



Internet Association



IA Industry Indicators™





Data And Analysis For The U.S. Internet Industry
Q2 2019 Data, Q4 2019 Release
December 2019



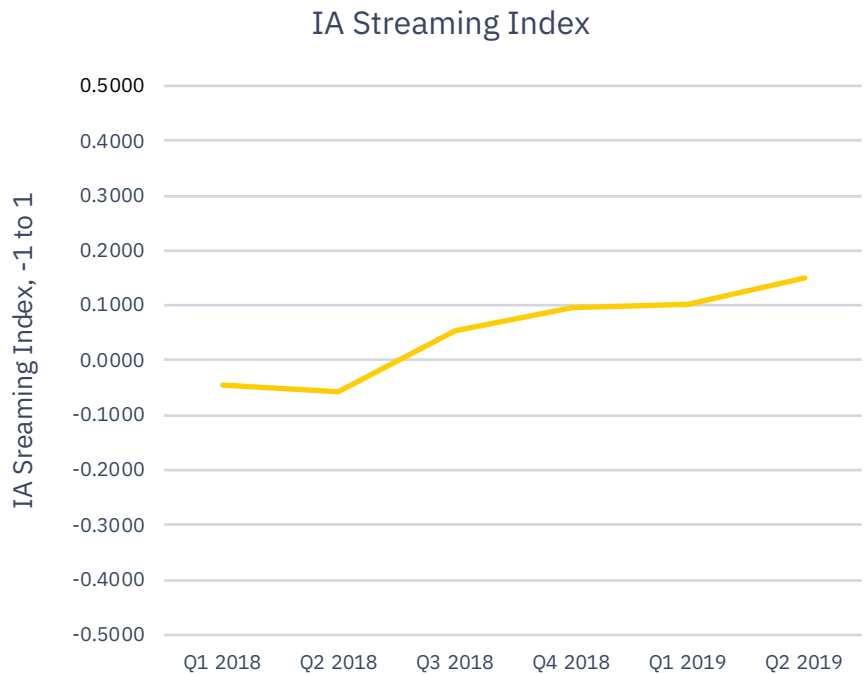
Q4 Industry Report

With trillions of dollars in market value, hundreds of billions in revenue, and millions of employees throughout every state, the internet sector represents a significant driver of the U.S. economy. IA’s quarterly Internet Industry Indicators Report provides new metrics and analysis of the internet sector – America’s fastest growing sector.

Key Internet Sector Takeaways:

-  Hiring is up **24.3% QoQ**
-  Job openings are up **6.4% QoQ**
-  Separations are down **0.7% QoQ**
-  CapEx is up **18.7% QoQ**
-  Total revenue is up **6.9% YoY**
-  Monthly personal spending by consumers is down **5.4%**
-  Expected monthly personal spending by consumers is down **2.7%**

Consumers Now Prefer Online Streaming To Cable & Satellite



Key Takeaways

- Over two-thirds of Americans (68 percent) prefer watching content through internet-based streaming services more than or equal to watching cable or satellite.
- Twice as many Americans prefer watching content through the internet as those that prefer cable or satellite, approximately 54.4 percent to 27.7 percent respectively



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IA Industry Indicators™

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Chief Economist's Insight

Internet Association's *IA Internet Indicators (3i) Quarterly Report* offers rare insights into the internet sector. IA uses the report series and the proprietary data in it to offer a one-of-a-kind resource for internet stakeholders and those interested in the internet sector's impact on the economy. It is the go-to resource for anyone looking to understand the digital economy and the evolution of America's most innovative industry.

The internet sector contributed \$2.1 trillion in value-added and 6 million direct jobs to the U.S. economy in 2018. These are equivalent to 10.1 percent of GDP and 4 percent of national employment, which makes the internet sector the fourth largest industrial sector in the U.S. economy. The data provided in the *3i Quarterly Report* (and the *3i Monthly Jobs Report*) add critical context to those numbers, including the identification of some key trends of the sector.

