

A Comparative Study on Broadband in Asia

Its Deployment and Policy

October 24, 2002

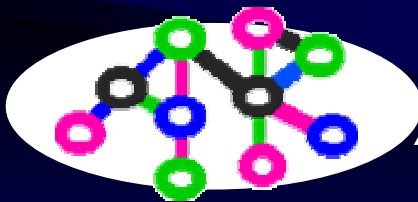
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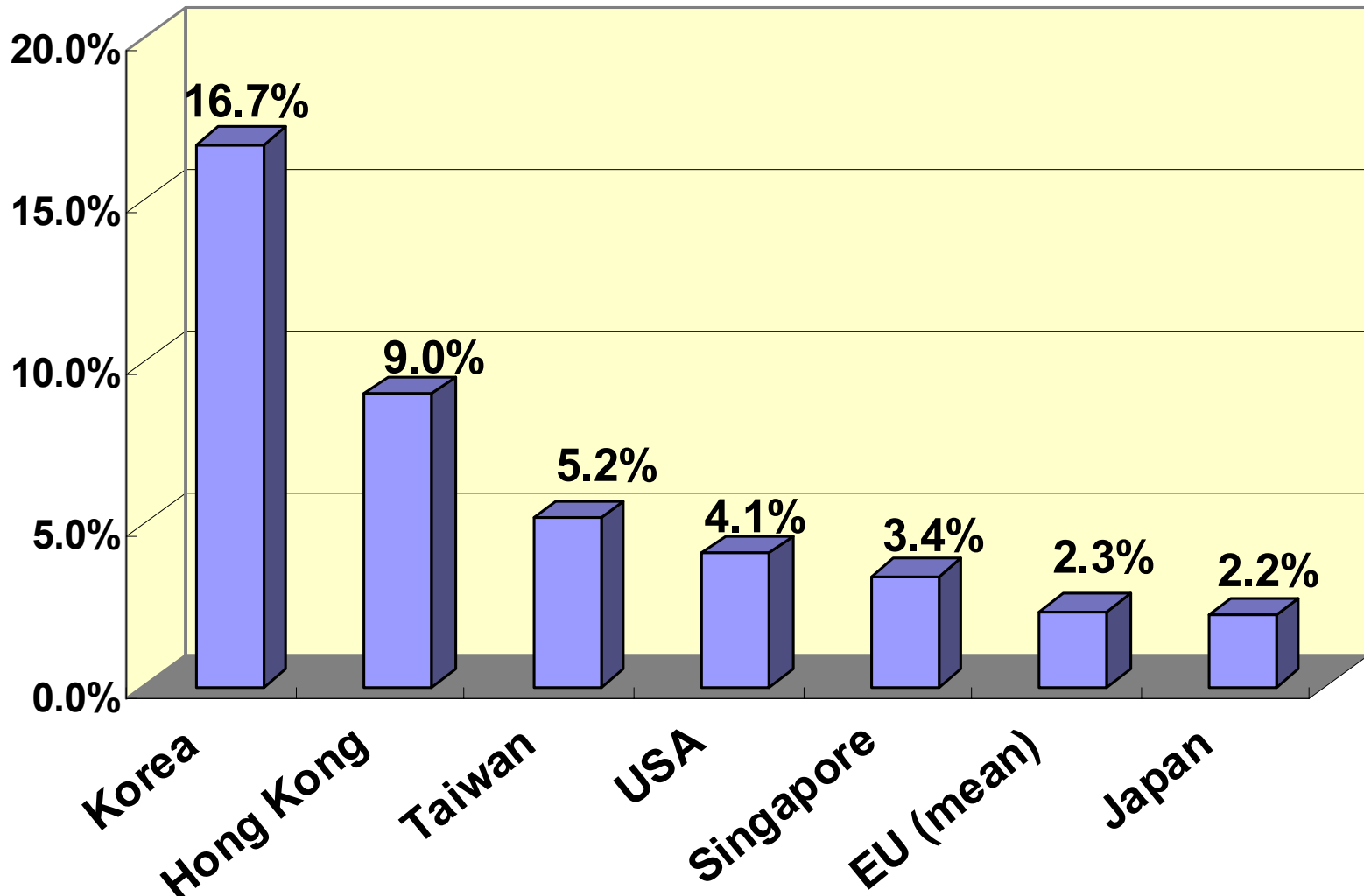
Asia Network Research

