

**Keep Moving Up!**

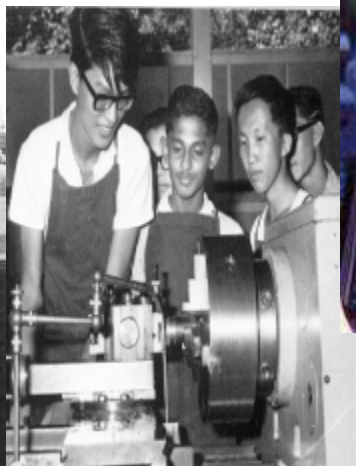


**A Case Study on Singapore's Experience & Response to the Global Economic Crisis**

**21 April 2010**



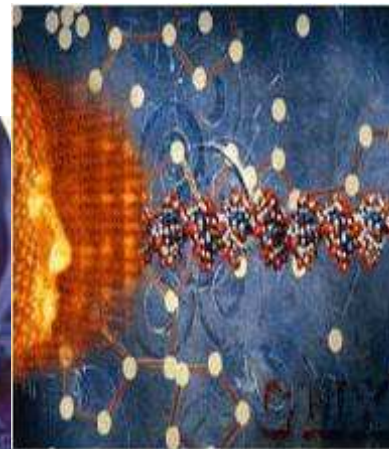
**Labour-intensive**  
1960s



**Skills-intensive**  
1970s



**Capital-intensive**  
1980s



**Technology-intensive**  
1990s



**Innovator of  
new products  
& services**

**Innovation-  
Intensive**

2000+

