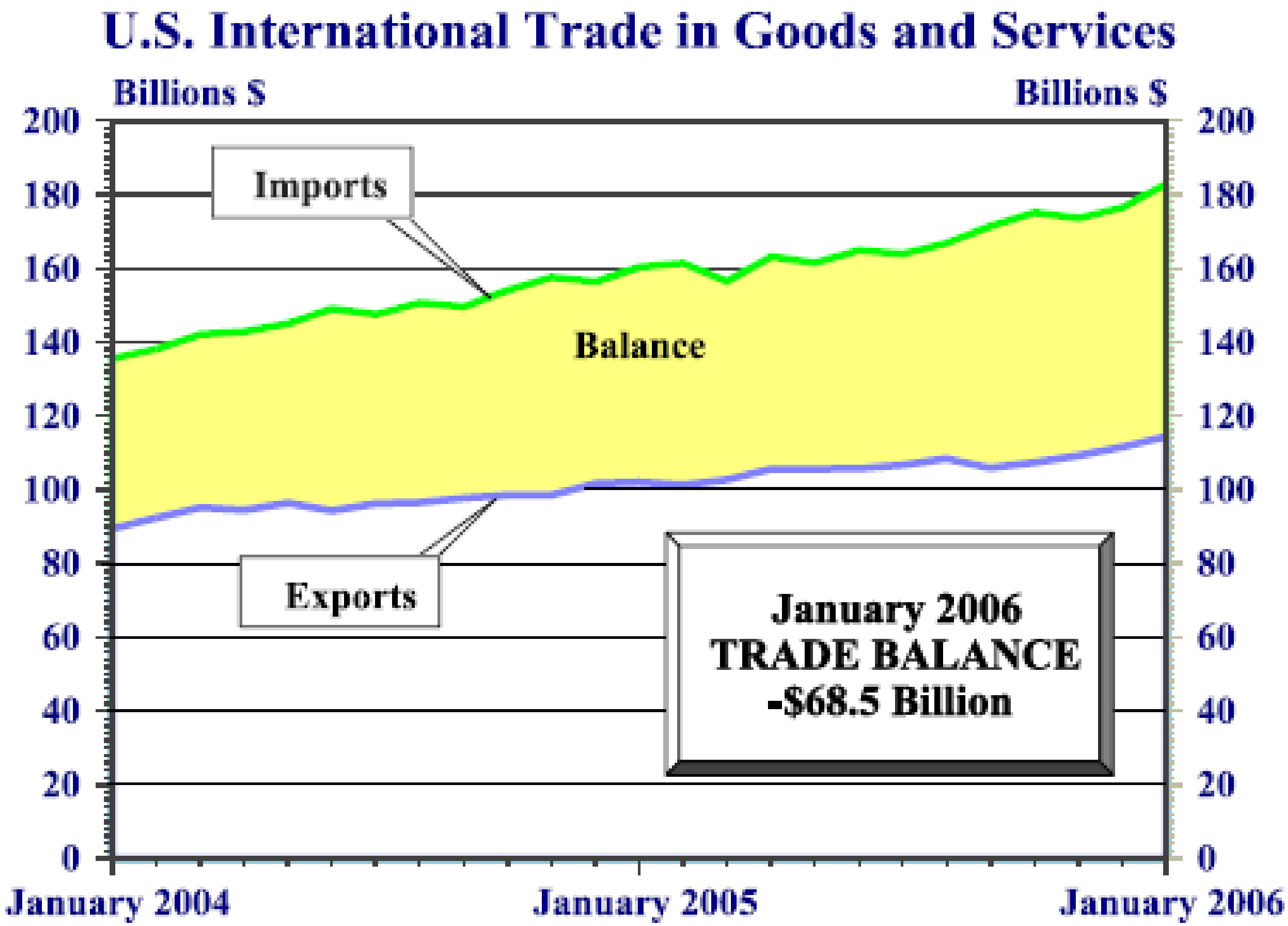
- *Lower cost materials / components*

- *Government incentives and less regulation*

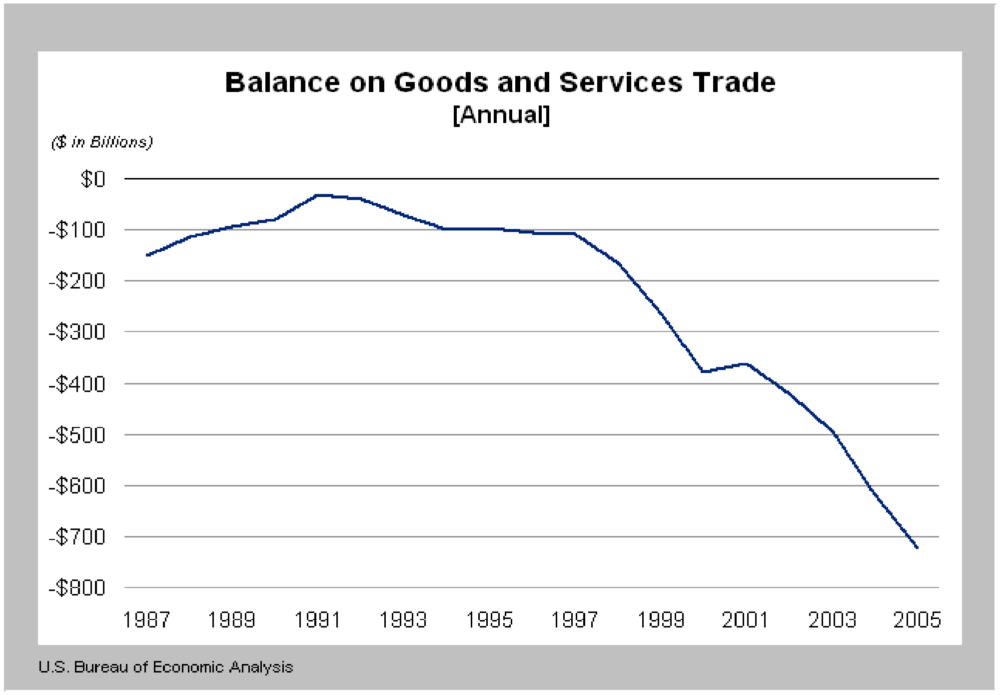
- *Capital not paid back / forgiven loans*

