

Building Oregon's Competitive Advantage

Oregon Business Plan 4th Annual Summit

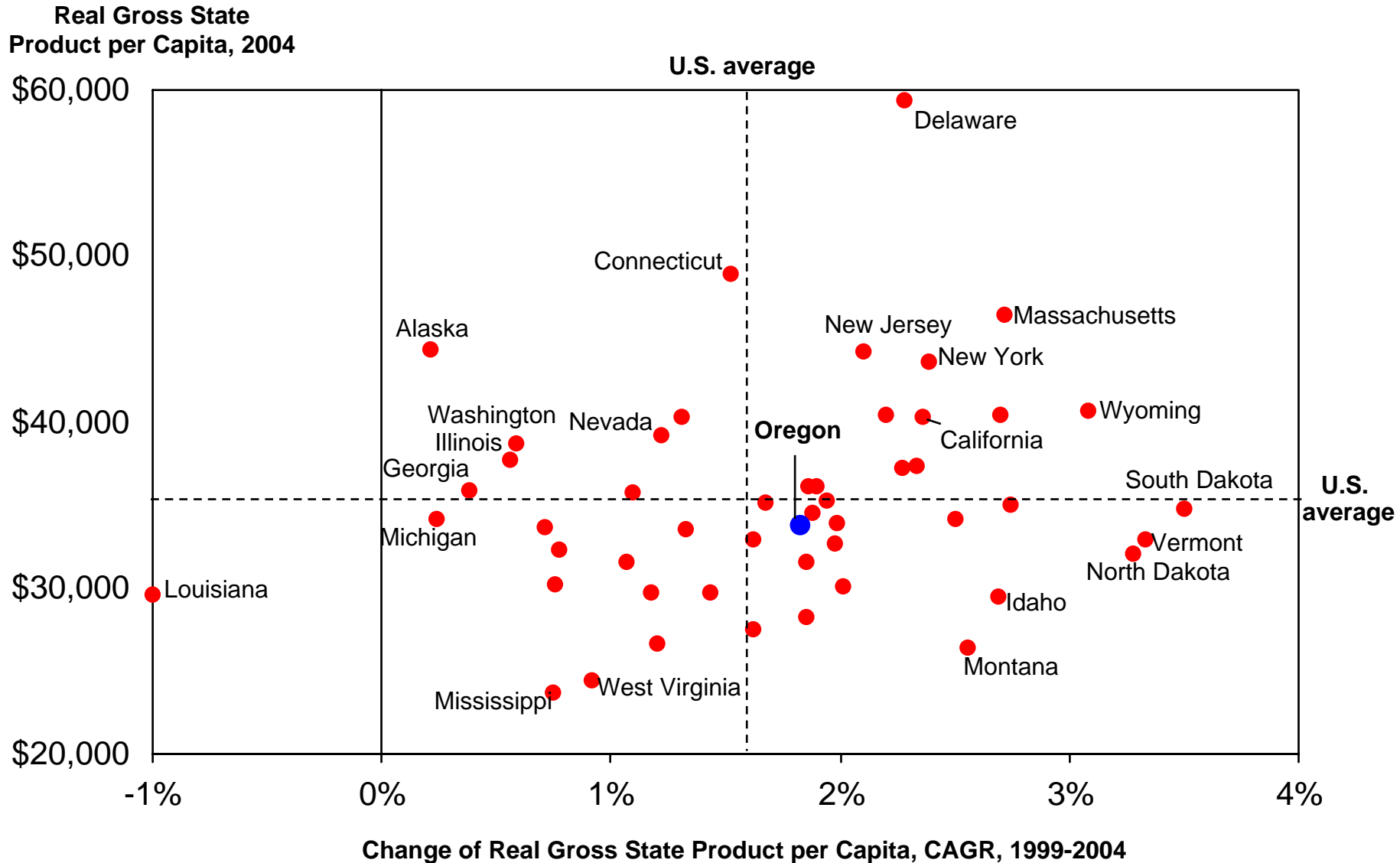
Professor Michael E. Porter
Institute for Strategy and Competitiveness
Harvard Business School

*Portland, Oregon
January 9, 2006*

This presentation draws on ideas from Professor Porter's articles and books, in particular, The Competitive Advantage of Nations (The Free Press, 1990), "The Microeconomic Foundations of Economic Development," in The Global Competitiveness Report 2005-2006, (World Economic Forum, 2005), "Clusters and the New Competitive Agenda for Companies and Governments" in On Competition (Harvard Business School Press, 1998), and the *Clusters of Innovation Initiative*, a joint effort of the Council on Competitiveness, Monitor Group, and Professor Porter. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means - electronic, mechanical, photocopying, recording, or otherwise - without the permission of Michael E. Porter.

Additional information may be found at the website of the Institute for Strategy and Competitiveness, www.isc.hbs.edu

Economic Performance Across U.S. States



The Innovation Challenge

Top Patentors among Oregon-based Institutions

	Organization	Patents Issued from 1999 to 2003
1	INTEL CORPORATION	1903
2	HEWLETT-PACKARD COMPANY	661
3	TEKTRONIX INC.	266
4	MICRON TECHNOLOGY, INC.	185
5	DIGIMARC CORPORATION	86
6	XEROX CORPORATION	73
7	LSI LOGIC CORPORATION	61
8	OREGON HEALTH SCIENCES UNIVERSITY	60
9	NIKE, INC.	58
10	PSC SCANNING, INC.	53
11	CREDENCE SYSTEMS CORPORATION	41
12	IBM	39
13	FREIGHTLINER LLC	38
14	SHARP LABORATORIES OF AMERICA, INC.	36
15	NOVELLUS SYSTEMS, INC.	33
16	INFOCUS CORPORATION	30
17	CASCADE MICROTECH, INC.	27
18	LEATHERMAN TOOL GROUP, INC.	25
18	MAXIM INTEGRATED PRODUCTS, INC.	25
20	ANALOG DEVICES, INC.	23
20	SEH AMERICA, INC.	23
20	AGILENT TECHNOLOGIES, INC.	23
23	OREGON STATE UNIVERSITY	22
24	ROSEN PRODUCTS LLC	20
24	IDATECH LLC	20

