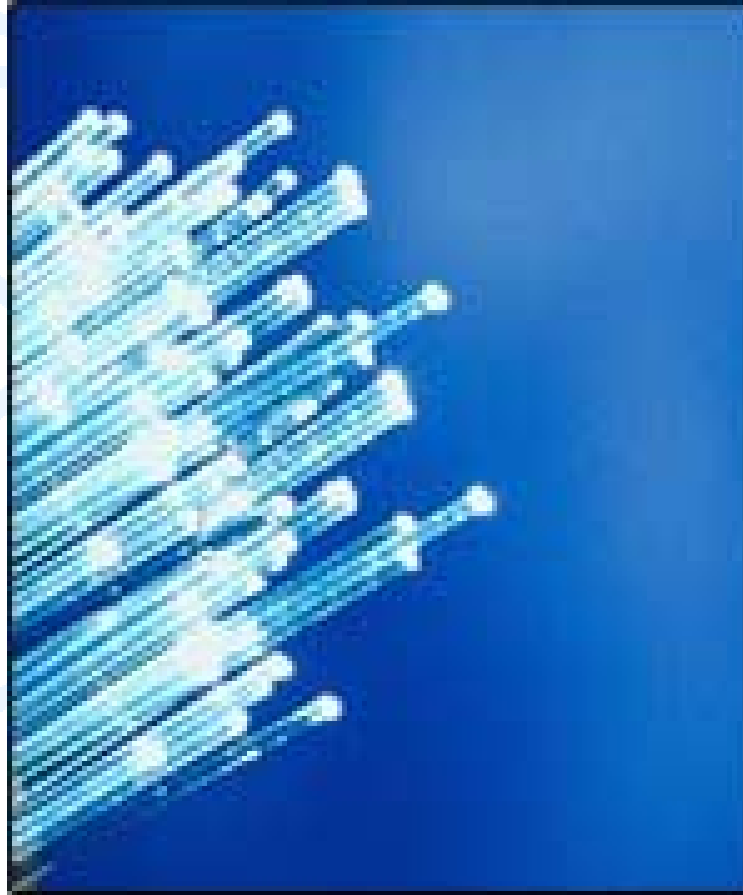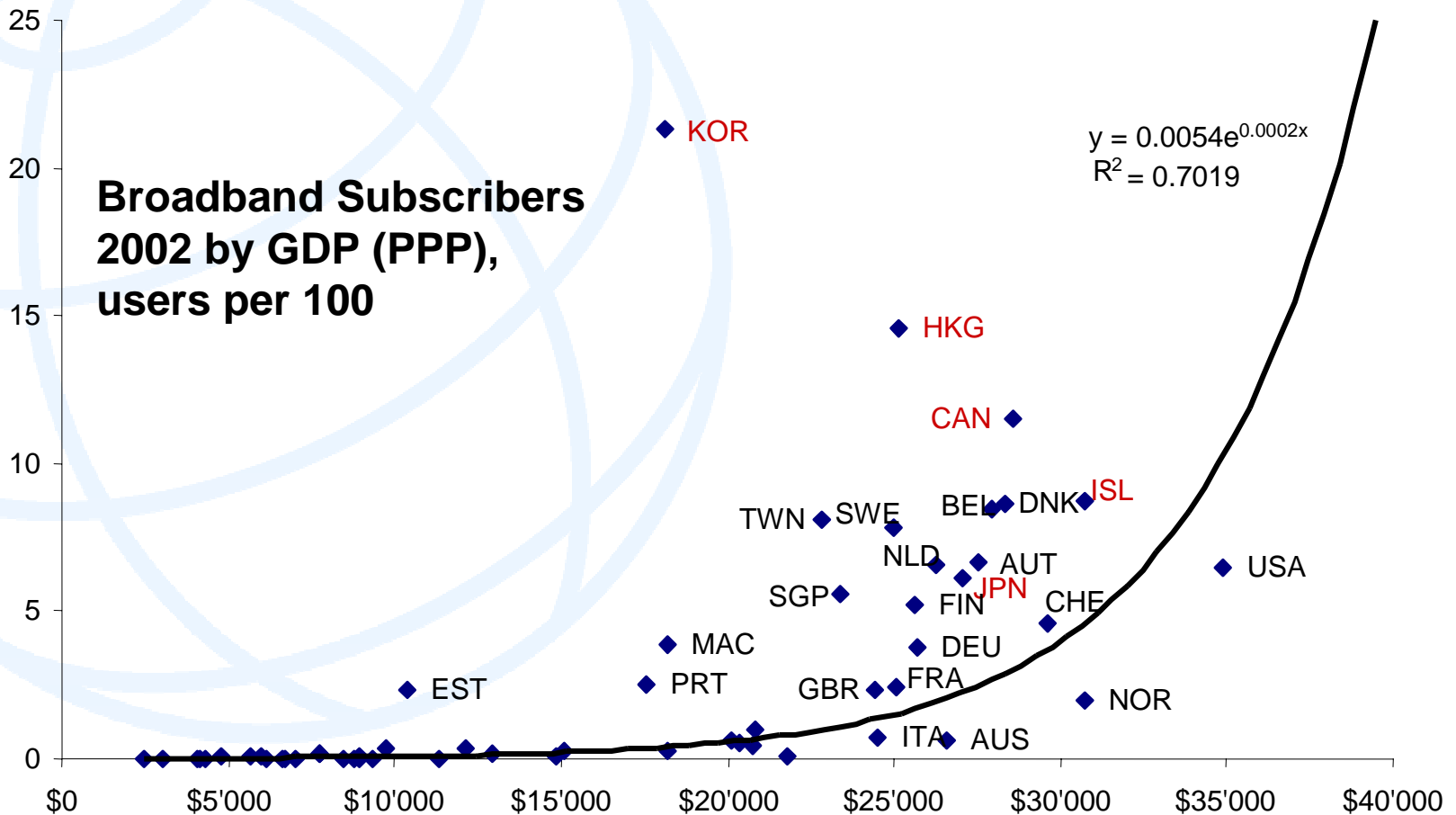# Promoting Broadband

