Platforms for the Development of IT Industries and the Internet in Japan

Fourteenth Northeast Asia Economic Forum

Shenyang, China

20-21 September 2005

Hajime ONIKI

Osaka-Gakuin University, Japan

oniki@alum.mit.edu

www.osaka-gu.ac.jp/php/oniki/

I. Introduction

A. Overview of Growth and Stagnation of the Japanese Economy

1960s-1970s: Rapid growth (GDP grew at 5-8% annually) with pollution problems and energy crisis in 70s overcome

Late 1980s: Great bubble and its collapse

1990s: Long recession, "lost 10-years"

2000s: Slow recovery but with uncertain future
- **huge fiscal deficits**
- **rapid decrease in birth rate**
- **lack of investment opportunities**
- **unused savings, low interest rate**

I. Introduction

A. Overview of Growth and Stagnation of the Japanese Economy

Sources of the economic and social difficulties:

Catching up is over, but old systems remain unchanged, unadjusted

Rigid labor market (lifelong employment, limited labor movement)

Inefficient education (schools for selection, not for learning)

Vested interests prevail (limited chance to newcomers)

I. Introduction

B. Implications to IT industries and the Internet

Growth relies on

initiative by individuals with new ideas and

fee entry by newcomers

Importance of level playing field and fair competition

Expected role of government:

not exercising direct control

but preparing competitive environment

I. Introduction
C. Privatization of Communications Industries (Telecom and Broadcasts) in Japan

Before 1950: Complete control by government
1950: Public broadcast (NHK) and commercial broadcast stations were created
1952: Public telecom corporation (NTT) was created
1970s: Emergence of LSI and PC on digital technology
1985: NTT was privatized, commercial carriers were admitted
1994-: Expansion of wireless carriers
Late 1990s-: Rapid growth of the Internet
2003-: Introduction of digital terrestrial TV (DTV)

I. Introduction
D. Roles of Government in Communications Industries

Preparing competitive environment
Supplying communications infrastructure competitively
Universal service
Standardization
R&D of basic technologies

I. Introduction

D. Roles of Government in Communications Industries

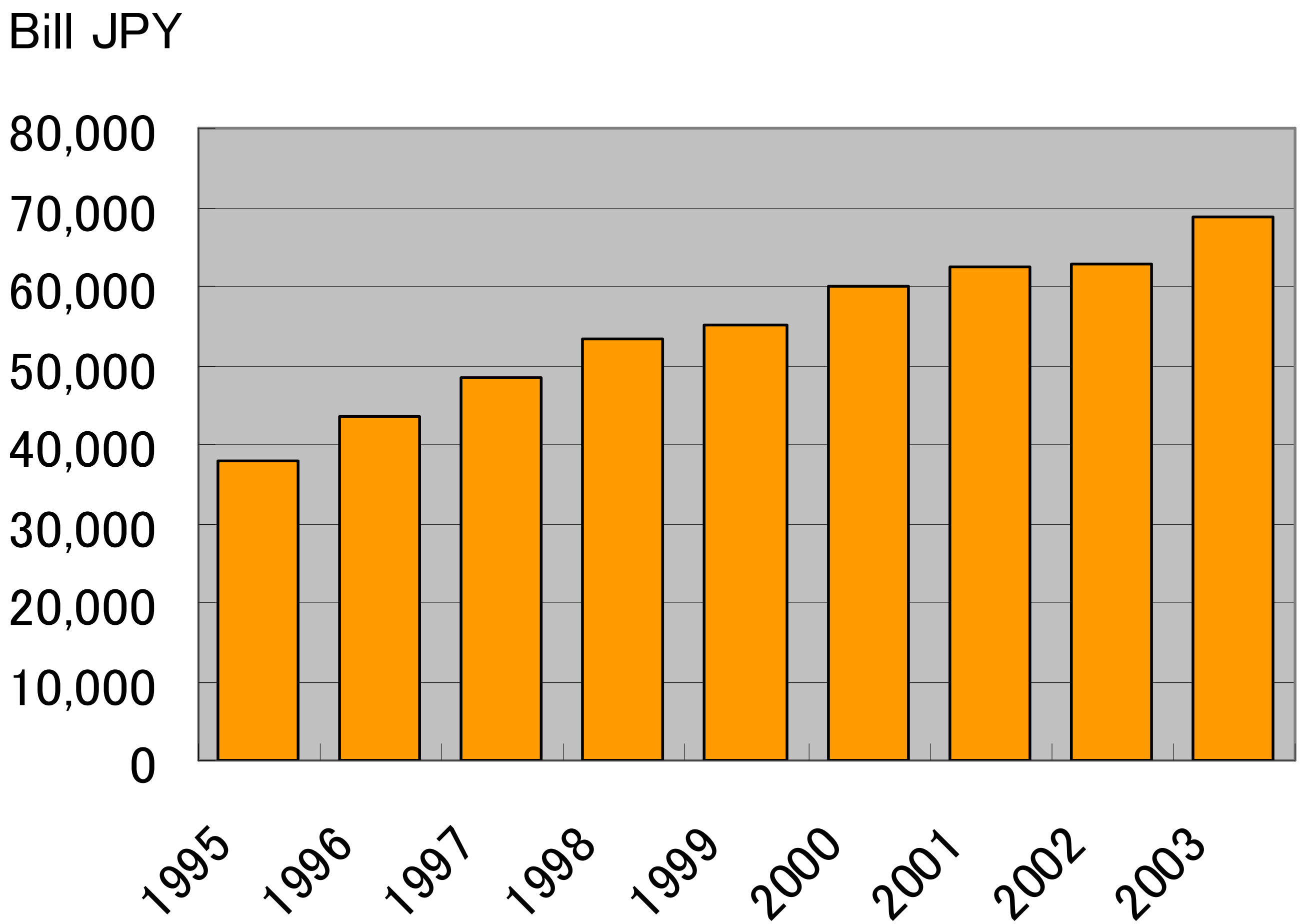
Problem: Distinction between
What to regulate and
What not to regulate