Note: Only includes patents registered from the state of Oregon

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

The Innovation Challenge

Top Patentors among U.S. Universities

	Universities and Associated Hospitals	Patents Issued from 1999 to 2003
1	UNIVERSITY OF CALIFORNIA	2120
2	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	619
3	CALIFORNIA INSTITUTE OF TECHNOLOGY	556
4	UNIVERSITY OF TEXAS	447
5	STANFORD UNIVERSITY	446
6	JOHNS HOPKINS UNIVERSITY	399
7	WISCONSIN ALUMNI RESEARCH FOUNDATION	382
8	HARVARD UNIVERSITY	316
9	UNIVERSITY OF MICHIGAN	279
10	COLUMBIA UNIVERSITY	268
11	CORNELL RESEARCH FOUNDATION	261
12	STATE UNIVERSITY OF NEW YORK	232
13	MICHIGAN STATE UNIVERSITY	228
14	UNIVERSITY OF WASHINGTON	225
15	PENN STATE	218
16	UNIVERSITY OF PENNSYLVANIA	211
17	UNIVERSITY OF MINNESOTA	203
18	DUKE UNIVERSITY	194
19	GEORGIA TECH	179
20	UNIVERSITY OF FLORIDA	178
75	OREGON HEALTH SCIENCES UNIVERSITY	66
135	OREGON STATE UNIVERSITY	23
206	THE UNIVERSITY OF OREGON	9
273	OREGON GRADUATE INSTITUTE OF SCIENCE AND TECHNOLOGY	4
352	UNIVERSITY OF PORTLAND	2
422	PORTLAND STATE UNIVERSITY	1

Note: Includes all patents associated with a university.

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

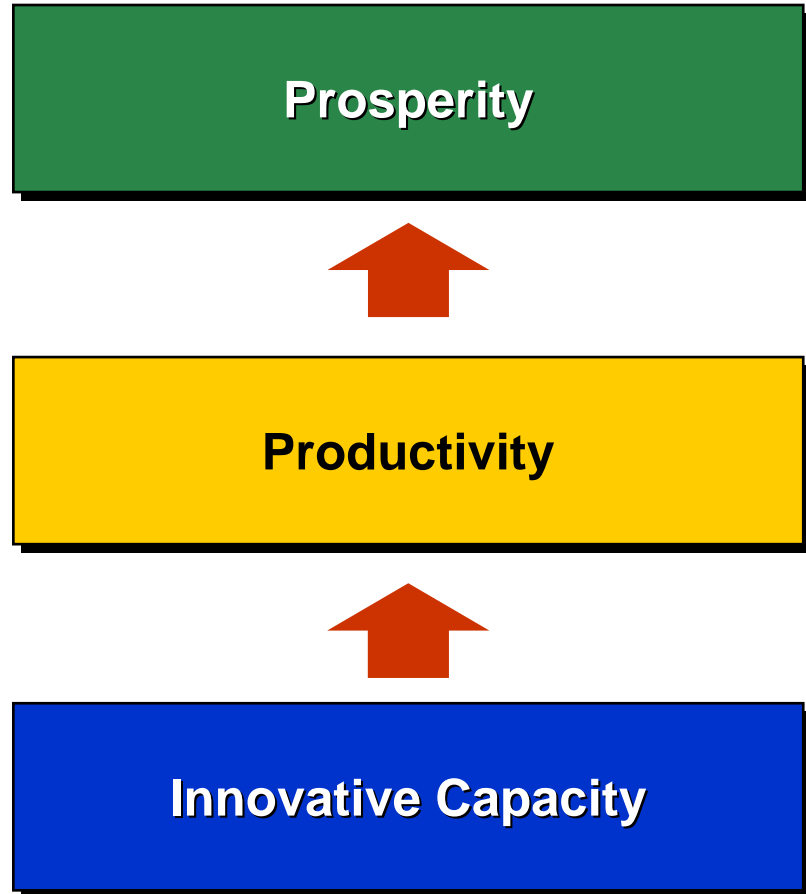
What is Competitiveness?

- Competitiveness is determined by the **productivity** (value per unit of input) with which a region uses its human, capital, and natural resources. Productivity sets a region's standard of living (wages, returns on capital, returns on natural resources)
 - Productivity depends both on the **value** of products and services (e.g. uniqueness, quality) as well as the **efficiency** with which they are produced.
 - It is not **what** industries a region competes in that matters for prosperity, but **how** firms compete in those industries
 - Productivity in a region is a reflection of what regionally-based as well as outside firms **choose to do in the region**. The location of ownership is secondary for regional prosperity
 - The productivity of **“local”** industries is important to competitiveness, not just that of traded industries