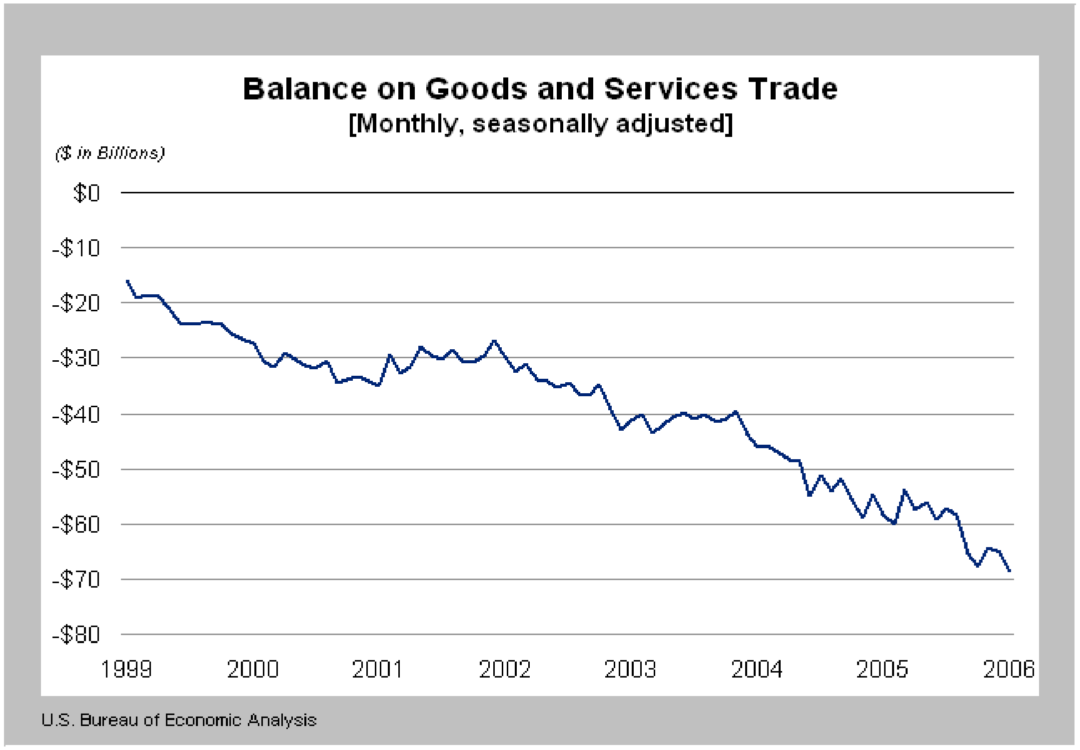
- *Tendency within China to oversupply*

- *Lack of intellectual property protection*



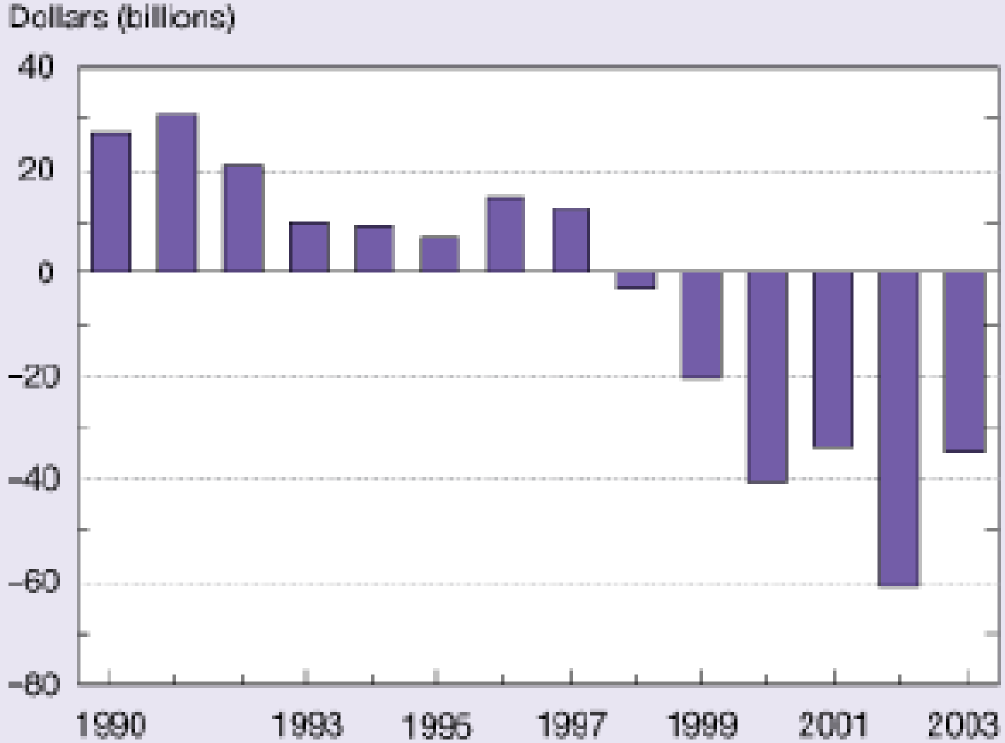
Source: www.bea.gov





Source: www.bea.gov

Figure O-12
U.S. trade balance for five high-technology industries: 1990–2003



NOTE: Includes aerospace, pharmaceuticals, office and computing equipment, communications equipment, and scientific instruments.

