R&BD-Oriented Corporate-Style Research Organization

Korean ICT Industries

Trends and Opportunities in General

June 2006

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1. Overview

1-1. Global View on Korean ICT

1-2. Building Blocks of Korea's ICT

1-1. Global View on Korean ICT

"Korea is most competitive in the ICT industry among OECD countries"

- IMD World Competitiveness Yearbook 2005

	Technology Infrastructure		Broadband Subscribers		Broadband Cost	
Rank	Country	%	Country	No. Subscribers[1]	Country	USD[2]
1	US	68.93	**Korea**	**233.3**	Japan	0.09
2	**Korea**	**63.35**	Hong Kong	180.9	**Korea**	**0.25**
3	Singapore	62.72	Canada	146.9	Belgium	1.15
4	Hong Kong	61.18	Taiwan	134.6	Hong Kong	1.27
5	Taiwan	60.45	Denmark	133.3	Singapore	2.21

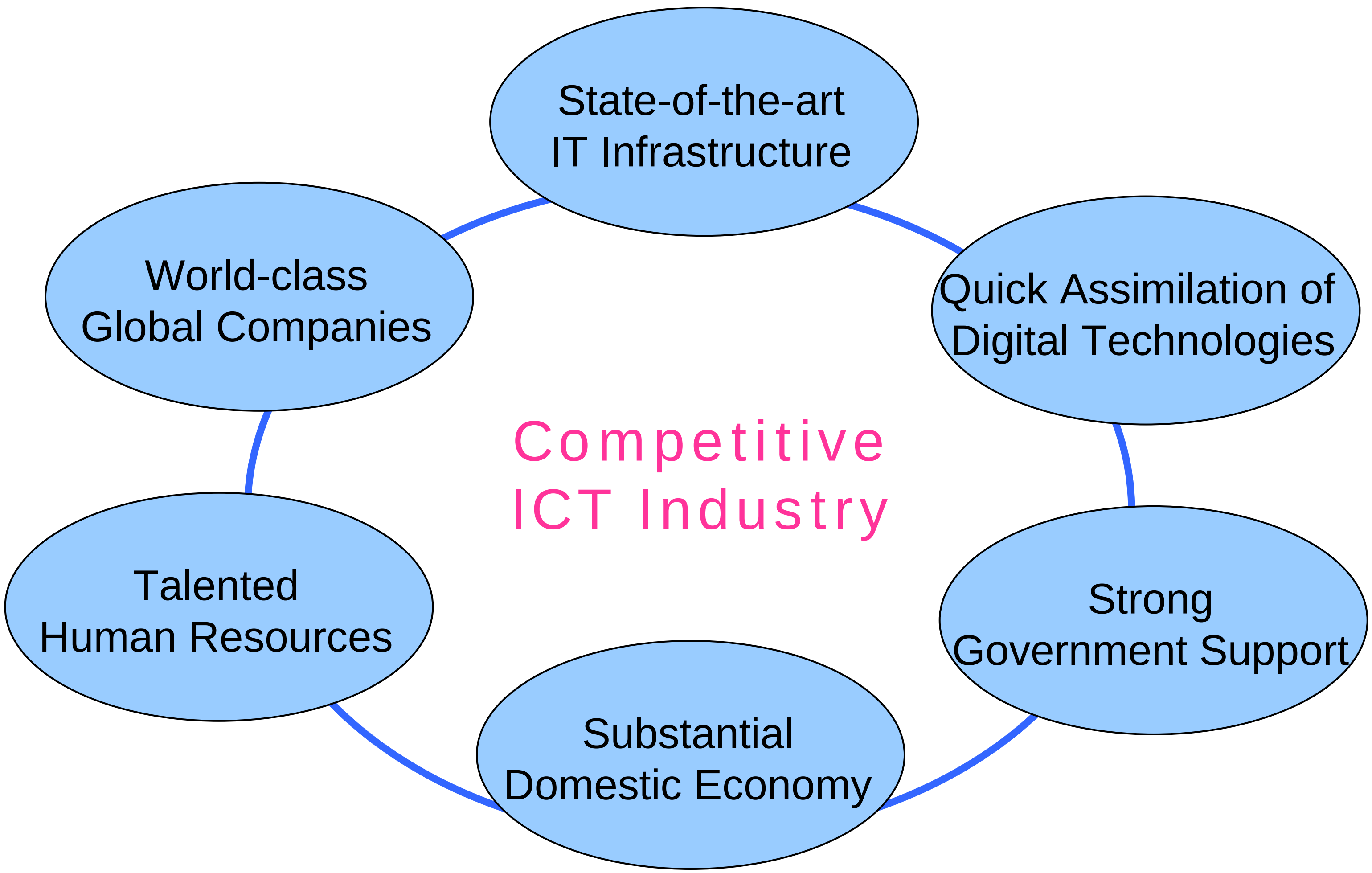
1. Number of subscribers per 1,000 inhabitants
2. USD per 100 kbps per month