**Keep moving up !**

# Singapore's Economy

## GDP & Trade

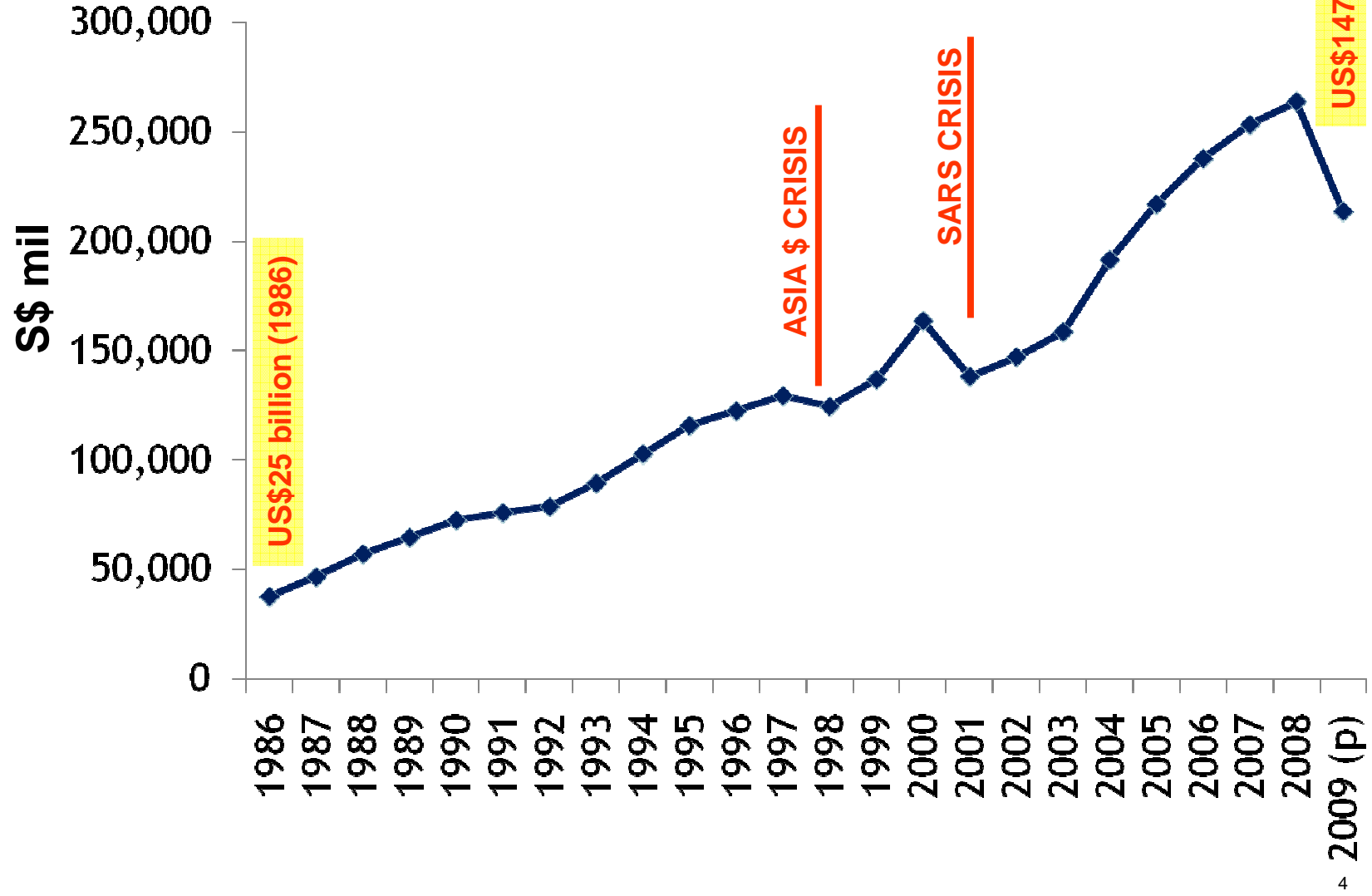
*2009 GDP (US\$160 Billion)*



*2008 Trade  
(US\$660 Billion)*

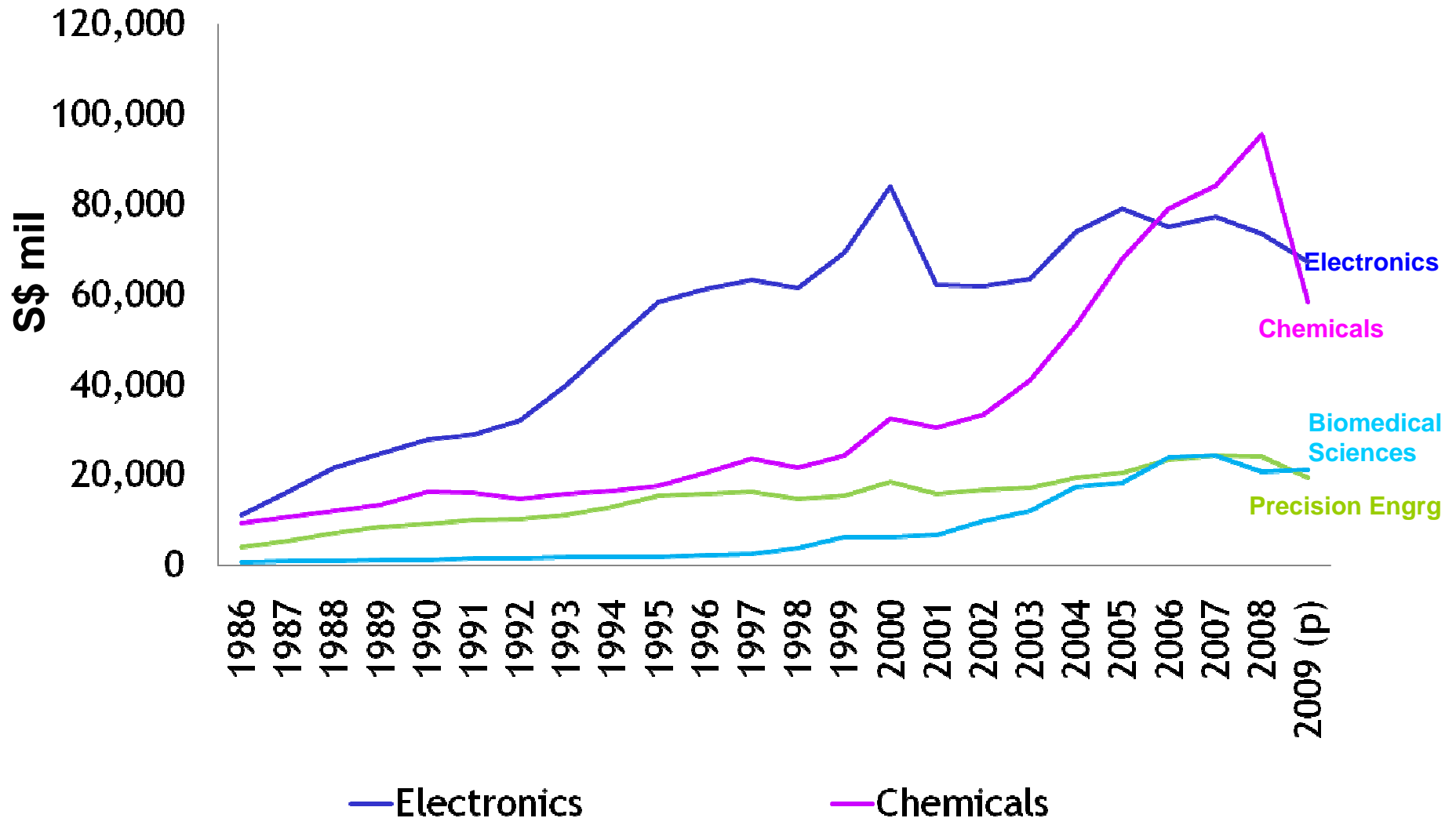


# Total Manufacturing Output (1986 – 2009)



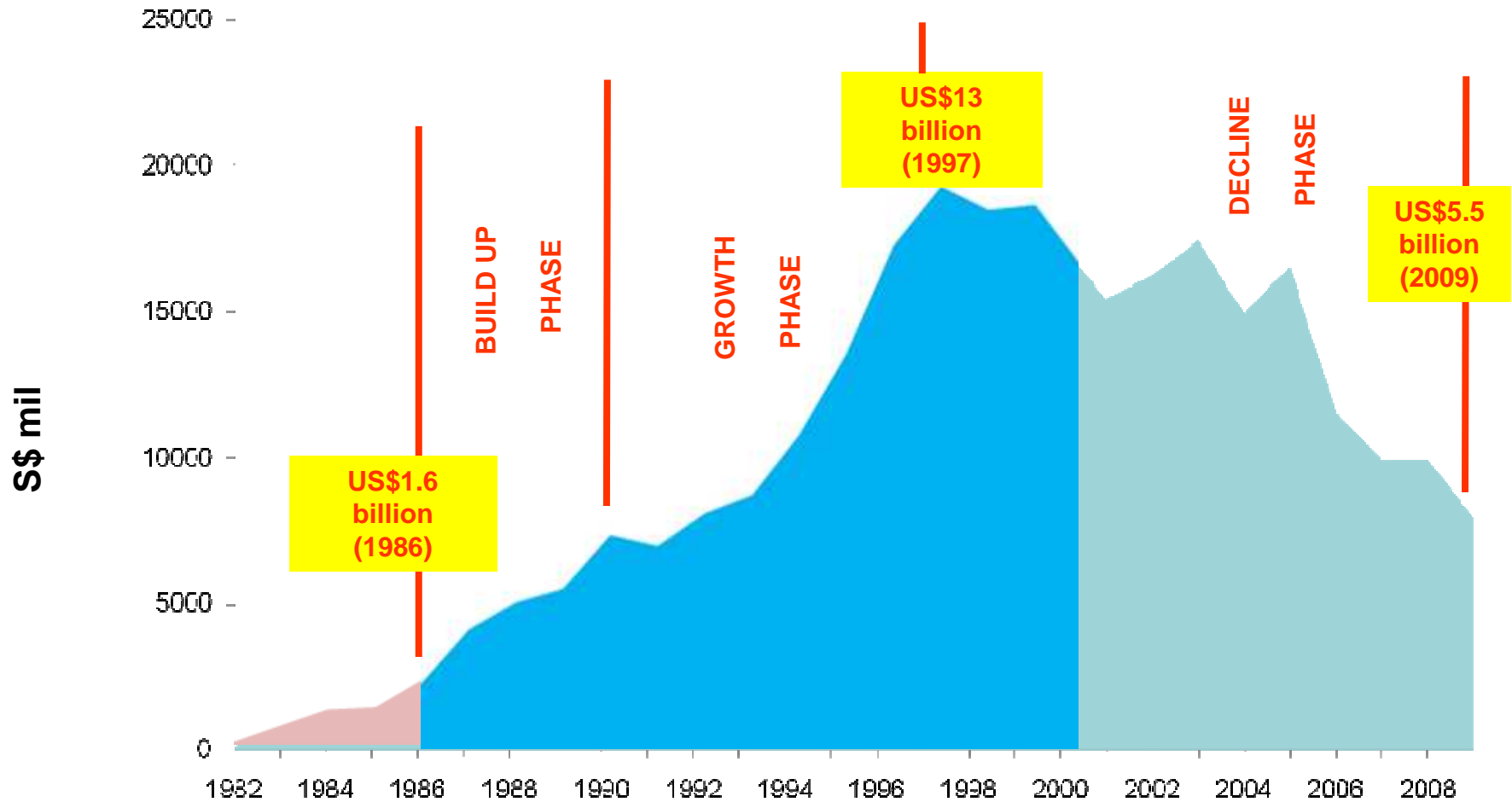
# Manufacturing

Total Manufacturing Output of 4 key clusters :  
US\$115 billion (2009)



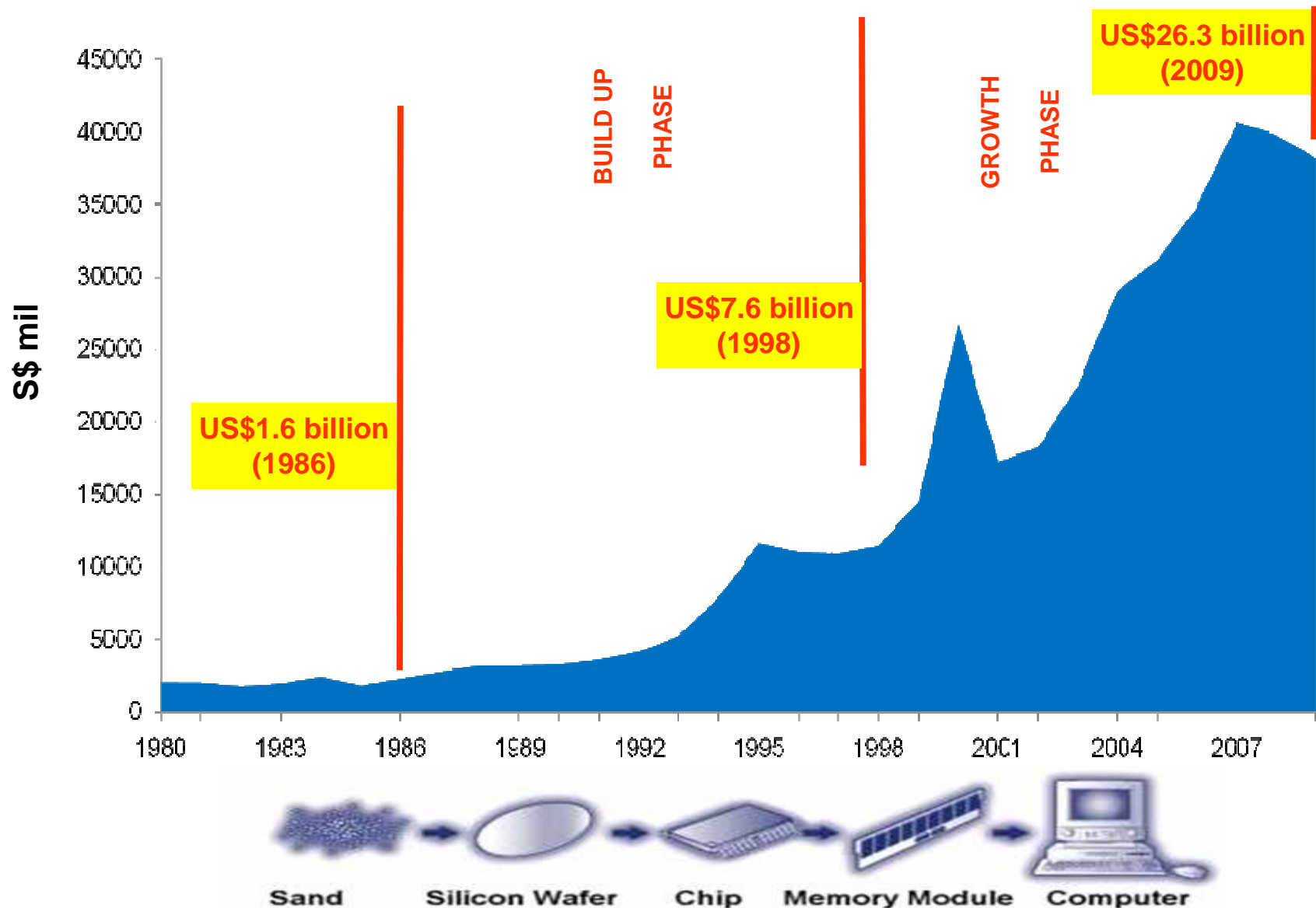
# Building the Data Storage Industry Cluster