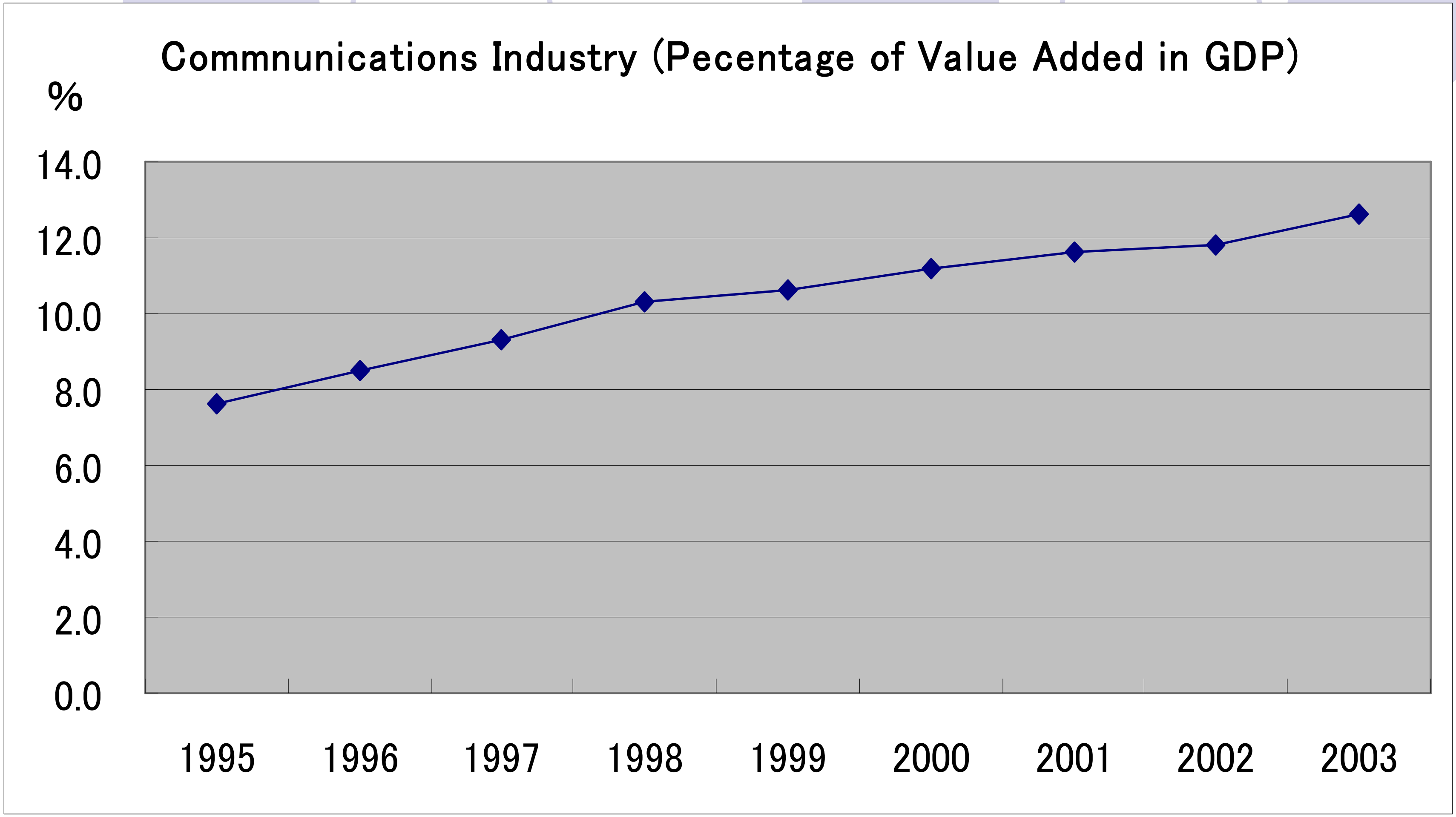
I.Introduction

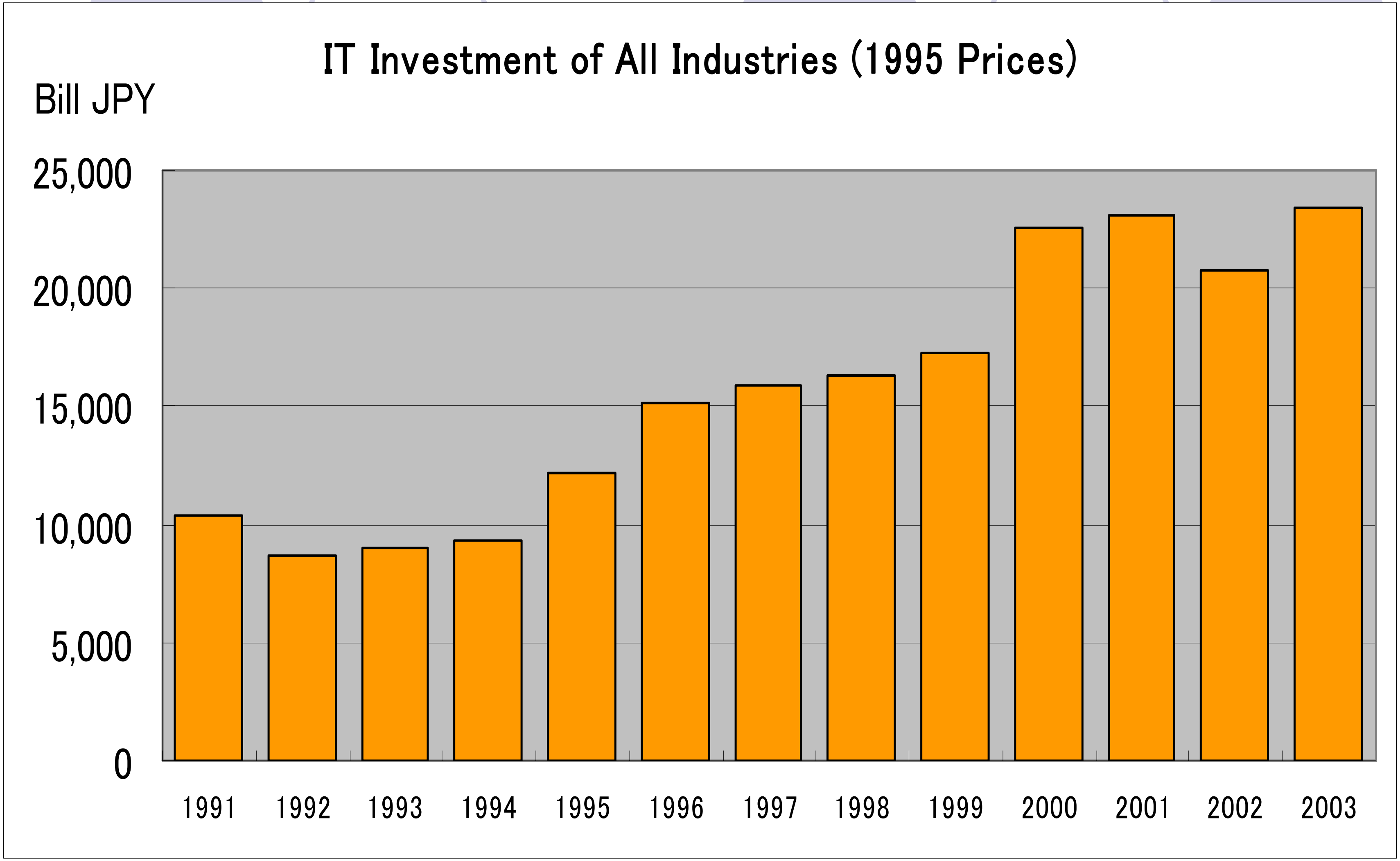
E. IT, DTV, and the Internet in Japan

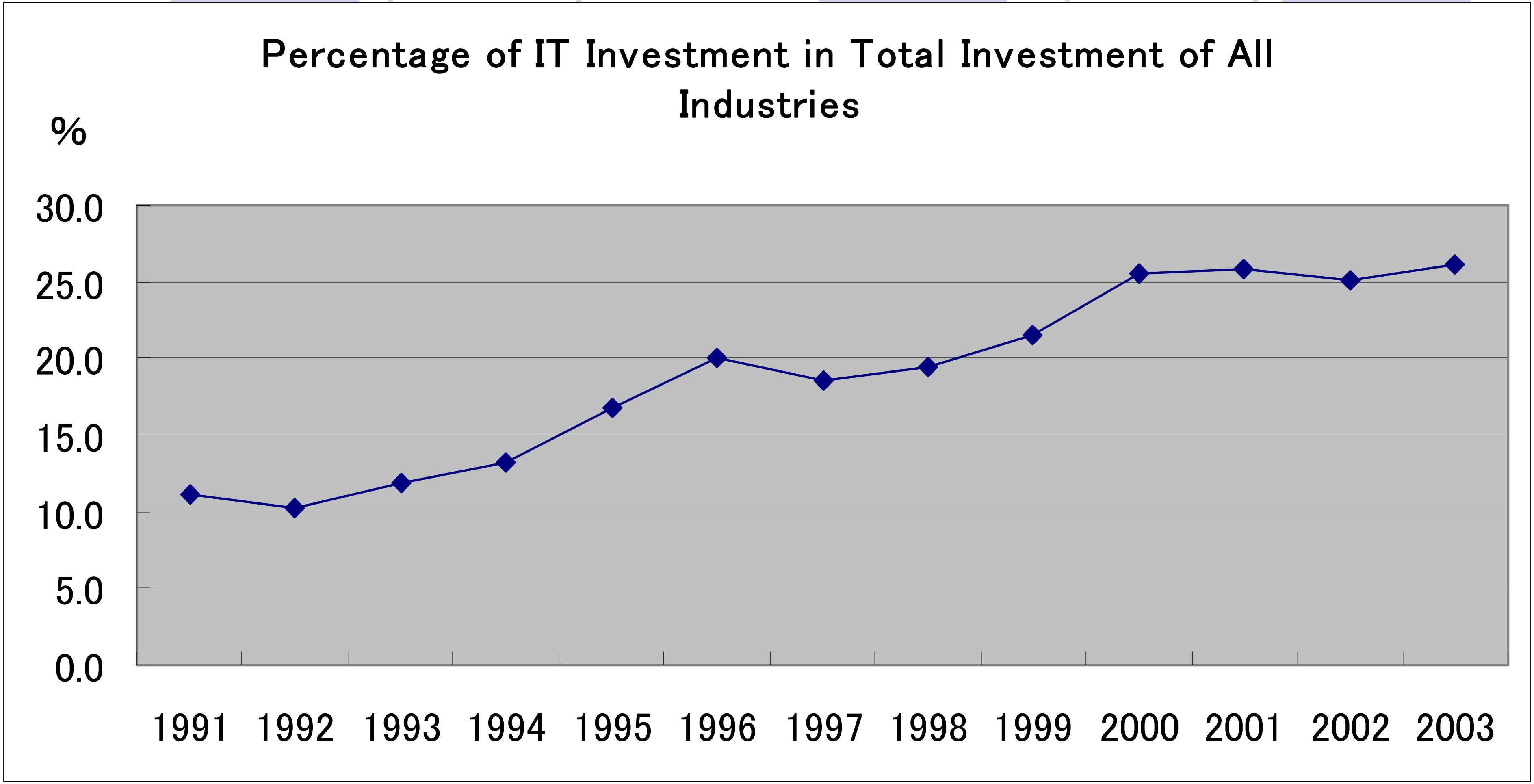
Source of all statistical graphs in this presentation: MIC, *Information and Communication in Japan (2005 White Paper),* June 2005.