GLOCOM

Institute for HyperNetwork Society



Broadband Penetration in East Asia (Feb '02)



Source: Government agencies in each country

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)

Country	Users (1000)	Penetration Per Population (%)
Hong Kong	4,310	59.0
USA	161,140	58.5
Korea	24,380	56.6
Singapore	2,260	50.8
Japan	49,720	39.2
Taiwan	7,820	35.1

Source: NUA Internet Survey (www.nua.com)

Internet Penetration in Nordic Countries (2002)

Country	Users (1000)	Penetration Per Population (%)	Date
Sweden	5,740	64.5	Feb. 02
Denmark	3,230	60.4	Feb. 02
Iceland	168	60.8	Dec. 00
Norway	2,450	54.4	Jul. 01

Source: NUA Internet Survey (www.nua.com)

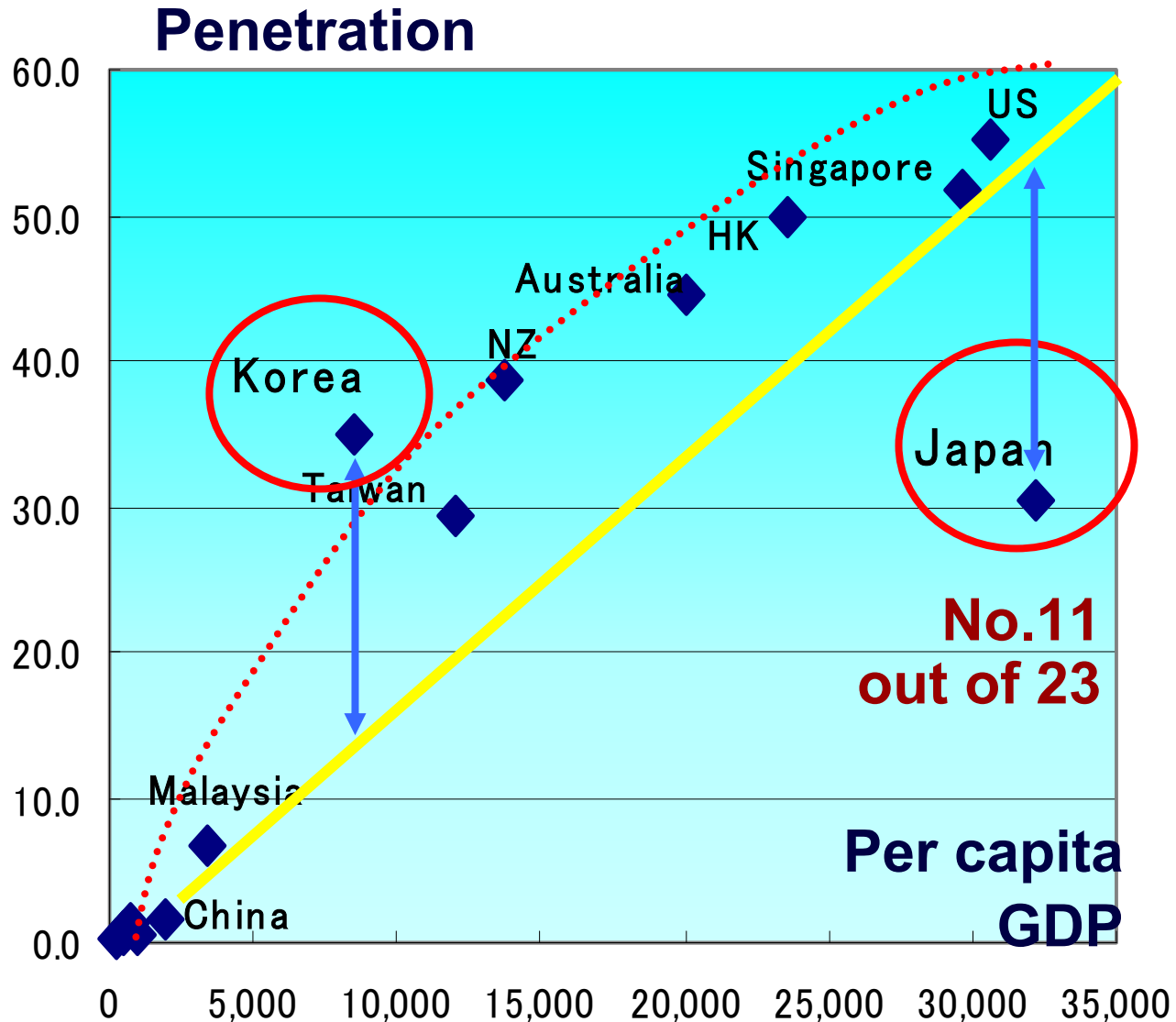
Internet Penetration in Asia ('00/'01)