1. Overview

1-1. Global View on Korean ICT

1-2. Building Blocks of Korea's ICT

1-2. Building Blocks of Korea's ICT



2. ICT Trends

2. ICT Trends

2-1. Internet

2-2. Mobile Telecommunications

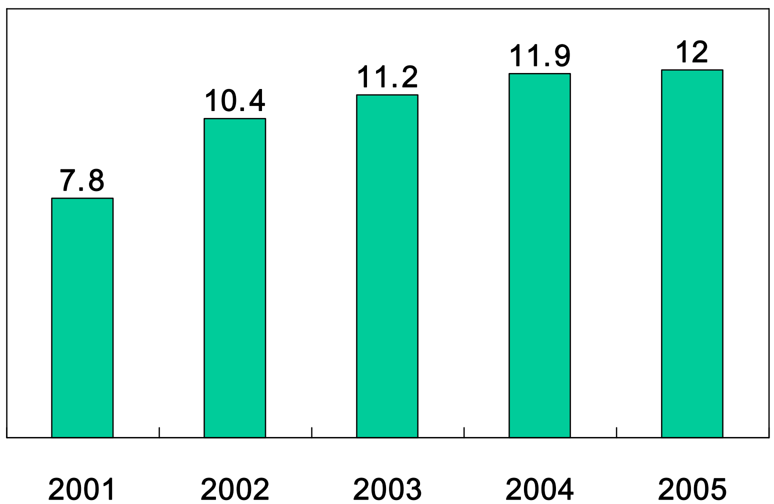
2-3. Hardware

2-4. Next Generation Wireless Services

2-1. Internet

- **Over 60% of the Korean population (29 million) are accessing Internet on a regular basis.**
  - Extensive roll-out of infrastructure
  - Government subsidization of access charges
- **Broadband Internet penetration is at 25.4%. (World No. 2)**
  - Over 12 million high-speed subscribers (fiber optics, DSL, and cable modem).
- **Rapid adoption of Internet has generated many Internet-related services.**

Broadband Subscribers (Units: Million)



[Source: Ministry of Information & Communication]

2. ICT Trends

2-1. Internet

2-2. Mobile Telecommunications

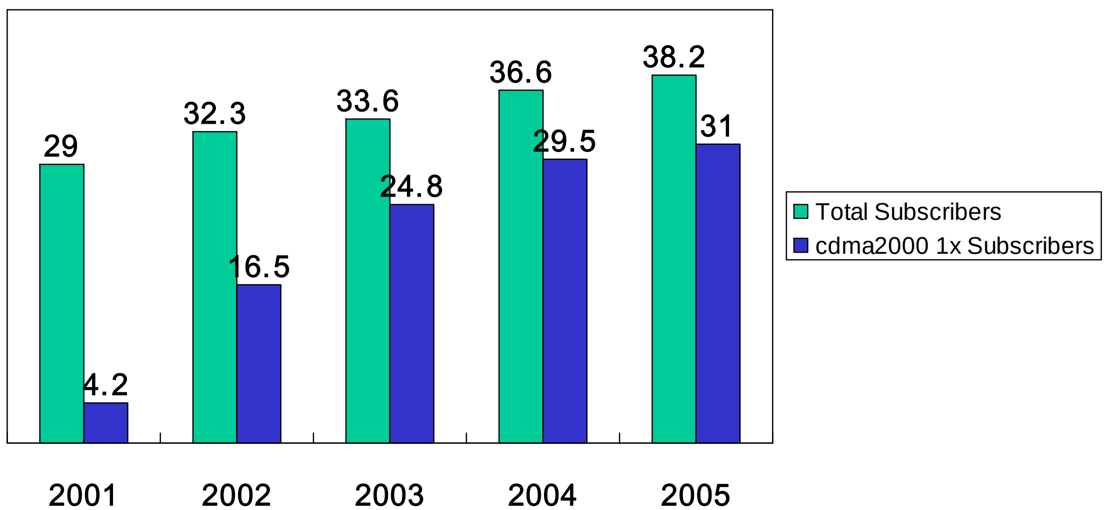
2-3. Hardware

2-4. Next Generation Wireless Services

2-2. Mobile Telecommunications

- The number of mobile subscribers in Korea topped **38.2M** in 2005 (**80%** of total population).
- The number of subscribers to CDMA 2000-1x (3G) service is also increasing.