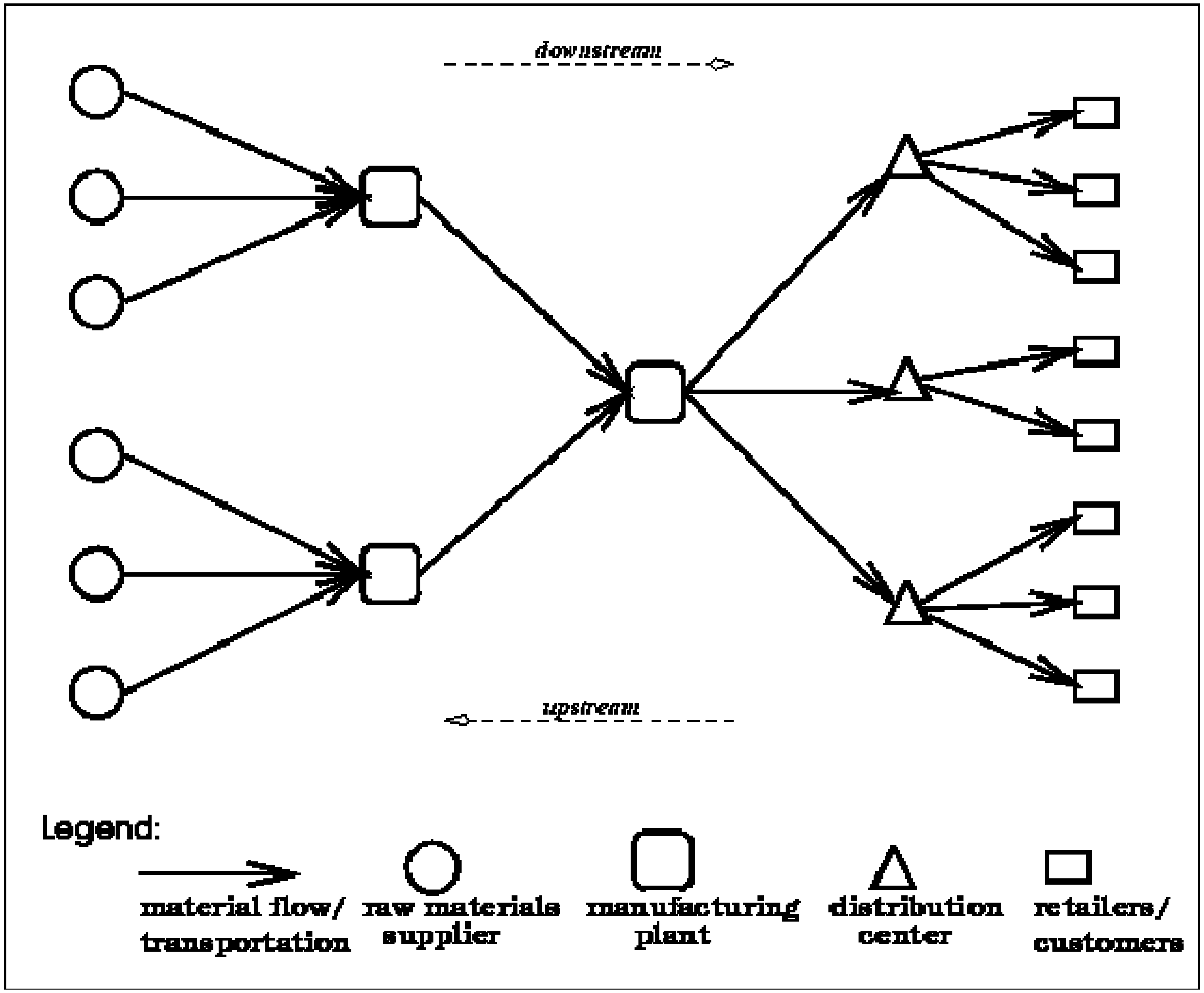
SOURCES: Global Insight, Inc., World Industry Service database (2005). Historical data from United Nations Industrial Development Organization, United Nations System of National Accounts, Organisation for Economic Co-operation and Development; and country sources. See appendix table 6-4.