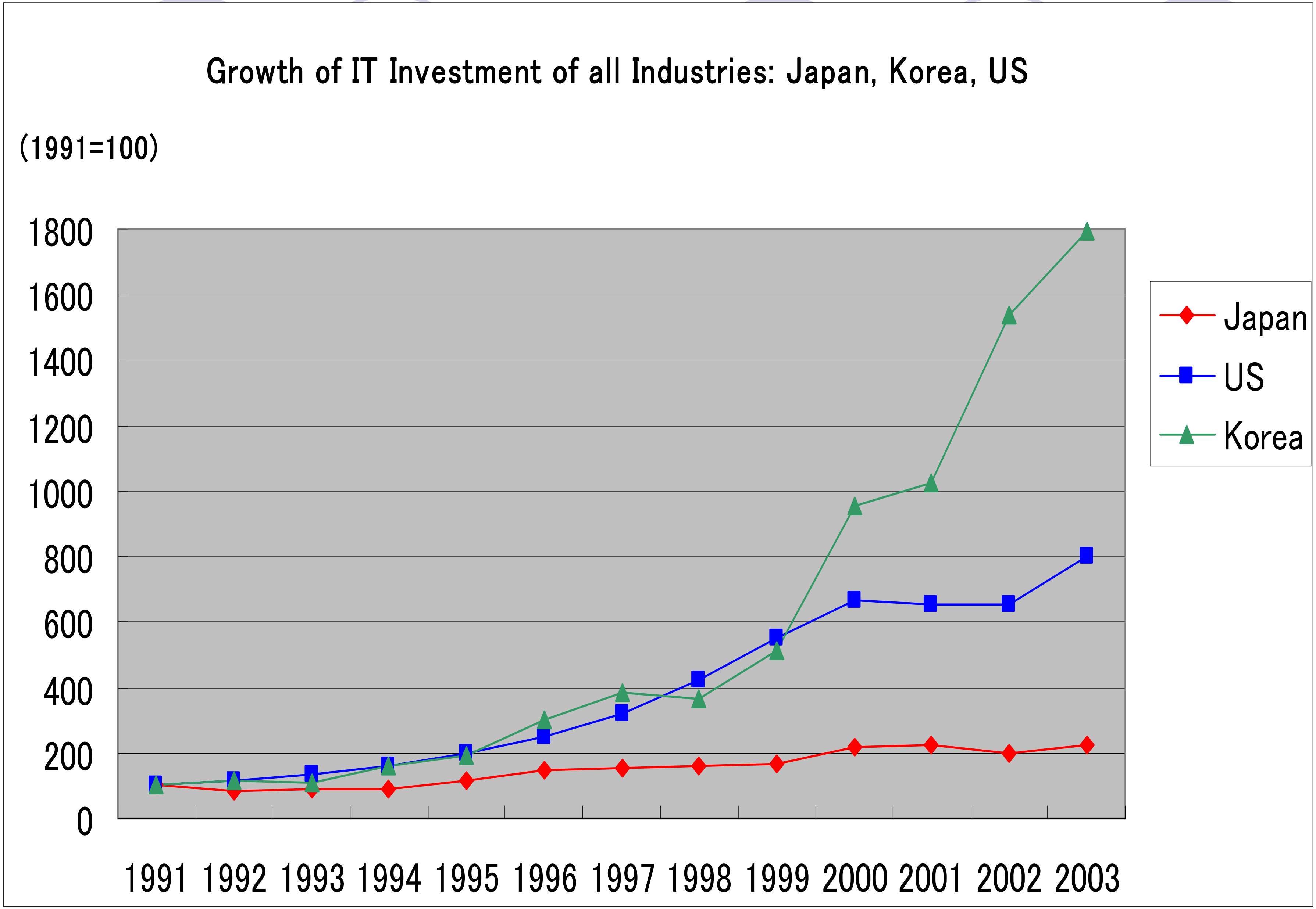
Communications Industry: GDP (Value Added, 1995 prices)



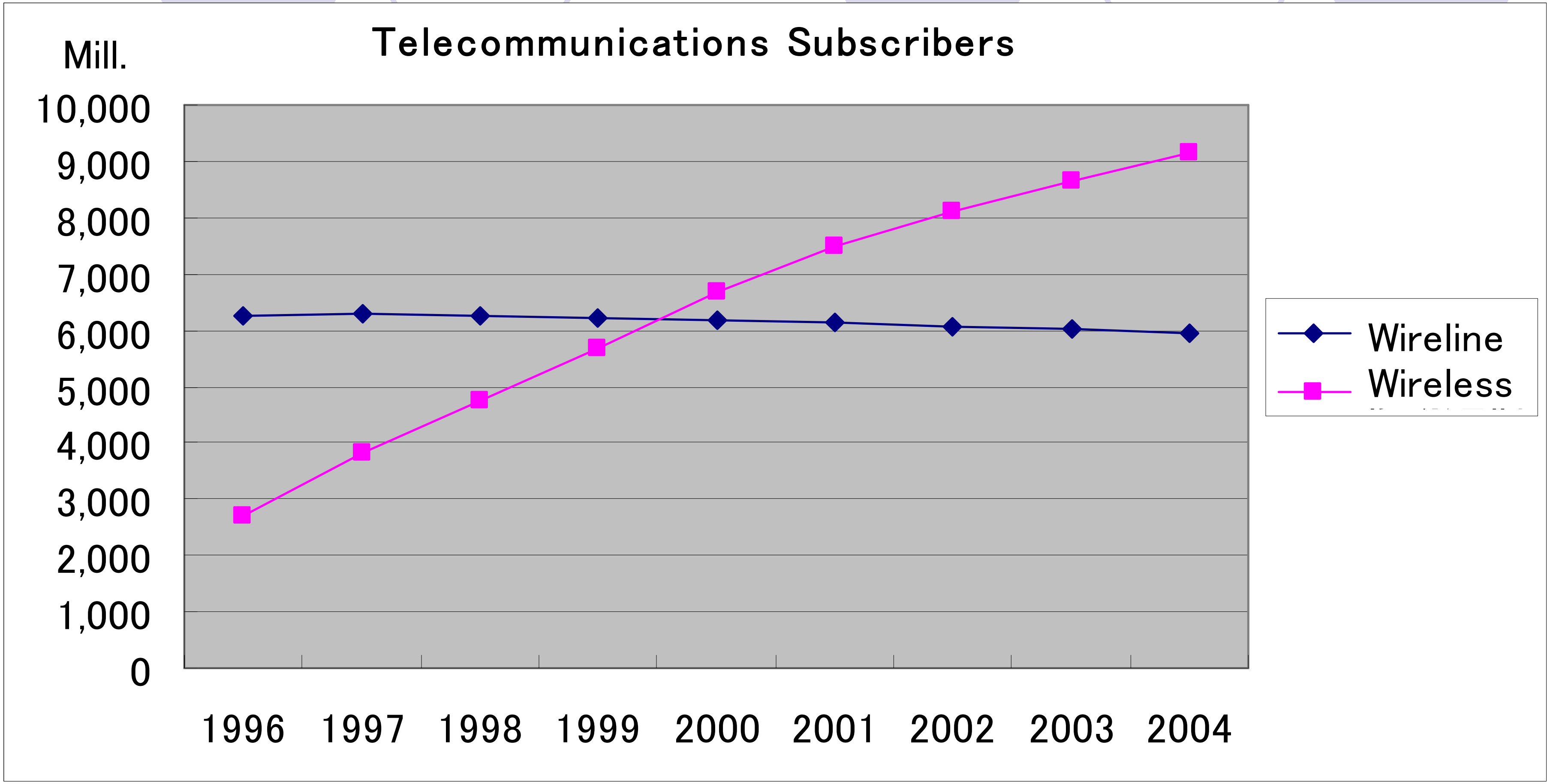

Commnunications Industry (Pecentage of Value Added in GDP)
%
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1995
1996
1997
1998
1999
2000
2001
2002
2003


IT Investment of All Industries (1995 Prices)
Bill JPY
25,000
20,000
15,000
10,000
5,000
0
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003