Cumulative Output (1986-2009): US\$178 billion



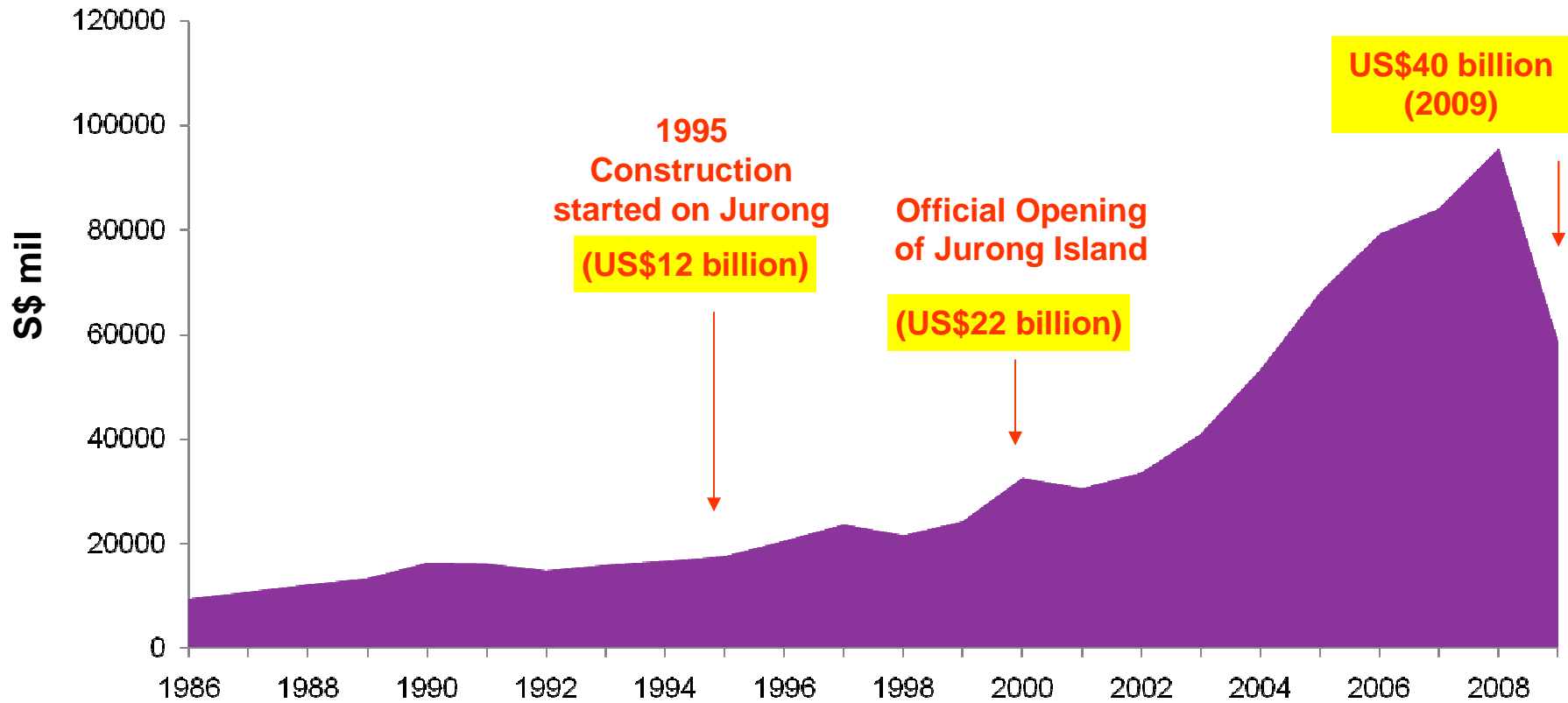
# Building the Semiconductor Industry Cluster

Cumulative Output (1986-2009): US\$247 billion



# Building The Chemicals Industry Cluster

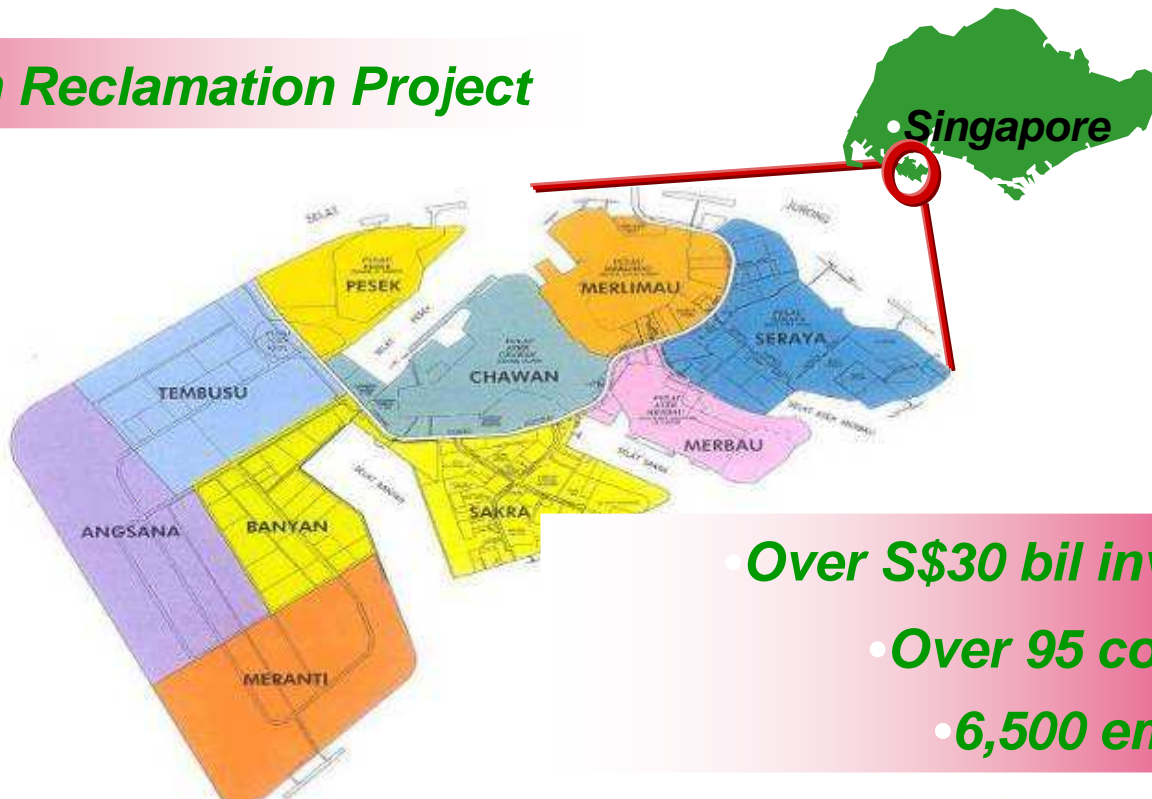
Cumulative Output (1986 – 2009) - US\$505 billion