Science and Engineering Indicators 2006

Manufacturing

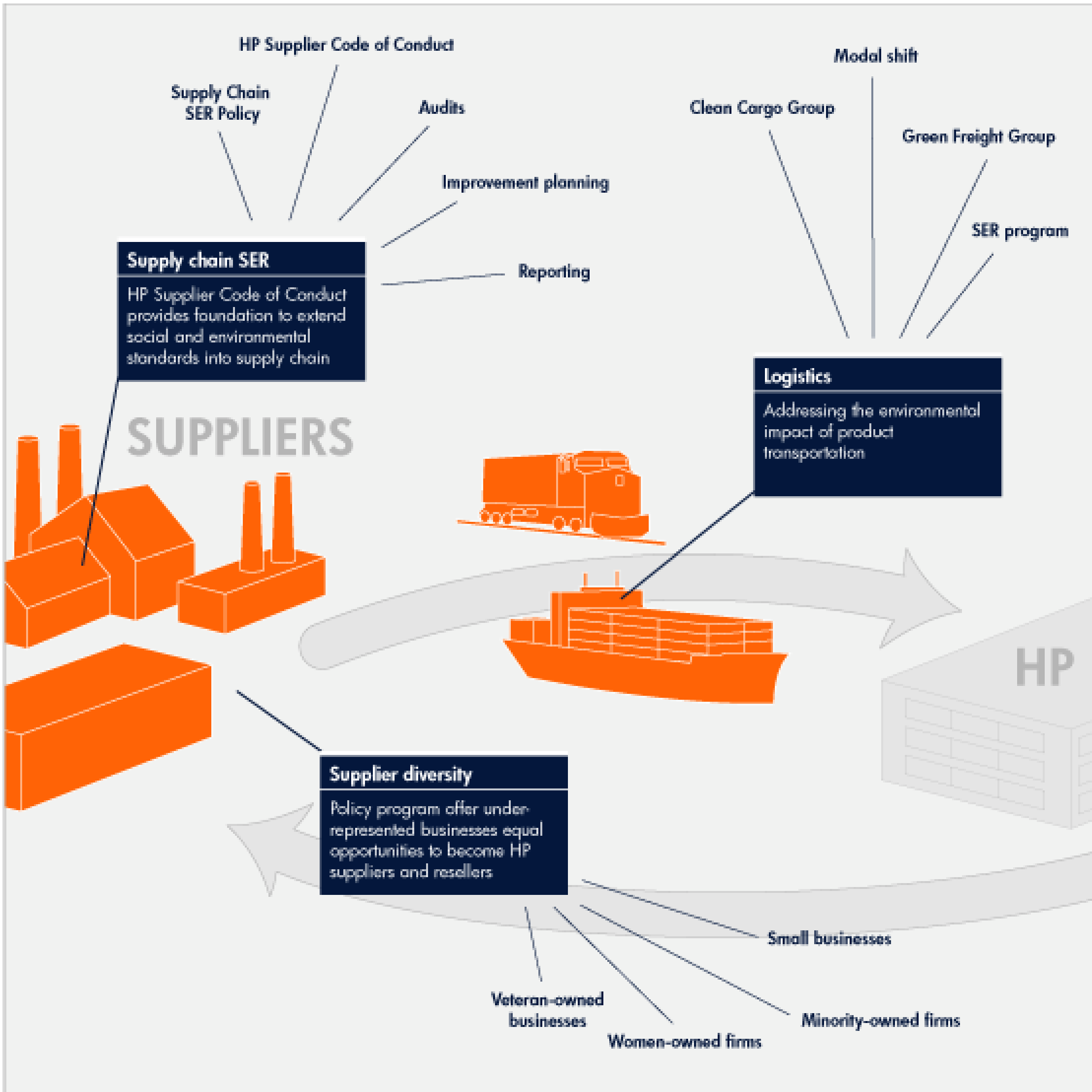
Life as a link in the Supply Chain

A Typical Supply Chain



The new competitive reality: Supply Chains Demand

- *Shorter cycle times from order to delivery*
- *Extreme quality*
- *Greater levels of service*
- *Lower prices over product life cycle*
- *Innovation partner: sharing knowledge, ideas and risk.*
- *Sharing values, codes of conduct*


HP Supplier Code of Conduct
Supply Chain SER Policy
Audits
Improvement planning
Reporting
Supply chain SER
HP Supplier Code of Conduct provides foundation to extend social and environmental standards into supply chain
SUPPLIERS
Modal shift
Clean Cargo Group
Green Freight Group
SER program
Logistics
Addressing the environmental impact of product transportation
HP
Supplier diversity
Policy program offer under-represented businesses equal opportunities to become HP suppliers and resellers
Small businesses
Veteran-owned businesses
Women-owned firms
Minority-owned firms

OEM's are Impatient:

"At the current state of maturity, most suppliers will go out of business trying to meet the cost goals that are inevitable as the (aerospace) industry matures. It's not that suppliers aren't improving. It's just that the rate of improvement is not keeping up with the demand for cost reductions and performance demands from the ultimate customers. As global competition heats up and international distribution capabilities shrink the globe, lower tier suppliers must accelerate their rate of improvement or risk losing market share."

Briefing Paper – Supplier Excellence Alliance (SEA)
May 2005

"A supplier who can deliver on-time with very few quality escapes (six sigma) is desirable no matter where they are located and without regard to their cost competitiveness. Time will continue to increase in its value, driving procurement decisions toward more reliable and capable suppliers."