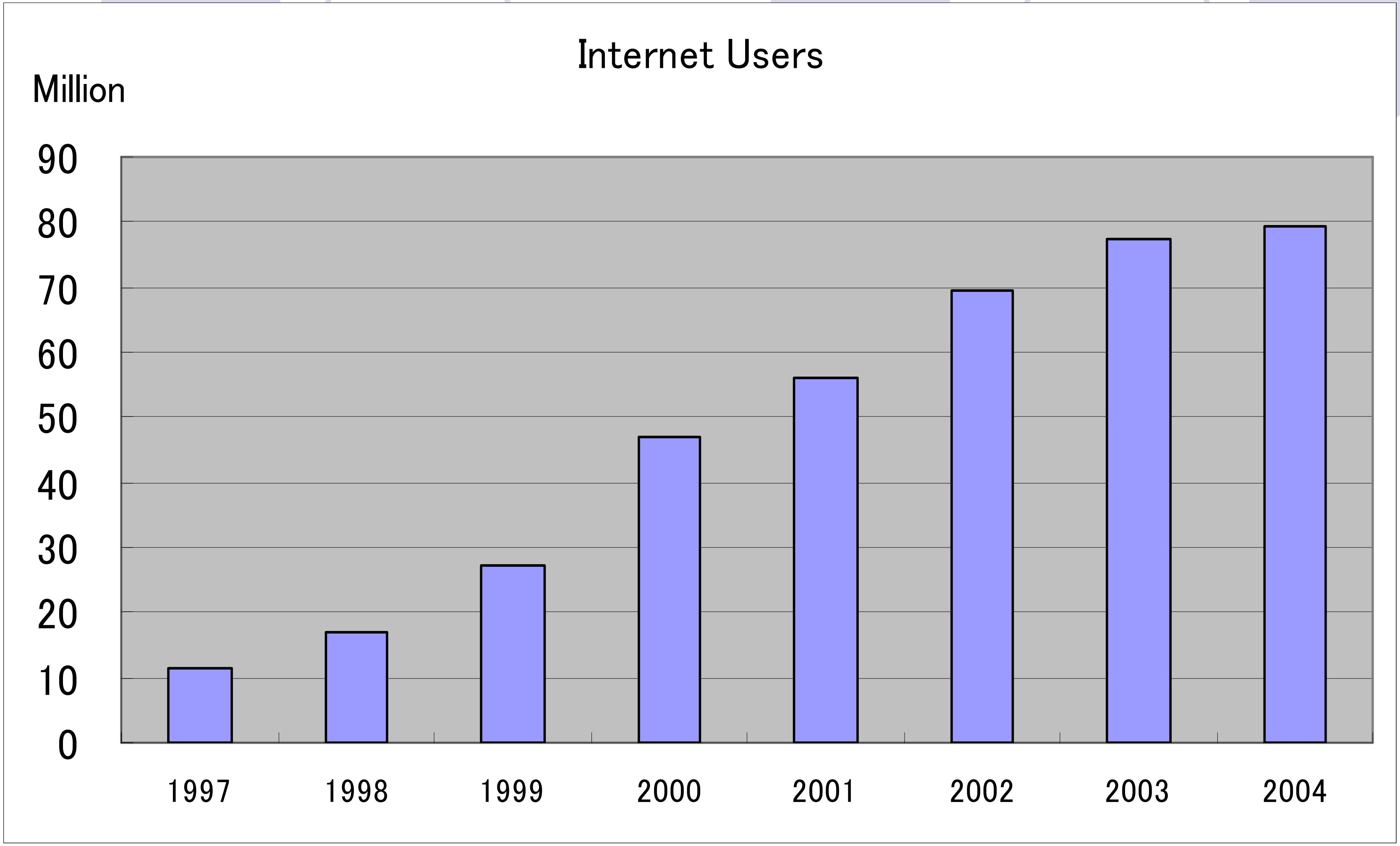

Percentage of IT Investment in Total Investment of All Industries
%
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003

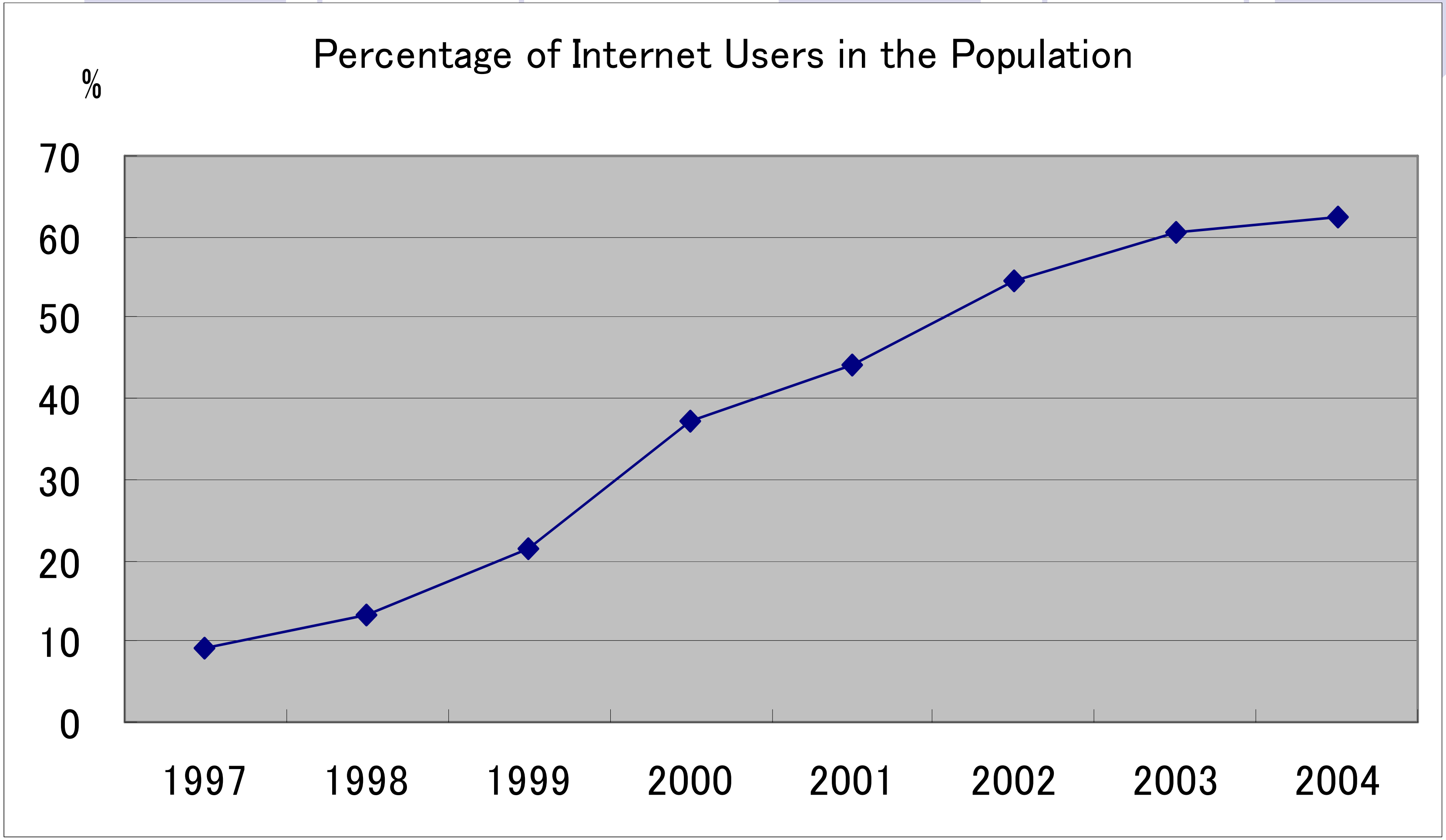


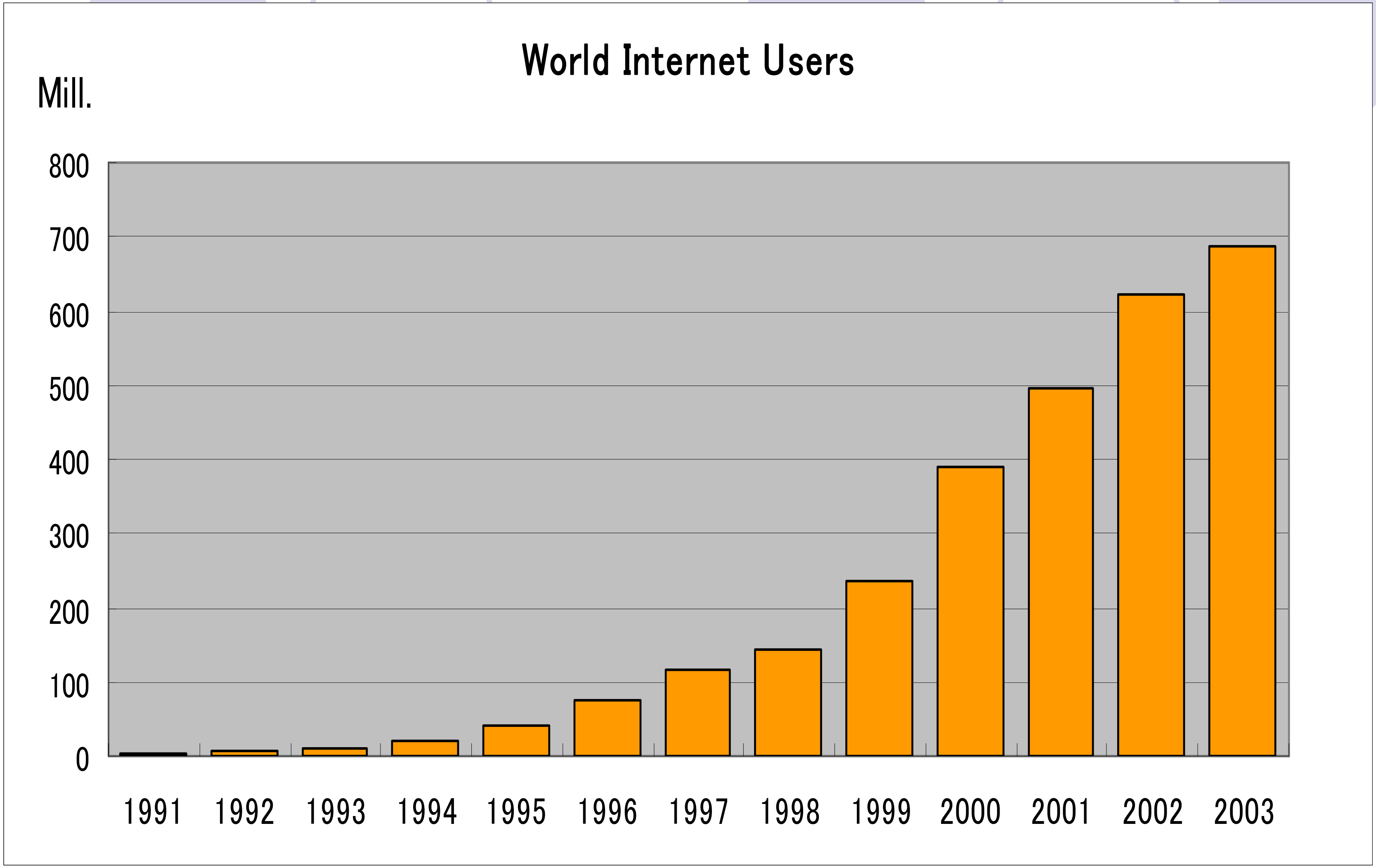
Growth of IT Investment of all Industries: Japan, Korea, US
(1991=100)
1800
1600
1400
1200
1000
800
600
400
200
0
1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003
Japan
US
Korea

