Role of TVET in Singapore’s Economic Development

Human Capital Project in Partnership with World Bank Group

Webinar 2

Presentation by
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## Singapore’s Social & Economic Progress since 1965

<table>
<thead>
<tr>
<th></th>
<th>Then (1965)</th>
<th>Now (2019)</th>
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</thead>
<tbody>
<tr>
<td><strong>GDP per capita</strong></td>
<td>US$516</td>
<td>US$55,990</td>
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<tr>
<td><strong>Population</strong></td>
<td>1.9 million</td>
<td>5.7 million</td>
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<tr>
<td><strong>Unemployment Rate</strong></td>
<td>~10%</td>
<td>2.3%</td>
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</tbody>
</table>

### Share of youth (aged 15-24 years old) not in employment, education or training (NEET)

<table>
<thead>
<tr>
<th>Country</th>
<th>NEET Rate</th>
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<tbody>
<tr>
<td>Japan</td>
<td>2.90%</td>
</tr>
<tr>
<td>Singapore</td>
<td>4.30%</td>
</tr>
<tr>
<td>Germany</td>
<td>5.90%</td>
</tr>
<tr>
<td>UK</td>
<td>10.50%</td>
</tr>
<tr>
<td>Spain</td>
<td>12.40%</td>
</tr>
<tr>
<td>USA</td>
<td>13.10%</td>
</tr>
<tr>
<td>Greece</td>
<td>14.10%</td>
</tr>
<tr>
<td>Italy</td>
<td>19.20%</td>
</tr>
</tbody>
</table>

Source(s): International Labour Organization Statistics, 2018 & 2019

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Source(s): Department of Statistics; MOM Labour Force Survey, Manpower Research & Statistics Department

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Singapore’s Social & Economic Progress since 1965

- Literacy Rate 2018 (≥15 years old): 97.3%
- World Economic Forum Global Competitiveness Ranking 2019: 1st
- World Bank Ease of Doing Business Ranking 2019: 2nd
- International Institute for Management Development (IMD) World Digital Competitiveness Ranking 2019: 2nd
"Sweat and Labour, Vision and Headaches, Leadership and Determination are key factors behind Singapore’s economic growth. The promotion and development of technical education is an example of a policy which has contributed to the rapid industrialisation of Singapore."

Mr Goh Chok Tong
Prime Minister of Singapore
(1990 - 2004)
Challenges of Singapore’s Economy

Pre-Independence (Pre-1965)

- Reliance on entrepôt trading
- Education focused on academic studies to support colonial government administration / public service
- Limited informal skills training was provided by the British military base

Credit: Courtesy of National Archives of Singapore
Challenges of Singapore’s Economy

Withdrawal of British Military Forces (1971)

- Loss of 30,000 jobs related to operation of military bases and another 8,000 indirect jobs, constituting 20% of total workforce
- Task of retraining marketable skills was enormous
Transformation of Singapore’s Economy

Formulation of Economic Strategy (Early 1960s)

- Visionary leaders worked with international advisors to map out economic development strategy
- Regional competition and sustainability of entrepôt trading as an economic strategy
- Against the global trend of import substituting industrial development, Singapore adopted an export-oriented manufacturing industry strategy

Credit: Ministry of Information and the Arts Collection, courtesy of National Archives of Singapore
Transformation of Singapore’s Economy

Independence (1965)

- Loss of economic hinterland following separation from Malaysia
- Manufacturing refocused on regional and international markets
- Urgent need to build up pool of semi-skilled labour
- EDB assumed role of developing skilled manpower in tandem with engagement of MNCs to invest and create jobs in Singapore

Credit: Ministry of Information and the Arts Collection, courtesy of National Archives of Singapore

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TVET as a Key Enabler of Economic Development

- The only way to compete is by developing a skilled workforce ready to make the most of new economic opportunities
- Singapore has no natural resources, only human resources
- Education reform and TVET innovation are key success factors in ensuring workforce excellence at all levels
Developing a Skilled Workforce

Singapreme Economic Development Board

Government agency responsible for investment attraction and industry development to promote economic growth
Transformation of Singapore’s Economy

- **Factor-driven Economy**
  - Labour-intensive Phase (1960’s)
  - Skills-intensive Phase (1970’s)

- **Investment-driven Economy**
  - Technology and Capital-intensive Phase (1980’s-1990’s)

- **Innovation and Knowledge-driven Economy** (2000’s)
  - Diversification of High Value-Added Economy: Manufacturing and Services sectors as twin engines of growth (1990’s – 2000’s)

