

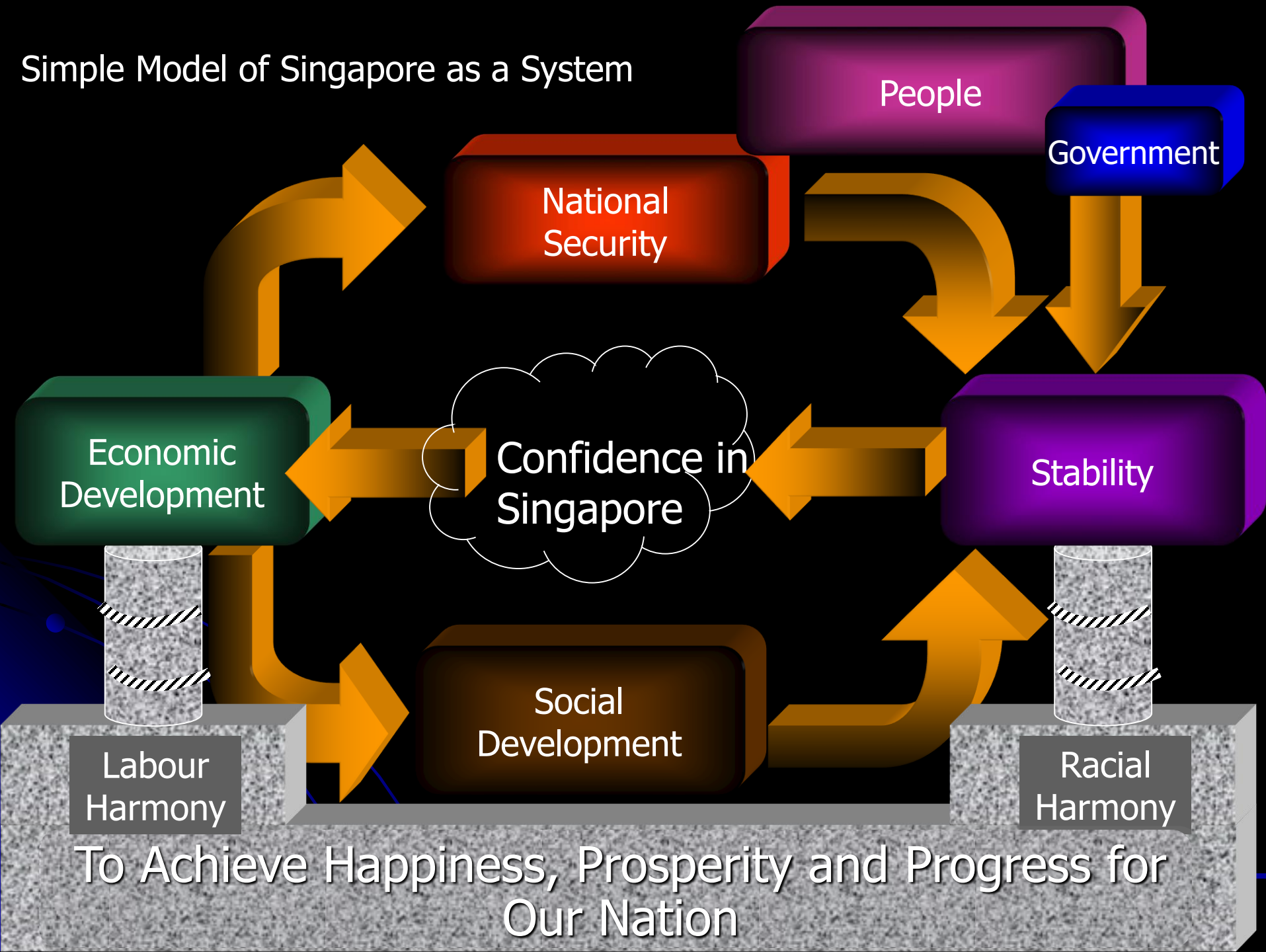
# Singapore's Challenges

Singapore: Dream Big & Dare to Be Different

- ❖ Introduction
- ❖ National Security
- ❖ Territory
- ❖ People
- ❖ Health
- ❖ Economy
- ❖ Conclusion

Prof Lui Pao Chuen  
Adviser NRF  
7th Dec 2018

# Simple Model of Singapore as a System



# Fundamentals for Singapore to Survive & Thrive

- Open to New Ideas
- Open to Opposing Ideas
- Open to Discard Ideas

Open

- Don't Waste Time, Money, Resources, Opportunity, Experience, Frugal

CONFIDENCE

- Decide Quickly
- Implement Quickly
- Change Course Quickly

Agile

- Within Organizations
- Across Organizations
- Over Time

Integrated

Our Future Is Determined by Our Imagination & Daring  
Not by Our Area of 1400 sq.km



# National Security is Top Priority of Singapore



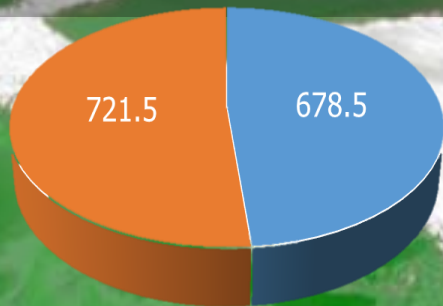
## RESOURCES

- 2018 Defence Budget ~ \$15 Billion (4%GDP)
- 2018 MHA Budget ~ \$6.5 Billion
- 2 years National Service for Males
- 10 years Operationally Ready Service
- 20% Singapore's Land





# Resources of Singapore: Territory + People



Territory ~ 1,400 Sqkm  
Land Area ~ 721.5 Sqkm  
Sea space ~ 678.5 Sqkm

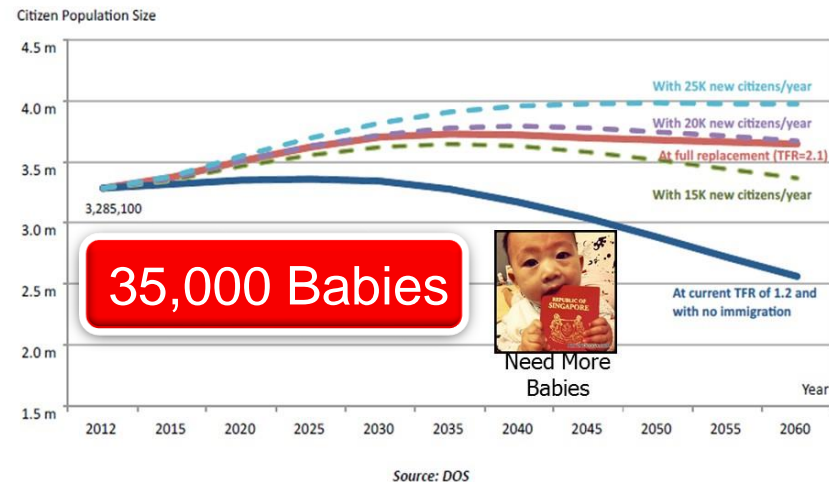


Singapore

Artificial Diamond  
Created by Stress

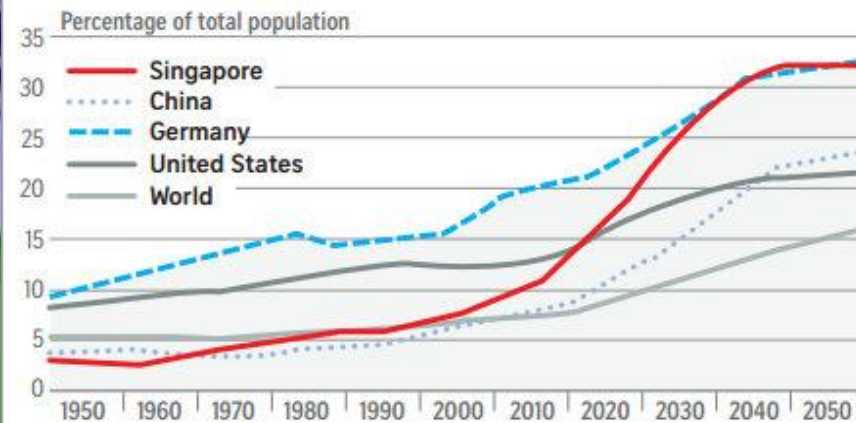
Current Total Fertility Rate of 1.2 + 25K New Citizens =>  
4 Million Citizens at Steady State