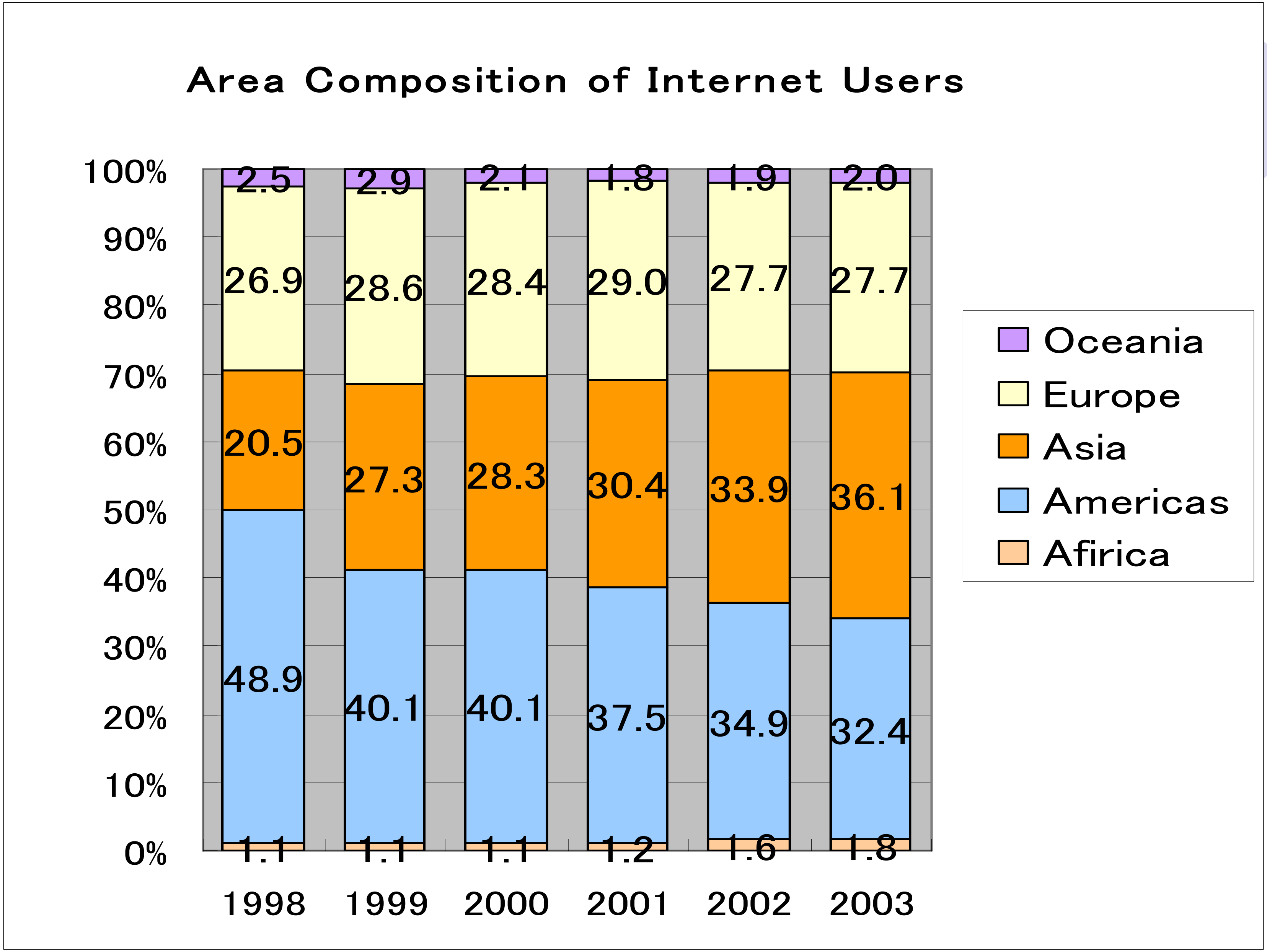


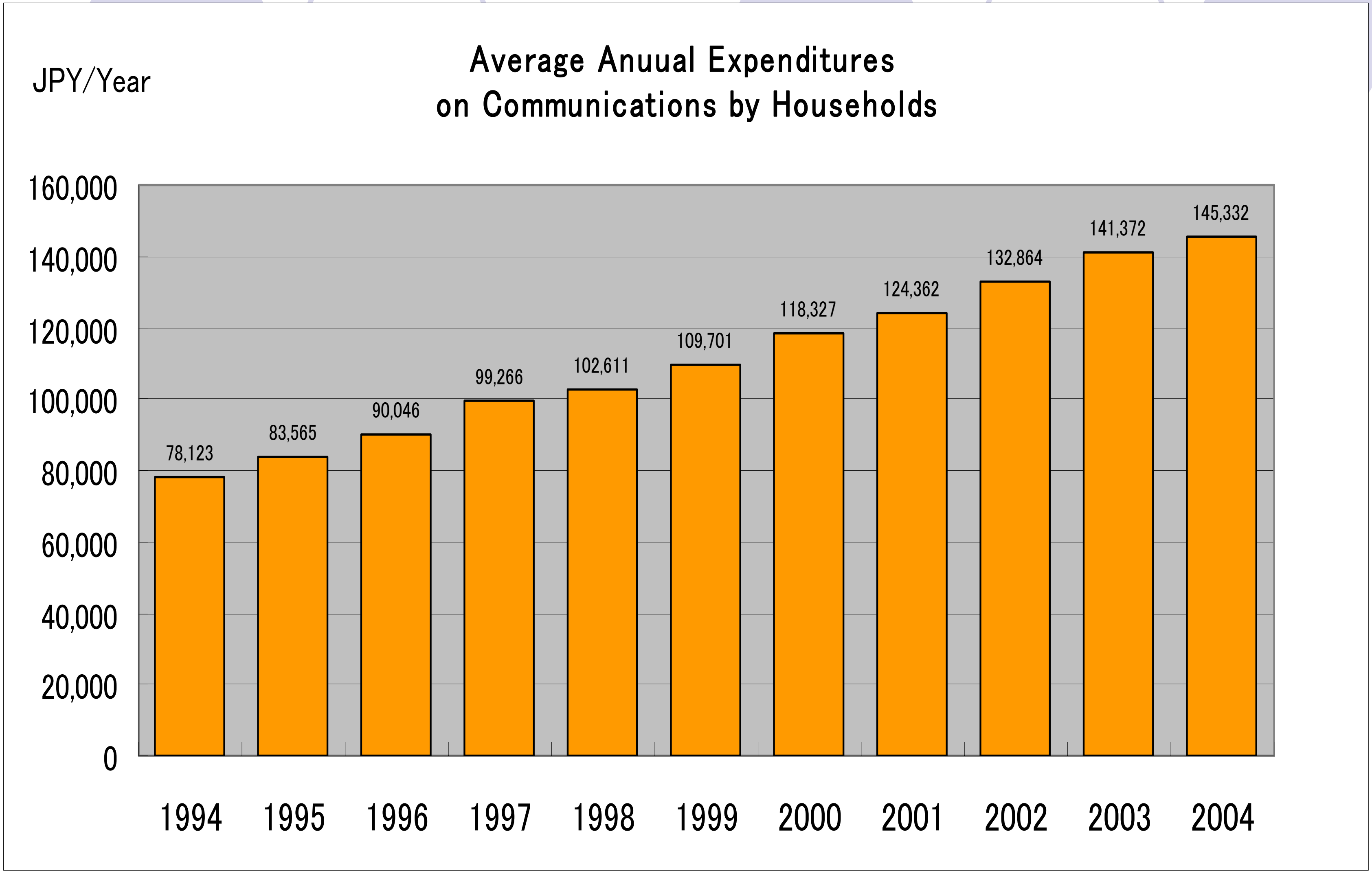
Telecommunications Subscribers
Mill.
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
Wireline
Wireless


