



# Appendix E: The Netherlands

Overview			
ITIF Rank: 4			
Subscribers per Household <sup>1</sup>	0.77	Incumbent Government Owned	7.8%
Internet Users in Millions <sup>2</sup>	14.54	Local Loop Unbundling: <sup>3</sup>	
Internet Users per 100 Inhabitants <sup>4</sup>	88.87	Full Copper Loop	Yes
Average Speed in Megabits per Second (Mbps) <sup>5</sup>	8.8	Shared Copper Loop	Yes
Price Per Month of 1 Mbps USD PPP <sup>6</sup>	4.31	Bitstream	Yes
Percent of Urban Population <sup>7</sup>	66	Cable	Yes
Population Density per sq. km <sup>8</sup>	393	Fiber	No

**Geography and Demography**

The Netherlands has one of the highest population densities – 393 people per square kilometer.<sup>9</sup> Yet, its percent of urban population, 66 percent, is lower than the United States and many other European countries.<sup>10</sup> This may be offset by the geographic advantage conveyed by its position in Europe as the landing point for submarine cables from North America, giving the country a sophisticated telecommunications infrastructure that includes the Amsterdam Internet Exchange (AMS-IX), one of the major European telecommunications traffic exchanges.<sup>11</sup>

**Policy**

In 2004 the Dutch Ministry of Economic Affairs released a broadband paper in which it stated that it expected the Netherlands to achieve the highest broadband penetration rates in the world by 2010 with connection speeds of at least 10 Mbps.<sup>12</sup> In this paper, the government envisioned broadband as one piece of a larger initiative to stimulate research in broadband technology innovation, particularly high-speed networks for business, consumers, and research. While the Dutch government believes that the market is primarily responsible for development of next generation broadband infrastructure, its policies focus on the government’s role in stimulating competition and new service development, as well as on public-private partnerships to determine how the government may provide aid and incentives for social sectors. Accordingly, following the 2004 paper, the government established “Holland Broadbandland” (Nederland BreedbandLand) as a national platform to bring together broadband industry, trade organizations, and the government to determine “better and smarter” uses for broadband.<sup>13</sup>

Consistent with its goal to promote high-speed networks for research, the government provided \$155 million in grants for three projects: the GigaPort Next Generation Network, a national infrastructure research network permanently at the disposal of the government, the IT industry, educational and research institutes; the Virtual lab e-science (VLE) for collaboration and testing new technologies; and Freeband Knowledge Impulse, a joint initiative of the government, industry, and academia to increase knowledge of fourth generation telecommunications.<sup>14</sup> In addition, the government has provided limited funding for municipal networks, such as \$66 million for the Kenniswijk Broadband Demonstration Center, a fiber-to-the-home (FTTH) broadband initiative in the Eindhoven region to provide more than 100 consumer services for 14,000 households.<sup>15</sup>

## Rural Access

The goal of the Netherlands' broadband strategy is to achieve the highest broadband penetration rates in the world by 2010, extending access to both rural and urban areas.

## Competition

The Netherlands has robust intramodal competition, following a variety of regulations the Onafhankelijke Post en Telecommunicatie Autoriteit (OPTA) placed on Koninklijke PTT Nederland (KPN), the Netherlands' incumbent telecommunications service provider, including local loop unbundling (as of 2000). These regulations allow companies to provide competing broadband services in two ways. First by investing in their own equipment to provide digital subscriber line (DSL) services to their customers, and second by leasing KPN's DSL infrastructure (called "naked DSL"). While unbundling regulations lowered barriers to entry in the retail broadband market KPN is, nonetheless, by far the largest DSL broadband service provider with more than 65 percent of the asymmetric DSL (ADSL) broadband market, although its share of the overall broadband market (including cable and other technologies) is about 40 percent.<sup>16</sup> KPN helped to kick off the strong growth in ADSL subscriptions by offering "ADSL Lite" in 2002 and 2003, a cheaper product that was so popular it accounted for 73 percent of new connections in 2002. KPN uses ADSL to provide its own Internet services as well as through its Internet service providers (ISPs): Planet Internet, Het Net, XS4ALL, Tiscali, Speedlinq, and Demon.<sup>17</sup> The rest of the DSL market is distributed among a few competitors, including Tele2 and Orange Breedband, as well as ISPs that lease DSL including Versatel, BBned, and Wanadoo.

The Netherlands also has a high level of intermodal competition. Although 59.8 percent of broadband connections as of June 2006 were via ADSL, cable is a strong second at 38.5 percent and other technologies at 1.8 percent. Canada is the only other country in the world with a higher number of cable connections for 100 inhabitants.<sup>18</sup> Interestingly, cable infrastructure also is open to non-discriminatory access – but voluntarily, not via regulation. In 2003 a committee of cable operators agreed to lease their networks and to separate their network operations from their services. The cable companies, although they operate regionally instead of nationally, together provide strong competition to KPN in broadband services. These companies are UPC (via its broadband service, Chello), Essent Kabelcom (via its @home service), and Casema.<sup>19</sup>

## Fiber

Both national and local governments now are focusing on support for the development of FTTH. The national government allocated nearly \$9 million for local and regional tests of FTTH and initiated the "smart city" project in Eindhoven (see above).<sup>20</sup> In 2006, the city of Amsterdam used government funding to launch its "CityNet" project to provide 100 Mbps connections to 40,000 homes, expanding to 450,000 homes by 2010.<sup>21</sup> The city co-owns (25 percent) of the fiber and leases it to BBned (a subsidiary of Telecom Italia), which provides wholesale services. Similarly, the city of Rotterdam piloted fiber connections to 7,000 households in late 2002 and in 2006 launched an open FTTH network via a social housing corporation, Stadswonen, the cost of which is bundled into the monthly rental fees.<sup>22</sup> In addition to local governments and communities, developers, housing corporations, and telecommunications companies also are investing in fiber-optic networks. By the end of 2006 more than 111,000 Dutch homes had a fiber-optic connection.<sup>23</sup> This follows KPN's announcement in 2005 that it would extend fiber throughout its network, into the local exchanges, and to houses in subdivisions.<sup>24</sup> As of 2007 around 25 municipalities were preparing to launch broadband fiber networks and 2 percent of all connections were via fiber.<sup>25</sup>

