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**U.S. vs. European Broadband Deployment: What Do the Data Say?**

by

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As the Internet becomes more important to our everyday lives, commentators debate over the best policies and models to drive even more widespread adoption and deployment of broadband technologies. Some claim the European model of service-based competition, induced by stiff telephone-style regulation, outperforms the facilities-based competition practiced in the U.S. in promoting broadband.

Earlier this month, I released [a study](#) drawing on the mapping studies of broadband coverage commissioned by the European Commission (EC) and the U.S. government to resolve these questions. These mapping studies were supplemented by other studies conducted or commissioned by the EC or the Federal Communications Commission that examine other key information, such as broadband investment, pricing, and download speeds.

These data revealed that in 2011 and 2012 the U.S. led Europe in many broadband metrics.

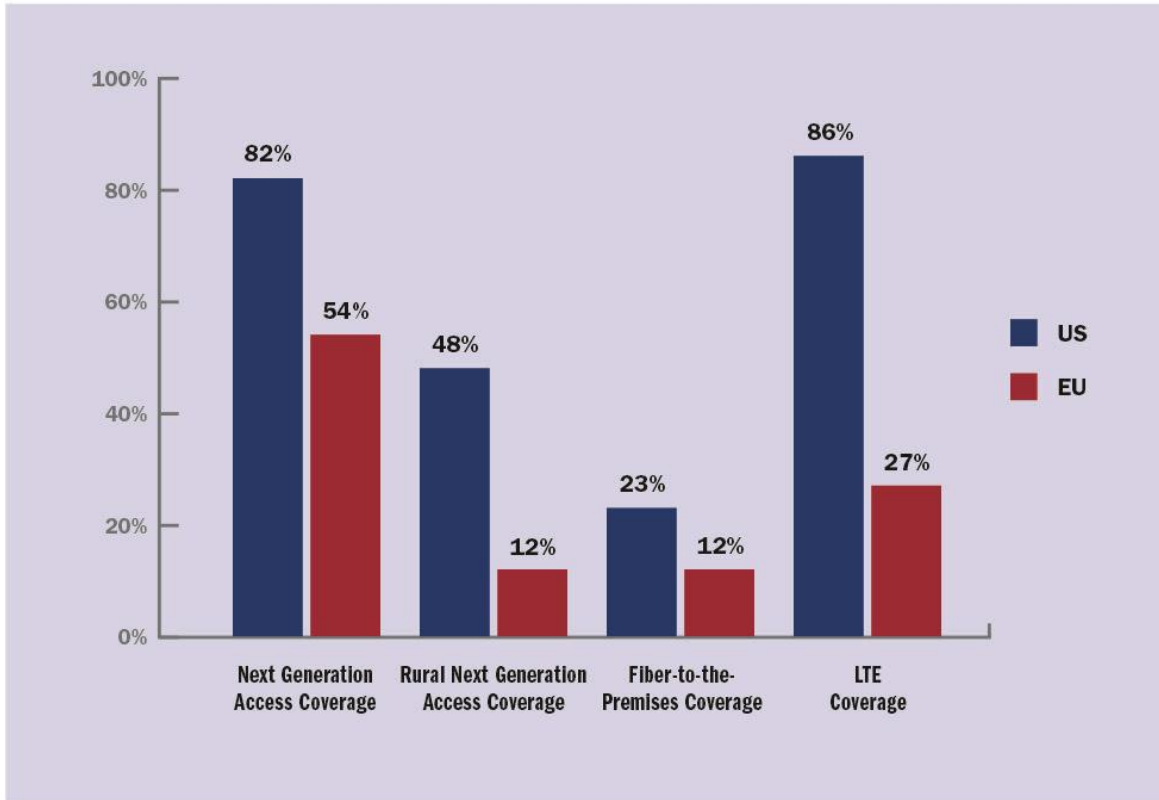
- **High-Speed Access:** A far greater percentage of U.S. households had access to Next Generation Networks (NGA) (25 Mbps) than in Europe. This was true whether one considered coverage for the entire nation (82% vs. 54%) or restricted the analysis to rural areas (48% vs. 12%), suggesting that the U.S. approach proved more effective than the European approach at narrowing the digital divide.

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- **Fiber and LTE Deployment:** Turning to specific technologies, the data indicate that the U.S. had better coverage for Fiber-to-the-Premises (FTTP) (23% vs. 12%) and for the fourth- generation wireless technology known as Long-Term Evolution (4G LTE) (86% vs. 27%). Furthermore, empirical analysis undercuts claims that the provision of high-speed Internet depended exclusively on fiber. In short, FTTP remained a minor contributor to NGA coverage, and those countries that emphasized fiber were the bottom broadband performers among the eight European countries studied.
- **Regulatory Policies and Competition Models:** Disparities between European and U.S. broadband networks stemmed from differing regulatory approaches. Europe has relied on regulations that treat broadband as a public utility and focus on promoting service-based competition, in which new entrants lease incumbents' facilities at wholesale cost (also known as unbundling). The U.S. has generally left buildout, maintenance, and modernization of Internet infrastructure to private companies and focused on promoting facilities-based competition, in which new entrants are expected to construct their own networks. Regression analysis indicates that the U.S. approach has proven more effective in promoting NGA coverage than the European approach.
- **Investment:** The difference in regulation and competition models influenced the amount of broadband investment in the U.S. and Europe. In Europe, where it was cheaper to buy wholesale services from an incumbent provider, there was little incentive to invest in new technology or networks. In the U.S., however, providers had to build their own networks in order to bring broadband services to customers. Data analysis indicates that as of the end of 2012, the U.S. approach promoted broadband investment, while the European approach had the opposite effect (\$562 of broadband investment per household in the U.S. vs. \$244 per household in Europe).
- **Download Speeds:** U.S. download speeds during peak times (weekday evenings) averaged 15 Mbps, which was below the European average of 19 Mbps. The U.S. outperformed Europe in terms of delivering actual speeds that were 96% of what was advertised, compared to Europe where consumers received only 74% of advertised download speeds. The U.S. also fared better in terms of latency and packet loss.
- **Pricing:** The European pricing study reveals that U.S. broadband was cheaper than European broadband for all speed tiers below 12 Mbps. U.S. broadband was more expensive for higher speed tiers, although the higher cost was justified in no small part by the fact that U.S. households and users on average consumed more than 50% more bandwidth than their European counterparts.