Internet Users
Million
90
80
70
60
50
40
30
20
10
0
1997
1998
1999
2000
2001
2002
2003
2004

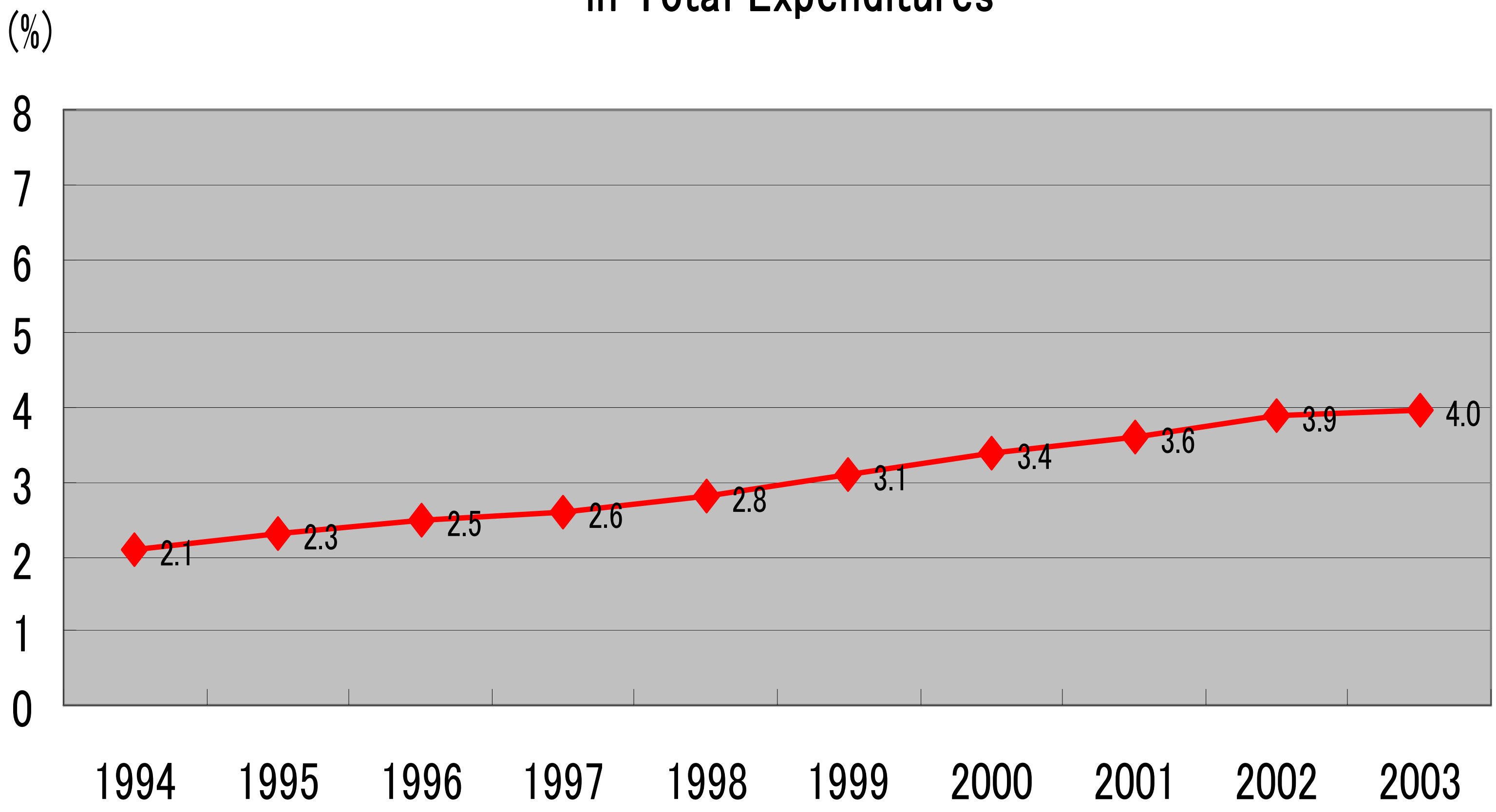

Percentage of Internet Users in the Population
%
70
60
50
40
30
20
10
0
1997
1998
1999
2000
2001
2002
2003
2004

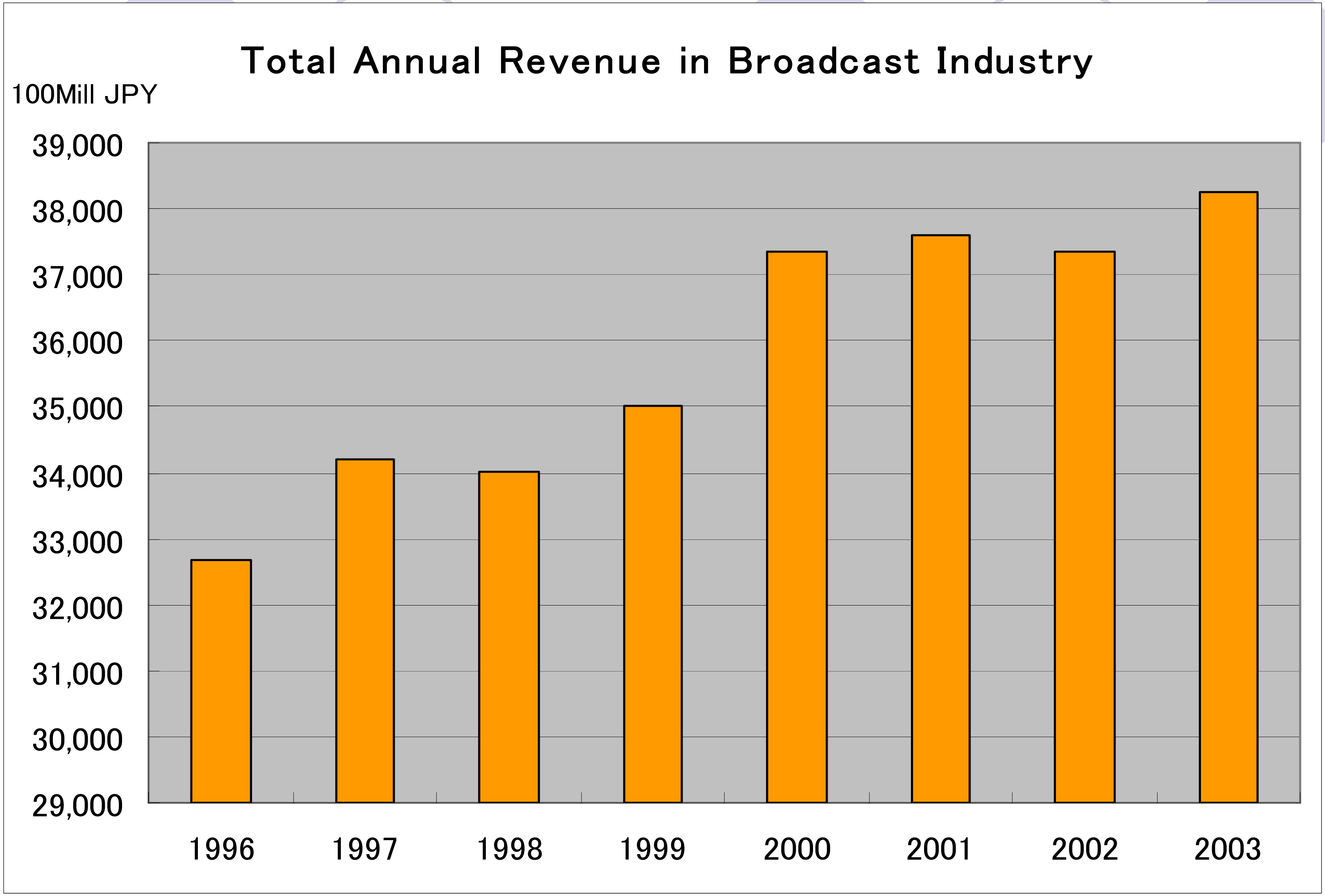

World Internet Users
Mill.
800
700
600
500
400
300
200
100
0
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003

