

## Section 3 1995 to 2005: Spread of Internet and Mobile Phones

During this period Internet access rapidly spread to the public, especially in developed countries, and a shift to digital broadcasting started in Europe and the United States. In Japan too, the expansion of broadband and mobile communications significantly progressed in the information and communications field, and digitalization started in the broadcasting field. While ICT spread and developed, the negative aspects of ICT gradually surfaced, including the digital divide. We name the period from 1995 to around 2005 as “Progress of ICT – Spread of Internet and Mobile Phones” and provide an overview of the situation of the ICT sector during this period.

### 1. International Situation and Trends Outside of Japan

With the establishment of the World Trade Organization (WTO) on January 1, 1995, in addition to the enhancement of existing trade rules,<sup>23</sup> rules in the new field (service trade) were established and a more multi-lateral trade system was fostered compared with the era of the General Agreement on Tariffs and Trade (GATT). In 2001, China became a member of WTO, which raised the momentum of free trade worldwide. For the communications sector, WTO formulated “Annex on Telecommunications” to provide rules on access to and use of public telecommunications networks and services under its “General Agreement on Trade in Services (GATS). Negotiations on basic telecommunications started in 1994 toward liberalization in the field of basic telecommunication services including voice telephony.

In addition to the rise of free trade in the ICT sector, the “New Economy” theory, which appeared in the United States in the latter half of the 1990s, increased **expectations for active ICT investments and the role of ICT as a source of economic growth.**<sup>24</sup>

After the commercialization of the Internet and the **launch of Microsoft Windows 95** equipped with a TCP/IP protocol in the initial state, which provided a dial-up connection to a preinstalled Web browser in personal computers, use of the **Internet rapidly spread to the public.** Furthermore, the spread of Netscape Navigator, Internet Explorer and other web browsers **enabled users to view photographs and other images and to browse text-based information over the Internet.**

The spread of the Internet with a hierarchical model enabled the separation of communication equipment and services, and made the **vertical separation of layers** apparent. As a result, many services were individually provided in each layer, and businesses dedicated to such services emerged. The upper layers saw the birth of diverse content/application businesses and global

platformers represented by GAF A which have a big market share today.<sup>25</sup> In the lower layers, the progress of IP use and other factors gave rise to the emergence of manufacturers of routers, servers, switches and other network equipment in addition to manufacturers of conventional communication equipment.

With the rapid spread of the Internet, **institutional responses to the negative aspects of the Internet progressed** in developed countries. In the United States, the Communication Decency Act (CDA) Section 230 was enacted in 1996. It established that providers, etc., are in principle not responsible for the information transmitted by third parties. The Child Online Protection Act (COPA) and the Digital Millennium Copyright Act (DMCA) were enacted in October 1998. The former aims to prevent children from viewing pornography over the Internet, while the latter aims to effectively protect the copyright of digital images, sounds, text and other productions exchanged on the Internet. The EU adopted an action plan on promoting *safer* use of the *Internet* by combating illegal and harmful content on *global* networks in 1999. The EU Council also adopted and approved the e-Commerce Directive stipulating that providers, etc., are not in principle responsible for information transmitted by third parties.

While the Internet continued to spread, mostly in developed countries, a gap in the ICT usage environment between developed and developing countries came to surface as a global issue. In this context, the issue of the **widening information gap between developed and developing countries** was presented at the ITU Pleni-potentiary Conference of the International Telecommunication Union in 1998. Further, in 2000 the Kyushu-Okinawa Summit (G8 summit meeting) adopted the “Okinawa Charter on Global Information Society,” which stipulates that **bridging the “digital divide”** is a common challenge for the international community.<sup>26</sup>

<sup>23</sup> <https://www.mofa.go.jp/mofaj/gaiko/wto/gaiyo.html>

<sup>24</sup> Regarding the long economic growth led by the United States at the time, “2000 White Paper on World Economy” (Cabinet Office) reads as follows: There are three viewpoints among the economists in the world. One of them is “rapid development of the information and communication technologies (IT) generated new industrial forms and social conditions and created a new economy that cannot be explained by the existing economic theories and experiences. For this reason, we expect a long and continuing boom in the future.” (snip) The rapid growth and spread of information and communication technologies are called “IT Revolution.” Japan, lagging behind these countries, needs to accelerate drastic deregulation and structural reform in order to accomplish dramatic “IT revolution.” The analysis above also found this need.

<sup>25</sup> Amazon.com started in 1995. Google started in 1998. Apple launched iMac in 1998 and Facebook was established in 2004. Major platformers - Baidu (2000), Alibaba (1999) and Tencent (1998) - were also established in China.

