Why East Asia is leading Broadband?
• Possible factors behind Internet and Broadband penetration:
  – Economic Development
  – State ICT Policy
  – Social or institutional factors
Does ICT policy make a difference?

– State ICT Policy
  • Target policy
  • Liberalization of Telecom market
  • Incubation of Entrepreneurs

– Social or institutional factors
  • Culture
  • Politics, Historical context
  • Mentality
## Internet Penetration in East Asia (2002)

<table>
<thead>
<tr>
<th>Country</th>
<th>Users (1000)</th>
<th>Penetration Per Population (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hong Kong</td>
<td>4,310</td>
<td>59.0</td>
</tr>
<tr>
<td>USA</td>
<td>161,140</td>
<td>58.5</td>
</tr>
<tr>
<td>Korea</td>
<td>24,380</td>
<td>56.6</td>
</tr>
<tr>
<td>Singapore</td>
<td>2,260</td>
<td>50.8</td>
</tr>
<tr>
<td>Japan</td>
<td>49,720</td>
<td>39.2</td>
</tr>
<tr>
<td>Taiwan</td>
<td>7,820</td>
<td>35.1</td>
</tr>
</tbody>
</table>

Source: NUA Internet Survey (www.nua.com)
### Internet Penetration in Nordic Countries (2002)

<table>
<thead>
<tr>
<th>Country</th>
<th>Users (1000)</th>
<th>Penetration Per Population (%)</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>5,740</td>
<td>64.5</td>
<td>Feb. 02</td>
</tr>
<tr>
<td>Denmark</td>
<td>3,230</td>
<td>60.4</td>
<td>Feb. 02</td>
</tr>
<tr>
<td>Iceland</td>
<td>168</td>
<td>60.8</td>
<td>Dec. 00</td>
</tr>
<tr>
<td>Norway</td>
<td>2,450</td>
<td>54.4</td>
<td>Jul. 01</td>
</tr>
</tbody>
</table>

Source: NUA Internet Survey (www.nua.com)
## Net Penetration in Asia (2000)

<table>
<thead>
<tr>
<th>Country</th>
<th>Net Penetration (%)</th>
<th>Users (000)</th>
<th>Source: NUA Internet Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei</td>
<td>1.22</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Bhutan</td>
<td>0.02</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Bangladesh</td>
<td>0.04</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Lao Rep.</td>
<td>0.11</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mongolia</td>
<td>0.13</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Vietnam</td>
<td>0.15</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Nepal</td>
<td>0.19</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.35</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>0.44</td>
<td>4,500</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>0.66</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>0.77</td>
<td>1,200</td>
<td></td>
</tr>
<tr>
<td>Pakistan</td>
<td>55.27</td>
<td>153,840</td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>1.32</td>
<td>16,900</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>1.63</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>6.74</td>
<td>1,500</td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>29.38</td>
<td>6,400</td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td>30.49</td>
<td>38,640</td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>35.01</td>
<td>16,400</td>
<td></td>
</tr>
<tr>
<td>Korea</td>
<td>38.58</td>
<td>1,490</td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>44.58</td>
<td>8,420</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>49.95</td>
<td>3,460</td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>51.86</td>
<td>1,850</td>
<td></td>
</tr>
<tr>
<td>Singapore</td>
<td>44.58</td>
<td>8,420</td>
<td></td>
</tr>
</tbody>
</table>
Net Penetration and GDP (2000)

Penetration

Per capita GDP

Korea  
NZ  
Taiwan  
Australia  
HK  
Malaysia  
US  
Singapore  
China  
Japan

No.11 out of 23
Internet penetration and Economic Development

• Yes, there is a positive correlation between the two

• How about Broadband?
Broadband Penetration and Economic Development

- Why Broadband exploded in Korea but not in Singapore or Japan?
- There seems to be less correlation between broadband penetration and level of economy
- Did state policy play a major role?
Broadband Penetration in East Asia (Feb ‘02)

