

Industry Clusters 101

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Where Should We Invest Our Public Dollars?

- Local industries that have a chance for long-term growth and success because they have some sort of local competitive advantage;
- Local industries with a competitive advantage that grow gold-collar (high skill, high pay, high demand) jobs.

What is an Industry Cluster?

“A cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities.”

Michael Porter

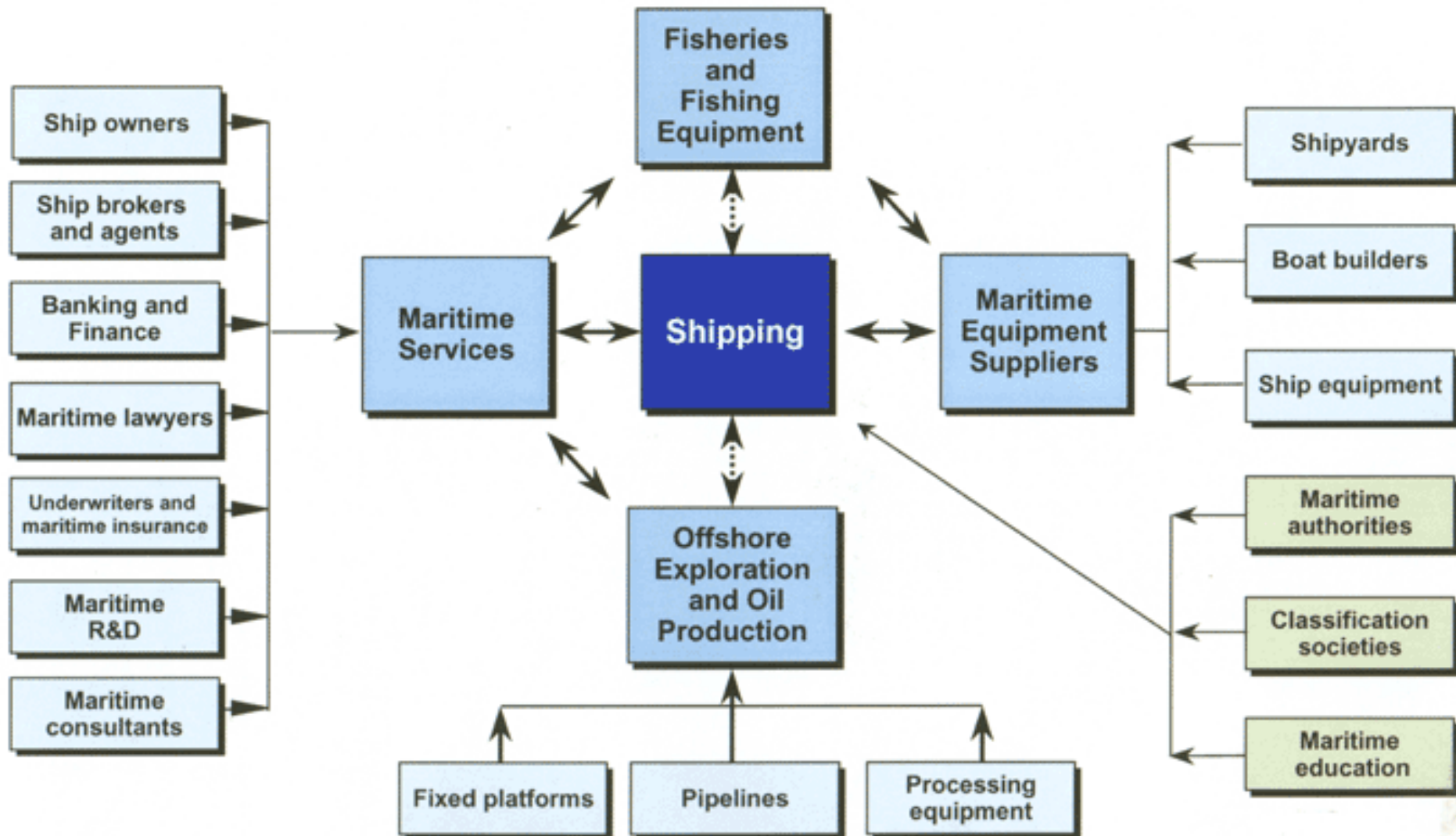
Cluster Components

- End-product or service companies;
- Suppliers of specialized inputs, components, machinery, financing and services;
- Firms in related and downstream industries (channels, distribution networks, customers);
- Producers of complementary products;

Cluster Components

- Specialized infrastructure providers;
- Government and other institutions providing specialized training, education, information, research, and technical support;
- Standards-setting and influential government agencies;
- Trade associations and other collective private sector bodies.