# Jurong Island: Heart of Singapore's Chemicals Hub

- **S\$ 7 billion Reclamation Project**

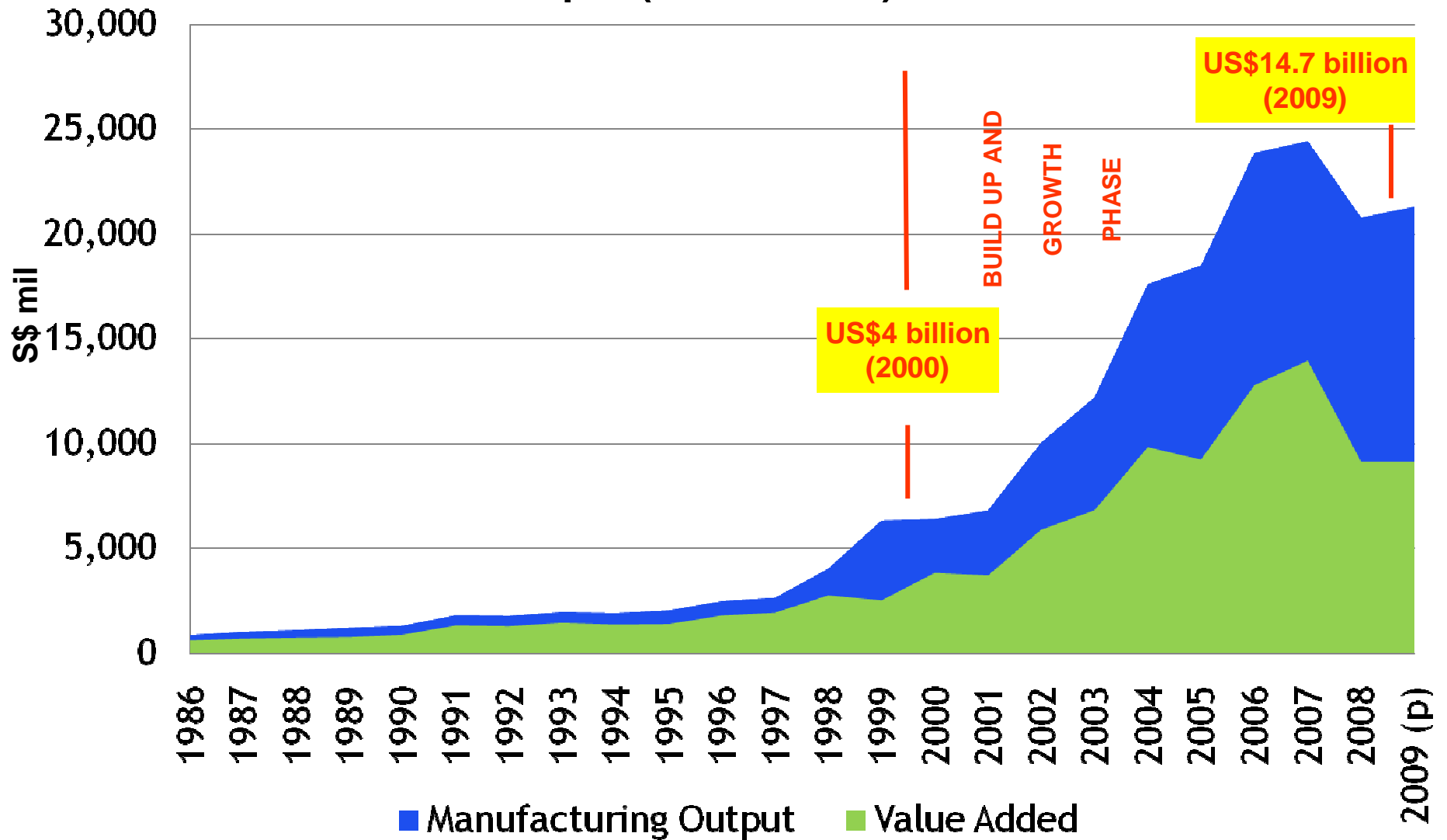


- **Over S\$30 bil investment**
- **Over 95 companies**
- **6,500 employees**



# Building The Biomedical Sciences Industry Cluster

Cumulative Output (1986 – 2009) - US\$120 billion



# Tuas Biomedical Manufacturing Park



# Building up Biomedical Sciences



2001  
A\*STAR

# Vision

## *Singapore – The Biopolis of Asia*

**An International Biomedical Sciences Cluster Advancing Human Health  
Through the Pursuit of Excellence in  
Research & Development, Manufacturing, and Healthcare Delivery**





