

Broadband: Wireless or wireline? An Asian perspective

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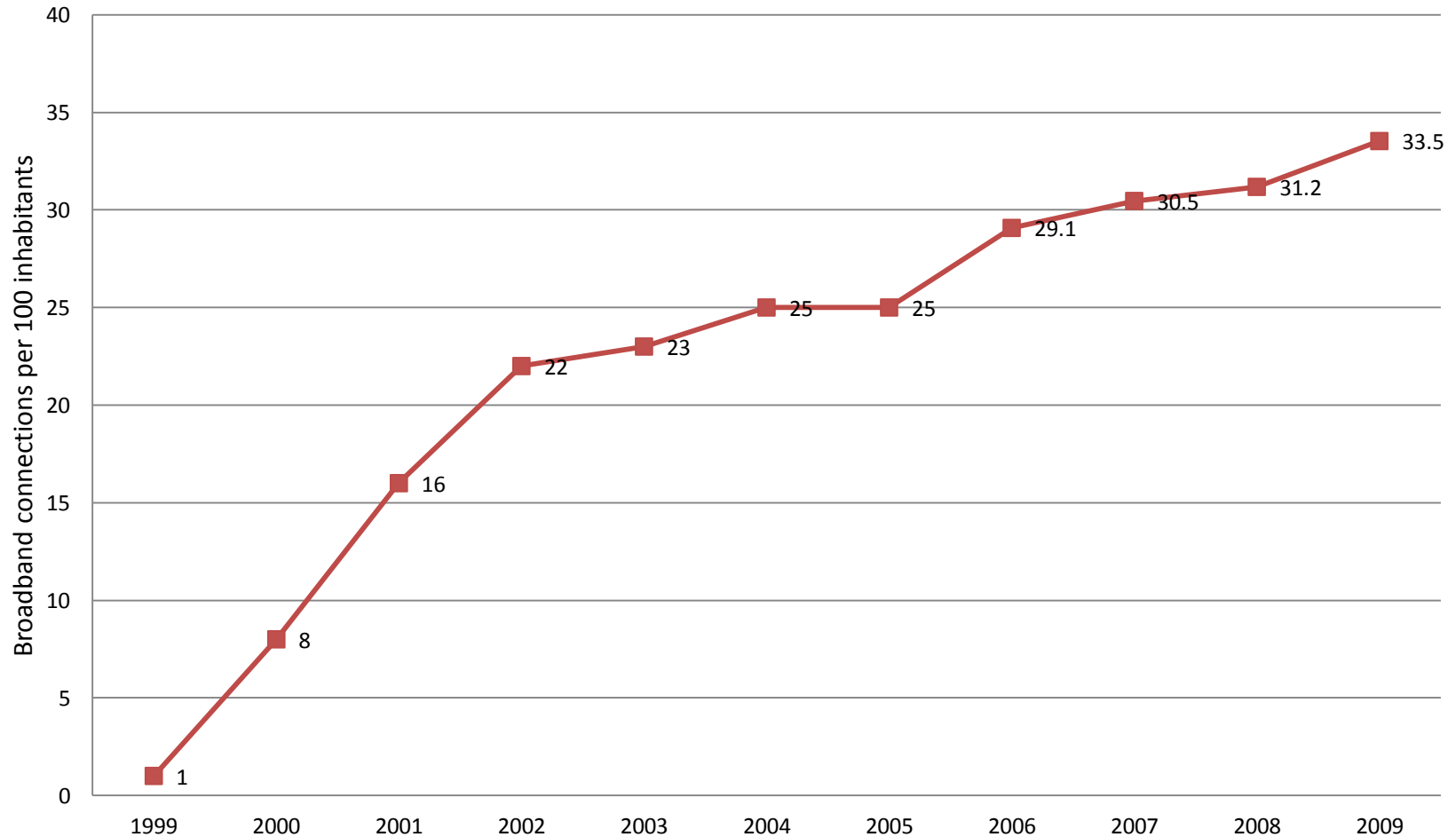
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Agenda

