The Challenge of Establishing World-Class Universities

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WCU 4
Shanghai, 30 October 2011

the WCU disease

- Excellence Initiatives
  - Canada, China, Denmark, France, Germany, Japan, Malaysia, South Korea, Spain…

- low-income countries
  - Nigeria, Sri Lanka

guilt feelings
what have we learned?

outline of the presentation

- defining the world-class university
- the road to academic excellence
- lessons of experience
natural lab experiment: U. of Malaya vs. NUS

- early 1960s: 2 branches of University of Malaya
- today, stark difference:
  - THES: NUS # 34, UoM not in top 200
  - SJTU: NUS 101-151, UoM not in top 500

Characteristics of a World-Class University
Alignment of Key Factors

proportion of graduate students (%)

- Indian Institute of Technology–Bombay 58
- Pohang University of Science and Technology 55
- Shanghai Jiao Tong University 42
- Ibadan University 37
- Hong Kong University of Science and Technology 36
- University of Malaya 33
- National University of Singapore 23
- Higher School of Economics 15
- University of Chile 15
- Monterrey Institute of Technology 14
- Pontifical Catholic University of Chile 13
concentration of talent

• teachers and researchers
• incoming students
• undergraduate / graduate students balance
  – but involving undergraduate students in research
• international dimensions

international dimensions

• foreign students
  – Harvard (19%), Cambridge (18%)
• foreign faculty
  – Caltech (37%), Harvard (30%), Oxford (36%), ETH Zürich (60%)
• incoming faculty

international dimensions

• reliance on Diaspora (Pohang, HK, SJTU)
• English language (all or many)
• foreign or foreign-trained academics

U. Of Malaya vs. NUS

• talent
  – UM: until 2003, selection bias in favor of Bumiputras, less than 5% foreign students, few foreign professors
  – NUS: highly selective, 43% of graduates students are foreign, many foreign professors
abundant resources

• dependence on government funding
  – US able to spend 3.3% of GDP ($54,000 per student) – 1/3 public 2/3 private
  – Europe (E25) only 1.3% ($13,500 per student)

• endowments

Comparison of US and UK Endowment Levels

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Harvard University</td>
<td>25,662</td>
<td>Cambridge</td>
<td>6,327</td>
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<tr>
<td>Yale University</td>
<td>16,327</td>
<td>Oxford</td>
<td>5,767</td>
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<tr>
<td>Stanford University</td>
<td>12,619</td>
<td>Edinburgh</td>
<td>264</td>
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<tr>
<td>Princeton University</td>
<td>12,614</td>
<td>Manchester</td>
<td>294</td>
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<tr>
<td>University of Texas</td>
<td>12,163</td>
<td>Glasgow</td>
<td>164</td>
</tr>
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</table>

Comparison of US and UK Endowment per Student

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Princeton University</td>
<td>1,667,000</td>
<td>Cambridge</td>
<td>343,934</td>
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<tr>
<td>Yale University</td>
<td>1,408,000</td>
<td>Oxford</td>
<td>283,670</td>
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<tr>
<td>Harvard University</td>
<td>1,209,000</td>
<td>Edinburgh</td>
<td>9,298</td>
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<tr>
<td>Stanford University</td>
<td>824,000</td>
<td>Glasgow</td>
<td>6,952</td>
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<tr>
<td>University of Texas</td>
<td>239,000</td>
<td>Manchester</td>
<td>5,208</td>
</tr>
</tbody>
</table>
abundant resources

- government funding
- endowments
- fees
- research funding
  - Stanford: 1.2 billion $ in 2009/10

per student funding (US$)

- IIT Bombay 4,400
- Pohang U of Sc & T 70,000
- Shanghai Jiao Tong University 16,300
- Ibadan University 2,400
- Hong Kong U of Sc & T 29,000
- University of Malaya 14,000
- National University of Singapore 39,000
- Higher School of Economics 2,800
- University of Chile 17,000
- Monterrey Tech 10,000
- Catholic University of Chile 21,000

funding features

- 8 out of 11 are public institutions
- endowments
  - Pohang: 2 billion $
  - NUS: 1 billion $
  - Monterrey Tech: 1 billion $
  - SJTU 120 million $
- elements of public-private partnership
  (Pohang, HK, Monterrey, Catholic of Chile)
favorable governance

- freedom from civil service rules (human resources, procurement, financial management)
- management autonomy
  - flexibility and responsiveness with power to act
- selection of leadership team (Nigeria)
- independent Board with outside representation

U of Chile vs. Catholic U of Chile

- HR policies
- procurement
- fund raising

U. Of Malaya vs. NUS

- appointment of VC
  - highly political in Malaysia: 10 VCs until 2008 (Prime Minister statement)
  - more professional in Singapore (5 VCs)
- UM: restricted by government regulations and control, unable to hire top foreign professors
- NUS: status of a private corporation, able to attract world-class foreign researchers
  - 52% of professors (9% from Malaysia)
  - 79% of researchers (11% from Malaysia)
outline of the presentation

• defining the world-class university

• the road to academic excellence

the path to glory

• upgrading existing institutions

• mergers

• creating a new institution

the case studies’ approach to excellence

• upgrading existing institutions (most)

• no mergers

• creating a new institution (Pohang, IITs, HKUST)

upgrading approach

• less costly

• challenge of creating a culture of excellence

• focus on governance (Malaysia, Nigeria, Chile)
who takes the initiative?