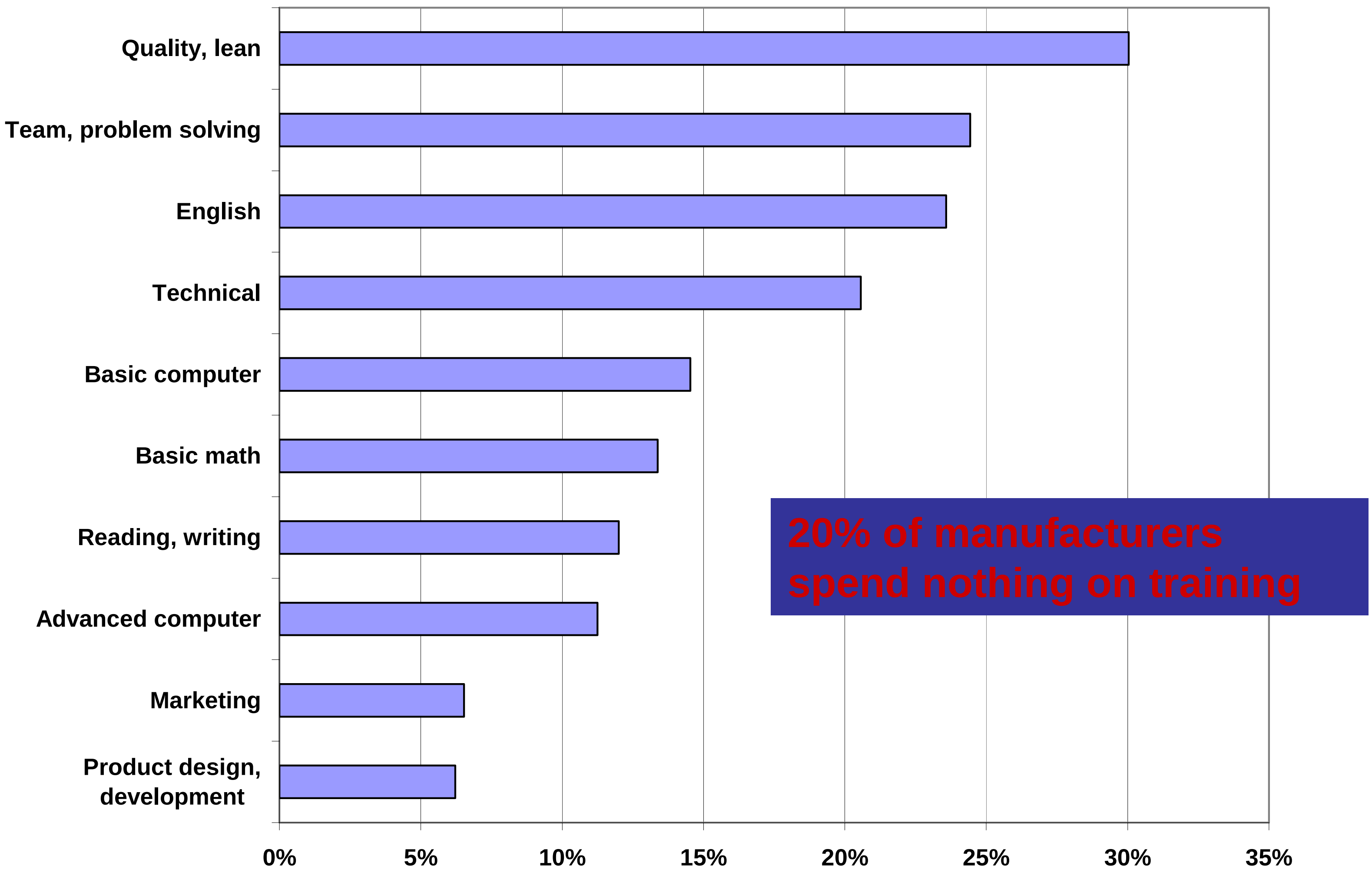
Manufacturing Needs

Problems/Needs	2005	2002	1999	1996	2005-2002
Manufacturing process/lean	40%	34%	29%	27%	5%
Basic skills	26%	11%	13%	16%	16%
Market development, exporting	24%	37%	25%	17%	-13%
Technical skills	24%	27%	25%	31%	-3%
Plant layout, expansion	20%	24%	22%	22%	-4%
Energy costs, conservation	20%	15%	10%	13%	5%
Supervisory, team skills	15%	26%	21%	33%	-11%
General business analysis/finance	15%	20%	n/a	n/a	-4%
Environmental, health & safety	16%	18%	15%	17%	-1%
Quality assurance	15%	17%	17%	19%	-3%
Computer applications	13%	20%	27%	17%	-7%
Product development, design	13%	19%	13%	13%	-6%
Waste management	11%	16%	11%	n/a	-5%
Material-related	6%	9%	5%	5%	-3%