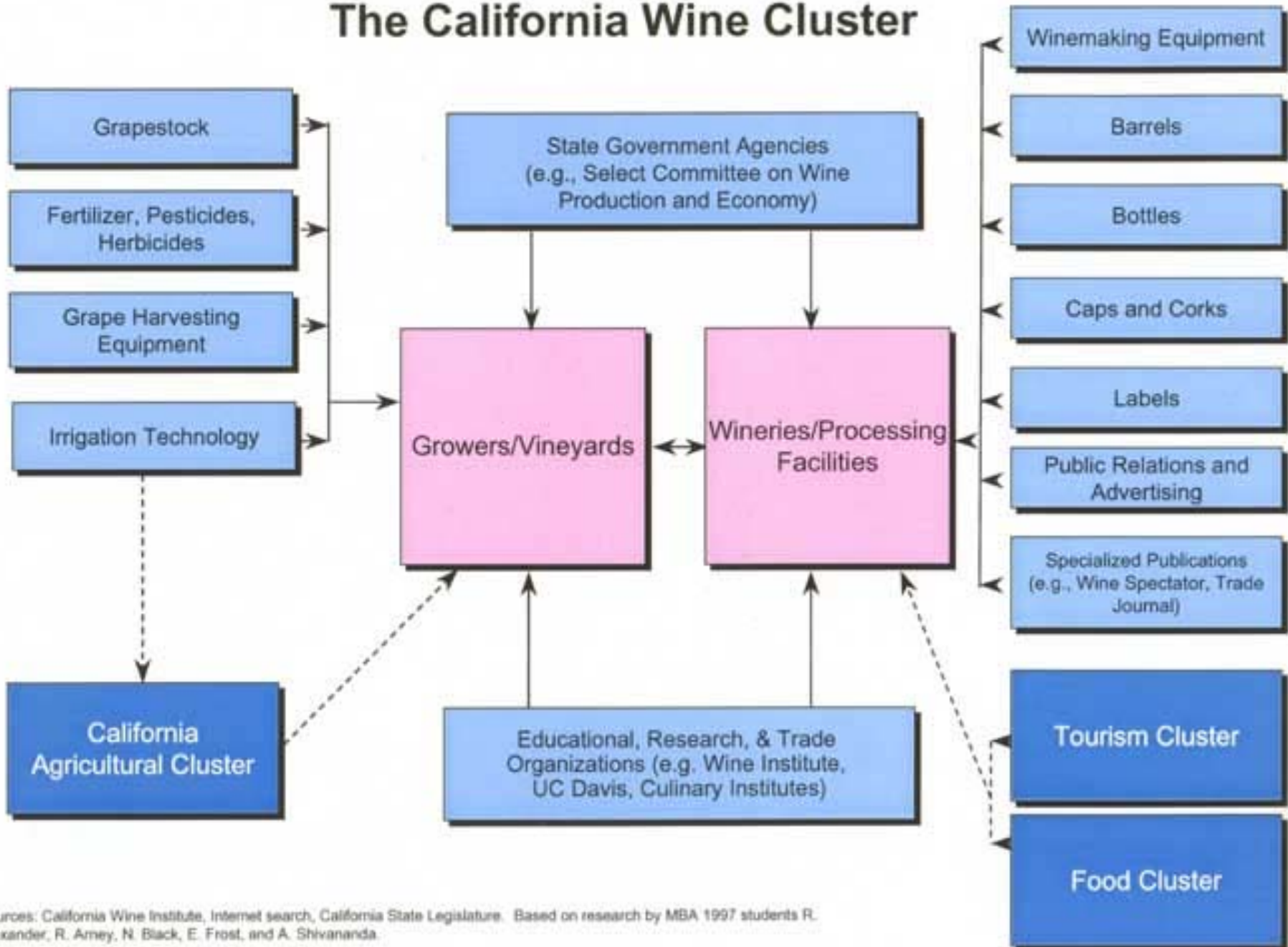
The Norwegian Maritime Cluster



- Norway has 0.1% of the world's population, represents 1.0% of the world's economy, yet accounts for 10% of world seaborne transportation