Chart 2.7: Citizen Population Size Under Various Immigration Scenarios



## Rapidly ageing population in Singapore

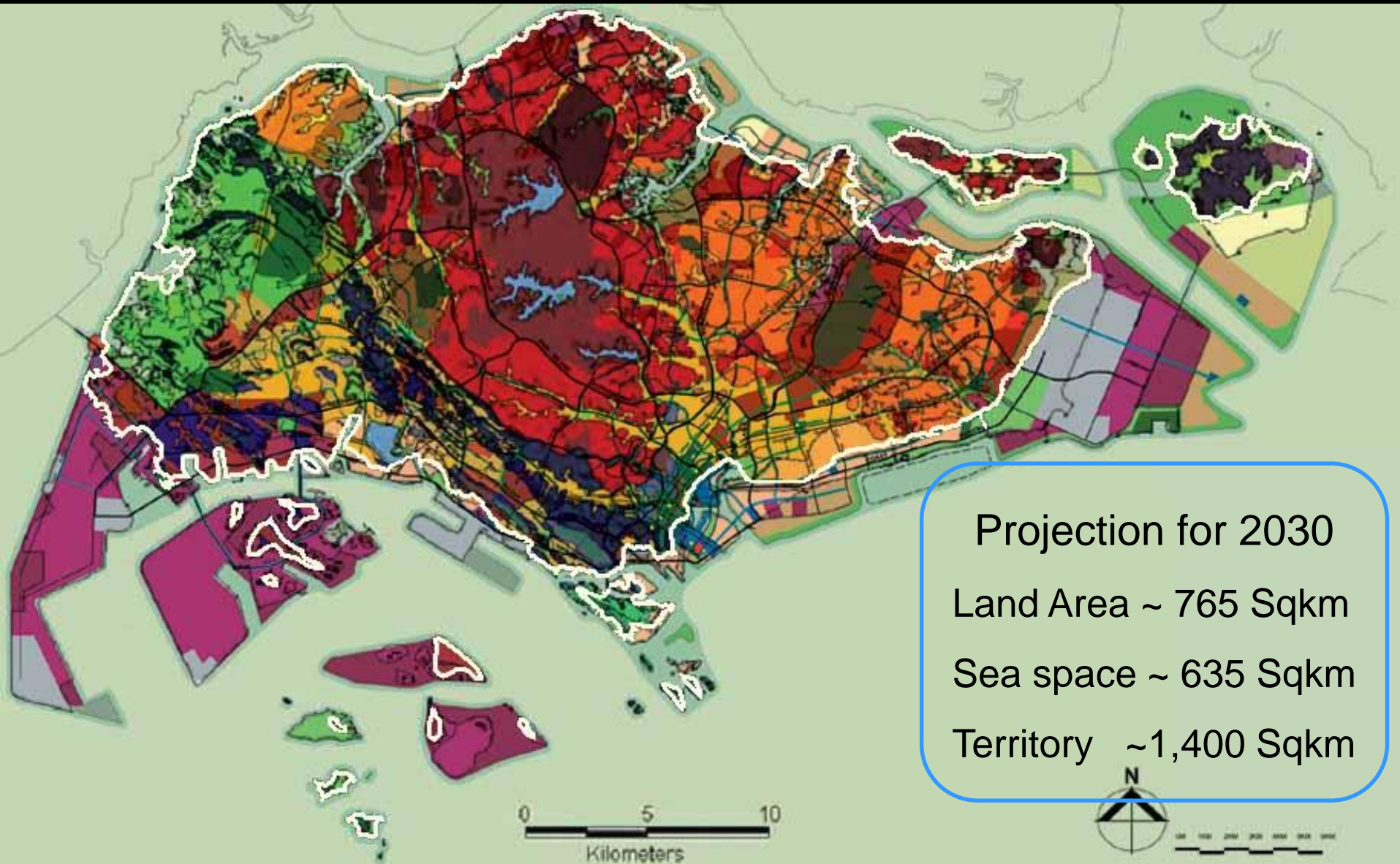
Proportion of population 65 and older (projected to 2050)