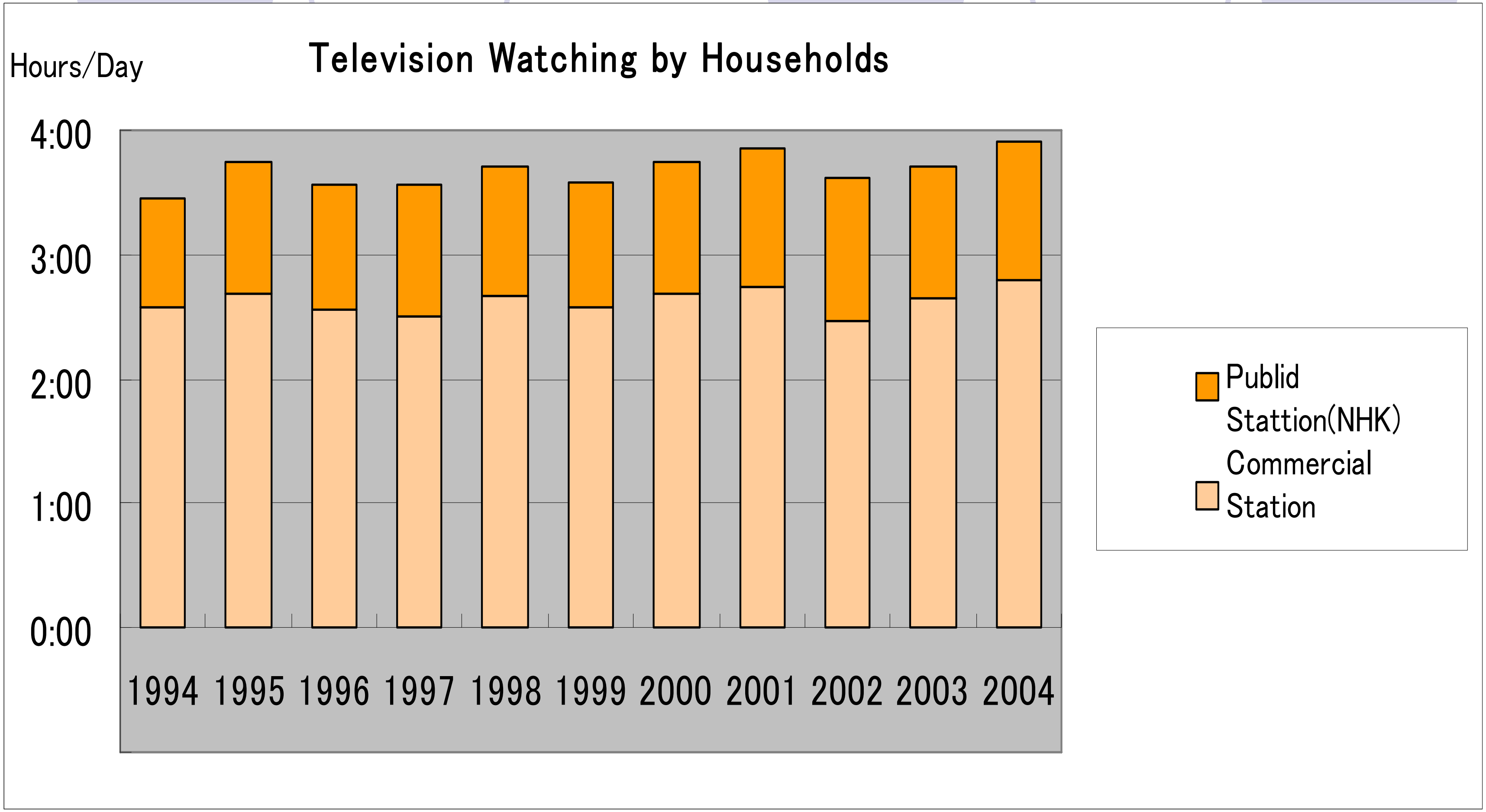

Area Composition of Internet Users
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2.5
2.9
2.1
1.8
1.9
2.0
26.9
28.6
28.4
29.0
27.7
27.7
20.5
27.3
28.3
30.4
33.9
36.1
48.9
40.1
40.1
37.5
34.9
32.4
1.1
1.1
1.1
1.2
1.6
1.8
1998
1999
2000
2001
2002
2003
Oceania
Europe
Asia
Americas
Afirica


JPY/Year
Average Anuual Expenditures
on Communications by Households
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
78,123
83,565
90,046
99,266
102,611
109,701
118,327
124,362
132,864
141,372
145,332
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004