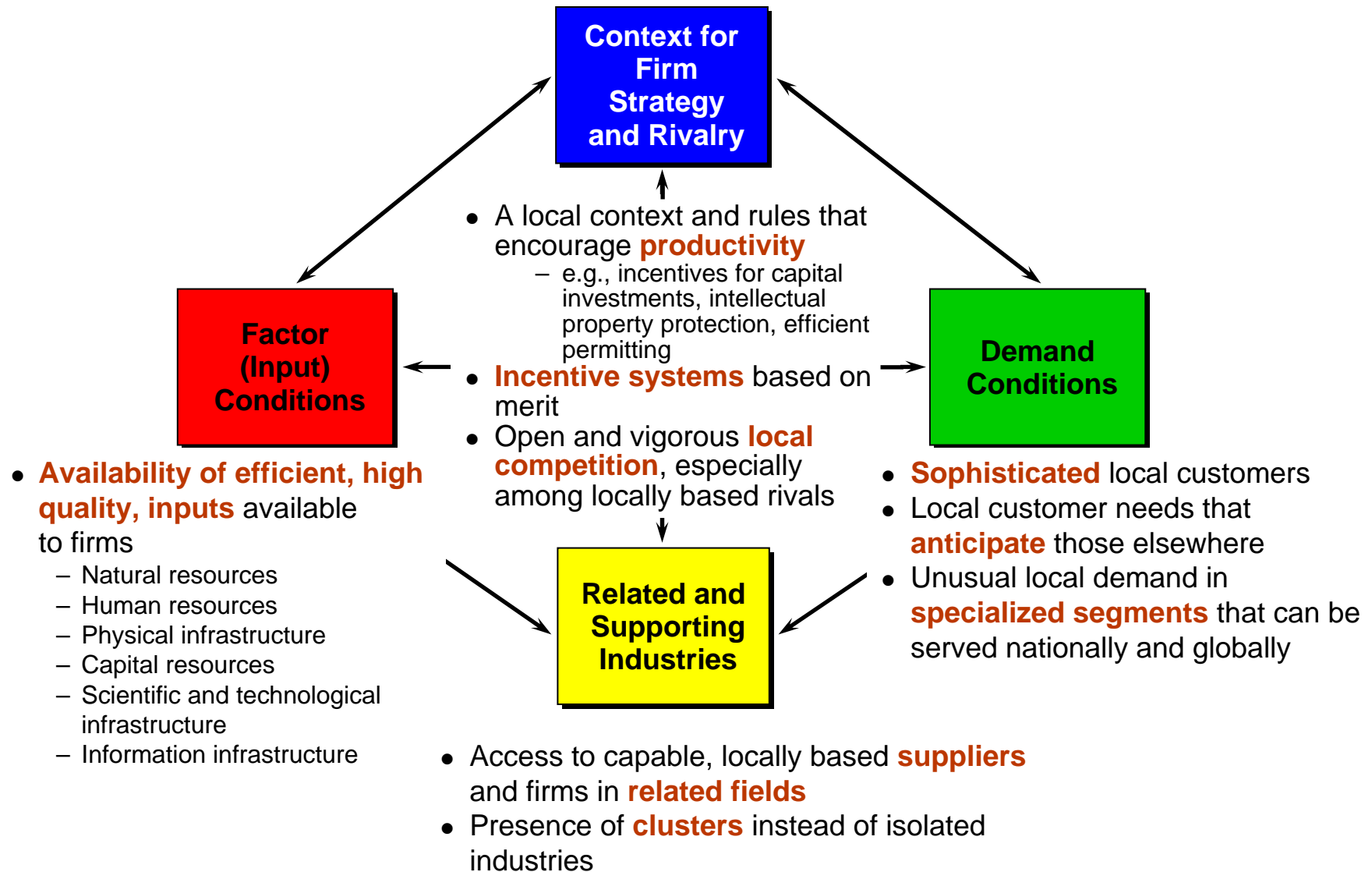
- Regions compete in offering the **most productive environment** for business
- The public and private sectors should play **different but interrelated roles** in creating a productive economy