Sources: UNITED NATIONS POPULATION DIVISION, ST GRAPHICS



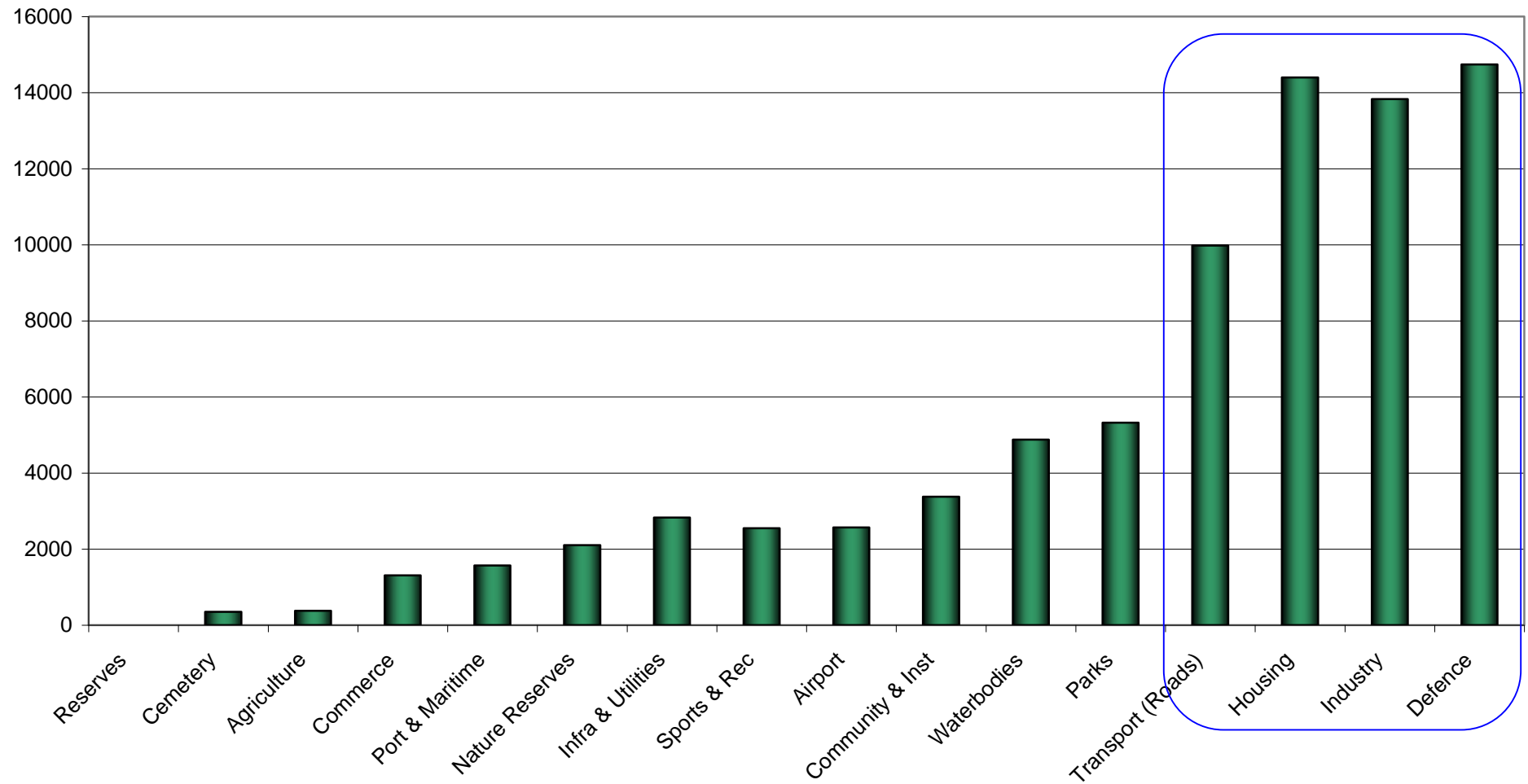
# Singapore's Territory ~ 1,400 Sqkm

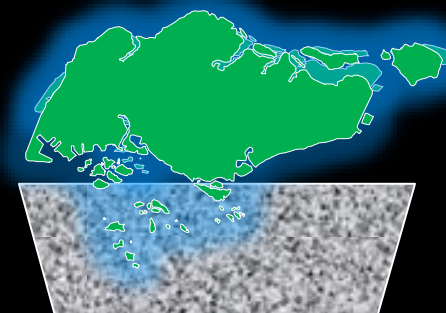
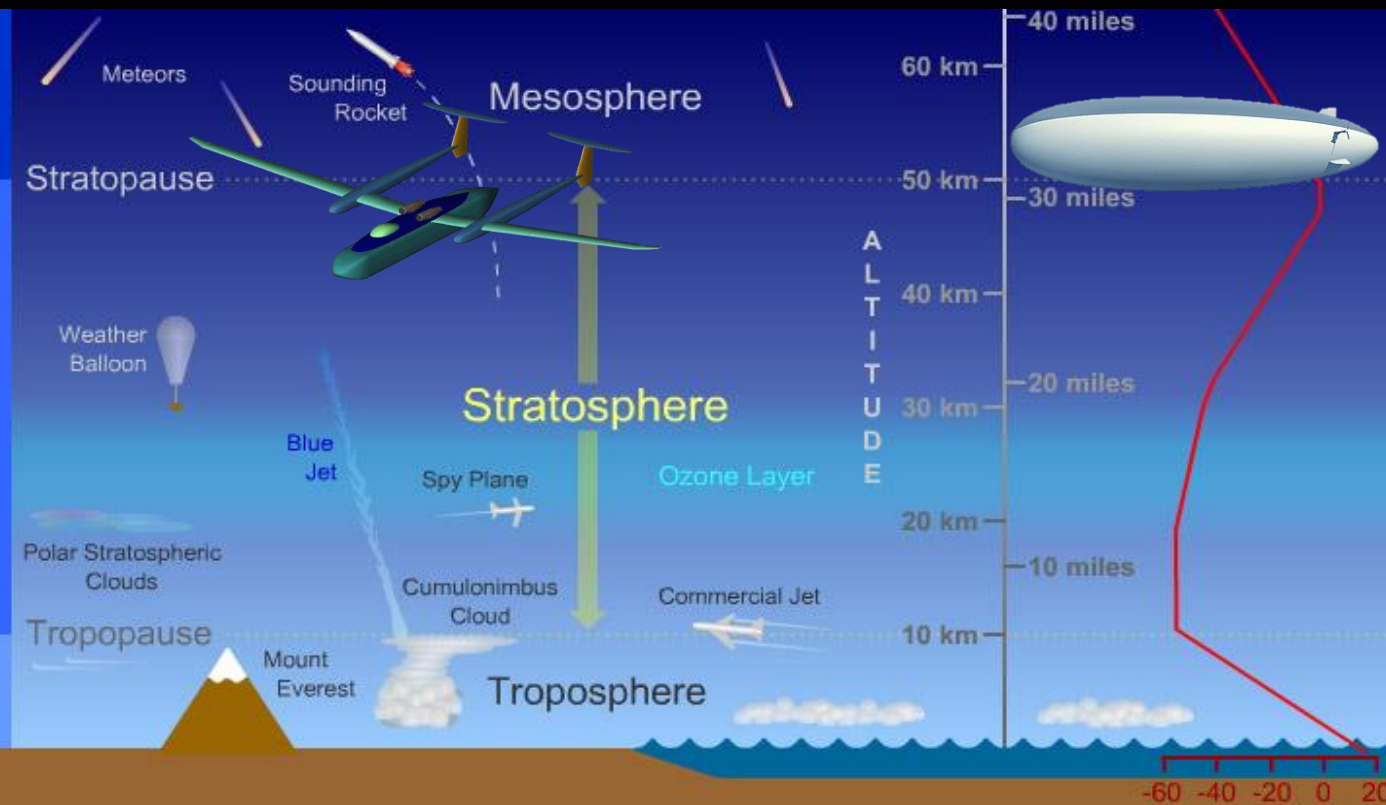


# Demand of Land to Meet Current & Future Needs

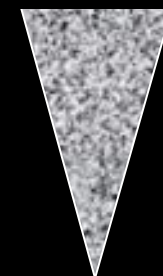
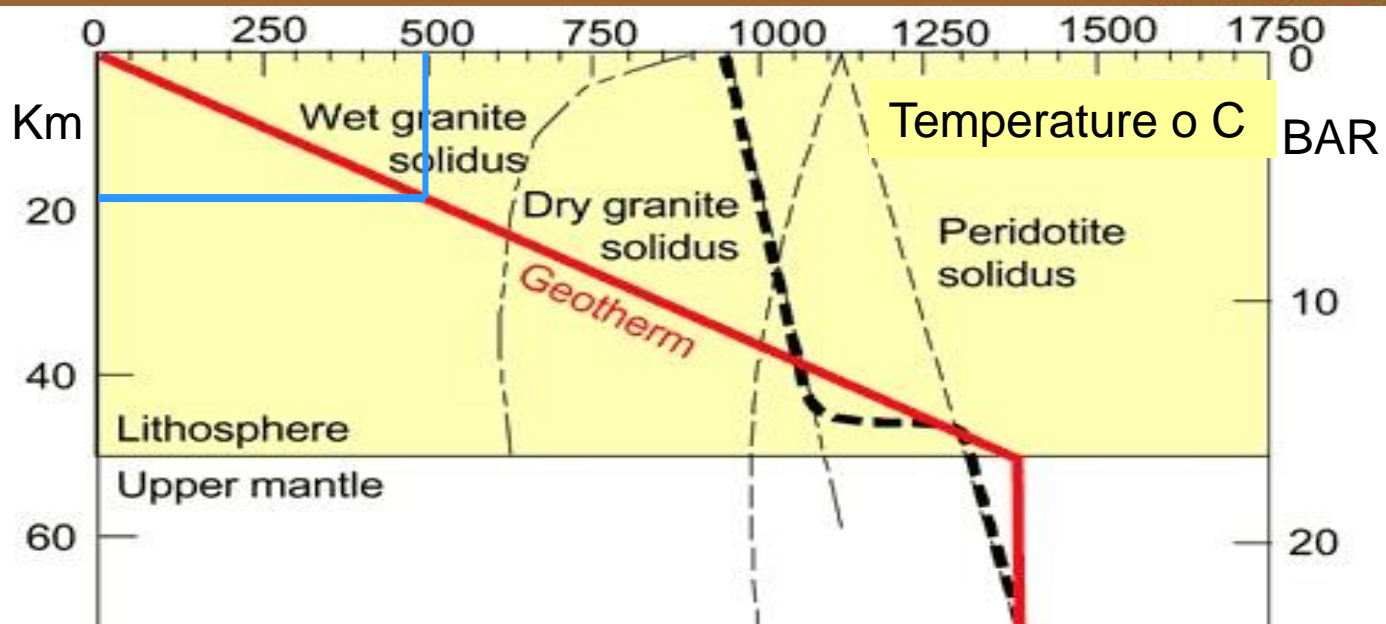
## 4 Uses Account for Nearly 80% of Singapore's Surface Land

