Competitiveness and Economic Development: Where Does Texas Stand?

Professor Michael E. Porter
Harvard Business School

Texas Economic Summit
San Antonio, Texas
November 14, 2006


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

Wages, 1990 – 2004

U.S. Average Wage
Growth: 3.61%

Comparative Performance of U.S. States

Gross State Product per Capita, 1998 – 2005

Real Gross State Product per Capita, 2005

Change in Real Gross State Product per Capita, CAGR, 1998-2005

Note: Southern states as defined by the U.S. census highlighted in blue. All figures in chained 2000 dollars.

What is Competitiveness?

• Competitiveness is the **productivity** (value per unit of input) with which a nation, region, or cluster utilizes its human, capital, and natural resources. Productivity sets a nation’s or 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 nation or region competes in that matters for prosperity, but **how** firms compete in those industries
  – Productivity in a nation or region is a reflection of what both domestic and foreign firms **choose to do in that location**. The location of ownership is secondary for prosperity.
  – The productivity of “**local**” industries is of fundamental importance to competitiveness, not just that of traded industries

• Nations or regions compete in offering the **most productive environment** for business
Innovation and Competitiveness

- Prosperity Growth
- Productivity Growth
- Innovative Capacity

Competitiveness
Enhancing Competitiveness: Improving the Business Environment

- Successful economic development is the process of enhancing the business environment to support and encourage increasingly sophisticated ways of competing.

**Factor (Input) Conditions**
- Presence of high quality, business inputs
  - Human resources
  - Capital resources
  - Physical infrastructure
  - Scientific and technological infrastructure
  - Administrative systems (e.g., permitting and approvals)
  - Wide availability of information
  - Natural resources

**Related and Supporting Industries**
- Access to capable, locally based suppliers and firms in related fields
- Presence of clusters instead of isolated industries

**Demand Conditions**
- Sophisticated and demanding local customer(s)
- Local needs that anticipate those elsewhere

**Context for Firm Strategy and Rivalry**
- Local rules, regulations, and norms that encourage investment and productivity
- Open and vigorous local competition
Enhancing Competitiveness: Developing Clusters
Hospitality and Tourism in Cairns (Australia)

Public Relations & Market Research Services
Food Suppliers
Property Services
Maintenance Services
Travel agents
Tour operators
Restaurants
Attractions and Activities
e.g., theme parks, casinos, sports
Hotels
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
Enhancing Competitiveness: Developing Clusters
Oil and Gas in Houston

Upstream

Oil & Natural Gas Exploration & Development

Equipment Suppliers
(e.g. Oil Field Chemicals, Drilling Rigs, Drill Tools)

Specialized Technology Services
(e.g. Drilling Consultants, Reservoir Services, Laboratory Analysis)

Subcontractors
(e.g. Surveying, Mud Logging, Maintenance Services)

Downstream

Oil & Natural Gas Completion & Production

Specialized Institutions
(e.g. Academic Institutions, Training Centers, Industry Associations)

Business Services
(e.g. MIS Services, Technology Licenses, Risk Management)

Oil Transportation

Gas Gathering

Gas Transmissions

Oil Refining

Gas Processing

Gas Distribution

Oil Trading

Gas Trading

Oil Marketing

Oil Wholesale Marketing

Oil Retail Marketing

Gas Gathering

Gas Processing

Gas Distribution

Gas Trading

Gas Marketing

Oil Marketing

Oil Wholesale Marketing

Oil Retail Marketing

Subcontractors
(e.g. Surveying, Mud Logging, Maintenance Services)

Specialized Institutions
(e.g. Academic Institutions, Training Centers, Industry Associations)

Enhancing Competitiveness: Developing Clusters
Oil and Gas in Houston

Upstream

Oil & Natural Gas Exploration & Development

Equipment Suppliers
(e.g. Oil Field Chemicals, Drilling Rigs, Drill Tools)

Specialized Technology Services
(e.g. Drilling Consultants, Reservoir Services, Laboratory Analysis)

Subcontractors
(e.g. Surveying, Mud Logging, Maintenance Services)

Downstream

Oil & Natural Gas Completion & Production

Specialized Institutions
(e.g. Academic Institutions, Training Centers, Industry Associations)

Business Services
(e.g. MIS Services, Technology Licenses, Risk Management)

