The Information Technology & Innovation Foundation

ITIF

Policy Brief
April 12, 2006

U.S. Continues to Tread Water in Global Broadband Adoption

by Robert Atkinson

According to new statistics from the OECD[1], the United States remains in the middle of the pack among OECD nations in broadband telecommunications adoption. In their semi-annual survey of broadband subscribership, the OECD found that from June 2005 to December 2005, broadband subscribership in the U.S. increased 2.3 percentage points, from 14.4 percent of the population to 16.8 percent, about the same rate of growth as the OECD overall. When OECD first collected this data in 2000, the United States ranked 4th among the 30 nations surveyed, behind Korea, Sweden and Canada. Now, we are 12th, with our rank unchanged from December 2004.

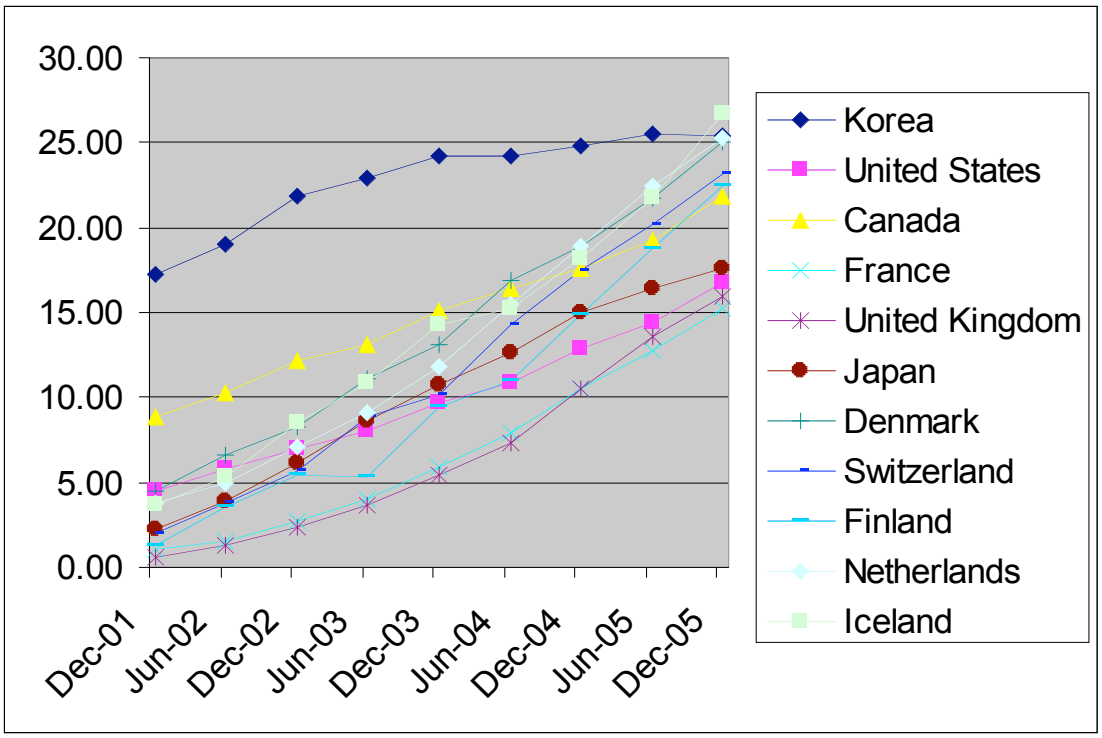
Here Come the Europeans

Both in percentage growth and absolute subscribership the real broadband stars of the last year have been European nations, particularly Northern Europe. Of the top 10 nations in broadband penetration, seven are Northern European (Iceland, Netherlands, Denmark, Finland, Norway, Sweden, and Belgium respectively). They moved up by rapidly increasing subscribership rates. Iceland, for example, increased subscribership by over 6.3 percentage points in the last year (from 18.2 to 26.7 percent) to leap ahead of Korea as the world's most broadband-intensive nation. With similar rapid growth, the Netherlands is close behind, now virtually tied with Korea, who until this last December was the world broadband leader. (See Figure 1) In fact, Asian broadband penetration is growing slowly, with Korea increasing just 0.6 percentage points and Japan 2.6. In contrast, many European nations are expanding broadband rapidly, including ones that currently have slightly lower penetration rates than the U.S. For example, in the last year broadband penetration increased in the United Kingdom by 5.4 percentage points, in Germany by 4.6, and in France by 4.7. In comparison, the U.S. adoption rate increased 3.9 percentage points, slightly below the median rate of increase for all 30 countries.