Taylor Reynolds, 9 April 2003

Note: The views expressed in this presentation are those of the authors and do not necessarily reflect the opinions of the ITU or its membership.
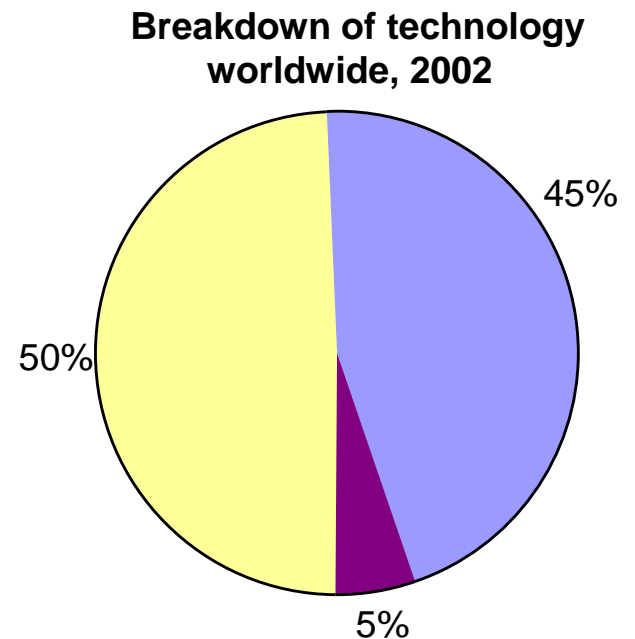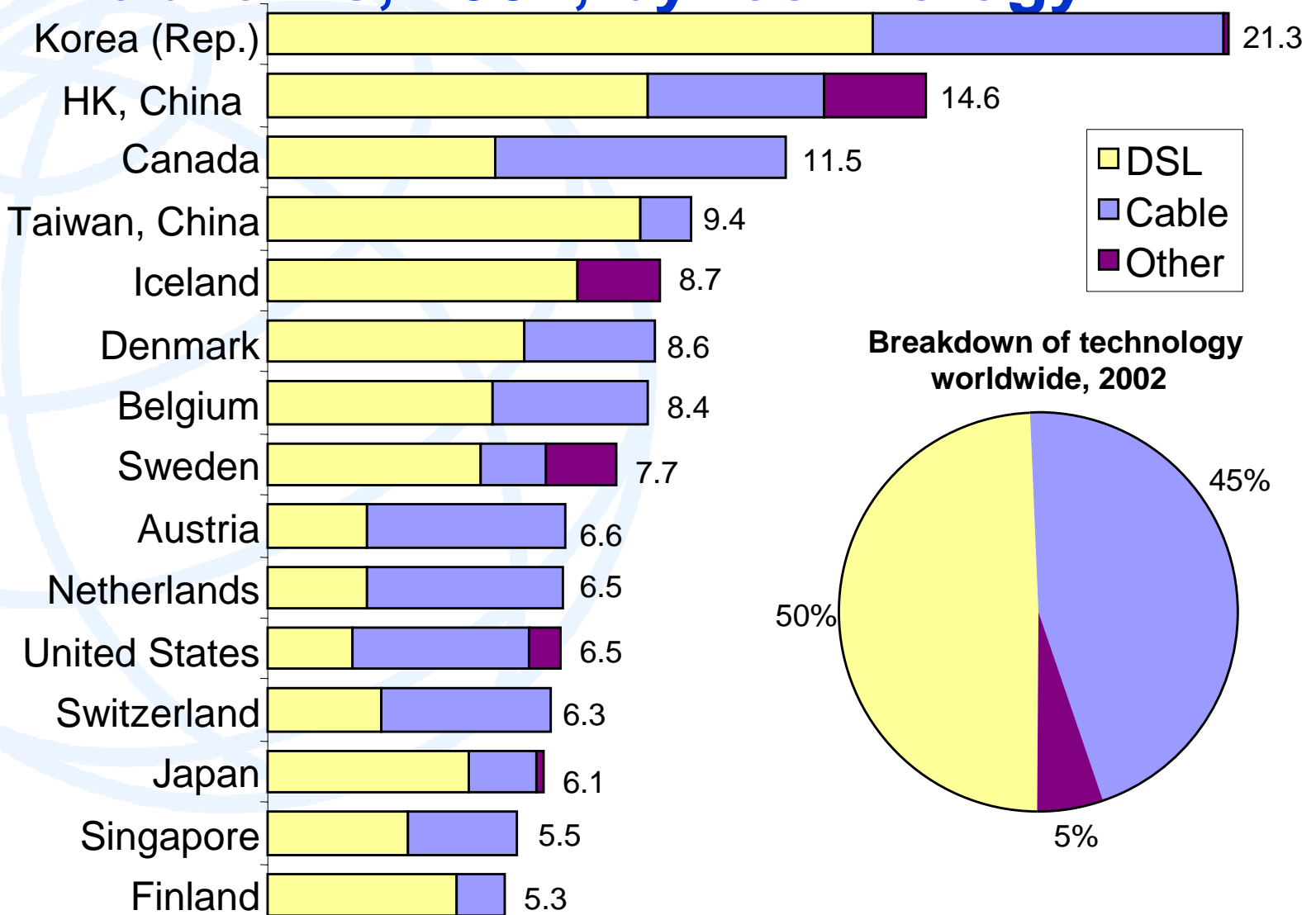
Which economies are doing well? Broadband and income

Broadband Subscribers 2002 by GDP (PPP), users per 100

$$y = 0.0054e^{0.0002x}$$
$$R^2 = 0.7019$$

Source: ITU World Telecom Indicators Database.

Broadband Penetration, per 100 inhabitants, 2002, by technology

Korea (Rep.)	21.3