## Coverage in the U.S. and Europe, 2012



Case studies of eight European countries (Denmark, France, Germany, Italy, the Netherlands, Spain, Sweden, and the United Kingdom) confirm that facilities-based competition has served as the primary driver of investments in upgrading broadband networks. Moreover, the countries that emphasized FTTP had the lowest NGA coverage rates in this study and ranked among the lowest NGA coverage rates in the European Union. In fact, two countries often mentioned as leaders in broadband deployment (Sweden and France) end up being rather disappointing both in terms of national NGA coverage and rural NGA coverage.

- **Sweden:** Large public investments in Fiber-to-the-Premises (FTTP) failed to create any significant advantages in terms of NGA coverage. At 57%, Sweden's NGA coverage ranks 20th out of 28 EU countries and is only slightly above the 2012 EU benchmark of 54%. The shortcomings of emphasizing FTTP without the support of collateral technologies are manifest in Sweden's poor rural NGA coverage, which was roughly half that of the rest of Europe and one eighth that of the U.S. While Sweden's commitment to FTTP has no doubt yielded impressive service in Stockholm and other cities, those benefits were not available on a nationwide basis.

- **France:** Claims about France as a leader in Internet service do not withstand scrutiny. At 24% NGA coverage, France languished at below half the EU rate and ranks 25th out of 28 EU countries, well behind the U.S. Rural NGA and LTE coverage were virtually nonexistent. These poor results undermine claims that the French approach of mandating infrastructure sharing should be emulated.
- **Italy:** Despite promising early efforts in FTTP, Italian broadband policy is something of a disappointment. Its NGA coverage of 14% ranked last in the EU. As of January 2014, the objective of ensuring that all Italian citizens had access to standard broadband by the end of 2013 had not been achieved. Standard broadband (defined as 144 kbps) was available in only 91% of rural areas. NGA coverage has lagged even farther behind.
- **Denmark:** Denmark has achieved widespread NGA coverage, backed by a strong cable infrastructure resulting from a government-subsidized effort to create a hybrid data-video network. Here the incumbent telephone provider continued to own the leading cable company. Though there was widespread NGA coverage, FTTP deployments by energy companies in southern Denmark stalled, and rural NGA coverage remained disappointing.
- **Spain:** Spain's ability to achieve strong NGA numbers in light of its demographic characteristics and the weak legacy of cable television is impressive. Spain is a good example of a country where cable made the primary contribution to NGA coverage, but the increase from 2011 to 2012 was driven primarily by FTTP.
- **Netherlands:** The Netherlands has a unique fixed line access infrastructure. Due to municipal subsidies, it is among the most densely cabled countries in the world, which made two fixed-line connections available in 92% of Dutch homes. The privatization of these networks resulted in today's market with strong competition between cable television operators. Two high-profile FTTP ventures have garnered a fair amount of attention, but have yet to have a significant impact.
- **United Kingdom and Germany:** Both the United Kingdom and Germany were able to achieve impressive NGA coverage levels despite having trivially small investments in FTTP. Both countries relied on NGA coverage from cable broadband and a VDSL strategy based on vectoring.

## Comparison between U.S., EU and Case Study Countries, 2012

	Total NGA	Rural NGA	Investment per HH	Bandwidth per User	Percentage Rural HHs
<b>U.S.</b>	82%	48%	\$562	27	19%
<b>Europe</b>	54%	12%	\$244	18	15%
<b>Sweden</b>	57%	6%	\$280	n/a	17%
<b>France</b>	24%	1%	\$326	12	18%
<b>Italy</b>	14%	0%	\$291	12	13%
<b>Denmark</b>	73%	3%	\$457	n/a	17%
<b>Spain</b>	64%	13%	\$255	13	18%
<b>Netherlands</b>	98%	85%	\$450	n/a	8%
<b>UK</b>	70%	18%	\$215	31	9%
<b>Germany</b>	66%	26%	\$197	14	11%

The data analyzed for the study resolves the question whether the U.S. is running behind Europe in the broadband race or vice versa. The answer is clear and definitive: As of 2012, the U.S. was far ahead of Europe in terms of the availability of access to Next Generation Networks at 25Mbps (NGA). The U.S. advantage was even starker in terms of rural NGA coverage and with respect to key technologies such as FTTP and LTE.

The empirical evidence thus confirms that the United States is faring better than Europe in the broadband race and provides a strong endorsement of the regulatory approach taken so far by the U.S. The case studies also suggest that broadband coverage is best promoted by a balanced approach that does not focus exclusively on any one technology.

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The Free State Foundation is an independent, nonpartisan free market-oriented think tank located in Rockville, Maryland.