The *3i Quarterly Report* offers information from five perspectives: Macroeconomic Indicators based on U.S. government datasets; Microeconomic Indicators based on publicly-traded internet company data; a unique of Digital Price Index measure based on common household digital goods/services; an internet Industry Risk Assessment on the major issues facing the internet industry; and an Internet Sentiment Survey, which offers insights into individual usership, expenditure, and preferences related to internet services and goods. Internet Association presents these data in a neutral manner through standardized tables and graphs, which will be repeated in every issue. IA also provides a short summary and Industry Focus section concentrating on a particular aspect of the data to start each issue.

The feature for this issue focuses on internet-based streaming services and the changing preferences of Americans from traditional viewing options toward online streaming. Americans have shown a strong shift in preferences towards online streaming from cable and satellite. IA also highlights some notable changes in internet sector revenue and capital expenditures and daily internet use by individuals.

The broader goal of the 3i series is to improve our understanding of the internet as an economic sector. We know the internet contributes massively to the U.S. and other economies around the globe, but we are just starting to piece together the details of the story – what drives the industry, how are people using the internet, how broader trends impact the internet, etc. Numerous governments and other stakeholders are grappling with the same issues and IA provides these reports (along with their data) to help shed light on this dynamic sector.

As we continue to refine our understanding of the internet sector from a measurement standpoint, IA will also revise this report as necessary to ensure as accurate of information as possible. IA notes all changes and any caveats clearly throughout the document in the appropriate section.

And as we all read and learn more about the internet as an economic sector, IA will continue to engage with partners and other stakeholders to share valuable insights.

Christopher Hooton, Ph.D.
Chief Economist & Head Of Research
Internet Association



Summary & Highlights

Investment

The internet sector saw significant increases in its investment into the economy over the past year. Total capital expenditures totalled nearly \$78 billion in Q2 2019. That's up 112 percent since Q2 2018 and nearly 19 percent over Q1 2019. Average capital expenditures per firm increased by 39 percent in Q2 2019 over Q1 2019 and by 155 percent since Q2 2018.

The total volume and the rapid growth of investment demonstrate a continued commitment by internet companies to driving growth and innovation across the economy. The industry overall is reinvesting approximately 11 percent of gross revenue and has increased its capital expenditures by an average of 28 percent each quarter over the last year. The average internet sector firm is investing approximately 13 percent of its gross revenue.

Revenues

Internet sector revenues are up according to both IA's macro and micro measurement approaches. The continued success of internet sector firms reflect their commitment to developing cutting-edge products and services for their customers.

Macro

IA's macroeconomic indicators show total revenues for the sector as a whole rose 3.4 percent in Q2 2019 over Q1 2019 and by nearly 7 percent since Q2 2018.

Micro

IA's microeconomic indicators show gross revenue rose by 8.6 percent in Q2 2019 over Q1 2019 and by approximately 58 percent since Q2 2018. Average revenues increased by 8.6 percent for the quarter in Q2 2019 and by 62 percent for the year.

Customer Focus

The internet sector increased its focus on *Product & Services Development* according to IA's assessment of firm risk factors. The percentage of companies citing Product & Services Development as a risk factor increased to 41 percent in Q2 2019, which was up from 31 percent in Q1 2019. While this is a decrease from Q2 2018 when 59 percent of firms cited this element as a market risk, it remains the primary risk factor for the internet sector.

Time Online

Average internet usage increased by 15 minutes in Q2 2019 over Q1 2019, an increase of 8.5 percent. The average American spent 3 hours and 6 minutes online per day for personal use. The average time increased by 15.6 percent over the past year since Q2 2018 when the total was approximately 2 hours and 41 minutes per day.