Centros



Matrix



Genome



Helios



Chromos



Proteos

Research Community



# BIOPOLIS



Nanos



Neuros & Immunus

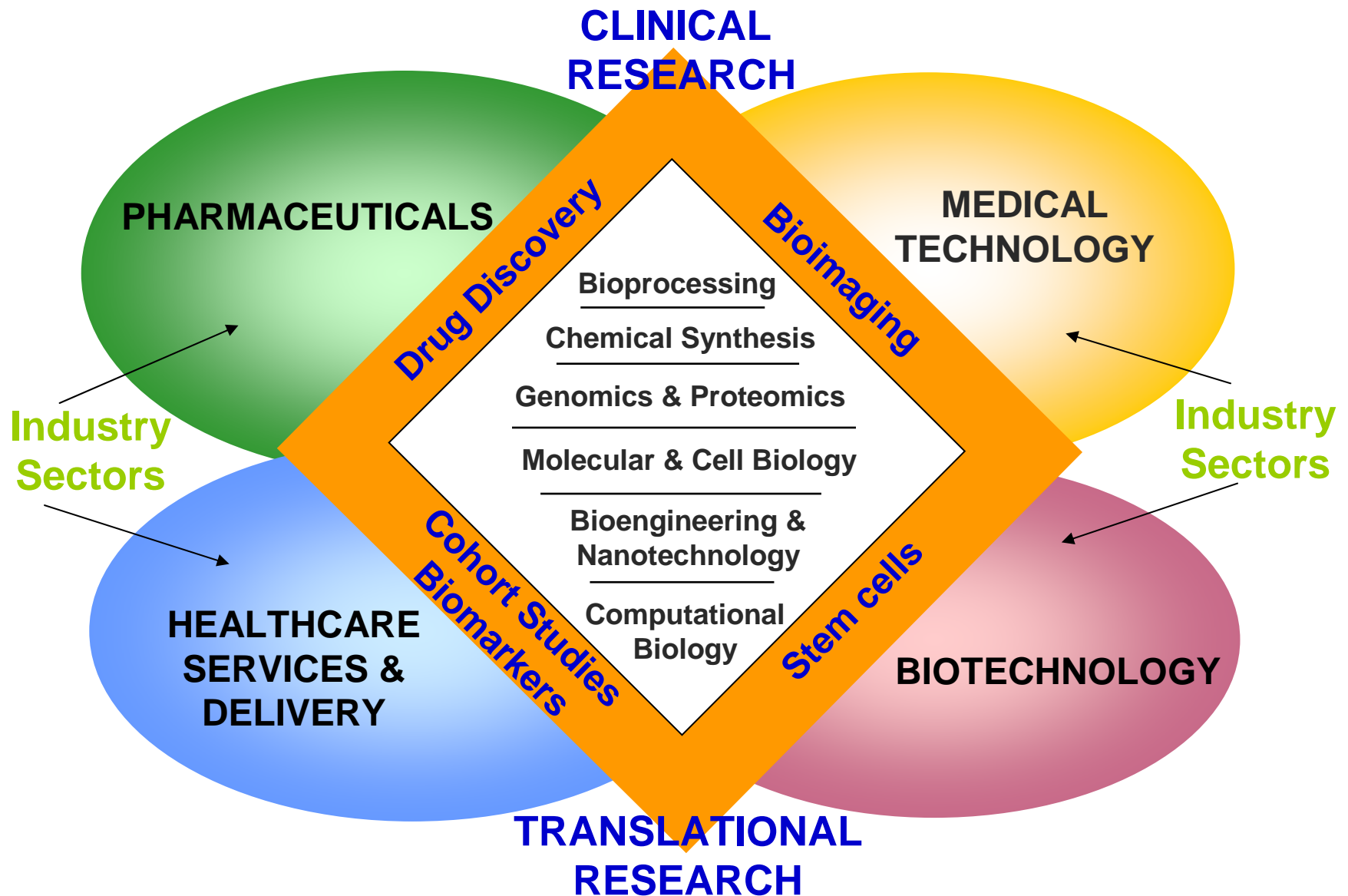


Biopolis - The Biomedical Hub of Asia

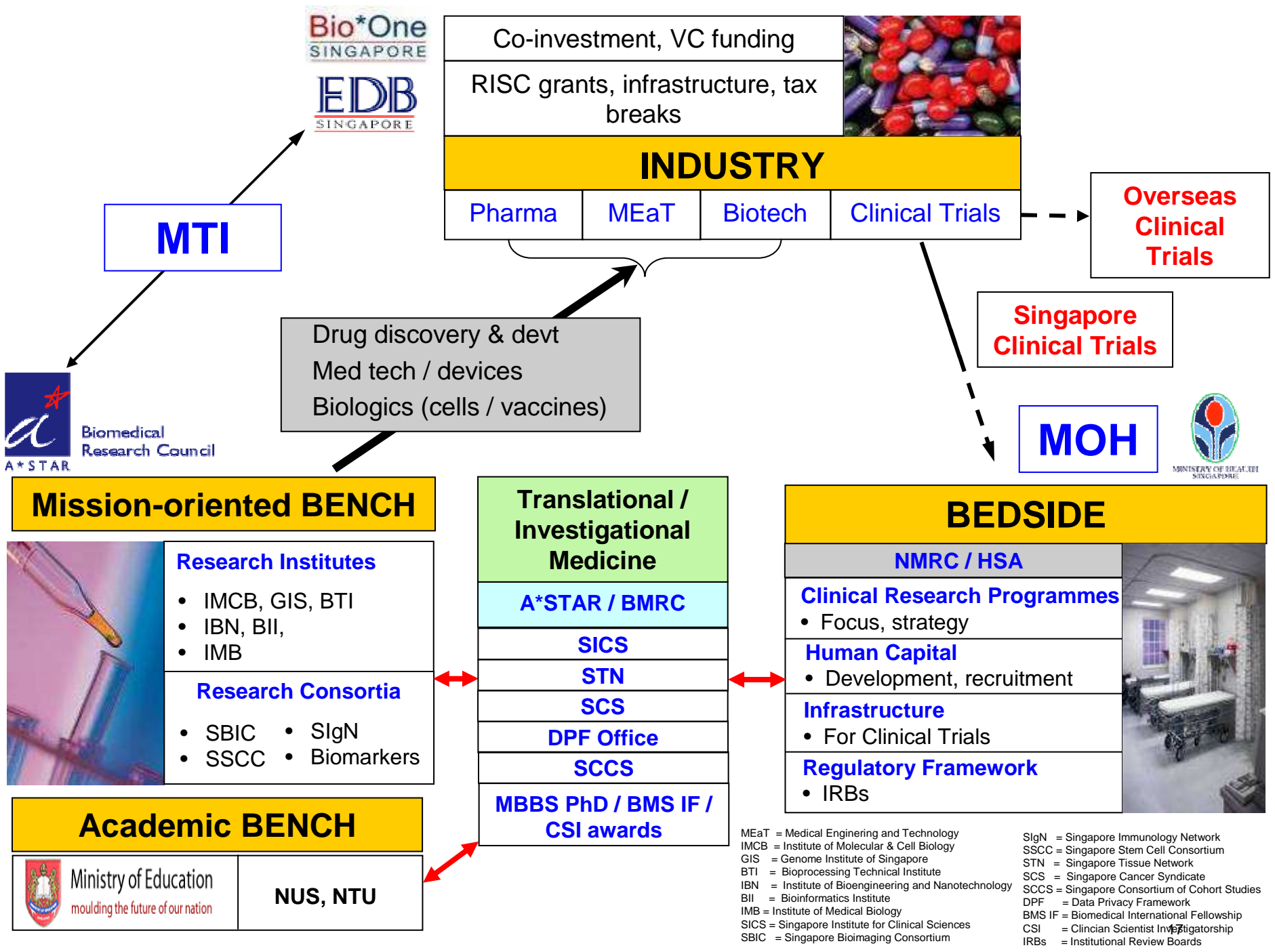
# One North - Bird's Eye View



# Biomedical Cluster Map







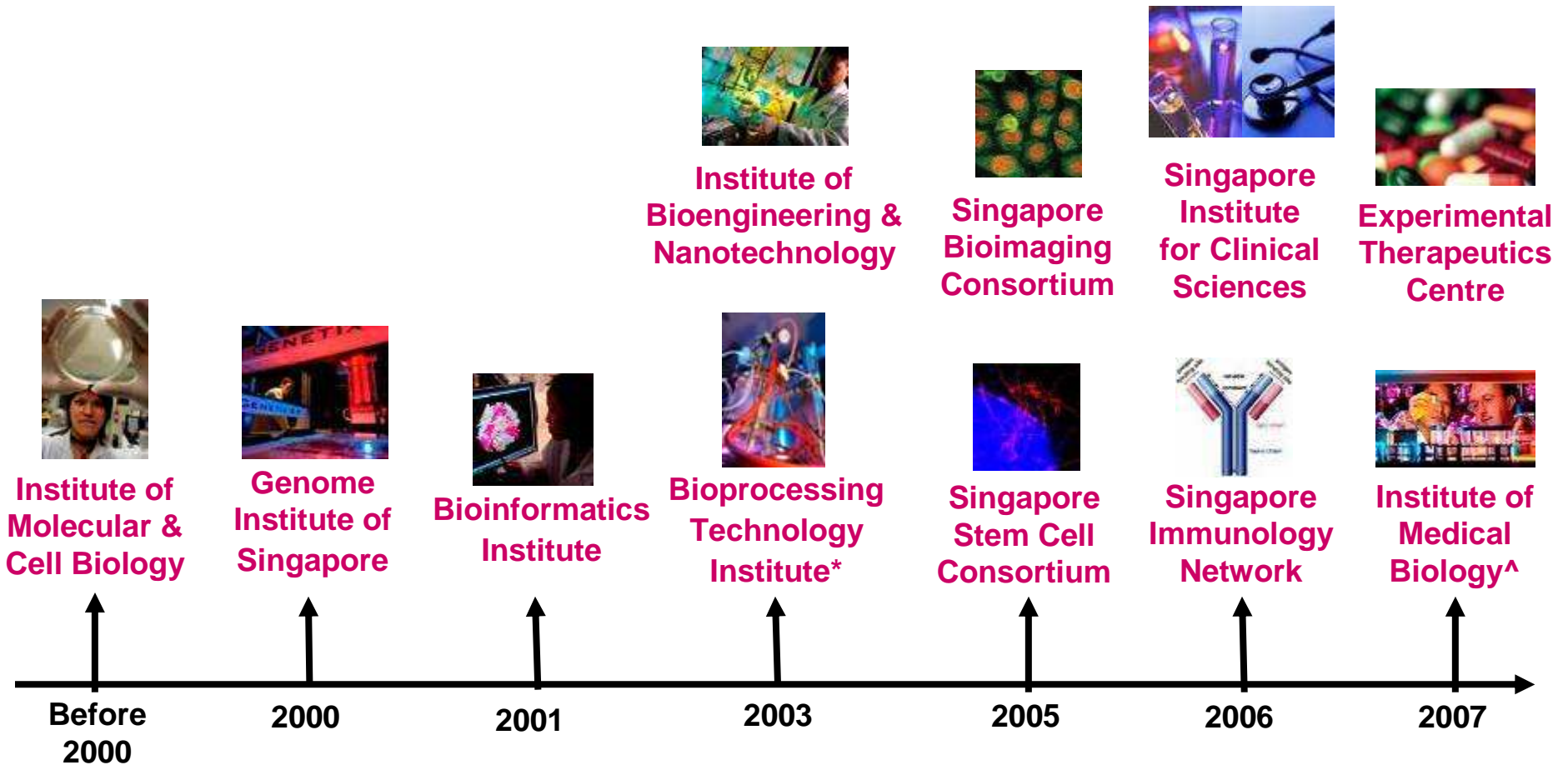
MEaT = Medical Engineering and Technology  
 IMCB = Institute of Molecular & Cell Biology  
 GIS = Genome Institute of Singapore  
 BTI = Bioprocessing Technical Institute  
 IBN = Institute of Bioengineering and Nanotechnology  
 BII = Bioinformatics Institute  
 IMB = Institute of Medical Biology  
 SICS = Singapore Institute for Clinical Sciences  
 SBIC = Singapore Bioimaging Consortium

SigN = Singapore Immunology Network  
 SSCC = Singapore Stem Cell Consortium  
 STN = Singapore Tissue Network  
 SCS = Singapore Cancer Syndicate  
 SCCS = Singapore Consortium of Cohort Studies  
 DPF = Data Privacy Framework  
 BMS IF = Biomedical International Fellowship  
 CSI = Clinician Scientist Investigatorship  
 IRBs = Institutional Review Boards

# BMRC Research Institutes

## Phase 1 (2000-2005)

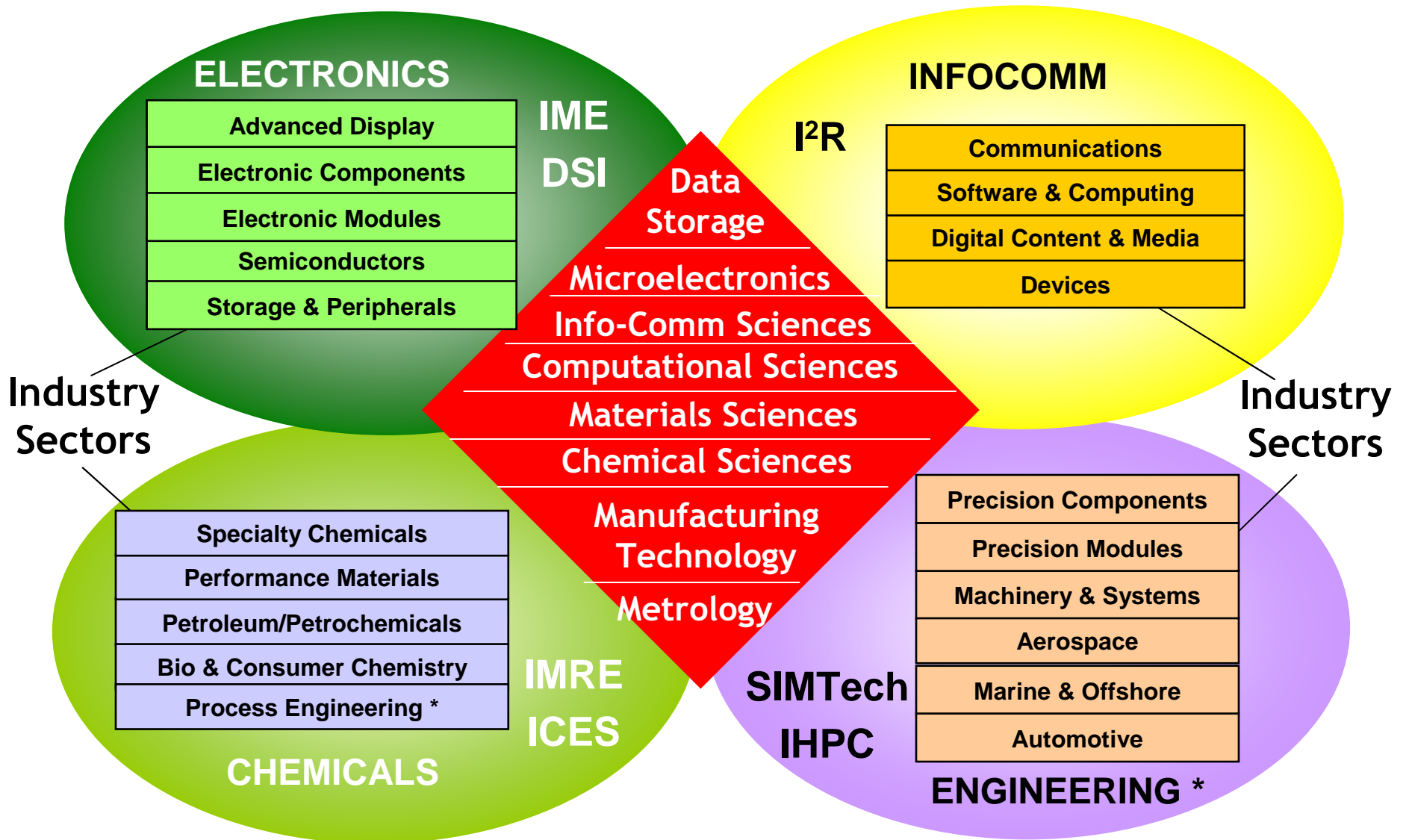
## Phase 2 (2006-2010)