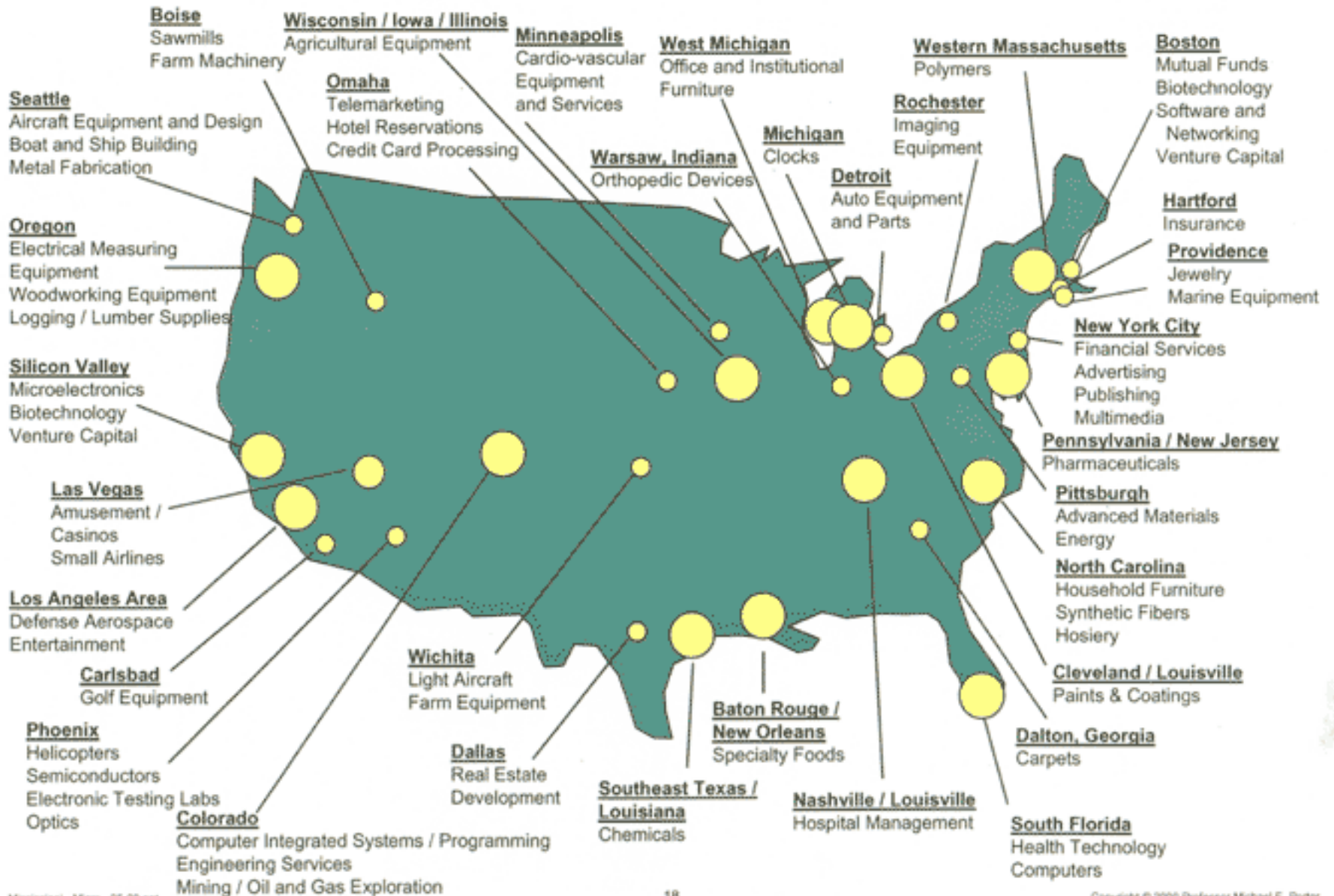
Source: Sven Ullring, presented to M.I.T.

The California Wine Cluster



Sources: 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

Selected Regional Clusters of Competitive U.S. Industries



Sources of Competitive Advantage

- Business environment (taxes, supportive infrastructure);
- Location;
- Local infrastructure (roads, utilities, communications);
- Knowledge base (workforce, education system);

Sources of Competitive Advantage

- Local markets;
- Intense local rivalry with competing firms;
- Variety of local suppliers and other inputs to the core industry;
- Skilled local workforce that is attuned to the needs of the industry.

