

November 13, 2013

**VIA ELECTRONIC FILING**

The Honorable Thomas E. Wheeler, Chairman  
The Honorable Mignon L. Clyburn, Commissioner  
The Honorable Jessica Rosenworcel, Commissioner  
The Honorable Ajit Pai, Commissioner  
The Honorable Michael P. O’Rielly, Commissioner

Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

**Re: Written Ex Parte Communication,**  
*GN Docket No. 09-51, WT Docket No. 13-135.*

Dear Mr. Chairman and Commissioners:

CTIA – The Wireless Association® welcomes Chairman Wheeler and Commissioner O’Rielly to the Federal Communications Commission and, with the agency returned to a full complement of commissioners, now is an opportune time to highlight the significant economic contributions of the U.S. wireless market: world-leading investment in next-generation networks; a robust record of job creation; services with unparalleled value and unmatched consumer usage; staggering U.S.-led innovation throughout the mobile ecosystem; and the most competitive wireless services marketplace in the world. The attached report, *The U.S. Wireless Industry: Leading the World in Investment, Value, Innovation, and Competition*, presents data demonstrating the United States’ global leadership in wireless. The facts are compelling:

***U.S. investment in wireless leads the world.***

- ***The U.S. invests more in its networks than any other nation.*** Last year, U.S. wireless carriers **invested more than \$30 billion** in their networks, accounting for a quarter of the world’s wireless capital investment. And the U.S. invested **six times more per subscriber than its global counterparts**: \$94 per subscriber versus \$16 per subscriber.
- ***As a result, the U.S. is the world leader in LTE deployment and subscribership.*** While U.S. consumers represent only 5% of the world’s wireless connections, they comprise **50% of the world’s LTE connections**. By year-end 2013, nearly 20% of U.S. connections will be on LTE networks compared to less than 2% in the EU.
- ***Wireless is a key jobs driver.*** Between 2007 and 2011, the U.S. wireless industry gained almost **1.6 million new jobs** while total U.S. private sector jobs fell by 5.3 million. The wireless industry directly or indirectly accounts for 2.6% of all U.S. employment, and **wireless employees are paid 65% higher than the national average** for other workers.



- *The Wireless Industry is a Leading Driver of U.S. Economic Growth*: In terms of contributions to the U.S. economy, the “U.S. wireless industry is now larger than the publishing, agriculture, hotels and lodging, air transportation, motion picture and recording, and motor vehicle manufacturing industry segments and rivals the computer systems design services and oil and gas extraction industries.”

*U.S. Consumers enjoy unparalleled value from their wireless service.*

- *Prices in the U.S. keep dropping.* **Data prices have plummeted 93%** over the past five years to only \$0.03 per megabyte, and usage has skyrocketed. Overall, the wireless Consumer Price Index (“CPI”) fell again last year. Since 2006, **wireless CPI has fallen 8.0%**, even as the CPI for all items has increased 16.7%.
- *The U.S. wireless industry provides extraordinary value.* U.S. consumers pay less per unit of usage – and use mobile far more extensively – than their foreign counterparts: The average voice revenue per minute in the U.S. is three cents, while the European average is ten cents; U.S. consumers use **five times more voice minutes** and **two times more data** than the EU average. Looking just at data services, the price per MB has fallen more than 93% in just five years.
- *Consumer satisfaction is high.* Given the cutting edge services and superior value, it is not surprising that U.S. consumer satisfaction is strong. **91% of U.S. consumers are highly satisfied** with their wireless phone service (McLaughlin & Associates and Penn Schoen Berland), and Consumer Reports finds that the wireless industry has increasingly high consumer satisfaction.

*U.S. consumers benefit from staggering innovation.*

- *The U.S. enjoys world leading mobile broadband speeds.* In 2012, **the average mobile data connection speed for North America was 2.6 Mbps, the fastest in the world**, nearly twice that available in Western Europe, and over five times the global average. Given the current heavy investment by U.S. providers in high-speed network build-out, that gap is projected to increase to 14.4 Mbps in North America, versus 7 Mbps in Western Europe, by 2017.
- *A massive number of devices are available from dozens of manufacturers.* There are currently more than **790 different handsets and devices** offered to American consumers by facilities-based carriers, MVNOs, and more than **50 different device manufacturers**.
- *These devices are increasingly 4G-connected.* The number of **4G-connected devices in the U.S. market increased a staggering 273%** in 2012, to 33.1 million devices, and has since reached more than 62.5 million.
- *More apps are available from more stores running on more operating systems.* In 2012, there were more than **20 independent non-carrier mobile application stores**, offering **over 3.5 million apps** for **fourteen different operating systems**.

*The U.S. market for mobile wireless services is highly competitive.*

- Consumers are benefiting from competition across the dynamic mobile wireless ecosystem. From infrastructure and equipment manufacturers, to content and application developers, to platform and service providers – as prices fall, and investment and innovation increase – the U.S. wireless marketplace is competing to deliver unparalleled value to wireless users.
- The U.S. has the most facilities-based competitors. Notably, the U.S. has the most facilities-based mobile providers of any nation – **191 facilities-based providers**, according to the FCC’s most recent data – and is one of only two OECD countries with **five or more licensees per market**. Dozens of MVNOs offer service to consumers as well.
- Moreover, the U.S. is the least concentrated mobile wireless marketplace. The U.S. has the **lowest HHI of 28 OECD countries** by a significant margin – 2,468, compared to 2,635 for the next lowest country (Poland).

Today’s U.S. wireless story is one of remarkable success, and spectrum is a key driver. But as President Obama noted earlier this year, “America’s future competitiveness and global technology leadership depend, in part, upon the availability of additional spectrum.” CTIA looks forward to working with the newly reconstituted Commission to make additional spectrum available for wireless services and to set a regulatory course allowing the wireless marketplace to continue to flourish and serve U.S. consumers.

Pursuant to Section 1.1206 of the Commission’s rules, 47 C.F.R. § 1.1206, this letter is being electronically filed via ECFS. If you have any questions, please do not hesitate to contact me.

Sincerely,

*/s/ Scott K. Bergmann*

Scott K. Bergmann  
Vice President, Regulatory Affairs  
CTIA – The Wireless Association®

Attachment

# **THE U.S. WIRELESS INDUSTRY:**

**Leading the World in Investment,  
Value, Innovation, and Competition**

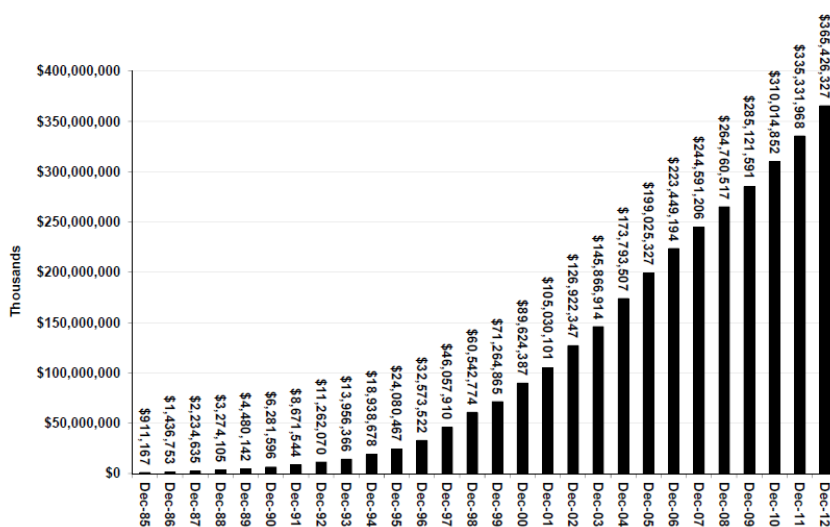
**November 2013**

# **INVESTMENT**

The wireless industry’s long history of massive capital expenditures reflects the vibrancy and competitiveness of the wireless market. This investment has produced generation after generation of cutting edge networks, offering greater throughput and higher data speeds that have kick-started the virtuous cycle. This investment represents a true success story for the U.S. wireless market and for the U.S. economy and is a key reason why the United States is the global leader in wireless.

**Significant, Sustained Investment.** In 2012 alone, wireless carriers invested more than \$30 billion in their networks – a 9% year-over-year increase from 2011.<sup>1</sup> This growth represents a consistent trend in the competitive wireless industry: Since 2001, wireless carriers in the U.S. have invested more than \$275 billion in their networks.<sup>2</sup>

Cumulative Capital Investment Passes \$365 Billion



Reported Cumulative Capex Rises 9% Year-Over-Year, Including Unreported Prior Capex Increases Year-End Total to \$378 Billion

Source: CTIA

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Source: CTIA SEMI-ANNUAL SURVEY RESULTS

**Leading the World.** These robust investment figures are a true success story for U.S. global leadership and the U.S. economy. Although the U.S. has just 5% of the world’s wireless subscribers,<sup>3</sup> these capital expenditures constitute approximately a quarter of all global wireless

<sup>1</sup> CTIA – THE WIRELESS ASSOCIATION®, CTIA’S WIRELESS INDUSTRY INDICES: YEAR-END 2012 RESULTS 105 (May 2013) (“CTIA 2012 WIRELESS INDICES”).