\*Set-up as BTU in 1990. Became BTC in 1995, established as BTI in 2003

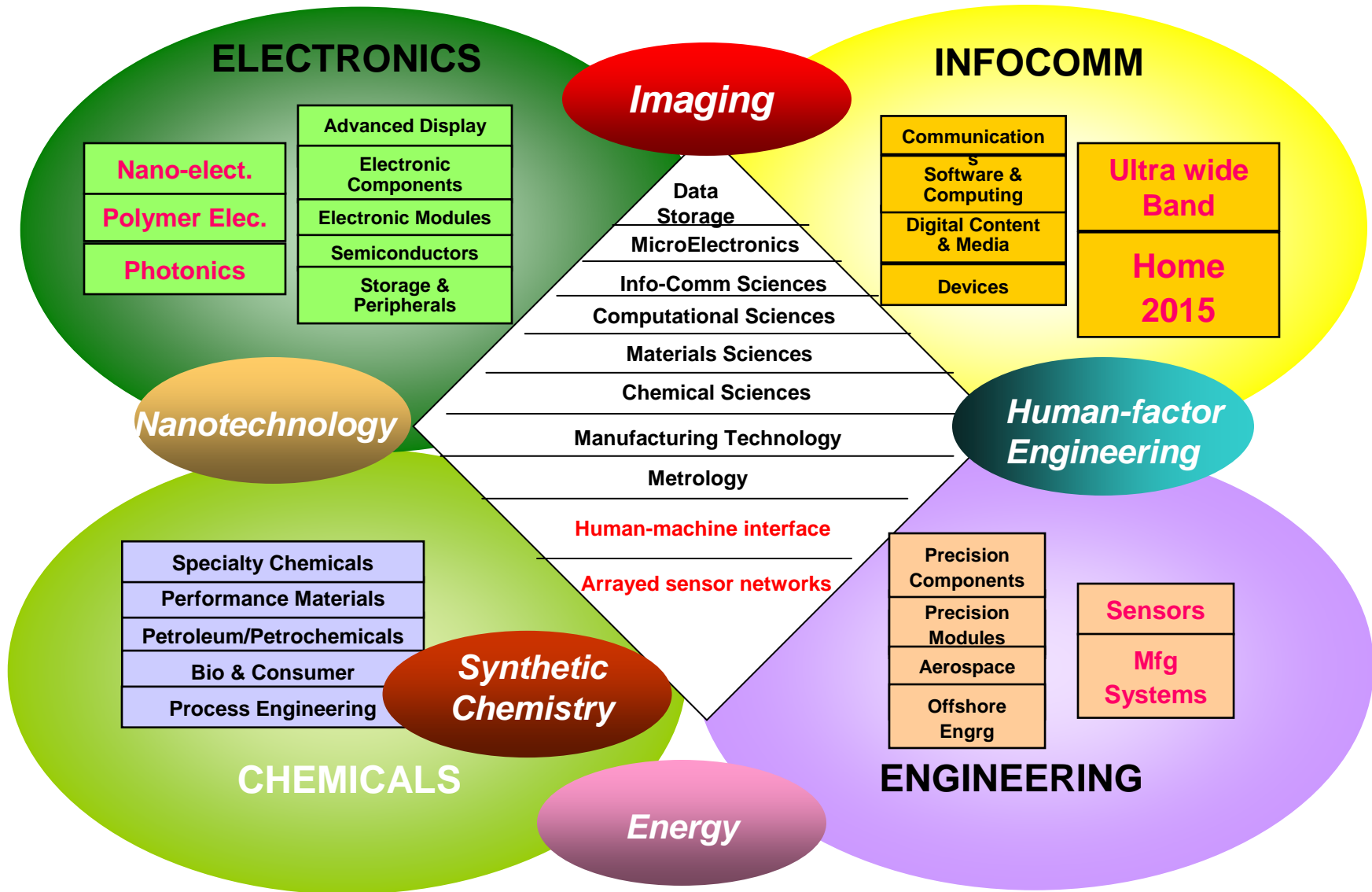
^ The Centre for Molecular Medicine (CMM) was established in 2004, and was repositioned to Institute of Medical Biology in 2007

# Science and Engineering Research Council



Alignment of SERC RIs to meet Industry Needs

# Developing New Competencies



# Fusionopolis Phase 1 Facilities



Fitness Gym & Pool



Shared Conference Rooms



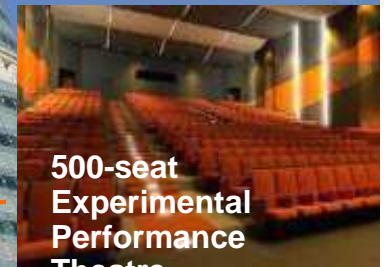
Retail and F&B Podium



Serviced Work-Live Apartments

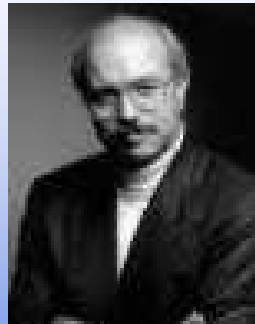
Skybridges and Sky Gardens

Business and Research Space



500-seat Experimental Performance Theatre

one-north MRT Station



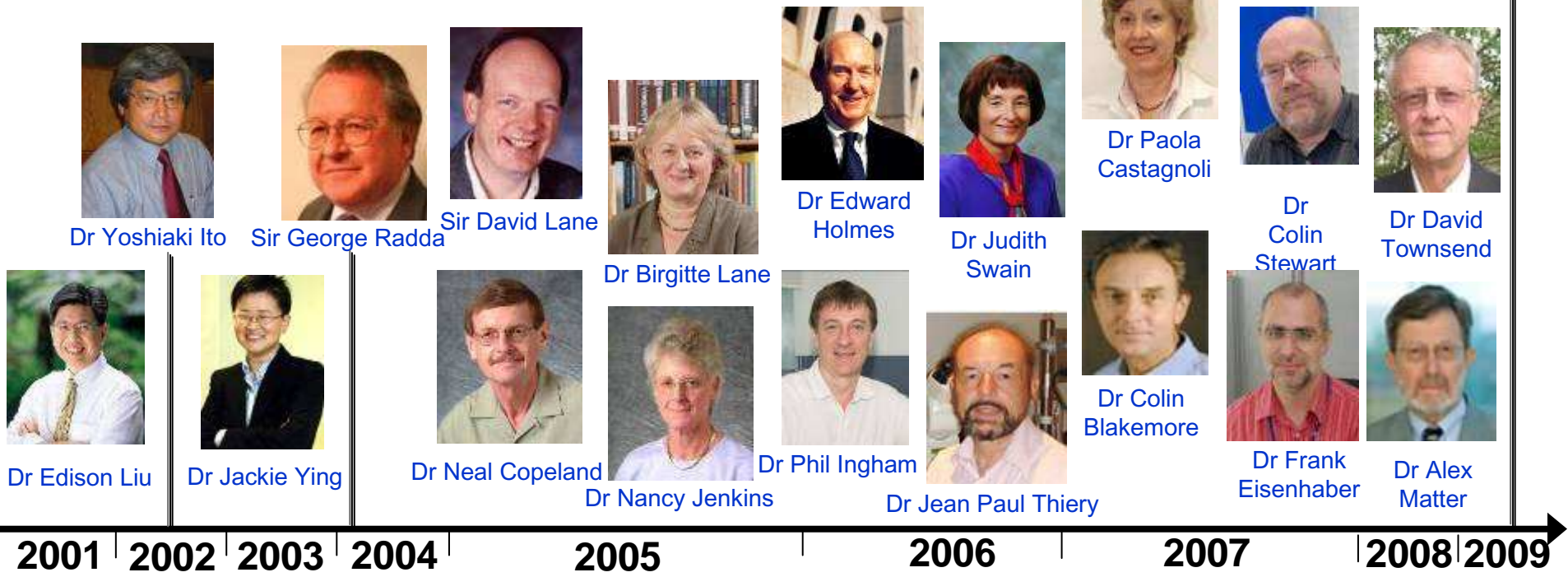
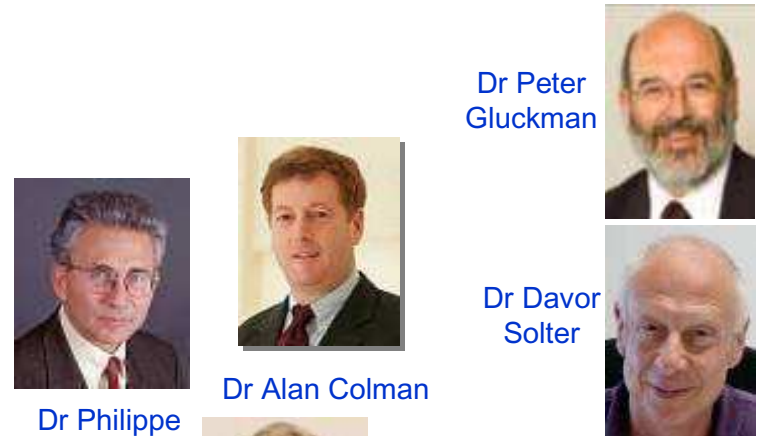
# Human Capital – Catch a few Whales !