Country	Users (000)	Penetration			
Hong Kong	4,310	59.01	Philippines	2,000	2.59
USA	164,140	58.50	Mongolia	40	1.56
Australia	10,630	54.38	Pakistan	1,200	0.85
Taiwan	11,600	51.85	Sri Lanka	150	0.79
Korea	24,380	51.07	India	7,000	0.68
Singapore	2,260	50.76	Vietnam	400	0.49
New Zealand	1,950	49.90	Bhutan	2.5	0.36
Japan	49,720	39.16	Nepal	60	0.25
Malaysia	5,700	23.95	Indonesia	4,400	0.19
Brunei	35	10.44	Lao Rep.	10	0.17
Thailand	3,536	5.56	Bangladesh	150	0.11
China	33,700	2.65	Cambodia	10	0.07
			Myanmar	10	0.02

Source: Nua Internet Survey, World Development Report (World Bank)

*Internet users is in 2001 or 2002, GDP data is in 2000

Net Penetration and GDP (2000)



Internet penetration and Economic Development

- **Yes, there is a positive correlation between the two**
- **How about Broadband?**

Broadband Penetration and Economic Development

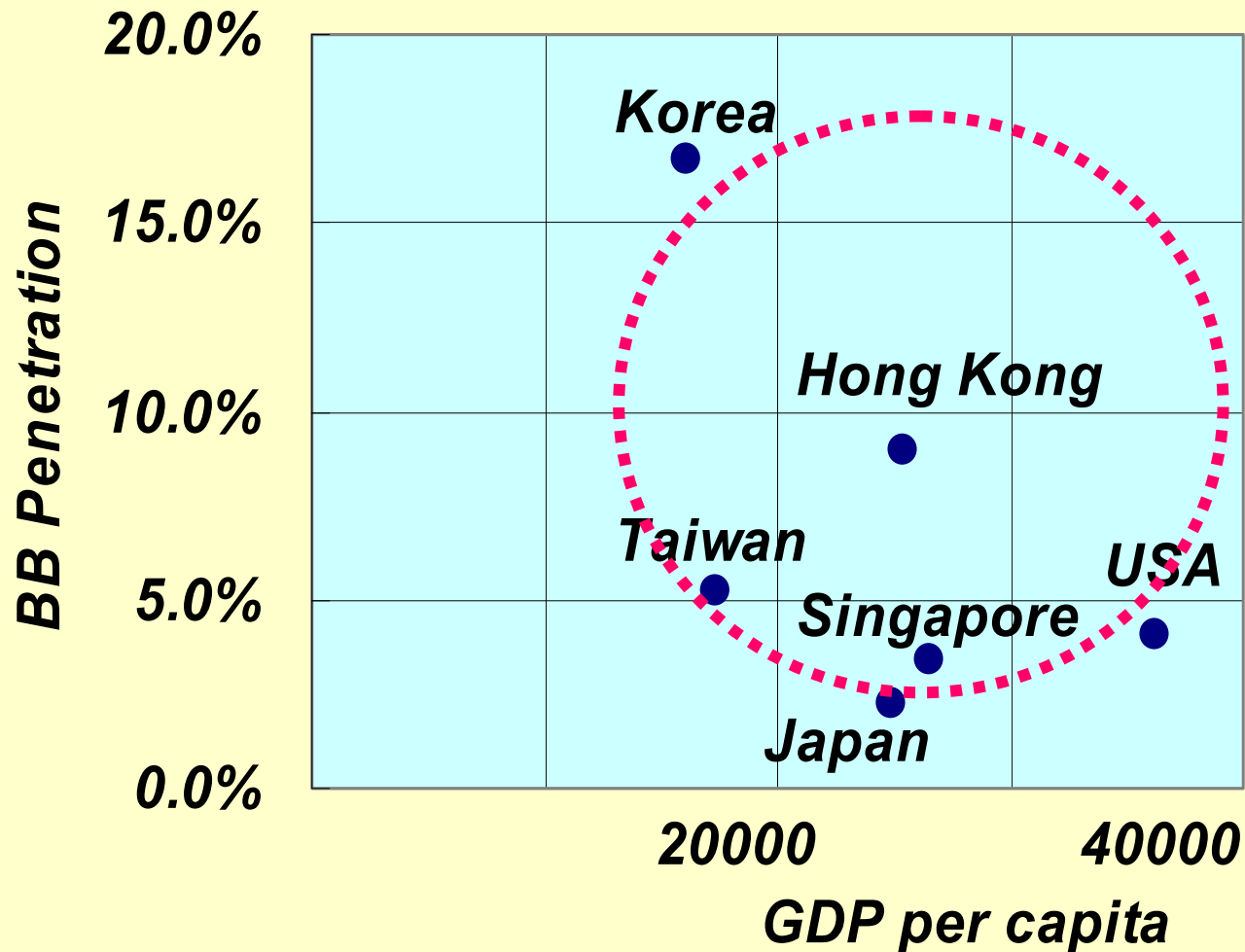
- **Why Broadband exploded in Korea but not in Singapore or Japan?**
- **There seems to be less correlation between broadband penetration and level of economy**
- **Did state policy play a major role?**