<sup>2</sup> See CTIA – THE WIRELESS ASSOCIATION®, BACKGROUND ON CTIA’S SEMI-ANNUAL WIRELESS INDUSTRY SURVEY 12 (2013) (“CTIA SEMI-ANNUAL SURVEY RESULTS”), [http://files.ctia.org/pdf/CTIA\\_Survey\\_YE\\_2012\\_Graphics-FINAL.pdf](http://files.ctia.org/pdf/CTIA_Survey_YE_2012_Graphics-FINAL.pdf) (last visited Oct. 17, 2013).

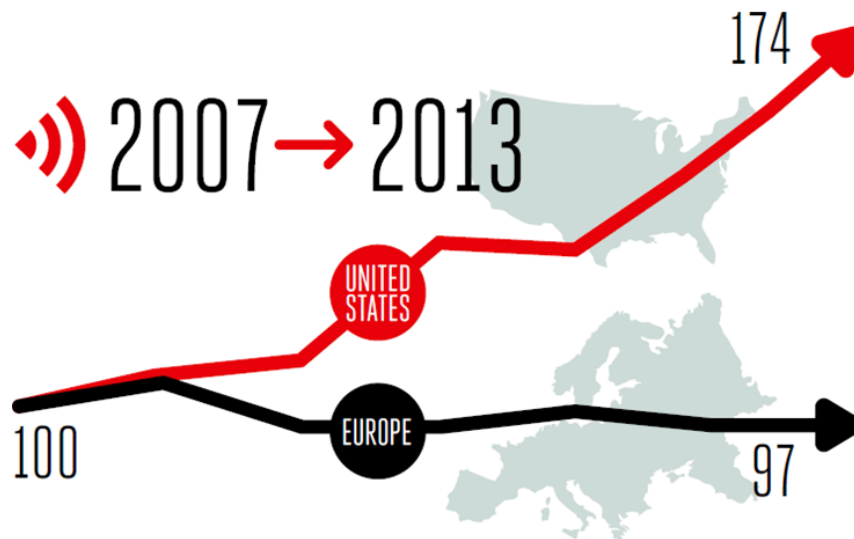
<sup>3</sup> Press Release, CTIA – The Wireless Association®, CTIA – The Wireless Association® Semi-Annual Survey Shows U.S. Wireless Providers Invested Almost Six Times More Per Subscriber than Rest of

investment.<sup>4</sup> It's a striking ratio: the U.S. comprises just 5% of the global wireless market but our investments outstrip that by five-fold.

In fact, U.S. wireless providers continue to be the world leaders with respect to capital investment in networks and services by significant margins. In 2012, U.S. providers invested almost six times more per subscriber than the rest of world: approximately \$94 per subscriber, compared to an average of only \$16 per subscriber by non-U.S. providers.<sup>5</sup> And the level of wireless capital expenditures in the U.S. grew more than 70% between 2007 and 2013, while declining in the EU.<sup>6</sup>

## WIRELESS CAPEX IN THE U.S. VERSUS EUROPE

Index 2007 = 100



Source: GSMA MOBILE WIRELESS PERFORMANCE

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World (May 2, 2013) (“CTIA May 2013 Press Release”), <http://www.ctia.org/media/press/body.cfm/prid/2261> (last visited Oct. 17, 2013).

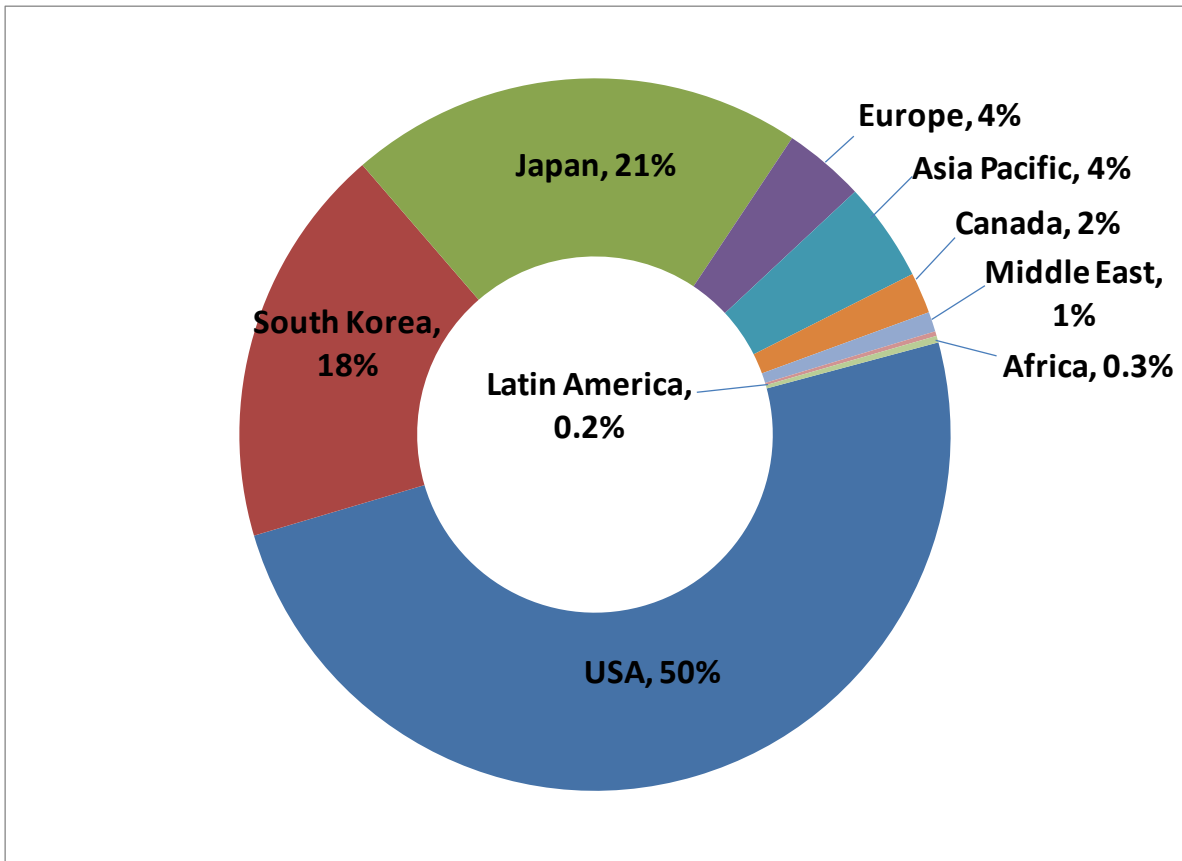
<sup>4</sup> *Id.*; Comments of CTIA – The Wireless Association®, WT Docket No. 13-135, at 5 (filed June 17, 2013) (“CTIA 2013 Competition Comments”), [http://files.ctia.org/pdf/filings/CTIA\\_FINAL\\_Mobile\\_Competition\\_Report\\_Comments\\_061713\\_as\\_filed.pdf](http://files.ctia.org/pdf/filings/CTIA_FINAL_Mobile_Competition_Report_Comments_061713_as_filed.pdf) (last visited Oct. 17, 2013) (citing DIDIER SCEMAMA, GLOBAL WIRELESS CAPEX: INCREASE 2013 FORECAST BY 7%, BANK OF AMERICA MERRILL LYNCH (Jan. 6, 2013) (“GLOBAL WIRELESS CAPEX”)).

<sup>5</sup> See CTIA – THE WIRELESS ASSOCIATION®, 50 Wireless Quick Facts, U.S. Wireless Industry: Economic Impact, <http://www.ctia.org/advocacy/research/index.cfm/AID/10377> (last visited Oct. 17, 2013) (citing GLOBAL WIRELESS CAPEX, *supra*); CTIA May 2013 Press Release, *supra*.

<sup>6</sup> See ERIK BOHLIN ET AL., GSMA, MOBILE WIRELESS PERFORMANCE IN THE EU & THE US 17 (May 2013) (“GSMA MOBILE WIRELESS PERFORMANCE”), [http://www.gsamobilewirelessperformance.com/GSMA\\_Mobile\\_Wireless\\_Performance\\_May2013.pdf](http://www.gsamobilewirelessperformance.com/GSMA_Mobile_Wireless_Performance_May2013.pdf) (last visited Oct. 17, 2013).