- role of the State
  - favorable regulatory framework
  - funding
    - Excellence Initiatives (China, S. Korea, Germany, France, Spain)
    - stability over the years

who takes the initiative? (II)

- role of the institutions
  - leadership
  - strategic vision
  - culture of excellence

challenge of entering a crowded market

- Pohang U of Sc & T
- Higher School of Economics
- Hong Kong U of Sc & T

- innovative education features
- clever marketing strategy
Outline of the presentation

- defining the world-class university
- the path to becoming a world-class university
- lessons of experience

Money is not enough

The most expensive universities in the world are not world-class

- George Washington U (Washington DC)
- Kenyon College (Ohio)
- Bucknell U (Pennsylvania)
- Vassar College (NY)
- Sarah Lawrence College (NY)

Malaysia

It’s all about alignment

Characteristics of a World-Class University
Alignment of Key Factors

Source: Elaborated by Jamil Salmi
accelerating factors

- internationalization
- being a niche institution / or offering niche programs
- curriculum and pedagogical innovations
- strategic planning and benchmarking
### Population per Top Institution (ARWU 2011 ranking)

<table>
<thead>
<tr>
<th>Country</th>
<th>Top 500</th>
<th>Thousands of people for each top 500 institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>11</td>
<td>454</td>
</tr>
<tr>
<td>New Zealand</td>
<td>5</td>
<td>374</td>
</tr>
<tr>
<td>Finland</td>
<td>5</td>
<td>1073</td>
</tr>
<tr>
<td>Israel</td>
<td>7</td>
<td>1082</td>
</tr>
<tr>
<td>Switzerland</td>
<td>7</td>
<td>1117</td>
</tr>
<tr>
<td>Australia</td>
<td>19</td>
<td>1175</td>
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<tr>
<td>Austria</td>
<td>7</td>
<td>1192</td>
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<td>Norway</td>
<td>4</td>
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<td>Ireland</td>
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<tr>
<td>Belgium</td>
<td>7</td>
<td>1552</td>
</tr>
<tr>
<td>Canada</td>
<td>22</td>
<td>1553</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>37</td>
<td>1682</td>
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<tr>
<td>United States</td>
<td>131</td>
<td>2031</td>
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<tr>
<td>Slovenia</td>
<td>1</td>
<td>2065</td>
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<tr>
<td>Germany</td>
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<td>Singapore</td>
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<tr>
<td>Italy</td>
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<td>2753</td>
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<tr>
<td>France</td>
<td>21</td>
<td>3089</td>
</tr>
</tbody>
</table>

### Top Universities and GDP per Capita (ARWU 2011)

<table>
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<tr>
<th>Country</th>
<th>Top 500</th>
<th>Relative wealth required to produce 1 top institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>35</td>
<td>125.5</td>
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<tr>
<td>United States</td>
<td>151</td>
<td>312.5</td>
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<tr>
<td>United Kingdom</td>
<td>37</td>
<td>975.7</td>
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<tr>
<td>Germany</td>
<td>39</td>
<td>1038.7</td>
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<tr>
<td>India</td>
<td>1</td>
<td>1477.0</td>
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<tr>
<td>Italy</td>
<td>22</td>
<td>1541.7</td>
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<tr>
<td>Brazil</td>
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<td>Japan</td>
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<td>1875.5</td>
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<td>France</td>
<td>21</td>
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<tr>
<td>South Korea</td>
<td>11</td>
<td>1887.0</td>
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### GDP Required to Produce a Top 500 Institution (ARWU 2011)

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<th>Top 500</th>
<th>GDP (billion)</th>
<th>GDP / top 500 institution</th>
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<tr>
<td>New Zealand</td>
<td>5</td>
<td>127</td>
<td>25.3</td>
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<tr>
<td>Israel</td>
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<td>217</td>
<td>31.0</td>
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<td>Sweden</td>
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<td>458</td>
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<tr>
<td>Finland</td>
<td>5</td>
<td>239</td>
<td>47.8</td>
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<tr>
<td>Slovenia</td>
<td>1</td>
<td>48</td>
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<tr>
<td>Australia</td>
<td>19</td>
<td>925</td>
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<td>Austria</td>
<td>7</td>
<td>376</td>
<td>53.7</td>
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<tr>
<td>Netherlands</td>
<td>13</td>
<td>783</td>
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<tr>
<td>United Kingdom</td>
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<td>2246</td>
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<tr>
<td>Croatia</td>
<td>1</td>
<td>61</td>
<td>60.9</td>
</tr>
</tbody>
</table>

### Vulnerability

- Ibadan
- Russia
financing needs

- education infrastructure
- support infrastructure
- operation
- research

vulnerability

- Ibadan
- Russia
- Monterrey
- Australia
• small is still beautiful

It takes time!

– developing a scientific tradition to be able to start technology transfer

Big Bang approach
importance of sequencing

• concept to strategic plan
• governance arrangements to implementation
• academic plan to physical infrastructure
• QA and accreditation
to be or not to be a WCU?

WCU health warnings…

- the rise of Asia

looking back to the past
looking ahead to the future

WCU health warnings...

- the rise of Asia
- what is your purpose?
  - chasing rankings and national prestige?
  - search for excellence?

WCU health warnings...

- the rise of Asia
- what is your purpose?
  - chasing rankings and national prestige?
  - search for excellence?
- distortion of resource allocation
- stress of competition
- global talent war
- danger of homogenization
We need a climate in which colleges and universities are less imitative, taking pride in their uniqueness. It’s time to end the suffocating practice in which colleges and universities measure themselves far too frequently by external status rather than by values determined by their own distinctive mission.

a word of caution

- danger of homogenization
  - dare to be different
- not all institutions “world-class”
- world-class tertiary education system

danger of complacency
He who waits with mouth open, hoping for roast duck to fly in, will have a very long wait. (Chinese proverb)
the road to academic excellence

- constantly challenge yourself and seek to renew your institution to keep improving

World Class University Recipe

- Lots of Talent
- Plenty of Resources
- A Touch of Governance

Allow to Simmer for a Long Time