Oil Transportation

Gas Gathering

Gas Transmissions

Oil Refining

Gas Processing

Gas Distribution

Oil Trading

Gas Trading

Oil Marketing

Oil Wholesale Marketing

Oil Retail Marketing

Subcontractors
(e.g. Surveying, Mud Logging, Maintenance Services)

Specialized Institutions
(e.g. Academic Institutions, Training Centers, Industry Associations)
Clusters and Competitiveness

• Clusters Increase Productivity
  – 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 entities involved in specialized knowledge creation
  – Ease of experimentation given locally available resources

• Clusters Facilitate Commercialization and New Business Formation
  – 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, financing, etc.

Clusters reflect the fundamental influence in competition of linkages and spill-overs across firms and associated institutions
Cluster Development
Life Sciences in Massachusetts

- Health and Beauty Products
- Surgical Instruments and Suppliers
- Medical Equipment
- Dental Instruments and Suppliers
- Ophthalmic Goods
- Diagnostic Substances
- Containers and Packaging
- Analytical Instruments

- Teaching and Specialized Hospitals
- Biological Products
- Biopharmaceutical Products
- Research Organizations
- 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 University, MIT, Tufts University,
  Boston University, UMass
Institutions for Collaboration
Massachusetts Life Sciences, Selected Organizations

**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)
Specialization of Regional Economies
Select U.S. Geographic Areas

Seattle-Bellevue-Everett, WA
Aerospace Vehicles and Defense
Fishing and Fishing Products
Analytical Instruments

San Francisco-Oakland-San Jose Bay Area
Communications Equipment
Agricultural Products
Information Technology

Los Angeles Area
Apparel
Building Fixtures, Equipment and Services
Entertainment

San Diego
Leather and Sporting Goods
Power Generation
Education and Knowledge Creation

Wichita, KS
Aerospace Vehicles and Defense
Heavy Machinery
Oil and Gas

Pittsburgh, PA
Construction Materials
Metal Manufacturing
Education and Knowledge Creation

Chicago
Communications Equipment
Processed Food
Heavy Machinery

Boston
Analytical Instruments
Education and Knowledge Creation
Communications Equipment

Raleigh-Durham, NC
Communications Equipment
Information Technology
Education and Knowledge Creation

Atlanta, GA
Construction Materials
Transportation and Logistics
Business Services

Houston
Oil and Gas Products and Services
Chemical Products
Heavy Construction Services

Note: Clusters listed are the three highest ranking clusters in terms of share of national employment
Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
The Composition of Regional Economies  
**United States, 2004**

<table>
<thead>
<tr>
<th></th>
<th>Traded</th>
<th>Local</th>
<th>Natural Resource-Driven</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of Employment</td>
<td>29.3%</td>
<td>70.0%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Employment Growth Rate,</td>
<td>0.7%</td>
<td>2.4%</td>
<td>-1.2%</td>
</tr>
<tr>
<td>1990 to 2004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Wage</td>
<td>$49,367</td>
<td>$30,416</td>
<td>$35,815</td>
</tr>
<tr>
<td>Relative Wage</td>
<td>137.2%</td>
<td>84.5</td>
<td>99.5</td>
</tr>
<tr>
<td>Wage Growth</td>
<td>4.2%</td>
<td>3.4%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Relative Productivity</td>
<td>144.1</td>
<td>79.3</td>
<td>140.1</td>
</tr>
<tr>
<td>Patents per 10,000</td>
<td>20.4</td>
<td>0.4</td>
<td>3.0</td>
</tr>
<tr>
<td>Employees</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of SIC Industries</td>
<td>590</td>
<td>241</td>
<td>48</td>
</tr>
</tbody>
</table>

Note: 2004 data, except relative productivity which uses 1997 data.  
The Evolution of Regional Economies

San Diego

- Climate and Geography
- U.S. Military


- Hospitality and Tourism
- Transportation and Logistics
- Power Generation
- Aerospace Vehicles and Defense
- Communications Equipment
- Analytical Instruments
- Education and Knowledge Creation
- Medical Devices
- Information Technology
- Sporting and Leather Goods
- Biotech / Pharmaceuticals
- Bioscience Research Centers
- Transportation and Logistics
- Aerospace Vehicles and Defense
- Communications Equipment
- Analytical Instruments
- Education and Knowledge Creation
- Medical Devices
- Information Technology
- Sporting and Leather Goods
- Biotech / Pharmaceuticals
- Bioscience Research Centers