The Northern European acceleration is significant because one of the rationales commonly used to defend America's lagging broadband adoption is that unlike nations like Korea, population densities in the United States are lower, making it more expensive to deploy broadband infrastructure. Yet, at 7 persons per square mile, population density in Iceland is 11 times lower than in the United States, while densities in the Scandinavian countries are around half of those in the United States. To be fair, the densities that matter most are metropolitan densities since this is where most people in these nations live. Yet even on this measure the density defense doesn't hold up. There are a host of U.S. metro areas that are quite dense by world standards, including New York (21,200 people per square mile), Chicago (11,716), and Los Angeles (7,300). In comparison, the Helsinki (Finland) metropolitan area has around just 7,100 people per sq. mile; Stockholm (Sweden) has around 9,600 persons per square mile (including

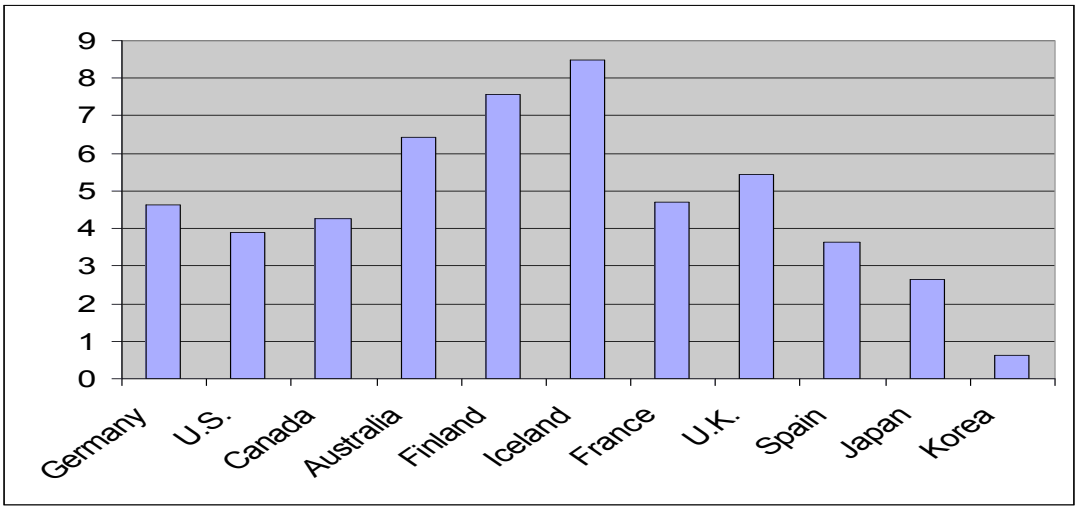
one of the highest rates of single person households in the world); and Reykjavík, the capital of Iceland, has just 982 people per square mile. In short, **we can no longer use density, or supposed lack thereof, as a rationale for America's mediocre broadband performance**.

Figure 1: Broadband Adoption Rates, December 2001 to December 2005 (per 100 inhabitants)



Source: OECD Broadband Statistics, December 2005

Figure 2: Percentage Point Change in Broadband Penetration December 2004 to December 2005 (per 100 inhabitants)



Source: OECD Broadband Statistics, December 2005

Others defend American broadband performance by asserting that while the United States may be behind on a per-capita basis, we are ahead on an absolute basis. But on few international comparisons is the appropriate measure absolute numbers. We don't compare U.S. and European employment performance by arguing that we have more people employed than France or Germany; instead we compare our unemployment rate. Broadband is no different. The right metric is per-capita (or per-household) take-up rates and on this measure we are making no progress relative to OECD nations as a group.

Speed Matters

Broadband adoption rates are an important indicator of progress toward a fully digital economy and society However, an equally important metric of progress is the speed of those broadband connections. In Japan for example, it's not uncommon for metropolitan area customers to obtain DSL speeds of over 40 mbs, and 100mbs fiber-optic service is growing rapidly. In France, the telecom company Free provides speeds of up to 18 mbs at very reasonable prices. Vienna Austria is considering plans to roll out a 1 gigabit network to every home and business in the city.[2] Average U.S. households are in the slow lane, with average broadband speeds of less than 2mb per second. In fact, the Federal Communications Commission (FCC) continues to define broadband as data services with speeds over 200 kb per second in at least one direction, with advanced services being services with at least 200kb per second in both directions (downloading and uploading). These are speeds that 100 times slower than average speeds in Japan 500 times slower than the hoped for speeds in Vienna. As a result, **it's time for the FCC to develop a new definition of advanced broadband services defined as asymmetric speeds of at least 5 mbs**.

In response to these data, some telecom analysts argue that these faster speeds in other nations are actually too fast for what the market alone would produce, and that speeds in America are just right because by definition that is what consumers are buying. By this logic if Americans wanted faster speeds, they'd be buying broadband services with faster speeds. But this argument ignores two key factors. First, many Americans want faster speeds, but telecom providers have been slow to roll out faster networks. In fact, for some companies rolling out faster networks can negatively impact their core business model. A truly high-speed network would mean that consumers could download television shows over the Internet, thereby creating true "ala carte" web TV service and potentially bypassing cable TV services altogether. Better to keep the Internet "pipe" small, they may reason, so that consumers wanting video content will be forced to subscribe to bundled cable TV services. To be sure, some telecommunications providers are rolling out faster networks. Most notable is Verizon's fiber-optic-based FIOS service, which offers 5mbs service for around $35 per month, with speeds of up to 30 mbs for a higher monthly cost.