Issue Leader: Online Streaming

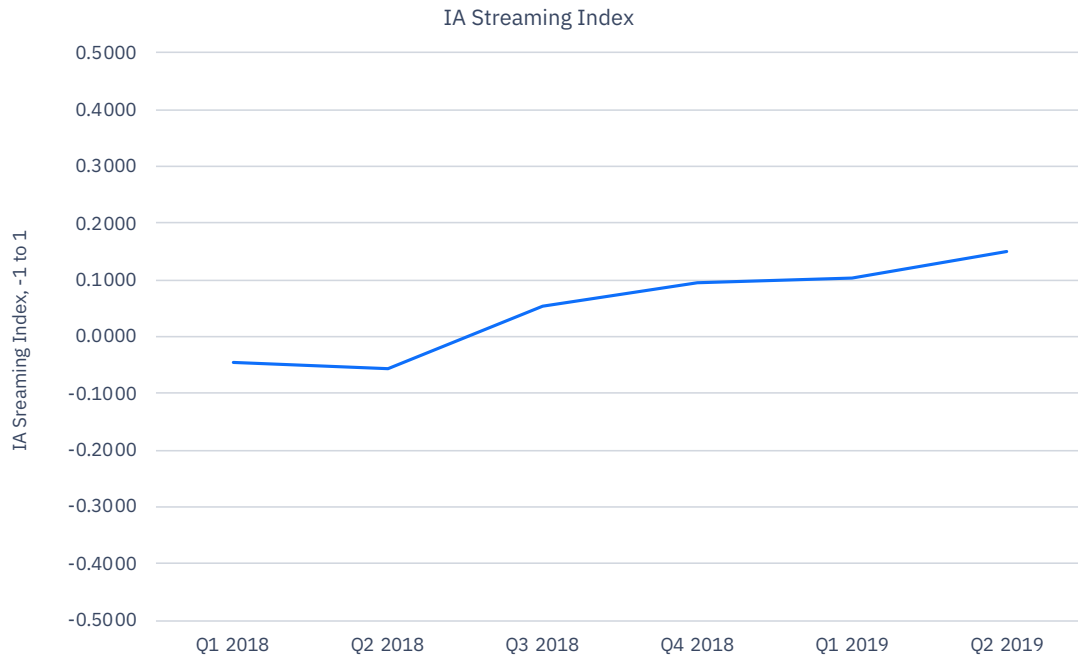
IA began collecting data on how Americans use the internet in Q1 2018. It was a unique effort to better understand the value of the internet to everyday Americans and how they perceive a variety of online services.

As part of that effort, IA measures the preferences of users for internet-based services versus their offline equivalents. We examine shopping, ridesharing, short-term rentals, online banking, online meet-ups, and content streaming using a proprietary set of sentiment indexes. Last quarter IA looked at recent patterns for each of these areas with Q1 2019 data. This issue examines the longer trend of streaming services.

IA's data show that consumer preferences, as of Q2 2019, have strongly shifted to online streaming platforms, such as Amazon Prime Video, over traditional cable and satellite options. Over the past year and a half, the national preference shifted from a slight inclination for traditional viewing options to a solid preference for internet-based services.

IA's sentiment index for watching TV and videos has shifted more toward internet-based services than in any other category since Q1 2018. IA's index was 0.1511 in Q2 2019, which was an increase of 0.2 index points (shown in Figure).

Figure 1: IA Sentiment Index for Streaming Services



Note: Shows IA's streaming index, which measures users' preference between internet-based, online streaming services versus cable/satellite services for watching content. Index range is -1 to 1 (negative one to one) with a -1 indicating users only prefer cable/satellite services and a 1 indicating users only prefer online streaming services. A value of zero (0) indicates users equally prefer both.