Linkages Across Clusters

Note: Clusters with overlapping borders or identical shading have at least 20% overlap (by number of industries) in both directions.
The Process of Economic Development
Shifting Roles and Responsibilities

**Old Model**
- **Government** drives economic development through policy decisions and incentives

**New Model**
- Economic development is a **collaborative process** involving government at multiple levels, companies, teaching and research institutions, and institutions for collaboration

- Competitiveness must become a **bottom-up process** in which many individuals, companies, clusters, and institutions take responsibility
- **Every** region and cluster can take steps to enhance competitiveness
# Economic Performance Indicators

## Texas

### Economic Performance

**Employment, 2004**
- in Texas: 8,118,483 (rank 2)
- % of US: 7.05%

**Employment, annual growth rate, 1990 to 2004**
- in Texas: 2.35% (rank 12)
- in the US: 1.50%

**Gross State Product per capita, 2005**
- in Texas: $42,975 (rank 16)
- in the US: $41,844
- Texas % above US: 2.70%

**Average wage, 2004**
- in Texas: $36,161 (rank 17)
- in the US: $36,967
- Texas % below US: 2.18%

**Real Gross State Product per capita, annual growth rate, 1997-2005**
- in Texas: 1.66% (rank 24)
- in the US: 1.83%

**Average wage, annual growth rate, 1990 to 2004**
- in Texas: 3.57% (rank 28)
- in the US: 3.61%

**Share of Employment in Traded Clusters, 2004**
- in Texas: 27.4% (rank 33)
- in the US: 29.3%

**Change in Share of Employment in Traded Clusters, 1990 to 2004**
- in Texas: -2.6% (rank 23)
- in the US: -4.8%

### Innovation Output

**Patents per 10,000 employees, 2004**
- in Texas: 7.35 (rank 16)
- in the US: 7.29

**Total patents, annual growth rate, 1990 to 2004**
- in Texas: 5.41% (rank 15)
- in the US: 4.36%

**Traded establishment formation, annual rate, 1990 to 2004**
- in Texas: 3.33% (rank 22)
- in the US: 3.15%

**Total establishment formation, annual rate, 1990 to 2004**
- in Texas: 1.58% (rank 18)
- in the US: 1.29%

### Demographic Profile

**Population, 2005**
- in Texas: 22,859,968 (rank 2)
- % of US: 7.71%

**Population, annual growth rate, 1990 to 2005**
- in Texas: 1.98% (rank 8)
- in the US: 1.16%

**Population Density, inhabitants per square mile, 2005**
- in Texas: 64.9 (rank 30)
- US state median: 94.4

---

Includes private, non-agricultural employment. Ranks are among the 50 US states plus the District of Columbia.

- Rural employment is 10.5% percent of total in Texas versus 16.0% nationwide.
  - Texas is less rural than the US by this measure
- The average wage in the Texas is higher than the national benchmark.
Texas
Patenting per 10,000 Employees, 2004

Texas: 7.35 Patents Per 10,000 Employees

Texas patenting per employee rank: 16 of 51 states plus D.C.