Innovation and Prosperity



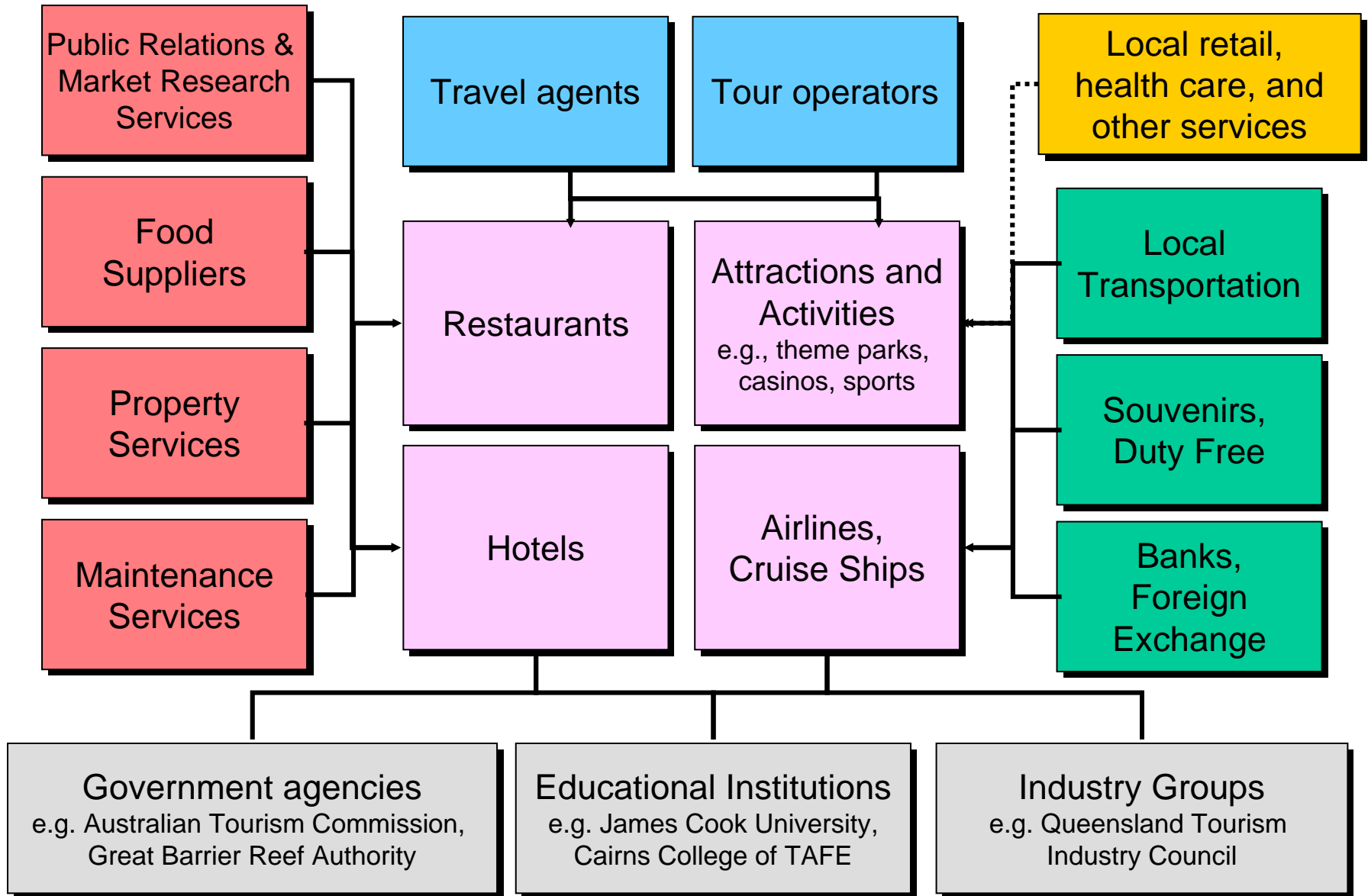
“Competitiveness”

Productivity and the Business Environment



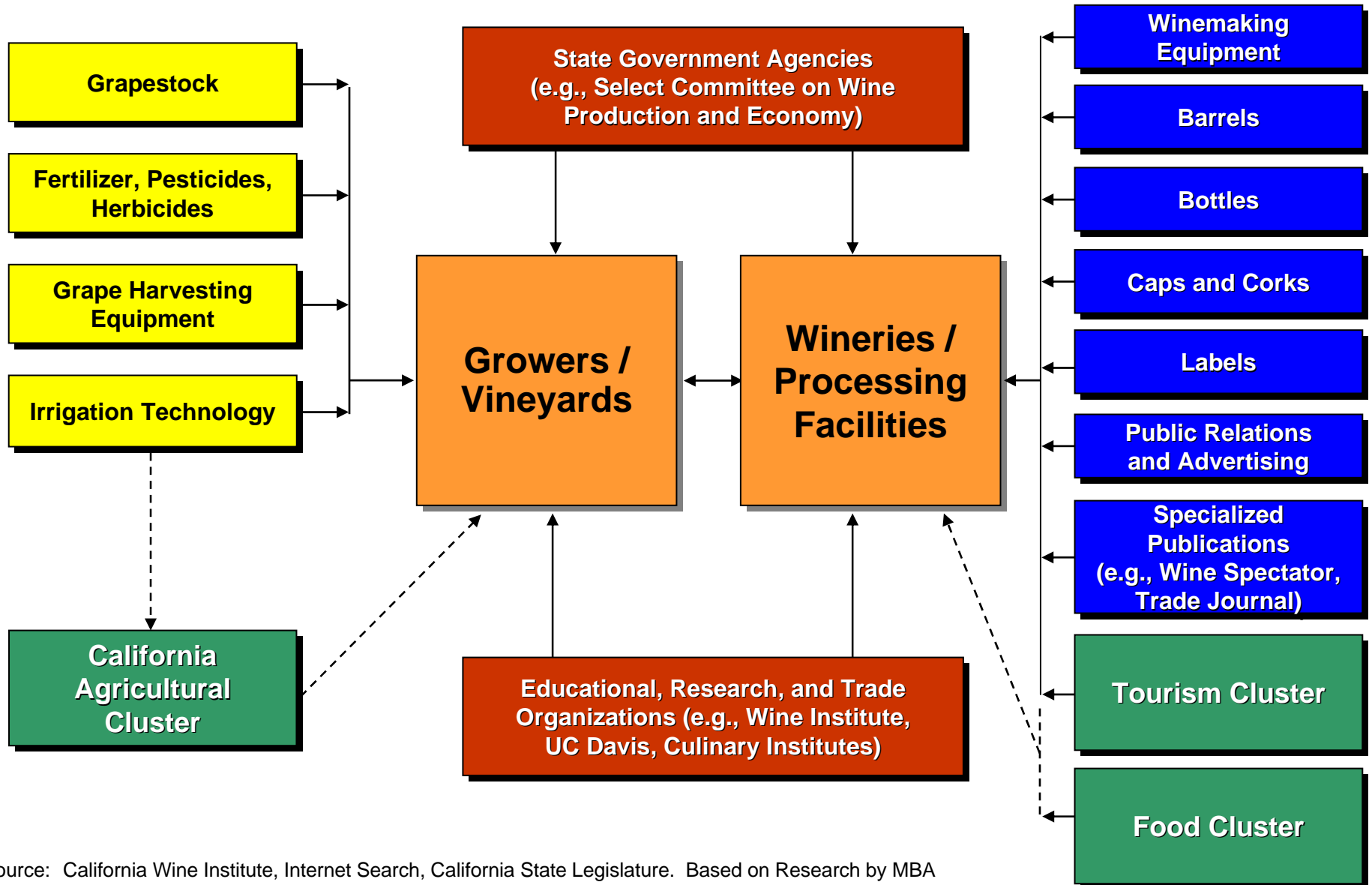
Clusters and Competitiveness

Cluster Development, Cairns (Australia) Tourism



Clusters and Competitiveness

California Wine



Source: California Wine Institute, Internet Search, California State Legislature. Based on Research by MBA 1997 Students R. Alexander, R. Arney, N. Black, E. Frost, and A. Shivananda