- **Korea**: 16.7%
- **Hong Kong**: 9.0%
- **Taiwan**: 5.2%
- **USA**: 4.1%
- **Singapore**: 3.4%
- **EU (mean)**: 2.3%
- **Japan**: 2.2%

Source: Government agencies in each country
Little correlation between Broadband and Economy

GDP per capita vs. BB Penetration for several countries:
- Korea
- Hong Kong
- Taiwan
- Singapore
- USA
- Japan
Korea: Internet Explosion in ’98, Broadband in ‘00

![Graph showing the growth of Internet and Broadband users in Korea from 1995 to 2001.](Image)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Users</td>
<td>138</td>
<td>366</td>
<td>731</td>
<td>1,634</td>
<td>3,103</td>
<td>10,860</td>
<td>19,040</td>
<td>24,380</td>
</tr>
</tbody>
</table>

*Image: Korea Network Information Center*
Broadband Users in Korea
(‘98 – ‘01)

Source: Ministry of Information and Communication, Korea
PC Bang, a great boom

97 :0 98 :4K 99:12K 00 :20K (40K? )
IMF unemployed workers started
Others followed
From Game Center to house-wives and businessmen
Functioned as the Broadband showroom
Online Game triggered

- LINAGE: 4Million Subscribers, 100,000 simultaneous users
- Nintendo, PS2 – restricted to import
- Cultural difference – MUD was very popular in ’80s
Web Lifestyle in place
Net anywhere: 20,000 or more, just like 7/11, changing people’s lifestyles
Is Content the King?

Internet Broadcasting starting to charge: $0.5 per program for popular TV dramas

Source: MIC
Positive Spiral in Korea

1. Government: promoted Infrastructure building
2. Fierce competition, over-supply, lower price
3. PC Bang started by IMF unemployed, explored new broadband market, reaching Home
4. NCC chose high-speed Net as first service
5. 40% of people live in high-rise apartments that made ADSL easy to deploy
6. Applications took advantage of BB: Game, Chat, NetPhone, Stock trading, Net-TV

No one planed these!!
Singapore: Learning from Singapore ONE

- SingaporeONE: First National Broadband service to home in the world in ‘97
- Faced early challenges
  - Multimedia or Internet?
  - What is the killer-ap?
Singapore Lessons

• Slow market liberalization
  – Strong monopoly of SingTel
  – State-owned “managed competition”

• Users are regarded as “passive” consumers, unlike Korean netizens

• Government dictates
  – “ONE Net for everyone”: not many networks of networks
  – Tight control on media and contents

• Private sector tends to wait
**Conclusion: Lessons learned**

<table>
<thead>
<tr>
<th>Lead role</th>
<th>Korea</th>
<th>Singapore</th>
<th>Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Leader</td>
<td>Netizens</td>
<td>Government</td>
<td>Not clear (market?)</td>
</tr>
<tr>
<td>Policies</td>
<td>Follower</td>
<td>Top-down</td>
<td>Late, in-between</td>
</tr>
<tr>
<td>Politics</td>
<td>Active citizens, Responsive Govn’t</td>
<td>Strong Govn’t, Weak Citizens</td>
<td>Weak citizens, Weak Govn’t</td>
</tr>
</tbody>
</table>

- **Korea**: Netizens
- **Singapore**: Government
- **Japan**: Not clear (market?)

- **Market Leader**
  - **Korea**: Entrepreneurs
  - **Singapore**: State-owned companies
  - **Japan**: Large Companies (NTT, Sony, Fujitsu, NEC…)

- **Policies**
  - **Korea**: Follower
  - **Singapore**: Top-down
  - **Japan**: Late, in-between

- **Politics**
  - **Korea**: Active citizens, Responsive Govn’t
  - **Singapore**: Strong Govn’t, Weak Citizens
  - **Japan**: Weak citizens, Weak Govn’t
Thank you
&
See you online!

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Asia Network Research
GLOCOM