Mobile Phone Subscribers (Units: Million)



[Source: SKT, LGT, KTF IR Report]

2. ICT Trends

2-1. Internet

2-2. Mobile Telecommunications

2-3. Hardware

2-4. Next Generation Wireless Services

2-3. Hardware: Global IT Powerhouse

Electronics: World No. 4

- Total Production: $90,285M (2004)
- Top 5 Countries

1.	US	$271bn
2.	Japan	$198bn
3.	China	$177bn
4.	Korea	$90bn
5.	Germany	$65bn

Display: World No. 1

- World Market Share in Each Sector

CRT	59%
PDP	56%
LCD	42%
OLED	32%

- Major Players
  Samsung Electronics, Samsung SDI, LG Phillips LCD, LG Electronics

Semiconductor: World No. 3

- 13% of Global Market Share
- Combined Revenue of Domestic Semiconductor Companies: $30bn (2005)
- Solid Leadership in Memory Market
  - DRAM 48.5%
  - NAND Flash Memory 63.4%

Mobile Phone: World No. 2

- 23% of Global Market Share
  - Samsung Electronics 13% (No. 3)
  - LG Electronics 7% (No. 4)
  - Others 3%
- Leadership in High-end Market
  - 2005 4Q Mobile Unit Price:
    Samsung $165, LG $151, Nokia $118

2-3. Hardware: Semiconductor (1)

- The combined revenue of domestic semiconductor companies exceeded **$30bn** in 2005, accounting for **13%** of global market share.
- Rapid expansion of mobile communication and display market is promoting the development of non-memory semiconductor sector.

Semiconductor Industry Market Share

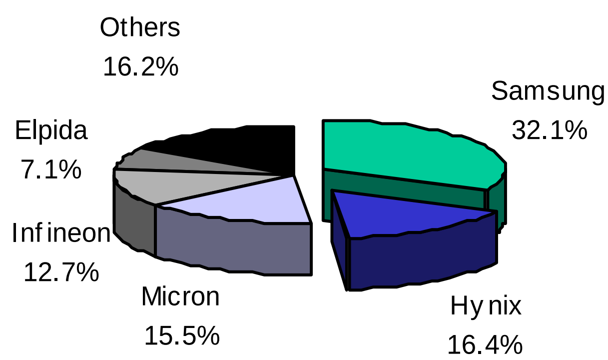
Rank	Company	2005 Revenue (USD Millions)	M/S (%)	Growth (%)
1	Intel	$35,849	15.1	14.4
2	**Samsung Electronics**	**$17,096**	**7.2**	**8.5**
3	Texas Instruments	$11,105	4.7	8.6
4	Toshiba	$9,363	3.9	7.0
5	STMicroelectronics	$8,871	3.7	1.3
6	Infineon Technologies	$8,381	3.5	-8.7
…				
12	**Hynix Semiconductor**	**$5,459**	**2.3**	**18.5**

[Source: iSuppli Corporation, December 2005]

2-3. Hardware: Semiconductor (2)

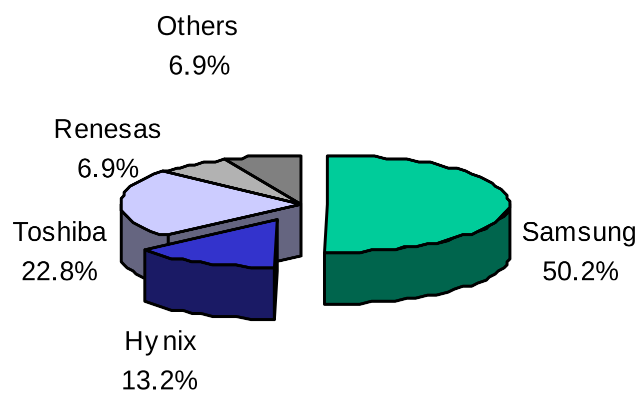
- Korea retains solid leadership in memory sector. (DRAM **48.5%**, NAND Flash **63.4%**)
- Domestic companies are investing heavily to expand market share.
  - In 2005, Samsung Electronics announced a 7-year **$33bn** investment plan to create the world's largest semiconductor cluster in Korea, expecting to triple its annual sales to **$61bn** by 2012.
  - Hynix Semiconductor plans to invest a total of $3.5bn into facility expansion in 2006, **$2bn** in Korea and **$1.5bn** in China.