Clusters and Competitiveness

- **Clusters Increase Productivity / Efficiency**

- Efficient **access** to specialized inputs, services, employees, information, institutions, and “public goods” (e.g. training programs)
- Ease of **coordination** and transactions across firms
- Rapid **diffusion** of best practices
- Ongoing, visible **performance comparisons** and strong incentives to improve vs. local rivals

- **Clusters Stimulate and Enable Innovations**

- Enhanced ability to **perceive innovation opportunities**
- Presence of multiple suppliers and institutions to assist in **knowledge creation**
- Ease of **experimentation** given locally available resources

- **Clusters Facilitate Commercialization**

- Opportunities for **new companies** and **new lines of established business** are more apparent
- **Commercializing** new products and starting new companies is easier because of available skills, suppliers, etc.



Clusters reflect the fundamental influence of **linkages and spill-overs** across firms and associated institutions in competition

Composition of the Oregon Economy, 2003

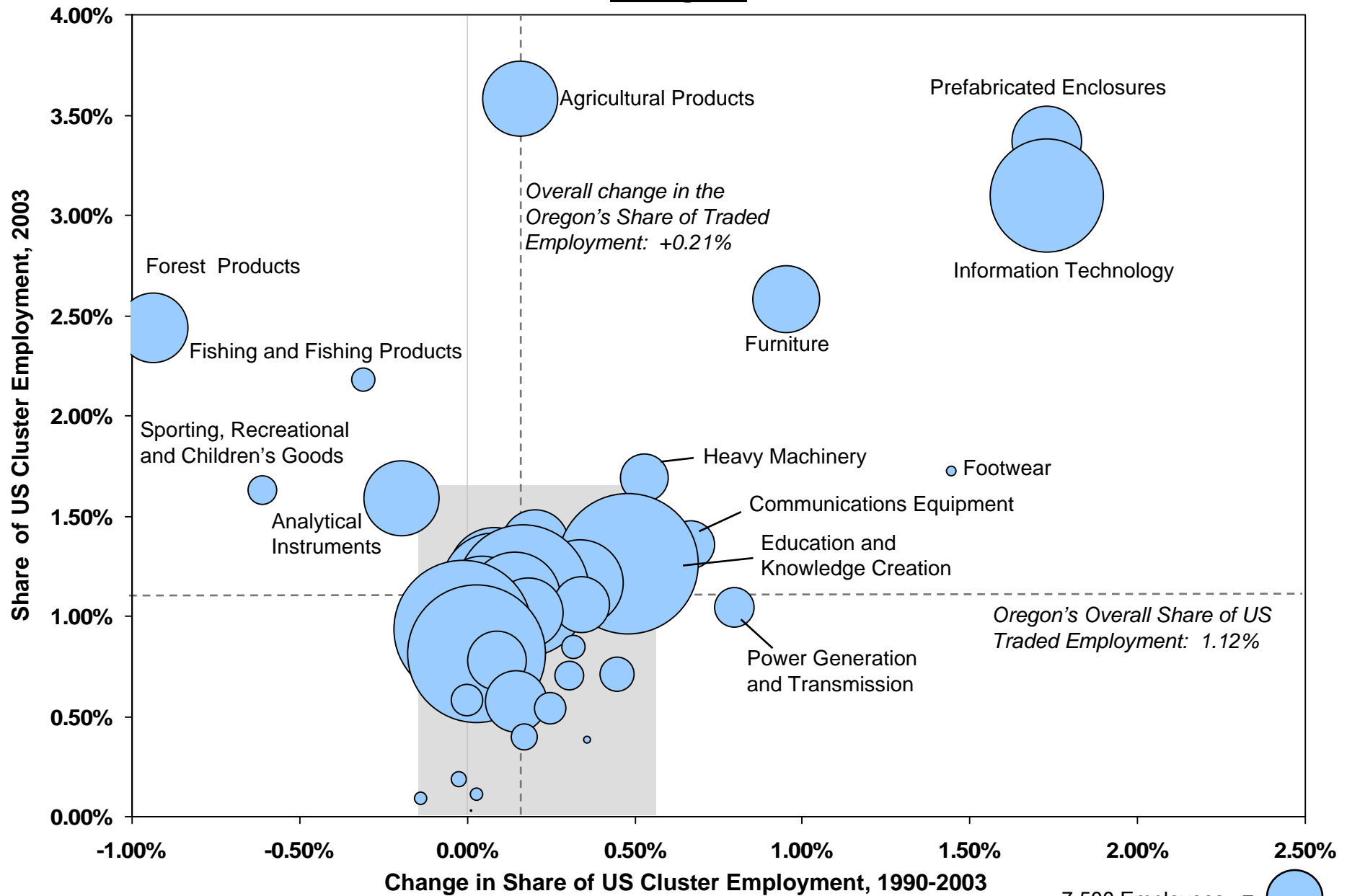
	Traded Clusters	Local Clusters	Natural Resource-Driven Industries
Share of Employment	28.6% (30.2%)	68.9% (69.0%)	2.5% (0.8%)
Employment Growth Rate, 1990 to 2003	1.7% (0.7%)	1.8% (1.5%)	-4.1% (-1.4%)
Average Wage	\$40,390 (\$46,364)	\$27,025 (\$28,307)	\$35,219 (\$33,948)
Relative Wage	121.9% (130.1%)	81.6% (79.4%)	106.3% (95.3%)
Wage Growth, 1990 to 2003	4.1% (4.1%)	3.4% (3.1%)	3.6% (1.9%)
Patents per 10,000 Employees	41.5 (23.0)	0.6 (0.4)	0.9 (3.3)

Note: U.S. data in parentheses.