An Industry Cluster-Based Approach to Conceptualizing Workforce Development

- Cluster Definition;
- Survey of Occupations;
- Understanding Career Ladders;
- Mapping of Skills;
- Address Barriers and Gaps in System of Skill Acquisition.

Cluster Definition

- Quantitative analysis of employment and payroll data;
- Qualitative research into the web of relationships in the cluster;
- Validation with cluster employers;
- Drawing and redrawing the map.

Quantitative Analysis of Employment and Payroll Data

“Understanding Your Industries”

From the work of Lee Munnich

Hubert H. Humphrey Institute of Public
Affairs

University of Minnesota

Questions to Ask in Analysis of Data

- Which industries are growing and which are declining?
- What is the importance of an industry to the local economy relative to its importance to the national economy?
- How competitive are regional industries when compared to their national counterparts?

The Data Itself

- Collected by the PA Department of Labor and Industry...
 - Employment;
 - Firms;
 - Payroll;
- Reported out by four and five digit North American Industrial Classification System (NAICS) categories;

The Data Itself

- Includes the data from a base year for comparison (2000) and the data from the most current year (2005);
- Uses local data and comparable data from national statistics.

Statistical Measures

- Employment and change in employment in an industry;
- Location quotients and change in location quotients;
- Shift share analysis;
- Payroll per employee by industry and change in payroll per employee.

Growth or Decline in Employment

- Simplest indicator of the health of a industry or sector;
- Percentage comparison between base year and current year;
- Collect for different levels of aggregation (four or five digit NAICS)

Location Quotient

- A measure of an industry's concentration in an area relative to the rest of the nation.
- An industry's share of local employment divided by the industry's share of national employment.

Meaning of the Location Quotient

- If the location quotient is 1, the industry's share of local employees is the same as the industry's share nationally;
- A location quotient greater than 1 means the industry employs a greater share of the local workforce than the industry employs nationally;
- A location quotient between .85 and 1.15 is considered close enough to 1 that it is not significant.

Shift Share Analysis (Local Competitive Advantage)

- Calculates what part of local job growth can be attributed to...
 - Growth in the national economy;
 - Growth in the sector nationally;
 - Growth from local competitive advantage as compared to growth nationally.
- It does not tell the researcher why the industry added or lost jobs.

Payroll per Employee

- One of the simplest measure of the quality of jobs in a given industry;
- Payroll by industry divided by employment by industry;
- Can be extended to look at payroll per employee over time or in comparison to national payroll per employee figures for the industry.

Analysis of the Data

Filtering and Prioritizing

- Increases in employment;
- Location quotients in excess of one;
- Employment increases as a result of local competitive advantages;
- Increases in payroll per employee.

Lancaster County Large Industry Segments

- Eating and Drinking Places (581)
- Elementary and Secondary Schools (821)
- Grocery Stores (541)
- Nursing and Personal Care (805)
- Hospitals (806)
- Commercial Printing (275)
- Personnel Supply Services (736)
- Trucking and Courier (421)
- Offices of Medical Doctors (801)
- Commercial Banks (602)

Lancaster County Growth Drivers (CEC)

- Grocery Stores (541)
- Commercial Printing (275)
- Nursing and Personal Care (805)
- Motor Vehicles, Parts and Supplies (501)
- Air Transportation (451)
- Department Stores (531)
- Electronic Components (367)*
- Medical Instruments (384)*
- Dairy Products (202)
- Offices of Medical Doctors (801)