Composition of the Texas Economy

Employment by Traded Cluster, 2004

<table>
<thead>
<tr>
<th>Rank in US</th>
<th>Employment, 2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>210,977</td>
</tr>
<tr>
<td>2</td>
<td>171,349</td>
</tr>
<tr>
<td>3</td>
<td>157,156</td>
</tr>
<tr>
<td>4</td>
<td>148,304</td>
</tr>
<tr>
<td>5</td>
<td>146,766</td>
</tr>
<tr>
<td>6</td>
<td>124,741</td>
</tr>
<tr>
<td>7</td>
<td>107,942</td>
</tr>
<tr>
<td>8</td>
<td>93,943</td>
</tr>
<tr>
<td>9</td>
<td>83,649</td>
</tr>
<tr>
<td>10</td>
<td>71,111</td>
</tr>
<tr>
<td>11</td>
<td>69,466</td>
</tr>
<tr>
<td>12</td>
<td>62,292</td>
</tr>
<tr>
<td>13</td>
<td>59,103</td>
</tr>
<tr>
<td>14</td>
<td>55,489</td>
</tr>
<tr>
<td>15</td>
<td>49,031</td>
</tr>
<tr>
<td>16</td>
<td>49,371</td>
</tr>
<tr>
<td>17</td>
<td>40,313</td>
</tr>
<tr>
<td>18</td>
<td>40,045</td>
</tr>
<tr>
<td>19</td>
<td>39,134</td>
</tr>
<tr>
<td>20</td>
<td>39,045</td>
</tr>
<tr>
<td>21</td>
<td>38,741</td>
</tr>
<tr>
<td>22</td>
<td>38,694</td>
</tr>
<tr>
<td>23</td>
<td>38,212</td>
</tr>
<tr>
<td>24</td>
<td>38,012</td>
</tr>
<tr>
<td>25</td>
<td>37,812</td>
</tr>
<tr>
<td>26</td>
<td>37,629</td>
</tr>
<tr>
<td>27</td>
<td>37,429</td>
</tr>
<tr>
<td>28</td>
<td>37,212</td>
</tr>
<tr>
<td>29</td>
<td>37,012</td>
</tr>
<tr>
<td>30</td>
<td>36,812</td>
</tr>
<tr>
<td>31</td>
<td>36,629</td>
</tr>
<tr>
<td>32</td>
<td>36,429</td>
</tr>
<tr>
<td>33</td>
<td>36,212</td>
</tr>
<tr>
<td>34</td>
<td>36,012</td>
</tr>
<tr>
<td>35</td>
<td>35,812</td>
</tr>
<tr>
<td>36</td>
<td>35,629</td>
</tr>
<tr>
<td>37</td>
<td>35,429</td>
</tr>
<tr>
<td>38</td>
<td>35,212</td>
</tr>
<tr>
<td>39</td>
<td>35,012</td>
</tr>
<tr>
<td>40</td>
<td>34,812</td>
</tr>
<tr>
<td>41</td>
<td>34,629</td>
</tr>
<tr>
<td>42</td>
<td>34,429</td>
</tr>
<tr>
<td>43</td>
<td>34,212</td>
</tr>
<tr>
<td>44</td>
<td>34,012</td>
</tr>
<tr>
<td>45</td>
<td>33,812</td>
</tr>
<tr>
<td>46</td>
<td>33,629</td>
</tr>
<tr>
<td>47</td>
<td>33,429</td>
</tr>
<tr>
<td>48</td>
<td>33,212</td>
</tr>
<tr>
<td>49</td>
<td>33,012</td>
</tr>
<tr>
<td>50</td>
<td>32,812</td>
</tr>
</tbody>
</table>

Note: Ranks are among the 50 US states plus the District of Columbia.
Texas overall employment rank = 2.
Texas
Specialization by Traded Cluster, 1990-2004

Overall change in the Texas Share of US Employment: +0.84%

Oil and Gas Products and Services (39.8%, +2.9%)
Aerospace Vehicles and Defense
Footwear

Texas Overall Share of US Traded Employment: 6.76%

Texas
Specialization by Traded Cluster, 1990-2004 (continued)


Copyright © 2006 Professor Michael E. Porter
Texas Economic Growth
Job Creation by Traded Cluster, 1990-2004

Net traded job creation, 1990-2004:
+465,900

Indicates expected job creation given national cluster growth.*

* Percent change in national benchmark times starting regional employment. Overall traded job creation in Texas, if it matched national benchmarks, would be +205,776.

2006/11/14 Texas
Composition of the Texas Economy
Wages by Traded Cluster vs. National Benchmarks

Wages, 2004

Texas average traded wage: $49,495
U.S. average traded wage: $49,367

Impact of Cluster Mix on Average Wages
Texas Traded Clusters, 2004

Texas' traded sector wages are 7.9% higher than they would be if Texas' mix of employment by cluster matched the U.S. average.

Texas' traded sector wages are 6.35% lower than they would be if Texas' wage levels per cluster matched the U.S. averages.

