Regional Competitiveness: The Role of Clusters

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This presentation draws on ideas from Professor Porter’s articles and books, in particular, The Competitive Advantage of Nations (The Free Press, 1990), “Building the Microeconomic Foundations of Competitiveness,” in The Global Competitiveness Report (World Economic Forum), “Clusters and the New Competitive Agenda for Companies and Governments” in On Competition (Harvard Business School Press, 2008), and ongoing research on clusters and competitiveness. 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. Further information on Professor Porter’s work and the Institute for Strategy and Competitiveness is available at www.isc.hbs.edu
What is Competitiveness?

A nation or region is competitive to the extent that firms operating there are able to **compete successfully** in the global economy while supporting **high and rising wages and living standards** for the average citizen.

- Competitiveness depends on the **long term productivity** with which a nation or region uses its human, capital, and natural resources:
  - Productivity sets **sustainable wages, job growth, and standard of living**
  - It is not **what** industries a nation or region competes in that matters for prosperity, but **how productively** it competes in those industries
  - Productivity in a national or regional economy benefits from a **combination of domestic and foreign firms**

- Nations and regions compete to offer the **most productive environment for business**
- Competitiveness is **not a zero sum game**
What Determines Competitiveness?

Microeconomic Competitiveness

- Quality of the Business Environment
- State of Cluster Development
- Sophistication of Company Operations and Strategy

Macroeconomic Competitiveness

- Macroeconomic Policies
- Human Development and Political Institutions

Endowments

- Productivity ultimately depends on improving the microeconomic capability of the economy and the sophistication of local competition
- Macroeconomic competitiveness sets the potential for high productivity, but is not sufficient
- Endowments create a foundation for prosperity, but true prosperity is created by productivity in the use of endowments
Quality of the Business Environment

Context for Firm Strategy and Rivalry

Factor (Input) Conditions

- Local rules and incentives that encourage investment and productivity
  - e.g., incentives for capital investments, IP protection, corporate governance standards
- Open and vigorous local competition
  - Openness to foreign competition
  - Strict competition laws

Demand Conditions

- Sophisticated and demanding local customers and needs
  - e.g., Strict quality, safety, and environmental standards
  - Consumer protection laws

Related and Supporting Industries

- Availability of suppliers and supporting industries
  - Strength of suppliers and support services
  - Quality of collaboration organizations
  (e.g., trade associations)

- Access to high quality business inputs
  - Human resources
  - Capital availability
  - Physical infrastructure
  - Administrative information infrastructure (e.g., business registration, permitting, transparency)
  - Scientific and technological infrastructure

- Many things matter for competitiveness
- Successful economic development is a process of successive upgrading, in which the business environment improves to enable increasingly sophisticated ways of competing

Sophisticated and demanding local customers and needs
- e.g., Strict quality, safety, and environmental standards
- Consumer protection laws
Cluster Strength
Tourism Cluster in Cairns, Australia

Sources: HBS student team research (2003) - Peter Tynan, Chai McConnell, Alexandra West, Jean Hayden
Geographic Levels and Competitiveness

- Nations
- Provinces
- Metropolitan Regions
Regions and Competitiveness

• Economic performance *varies significantly* across sub-national regions (e.g., provinces, states, metropolitan areas)
Comparative Prosperity Performance of U.S. States
2000 - 2010

High but declining versus U.S.

Low and declining versus U.S.

High and rising prosperity versus U.S.

Low but rising versus U.S.

Source: BEA. Notes: GDP in real 2005 dollars. Growth rate is calculated as compound annual growth rate.
Regions and Competitiveness

- Economic performance **varies significantly** across sub-national regions (e.g., provinces, states, metropolitan areas)

- Many essential levers of competitiveness reside at the **regional level**

- Regions **specialize** in different sets of clusters
Composition of Regional Economies

- **Local Clusters**
  - Serve almost exclusively the local market
  - Limited exposure to cross-regional competition for employment

- **Traded Clusters**
  - Serve national and global markets
  - Exposed to competition from other regions

- **Resource-based Clusters**
  - Location determined by resource location

Note: Cluster data includes all private, non-agricultural employment.

Specialization of Regional Economies
Leading Clusters by U.S. Economic Area, 2008

Regions and Competitiveness

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• **Cluster strength** directly impacts regional performance

• Each region needs its own distinctive **competitiveness strategy and action agenda**

• Improving competitiveness requires **effective policy collaboration** between regions and the national government
Cluster Strength: Massachusetts Biopharmaceuticals

- Health and Beauty Products
- Diagnostic Substances
- Containers
- Medical Devices
- Teaching and Specialized Hospitals
- Biopharmaceutical Products
- Biological Products
- Research Organizations
- Specialized Business Services
- Specialized Risk Capital
- Specialized Research Service Providers
- Educational Institutions

Cluster Organizations: MassMedic, MassBio, others

Specialized Business Services:
- Banking, Accounting, Legal

Specialized Risk Capital:
- VC Firms, Angel Networks

Specialized Research Service Providers:
- Laboratory, Clinical Testing

Educational Institutions:
- Harvard, MIT, Tufts, Boston University, UMass
## Institutions for Collaboration

**Selected Massachusetts Organizations, Life Sciences**

### Life Sciences Industry Associations
- Massachusetts Biotechnology Council
- Massachusetts Medical Device Industry Council
- Massachusetts Hospital Association