**More LTE Subscribers.** As a result of this investment, the U.S. is the world leader in the deployment and use of high-speed mobile networks. The United States accounts for half of the world's 4G LTE subscribers – despite having only 5% of the world's wireless subscribers. As the graphic below shows, this number is more than double the share of second ranking Japan and almost triple the share of third ranking South Korea.<sup>7</sup>

**Global LTE Connections by Region / Market, 2Q 2013**



Source: Informa Telecoms & Media Group WCIS+

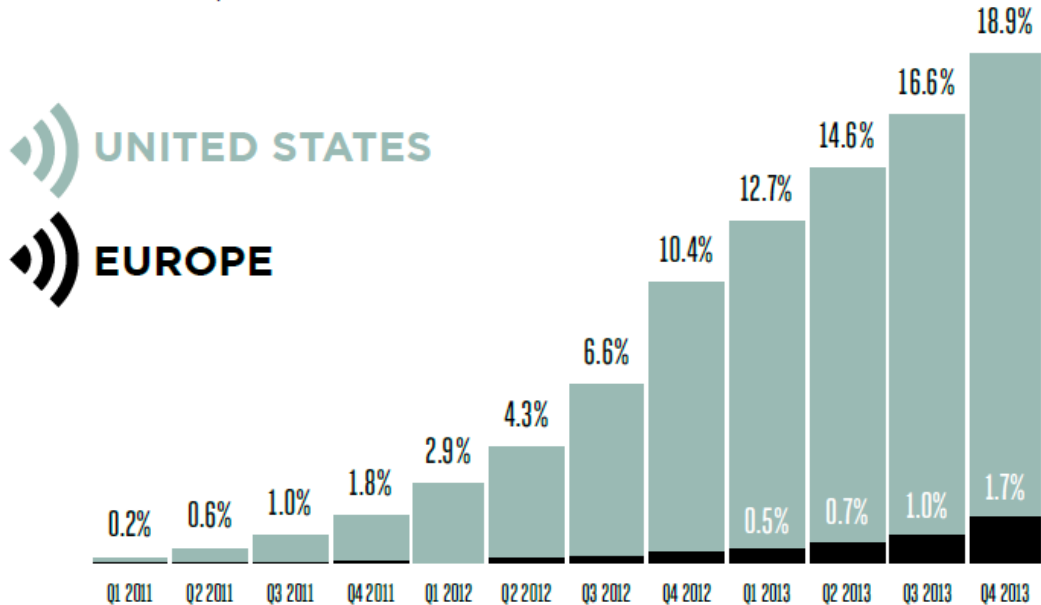
Indeed, U.S. investment is producing more LTE deployment and a higher rate of LTE subscribers than anywhere else. It's projected that by year-end 2013, nearly 20% of U.S. connections will be on LTE networks, compared to less than 2% in the EU.<sup>8</sup>

<sup>7</sup> This graphic is based on 2Q 2013 data from the Informa Telecoms & Media Group's World Cellular Information System (WCIS) database, which indicates that the U.S. had about 50% of all global LTE connections at mid-year 2013.

<sup>8</sup> GSMA MOBILE WIRELESS PERFORMANCE at 21.



## LTE CONNECTIONS AS PERCENTAGE OF TOTAL 2011-2013 PROJ., EU VERSUS U.S.



Source: GSMA Wireless Intelligence

Source: GSMA MOBILE WIRELESS PERFORMANCE

**Faster Speeds.** U.S. consumers also experience faster connection speeds as a result of greater U.S. investment in networks and services. In 2012, the average mobile data connection speed for North America was 2.6 Mbps, the fastest in the world, nearly twice that available in Western Europe, and over five times the global average.<sup>9</sup> Given the current heavy investment by U.S. providers in high-speed network build-out, that gap is projected to increase to 14.4 Mbps in North America, versus 7 Mbps in Western Europe, by 2017.<sup>10</sup>

**An Economic Driver.** Investment in the U.S. wireless industry has generated millions of good, high-paying jobs. The wireless industry in the U.S. directly or indirectly employs more than 3.8 million Americans, which accounts for 2.6% of all U.S. employment.<sup>11</sup> In addition, wireless employees are paid 65% higher than the national average for other workers.<sup>12</sup>

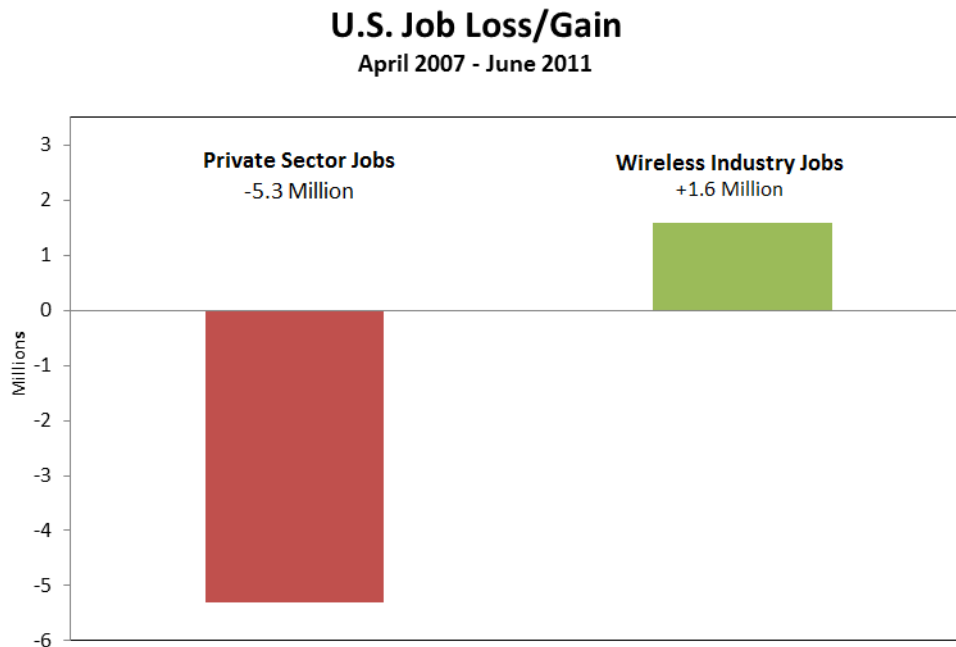
<sup>9</sup> See OFFICE OF SCIENCE AND TECHNOLOGY POLICY & THE NATIONAL ECONOMIC COUNCIL, FOUR YEARS OF BROADBAND GROWTH 6 (June 2013), [http://www.whitehouse.gov/sites/default/files/broadband\\_report\\_final.pdf](http://www.whitehouse.gov/sites/default/files/broadband_report_final.pdf) (last visited Oct. 17, 2013).

<sup>10</sup> GSMA MOBILE WIRELESS PERFORMANCE at 13. As projected, by 2017, data rates in Central and Eastern Europe and in Asia-Pacific will trail even further behind, at 4.8 Mbps and 3 Mbps, respectively. *Id.*

<sup>11</sup> See ROGER ENTNER, RECON ANALYTICS, THE WIRELESS INDUSTRY: THE ESSENTIAL ENGINE OF U.S. ECONOMIC GROWTH 1 (2012), <http://reconanalytics.com/wp-content/uploads/2012/04/Wireless-The-Ubiquitous-Engine-by-Recon-Analytics-1.pdf> (last visited Oct. 31, 2013).

<sup>12</sup> See *id.* at 22.

While total private sector jobs fell by 5.3 million between April 2007 and June 2011, the U.S. wireless industry gained almost 1.6 million new jobs in the same period.<sup>13</sup>



Source: NDN, EFFECTS OF ADVANCES IN INTERNET AND WIRELESS TECHNOLOGY

Further, the build-out of advanced wireless networks alone will generate between 371,000 and 771,000 jobs by 2016.<sup>14</sup>

**The Wireless Industry is a Leading Driver of U.S. Economic Growth:** In terms of contributions to the U.S. economy, the “U.S. wireless industry is now larger than the publishing, agriculture, hotels and lodging, air transportation, motion picture and recording, and motor vehicle manufacturing industry segments and rivals the computer systems design services and oil and gas extraction industries.”<sup>15</sup>

<sup>13</sup> See ROBERT J. SHAPIRO AND KEVIN A. HASSETT, NDN, THE EMPLOYMENT EFFECTS OF ADVANCES IN INTERNET AND WIRELESS TECHNOLOGY: EVALUATING THE TRANSITIONS FROM 2G TO 3G AND FROM 3G TO 4G 1, 4 (Jan. 2012) (“NDN, EFFECTS OF ADVANCES IN INTERNET AND WIRELESS TECHNOLOGY”) [http://ndn.org/sites/default/files/blog\\_files/The%20Employment%20Effects%20of%20Advances%20In%20Internet%20and%20Wireless%20Technology\\_1.pdf](http://ndn.org/sites/default/files/blog_files/The%20Employment%20Effects%20of%20Advances%20In%20Internet%20and%20Wireless%20Technology_1.pdf) (last visited Oct. 31, 2013).

