Launch of the Asia Competitiveness Institute

Singapore Competitiveness:
A Nation in Transition

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Harvard Business School
Singapore
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This presentation draws on ideas from Professor Porter’s books and articles, in particular, “Building the Microeconomic Foundations of Prosperity,” in The Global Competitiveness Report 2006-07 (World Economic Forum, 2006); “Clusters and the New Competitive Agenda for Companies and Governments,” in On Competition (Harvard Business School Press, 1998); Clusters of Innovation Initiative (www.compete.org), a joint effort of the Council on Competitiveness, Monitor Group, and ongoing research. 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 the author.

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

• Globalization of **markets**
• Globalization of **value chains**
• Globalization of **knowledge**
• **Innovation** and **skill** an increasing share of value added
• **Services** an increasing share of value added

• Competitiveness depends on **productivity**
• The bar for competitiveness is **rising**
• Competitiveness in the global economy is a **positive-sum game**
Singapore Competitiveness in Transition

• Singapore is one of the most **impressive success stories** of economic growth in the 20th century

• The country has successfully **weathered a series of external shocks** from the Asian crisis (1997-98) to the bursting of the IT bubble (2001) to SARS (2003)

• It is now on a **challenging path** to move from an economy based on efficiency to one based on differentiation and innovation

• The track record so far is **encouraging**, but much work lies ahead

• An enduring strength of Singapore is its **willingness to question** whether the current sources of its economic success are sustainable
Prosperity Performance
Selected Countries

Real PPP-adjusted GDP per Capita, 2005

Growth of Real GDP per Capita (PPP-adjusted), CAGR, 2000-2005

Source: EIU (2006), authors’ calculations
Innovation and Competitiveness

- Innovation is **more than just scientific discovery**
- There are **no low-tech industries**, only low-tech firms
GDP per Employee, US-$, 2005

Growth of Real GDP Employee, CAGR, 2000 - 2005


Labor Productivity Level and Growth
Selected Countries
International Patenting Output
Selected Countries

Annual U.S. patents per 1 million population, 2005


Source: USPTO, 2005
Determinants of Competitiveness

Macroeconomic, Political, Legal, and Social Context

Microeconomic Foundations

- The Sophistication of Company Operations and Strategy
- The Quality of the Microeconomic Business Environment

- A sound macroeconomic, political, legal, and social context creates the potential for competitiveness, **but is not sufficient**
- Only **firms** can create wealth, not government
Determinants of Competitiveness
Enhancing the Business Environment

Context for Firm Strategy and Rivalry

- A local context and rules that encourage productivity
  - e.g., incentives for capital investments, intellectual property protection
- Incentive systems based on merit
- Open and vigorous local competition, especially among locally based rivals

Factor (Input) Conditions

- Availability of high quality, specialized inputs available to firms
  - Human resources
  - Capital resources
  - Physical infrastructure
  - Administrative infrastructure (e.g. registration, permits)
  - Information infrastructure (e.g. economic data, corporate disclosure)
  - Scientific and technological infrastructure
  - Natural resources

Demand Conditions

- More sophisticated and demanding local customer(s)
- Local customer needs that anticipate those elsewhere
- Unusual local demand in specialized segments that can be served nationally and globally

Related and Supporting Industries

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

• Successful economic development is a process of successive economic upgrading, in which the business environment evolves to support and encourage increasingly sophisticated ways of competing
Traditional Strengths of the Singaporean Business Environment

**Context for Firm Strategy and Rivalry**
- High openness to global competition
- Aggressive attraction of foreign companies
- Attractive tax regime
- Professional management and governance of government-linked companies

**Factor (Input) Conditions**
- World-class infrastructure
- Efficient government services and regulations
- Well-trained and flexible workforce
- Solid financial market

**Demand Conditions**
- Focus on selected clusters (electronics, chemicals, logistics, financial services) to overcome small economy-disadvantages

**Related and Supporting Industries**
Cluster Development
Oil and Gas, Houston

Upstream

Oilfield Services/Engineering & Contracting Firms

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

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

Downstream

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

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

Specialized Institutions
(e.g. Academic Institutions, Training Centers, Industry Associations)
Change in Singapore’s world export market share, 1997 – 2005

Singapore
Export Portfolio by Cluster, 1997-2005

Change in Singapore’s Overall World Export Share: -0.07%

Singapore’s Average World Export Share: 2.34%

Exports of US$10 Billion =


GCR Singapore 092006.ppt

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Singapore
Export Portfolio by Cluster, 1997-2005 (continued)


Exports of US$10 Billion = "Singapore’s Average World Export Share: 2.34%"
Foreign Investment Stocks and Flows
Selected Countries

Stock of FDI as a % of GDP,
Average 2001-2004

FDI Inflows as a % of Gross Fixed Capital Formation,
Average 2001-2004

Source: UNCTAD (2005)
Singapore Export Share Trends

Source: WTO (2006)
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, and institutions take responsibility

- **Every** community and cluster can take steps to enhance competitiveness
## Institutions for Collaboration