HK, China	14.6
Canada	11.5
Taiwan, China	9.4
Iceland	8.7
Denmark	8.6
Belgium	8.4
Sweden	7.7
Austria	6.6
Netherlands	6.5
United States	6.5
Switzerland	6.3
Japan	6.1
Singapore	5.5
Finland	5.3

Legend:
- DSL
- Cable
- Other

Breakdown of technology worldwide, 2002

- 50%
- 45%
- 5%

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Roadmap for a successful broadband economy

Demand

1. **Awareness**
2. **Adoption and integration**
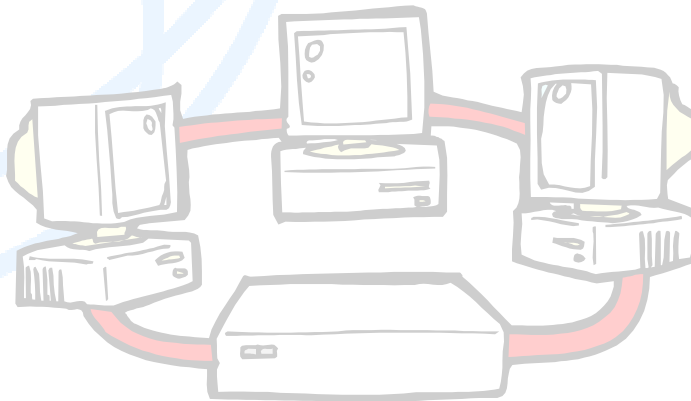3. **Innovative environment**
4. **Affordability**