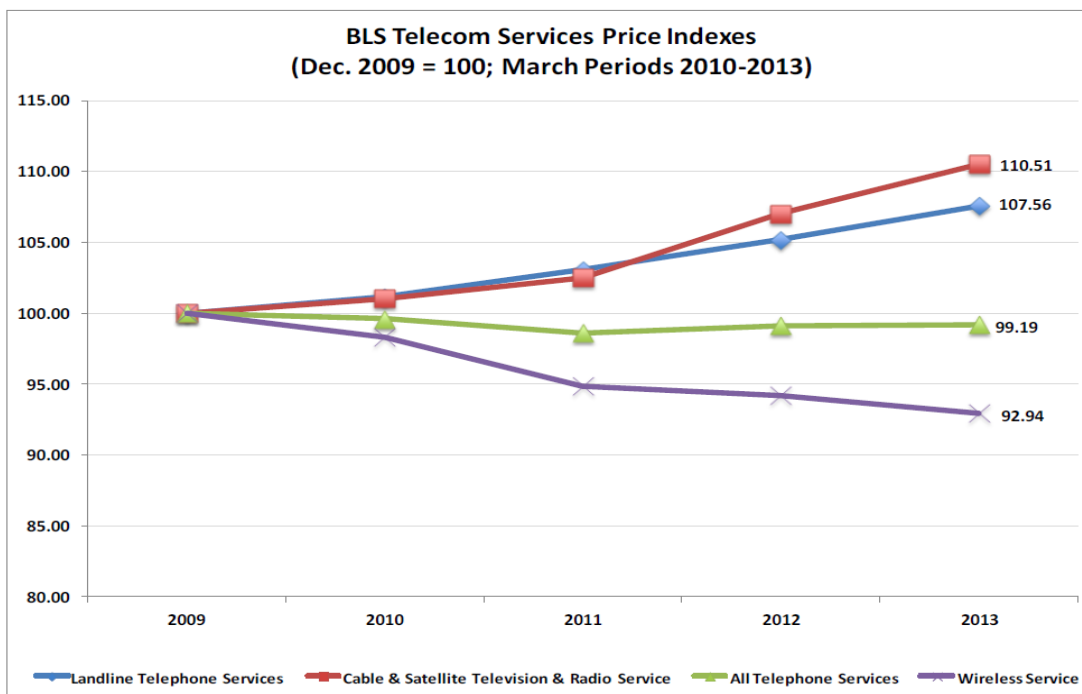
<sup>14</sup> See CTIA – THE WIRELESS ASSOCIATION®, THE U.S. WIRELESS INDUSTRY OVERVIEW 6 (Apr. 25, 2012) (“CTIA U.S. WIRELESS INDUSTRY OVERVIEW”), [http://files.ctia.org/pdf/042412\\_-\\_Wireless\\_Industry\\_Overview.pdf](http://files.ctia.org/pdf/042412_-_Wireless_Industry_Overview.pdf) (last visited Oct. 31, 2013) (citing DELOITTE, THE IMPACT OF 4G TECHNOLOGY ON COMMERCIAL INTERACTIONS, ECONOMIC GROWTH, AND U.S. COMPETITIVENESS (Aug. 2011)).

<sup>15</sup> ROGER ENTNER, THE WIRELESS INDUSTRY: THE ESSENTIAL ENGINE OF US ECONOMIC GROWTH (2012), <http://reconanalytics.com/wp-content/uploads/2012/04/Wireless-The-Ubiquitous-Engine-by-Recon-Analytics-1.pdf> (last visited Nov. 12, 2013).

**VALUE**

As CTIA has detailed for the Commission before, U.S. consumers enjoy unparalleled value from their wireless services. Nowhere is this more evident than the declining prices U.S. wireless consumers continue to enjoy – falling even as other telecommunications and overall consumer prices continue to rise. As shown below, both mobile voice and data prices continued to decline in 2012, as overall usage, especially on the data side, continued to grow.

**Wireless Is a Telecom Bargain.** In particular, the Bureau of Labor Statistics Wireless Consumer Price Index (“CPI”) has declined in each of the last four years, while the CPI indices for other communication services continue to rise.<sup>16</sup>



Source: BLS Consumer Price Index Databases (not seasonally adjusted).

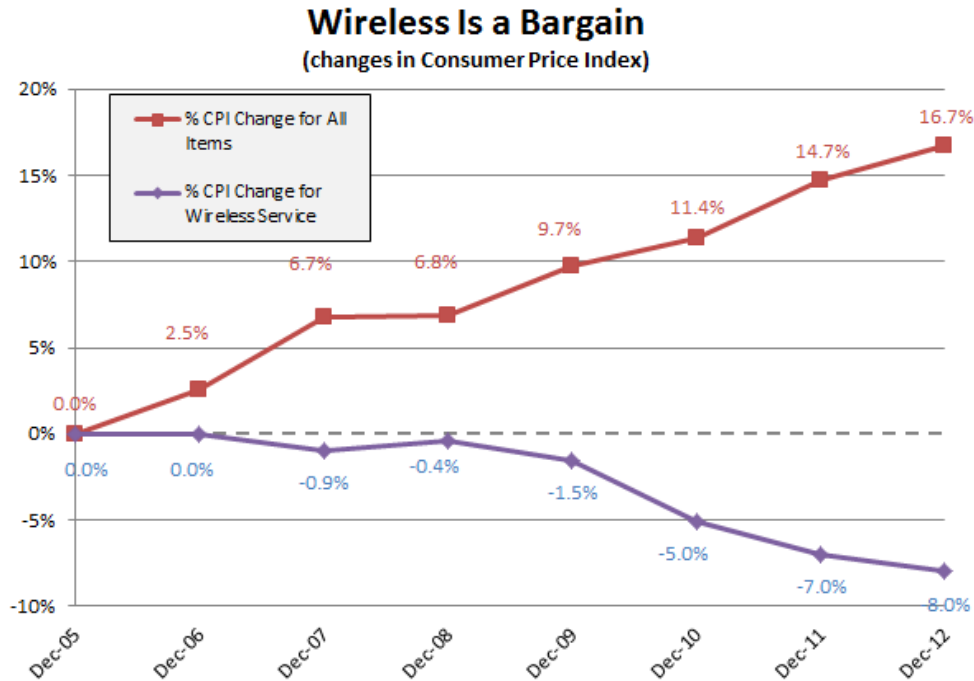
**Wireless Is an Overall Bargain.** Indeed, as shown in the chart below, from December 2005 to December 2012, the Wireless CPI fell 8.0%,<sup>17</sup> while the overall CPI for all items increased 16.7%.<sup>18</sup> And the trends since 1997 (the first year in which the government tracked

<sup>16</sup> See Testimony of Steve Largent, President and CEO, CTIA – The Wireless Association®, on *The State of Wireless Communications: Hearing Before the Subcomm. on Communications, Technology, and the Internet of the S. Commerce Comm.*, at 3 (June 4, 2013) (citing BLS Consumer Price Index Databases (not seasonally adjusted)); <http://wirelessbroadbandcoalition.org/wp-content/uploads/2013/05/Steve-Largent-Testimony.pdf>.

<sup>17</sup> See CTIA 2012 WIRELESS INDICES at 217-20.

<sup>18</sup> See U.S. DEP’T OF LABOR, BUREAU OF LABOR STATISTICS, CONSUMER PRICE INDEX: ALL URBAN CONSUMERS – (CPI-U), U.S. CITY AVERAGES, ALL ITEMS, <ftp://ftp.bls.gov/pub/special.requests/cpi/cpiiai.txt> (last visited Oct. 17, 2013) (“CPI – ALL ITEMS”).

Wireless CPI) are even more telling: Wireless CPI declined by more than 40%, while overall CPI increased by more than 42%.<sup>19</sup>



Source: CTIA 2012 WIRELESS INDICES and U.S. Dep't of Labor

**Plummeting Data Prices.** The price declines for data services tell a similar story: The effective price per megabyte (“MB”) fell 50% in just one year from \$0.06 per MB in 2011 to \$0.03 per MB in 2012.<sup>20</sup> These price declines occurred while data usage soared more than 69% over the same period from 866.9 billion MB in 2011 to 1.468 trillion MB in 2012.<sup>21</sup> Overall, the price per MB has fallen more than 93% in just five years, from \$0.46 in 2008 to \$0.03 in 2012.<sup>22</sup>

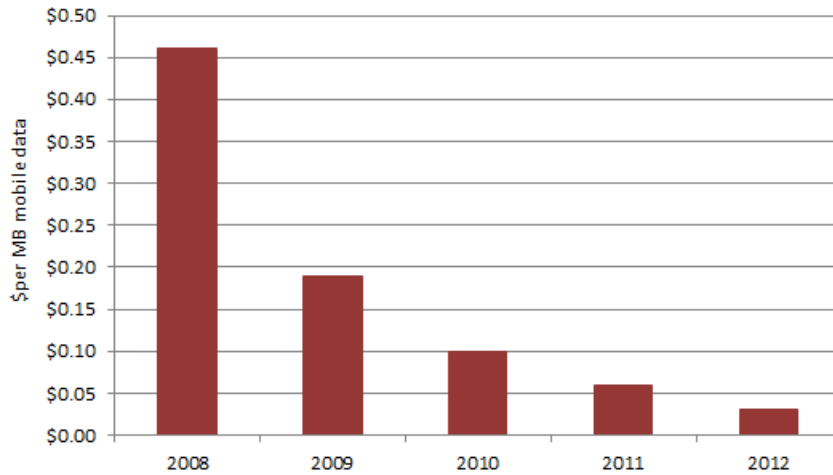
<sup>19</sup> See CTIA 2012 WIRELESS INDICES at 214-20; CPI – ALL ITEMS.

