Summary of CTIA's Annual Wireless Industry Survey

CTIA's annual wireless industry survey continues to document the industry's ongoing commitment and contributions to the American economy.

The past four years have seen dramatic events, including the onset of and recovery from the COVID-19 pandemic. The wireless industry has met the challenge, investing heavily in expanding the reach of 5G across America, enabling new use cases, and building out the basis for the 5G economy, including 5G Home broadband. CTIA's latest annual survey of wireless service providers found:

America's Demand for Wireless Data Continues to Grow Dramatically.

In 2023, mobile wireless data traffic reached an all-time high of 100.1 trillion MB, up by more than 26 trillion megabytes from 73 trillion megabytes in 2022. This beat the previous record of 20 trillion megabytes set in 2022. Mobile data in 2023 was up 258x from when it was first measured in 2010, as America's wireless users drove the increase in mobile data traffic with an ever-growing appetite for mobile internet use, apps, and video streaming—alongside a rise in the number of smartphones and IoT devices.

Wireless Providers Are Building the Infrastructure for Our Country's Future.

Over the past five years, operational cell sites have increased 24 percent. Now numbering 432,469, these sites provide the platform for the U.S. 5G Economy. More than that, of the 432,469 cell sites in operation at year-end 2023, 156,787 were small cells in service across the U.S., up 10.4% from 142,057 in 2022.

Extending a Platform that Connects the Country—Increasingly with 5G.

With more than 558 million mobile devices now in service, there are more than 1.6 wireless devices for every person. And almost 40 percent of those devices are 5G—more than 216 million of them—up 34 percent year-over-year.

Internet of Things Represents More than Two-Fifths of All Devices.

A growing diversity of devices are now supported by the nation's wireless networks. Data-only devices—think smartwatches, hotspots, and medical sensors, for instance—now number more than 235 million, amounting to 43 percent of all estimated devices. These data-only devices have grown 5x since 2013.

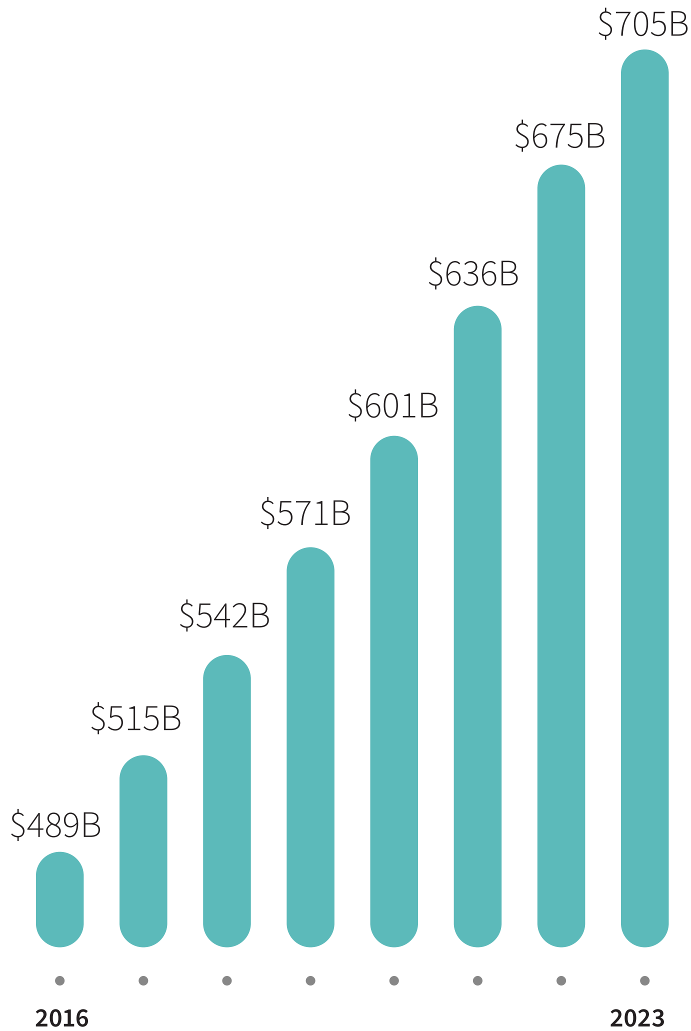
On-Going Wireless Investment.

In 2023, wireless providers invested more than $30 billion. Since the start of 2018, wireless providers have invested more than $190 billion, and over the life of the wireless industry have invested more than $704 billion, not including over $233 billion paid to the U.S. Treasury for spectrum to power their networks and serve consumers and businesses, alike.

The following graphs, charts, and information on the survey methodology further explain the results and survey history.