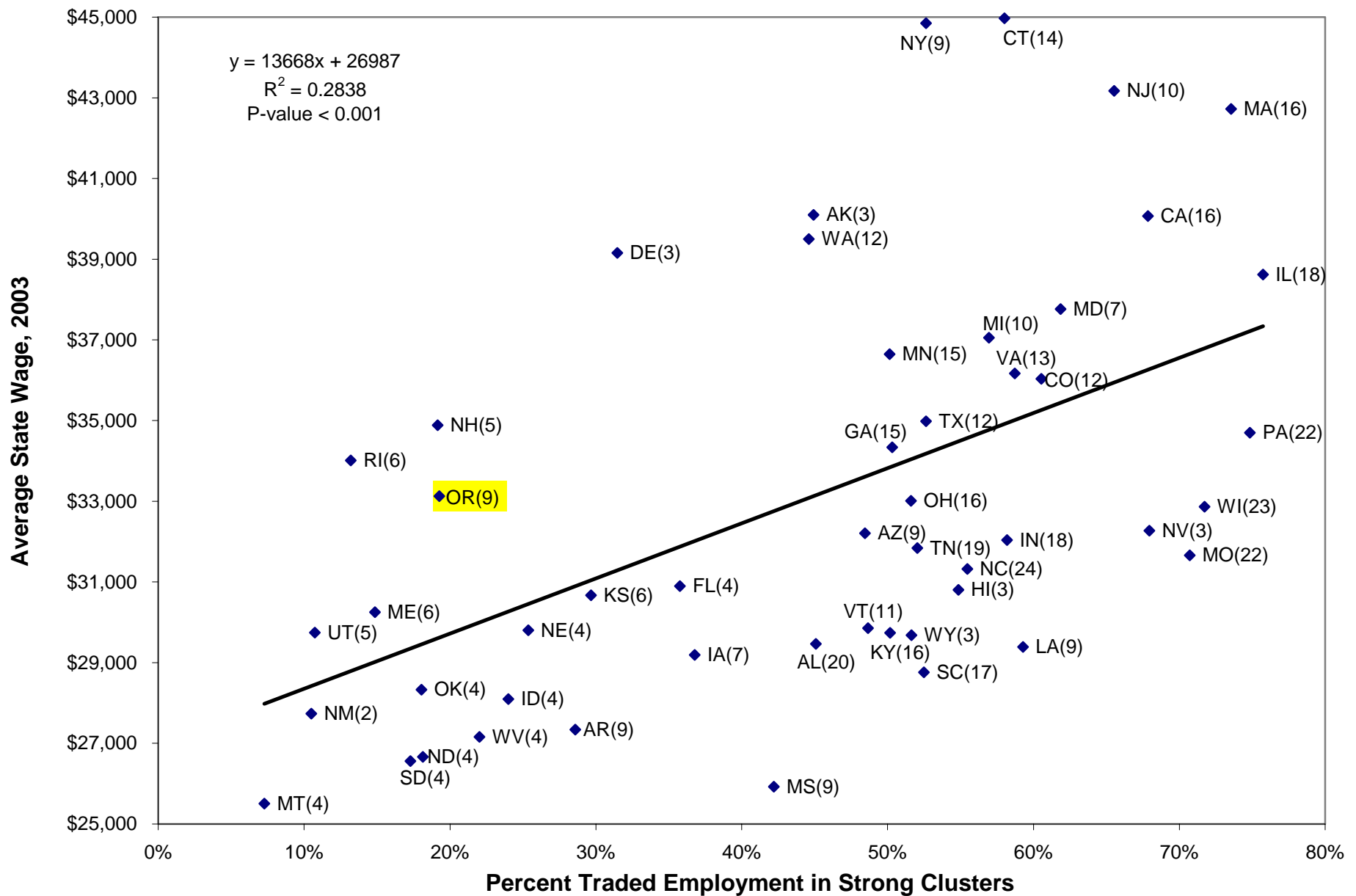
Source: Prof. Michael E. Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

Specialization by Traded Cluster, 1990-2003

Oregon



Traded Cluster Strength versus Average Wage Across U.S. States, 2003



Strong Clusters = LQ > 2 or LQ > 1 with Top 20 National Rank. Number of strong clusters in parentheses.

Cluster Development as a Tool For Economic Policy

- A **new way of thinking** about an economy and organizing economic development
- Better aligned with the **nature of competition and sources of competitive advantage**. Capture crucial **linkages** across firms and industries
- **Bottoms up** rather than top down
- **Recasts the role** of the private sector, government, trade associations and educational or research institutions
- Involves **firms of all sizes**
- Creates a **forum** for constructive business-government dialog
- A means to identify **common opportunities**, not just **common problems**
- **Leverages government and private investments** in training, infrastructure, export promotion, and other areas across multiple firms
- Provides guidance for both **economic and social policies**

Creating a Regional Economic Strategy

Regional Value Proposition

Defining a unique value proposition

- What roles in the regional, national, and world economy?
- What unique value as a business location?
- For what range of clusters and subclusters?