<sup>20</sup> See Visage, Infographic: The Staggeringly Huge Future of Mobility, <http://visagemobile.com/mobilityblog/2012/09/06/infographic-the-staggeringly-huge-future-of-mobility/> (last visited Oct. 17, 2013) (“Visage Infographic”); see also WANDERA, 5 THINGS MOBILITY MANAGERS NEED TO KNOW ABOUT REDUCING MOBILE DATA EXPENSES 1 (2013), [http://www.wandera.com/wp-content/uploads/2013/02/Wandera\\_WP01213.pdf](http://www.wandera.com/wp-content/uploads/2013/02/Wandera_WP01213.pdf) (“Average monthly data costs in the US are 1.04 GB x \$0.03 = \$31.2 (Visage).”) (last visited Oct. 17, 2013).

<sup>21</sup> CTIA 2012 WIRELESS INDICES at 3.

<sup>22</sup> See Visage Infographic.

## Data Costs Are Falling (cost per MB of mobile data)



Source: Visage Infographic

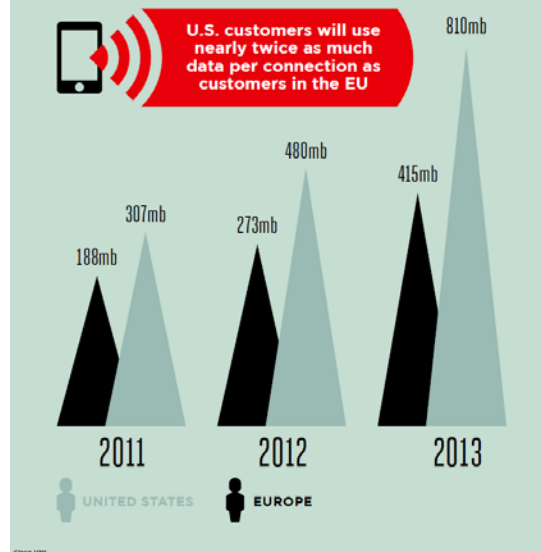
**World-Leading Usage.** In fact, the U.S. wireless industry provides extraordinary value for consumers when it comes to price as compared to other developed countries. U.S. consumers “pay less per unit of usage” – and thus receive better value – as they use mobile services more extensively, *i.e.*, five times more voice minutes and two times more data per connection than the EU average.<sup>23</sup>

### VOICE MINUTES OF USE PER SUBSCRIPTION 2012



© 2012 Lynch Global Wireless Metrics 4Q12 (hereafter, "Global Wireless Metrics")

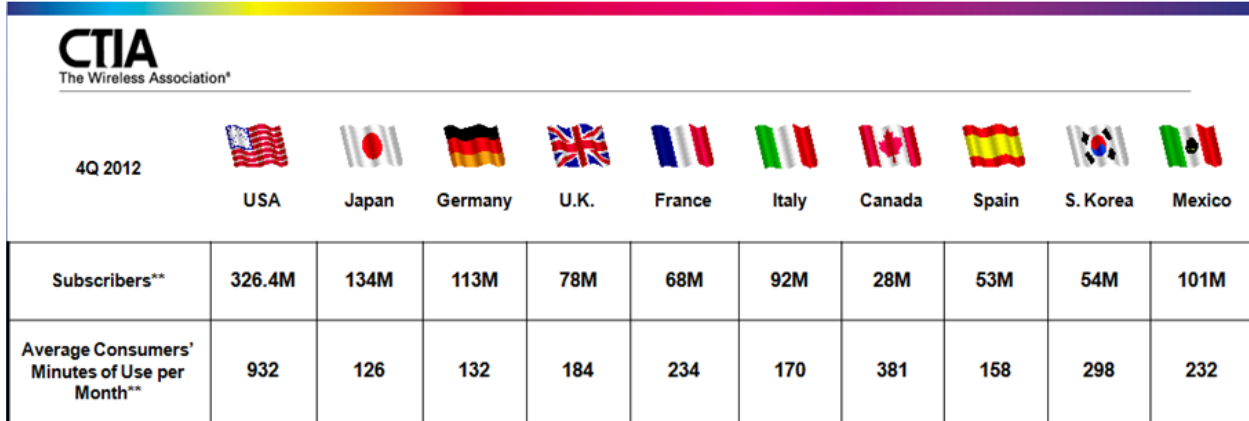
### MEGABYTES OF DATA TRAFFIC PER CONNECTION 2011-2013



Source: GSMA MOBILE WIRELESS PERFORMANCE

<sup>23</sup> See GSMA MOBILE WIRELESS PERFORMANCE at 2, 6-10.

Other research on the mobile wireless markets in the top ten OECD countries by GDP confirms that U.S. wireless companies provide consumers with more service for their telecommunications dollar. As the CTIA “flag chart” below illustrates, as of 4Q 2012 Americans used 932 minutes of voice minutes per month on a per capita basis – by far the highest among the top ten OECD countries.<sup>24</sup> The country with the next closest ranking is Canada, with a per capita usage of just 381 minutes.



\*\* Glen Campbell, et al., “Global Wireless Matrix 1Q12,” Bank of America Merrill Lynch, Apr. 15, 2013, at Tables 1-2.

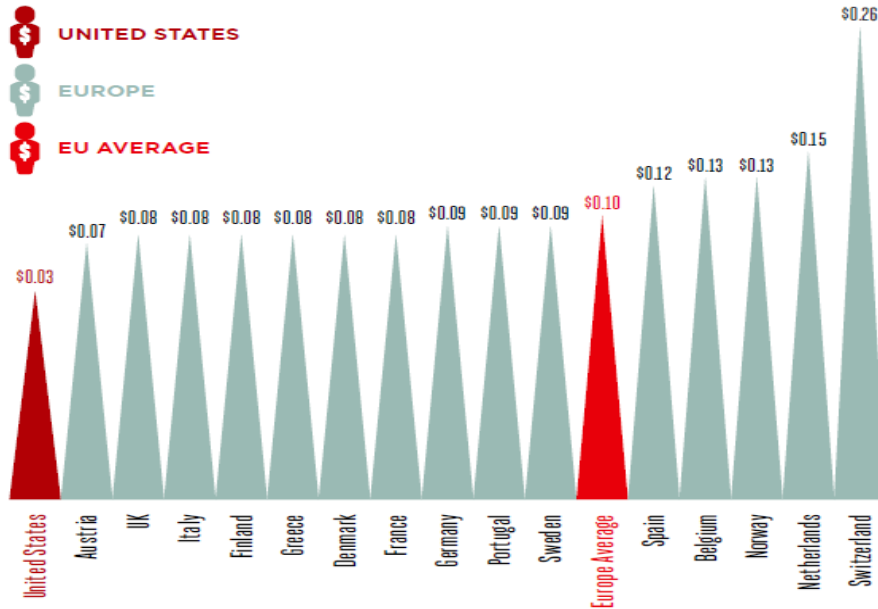
Source: CTIA 2013 Competition Comments

***Lowest Revenue per Minute.*** Tellingly, the average revenue per minute of voice usage for wireless carriers in the U.S. in 2012 was three cents, “far lower than in any European country, and less than a third of the European average.”<sup>25</sup>

<sup>24</sup> CTIA 2013 Competition Comments at 67-68.

<sup>25</sup> GSMA MOBILE WIRELESS PERFORMANCE at 8 fig. 4 (utilizing Merrill Lynch data).

## VOICE REVENUE PER MINUTE 2012



Source: GSMA MOBILE WIRELESS PERFORMANCE

**Consumer Satisfaction.** Given the low prices and superior value U.S. consumers enjoy, it is not surprising that consumer satisfaction levels remain strong. The American Customer Satisfaction Index and Consumer Reports have each reported that the wireless industry has increasingly high consumer satisfaction.<sup>26</sup> And a McLaughlin & Associates and Penn Schoen Berland 2013 survey reflects that 91% of wireless phone customers remain highly satisfied with their wireless phone service.<sup>27</sup>

<sup>26</sup> See American Customer Satisfaction Index, Benchmarks by Industry, Wireless Telephone Service, [http://theacsi.org/index.php?option=com\\_content&view=article&id=147&catid=&Itemid=212&i=Wireless+Telephone+Service](http://theacsi.org/index.php?option=com_content&view=article&id=147&catid=&Itemid=212&i=Wireless+Telephone+Service) (last visited Oct. 17, 2013) (reflecting overall satisfaction with wireless telephone service up nearly 11% from a score of 65 in 2004 to 72 in 2013); Consumer Reports, U.S. Cell Phone Carriers Ratings, <http://www.consumerreports.org/cro/electronics-computers/phones-mobile-devices/cell-phones-services/us-cell-phone-carriers-ratings/ratings-overview.htm> (last visited Oct. 18, 2013) (finding customers with and without contracts from a wide variety of carriers are “fairly well satisfied” to “very satisfied”).