Supply

1. **Competitive market structure**
2. **Government participation**
3. **Innovative use and deployment of infrastructure**

Promoting Broadband: Demand

1. **Awareness**

    ➢ **Schools**

    ➢ **Government-sponsored programs**

    ➢ **Co-branding**

    ➢ **Bundling**

    ➢ **Shared connections**
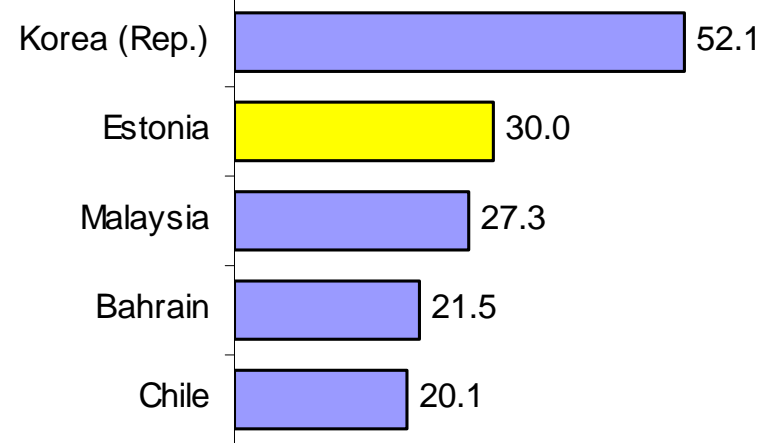
Awareness: Estonia's "Tiger Leap"

Goal:

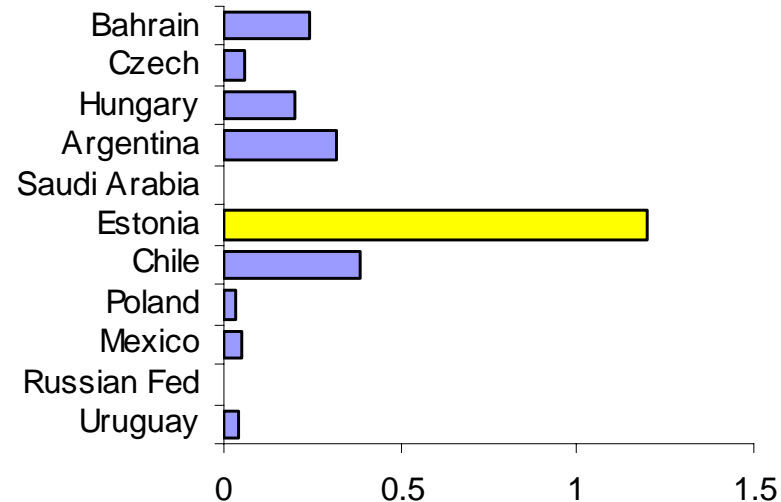➢ **Introduce ICTs through secondary schools** – **exposure to broadband**

Results:

➢ **75% of all schools have broadband connections**

➢ **63% of teachers have received ICT training courses**

➢ **35% population uses the Internet**

➢ **38% of population uses PCs**

Source: ITU World Telecom Indicators Database.

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Internet users, per 100, 2001, upper-middle income countries

Country	Value
Korea (Rep.)	52.1
Estonia	30.0
Malaysia	27.3
Bahrain	21.5
Chile	20.1

Broadband subs, per 100, GDP(PPP) 8-15K, 2001

Bahrain
Czech
Hungary
Argentina
Saudi Arabia
Estonia
Chile
Poland
Mexico
Russian Fed
Uruguay

0   0.5   1   1.5

Promoting Broadband: Demand

2. Adoption and Integration

- ➤ **IP Telephony**
- ➤ **Video**
- ➤ **Audio**
- ➤ **Gaming**
- ➤ **Online photos**
- ➤ **Teleworking**
- ➤ **E-commerce**
- ➤ **Local content**

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Adoption & Integration: Korea

Korea has 25,000 cybercafés (open 24 hours) despite having the highest home broadband penetration in the world.