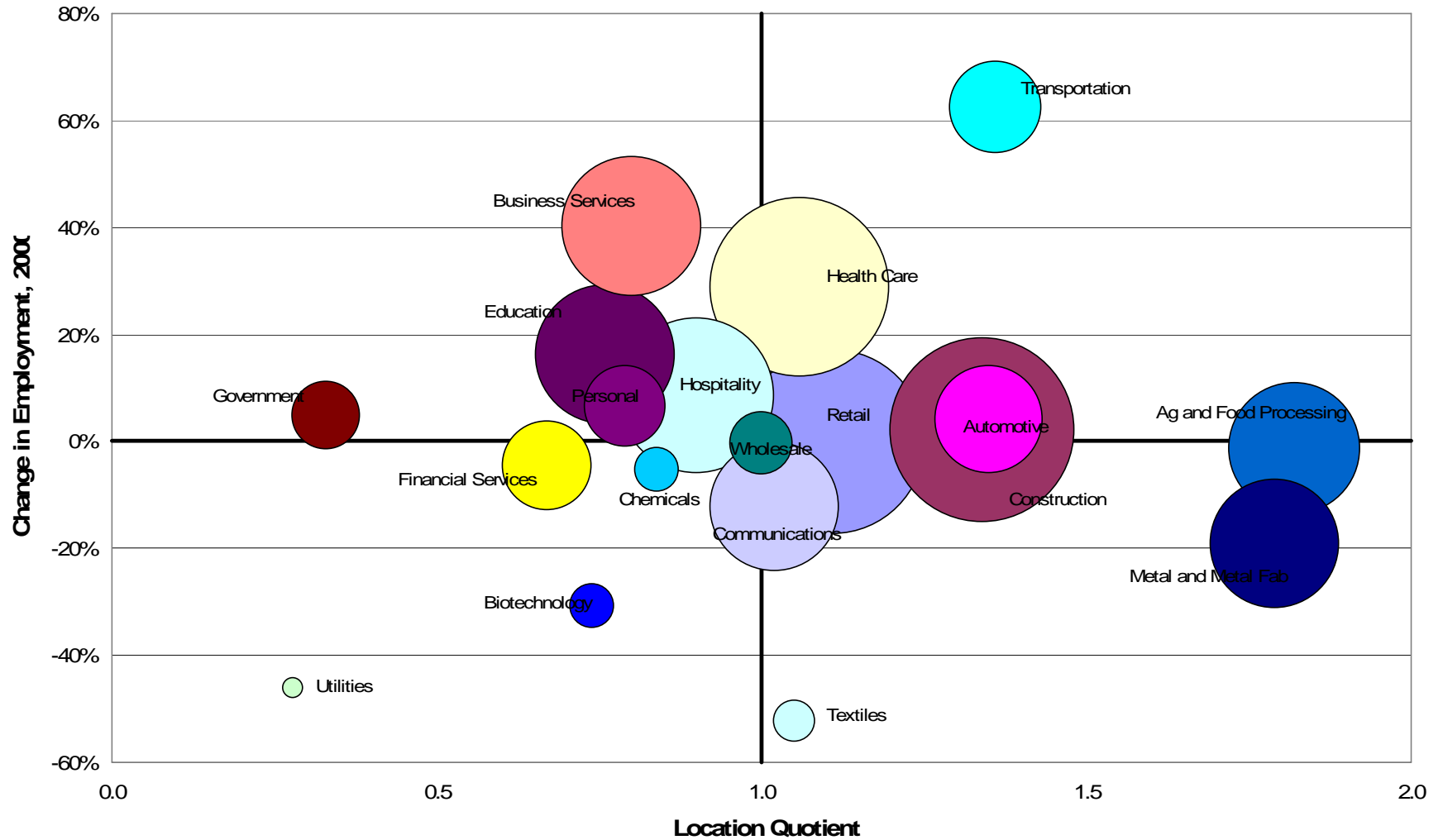
Lancaster County Growth Drivers (CEC)

- Telephone Communications (481)
- Groceries and Related Products (514)
- Producers, Orchestras, Entertainers (792)
- Automotive Repair Shops (753)
- Advertising (731)
- Real Estate Operators (651)
- Misc. General Merchandise Stores (539)
- Periodical Printing (272)
- Millwork, Plywood and Structural (243)
- Services to Buildings (734)

Linking and Conceptualizing

- Do the high performers relate to one another in any way?
- What do the high performers look like in the context of a cluster as defined by Porter?
- What does the cluster itself look like?

Overview of Lancaster County Industry Clusters and Segments 2000-2005 (NAICS)



Lancaster County Industry Clusters

- Health Care
- Construction
- Food Processing
- Communications
- Biotechnology
- Metals and Metal Fabricating
- Automotive

Successful Cluster Initiatives

- Shared understanding of competitiveness and the role of clusters;
- Private sector led with government participation;
- Focus on removing obstacles and easing constraints to cluster upgrading (rather than seeking subsidies or limiting competition);
- Encompass (over time) all clusters in a region;

Successful Cluster Initiatives

- Appropriate cluster boundaries;
- Wide involvement of cluster participants as well as associated institutions;
- Attention to personal relationships to facilitate linkages, foster open communications, and build trust;
- A bias toward action;
- Institutionalized by the private sector.

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