- Economic restructuring is an endless journey - Meticulous, market-oriented national manpower planning and innovative, industry-relevant TVET are key to driving economic growth

Credit: Ministry of Information and the Arts Collection, courtesy of National Archives of Singapore
Establishment of Industry Skills Training Centres to Kick-start Industrialisation Drive

- Technical education institutions at the time lacked the capacity and capability to provide specialist training required by MNCs.
- Export-oriented manufacturing strategy required high quality products that could compete in regional and global markets and this required a skilled technical workforce.
Attracting FDI through Manpower Development Strategy

- EDB provided land, buildings, and subsidised the equipment and operating costs
- MNCs donated hardware, software, teachware and expertise, and introduced their corporate cultures and best practices in these centres
- Trainees were paid stipends and bonded to serve their industries for 3 years. This is a key strategy in attracting MNCs through assurance of skilled manpower supply.

Credit: Ministry of Information and the Arts Collection, courtesy of National Archives of Singapore

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Establishment of EDB Training Centres with MNCs

EDB directly engaged MNCs to set up training facilities to support immediate industry skills needs, as well as to meet the manpower requirements for the rest of industry.

- Tata-Government Training Centre (1972)
- Rollei-Government Training Centre (Brown-Boveri Government Training Centre) (1973)
- Philips-Government Training Centre (1975)
Partnering Foreign Governments in High-Tech Training

- Adopting the strengths of different TVET systems

- Establishment of new ‘institutes of technology’ with assistance from foreign governments served as conduits for rapid transfers of technology to Singapore

Credit: Ministry of Information and the Arts Collection, courtesy of National Archives of Singapore
Establishment of EDB Institutes of Technology with Foreign Governments

Leveraged expertise of technologically advanced countries in the development of Joint-Government Technology Institutes

- Japan-Singapore Training Centre (JSTC - 1979, JSTI - 1983)
- Japan-Singapore Institute of Software Technology (JSIST - 1982)
- German-Singapore Institute (GSI - 1982)
- French-Singapore Institute (FSI - 1983)
Developing a “Teaching Factory” Model

- Adapting foreign teaching systems and development of unique ‘Teaching Factory’ concept to prepare a ‘work-ready’ skilled workforce

- Establishment of **Applied Technology Group (ATG)** to run ‘just-in-time’ specialist programmes and **Industry Project Group (IPG)** to bring real work into training institutes
Applied Technology Group

Working with global technology leaders to provide cutting-edge technology programmes and design advisory services up to post-graduate level to prepare Singapore for higher value-added manufacturing industry

- Tool & Die Design
- CAD/CAM/CAE
- Automation Engineer Development
- Integrated Circuit Design
- Consumer Electronics Product Design
- FA-tronics (Factory Automation-oriented Electronics)
- Surface Mount Technology

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Evolving TVET Landscape in Tandem with Singapore’s Economic Development

Economic Development

Labour Intensive (1960s)

Basic Skills Training (1960s - 70s)

EDB Skills Training Centres
- TGTC - 1972
- RGTC - 1973
- PGTC - 1975
- JSTC - 1979

EIDA 6 Centres

Vocational & Industrial Training Board (1979)

Industrial Training Board (1973)

Skills Intensive (1970s)

EDB Institutes of Technology
- GSI, JSIST - 1982
- FSI, JSTI & ATG - 1983
- IPG - 1984
- PEI - 1988

Skills Training Centres

Technology & Capital Intensive (1980s - 1990s)

Mass Skills Training (1980s)

Innovation & Knowledge Intensive (2000s)

NYP - 1992
- Transfer of FSI, GSI, JSTI (JSI) to NYP - 1993
- PEI Institute to NYP - 1997

Future Economy (2014 onwards)

Skills for the Future (2014 onwards)

Institute of Technical Education (1992)

TVET

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Integrating EDB’s Skilled Manpower Development Efforts with Mainstream Education

- Readiness of mainstream TVET institutions to provide industry-relevant training and education programmes
- Integrating of EDB Institutes of Technology with Nanyang Polytechnic
- Streamlining all EDB Industry Skills Training Centres with ITE
- Strengthening TVET ecosystem and to enable EDB to refocus on its key mission of investment promotion and economic development
Key Success Factors

1. Strong Government commitment
2. TVET developed in tandem with economic development
3. Work-based career-oriented curriculum
4. Learn from others but adapt to local needs
5. Long-term strategic TVET planning
6. Adaptive TVET system to attract FDI
7. Provide incentive and legislation to attract industry to support TVET
8. ‘Whole-of-Government’ approach to TVET planning, development and implementation
9. Visionary TVET leaders
Thank You