Priority Policies

Developing unique strengths

- What elements of the business environment are especially critical to the regional value proposition?
- What strengths are indispensable for the core clusters?
- What new institutions and improvements to existing institutions are needed to distinguish the region?

Best Practices

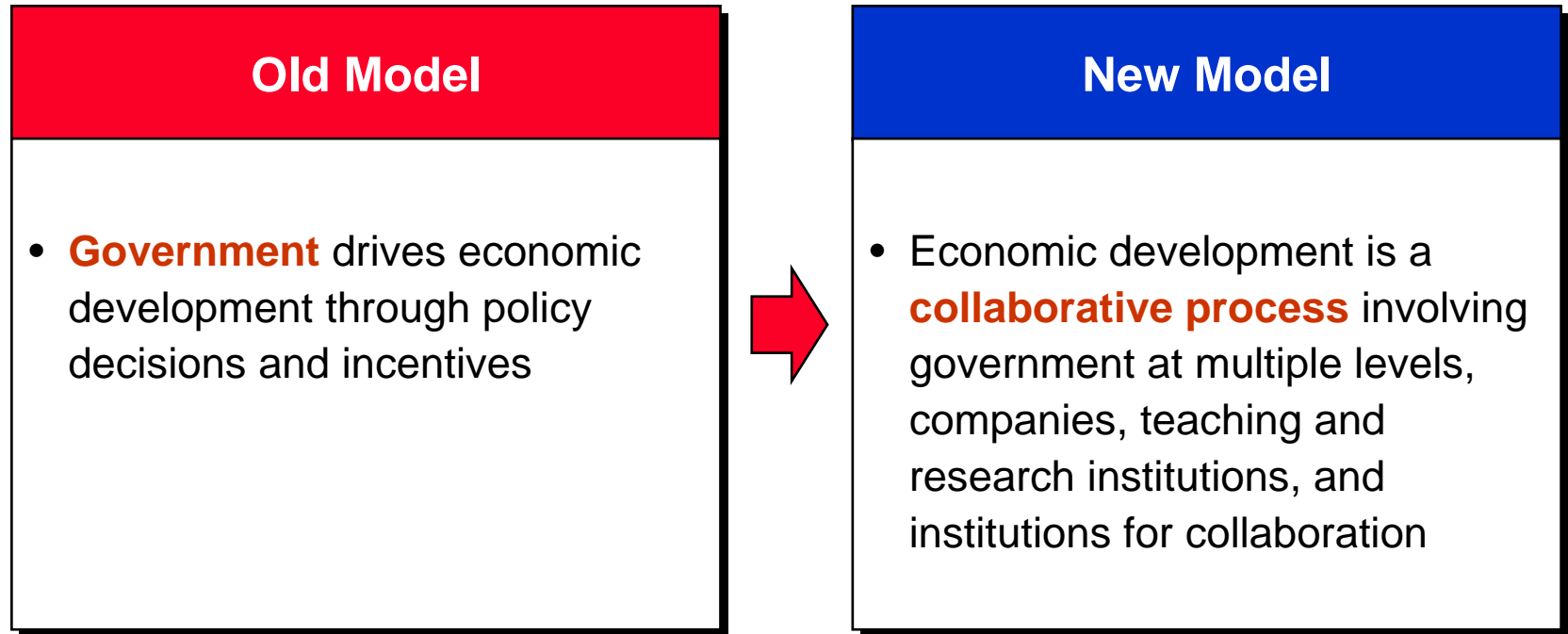
Maintaining parity on other dimensions

- What aspects of the general business environment must improve to achieve parity and keep up with advances in the national and global economy?



