



## Section 8 R&D

### 1. R&D in the Information and Communications Field

In fiscal 2002, spending on science and technology research in Japan totaled 16.68 trillion yen (a 0.9% increase over the previous fiscal year). Total industrial R&D came to 12.12 trillion yen, and R&D spending by the information and communications industry accounted for 4.74 trillion yen of this, or 39.1% of the total. Research spending in the information and communications field by companies, non-profit organizations, public bodies and universities in fiscal 2002 came to 2.26 trillion yen. There were 995 joint research projects (a 30.4% increase over the previous fiscal year) in the information and communications field between national universities and companies, accounting for 14.7% of all (6,767) joint research projects between national universities and companies.

### 2. Patents

There were 17,703 information and communications related patents registered in 2003 (a 10.1% increase over the previous year). The number of information and communications related patents registered in Japan between January and September 2003 totaled 13,083, which is 44.3% of the information and communications patents registered in the United States over the same period, and 2.1 times the number registered in Europe.



## Section 9 Trends Abroad

### 1. Overseas IT National Strategies

As with the case in Japan, new national IT strategies or revising existing strategies are also being formulated overseas in response to advances in information and communications. For example, Germany formulated in December 2003 a new IT action plan, "Informationsgesellschaft Deutschland 2006" (Information Society Germany 2006). The Republic of Korea also announced in December 2003 "Broadband IT KOREA Vision 2007".

### 2. Usage Status and Market Size of Telecommunications Worldwide

The number of Internet users worldwide continues to increase. According to estimates announced by the ITU (International Telecommunication Union), there were over 623 million Internet users worldwide as of the end of 2002.

As for worldwide usage of telecommunications services, the number of fixed telephone lines (including pay telephones) was 1.09 billion in 2002, and the number of mobile phone subscribers was 1.16 billion. The number of mobile phone subscribers continues to increase rapidly and the worldwide number overtook the number of fixed telephone lines in 2002. The scale of the world-

wide telecommunications market grew to 1.02 trillion dollars in 2002 (a 5.2% increase over the previous year), according to the ITU. Of this, the fixed communications market totaled 465 billion dollars (a 1.5% decrease from the previous year) in 2002, and is expected to decline slightly again in 2003, whereas the mobile communications market is growing considerably, totaling 364 billion dollars (a 14.8% increase over the previous year) in 2002.

### 3. Trends in Overseas Communications Carriers and Broadcasters

In the United States, Cingular Wireless, the second largest mobile carrier in terms of subscriber numbers, announced the acquisition of the third largest carrier, AT&T Wireless, in February 2004.

In the UK, various companies improved their financial situation, including BT, which had accumulated debts of about 28.0 billion pounds in 2001 in conjunction with overseas investment and obtaining permits for third-generation (3G) mobile communications, had reduced its debt to about 8.8 billion pounds by the end of 2003 through the sale of assets.

#### 4. Trends in IT Policies in the United States

The Federal Communications Commission (FCC) announced in February 2003 the partial liberalization of regulations for incumbent local exchange carriers, and announced the new regulations in August of the same year. However, in March 2004, the United States Court of Appeals for the District of Columbia Circuit ruled for the partial abrogation of this decision, and it is expected to take some time for the contents of this decision to be settled.

With regard to the problem of regulating IP telephones, investigations are under way at state public utilities commissions, and the FCC, having held its VoIP (Voice over Internet Protocol) Forum in December 2003, has already begun to investigate regulatory problems, started in February 2004 to invite comments on how to tackle regulations concerning IP related services.

#### 5. Trends in IT Policies in the EU

Against a background of growing competition and the fusion between communications and broadcasting, the EU has been revising its existing framework of regulations in the telecommunications field in order to make the telecommunications market within the EU region dynamic and competitive. In April 2002, the EU promulgated and put into force a series of new telecommunications regulations (July 2002 with regard to the EU Directive on privacy and electronic communications).

Each member country was under the obligation to complete the work of making these into law domestically by July 2003 (October 2003 with regard to the EU Directive on privacy and electronic communications). Seven countries, including the United Kingdom, Finland, and Denmark had put the laws in place by October 2003. The EU began infringement proceedings against the eight countries that were late in putting the laws in place, including Germany and France. Of these, Spain has since completed the legal preparations and the infringement proceedings have been stopped.

#### 6. Trends in IT Policies in Asia

The growth of the telecommunications market in China remains conspicuous. According to China's Ministry of Information Technology and Telecom Industries, there were 255.14 million fixed line telephone subscribers and 256.94 million mobile phone subscribers in October 2003. According to the China Internet Network Information Center (CNNIC), the number of Internet subscribers had reached 79.5 million at the end of 2003, supposedly placing China in second position worldwide after the United States.

Having mostly achieved the goals of "Digital 21 Strategy" (formulated in 2001), the Hong Kong government announced its "2004 Digital 21 Strategy" in March

2004. This will promote actions in the fields of government leadership, sustainable e-government program, infrastructure and business environment, institutional review, technological development, vibrant IT industry, human resources in a knowledge economy, and bridging the digital divide.

With a new government in place in February 2003, the completion of its e-government base, and against the background of the Internet trouble incidents in January 2003, the Republic of Korea announced in December the "Broadband IT KOREA Vision 2007", a partial revision to its "e-Korea Vision 2006". This targets the realization of the age of national income of 20,000 dollars per capita by prompting a information society (increasing Internet penetration to 90% by 2007), building grounds for knowledge information society and establishing a basis for generation new IT growth, and strengthening international cooperation for the global information society.

#### 7. Status of International Digital Divide

In comparing the state of penetration of information and communications in various countries, there exists a pronounced gap between high income and low income countries, making the closing of the international digital divide into a major issue.

In 2002, the population of high-income countries (countries with per capita gross national income of over 9,076 dollars per annum) accounted for only 15.8% of the global population, but 51.5% of fixed telephone lines, 54.9% of mobile phone subscribers, and 68.7% of Internet users are concentrated in high-income countries.

On the other hand, the population of low-income countries (countries with per capita GNI of 735 dollars or less per annum) accounts for 39.6% of the global population, but for only 6.3% of fixed telephone lines, 3.6% of mobile phone subscribers, and 5.2% of Internet users.