## Demand

KPN's strategy of offering a wide variety of services with a range of prices also has helped encourage demand, as has the company's decision to sell "naked" DSL, which allows consumers to choose a broadband subscription without also having to subscribe to fixed telephony services from the same provider.<sup>26</sup> While bundling services appears to have spurred demand, the Dutch national government also decided to intervene by supporting the development of broadband content and applications. For example, in 2006 the Dutch government announced that it would give all Dutch citizens a personalized web page – the "Personal Internet Page (PIP) Project" where they can access their government documents, tax and social security information, as well as apply for grants and licenses.<sup>27</sup> The increasing availability of broadcast over the Internet (IPTV) also is driving demand for broadband. So, although analog cable is still the most common platform for television and radio broadcasts, as broadband performance continues to increase, digital broadcasts (often bundled as triple play options with voice and Internet access) are beginning to become more popular. This becomes a virtuous cycle because as the number of digital broadcast options increase this in turn drives demand for higher speed broadband services. Cable providers also are upgrading their networks to provide higher speeds to compete with ADSL2+ and to provide their own triple play options, and KPN also upgraded to ADSL2+ to launch IPTV services.<sup>28</sup> Both KPN and Tele2 offer video-on-demand services on a fee-per-program basis.<sup>29</sup>

## ENDNOTES

1. OECD measures penetration on a per capita basis because comprehensive data on household penetration is generally unavailable. ITIF has used average household size as a multiplier to convert June 2007 OECD per capita penetration data to household penetration data. It should be noted that one problem with this method is that the OECD data likely also includes some DSL business subscribers.
2. International Telecommunications Union, "Internet Indicators: Subscribers, Users, and Broadband Subscribers," International Telecommunications Union ICT Statistics Database, 2006 <[www.itu.int/ITU-D/icteye/Indicators/Indicators.aspx#](http://www.itu.int/ITU-D/icteye/Indicators/Indicators.aspx#)>.
3. Unbundling is a policy by which regulators require incumbent telecommunications operators (those with dominant market status who control access to the telecommunications infrastructure) or cable companies to give their competitors access to raw copper pairs, fiber, or coaxial cable networks so that they can install their own transmission equipment at the incumbent's central office (local exchange). *Full unbundling* requires the incumbent to make all copper pair frequencies or fiber networks available to competitors. *Shared access* to the local loop requires the incumbent to make the "high" frequency bands (those that carry data, but not voice) of the copper pair available to its competitors, allowing them to offer xDSL broadband services. *Bitstream access* requires incumbent operators to allow competitors access to the incumbents' equipment at their central office. *Cable access* enables competitors to use cable companies' coaxial cable local loops and fiber access requires telecommunications operators to give competitors access to their fiber local loops.
4. International Telecommunications Union, "Internet Indicators: Subscribers, Users, and Broadband Subscribers," International Telecommunications Union ICT Statistics Database, 2006 <[www.itu.int/ITU-D/icteye/Indicators/Indicators.aspx#](http://www.itu.int/ITU-D/icteye/Indicators/Indicators.aspx#)>.
5. Our methodology for calculating broadband speed in the ITIF Broadband Rankings involves averaging the speeds of the incumbent DSL, cable and fiber offerings provided in the OECD's April 2006 "Multiple Play," report, with each assigned a weight according to that technology's respective percentage of the nations overall broadband subscribership, as reported in the OECD's "Broadband Statistics to December 2006."

6. USD price per bit (PPP) of the fastest available technology is calculated from the broadband offerings examined in the OECD's "Multiple Play: Pricing and Policy Trends" report.
7. The World Bank, "Information and Communications for Development 2006," (2006): 172.
8. United Nations, "World Population Prospects: The 2006 Revision Population Database," 2007 <esa.un.org/unpp/>.
9. Ibid.
10. The World Bank, "Information and Communications for Development 2006," (2006): 241.
11. Arsyllfa Band Eang Cymru-Broadband Wales Observatory, "The Netherlands Broadband Market Report 2005" <www.broadbandwalesobservatory.org.uk/broadband-3052>.
12. Ministry of Economic Affairs, "Broadband and Grids Technology in the Netherlands," Innovation, 2005 <http://www.ez.nl/content.jsp?objectid=143637&rid=142410>.
13. Ibid.
14. Ibid.
15. Ibid.
16. Ibid: 84.
17. Ibid: 2.
18. OPTA Annual Report and Market Monitor 2006 (2006): 82.
19. Ibid: 84.
20. Ibid: 21.
21. Ibid: 24.
22. Paul Budde Communication Pty. Ltd, "Netherlands—Broadband: Market Overview," Telecommunications and Information Highways (Bucketty, Australia: 2005): 23.
23. OPTA, Annual Report and Market Monitor 2006 (2006): 90.
24. Ibid: 20.
25. Ibid.
26. Arsyllfa Band Eang Cymru-Broadband Wales Observatory, "The Netherlands Broadband Market Report 2005" <www.broadbandwalesobservatory.org.uk/broadband-3052>.
27. Paul Budde Communication Pty Ltd, "Netherlands - Broadband - Market Overview," Telecommunications and Information Highways, (Bucketty, Australia: 2005): 11.
28. Ibid.
29. OPTA Annual Report and Market Monitor 2006 (2006): 87.