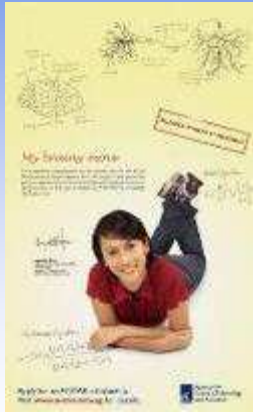
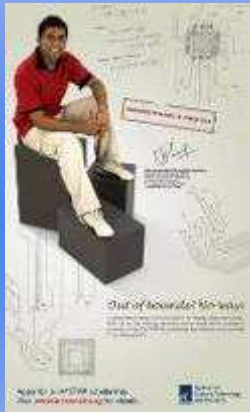
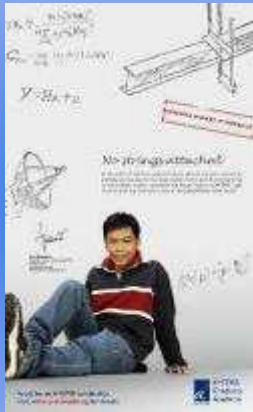


# Attracting International Scientific Talent (Whales)

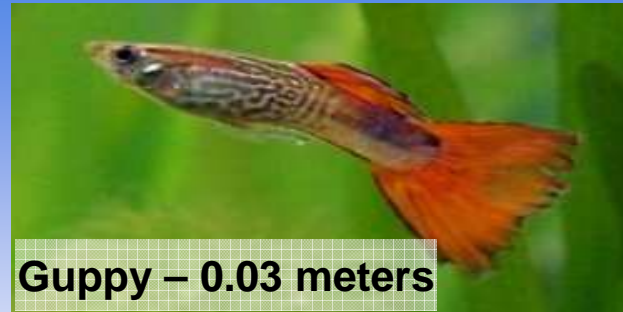
When physician-scientists Judith Swain and Ed Holmes take up their posts in Singapore..., **they will join a star-studded community** at one of the world's most rapidly developing biomedical research centres. ...**they are the latest of many Western scientists who have headed for the impressive facilities of the tiny city-state.**

*Naturejobs, 5 Jul 06*





# Human Capital – Train 1,000 PhD Guppies



Guppy – 0.03 meters



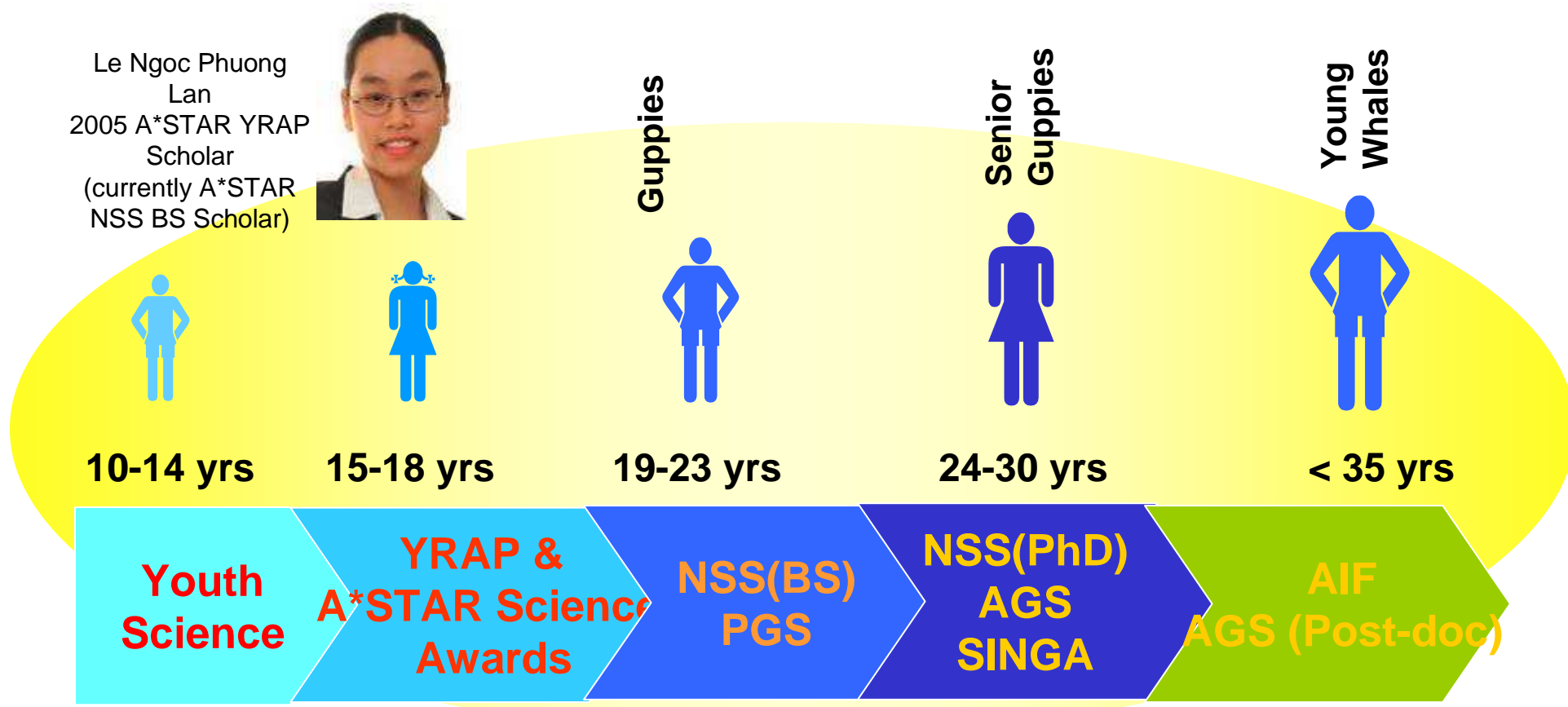
# Nurturing & Developing Human Capital (Guppies)

Evelyn Thangaraj  
 2005 A\*STAR  
 YRAP Scholar  
 (currently A\*STAR  
 NSS BS Scholar)



## Talent Pipeline

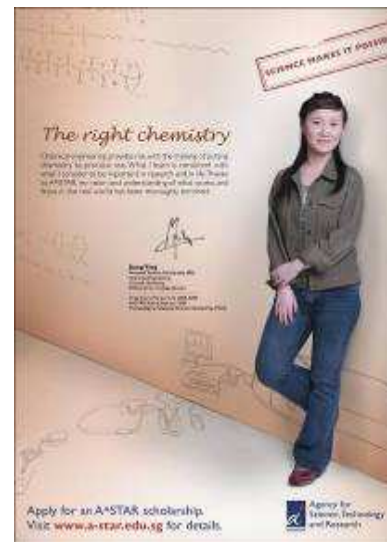
Le Ngoc Phuong  
 Lan  
 2005 A\*STAR YRAP  
 Scholar  
 (currently A\*STAR  
 NSS BS Scholar)



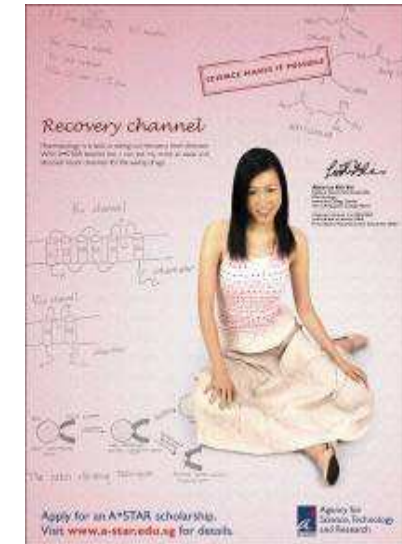
# Human Capital: International Guppies



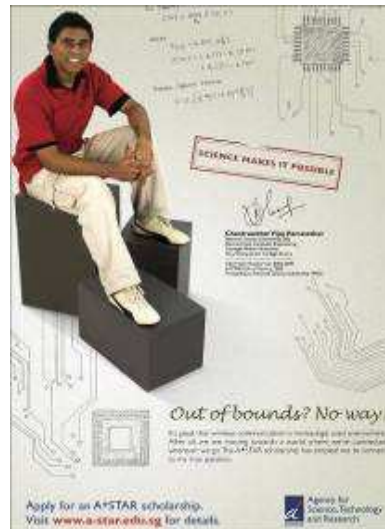
**MIT**  
**Physics**  
**(Malaysia)**



**Stanford**  
**Chemical Engineering**  
**(Shanghai)**



**MIT**  
**Bio Engineering**  
**(Hong Kong)**

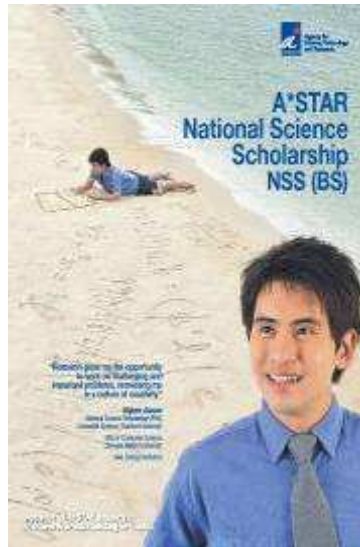


**Stanford**  
**Computer Science**  
**(India)**



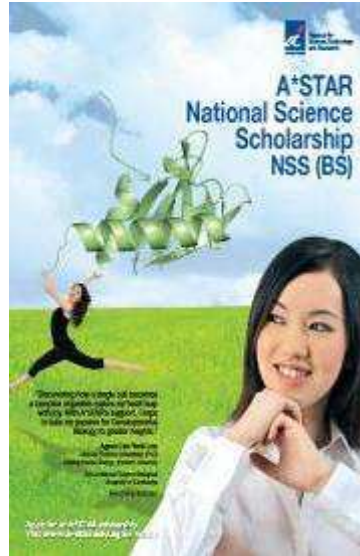
**MIT**  
**Chemical Engineering**  
**(Vietnam)**