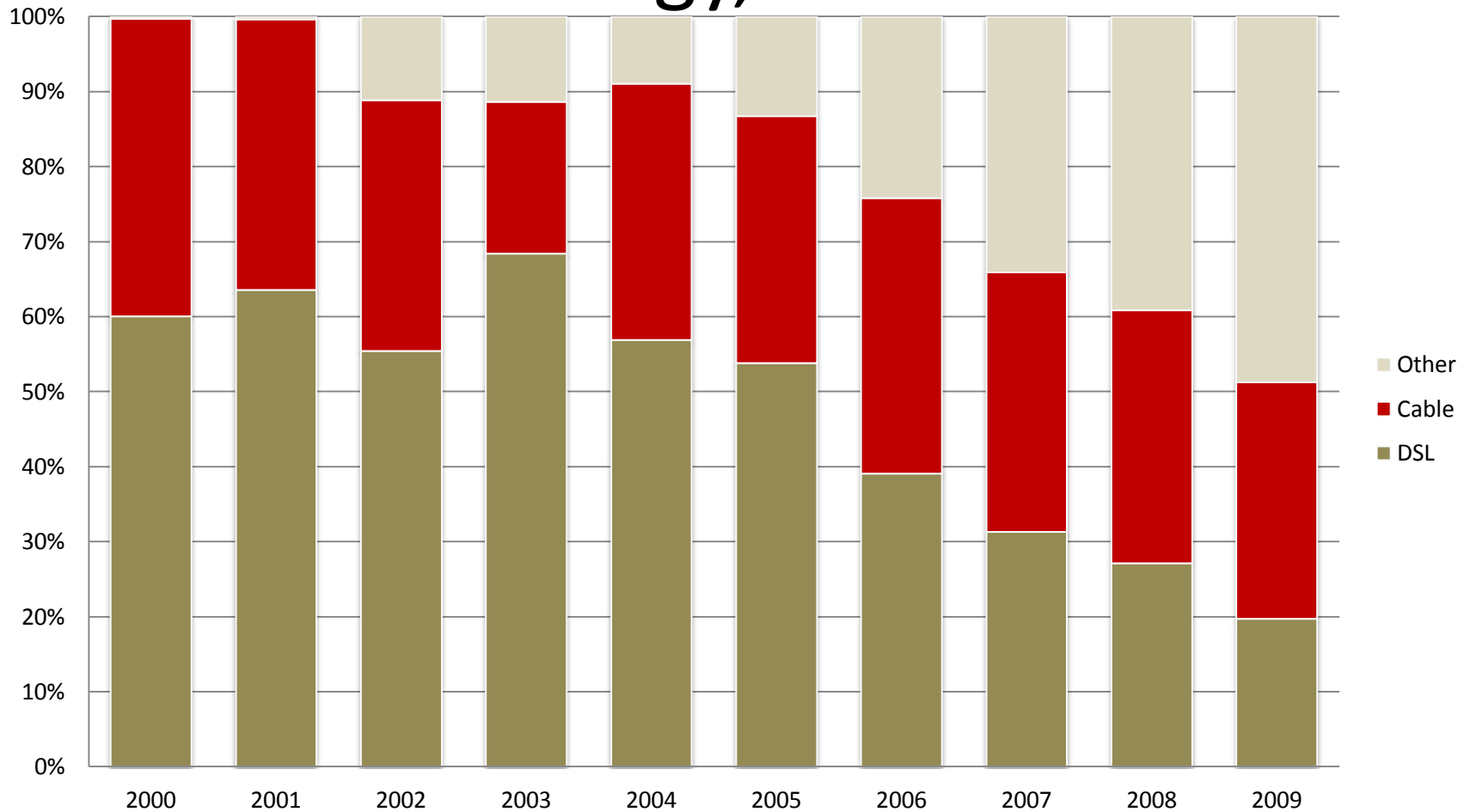
- Korea: Everyone's benchmark
- Can Korean model be replicated in emerging Asia?
- Why not look at Hong Kong as well?

KOREA: EVERYONE'S BENCHMARK

Broadband subscriptions per 100, 1999-2009 (users ~ 70 per 100 in 2009)



Broadband subscriptions, by technology, 2000-2009



Source: OECD Communication Outlook documents

How did Korea do it?