Broadband in East Asia

Korea, HK, Taiwan and Japan leads the rest

	Dec 01		July 02		Growth (%)
	%	Users	%	Users	
Korea	16.7	7,805,000	18.8	8,800,000	12.0
HK	9.2	623,000	12.1	820,000	31.6
Taiwan	5.2	1,130,000	6.0	1,300,000*	15.0
Japan	2.2	2,824,000	4.4	5,624,000	99.2
S'pore	3.4	120,000	4.3	150,000*	25.0

Little correlation between Broadband and Economy



Does Broadband increase GDP?

- **In the most extensive economic study of broadband to-date, economists at the Brookings Institution estimate widespread, high-speed broadband access will increase our national GDP by \$500 billion annually by 2006.**

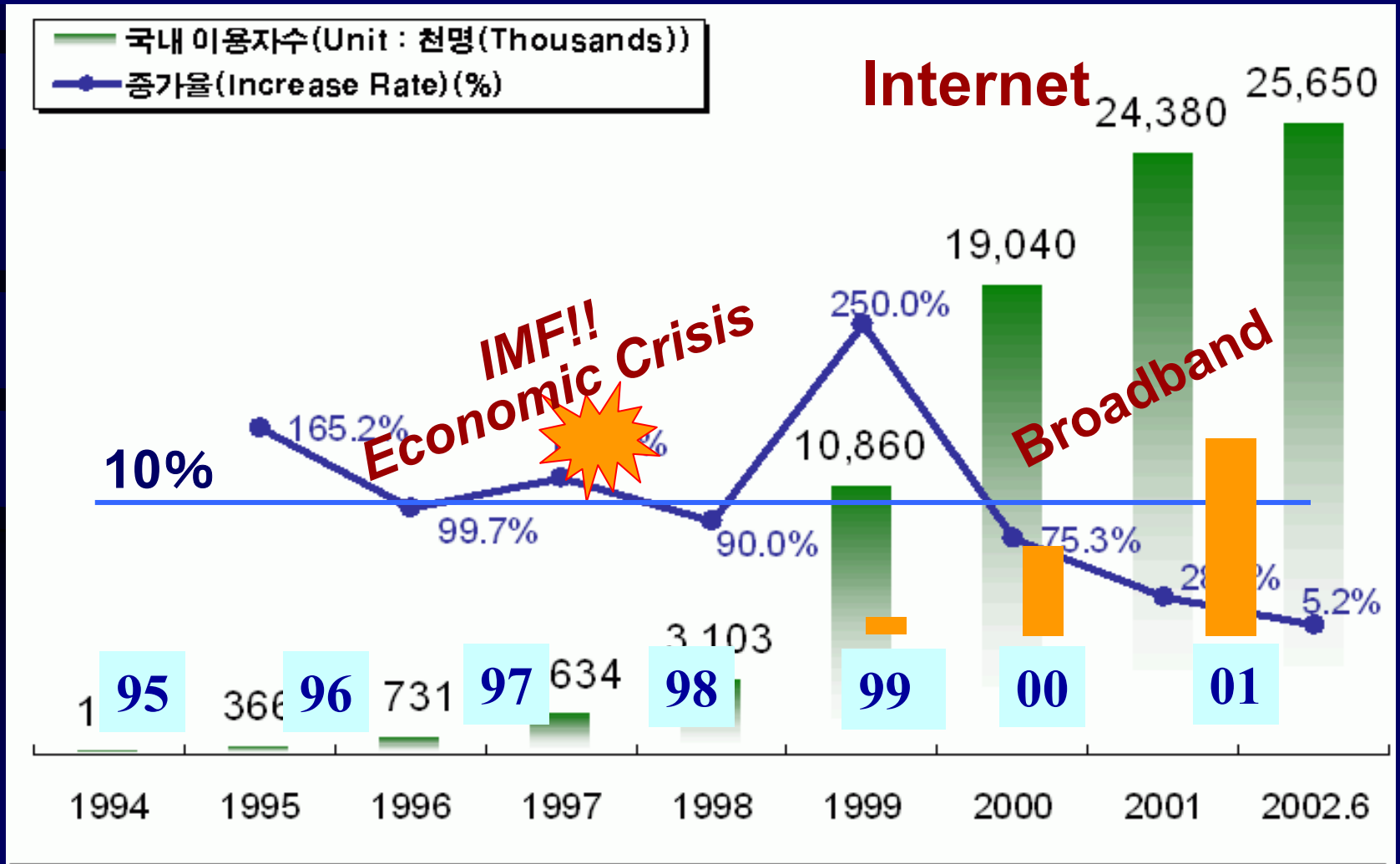
(Crandall and Jackson, "The \$500 Billion Opportunity: The Potential Economic Benefits of Widespread Diffusion of Broadband Internet Access," July 2001).