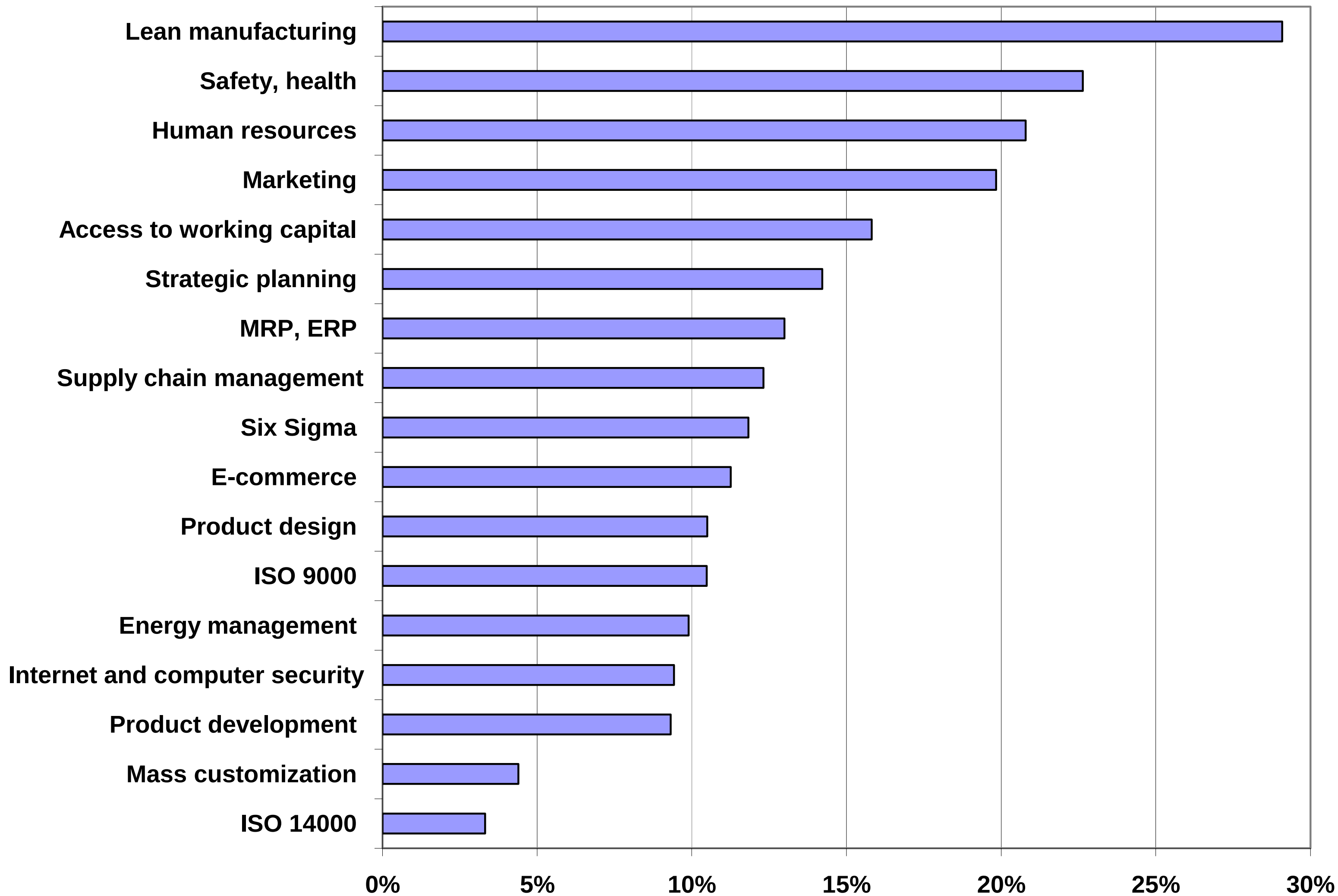
Georgia Manufacturing Survey, 2005 [*www.cherry.gatech.edu/survey*](http://www.cherry.gatech.edu/survey)

More on Basic Skills

% interested in non-managerial employee training by area



And Interest in Training, Technical Assistance Among Managers



Innovation…on three fronts

- *Process*
  - *Lean - driving out waste, focusing on value*
  - *From a supply chain point of view*
  - *High quality*
  - *From concept… to launch…to order…to delivery…to use…to disposal*
  - *Existing and New technologies*

- *Product Design & Development*
  - *New Products, new features, new capabilities*
  - *New Markets – Domestic and Export*
  - *Value-added Service*
  - *Existing and New technologies*
  - *Reducing energy demands*