### General Industry Associations
- Associated Industries of Massachusetts
- Greater Boston Chamber of Commerce
- High Tech Council of Massachusetts

### Economic Development Initiatives
- Massachusetts Technology Collaborative
- Mass Biomedical Initiatives
- Mass Development
- Massachusetts Alliance for Economic Development

### University Initiatives
- Harvard Biomedical Community
- MIT Enterprise Forum
- Biotech Club at Harvard Medical School
- Technology Transfer offices

### Informal networks
- Company alumni groups
- Venture capital community
- University alumni groups

### Joint Research Initiatives
- New England Healthcare Institute
- Whitehead Institute For Biomedical Research
- Center for Integration of Medicine and Innovative Technology (CIMIT)
Strong Clusters Drive Regional Performance

Research Findings

- Presence of strong clusters
- Breadth of industries within each cluster
- Strength in related clusters
- Presence of a region’s clusters in neighboring regions
- Job growth
- Higher wages
- Higher patenting rates
- Greater new business formation, growth and survival

- Build on the region’s existing and emerging clusters rather than chase hot fields
- Economic diversification usually occurs within clusters and across related clusters

How Clusters Emerge and Develop
The Australian Wine Cluster

1930
First oenology course at Roseworthy Agricultural College

1955
Australian Wine Research Institute founded

1965
Australian Wine Bureau established

1970
Winemaking school at Charles Sturt University founded

1980
Australian Wine and Brandy Corporation established

1990
Winemaker’s Federation of Australia established

1991 to 1998
New organizations created for education, research, market information, and export promotions

1950s
Import of European winery technology

1960s
Recruiting of experienced foreign investors, e.g. Wolf Bass

1970s
Continued inflow of foreign capital and management

1980s
Creation of large number of new wineries

1990s and 2000s
Surge in exports and international acquisitions

Related Clusters and Competitiveness

Note: Clusters with overlapping borders or identical shading have at least 20% overlap (by number of industries) in both directions.
The Evolution of Regional Economies
San Diego

Climate and Geography

U.S. Military

Hospitality and Tourism

Transportation and Logistics

Power Generation

Communications Equipment

Analytical Instruments

Information Technology

Bioscience Research Centers

Aerospace Vehicles and Defense

Sporting and Leather Goods

Education and Knowledge Creation

Medical Devices

Biotech / Pharmaceuticals

Cluster Composition of the Toronto Economy

Change in the Toronto Overall Share of Canada Employment: -0.01%

Toronto Overall Share of Canada Employment: 17.6%

LQ, or Location Quotient, measures the state’s share in cluster employment relative to its overall share of U.S. employment. An LQ > 1 indicates an above average employment share in a cluster.
Clusters as a Tool For Competitiveness Policy

- A forum for **collaboration** between the private sector, trade associations, government, educational, and research institutions
- Brings together **firms of all sizes**, including SME’s
- Creates a **mechanism** for **constructive** business-government dialog
- A tool to identify **problems** and **action recommendations**
- A vehicle for investments that strengthen **multiple firms/institutions** simultaneously
- Fosters **greater competition** rather than distorting the market
- Enhances the efficiency and effectiveness of **traditional economic policy** areas, such as training, R&D, export promotion, FDI attraction, etc.
Clusters provide a framework for **organizing the implementation** of many public policies and public investments directed at economic development.
The Role of Business in Cluster Development

Company Attitudes Towards Clusters

- Create more competition
- Lose employees to spin-offs
- Bid up costs
- Create more opportunities
- Expand the supply of skilled people and technology
- Expand the local supplier base

AND

- Increase efficiency, flexibility, and productivity
- Foster innovation

- Most cluster participants are not direct competitors
The Role of Business in Competitiveness

Action Agenda

Improving Skills

• Create or expand an **apprentice program** to train workers to be employable by company and others

• Create or expand a **training program** to upgrade the skills and productivity of current or prospective employees

• Partner with a **community college, technical school**, or **university** to align its curriculum with the needs of business, and commit to hire a number of its graduates

Upgrading Supporting Industries

• Identify and increase sourcing from capable **local suppliers**

• **Mentor local suppliers** to upgrade their capabilities and make them more attractive partners

• Join consortia that help **small companies access** procurement contracts
The Role of Business in Competitiveness

Action Agenda

Supporting Innovation and Entrepreneurship

• Participate in research collaboratives in company’s field that build businesses of the future
• Invest in or incubate promising startups related to company’s business
• Support social entrepreneurship efforts that improve the local business environment

Shifting the Business-Government Relationship

• Advocate business-wide improvements rather than lobby for special interests

Increasing Cluster Strength

• Participate in a cluster competitiveness initiative in your field
Creating a Regional Economic Strategy

Regional Value Proposition

- What is the **distinctive competitive position** of a geographic area given its location, legacy, existing strengths, and potential strengths?
  - What unique advantage as a business location?
  - For what types of activities and clusters?
  - And what roles with the surrounding regions, nation, and the broader world?

Developing Unique Strengths

- What **elements of the business environment** can be unique strengths relative to peers/neighbors?
- What **existing and emerging clusters** can be built upon?

Achieving and Maintaining Parity with Peers

- What **weaknesses** must be addressed to remove key constraints and achieve parity with peer locations?

- **Priorities** and **sequencing** are necessity in economic development