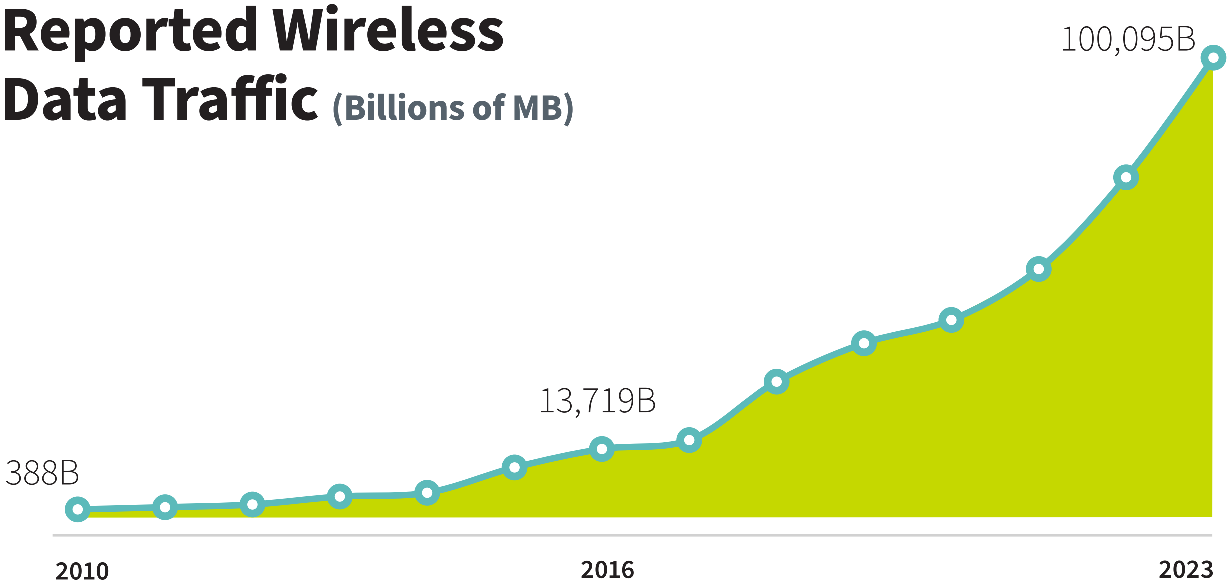
Remarkable & Sustained Wireless Investment

(Cumulative investment; Billions of $$)



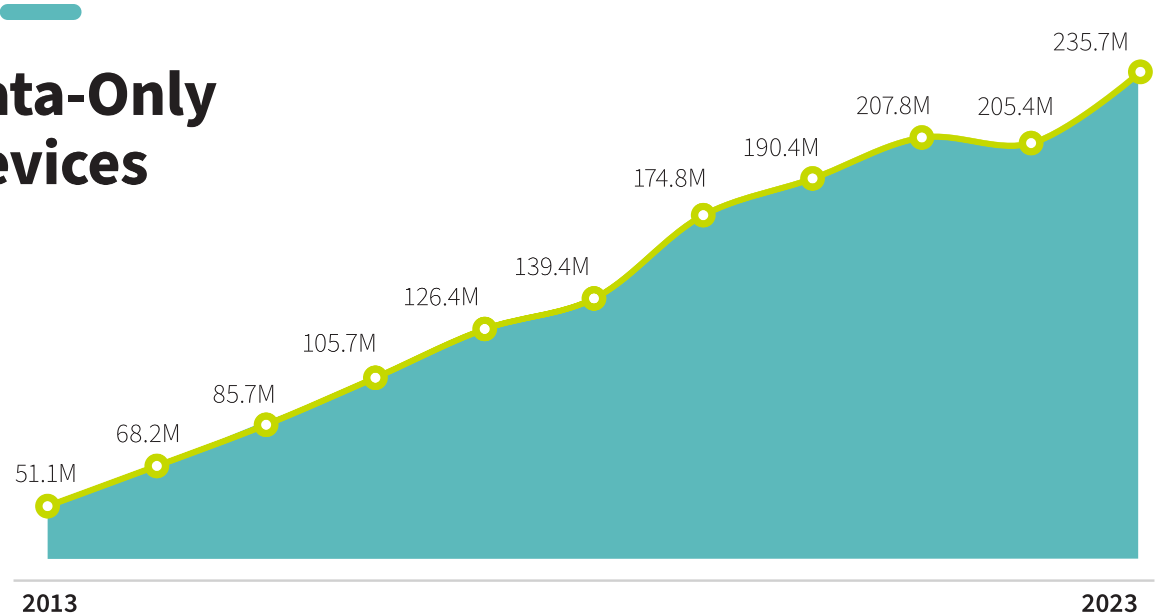
Since the start of 2018, wireless providers invested more than **$190 billion**, and over life of the industry almost **$705 billion.**

Reported Wireless Data Traffic (Billions of MB)



Annual wireless data traffic grew **258x** since 2010, a **630%** increase from 2016

Data-Only Devices



Data-only devices have grown **361%** since 2013.