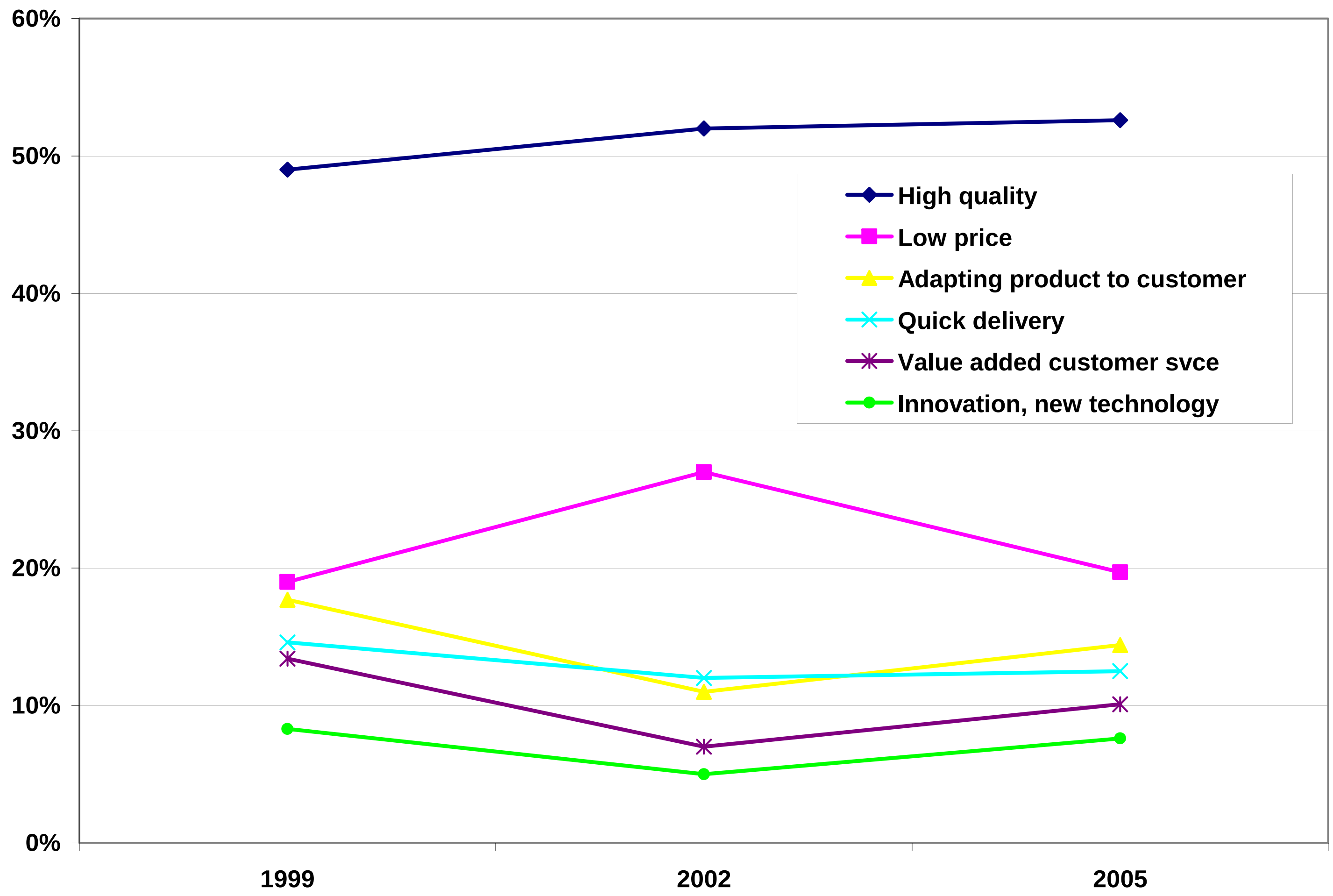
- *Partnerships*
  - *Vendors*
  - *Customers*
  - *Logistic firms*
  - *Wholesalers/Retailers*
  - *Shared R&D (universities, etc.)*
  - *Foreign partnerships*

Speed/Time
Price
On-time Delivery
Flexibility
Product Design
Quality
Service
Warranty
Sustainability
Value-added services
Creativity
Customer knowledge
Communications
Dependability
R&D capability