Texas Traded Wages: $49,495
US Traded Wages: $49,367

Cluster Mix Effect
Cluster Wage Level Effect
# Top Patenting Universities and Research Institutes

<table>
<thead>
<tr>
<th>Rank</th>
<th>Organization</th>
<th>Patents Issued from 2000 to 2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UNIVERSITY OF CALIFORNIA, THE REGENTS OF</td>
<td>2107</td>
</tr>
<tr>
<td>2</td>
<td>HARVARD UNIVERSITY</td>
<td>698</td>
</tr>
<tr>
<td>3</td>
<td>MASSACHUSETTS INSTITUTE OF TECHNOLOGY</td>
<td>614</td>
</tr>
<tr>
<td>4</td>
<td>CALIFORNIA INSTITUTE OF TECHNOLOGY</td>
<td>586</td>
</tr>
<tr>
<td>5</td>
<td>UNIVERSITY OF TEXAS</td>
<td>454</td>
</tr>
<tr>
<td>6</td>
<td>STANFORD UNIVERSITY, LELAND JUNIOR, THE BOARD OF TRUSTEES OF</td>
<td>434</td>
</tr>
<tr>
<td>7</td>
<td>JOHNS HOPKINS UNIVERSITY</td>
<td>397</td>
</tr>
<tr>
<td>8</td>
<td>WISCONSIN ALUMNI RESEARCH FOUNDATION</td>
<td>361</td>
</tr>
<tr>
<td>9</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>293</td>
</tr>
<tr>
<td>10</td>
<td>COLUMBIA UNIVERSITY</td>
<td>266</td>
</tr>
<tr>
<td>11</td>
<td>BATTELLE MEMORIAL INSTITUTE</td>
<td>257</td>
</tr>
<tr>
<td>12</td>
<td>CORNELL RESEARCH FOUNDATION INC.</td>
<td>235</td>
</tr>
<tr>
<td>13</td>
<td>PENN STATE RESEARCH FOUNDATION, INC.</td>
<td>220</td>
</tr>
<tr>
<td>14</td>
<td>RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK</td>
<td>215</td>
</tr>
<tr>
<td>15</td>
<td>UNIVERSITY OF WASHINGTON</td>
<td>209</td>
</tr>
<tr>
<td>16</td>
<td>MICHIGAN STATE UNIVERSITY</td>
<td>205</td>
</tr>
<tr>
<td>17</td>
<td>UNIVERSITY OF MINNESOTA, THE REGENTS OF</td>
<td>200</td>
</tr>
<tr>
<td>18</td>
<td>DUKE UNIVERSITY INC.</td>
<td>188</td>
</tr>
<tr>
<td>19</td>
<td>UNIVERSITY OF ILLINOIS</td>
<td>187</td>
</tr>
<tr>
<td>20</td>
<td>GEORGIA TECH RESEARCH CORP.</td>
<td>184</td>
</tr>
<tr>
<td>21</td>
<td>UNIVERSITY OF PENNSYLVANIA</td>
<td>184</td>
</tr>
<tr>
<td>22</td>
<td>UNIVERSITY OF FLORIDA BOARD OF REGENTS</td>
<td>170</td>
</tr>
<tr>
<td>23</td>
<td>NORTH CAROLINA STATE UNIVERSITY</td>
<td>167</td>
</tr>
<tr>
<td>24</td>
<td>THE SCRIPPS RESEARCH INSTITUTE</td>
<td>165</td>
</tr>
<tr>
<td>25</td>
<td>SOUTHWEST RESEARCH INSTITUTE</td>
<td>155</td>
</tr>
<tr>
<td>40</td>
<td>TEXAS A&amp;M UNIVERSITY SYSTEM</td>
<td>116</td>
</tr>
<tr>
<td>59</td>
<td>BAYLOR COLLEGE OF MEDICINE</td>
<td>81</td>
</tr>
<tr>
<td>120</td>
<td>TEXAS TECH UNIVERSITY</td>
<td>24</td>
</tr>
</tbody>
</table>

Note: Texas organizations highlighted.