Broadband and productivity

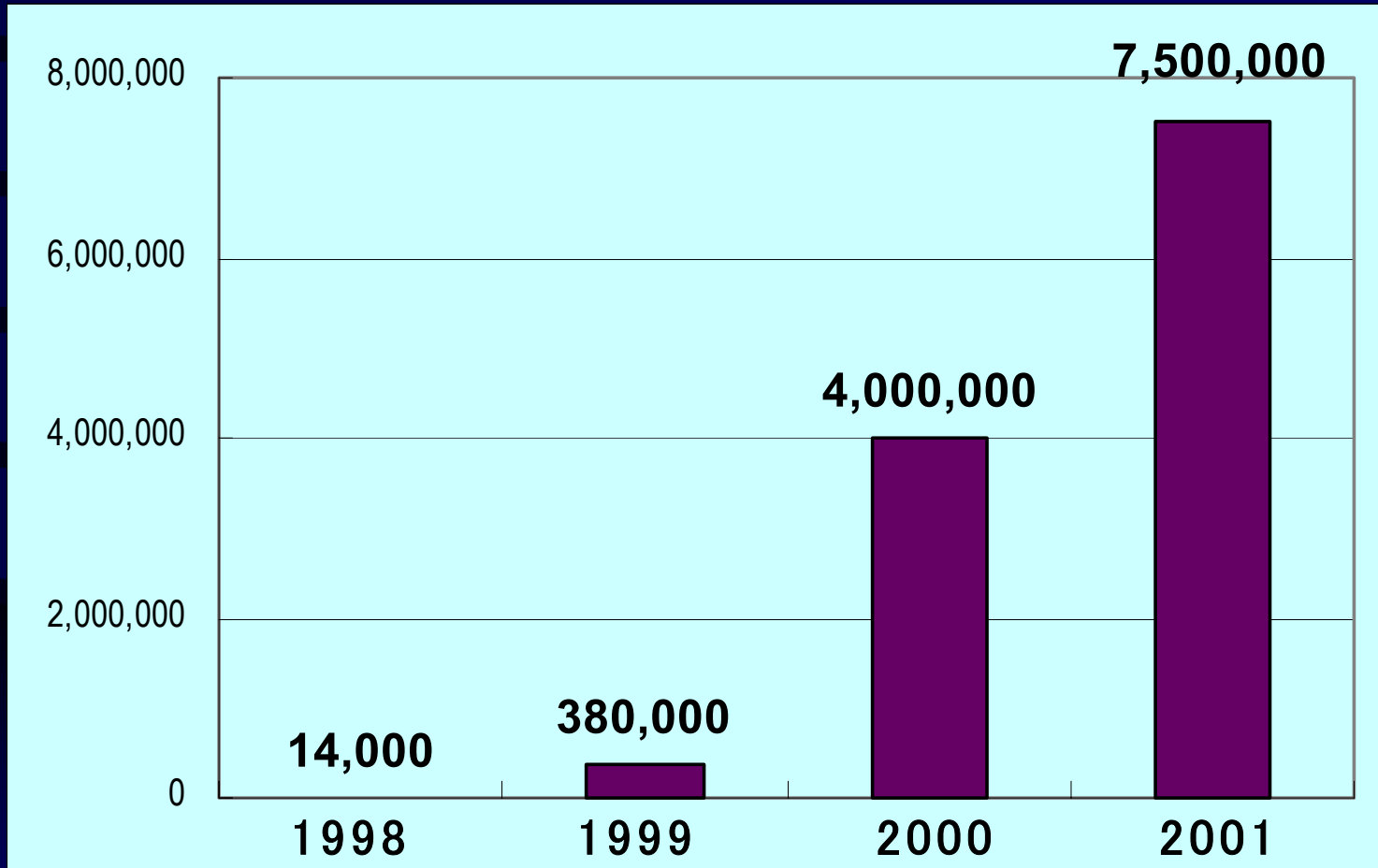
A separate Brookings study from May 2002 suggests that “failure to improve broadband performance could *reduce* U.S. productivity growth by 1% per year or more.”