The survey question used to formulate the index offers greater insight into this positive movement toward internet streaming. The raw responses from the survey question offer more insight to how streaming services compare to traditional viewing options. Over two-thirds of Americans (68 percent) prefer watching content through internet-based streaming services more than or equal to



watching cable or satellite. Twice as many Americans prefer watching content through the internet as those that prefer cable or satellite, approximately 54.4 percent to 27.7 percent respectively. Even taking out those individuals who have an equal preference between the two options, the net preference for streaming services is approximately 54 percent of Americans - those that either only watch content online or prefer streaming. Table 1 summarizes the results of the question for Q2 2019.

Table 1: IA Streaming Sentiment Survey Question - Q2 2019 Results

Question: Do you spend more personal time watching movies, TV, and other videos online or watching them on cable/satellite?

Service Type	Percent Respondents
Cable/Satellite (e.g. Comcast, etc.)	21.99%
Online streaming (e.g. Netflix, HBOGo, etc.)	43.73%
About the same	13.05%
Only cable/satellite	5.70%
Only online streaming	10.71%
I don't use either	4.82%

Source: IA Internet User Survey (see Internet User Sentiment Section at end of report)



Macroeconomic Indicators

Overview: Tables 2 and 3 provide information on the internet industry derived from North American Industrial Classification System (NAICS) codes. IA identifies the appropriate NAICS codes for inclusion through an internal identification methodology for the internet industry and the tables summarize quarter-over-quarter and year-over-year aggregate changes. See the methodology note below for more detail.

Table 2: Internet Industry Revenue

Q2 2018	Qtr-over-Qtr Percent Change	Year-over-Year Percent Change
Total Revenue (Sum)	3.4%	6.87%
Revenue from Businesses (Sum)	-57.99%	-41.96%
Revenue from Government (Sum)	6.9%	1.62%
Revenue from Households (Sum)	-1.17%	0.17%

Notes: Reports most recent quarterly figures available at time of collection. Quarterly figures for Q2 2019 over Q1 2019 changes. Yearly figures for Q2 2019 over Q2 2018.

Table 3: Internet Industry Employment

Q2 2018	Qtr-over-Qtr Percent Change	Year-over-Year Percent Change
Hires (Levels)	24.29%	2.35%
Hires (Rate)	-188.84%	19.24%
Job Openings (Levels)	6.41%	-12.17%
Job Openings (Rate)	-134.63%	-69.36%
Total Separations (Levels)	-0.72%	1.91%
Total Separations (Rate)	-18.18%	-52.63%

Notes: Reports most recent quarterly figures available at time of collection. Quarterly figures for Q2 2019 over Q1 2019 changes. Yearly figures for Q2 2019 over Q2 2018.



Microeconomic Indicators

Overview: Table 4 provides information on the internet industry derived from information reported by publicly-traded internet companies. IA identifies the appropriate businesses through an internal identification methodology and the tables summarize quarter-over-quarter and year-over-year aggregate changes. See the methodology note below for more detail.

Table 4: Internet Industry Financial Data, Annual

	Qtr-over-Qtr Percent Change	Year-over-Year Percent Change
Capital Expenditures (Absolute Value)	18.66%	112.31%
Capital Expenditures (Sum)	18.66%	112.31%
Market Capitalization (Sum)	0%	-17.43%
Net Revenue (Sum)	-1.91%	-20.21%
Gross Revenue (Sum)	8.58%	57.91%
Employees (Sum)	0.09%	-10.37%
Capital Expenditures (Average)	39.00%	154.78%
Market Capitalization (Average)	0%	-15.86%
Net Revenue (Average)	0.83%	-16.05%
Gross Revenue (Average)	8.61%	61.90%
Employees (Average)	5.22%	-5.77%
Capital Expenditures (Median)	15.93%	-23.34%
Market Capitalization (Median)	-6.62%	-1.38%
Net Revenue (Median)	-17.07%	-38.31%
Gross Revenue (Median)	-4.02%	-39.00%
Employees (Median)	-21.01%	-48.15%

Notes: Reports most recent quarterly figures available at time of collection. Quarterly figures for Q2 2019 over Q1 2019 changes. Yearly figures for 2019 over 2018 change.