DRAM



[Source: Gartner, 4Q05]

NAND Flash Memory

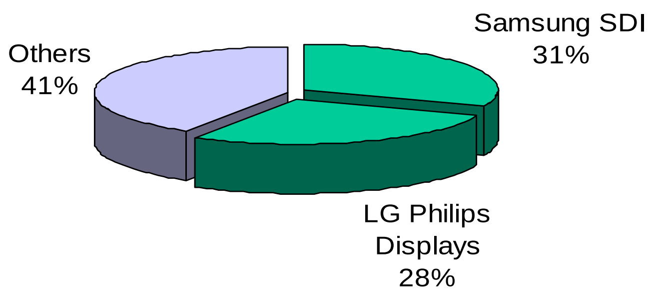


[Source: iSuppli, 3Q05]

2-3. Hardware: Display (1)

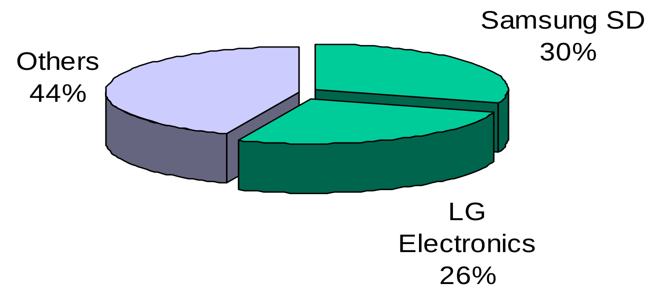
Korea's Share in Each Display Sector

CRT (59%)



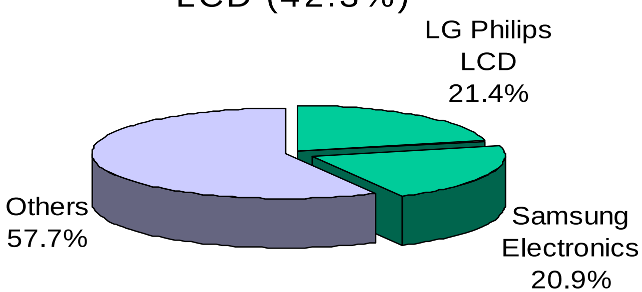
[Source: DisplaySearch (shipment in 2005)]

PDP (56%)



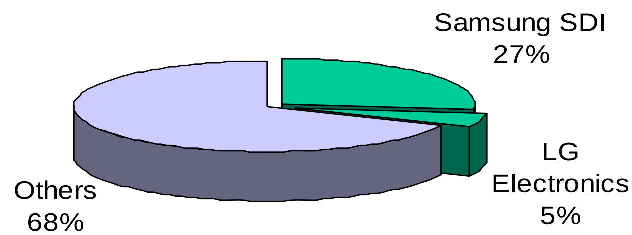
[Source: DisplaySearch (shipment in 2005)]

LCD (42.3%)



[Source: iSuppli (shipment in 2005)]

OLED (32%)



[Source: DisplaySearch (shipment in 3Q05)]

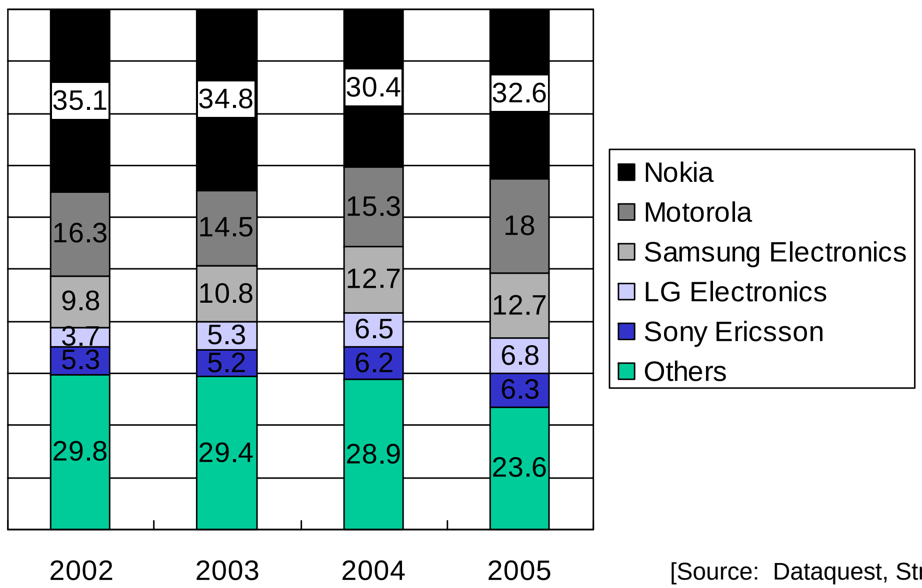
2-3. Hardware: Display (2)