Promoting Broadband: Demand

3. Innovative environment

- ➢ **Spurring innovation**
  - Direct R&D Funding
  - Tax incentives
  - Spectrum
- ➢ **Intellectual property rights**
- ➢ **Foreign investment**
- ➢ **Multiple distribution channels for content**
- ➢ **Security**

Innovative Environment: Canada

CANARIE

➢ **Mission: to accelerate Canada's advanced Internet development and use by facilitating the widespread adoption of faster, more efficient networks and by enabling the next generation of advanced products, applications and services to run on them.**

➢ **Projects: The Advanced Broadband Enabled Learning (ABEL)**

➢ **Innovation: Projects such as ABEL find new ways to use as well heighten awareness of broadband**
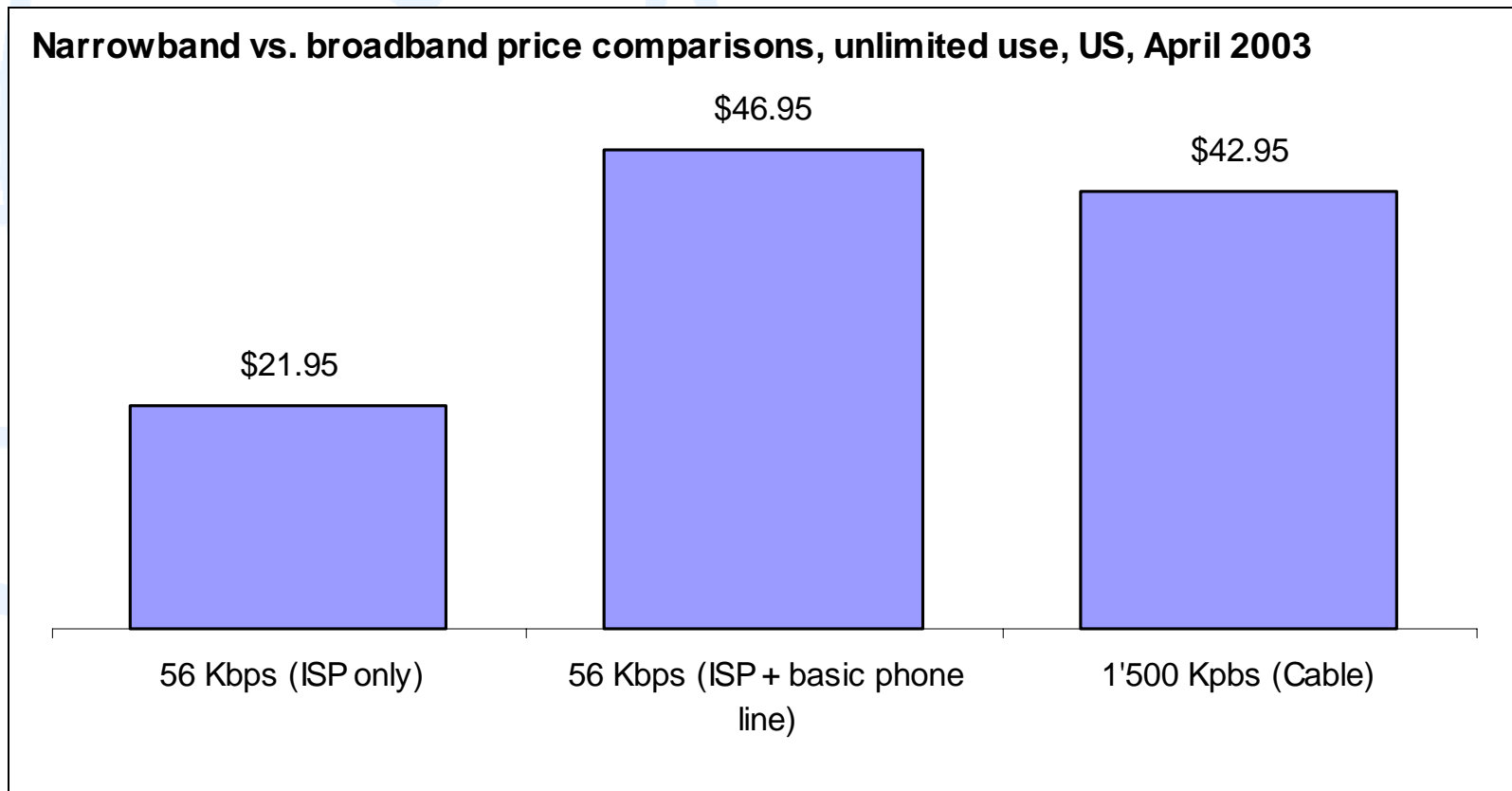
Successful Broadband Promotion

4. Affordability

➢ **Narrow vs. broadband pricing**

➢ **Pricing strategies**

- Flat rate
- Volume-based
- Product bundling
- Tiered pricing
- Prepaid

Affordability: USA

Rappoport, Fridel, and Taylor (2002) look at detailed data from the United States on the type of connection, the type of Internet activity, and the amount of time spent online. Interestingly, they find a large portion of "heavy-use" narrowband subscribers.