<sup>26</sup> Ministry of Foreign Affairs “Kyushu-Okinawa Summit” [https://www.mofa.go.jp/mofaj/gaiko/summit/ko\\_2000/outline/jp/overview.html](https://www.mofa.go.jp/mofaj/gaiko/summit/ko_2000/outline/jp/overview.html)

## 2. Trends in the ICT sector of Japan

During this period, the **Internet and mobile phone use rapidly spread**<sup>27</sup> in Japan as well.

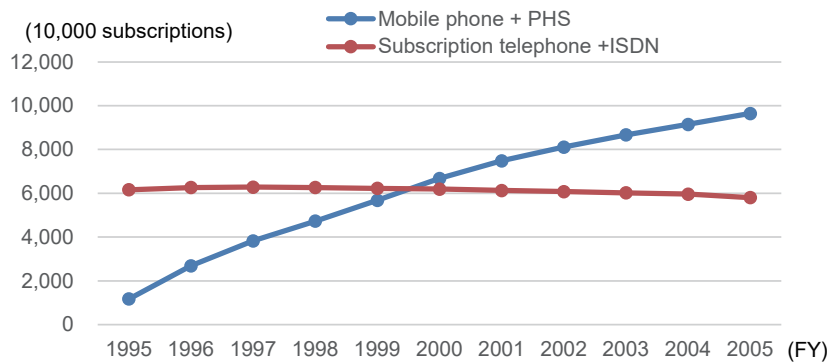
The dial-up connection for accessing the Internet, predominant when the Internet first started to spread, could not handle voice calls and Internet connection simultaneously, and users needed to create a connection each time they wanted to use the Internet. However, ADSL internet connection services, launched in 2000, enabled simultaneous voice calls and an Internet connection and provided **continuous Internet connection**, which fueled the spread of Internet use. New rules on connections of communication equipment/networks among business operators were established in the same year<sup>28</sup> for ADSL Internet connection services. As a result, new entrants to the market, including Yahoo!BB, started to provide low-price services in 2001, and charges went down, including the fees charged by NTT East, which had been providing services from the beginning. In addition, line speeds increased from an initial 1.5Mbps to 50Mbps by 2004. Thanks to lower prices and increased line speeds, the number of subscriptions rapidly grew to over 10 million by 2003, just three years after the launch of services.

A feature of the communication services in this period was the viewing of **images, including photographs**, in combination with text-based information through the Internet thanks to the spread of web browsers as described above.

In parallel with the above, **businesses and services using the Internet also expanded** in Japan around this time.<sup>29</sup> For example, in 1997 Rakuten promptly launched a shopping mall on the Internet called Rakuten Ichiba, which rapidly expanded as an EC mall where on-line shops could be opened with a small initial investment. In 1996, Yahoo launched its search service called Yahoo! Japan, a representative portal site for internet users in Japan. Later, Yahoo developed diverse services including news distribution, bulletin boards, shopping and auction services in order to increase traffic.

The number of mobile phone service subscriptions increased by about 10 million every year from 1996 to 2002 thanks to the introduction of device sales in 1994, which enabled users to own their mobile phones, and also because of lower costs as a result of the **termination of the charge approval system** in 1996. The number of mobile telephone (mobile phone and PHS) service subscribers exceeded the number of fixed landline telephone subscribers in 2000 (**Figure 1-3-2-1**). In addition, the launch of i-mode by NTT DOCOMO in 1999 triggered the **full-fledged development of access services to diverse sites** (e.g., e-mail, bank transfer, ticket purchase) for **mobile phones**. At the end of 2005, the number of internet users via mobile devices exceeded the number of Internet users using personal computers.

Figure 1-3-2-1 Number of subscribers of communication services



(Source) MIC "Information & Communications Statistics Database"<sup>30</sup>

During this period, the Ministry of Posts and Telecommunications took various measures aimed at the **further promotion of fair competition in the telecommunications market, and the creation of an environment for information and communication use** in response to the rapid spread of the Internet and

mobile phone services. For example, **in order to further promote fair competition in the long-distance telecommunication market and NTT's business improvement, NTT was reorganized** into one long-distance/international telecommunication company and two regional telecommunication companies under a

<sup>27</sup> 2001 Information and Communications White Paper considers 2001 to be the "First Year of Broadband"

<sup>28</sup> In 2000 rules were established on connection charges and conditions for unbundled connection of metallic subscriber lines, etc. (so-called dark copper and line sharing), and on conditions and procedures for the installation of connection equipment by competing businesses in NTT East/West stations. In 2001, rules were established for the opening of unbundling of subscriber system optical fiber (so-called dark fiber).