- Advantages of high population density & most people living in high-rises
- Early start
- Consistent policy development: successive policies correcting the errors of previous policies
- **Consistent implementation**
- Liberalization, privatization, competition
- **Money! Lots of money!!**
- Supply push and demand pull
 - Some random events too

Gathering momentum, 1980-1994

- Large investment in **backbone infrastructure** in 1980
- National Basic Information System (NBIS) 1984
 - Problems with disbursements in centerpiece five national networks (administration, finance, etc.)
 - Also included encouragement of production of low-cost computers for Korean households (more successful)
 - Shortfalls in funding, absence of strong industry capability and failure to stimulate domestic demand
- National Information Infrastructure (NII), 1992
 - Emphasis on network expansion
 - Initially fiber backbone deployed to connect five metropolitan areas and nearby cities
 - **Deregulation, privatization, framework legislation**
 - Korea Telecom privatized; market liberalized

Reform and take-off, 1994-2004

- GATS accession, 1994
 - Introduced regulatory reforms, significant tax breaks and eased FDI restrictions
 - Entry and pricing rules relaxed
 - Exemptions from national taxes (1994-2004) and local taxes (1994-2009)
- Hanaro enters broadband market in 1997
 - Causing KT to aggressively respond
- Inflection point in growth of broadband and household computers (1999)
- Cyber Korea 21, 1999
 - Increase competitiveness of Korean industry
 - Enhance quality of life of citizens

Consolidating growth with global ambitions, 2004-

- IT 839 (8 services, 3 infrastructures, 9 growth areas)
 - Infrastructure 3 (Broadband convergence network, U-sensor network, IPv6) intended to create a broadband service platform and give Korean businesses first-mover advantages
 - Renamed u-IT839 in 2006
- Massive outlays but criticized for being too supply-side and serving Chaebols more than the public interest

Money!

Year	Policy	Investment, USD m
1984	National Basic Information Systems (NBIS)	200
1987-96	National Database Computerization Project	5,536
1992	Korea Information Infrastructure (KII), 1992	40,000
1993-02	Informatization Promotion Fund	7,800
1994	GATS	Tax concessions for those in high-tech and value-added sectors
1999	Cyber Korea 21	918
2004	Information Technology 839 (IT 839)	70,000
2006	e-Korea Vision	84.4
2007	Broadband IT Korea Vision	
2009-13	Ultra Broadband Convergence Network	62

Source: MIC, *A critique of Korean National Information Strategy: case of national informational infrastructure*, Dong Hee-Shin +

Demand pull: Gaming

- Gaming takes off in “cyber cafes” in 1994
- 24,000 PC rooms used for gaming by 2002 (USD 1/1 hour)
- Created demand for broadband even as gaming moved to the home
- Collateral effect: 60% of all stock exchange transactions over the Internet by 2002

Can Korean model be replicated in emerging Asia?