Long Term Demand for Land in Hectares





The State  
Owns the Space  
30m Below SHD  
to the Centre of  
the Earth



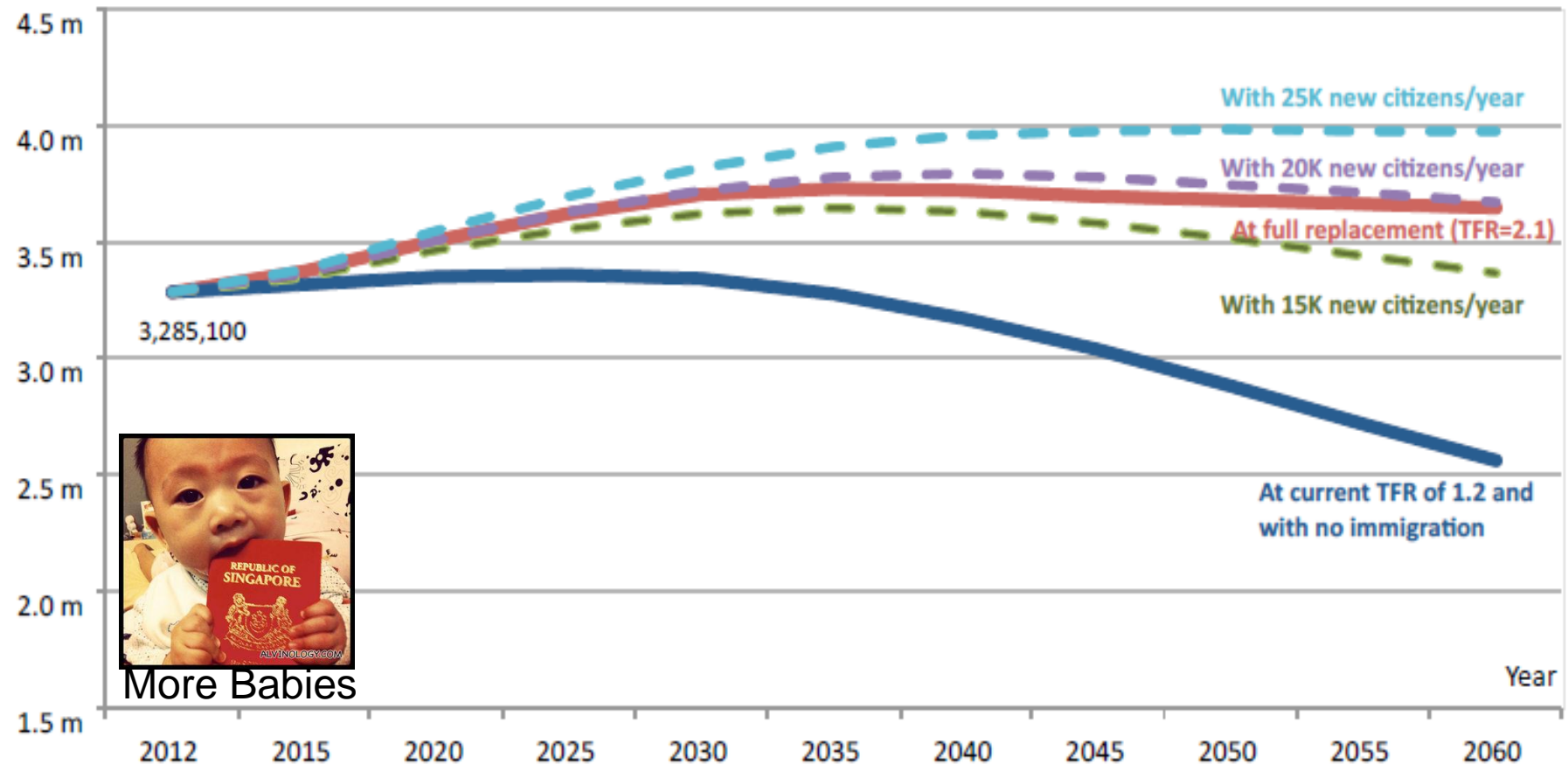
-6371 km



# Current Total Fertility Rate of 1.2 + 25K New Citizens => 4 Million Citizens at Steady State

Chart 2.7: Citizen Population Size Under Various Immigration Scenarios

Citizen Population Size

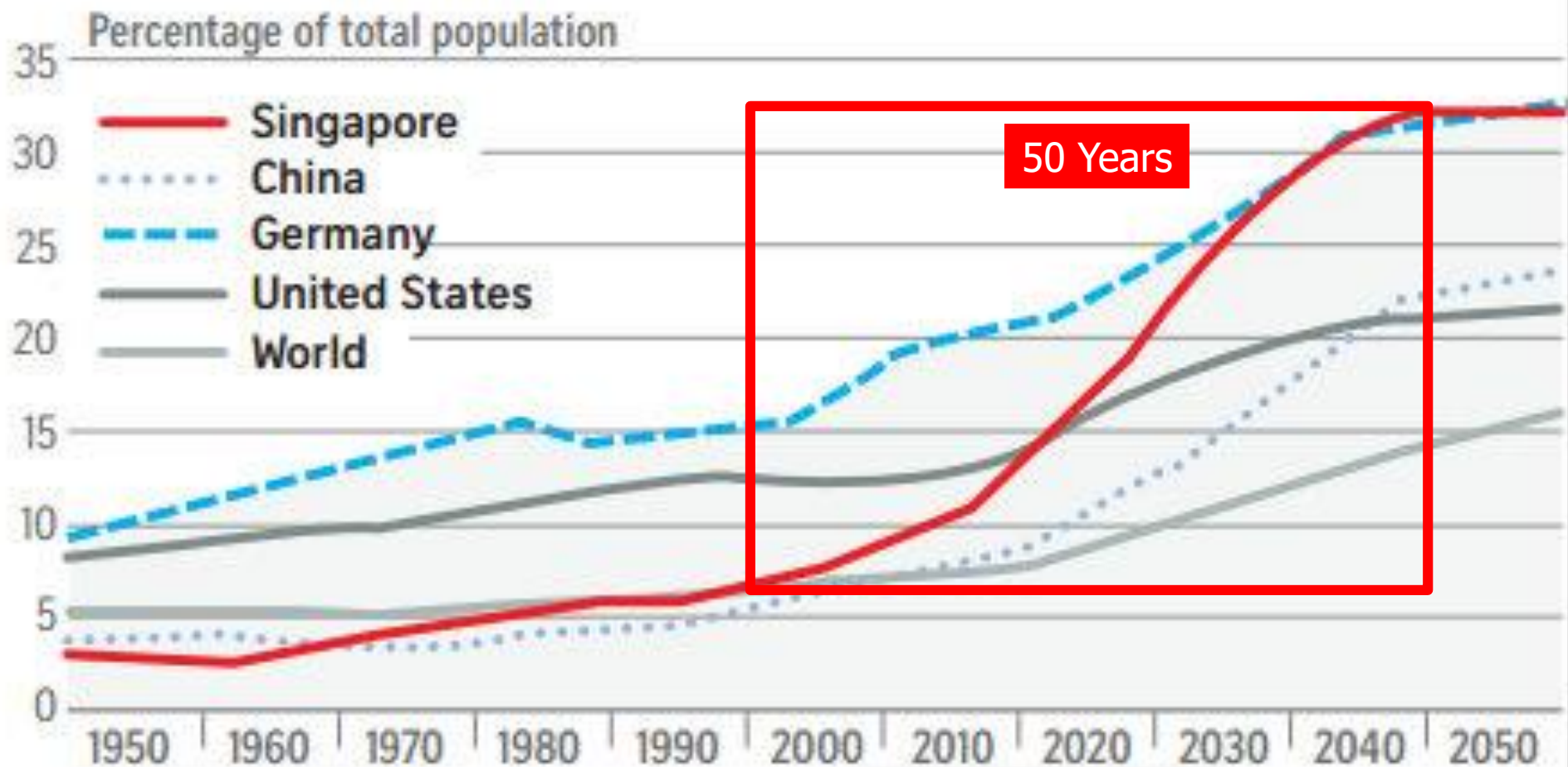


More Babies

Source: DOS

# Rapidly ageing population in Singapore

Proportion of population 65 and older (projected to 2050)