(Ferguson, “The United States Broadband Problem: Analysis and Recommendations,” May 31, 2002).

Korea: Internet Explosion in '98, Broadband in '00 – '01



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



October 2002

Broadband in Asia

Online Game triggered

- LINAGE: 4Million Subscribers, 100,000 simultaneous users
- Nintendo, PS2 – **restricted to import**
- Cultural difference – MUD was very popular in '80s



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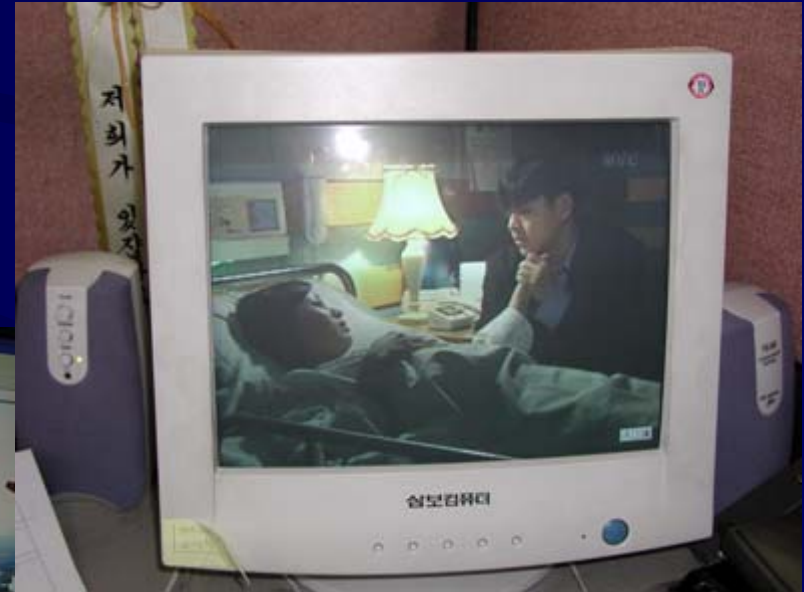
Web Lifestyle in place

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



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. NCCs 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 planned 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?**



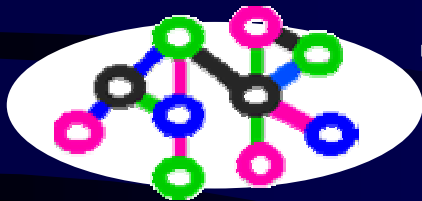
Singapore Lessons

- **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

	Korea	Singapore	Japan
Lead role	Netizens	Government	Not clear (market?)
Market Leader	Entrepreneurs	State-owned companies	Large Companies (NTT, Sony, Fujitsu) plus Yahoo, eAccess
Policies	Follower	Top-down	Late, in-between
Politics	Active citizens, Responsive Govn't	Strong Govn't, Weak Citizens	Weak citizens, Weak Govn't

**Thank you
&
*See you online!***



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