Percentage of Communications Expenditures by Households in Total Expenditures

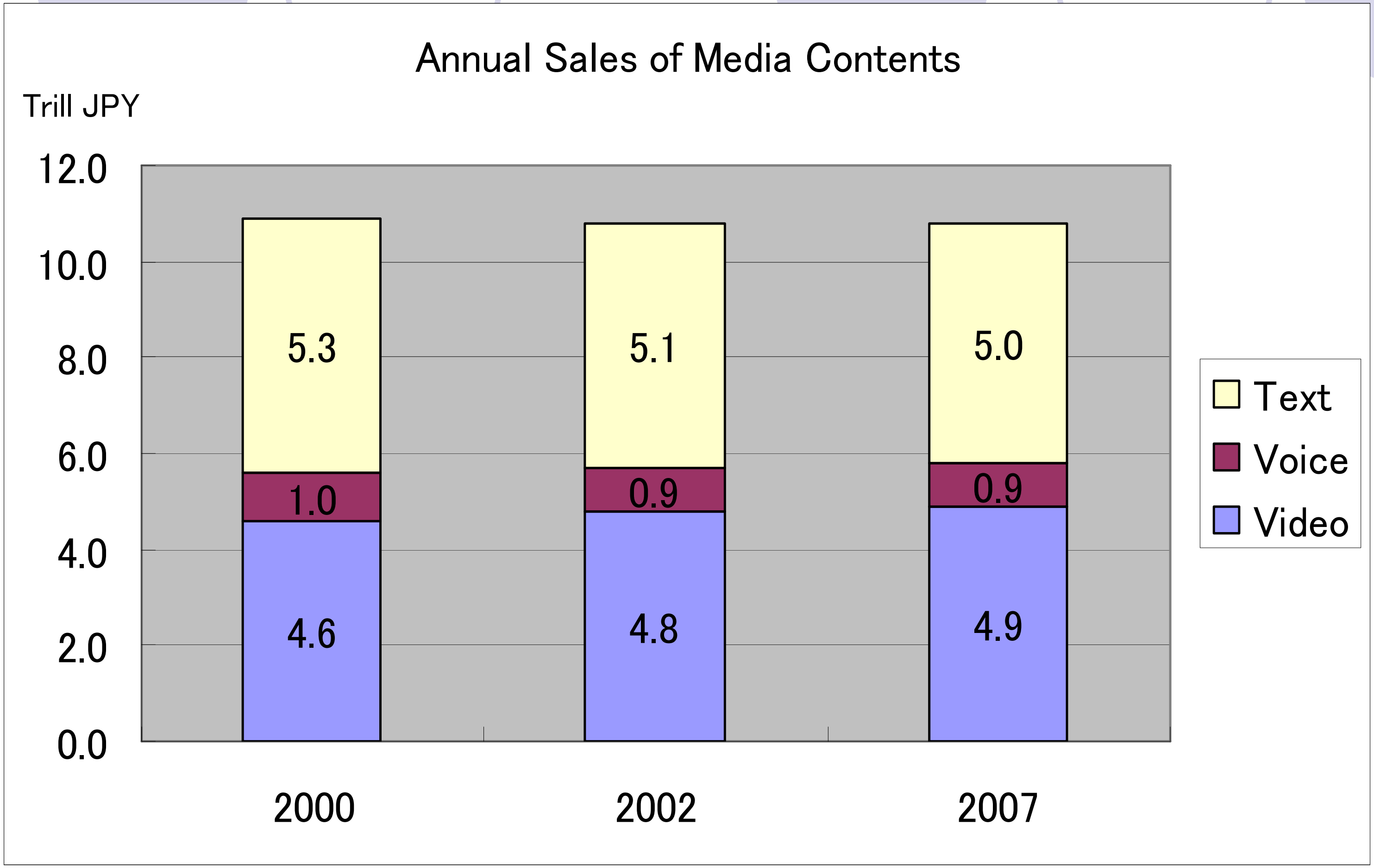


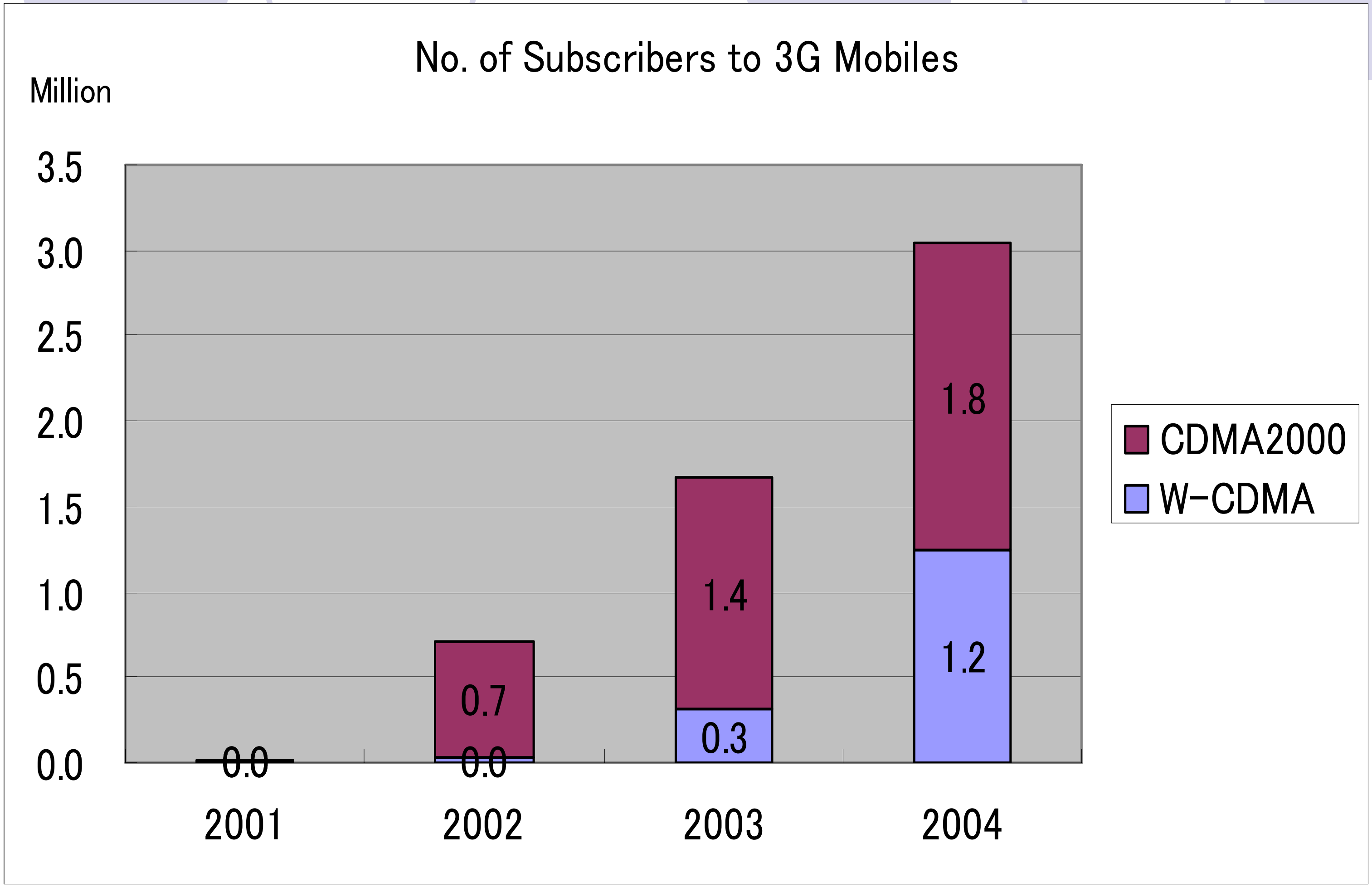

Total Annual Revenue in Broadcast Industry
100Mill JPY
39,000
38,000
37,000
36,000
35,000
34,000
33,000
32,000
31,000
30,000
29,000
1996
1997
1998
1999
2000
2001
2002
2003


Hours/Day
Television Watching by Households
4:00
3:00
2:00
1:00
0:00
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
Publid Stattion(NHK)
Commercial Station

Services	Telephony	Internet	Cable TV	Broadcast	***Mode of Supply***
Contents	**(Contents of telephone and fax)**	E-mails, Web	Broadcast Contents		Competitive
Networking	**Voice Transmission**	**IP-Packet Transmission**	**Cable Transmission**	**Broadcasting**	
Media	**Electric current, Optical rays**			**Spectrum**	
	Twisted and coaxial cables, Optical fibers			**(Antennas)**	Monopolized
Equipment Structures and Spaces	Tunnels, Tubes, Poles, etc.			Terrestrial spectrum spaces	
	Terrestrial (physical) spaces				
Infrastructure	Wired			Wireless	

Figure 3: The Layers Structure of the Services for Information Transmission


Annual Sales of Media Contents
Trill JPY
12.0
10.0
8.0
6.0
4.0
2.0
0.0
5.3
1.0
4.6
5.1
0.9
4.8
5.0
0.9
4.9
2000
2002
2007
Text
Voice
Video


No. of Subscribers to 3G Mobiles
Million
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.7
0.0
1.4
0.3
1.8
1.2
2001
2002
2003
2004
CDMA2000
W-CDMA

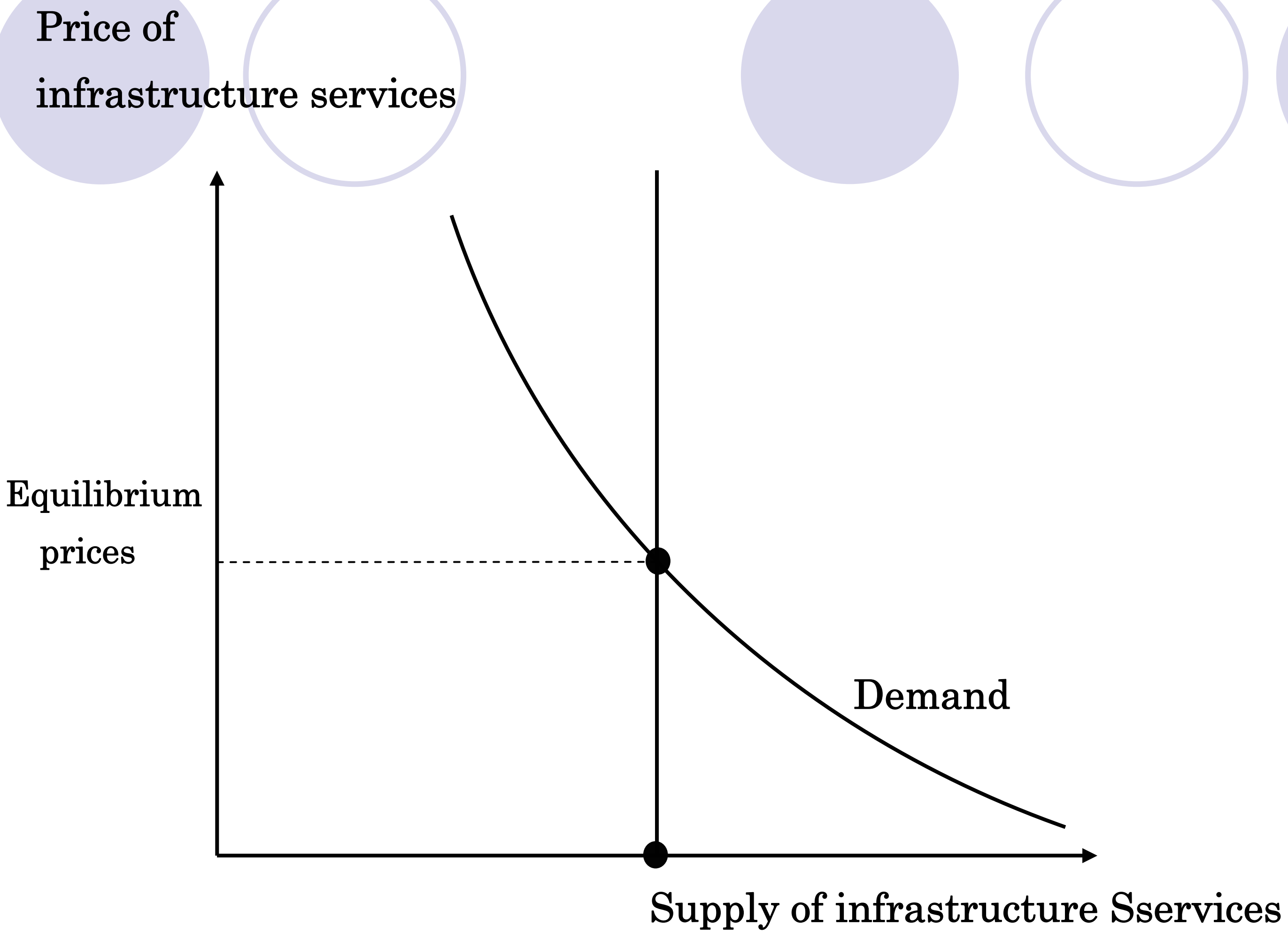


Figure 4: Equilibrium Price of Infrastructure Service

IV. Competition and Coordination of DTV and the Internet
C. Policies for fair competition at level-playing field (4/6)

4. Implications

Most difficulties and complexities in communications industry arise from that every activity must use some infrastructure (including space), which cannot be supplied competitively without governmental regulations.

<Figure 5>

<table>
<tr><th>Services</th><th colspan="2">Economic units</th><th>Mode of supply</th></tr>
<tr><td>Final demand</td><td colspan="2">Consumers, Firms, Governments, Public entities, etc</td><td rowspan="3">Competitive</td></tr>
<tr><td>Content supply</td><td>Content suppliers (newspapers, publishers, producers of music and video contents, news agencies, advertising agencies, etc.)</td><td>Web, E-mails, and other data</td></tr>
<tr><td>Information Transmission</td><td colspan="2">Network-service providers (broadcast, telephone, access, backbone, Internet, etc.)</td></tr>
<tr><td>Infrastructure</td><td colspan="2">Supply of infrastructure for information transmission (wired, wireless)</td><td>Monopolized</td></tr>
</table>

Figure 5: The Structure of IT Industries under Vertical Separation