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?

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- 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

- 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

Factor (Input) Conditions

- 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

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)

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.
Cluster Strength
Tourism Cluster in Cairns, Australia

- Public Relations & Market Research Services
- Food Suppliers
- Property Services
- Maintenance Services
- Travel Agents
- Tour Operators
- Hotels
- Attractions and Activities e.g., theme parks, casinos, sports
- Restaurants
- Airlines, Cruise Ships
- Local Retail, Health Care, and Other Services
- Local Transportation
- Souvenirs, Duty Free
- Banks, Foreign Exchange
- Government Agencies e.g. Australian Tourism Commission, Great Barrier Reef Authority
- Educational Institutions e.g. James Cook University, Cairns College of TAFE
- Industry Groups e.g. Queensland Tourism Industry Council

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

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

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

### Local Clusters

### Traded Clusters

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

### Resource-based Clusters

- Location determined by resource location

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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
- Research Organizations
- Biological Products
- Biopharmaceutical Products
- Specialized Business Services
  - Banking, Accounting, Legal
- Specialized Risk Capital
  - VC Firms, Angel Networks
- Specialized Research Service Providers
  - Laboratory, Clinical Testing
- Cluster Organizations
  - MassMedic, MassBio, others
- 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
- Bioscience Research Centers
- Hospitality and Tourism
- Transportation and Logistics
- Power Generation
- Communications Equipment
- Analytical Instruments
- Information Technology
- Education and Knowledge Creation
- Medical Devices
- Biotech / Pharmaceuticals
- Aerospace Vehicles and Defense
- Sporting and Leather Goods

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%

-6% -5% -4% -3% -2% -1% 0% 1% 2% 3% 4% 5% 6% 7%

Change in Toronto share of National Employment, 2002 to 2010

-0.01%
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