Digital Price Index

Overview: Table 5 provides information on Internet Association's proprietary digital price index. The index tracks the prices of a typical basket of online, internet-based services and the table summarizes quarter-over-quarter and year-over-year aggregate changes. See the methodology note below for more detail.

Table 5: Digital Price Index

	Year-over-Year Percent Change	Qtr-over-Qtr Percent Change
DPI	-16.9%	-14.25%
National CPI	1.6%	0.8%

Notes: The DPI measure uses a basket of common household internet services and products for individual consumers for which price data was available since 2013. IA collected annual prices for 2013-2017 and collects quarterly data starting in Q1 2018.

The index does not account for quality changes of services and products over time. National inflation figures come from U.S. Bureau of Labor Statistics CPI-All Urban Consumers (Current Series).

Quarterly figures for Q2 2019 over Q1 2019 changes. Yearly figures for 2019 over 2018 changes.

Internet Industry Risk Assessment

Overview: Table 6 provides information on Internet Association's assessment of internet industry risk factors. IA aggregates reported risks from its member companies that are publicly-traded using quarterly reports and the tables summarize reported risks for the previous quarter and year. See the methodology note below for more detail.

Table 6: Most Commonly Cited Risks To Internet Sector Companies Q2 2018

Top 5 Internet Sector Risk Factors Q2 2019	Percent of Risk Factor Observations
Product & Services Development	41%
Economic & Financial Conditions	25%
Competition	20%
Market	17%
Customer Satisfaction & Subscription Rate	11%
Top 5 Internet Sector Risk Factors Q1 2019	Percent of Risk Factor Observations
Product & Services Development	31%
Economic & Financial Conditions	21%
Competition	19%
Market	15%
Customer Satisfaction & Subscription Rate	14%
Top 5 Internet Sector Risk Factors Q2 2018	Percent of Risk Factor Observations
Product & Services Development	59%
Economic & Financial Conditions	26%
Competition	21%
Laws & Regulation Restrictions	15%
Market	13%

Notes: Table shows the citation frequency of the five most commonly cited risk factors for Q2 2019, Q1 2019, and Q2 2018 among the five most important risk factors of every individual company.



Internet User Sentiment

Overview: Table 7 provides information on Internet Association's user sentiment survey. The table reports summarized responses from a U.S. national survey of internet users and presents information on the previous two quarters as well quarter-over-quarter changes.

Table 7: Internet User Sentiment Responses

Q#	Question	Q2 2019	Q1 2019	Q2 2018	Q-over-Q Chg	Y-over-Y Chg
1^^	For personal use (i.e. not for your job/business/work), how much time on average per day do you spend using the internet?	186.29	171.65	161.18	8.53%	15.58%
2^^	For personal use, how much time on average per day do you expect to use the internet over the coming three months?	221.28	202.34	191.46	9.36%	15.57%
8	Do you currently use online sites, platforms, or other internet tools to pursue passion projects and/or hobbies? Examples include self-publishing a novel, selling crafts/art that you create, etc.	44.68%	38.15%	31.29%	6.53%	42.79%
9	Is the internet essential for you to pursue these passion project(s) and/or hobby(ies)?	40.1%	34.99%	26.21%	5.12%	13.90%
10	For personal use, how much money do you spend on average per month on all internet-based goods and services of any type? Please consider subscriptions, apps, games, shopping, movies, music, etc.	\$89.34	\$94.48	\$93.41	-5.44%	-4.36%
11	For personal use, how much money do you expect to spend on average per month on all internet-based goods and services over the coming 3 months?	\$114.74	\$116.67	\$116.67	-1.65%	-1.65%
Q#	Question^^^	Q2 2019	Q1 2019	Q2 2018	Q-over-Q Chg	Y-over-Y Chg
4	Do you spend more time using the internet in your personal life or for your work?	0.2415	0.202	0.246	0.040	-0.004
5	Do you spend more personal money shopping online or in ('brick and mortar'/physical) stores?	-0.0302	-0.023	-0.115	-0.007	0.085
6	For personal use, do you use taxis more often or do you use ride-sharing apps like Lyft, Uber, Via, and others?	0.0928	0.070	0.033	0.023	0.060
7	Do you spend more personal time watching movies, TV, and other videos online or watching them on cable/satellite?	0.1511	0.102	-0.058	0.049	0.209
12	Do you prefer staying in hotels or short-term rentals (e.g. Airbnb, HomeAway, other vacation rentals) for personal trips?	-0.2389	-0.250	-0.265	0.011	0.026
13	Do you prefer conducting your personal banking and attending to personal finances online or in a physical, 'brick-and-mortar' bank?	0.1646	0.168	0.076	-0.003	0.089
14	Do you prefer meeting new people through online platforms, such as Match, Tinder, etc., or through offline interactions, such as blind-dates or at parties? Please consider both romantic dating and friendships.	-0.3831	-0.420	-0.515	0.037	0.132
15	How do you view the internet's contribution(s) to society?	0.388	0.419	0.3	-0.031	0.015