<sup>27</sup> MCLAUGHLIN & ASSOCIATES AND PENN SCHOEN BERLAND, 2013 ANNUAL CONSUMER SURVEY, <http://www.mywireless.org/media-center/data-center/2013-national-survey/> (last visited Oct. 17, 2013).



**INNOVATION**

Massive capital investment serves as a catalyst for the virtuous cycle of wireless investment and innovation. That is, sustained capital expenditures facilitate the creation of networks capable of supporting greater speeds and functionalities, which bring about more powerful and useful devices driven by multiple operating systems and limitless applications, which, in turn, drive demand for even more capable networks. New devices, for example, do more than ever before. Mobile devices “now incorporate features such as ultra-high resolution screens with precise touch sensing, graphic-processing power rivaling game consoles, and new kinds of sensors.”<sup>28</sup> The processing power of the average smartphone has increased by about 25% per year over the past five years.<sup>29</sup> And the advance of 4G wireless networks offers increasingly fast data speeds, while allowing consumers to make seamless transitions from a home broadband network, to office Wi-Fi, to mobile voice and data services.<sup>30</sup>

American consumers are the beneficiaries of the virtuous cycle, and the innovation it has produced is staggering:

***Massive Numbers of Devices from Dozens of Manufacturers.*** There are more than 790 different handsets and devices offered to American consumers by facilities-based carriers, MVNOs, and more than 50 different device manufacturers,<sup>31</sup> including Apple, BlackBerry, HTC, Huawei, Kyocera, LG, Motorola, Nokia, Samsung, Sanyo, Sony, and ZTE.<sup>32</sup> These devices are offered to consumers from carriers, manufacturers, and retail stores like Best Buy, RadioShack, Wal-Mart, Target and more.

***An Explosion of Smartphones, As 4G Connectivity Grows.*** In Q4 2012, smartphones accounted for almost 84% of devices sold.<sup>33</sup> More than 152 million smartphones and wireless PDAs were active on U.S. wireless carriers’ networks at year-end 2012, up 36.4% from 111.5 million at year-end 2011.<sup>34</sup> While the number of 4G-connected devices increased a staggering

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<sup>28</sup> JAMES MANYIKA *ET AL.*, MCKINSEY GLOBAL INSTITUTE, DISRUPTIVE TECHNOLOGIES: ADVANCES THAT WILL TRANSFORM LIFE, BUSINESS, AND THE GLOBAL ECONOMY 29 (May 2013), [http://www.mckinsey.com/insights/business\\_technology/disruptive\\_technologies](http://www.mckinsey.com/insights/business_technology/disruptive_technologies) (last visited Oct. 17, 2013).

<sup>29</sup> *Id.* at 30.

<sup>30</sup> *See id.* at 29.

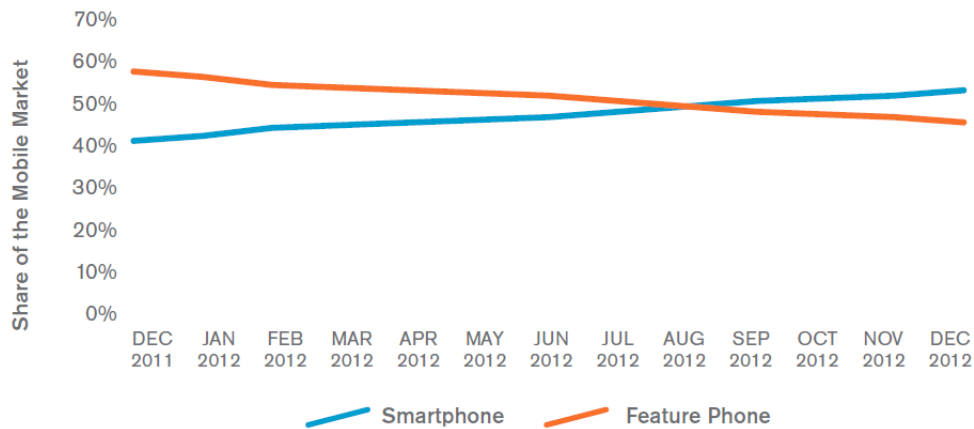
<sup>31</sup> CTIA Research, based upon review of licensee, MVNO, and manufacturer websites during summer 2013.

<sup>32</sup> *Id.*

<sup>33</sup> CHETAN SHARMA CONSULTING, US WIRELESS MARKET UPDATE: Q4 2012 AND FULL YEAR 2012 7 (Mar. 2013), <http://www.chetansharma.com/blog/2013/03/13/us-mobile-market-update-q4-2012-and-full-year-2012/> (last visited Oct. 17, 2013).

<sup>34</sup> CTIA 2012 WIRELESS INDICES at 11.

273% in 2012, to 33.1 million devices, it has since reached more than 62.5 million.<sup>35</sup> The following chart illustrates the changing relationship between feature phones and smartphones:<sup>36</sup>



Source: COMSCORE U.S. DIGITAL FUTURE IN FOCUS 2013

**Booming Tablet Sales.** Increasingly, Americans own tablets and other devices in addition to smartphones. The tablet is the “fastest-growing product category in the history of the [consumer electronics] industry.”<sup>37</sup> By the end of 2012, more than 50 million U.S. consumers owned tablets<sup>38</sup> – more than double that of 2011<sup>39</sup> – and more than 100 tablet models are (or soon will be) available to U.S. consumers.<sup>40</sup>

<sup>35</sup> COMSCORE, MOBILE FUTURE IN FOCUS 2013 17 (Feb. 2013), <http://www.comscore.com/mobilefutureinfocus2013> (last visited Oct. 17, 2013). Informa Telecoms & Media Group WCIS+ database (last visited Nov. 12, 2013).

<sup>36</sup> COMSCORE, U.S. DIGITAL FUTURE IN FOCUS 2013 33 (2013) (“COMSCORE U.S. DIGITAL FUTURE IN FOCUS 2013”), [http://www.comscore.com/Insights/Presentations\\_and\\_Whitepapers/2013/2013\\_US\\_Digital\\_Future\\_in\\_Focus](http://www.comscore.com/Insights/Presentations_and_Whitepapers/2013/2013_US_Digital_Future_in_Focus) (last visited Oct. 17, 2013).

<sup>37</sup> Press Release, Consumer Electronics Association, CE Industry Yearly Revenues Expected to Surpass \$200B for First Time (July 24, 2012) (quoting Steve Koenig, CEA’s Director of Industry Analysis), [http://www.ce.org/News/News-Releases/Press-Releases/2012-Press-Releases/CE-Industry-Yearly-Revenues-Expected-to-Surpass-\\$2.aspx](http://www.ce.org/News/News-Releases/Press-Releases/2012-Press-Releases/CE-Industry-Yearly-Revenues-Expected-to-Surpass-$2.aspx) (last visited Oct. 17, 2013).

<sup>38</sup> Press Release, comScore, comScore Releases the “2013 Mobile Future in Focus” Report (Feb. 25, 2013), [http://www.comscore.com/Insights/Press\\_Releases/2013/2/comScore\\_Releases\\_the\\_2013\\_Mobile\\_Future\\_in\\_Focus\\_Report](http://www.comscore.com/Insights/Press_Releases/2013/2/comScore_Releases_the_2013_Mobile_Future_in_Focus_Report) (last visited Oct. 17, 2013).

<sup>39</sup> See Frederic Lardinois, *Forrester: 84% of U.S. Adults Now Use the Web Daily, 50% Own Smartphones, Tablet Ownership Doubled to 19% in 2012*, TECHCRUNCH, Dec. 19, 2012, <http://techcrunch.com/2012/12/19/forrester-84-of-u-s-adults-now-use-the-web-daily-50-own-smartphones-tablet-ownership-doubled-to-19-in-2012/> (last visited Oct. 17, 2013).