### Selected Massachusetts Organizations, Life Sciences

<table>
<thead>
<tr>
<th>Life Sciences Industry Associations</th>
<th>University Initiatives</th>
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</thead>
<tbody>
<tr>
<td>• Massachusetts Biotechnology Council</td>
<td>• Harvard Biomedical Community</td>
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<tr>
<td>• Massachusetts Medical Device Industry Council</td>
<td>• MIT Enterprise Forum</td>
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<tr>
<td>• Massachusetts Hospital Association</td>
<td>• Biotech Club at Harvard Medical School</td>
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<td></td>
<td>• Technology Transfer offices</td>
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<tr>
<th>General Industry Associations</th>
<th>Informal networks</th>
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<tr>
<td>• Associated Industries of Massachusetts</td>
<td>• Company alumni groups</td>
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<tr>
<td>• Greater Boston Chamber of Commerce</td>
<td>• Venture capital community</td>
</tr>
<tr>
<td>• High Tech Council of Massachusetts</td>
<td>• University alumni groups</td>
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<th>Economic Development Initiatives</th>
<th>Joint Research Initiatives</th>
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<tr>
<td>• Massachusetts Technology Collaborative</td>
<td>• New England Healthcare Institute</td>
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<tr>
<td>• Mass Biomedical Initiatives</td>
<td>• Whitehead Institute For Biomedical Research</td>
</tr>
<tr>
<td>• Mass Development</td>
<td>• Center for Integration of Medicine and Innovative Technology (CIMIT)</td>
</tr>
<tr>
<td>• Massachusetts Alliance for Economic Development</td>
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## Singapore in Transition: Focus of Current Economic Policies

### Innovation

*Create new competitive advantages for Singapore*
- Investments in universities
- R&D fund for companies / clusters
- Reform of school system
- Focus on more ‘creative environment’

### Entrepreneurship

*Address existing competitive disadvantages of Singapore*
- Support internationalization of Singaporean companies
- Liberalization of domestic markets, e.g. telecom
- FTAs with US, ASEAN, etc.

### Efficiency

*Defend Singapore’s core competitive advantages*
- Tax reductions

### Social policy

*Defend Singapore’s social fabric*
- ‘Progress Package’ of spending for low-income citizens
Singapore Biotech Cluster
Evolution Over Time

1995
- Bioprocessing Technology Centre

1998
- Centre for Drug Evaluation
- Johns Hopkins Singapore

2000
- Genomics Institute of Singapore
- Biomedical Research Council
- Bioethics Advisory Committee
- Tuas Biomedical Park

2001
- Bioinformatics Institute
- Novartis Institute of Tropical Diseases
- Biomedical Sciences Manpower Advisory Committee
- Groundbreaking of Biopolis

2002
- Singapore Tissue Network
- Institute of Bioengineering and Nanotechnology
- Cancer Syndicate

2003
- BioPolis opens for business
- Center for Natural Product Research privatized to form MerLion Pharma
- National University of Singapore and Duke University agree to open a Graduate Medical School

2004
- A*Star and JDRF provide grants to support 7 stem cell research projects
- Pfizer opens US$220 million manufacturing plant

2005
- Launch of new biotech courses in Ngee Ann Polytechnic
- Novartis breaks ground on US$115 million production facility in Tuas Biomedical Park
- Albany Molecular Research established Research Center

Source: Research by HBS student teams in 2005 – Li-Mei Chee, Kola Luu, Gopal Raman, Hwee Yee Yong
National Economic Strategy

Value Proposition

• What is the unique competitive position of the nation?
  – What roles in the world and regional economies?
  – What unique value as a business location?
  – For what range or types of businesses and functions can the nation be competitive?

Developing Unique Strengths

• What elements of the business environment are essential to the national value proposition?
• What existing and emerging clusters must be mobilized?

Achieving and Maintaining Parity with Peers

• What macro/political/legal/social improvements are necessary to maintain parity with peer countries or regions?
• What areas of the general business environment must improve to maintain parity with peer countries or regions?
Asia Competitiveness Institute

• Barriers to competitiveness improvement:
  – The **lack of objective, relevant microeconomic data** to analyze competitiveness and track the impact of competitiveness efforts
  – The **lack of an independent research organization** separate from the government
  – The **individuals** with advanced training in the concepts and practice of competitiveness

• The **Asia Competitiveness Institute (ACI)** will have an important impact on all three dimensions

• As the node in an emerging network of professionals and institutions throughout the ASEAN region, ACI will also become a central facilitator of more effective **regional co-operation** on competitiveness
# Asia Competitiveness Institute
## Action Priorities 2006-2007

<table>
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<tr>
<th>Organizational launch</th>
<th>Initial research projects</th>
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| • Strategic plan for ACI  
• Official ACI launch  
• Recruitment of 2 Senior Research Fellows and 2 Research Fellows or equivalent | • HBS case study on Singaporean competitiveness  
• Singapore Competitiveness Report  
• Assembly of Singapore competitiveness data and development of competitiveness research database  
• Projects on Indonesia and Vietnam |

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<tr>
<th>Network building</th>
<th>Education and training</th>
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| • Stakeholders  
• Related Institutes, universities and government bodies  
• Regional media | • Microeconomic of Competitiveness course as an elective in LKY SPP  
• 5-day executive program  
• Explore customized programs for ASEAN governments |
Asia Competitiveness Institute
Conditions for Success

- Independence
- Permanence
- Inclusiveness
- Clear intellectual framework
- World class research
- Strong leadership