- No luxury of time
- Lack of money

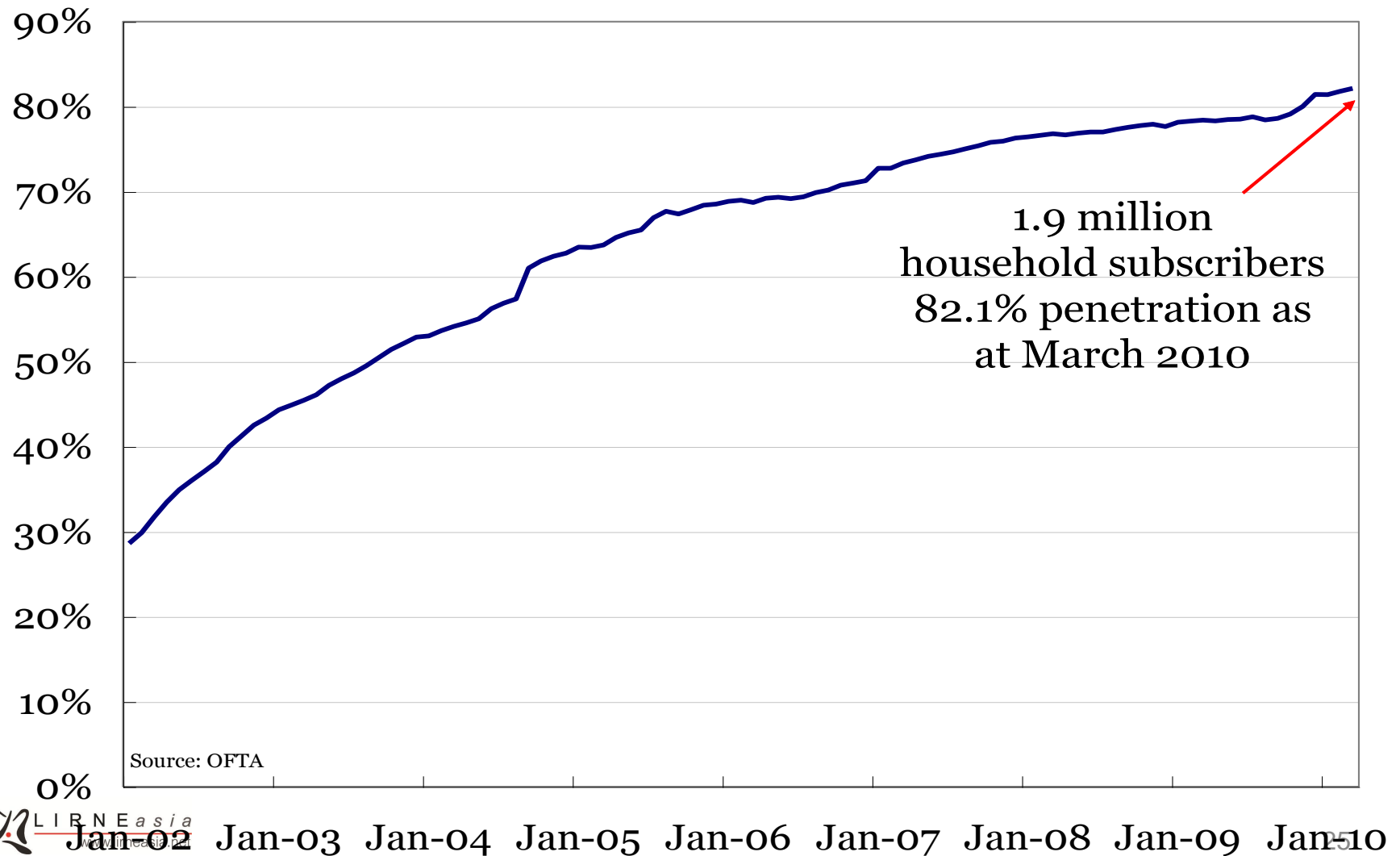
But even if money was available,

- **Consistent policy making** rare
- **Effective implementation** rarer
- Wire-guide based broadband unrealistic: example of Sri Lanka