- Korean display **Big 4** are planning a total of **$8bn** investment into facility expansion in 2006.
  - **LG Philips LCD ($4,230M)**
    - Expansion of P7 line
    - New establishment of P8 line
  - **Samsung Electronics ($2,370M+α)**
    - Expansion of 5G and 7G lines
    - Investment in 8G line
    - R&D
  - **Samsung SDI ($1,500M)**
    - Construction of PDP 4th line and AM OLED production line
    - R&D
  - **LG Electronics ($282M)**
    - Construction of PDP A3 line
    - Establishment of PDP assembly line in Poland and Mexico

2-3. Hardware: Mobile Phone

- **Samsung Electronics** and **LG Electronics** rank **3rd** and **4th** in the global mobile phone market.
- Korean players focus on high-end products, yielding high profitability.
  - 2005 4Q Mobile Handset Average Selling Price:
    Samsung $165, LG $151, Motorola $146, Nokia $118

Market Share (%)



[Source: Dataquest, Strategy Analytics, iSuppli, IDC]

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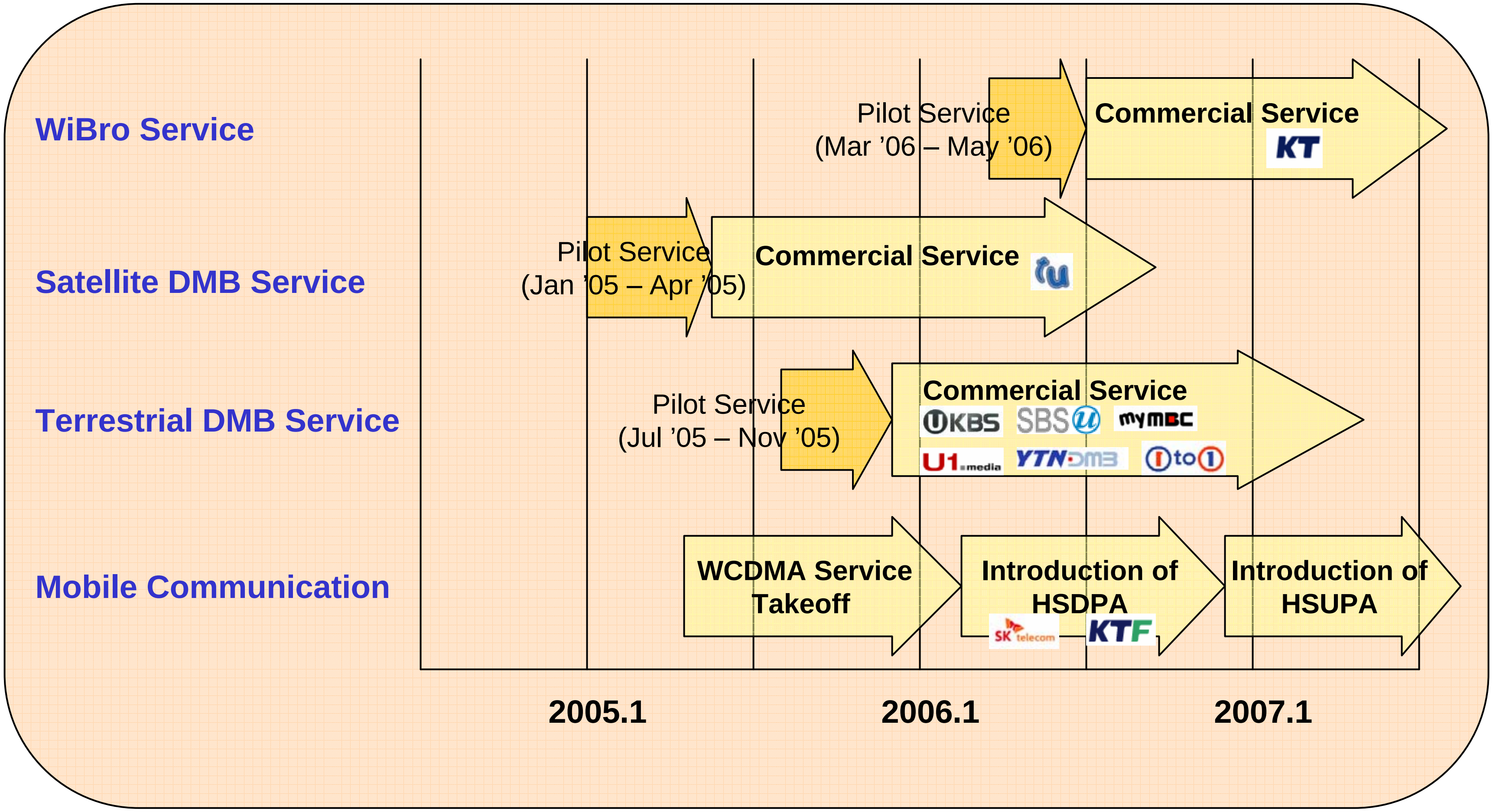