50 Years

1960 Life Expectancy  
62.9 years

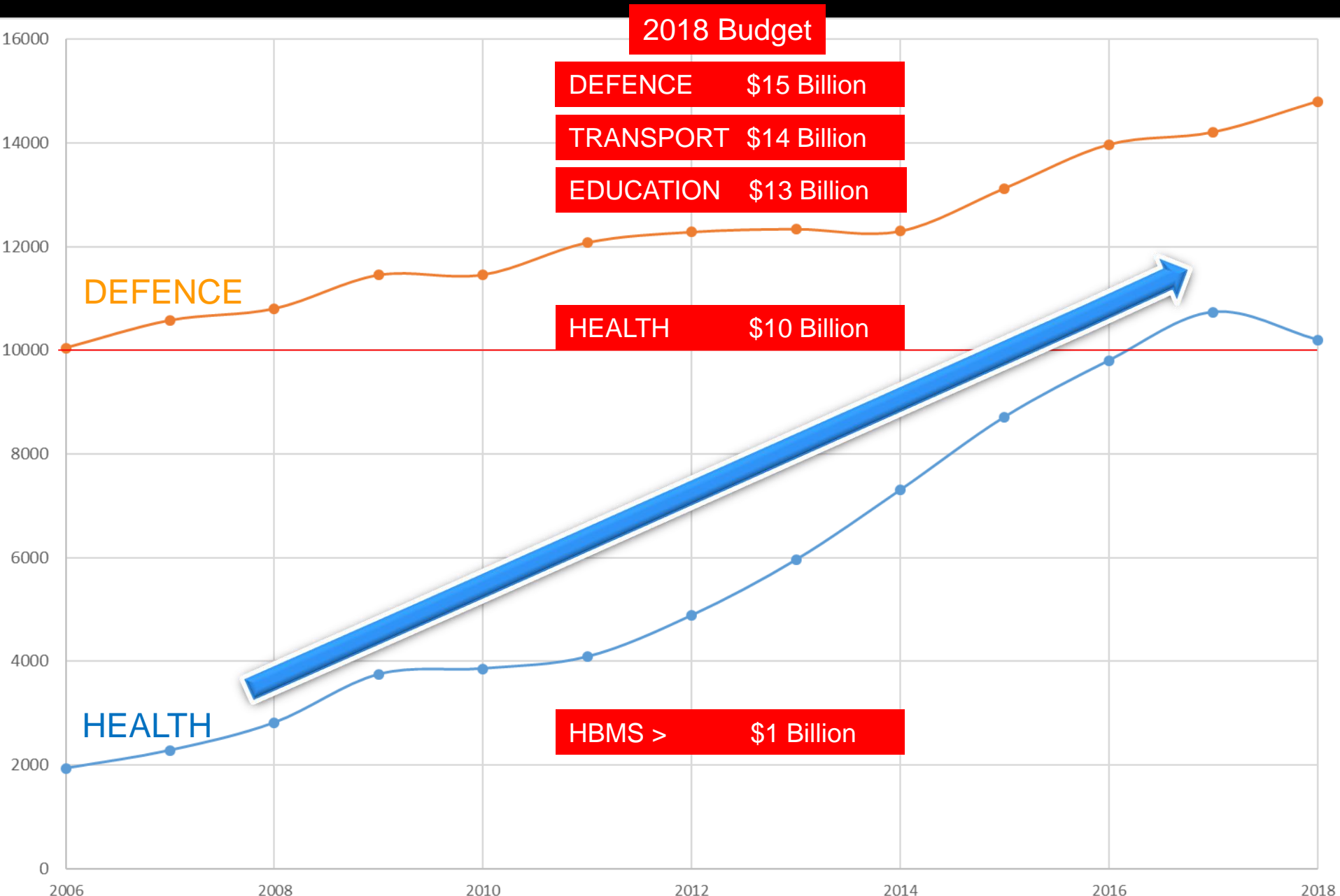


2016 Life Expectancy  
82.9 years



# Government Expenditure on Health Grew 5x from \$2B to \$10B in 10 Years

11





Minister Gan Kim Yong

The MOH Office for Healthcare Transformation (MOHT)  
“...we also need to explore game-changing ideas.”

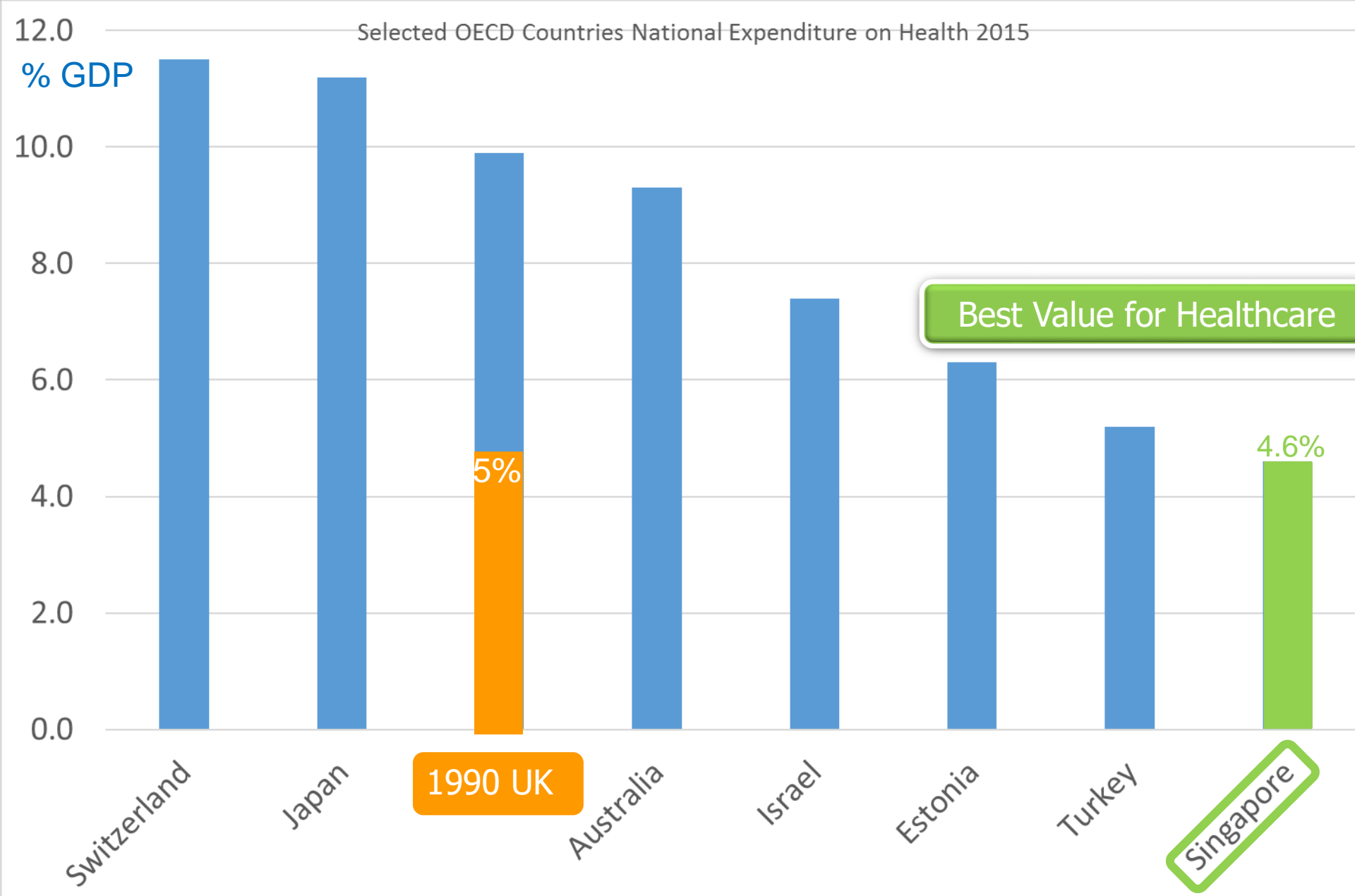
- ... MOHT will focus on longer-term ideas that can be scaled up for system-level transformation.
- ...in the key areas of health promotion, illness prevention and the delivery of care.”