Second, high speed, "fat-pipe" broadband has "chicken or egg" characteristics that suggest that the market alone will lead to slower broadband deployment than is economically optimal. One reason there is less demand for higher speed broadband than might otherwise be the case is that there are few applications that can take full advantage of it. Yet, these applications (such as on-demand Web TV; telemedicine, web-based video-telephony, etc.) are slow to emerge precisely because so few Americans have high speed broadband.

Why Rank Matters

Some may argue that broadband rankings don't matter and that we shouldn't compare our broadband performance to other nations (although few made this argument when the U.S. was ranked near the top). They argue that as long as broadband take-up rates continue to grow, everything is fine. But relative rank does matter for at least two important reasons. First, rank

tells us what's possible. Ten years ago some web advocates pressed for more broadband, but given that almost no country had many broadband subscribers, it was easy to see that such an expectation was premature. However, the fact that other nations are significantly farther ahead of the United States in broadband adoption, including nations with significantly lower per-capita income (e.g., Korea), suggests that there is no inherent technological or financial reason for U.S. broadband rates to not be much higher.

Second, rankings matter because leading-edge nations likely to be more economically competitive. One reason for this is that nations with more and faster broadband are likely to have consumers that are more sophisticated in their IT and Internet activities. As Harvard Business Professor Michael Porter wrote 15 years ago in *The Competitive Advantage of Nations*, "A nation's firms gain competitive advantage if domestic buyers are, or among, the world's most sophisticated and demanding buyers for a product or service."[3] There are already signs that Korea is reaping the benefits of being a world broadband leader. The speed and ubiquity of broadband in Korea has made it test-bed for the next generation of Internet-based services and products, including on-line games, education and consumer electronics. Countries at the broadband leading edge are more likely to experience more of these kinds of benefits than laggards.

Cracking the Top Five

While it's beyond the scope of this policy brief to lay out a comprehensive broadband strategy, it is worth making a few recommendations about how the U.S. could move into the top five among OECD nations in broadband take-up within the next couple of years. (It should be noted that many nations ranked below the U.S. are adopting broadband at even faster rates and that just keeping our 12th best position will take work). We should start by realizing that relying on market forces alone is likely to mean that the U.S. will continue to lag behind many other nations. Prudent deregulation can help. However, as evidenced by the fact that even though broadband (DSL) has been significantly deregulated in the last several years our ranking has continued to slip, deregulation is not a panacea.[4] **Ensuring that the United States is among the five most broadband-intensive nations in the world will require concerted private and public action.**

To do this, we should take a number of immediate steps to spur broadband deployment and adoption. First, **broadband services should be made exempt from federal, state, and local taxation and from requirements to pay into the Universal Service Fund** for at least the next five years until many more Americans subscribe to higher speed broadband. Second, **Congress, states and municipalities should make it easier for companies to deploy high speed broadband networks. This should include streamlining the local franchise process which telecom companies seeking to roll out new broadband data/video networks must face by dramatically reducing the number of franchises that are required. Moreover, companies rolling out these new networks should not have "build-out" requirements placed on them.**

Finally, Congress should seriously consider putting in place tax incentives for the deployment of new broadband networks, including allowing telecommunications companies to expense new broadband investments in the first year. This is the model many other nations have used to successfully spur deployment of advanced telecommunications infrastructures. For example, the Japanese government allowed NTT to rapidly write-off the cost of its new fiber broadband networks. The Korean government did the same. Austria and Sweden have allowed individual consumers to deduct broadband expenses from their taxes. The Canadian government recently boosted by 50 percent their tax incentives for investments for broadband, Internet, and other data network infrastructure equipment.

The broadband future promises a digital world we can now only imagine, with a host of economic and social benefits accruing to all Americans. Yet, getting to that world in a timely manner will require a new concerted efforts by the private and public sectors. If we take these steps now, the next time these comparative metrics come out, the United States is more likely to have moved up than if we sat back and hoped.

Dr. Robert D. Atkinson is President of the Information Technology and Innovation Foundation

Endnotes:

[1] OECD Broadband Statistics, December 2005, <http://www.oecd.org/document/39/0,2340,en_2649_34225_36459431_1_1_1_1,00.html>.

[2] "Vienna Plans Fiber Optics for Everyone," *Heise Oline,* January 27, 2006, <www.heise.de/english/newsticker/news/68912>

[3] Michael E. Porter, "The Competitive Advantage of Nations," New York: The Free Press, 1990, p. 89.

[4] Cable broadband was never regulated the way DSL broadband was.

About the Information Technology and Innovation Foundation

The Information Technology and Innovation Foundation (ITIF) is a non-profit, non-partisan public policy think tank committed to articulating and advancing a pro-productivity, pro-innovation and pro-technology public policy agenda internationally, in Washington and in the states. Recognizing the vital role of technology in ensuring American prosperity, ITIF will focus exclusively on innovation, productivity, and digital economy issues.

For more information contact ITIF at 202-626-5732 or at mail@innovationpolicy.org, or go online to www.innovationpolicy.org