Source: Prof. Michael E. Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School; Richard Bryden, Project Director
Regions in the Texas Economy
Comparative Wage Performance of Economic Areas


Texas Average Wage: $36,967
US Average Wage: $36,161

Texas Wage Growth: 3.57%
US Average Wage Growth: 3.61%

CAGR of Wages, 1990–2004

Average Wages, 2004

$45,000
$40,000
$35,000
$30,000
$25,000
$20,000

2.5% 3.0% 3.5% 4.0% 4.5% 5.0%

Dallas-Fort Worth
Houston-Baytown-Huntsville
San Antonio
Austin-Round Rock

McAllen-Edinburg-Pharr
El Paso
Killeen-Temple-Fort Hood
Amarillo
Kingsville
Corpus Christi-Kingsville
Beaumont-Port Arthur
Midland-Odessa
Texarkana, TX-Texarkana, AR
Wichita Falls
Abilene
San Angelo
Lubbock-Levelland

Texas Average Wage: $36,967
US Average Wage: $36,161

Dotted Line:

Texas Wage Growth: 3.57%
US Average Wage Growth: 3.61%
Regions in the Texas Economy
Comparative Employment Performance of Economic Areas


CAGR of Employment, 1990–2004

- **US Average Employment Growth**: 1.50%
- **Texas Employment Growth**: 2.35%
- **Texas Wage Growth**: 3.57%
- **US Average Wage Growth**: 3.61%
Texas

Economic Areas

- Dallas-Fort Worth
- San Antonio
- Austin-Round Rock
- El Paso
- McAllen-Edinburg-Pharr
- Corpus Christi-Kingsville
- Houston-Baytown-Huntsville
- Killeen-Temple-Fort Hood
- Abilene
- Wichita Falls
- Lubbock-Levelland
- Midland-Odessa
- San Angelo
- Texarkana, TX-Texarkana, AR (part)
- Amarillo
- Oklahoma City-Shawnee, OK (part)
- Beaumont-Port Arthur
- Abilene
- Lubbock-Levelland
- San Angelo
- Houston-Baytown-Huntsville
- Killeen-Temple-Fort Hood
- Abilene
- Wichita Falls
- Lubbock-Levelland
- Midland-Odessa
- San Angelo
- Texarkana, TX-Texarkana, AR (part)
- Amarillo
- Oklahoma City-Shawnee, OK (part)
Texas Economic Development Strategy

Cluster Initiatives

- Advanced Technologies and Manufacturing
- Aerospace and Defense
- Biotechnology and Life Sciences
- Information Technology and Computer Technology
- Energy
- Petroleum Refining and Chemical Products

Cluster Initiatives:
- Nanotechnology and Materials
- Micro-electromechanical Systems
- Semiconductor Manufacturing
- Automotive Manufacturing
- Communications Equipment
- Computing Equipment and Semiconductors
- Information Technology
- Oil and Gas Production
- Power Generation and Transmission
- Manufactured Energy Systems

Financing Mechanism

Emerging Technology Fund

Cross-Cutting Initiatives

- Business Climate
- Education
- Workforce

Copyright © 2006 Professor Michael E. Porter
Texas Economic Development Strategy

Next Steps

• Refine *cluster definitions*
Texas Economic Development Strategy

Next Steps

- Refine *cluster definitions*
- Widen the *range of participating clusters*
Texas Economic Development Strategy

Next Steps

• Refine cluster definitions

• Widen the range of participating clusters

• **Activate** and **institutionalize** the cluster development process
  – Upgrade institutions for collaboration
  – Matching funds for action plans
  – Organization of Department of Economic Development and Tourism
Public / Private Cooperation in Cluster Upgrading
Minnesota’s Medical Device Cluster

**Context for Firm Strategy and Rivalry**
- Aggressive trade associations (Medical Alley Association, High Tech Council)
- Effective global marketing of the cluster and of Minnesota as the “The Great State of Health”
- Full-time “Health Care Industry Specialist” in the department of Trade and Economic Development

**Factor (Input) Conditions**
- Joint development of vocational-technical college curricula with the medical device industry
- Minnesota Project Outreach exposes businesses to resources available at university and state government agencies
- Active medical technology licensing through University of Minnesota
- State-formed Greater Minnesota Corp. to finance applied research, invest in new products, and assist in technology transfer

**Demand Conditions**
- State sanctioned reimbursement policies to enable easier adoption and reimbursement for innovative products

**Related and Supporting Industries**
Texas Economic Development Strategy

Next Steps

• Refine cluster definitions

• Widen the range of participating clusters

• Activate and institutionalize the cluster development process
  – Upgrade institutions for collaboration
  – Matching funds for action plans
  – Organization of Department of Economic Development and Tourism

• Focus public policy implementation around clusters
Clusters and Public Policy

- Clusters provide a framework for organizing the implementation of public policy and public investments towards economic development.