MOH Committee of Supply Debate 2018



# National Expenditure ( Public + Private ) on Health 2015

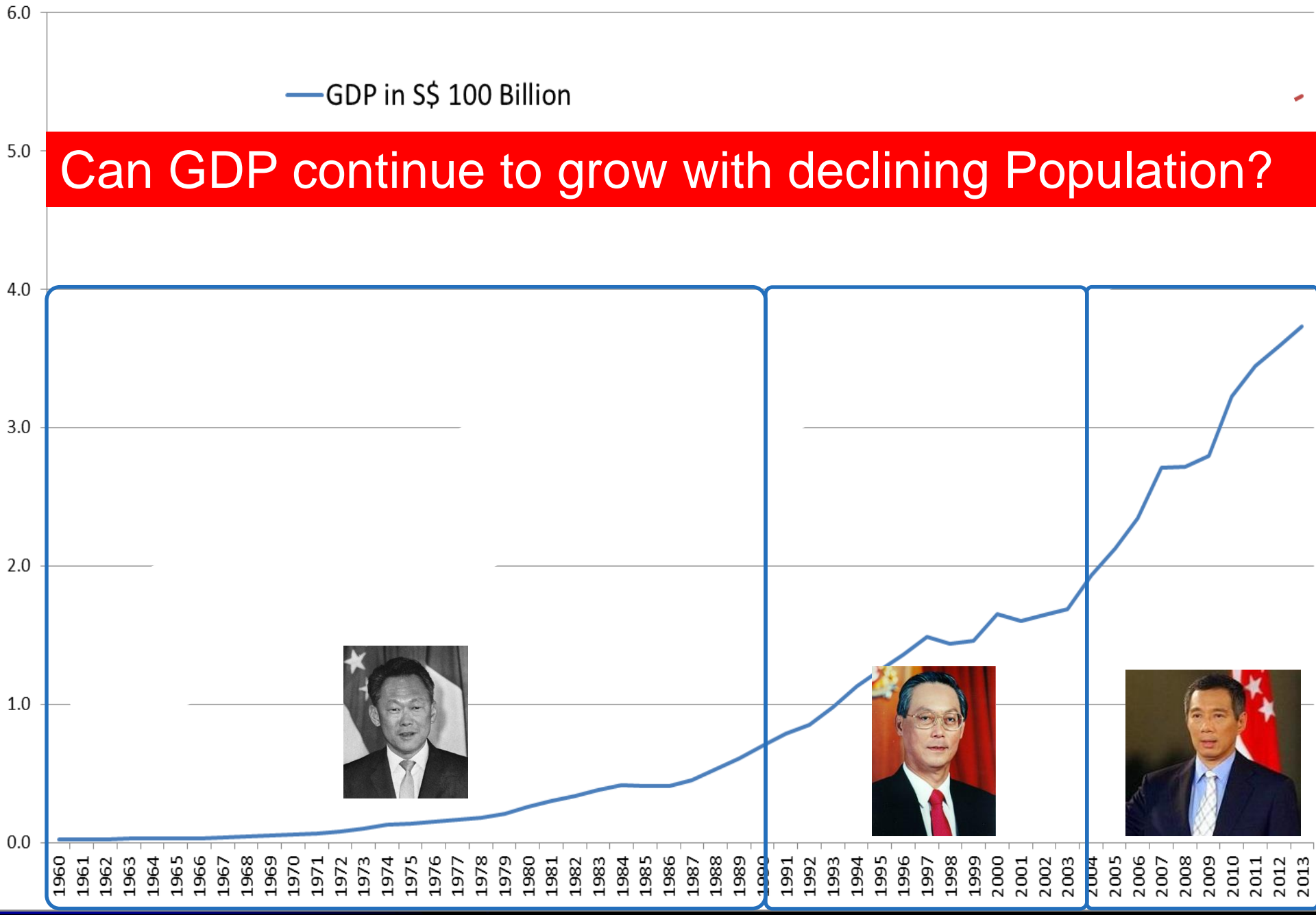
## Comparison with Selected OECD Countries



# SINGAPORE GDP at CURRENT MARKET PRICES & POPULATION

— GDP in S\$ 100 Billion

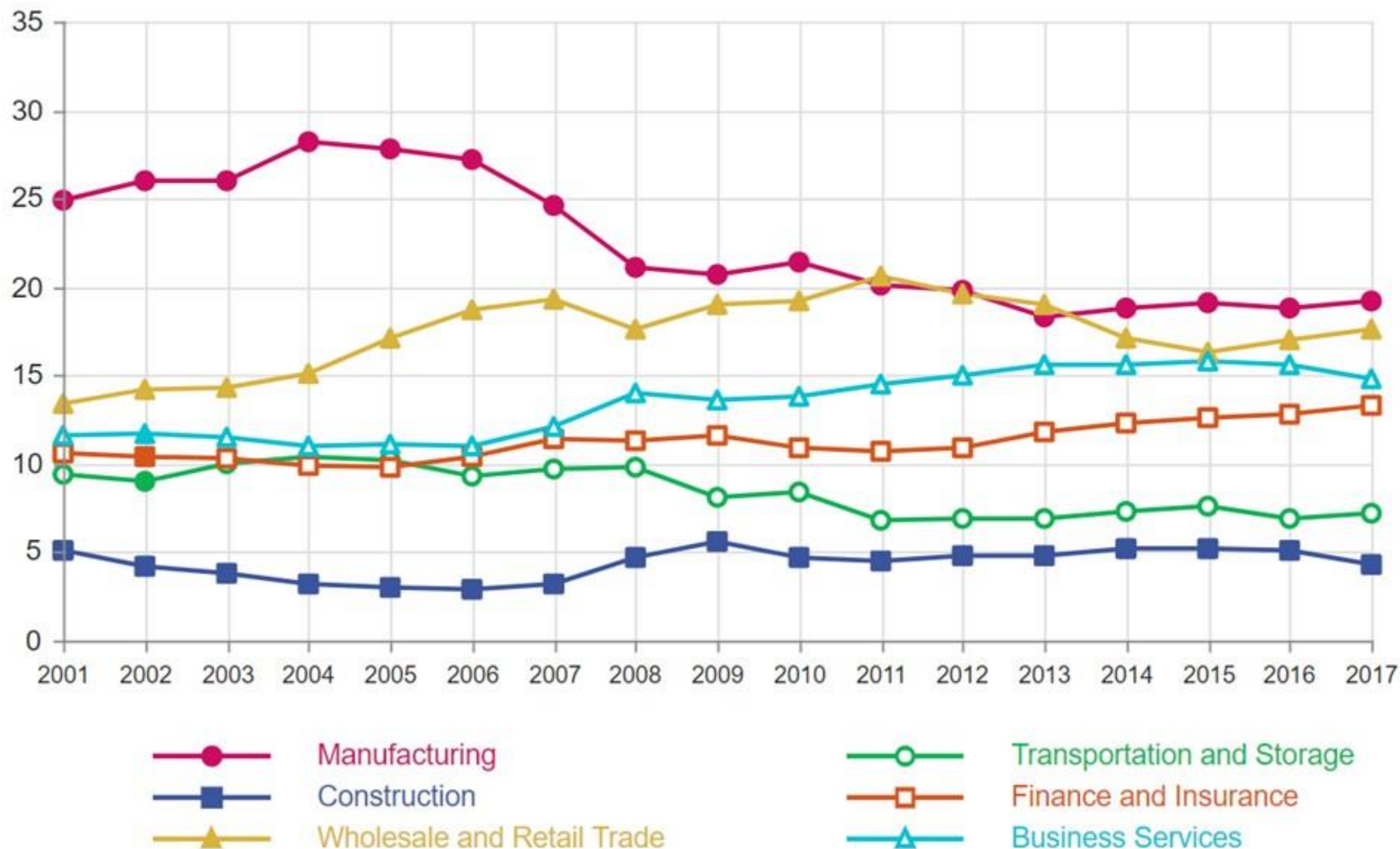
Can GDP continue to grow with declining Population?