}

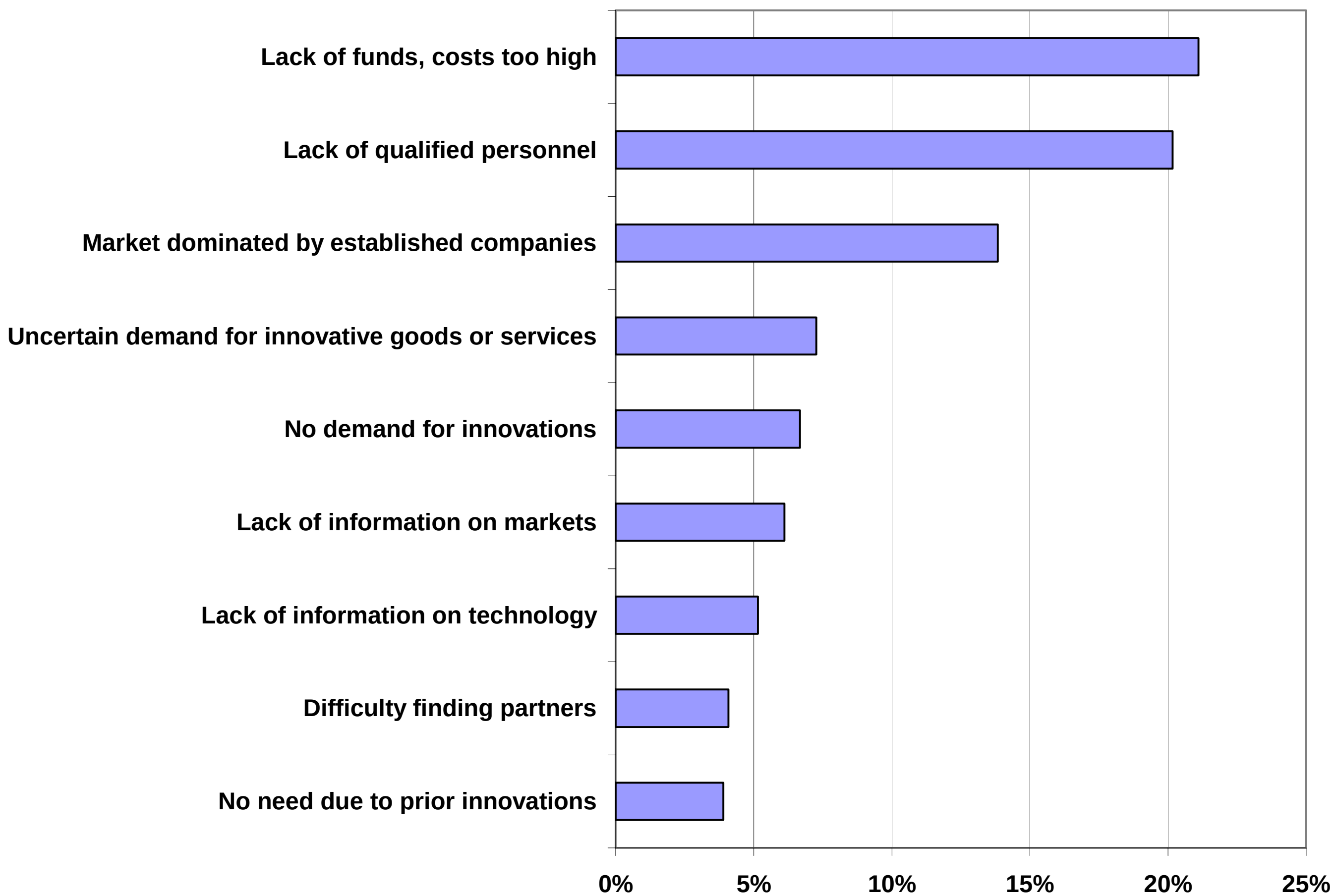
VALUE

Too Few Georgia Manufacturers Complete on Innovation



Georgia Manufacturing Survey, 2005 [*www.cherry.gatech.edu/survey*](http://www.cherry.gatech.edu/survey)

Top Barriers to Innovation



Georgia Manufacturing Survey, 2005 www.cherry.gatech.edu/survey

Case Story

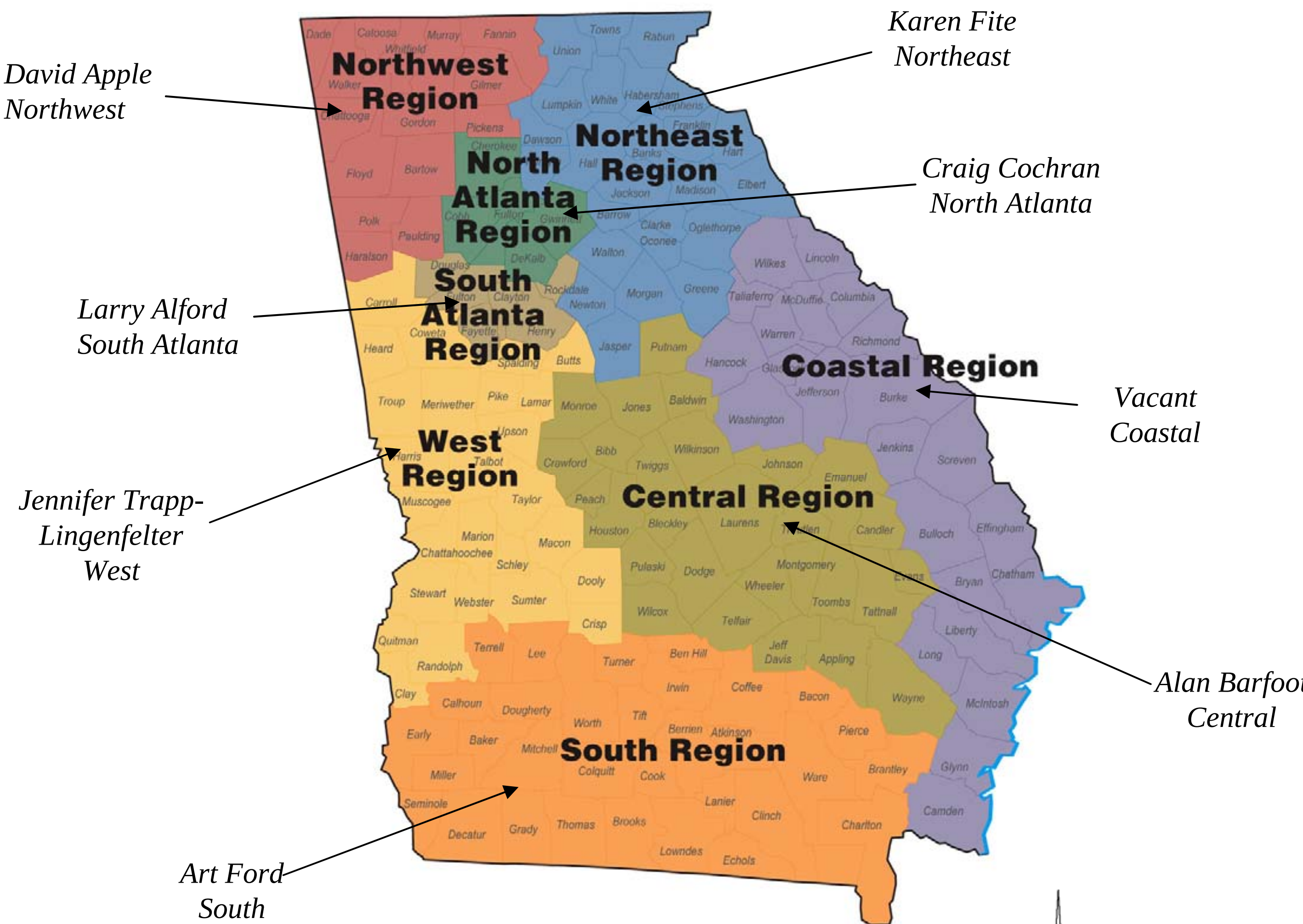
MacGregor Golf Company

Albany, GA

In Summary

- *US Manufacturing is alive but challenged*
- *Emerging countries are both competitors and consumers*
- *The flatteners are bring competition closer*
- *Innovation in process, product and partnerships is critical for success*
- *The time for change is now…as the Supply Chain leaders are impatient*
- *Increasing profitability and linking to external resources are the keys to innovation for small firms*
- *Georgia Tech is one of the strong resources available to Georgia firms.*
- *We look forward to working with MEAG and its customers to compete and win.*

EDTV Regional Network



Georgia Institute of Technology

Questions ???