Background on CTIA's Wireless Industry Survey

CTIA's wireless industry survey develops industry-wide information drawn from operational member and non-member wireless service providers. It has been conducted since January 1985, originally as a cellular-only survey instrument, and now including the community of CMRS licensees (e.g., PCS, ESMR, AWS, BRS and 700 MHz license holders). No break-out of results specific to spectrum bands or licenses is performed. From January 1985 through December 2012, it was conducted as a semi-annual survey, and it is now conducted on an annual basis.

The information determined based on the survey includes: number of cell sites, total service revenues, the average revenue per unit (ARPU), and various measures of usage (e.g., minutes and megabytes). The ARPU figure is not equal to the average monthly bill, which may reflect provision of service to multiple devices on a single account.

CTIA's survey develops information on the number of reported wireless service subscribers or connections for the responding systems, and an estimated total connections figure (taking into account non-responding systems). Because CTIA's survey is a voluntary survey, it cannot compel responses from wireless carriers. However, the survey has an excellent response rate. For the December 31, 2023, installment of the survey, CTIA aggregated data from companies serving more than 98 percent of all estimated wireless subscriber connections (excluding some machine-to-machine and other units not treated as subscriber connections for reporting purposes by some carriers).

Because not all systems do respond, CTIA develops an estimate of total wireless connections. The estimate is developed by determining the identity and character of non-respondents and their markets (e.g., RSA/MSA or equivalent-market designation, age of system, market population), and using surrogate penetration and growth rates applicable to similar, known systems to derive probable subscribership. These numbers are then summed with the reported subscriber connection numbers to reach the total estimated figures. No carrier-specific or market-specific information is maintained as a result of the survey. All such information is aggregated by an independent accounting firm to a nationwide level. The underlying source material for the survey is then destroyed per confidentiality agreements.

The following tables and charts reflect selected top-of-the-line data. Complete results of CTIA's survey are available for purchase in the comprehensive report, **CTIA's Wireless Industry Indices: 1985 – 2023**, including data on revenues, subscriber usage, investment, and other operational indicators and ratios.

The report is available for a member price of $850 and a non-member price of $1,075. Subsequent copies are available to members at $475 each and to non-members at $535 each. Two year subscriptions are available at a member price of $1,445 and non-member price of $1,825.

To order this report contact research@ctia.org or order online at store.ctia.org

CTIA annualized wireless industry survey results – 2001 to 2023

Date	Estimated Total Subscriber Connections	Annual Services Revenues ($000s)	Cumulative CapEx ($000s)	Cell Sites	Monthly Average Revenue Per Unit
2001	128,374,512	$65,316,235	$105,030,101	127,540	$49.79
2002	140,766,842	$76,508,186	$126,922,347	139,338	$51.00
2003	158,721,981	$87,624,093	$145,866,914	162,986	$51.55
2004	182,140,362	$102,121,210	$173,793,507	175,725	$52.54
2005	207,896,198	$113,538,220	$199,025,327	183,689	$50.65
2006	233,040,781	$125,456,825	$223,158,248	195,613	$49.07
2007	255,395,599	$138,869,304	$244,591,206	213,299	$49.26
2008	270,333,881	$148,084,170	$264,760,517	242,130	$48.87
2009	285,646,191	$152,551,854	$285,121,591	247,081	$47.97
2010	296,285,629	$159,929,649	$310,014,851	253,086	$47.53
2011	315,963,848	$169,767,314	$335,331,967	283,385	$46.11
2012	326,475,248	$185,013,935	$365,426,326	301,779	$48.99
2013	335,652,171	$189,192,812	$398,567,671	304,360	$48.79
2014	355,445,472	$187,848,447	$430,642,374	298,055	$46.64
2015	377,921,241	$191,949,025	$462,605,007	307,626	$44.65
2016	395,881,497	$188,524,256	$488,996,535	308,334	$41.50
2017	400,205,829	$179,091,135	$514,625,256	323,448	$38.66
2018	421,793,010	$182,779,484	$542,033,353	349,344	$37.85
2019	442,456,704	$187,361,982	$571,125,121	395,562	$36.86
2020	468,898,212	$189,912,441	$601,018,145	417,215	$35.31
2021	498,910,316	$204,214,004	$635,759,036	418,887	$35.74
2022	522,962,879	$208,683,242	$674,487,403	414,571	$34.56
2023	558,069,740	$214,472,418	$704,634,686	432,469	$33.56

Cumulative Capital Investment Reached >**$704.6 Billion** at Year-end

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