<sup>40</sup> See Eric Franklin & Xiomara Blanco, *CNET Looks at Current and Upcoming Tablets*, CNET, Aug. 23, 2013, [http://news.cnet.com/8301-17938\\_105-20037960-1/cnet-looks-at-current-and-upcoming-tablets/](http://news.cnet.com/8301-17938_105-20037960-1/cnet-looks-at-current-and-upcoming-tablets/) (last visited Oct. 17, 2013). Major tablet manufacturers include Acer, Amazon, Apple, Archos, Asus,

**Multiple Operating Systems.** There are currently more than a dozen different operating systems in the marketplace.<sup>41</sup>

Wireless Operating Systems	
Android (Open Handset Alliance & Google)	iOS (Apple)
Asha OS (Nokia)	Sailfish OS (Jolla)
bada (Samsung)	S40 (Nokia)
BlackBerry OS (BlackBerry)	Symbian (Nokia)
BlackBerry 10 (BlackBerry)	Tizen [fka LiMo]
Brew (QUALCOMM)	Ubuntu for Mobile
Firefox OS (Mozilla)	Windows Phone (Microsoft)

Source: CTIA 2013 Competition Comments

**More Apps Available.** As of December 2012, there were more than 20 independent non-carrier mobile application (“app”) stores, offering more than 3.5 million apps for fourteen different operating systems.<sup>42</sup> By comparison, there were only 240,000 applications just three years ago.<sup>43</sup> And Android’s Google Play application store officially surpassed one million apps in July 2013, surpassing Apple’s application store and its 900,000 applications.<sup>44</sup>

**Exploding App Usage.** The amount of time consumers spend each month on mobile apps continues to explode. Whereas users spent 67% of their time on apps (and 33% on the mobile web) in 2011,<sup>45</sup> as the graphic below shows, users were spending 87% of their time on apps (versus only 13% on the mobile web) by the end of the first quarter of 2013.<sup>46</sup>

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Barnes & Noble, Dell, Google, HP, Kobo, Lenovo, Microsoft, Pantech, Polaroid, Samsung, Sony, Toshiba, Velocity, and Vizio. *See id.*

<sup>41</sup> *See* CTIA 2013 Competition Comments at 31.

<sup>42</sup> CTIA Research.

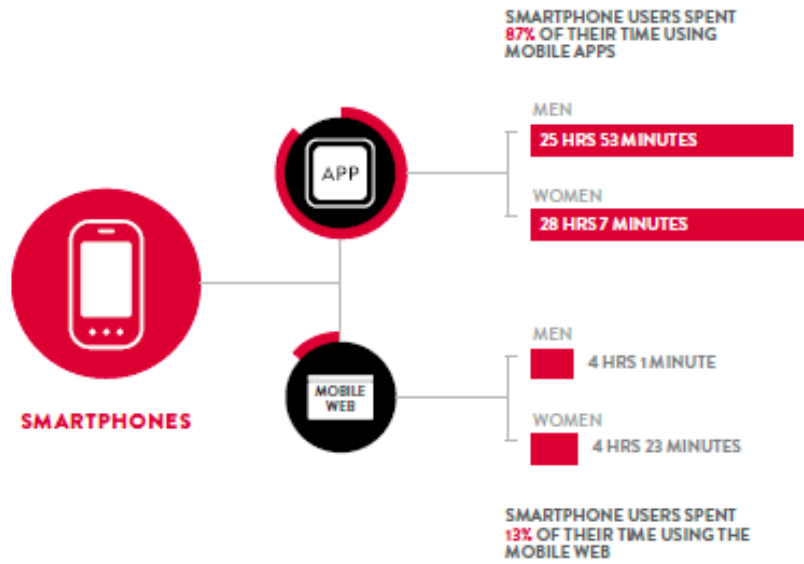
<sup>43</sup> *See* CTIA U.S. WIRELESS INDUSTRY OVERVIEW at 14.

<sup>44</sup> *See* Conner Flynn, *Google Play Beats App Store with Over 1 Million Apps*, GEEKY GADGETS (July 25, 2013), <http://www.geeky-gadgets.com/google-play-beats-app-store-with-over-1-million-apps-25-07-2013/> (last visited Oct. 17, 2013).

<sup>45</sup> *See* Don Kellogg, *Mobile Apps Beat the Mobile Web Among US Android Smartphone Users*, NIELSEN, Aug. 18, 2011, <http://www.nielsen.com/us/en/newswire/2011/mobile-apps-beat-the-mobile-web-among-us-android-smartphone-users.html> (last visited Oct. 17, 2013).

<sup>46</sup> *See* NIELSEN, A LOOK ACROSS SCREENS: THE CROSS-PLATFORM REPORT 4 (June 2013) (“NIELSEN CROSS-PLATFORM REPORT”), <http://www.nielsen.com/content/dam/corporate/us/en/reports-downloads/2013%20Reports/Q1-2013-Nielsen-Cross-Platform-Report.pdf> (last visited Oct. 17, 2013).

## MARCH 2013 MONTHLY USAGE OF APP AND MOBILE WEB



Source: NIELSEN CROSS-PLATFORM REPORT

# COMPETITION

Each of the foregoing indicators demonstrates that the U.S. wireless marketplace is robustly competitive across the mobile ecosystem. From infrastructure and equipment manufacturers, to content and application developers, to platform and service providers, as prices fall, and investment and innovation increase – the U.S. wireless marketplace is delivering unparalleled value to wireless users. As this paper demonstrates, the mobile wireless market in the U.S. consists of complex, interrelated segments, which individually and collectively are vigorously competitive.

***A Dynamic and Competitive Mobile Ecosystem.*** Notably, the U.S. has the most facilities-based providers of any nation, and is one of only two countries with five or more licensees per market. Indeed, according to the FCC’s most recent data, there are 191 facilities-based mobile providers in the U.S.,<sup>47</sup> along with countless resellers/mobile virtual network operators (“MVNOs”).

But the competition clearly does not stop at the carrier level. Competition in the infrastructure, device, operating system, and application markets is robust, and is generating significant benefits for U.S. customers. As noted above, there are more than 790 different handsets and devices offered to American consumers from more than 50 different device manufacturers, more than 20 independent non-carrier mobile application (“app”) stores, and more than a dozen different operating systems competing to the benefit of consumers.

***Recent Developments.*** In addition, developments within the industry just this year have provided more opportunities to drive stronger and more disruptive competitors – and new competitors – to benefit consumers. Examples of this boom in activity in the market sector include:

- *SoftBank’s Investment in Sprint.* SoftBank’s \$21.6 billion investment allowed it to obtain a 78% interest in Sprint,<sup>48</sup> and Softbank has committed to spending \$16 billion on Sprint’s network over the next two years.<sup>49</sup> Increased investment in Sprint’s network is likely to “strengthen Sprint’s ability to compete,” accelerate its rollout of mobile broadband, and promote greater innovation and lower prices.<sup>50</sup> The Commission also

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<sup>47</sup> See INDUSTRY ANALYSIS AND TECHNOLOGY DIVISION, WIRELINE COMPETITION BUREAU, FCC, LOCAL TELEPHONE COMPETITION: STATUS AS OF JUNE 30, 2012, at 29 tbl.18 (Jun. 2013), [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-321568A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-321568A1.pdf) (last visited Oct. 17, 2013).

<sup>48</sup> See *Applications of SoftBank Corp., Starburst II, Inc., Sprint Nextel Corporation, and Clearwire Corporation*, Memorandum Opinion and Order, Declaratory Ruling, and Order on Reconsideration, 28 FCC Rcd 9642, 9646 ¶ 12 (2013) (“*SoftBank-Sprint MO&O*”).

<sup>49</sup> See John Freml, *The Future Looks Bright as Sprint Completes Acquisition of Clearwire, and Softbank Invests Billions in Sprint*, POCKETABLES, July 9, 2013, <http://www.pocketables.com/2013/07/the-future-looks-bright-as-sprint-completes-acquisition-of-clearwire-and-softbank-invests-billions-in-sprint.html> (last visited Oct. 17, 2013).

<sup>50</sup> See *SoftBank-Sprint MO&O*, 28 FCC Rcd at 9682 ¶ 102.

approved Sprint's acquisition of the remaining shares of Clearwire, enabling it to add Clearwire's 2.5 GHz spectrum assets to its portfolio.<sup>51</sup>

- *T-Mobile's Acquisition of MetroPCS.* T-Mobile's acquisition of MetroPCS, which added 9 million subscribers and MetroPCS's spectrum holdings to T-Mobile's assets,<sup>52</sup> has already yielded benefits, as the transition to switch the MetroPCS network to a blend of HSPA+ and LTE is ahead of schedule.<sup>53</sup> T-Mobile's acquisition of AWS spectrum from MetroPCS will result in increased wireless competition by encouraging national LTE deployment<sup>54</sup> and render T-Mobile "an even stronger disruptive force in the U.S. wireless market."<sup>55</sup>
- *DISH Granted Full Terrestrial Authority.* The Commission recently granted DISH Network full, flexible use terrestrial authority for 40 MHz of spectrum in the 2 GHz band at 2000-2020 MHz and 2180-2200 MHz (AWS-4).<sup>56</sup> The Commission also established an ambitious build-out deadline by which DISH must construct its terrestrial network.<sup>57</sup> While certain technical restrictions apply, the AWS-4 spectrum is now a full terrestrial mobile broadband band similar to the cellular, PCS, and AWS bands, introducing the prospect of a fifth nationwide terrestrial mobile broadband network in the United States.

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<sup>51</sup> See *id.* at 9665-67 ¶¶ 59-61.

<sup>52</sup> See *Applications of Deutsche Telekom AG, T-Mobile USA, Inc., and MetroPCS Communications, Inc.*, Memorandum Opinion and Order and Declaratory Ruling, 28 FCC Rcd 2322, 2325-26 ¶¶ 8-9, 2330 ¶ 20 & n.53 (WTB/IB 2013) ("*T-Mobile-MetroPCS MO&O*"); Press Release, T-Mobile, T-Mobile and MetroPCS Combination Complete – Wireless Revolution Just Beginning (May 1, 2013), <http://investor.t-mobile.com/phoenix.zhtml?c=177745&p=irol-newsArticle&ID=1813508&highlight> (last visited Oct. 17, 2013).