The need for focus, priorities, and sequencing

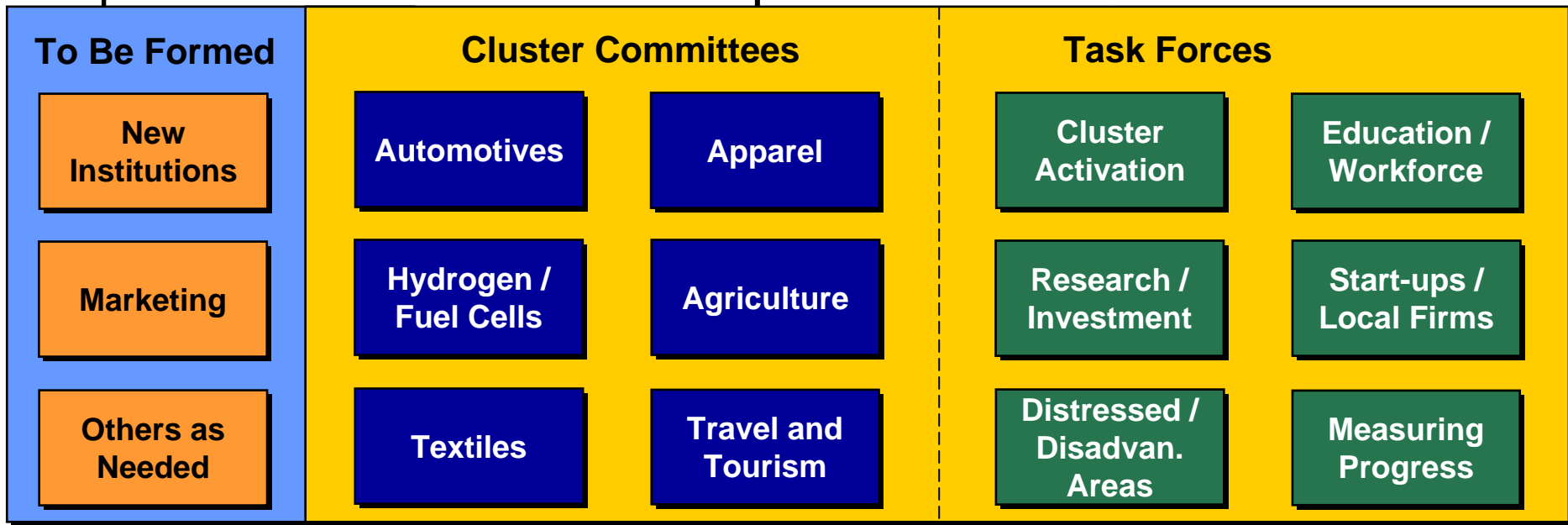
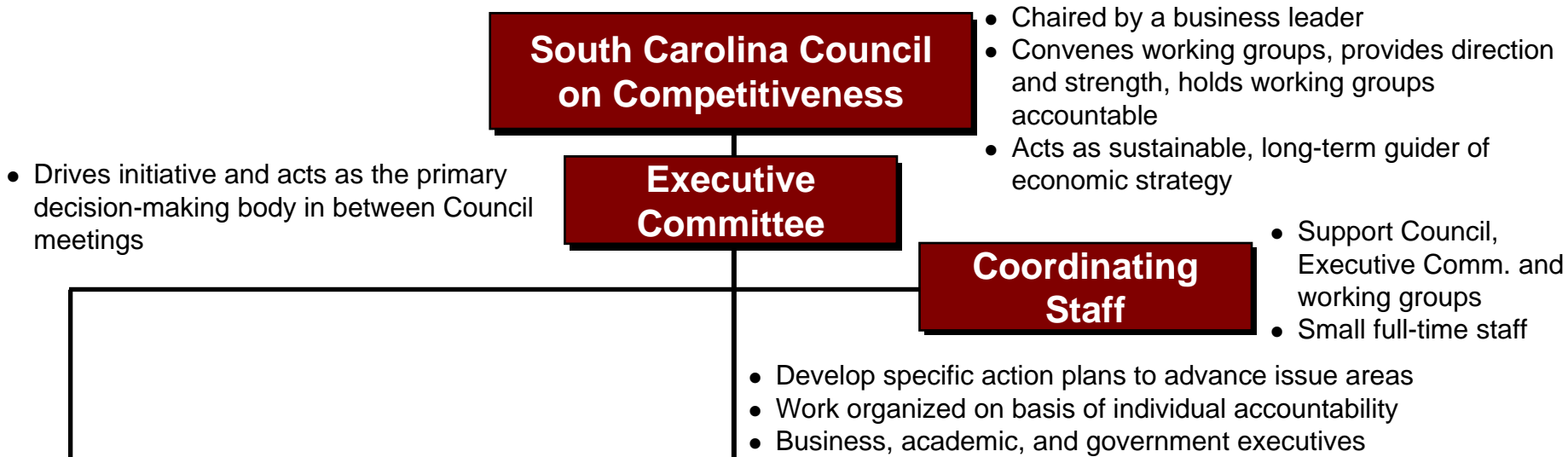
Shifting Responsibilities for Economic Development



- Competitiveness must become a **bottom-up process** in which many individuals, companies, and institutions take responsibility
- **Every** cluster and community can take steps to enhance competitiveness

Organizing to Compete

South Carolina Council on Competitiveness



Note: As of 01/05

Taking the Oregon Cluster Effort to the Next Stage

- Sustain the **momentum** of the competitiveness effort and **avoid fatigue**
- Clarify and simplify the **organizational structure**
- Create a **framework** for cluster-based organizations
- Better mobilize **universities**
- Create measures to **track the impact** of the competitiveness program and the **progress of clusters**
- Shift the emphasis from mitigating weaknesses to **creating a unique position** for the Oregon economy
 - Unique clusters
 - Unique niches
 - Role in Pacific Northwest Economic Area
- Begin the process of economic coordination with **neighboring states**

Legislative Items Passed in 2005

Oregon Business Plan

Passed

- \$100 million for a multi-modal investment package for key air, marine, public transportation, and rail assets
- \$45 million for increasing supply of project-ready industrial land throughout Oregon
- \$7 million to spur economic and industry cluster development across the state
- Created one group to coordinate the array of state efforts related to the innovation economy including the Engineering and Technology Industry Council (ETIC), the Oregon Growth Account activities, cluster development and other efforts
- \$7 million to fund the Oregon Nanoscience and Micromaterials Institute
- Income tax credit (capped at \$14 million total) for taxpayers that contribute to university research commercialization funds
- \$77.6 million for Oregon Opportunity Grants (need-based college aid)
- \$4.6 million for an improved education data system
- \$20.7 million to double number of engineering and computer science degrees
- Allowed students enrolled in grades 11 and 12 to earn concurrent high school and college credits and gain early entry into post-secondary education
- Funded the Oregon Progress Board to continue its state agency performance measurement work
- Established an interim task force to review Oregon's 30-year old land use system
- 29 bills helping to streamline regulations for Oregon businesses

Not Passed

- Strengthen Educational Stability Fund: passed Senate but did not reach House before adjournment
- Review of K-12 education expenditures with an eye towards bringing more resources into the classroom: did not pass Senate or House before adjournment
- Task Force on standards for transfer and exchange of electronic medical records: did not pass Senate or House
- \$1.5M for Brand Oregon: not included in state budgets, but Governor has indicated willingness to fund through discretionary spending

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The need for focus, priorities, and sequencing