<sup>29</sup> In its introduction, the 2000 Communications White Paper states "Internet businesses are expanding. IT is not only generating new businesses but also is used as an effective tool for streamlining of enterprises. It has become rooted also in people's daily lives, expands their communication and influences their time management and lifestyles." The white paper compiled a special topic titled "The 21 Century Opened by IT - A Frontier Expanded by the Internet and Mobile Communication."

<sup>30</sup> <https://www.soumu.go.jp/johotsusintokei/field/tsushin02.html>

holding company.<sup>31</sup> These companies became NTT (Nippon Telegraph and Telephone Corporation: holding company), NTT Communications Corporation (long-distance/international telecommunication company), Nippon Telegraph and Telephone East Corporation (regional telecommunication company) and Nippon Telegraph and Telephone West Corporation (regional telecommunication company)

Amid growing competition in the regional telecommunications market, a fund was created where a part of costs was paid by individual carriers (the **Universal service subsidy program**)<sup>32</sup> in order to ensure **universal services (fixed telephones, pay phones, emergency calls** and other telecommunication services that should be provided all over Japan because these services are indispensable for people's lives). Moreover, the **prior notification of communication charges was abolished in principle** and replaced by ex post facto remedial actions, including orders for business improvement, in order to **lower communication charges**. For the **safe and secure use of communication services**, carriers were obliged to provide an outline for charges and other conditions when concluding contracts, so as to appropriately and promptly process complaints and inquiries from users and to notify users before the termination of all or part of the business.<sup>33</sup>

A new development in mobile communications in 2001 was the entry of **Mobile Virtual Network Operators (MVNOs)**, who provide mobile communication services to end users by procuring mobile communication networks from Mobile Network Operators (MNOs), who in turn provide mobile communication services using the frequencies allocated to them. In 2002, MIC published its "Guidelines on the Application of the Telecommunications Business Act and Radio Act related to MVNOs."

On the other hand, as the rapid spread of the Internet made it easy for anyone to disseminate information online, there was an expansion in the **negative aspects** of the internet, including the **spread of illegal/harmful information**. Accordingly, measures were taken by industry groups, and laws were developed to address this

problem. Specifically, in 1998, the Telecommunications Services Association formulated and released its "Guidelines on responses by business operators pertaining to internet access services," which stipulated responses by providers who discover that illegal/harmful information is being disseminated. The Act on the Limitation of Liability for Damages of Specified Telecommunications Service Providers and the Right to Demand Disclosure of Identification Information of the Sender (Act No. 137 of 2001) was enacted in 2001 to specify the requirements for the limitation of liability for damages of service providers and the right to demand disclosure of identification information of a sender, when the rights of others are violated through distribution of information. In addition, in response to personal information leak cases that occurred around 2000, the expansion of electronic commerce and other issues, the Act on the Protection of Personal Information (*Act No. 57 of 2003*) was enacted in 2003.

In the broadcasting market during this period, the **digitalization of broadcasting media (terrestrial broadcasting, satellite broadcasting and cable television) continued to develop**, which formed the foundation for today's digital broadcasting. Advantages of broadcast digitalization include: (1) higher audio and video quality and increased channels; (2) upgrading of broadcasting services including data broadcasting and service cooperation with the Internet and other communication networks, and; (3) services friendly to the elderly and people with disabilities.

CS digital broadcasting started in 1996 as the first digital broadcasting service in Japan, and this was followed by digital broadcasting of cable television in 1998 and BS digital broadcasting in 2000. For terrestrial broadcasting, which had attracted widespread popularity among the public, digital broadcasting started in the three metropolitan areas (Kanto, Kinki and Chukyo) in 2003. Through digitalization, broadcasting programs started to provide high-definition<sup>34</sup> videos. Old CRT televisions were replaced by liquid crystal and plasma televisions as a result of technical innovations in flat displays, and the price per inch was lowered.

<sup>31</sup> Based on the 1997 amendment of the Act on Nippon Telegraph and Telephone Corporation

<sup>32</sup> Based on the 2001 amendment of the Telecommunications Business Act. The subsidy program started in 2006.

<sup>33</sup> Based on the 2003 amendment of the Telecommunications Business Act.

<sup>34</sup> Refers to a television method that provides clear images and high-quality sound on a wide screen by changing the aspect ratio from 3:4 of a conventional television to 9:16, the number of scanning lines from 525 to 1,125 and the method from analog to digital. <https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/h01/html/h01a01040501.html>