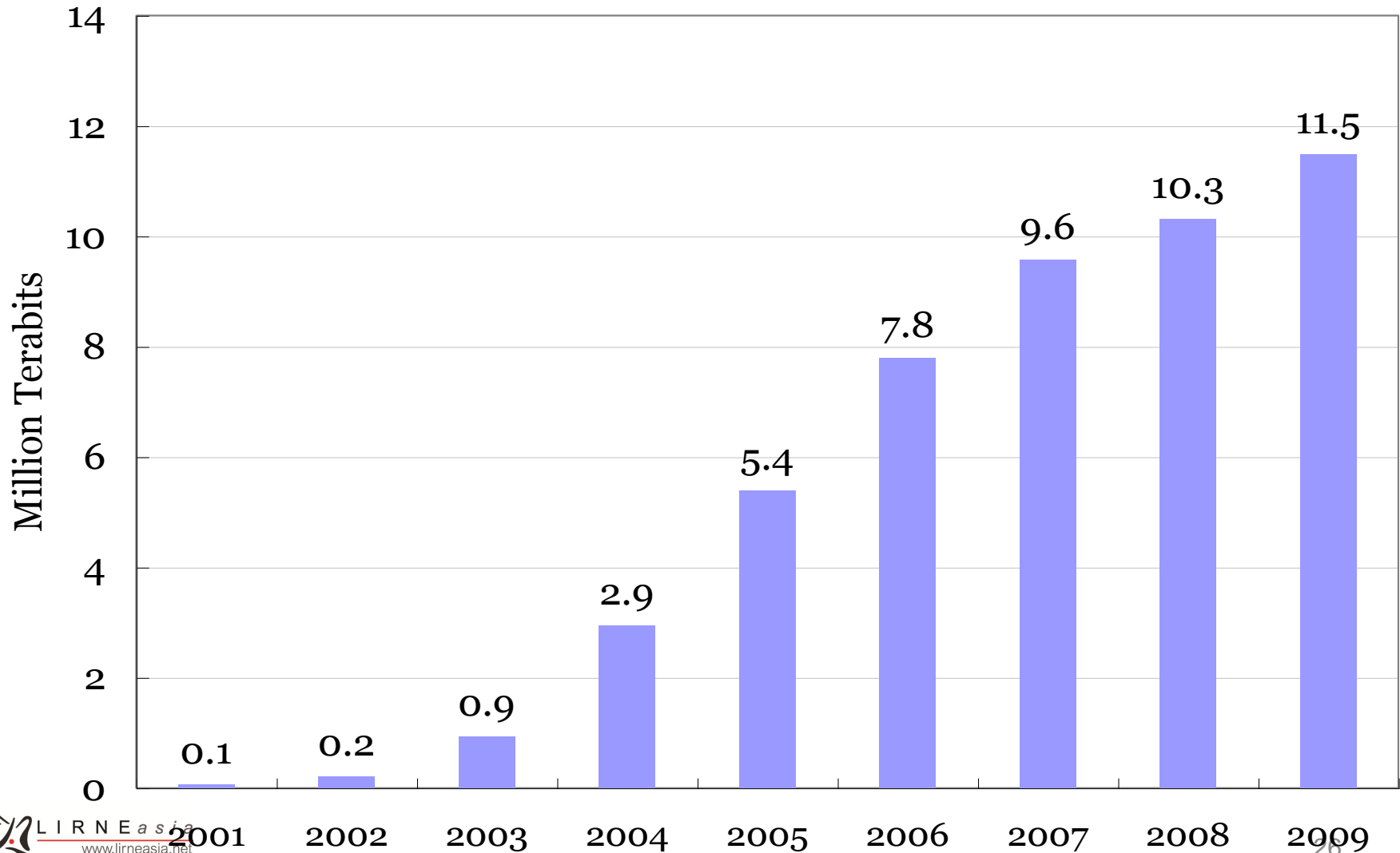
Why Korea cannot be replicated in Sri Lanka (& other emerging economies)

Population (mid 2009)	20.45 million
Wireless connections (2010 Q2)	15.86 m GSM +2.61 m CDMA= 18.47
Wireline connections (2010 Q2)	875,509
Cable households	Negligible (terrestrial & satellite TV dominate)
Estimated # of households	4,744,780
Maximum % of households with potential for wireguided broadband, most generous assumptions	18%
Percentage of wireless-connected households, using harsh assumptions	55% CDMA + 20% GSM = 75%
Period of 3G supply by 3 operators	7 years; 3 years intense competition
E Sri Lanka project costs (USD 83 m, huge by LK standards) as percentage of Korean investment	Less than 1 percent