Narrowband vs. broadband price comparisons, unlimited use, US, April 2003

	$46.95	$42.95
$21.95		
56 Kbps (ISP only)	56 Kbps (ISP + basic phone line)	1'500 Kpbs (Cable)

While the monthly charge is important...

Price of typcial BB connection as a % of monthly household income (PPP), April 2003

Country	%
Japan	0.8
Switzerland	1.3
Iceland	1.3
New Zealand	1.4
USA	1.4
Norway	1.5
Canada	1.6
Denmark	1.6
Netherlands	1.8
Belgium	1.8
UK	1.9
HK, China	1.9
Singapore	1.9
Sweden	2.1
Taiwan	2.4
Austria	2.7
Finland	2.8
Korea, Rep.	3.0
Australia	3.4

… it's also the speed you get for it that counts.

Price per 100 Kbps of data per month, US$, April 2003

| Country	US$
Japan	0.18
Korea, Rep of	0.29
Belgium	1.09
HK, China	1.27
Taiwan	1.70
New Zealand	2.17
Singapore	2.19
USA	2.86
Canada	3.06
Australia	4.42
Netherlands	5.13
Norway	6.55
UK	7.18
Iceland	7.27
Sweden	7.94
Austria	10.33
Switzerland	13.90
Denmark	19.13
Finland	21.21

Source: ITU Research

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Promoting Broadband: Supply

1. **Competition**

   Successful broadband economies, in general, have three elements in common:

   1. **Competition through open access**
   2. **Strong competitive carrier**
   3. **Viable inter-modal competition**
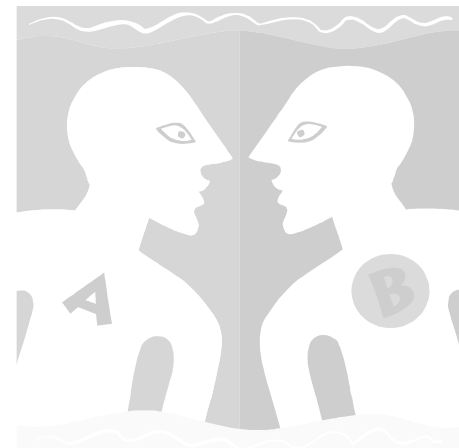
Competition: Korea

1. **Competition through open access**

   ➢ **Hanaro has provided service on Korea Telecom's local loop since April 1999. Open access mandated throughout industry in 2000.**

2. **Strong competitive carrier**

   ➢ **Hanaro first to offer DSL service and has 1/3 of DSL market. Deep pockets from backers (LG, Samsung, SK Telecom).**

3. **Viable inter-modal competition**

   ➢ **57% of homes are passed by cable, with wireless and LAN services available as well. (DSL = 63%, Cable + Other = 37%)**

Promoting Broadband: Supply

2. Government participation

➢ **Government framework for broadband supply**
- **Light touch (e.g. New Zealand, Switzerland)**
- **Cooperative (e.g. Australia, Germany, UK, US)**
- **National plan (e.g. Rep of Korea, Norway, Singapore)**

➢ **Tax credits/loans/subsidies**

➢ **Direct involvement developing infrastructure**
- **Sweden, Japan, Iceland, USA**

➢ **Building certification programs**

Promoting Broadband: Supply

3. Innovative rollouts

- ➢ **Expanding point of profitability (EPOP)**
- ➢ **Innovative use of existing infrastructure**
  - • **Power cables**
  - • **Rail and other under-utilized networks**
- ➢ **Community access points**
- ➢ **Wireless solutions**
  - • **Satellite**
  - • **WLAN**
  - • **WiFi**

Conclusions

1. Broadband promotion is most effective when it targets both demand and supply

2. Users *will* adopt broadband once they understand its benefits, if it is affordable

3. Governments can play a key role in all types of promotion and at all levels (e.g. national, municipal, etc)

4. There is no substitute for true market competition to expand networks and lower prices

5. Community access centers in underserved, remote areas can serve as anchors, eventually becoming key nodes from which future networks can expand.

Thank you

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