# Share of GDP by Industry

Per Cent

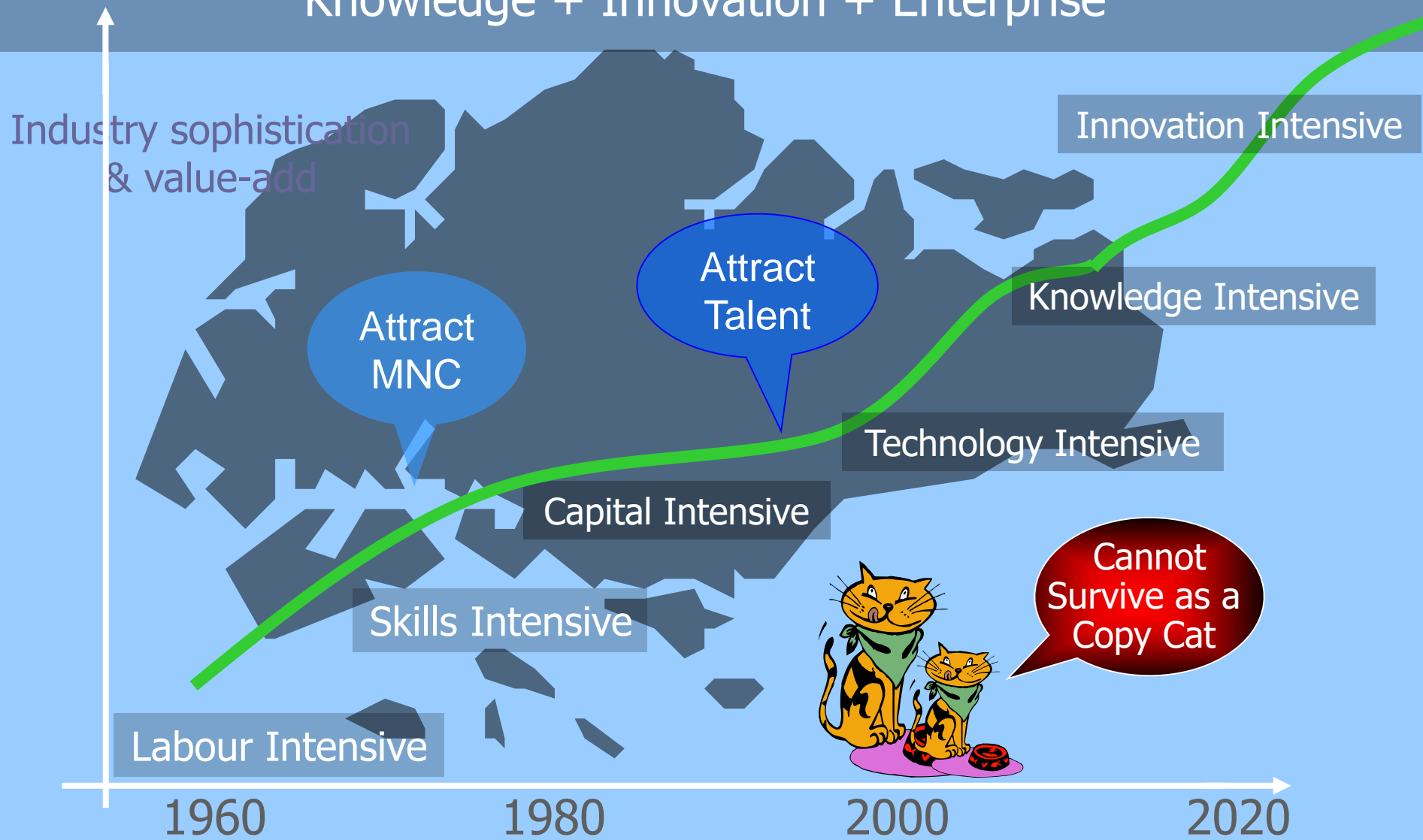


# Singapore 2017 Nominal GDP



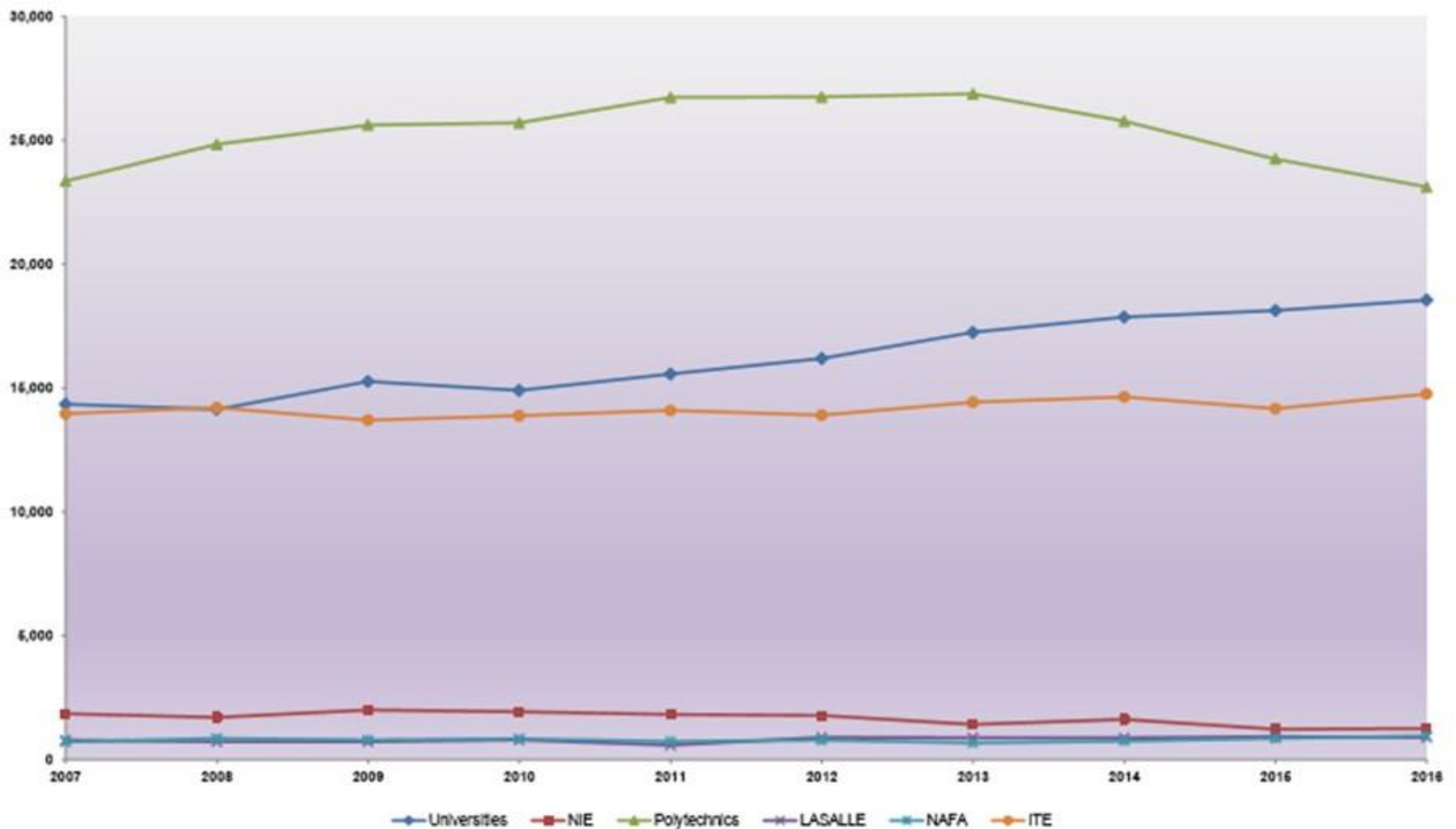


# Transformation of the Economic System of Singapore Driven by Knowledge + Innovation + Enterprise



# Time Series of Intake into Universities, Polytechnics and ITEs

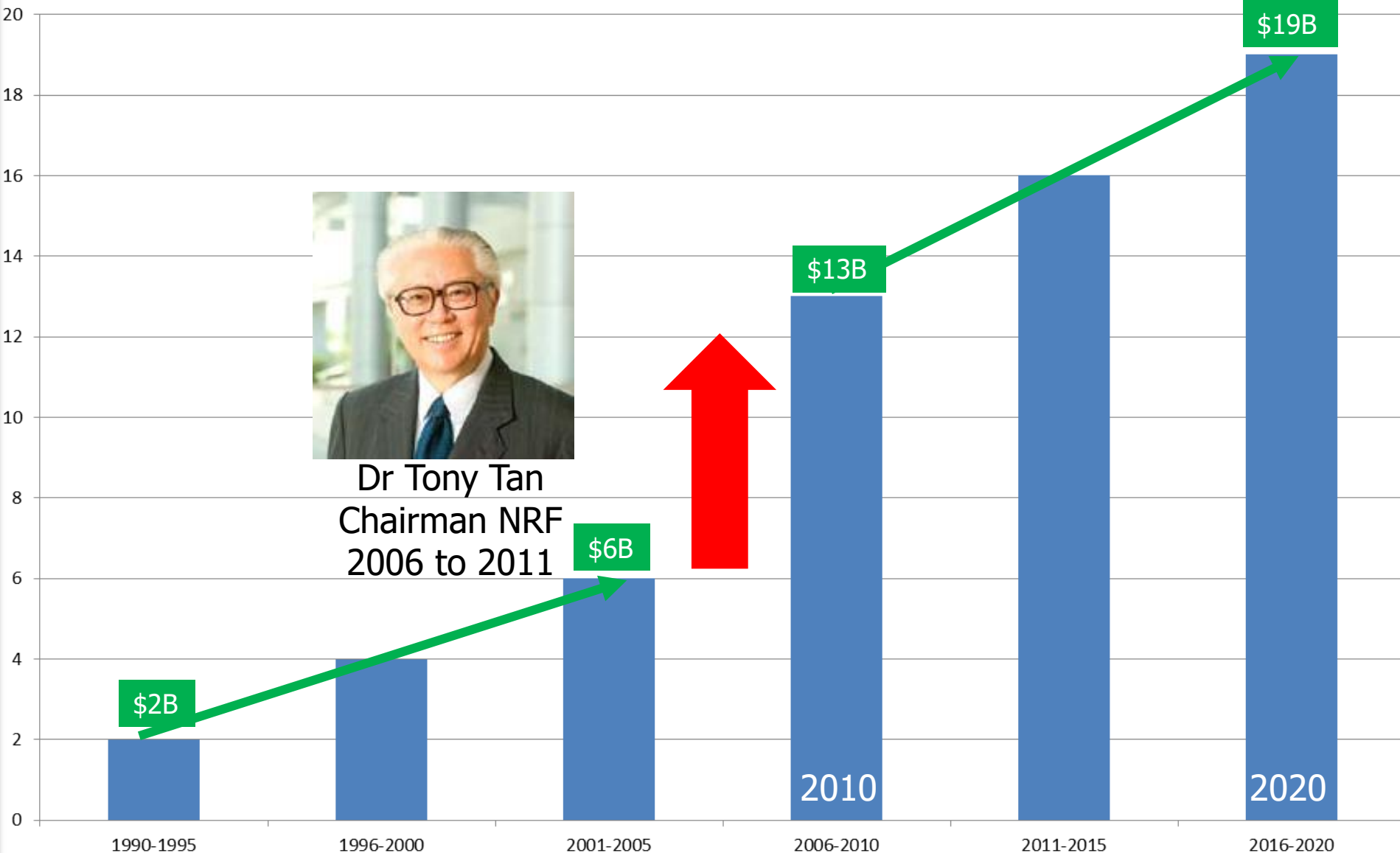
INTAKE: UNIVERSITIES, POLYTECHNICS, LASALLE, NAFA AND ITE (FULL-TIME) (Refer to Table 23)