2-4. Next Generation Wireless Services : T-DMB

T-DMB (Terrestrial Digital Multimedia Broadcasting)

- An enhanced version of DAB, which is able to provide multimedia and data services in addition to audio in a speedy mobile environment.
- Leading the mobile broadcasting industry and successfully advancing into many different nations, such as Germany, France, Mexico, China, India, and Indonesia.
  - Munich, Germany – Official European T-DMB launch, June 7th, 2006.

SCH.B410 T-DMB Phone
[Source: http://www.anycall.com]

LG-KB 1500 T-DMB Phone
[Source: http://www.cyon.co.kr]

2-4. Next Generation Wireless Services : WiBro

WiBro (Wireless Broadband Internet)

- The home-grown 2.3 GHz portable Internet, has been heavily adopted into the technology profile of mobile WiMax, the IEEE-ratified 802.16e standard.
- Allows 1 Mbps Internet access at speeds over 60 km/hr.
- KT will start commercial WiBro services in late June 2006.
  - Services will be provided in the capital area (Seoul and vicinity) initially.

SCH-H1000 WiBro Phone

2-4. Next Generation Wireless Services: HSDPA

HSDPA (High Speed Downlink Packet Access)

- A 3.5G mobile communication service, evolved from W-CDMA (3G).
- Allows 2 – 3 Mbps wireless Internet at speeds over 250 km/hr. (Maximum data rate is 14.4 Mbps.)
- In May 16, 2006, SK Telecom launched “3G+”, the first commercial HSDPA service in the world.
  - Serviced in 25 cities across Korea.
  - Service to expand to 84 cities by October 2006.
  - Targeting 300,000 subscribers by the end of 2006.

SCH.W200 HSDPA Phone
[Source: http://www.anycall.com]

3. ICT Opportunities

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3-1. ICT Environment

3-2. Prospective Areas

3-1. ICT Environment

High Quality Work Force

- 41% of the population received college-level education
- Increasing number of IT professionals
- World #2 in IP productivity and patents (IMD ’05)
- World #8 in R&D expenditure (IMD ’05)
- World #7 in Attitudes toward Globalization (IMD ’05)

Government Support

- Expanding support for R&D activities
- Focusing on Next Generation Growth Engine
- Building Innovation Clusters
- Training Core Science Workforce

Sound Infrastructure

- Technological infrastructure: World #2 (IMD ’05)
- Investment in Telecommunications: World #8 (IMD ’05)
- Broadband Subscribers: World #1 (IMD ’05)
- Scientific Infrastructure: World #15 (IMD ’05)

Industrial Foundation

- Electronics: World #4 market share
- Semiconductor: World #3 market share
- Display: World #1 market share
- Shipbuilding: World #1 market share (36%)
- Automobile: World #6 producer
- Steel: World #5 market share (4.2%)
- Petrochemical: World #5 market share (5.1%)

3. ICT Opportunities

3-1. ICT Environment

3-2. Prospective Areas

3-2. Prospective Areas

- Network and systems integration services
- Internet-related services
- Wireless services and applications
- E-commerce applications including payment solutions
- IT security
- Digital contents (animation, games, etc.) development
- Financial services and other industry-specific software

Thank You