<sup>53</sup> See Jon Fingas, *T-Mobile Says MetroPCS Network Transition Is Ahead of Schedule*, ENGADGET, June 16, 2013, <http://www.engadget.com/2013/06/16/t-mobile-says-metropcs-network-transition-is-ahead-of-schedule/> (last visited Oct. 17, 2013).

<sup>54</sup> See *T-Mobile-MetroPCS MO&O*, 28 FCC Rcd at 2348 ¶ 74.

<sup>55</sup> Hayley Tsukayama, *T-Mobile, MetroPCS Finish Deal, Ring NYSE Bell*, WASHINGTON POST TECH BLOG, May 1, 2013, [http://www.washingtonpost.com/blogs/post-tech/post/t-mobile-metropcs-finish-deal-will-ring-nyse-bell/2013/05/01/f796b14a-b25c-11e2-bbf2-a6f9e9d79e19\\_blog.html](http://www.washingtonpost.com/blogs/post-tech/post/t-mobile-metropcs-finish-deal-will-ring-nyse-bell/2013/05/01/f796b14a-b25c-11e2-bbf2-a6f9e9d79e19_blog.html) (quoting John Legere, President and CEO of T-Mobile US, Inc.) (last visited Oct. 17, 2013).

<sup>56</sup> See *Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands*, Order of Modification, 28 FCC Rcd 1276 (IB/SD & WTB/BD 2013); *Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands*, Report and Order and Order of Proposed Modification, 27 FCC Rcd 16102 (2012) ("*AWS-4 R&O*").

<sup>57</sup> Specifically, DISH must provide terrestrial signal coverage and offer terrestrial service to at least 40% of its total terrestrial license areas' population within four years and to at least 70% of the population in each of its license areas within seven years. *AWS-4 R&O*, 27 FCC Rcd at 16111 ¶ 20.



**Lowest HHI.** Moreover, a review of marketplace structure also demonstrates that the U.S. is the least concentrated mobile wireless marketplace compared to other countries. Using the Herfindahl-Hirschman Index (“HHI”), an indicia of market concentration, the HHI of the United States is the lowest of 28 OECD countries by a significant margin – 2,401, compared to 2,635 for Poland. Even taking into account the recently completed T-Mobile/MetroPCS merger and Sprint/Softbank’s acquisition of Clearwire, the HHI for the U.S. is still the lowest at only 2,468.<sup>58</sup>

Wireless Mobile Competition in OECD Countries, 4Q 2012 – HHI Values									
Operators	1	2	3	4	5	6	7	Others	HHI Sum
Australia	2,222.17	980.85	464.04	0.00	0.00	0.00	0.00	0.00	3,667.06
Austria	1,527.83	889.05	366.22	143.01	0.00	0.00	0.00	0.00	2,926.11
Belgium**	1,721.70	1,222.54	554.22	0.00	0.00	0.00	0.00	0.00	3,498.46
Canada**	1,232.01	816.17	813.84	5.11	4.82	3.42	0.00	0.00	2,875.37
Chile	1,474.30	1,455.11	550.25	0.00	0.00	0.00	0.00	0.00	3,479.66
Czech Republic	1,551.99	1,326.53	584.82	0.00	0.00	0.00	0.00	0.00	3,463.34
Denmark**	1,652.77	841.23	398.25	107.86	0.00	0.00	0.00	0.00	3,000.11
Finland	1,648.74	1,155.49	645.30	0.00	0.00	0.00	0.00	0.00	3,449.53
France	1,894.68	1,035.08	276.01	0.00	0.00	0.00	0.00	0.00	3,205.77
Germany	1,044.32	896.96	427.62	290.90	0.00	0.00	0.00	0.00	2,659.80
Greece	2,603.47	853.48	390.51	0.00	0.00	0.00	0.00	0.00	3,847.46
Hungary	2,227.12	868.40	544.71	0.00	0.00	0.00	0.00	0.00	3,640.23
Israel	1,155.47	999.99	911.32	17.62	0.00	0.00	0.00	0.00	3,084.39
Italy	1,209.52	1,008.96	548.18	100.89	0.00	0.00	0.00	0.00	2,867.55
Japan	2,069.00	754.00	546.07	13.59	0.00	0.00	0.00	0.00	3,382.66
Korea	2,527.77	946.98	359.11	0.00	0.00	0.00	0.00	0.00	3,833.85
Mexico	4,870.58	361.04	53.87	14.98	0.00	0.00	0.00	0.00	5,300.46
Netherlands	1,856.28	904.37	720.52	0.00	0.00	0.00	0.00	0.00	3,481.18
New Zealand	2,110.49	1,170.11	394.15	0.00	0.00	0.00	0.00	0.00	3,674.74
Norway	2,845.52	760.14	364.28	0.00	0.00	0.00	0.00	0.00	3,969.93
Poland	923.22	796.12	681.29	234.04	0.00	0.00	0.00	0.00	2,634.67
Portugal	1,899.35	1,292.19	419.08	0.00	0.00	0.00	0.00	0.00	3,610.62
Spain**	1,488.96	831.65	655.75	48.54	0.00	0.00	0.00	0.00	3,024.89
Sweden	2,127.15	692.00	278.87	118.24	0.00	0.00	0.00	0.00	3,216.25
Switzerland	3,862.79	458.54	270.11	0.00	0.00	0.00	0.00	0.00	4,591.44
Turkey	2,701.76	785.67	399.67	0.00	0.00	0.00	0.00	0.00	3,887.10
United Kingdom**	1,178.51	854.83	624.60	130.90	0.00	0.00	0.00	0.00	2,788.84
United States**	1,073.29	905.29	290.31	104.59	7.41	3.15	2.63	14.17	2,400.85

\*\* Recalculated by CTIA Research

Sources: Bank of America Merrill Lynch Global Wireless Matrix 1Q2013, CTIA Research, Canadian Wireless Telecommunications Association (CWTA), Japanese Telecommunications Carriers Association (TCA), and carrier investor releases

<sup>58</sup> See CTIA 2013 Competition Comments at 71 & n.261.

# SPECTRUM

As the Commission is well aware, the biggest threat to maintaining global leadership and the competitiveness of the U.S. wireless industry is the imminent shortfall of usable licensed mobile spectrum. Just last year, a broad coalition of leaders in the mobile ecosystem, including representatives from 4G Americas, Consumer Electronics Association, High-Tech Spectrum Coalition, Information Technology Industry Council, Telecommunications Industry Association, and the Wireless Broadband Coalition, joined CTIA in a call for licensed, exclusive-use spectrum below 3 GHz:

The evidence is overwhelming. More cleared, paired, internationally-harmonized spectrum allocations below 3 GHz are needed and needed soon. America's economy and its global leadership in mobile broadband depend on it.<sup>59</sup>

And the President and Congress have directed the Commission, working with NTIA, to prioritize making additional spectrum below 3 GHz available for commercial mobile wireless service.<sup>60</sup>

CTIA and its members commend the Commission's commitment to the incentive auction and AWS-3 proceedings to find more spectrum to auction for commercial wireless services. Given mobile's critical role in the ICT sector and the U.S. economy, more spectrum must be identified, allocated, and auctioned to ensure continued investment in this critical, ever-expanding industry. CTIA urges the Commission to remain focused on working with NTIA and other stakeholders to identify and clear this additional spectrum. We remain committed to working with the Commission to make this a reality.

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<sup>59</sup> See Letter to the Honorable Fred Upton, Chairman, House Committee on Energy & Commerce, *et al.*, from CTIA – The Wireless Association®, 4G Americas, Consumer Electronics Association, High-Tech Spectrum Coalition, Information Technology Industry Council, Telecommunications Industry Association, and Wireless Broadband Coalition, at 2 (Sept. 12, 2012), <http://www.4gamericas.org/documents/120912%20Mult%20Assoc%20Call%20for%20More%20Licensed%20Spectruml.pdf> (last visited Oct. 17, 2013).

<sup>60</sup> See The White House, Presidential Memorandum: Unleashing the Wireless Broadband Revolution, Memorandum for the Heads of Executive Departments and Agencies (June 28, 2010), <http://www.whitehouse.gov/the-press-office/presidential-memorandum-unleashing-wireless-broadband-revolution> (last visited Oct. 17, 2013); The White House, Fact Sheet: President Obama's Plan to Win the Future through the Wireless Innovation and Infrastructure Initiative (Feb. 10, 2011), <http://www.whitehouse.gov/the-press-office/2011/02/10/president-obama-details-plan-win-future-through-expanded-wireless-access> (last visited Oct. 17, 2013); Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, 126 Stat. 156, § 6701(a)(3), *codified at* 47 U.S.C. 923(j).