# Dr Tony Tan Led the Planning and Implementation of Research, Innovation & Enterprise in 2006 to Drive our Economy to the Next Level

19

Five Year RIE BUDGET in S\$Billion





# The Future Economy Council (FEC)

## Chaired by Minister for Finance

### Mr Heng Swee Keat



- Drives the growth and transformation of Singapore's economy for the future.
- Comprises members from government, industry, unions, and educational and training institutions
- Oversees the implementation the Committee on the Future Economy (CFE) recommendations
- Build on the work of the earlier Council
  - for Skills,
  - Innovation and Productivity
    - SkillsFuture initiatives and
    - Industry Transformation Maps.

# Position Singapore as a global Asia node in next phase of economic transformation: Heng Swee Keat

18<sup>th</sup> Apr 2018



1. Make innovation pervasive
2. Deepen capabilities of local companies and workers
3. Strengthen cooperation in and outside of Singapore
4. grouping the 23 key industries with ITMs into six clusters  
The ITMs are sector-specific roadmaps as part of a S\$4.5 B industry transformation programme
5. The six clusters – each chaired by a minister and at least representative from the private sector or union – are
  1. Manufacturing,
  2. Built environment,
  3. Trade and connectivity,
  4. Essential domestic services
  5. Modern services
  6. Lifestyle

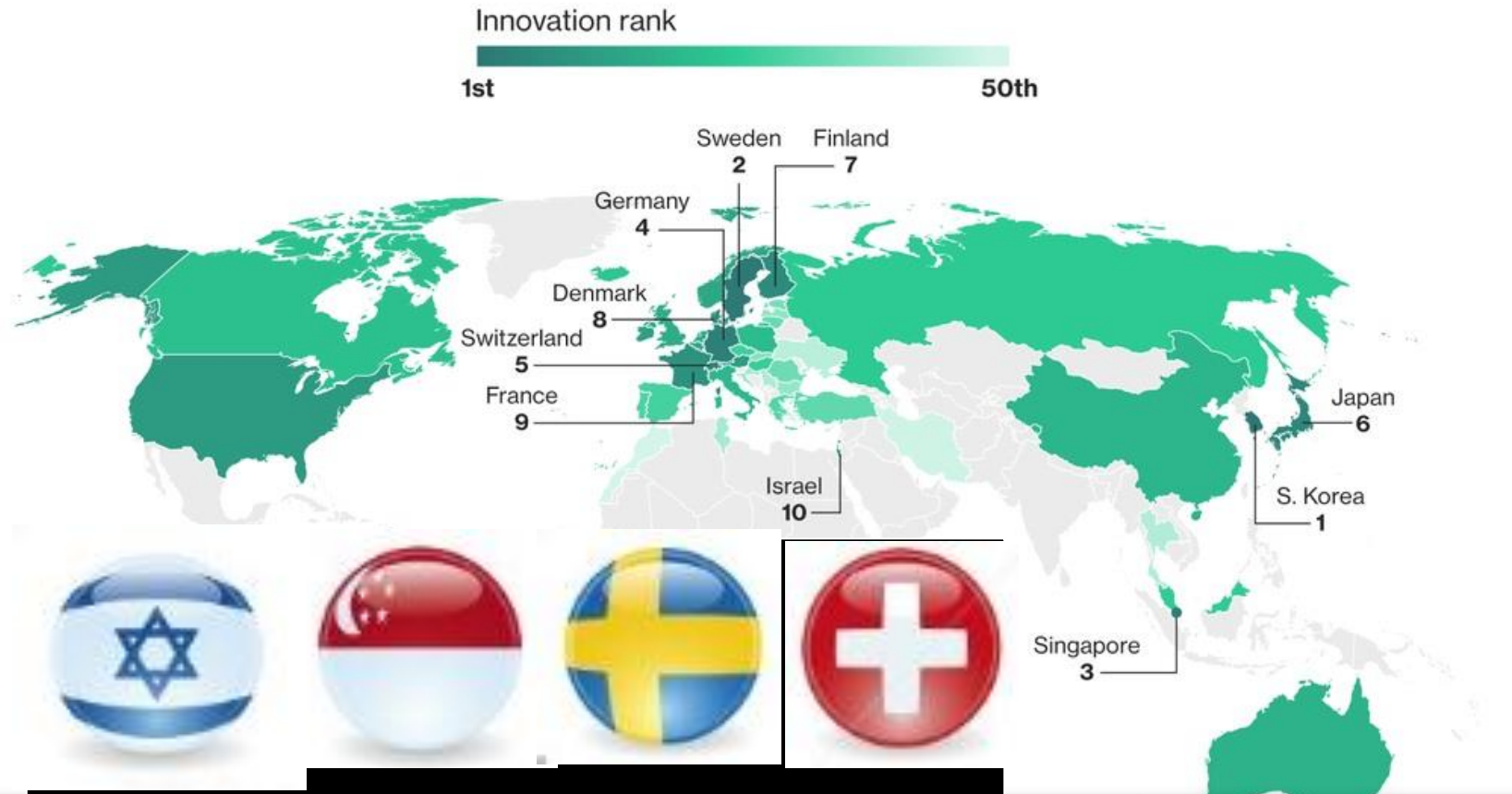
- Innovation
- Depth of engineering in companies
- Personal mastery of engineering

# Bloomberg's Ranking on Innovative Economies

## Sweden 2<sup>nd</sup>, Singapore 3<sup>rd</sup>, Switzerland 5<sup>th</sup> & Israel 10<sup>th</sup>

### Fifty Most Innovative Economies

South Korea, Sweden and Singapore top the list; U.S. drops out of top 10.



The index scores countries using seven criteria, including research & development spending and concentration of high-tech public companies

Sources: Bloomberg, International Labour Organization, International Monetary Fund, World Bank, Organization for Economic Co-operation and Development, World Intellectual Property Organization



# Singapore is Preparing for the 4<sup>th</sup> Industrial Revolution with Whole of Nation Effort in the Integration of

- Policy & Planning
- Research & Development
- Concept Development
- Demonstration
- Implementation & Deployment
- Operation & Maintenance

- ✓ Building shared vision and whole of nation approach to transform Singapore into a Smart Nation
- ✓ Golden Age for Scientists and Engineers in Singapore
- ✓ Ride the wave together



2067 Treasure Chest Of  
Collective Wisdom &  
Many More Successful  
Large Scale Systems

Thank You