# Human Capital: Singapore Guppies



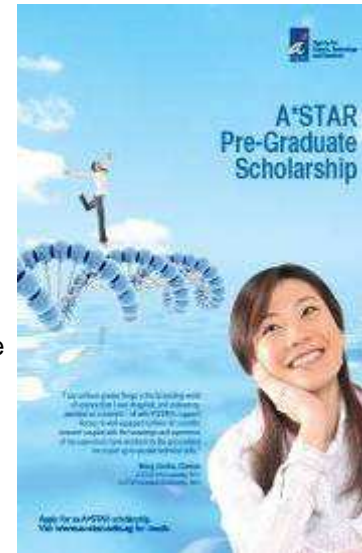
Stanford  
Computer  
Science,  
PhD

Carnegie  
Mellon  
Computer  
Science,  
BSc



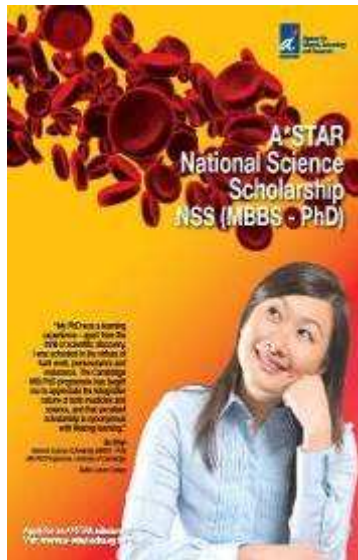
Stanford  
Developmental  
Biology  
PhD

Cambridge  
Natural Science  
Biology  
BSc

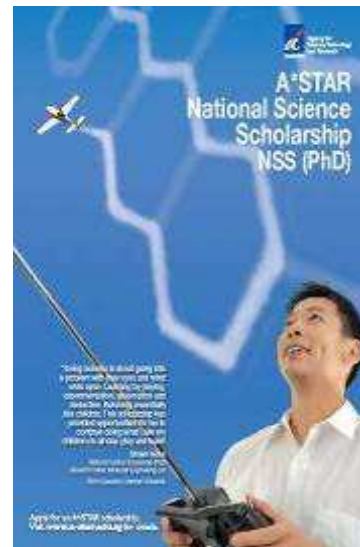


NUS  
Biomedical  
Sciences  
PhD

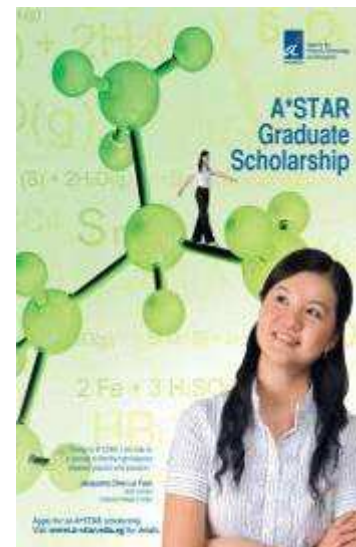
NTU  
Biological  
Sciences  
BSc



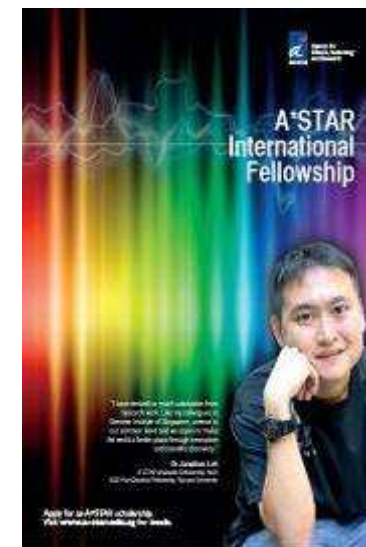
Cambridge, London  
Medicine/PhD



Stanford  
Genetics  
PhD



Imperial College London  
Cancer Biology  
PhD



Harvard  
Stem cells  
Post-Doc

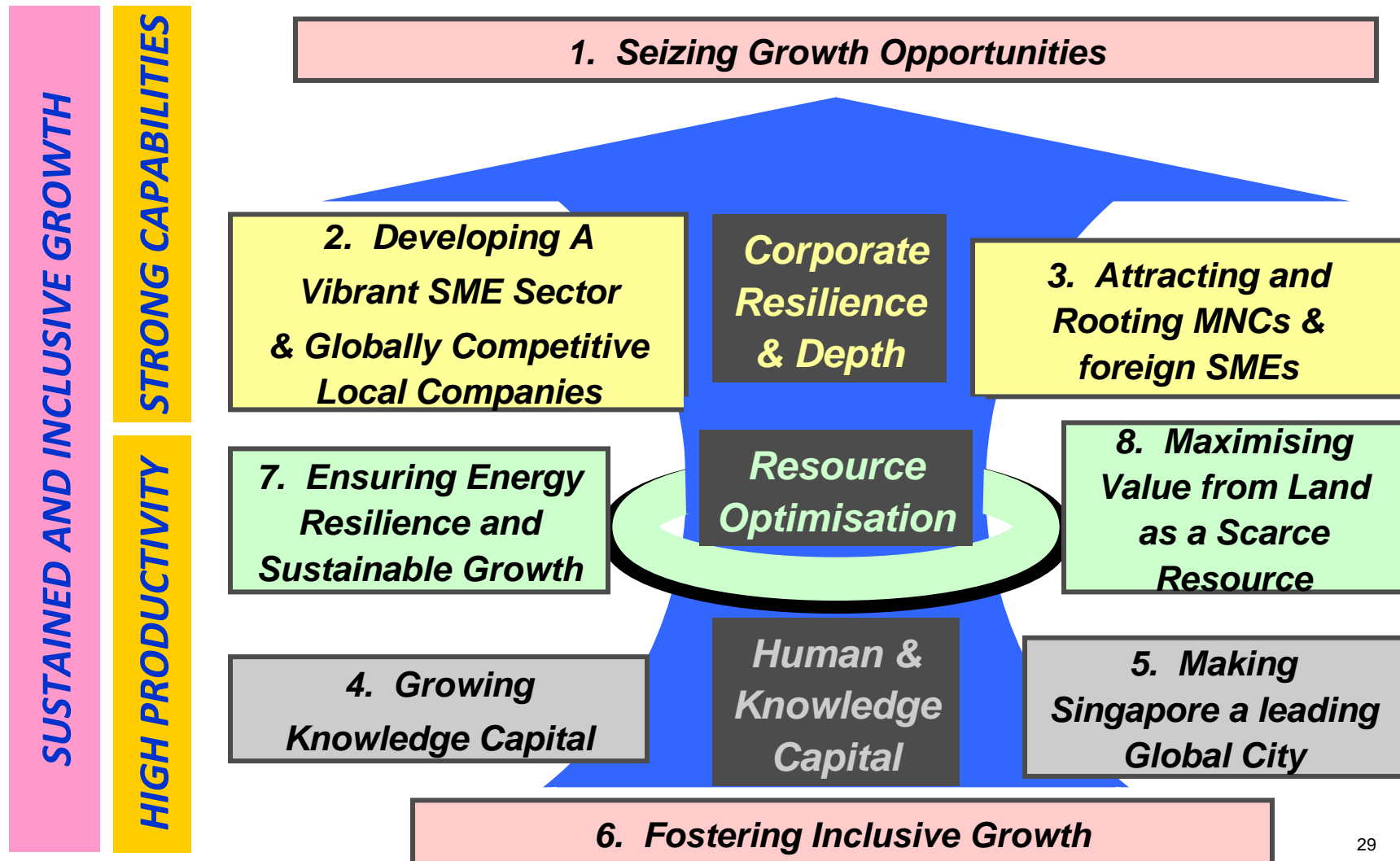
## 2009 Recession

# Action Taken

- **Immediate Responses to Overcome Crisis**
  - ❖ **First-ever Use of National Reserve**
  - ❖ **Saving Jobs**
  - ❖ **Enhancing Credit to Businesses**
  
- **Build for the Future**
  - ❖ **BUILD (Business Upgrading Initiative for Long-term Development) Package to upgrade enterprise capabilities**
  - ❖ **Economic Strategies Committee to chart future path for the economy**

# Objective & Structure of Economic Strategies Committee (ESC)

***Objective of ESC: Growing Singapore's future  
as a leading global city in the heart of Asia and ASEAN***



# Key Development Strategies