Clusters

- Business Attraction
- Education and Workforce Training
- Science and Technology Infrastructure (e.g., centers, university departments, technology transfer)
- Setting standards
- Environmental Stewardship
- Natural Resource Protection
- Export Promotion
- Market Information and Disclosure
- Specialized Physical Infrastructure

Cluster Diagram:

- Clusters
  - Business Attraction
  - Education and Workforce Training
  - Science and Technology Infrastructure
  - Setting standards
  - Environmental Stewardship
  - Natural Resource Protection
  - Export Promotion
  - Market Information and Disclosure
  - Specialized Physical Infrastructure

...
Texas Economic Development Strategy
Next Steps

• Refine cluster definitions

• Widen the range of participating clusters

• Activate and institutionalize the cluster development process
  – Upgrade institutions for collaboration
  – Matching funds for action plans
  – Organization of Department of Economic Development and Tourism

• Focus public policy implementation around clusters

  • Develop explicit action plans around cross-cutting initiatives
    – General education system
Texas Economic Development Strategy

Next Steps

• Refine cluster definitions

• Widen the range of participating clusters

• Activate and institutionalize the cluster development process
  – Upgrade institutions for collaboration
  – Matching funds for action plans
  – Organization of Department of Economic Development and Tourism

• Focus public policy implementation around clusters

• Develop explicit action plans around cross-cutting initiatives
  – General education system

• Drive economic development to the regional level
Texas Economic Development Strategy

Next Steps

• Refine cluster definitions

• Widen the range of participating clusters

• Activate and institutionalize the cluster development process
  – Upgrade institutions for collaboration
  – Matching funds for action plans
  – Organization of Department of Economic Development and Tourism

• Focus public policy implementation around clusters

• Develop explicit action plans around cross-cutting initiatives
  – General education system

• Drive economic development to the regional level

• Create an explicit strategy for addressing economically distressed urban and rural communities
Texas Economic Development Strategy

Next Steps

- Refine cluster definitions
- Widen the range of participating clusters
- Activate and institutionalize the cluster development process
  - Upgrade institutions for collaboration
  - Matching funds for action plans
  - Organization of Department of Economic Development and Tourism
- Focus public policy implementation around clusters
- Develop explicit action plans around cross-cutting initiatives
  - General education system
- Drive economic development to the regional level
- Create an explicit strategy for addressing economically distressed urban and rural communities
- Create an overall organizational structure for economic development
  - Public-private collaboration
  - Coordinating mechanism for state agencies
Organizing to Compete
South Carolina Council on Competitiveness

South Carolina Council on Competitiveness
- Chaired by a business leader
- Convenes working groups, provides direction and strength, holds working groups accountable
- Acts as sustainable, long-term guider of economic strategy

Executive Committee
- Drives initiative and acts as the primary decision-making body in between Council meetings
- Acts as sustainable, long-term guider of economic strategy

Coordinating Staff
- Support Council, Executive Comm. and working groups
- Small full-time staff
- Develop specific action plans to advance issue areas
- Work organized on basis of individual accountability
- Business, academic, and government executives

To Be Formed
- New Institutions
- Marketing
- Others as Needed

Cluster Committees
- Automotives
- Apparel
- Hydrogen / Fuel Cells
- Agriculture
- Textiles
- Travel and Tourism

Task Forces
- Cluster Activation
- Education / Workforce
- Research / Investment
- Start-ups / Local Firms
- Distressed / Disadvan. Areas
- Measuring Progress

Note: As of 01/05
Organizing to Compete
Massachusetts Governor’s Council

Governor’s Council on
Economic Growth and Technology

Industry Cluster Committees
- Advanced Materials
- Biotechnology and Pharmaceuticals
- Defense
- Marine Science and Technology
- Medical Devices
- Software
- Telecommunications
- Textiles
- Information Technology

Functional Task Forces
- International Trade
- Marketing Massachusetts
- Tax Policy and Capital Formation
- Technology Policy and Defense Conversion

Issue Groups
- Cost of Doing Business
- Financing Emerging Companies
- Health Care
- Western Massachusetts
- Business Climate
- Competitive Benchmarking