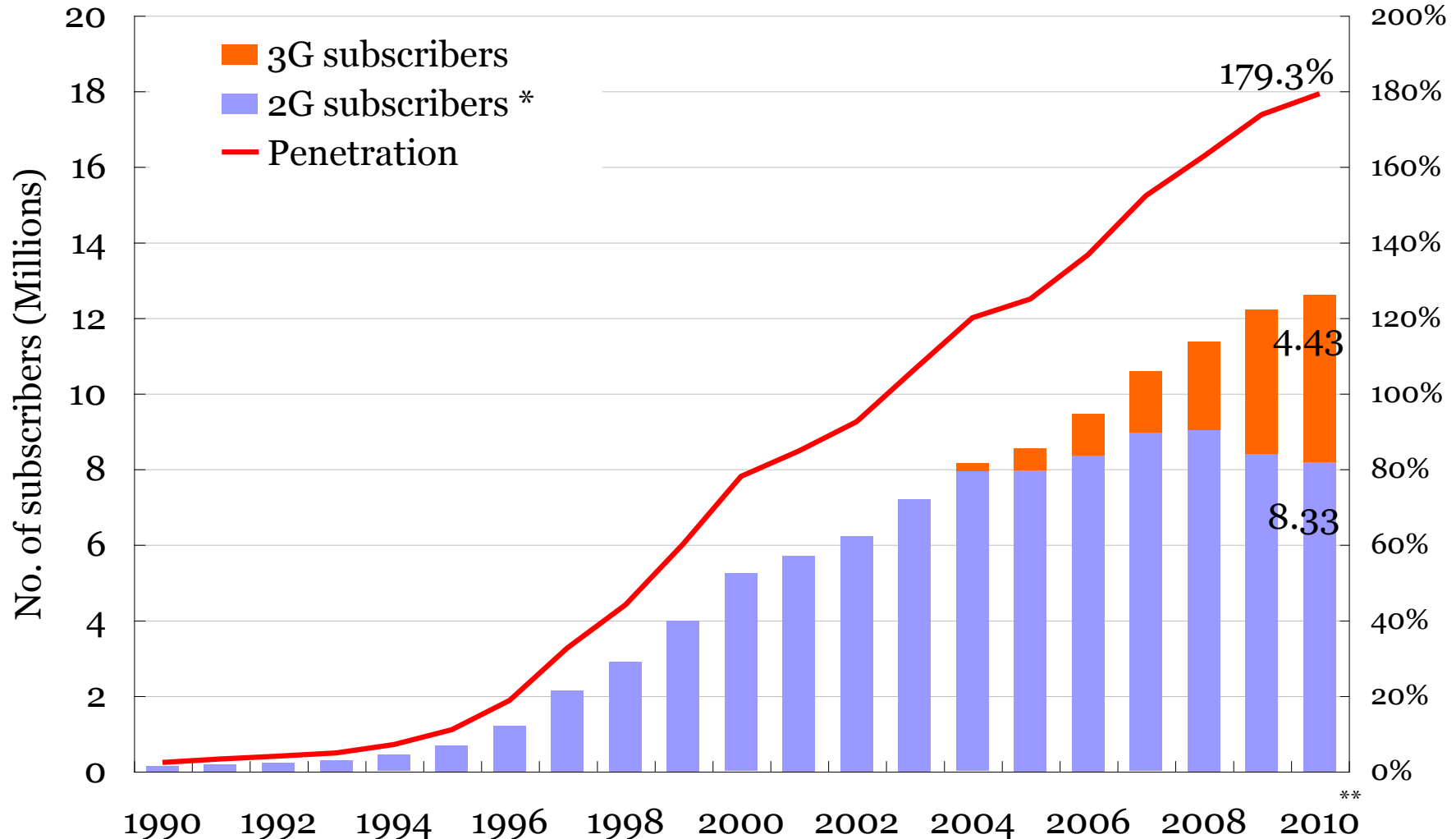
Hong Kong: Fixed Broadband Penetration



Hong Kong: Fixed Broadband Traffic

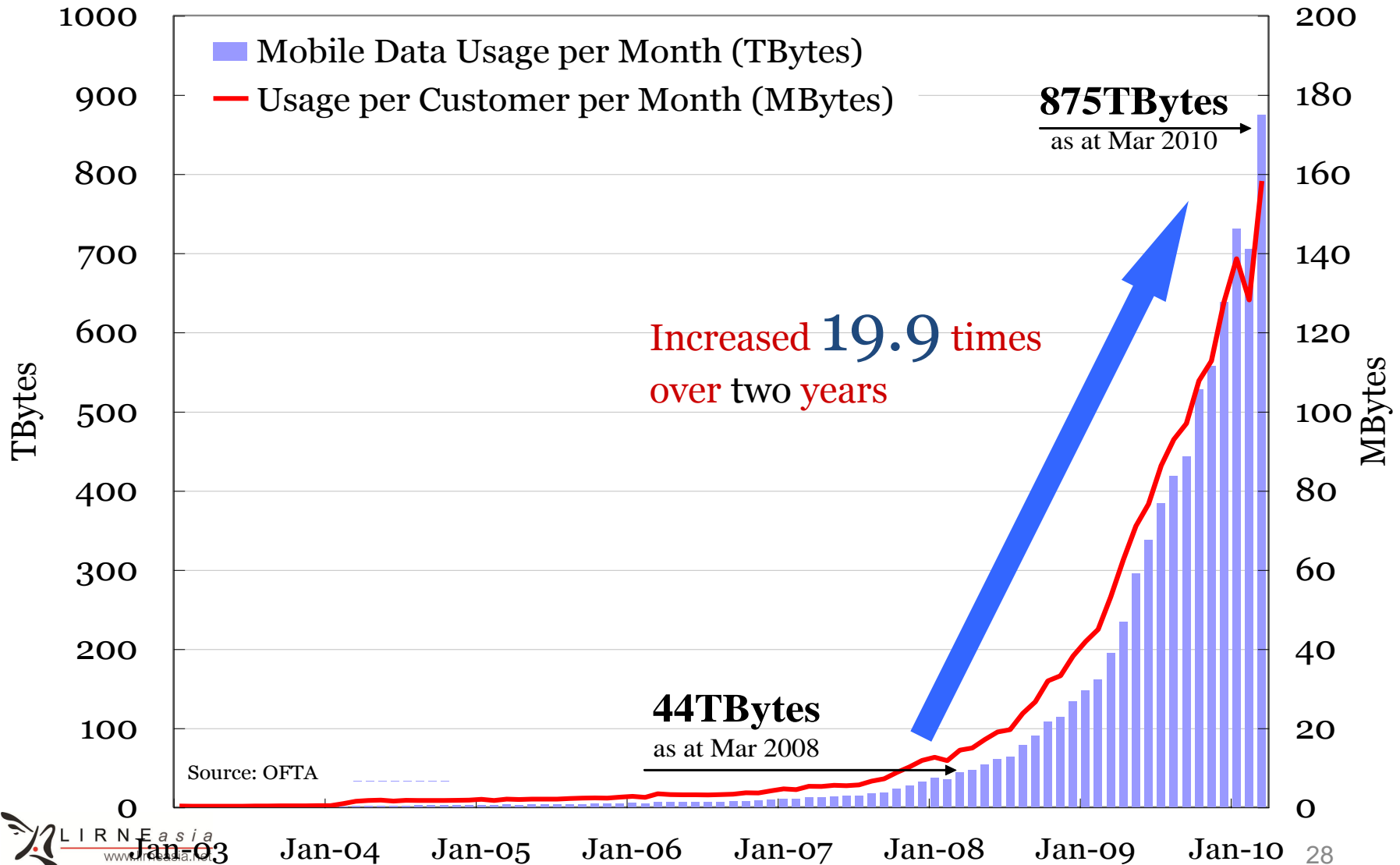


Mobile Data Service Penetration



* The figures of 2G subscribers include those who subscribed 2G plan or using 2G prepaid card but occasionally use 3G services.
 ** For year 2010, figures of March 2010 are used.

Mobile Data Traffic



Hong Kong and Korea outcomes and inputs

- Population density of greater Seoul-Incheon region (24 million; 4x Hong Kong's) not very different from Hong Kong's 16,000/km²; highest in OECD
 - Importance of high-rise apartments in both countries
- Broadband penetration and use levels in same range
- Not very different results, but at much lower cost for Hong Kong

Conclusion

- Wireline v wireless debate is relevant only in government-led approach
- For government-led approach to work, effective government is a pre-condition
 - Hong Kong suggests that market approach gives same bang for less bucks
- For the countries that I work in market-led is a better approach
- The appropriate solution depends on nature of the state
 - What will work in a country with an efficient bureaucracy will not necessarily work in one that does not
 - Back to Levy & Spiller (1994)