Notes: Question 3 is a filter question to ensure quality of responses.

^Figures given in number of minutes.

^^Figures given as an index with values ranging from negative one to positive one (-1 to 1). A value of negative one (-1) indicates the worst (negative) outcome for the internet industry. A value of zero (0) indicates a neutral sentiment that is equally good and equally bad for the internet. A value of positive one (1) indicates the best (positive) outcome for the internet industry.



IA Industry Indicators (3I) Report – Methodology Notes

Overview

Identification methodologies for the internet industry, technology sector, digital economy, and other synonymous terms have received little attention from academic researchers. The primary approach used by groups to identify ‘high-tech’ industries and companies overwhelmingly rely on expert panels, where individuals subjectively select which companies/industries are or are not part of ‘tech’.

IA’s general identification methodology is primarily based on a set of NAICS codes developed by an expert panel at Economists Incorporated in 2015. The method is in line with other ‘tech sector’ and digital economy identification methodologies, such as those issued by BLS, Brookings Institute, and others. The Internet Industry Indicators Report is primarily based on that methodology with adjustments where needed, such as in the case of weighting and or lesser detail levels. Further details on each set of indicators included in the 3I report are given below:

Macroeconomic Data And Estimates

Macroeconomic data were derived from government datasets broken out by industry. IA utilized datasets for 3 to 6-digit NAICS codes based on IA’s internal identification methodology, which was developed by Economists Incorporated in 2015 using 2012 data. IA aggregated across these industry codes to develop approximations of industry totals and trends with weighted adjustments where necessary and possible.

IA Identification Methodology – Relevant NAICS Codes

2012 NAICS Title	IA NAICS Codes
Electronic Shopping	45411
Electronic Auctions	454112
Wireless Telecommunications Carriers (Except Satellite)	5172
Wired Telecommunications Carriers	5171
All Other Telecommunications	517919
Data Processing, Hosting, And Related Services	518210
Internet Publishing And Broadcasting And Web Search Portals	51913
Custom Computer Programming Services	54151
Computer Systems Design Services	
Computer Facilities Management Services	
Other Computer Related Services	

Microeconomic Data And Estimates

Microeconomic data were derived from publicly-traded internet companies and high-technology companies with significant internet-based revenues from a variety of sources including financial account reports, annual reports, and quarterly reports. All public IA member companies are included in this list as well as a set of other internet companies determined by IA using expert input and market analysis. IA identified 40+ publicly-traded internet companies in total at the time of data collection, which begins in the sixth week of each quarter with a one-quarter lag.



Digital Price Index Data And Estimates

IA developed its Digital Price Index using a basket of 11 internet services for which it found price data dating back to 2013. IA documented prices through online visits to the pricing detail pages of each service site using searches from its headquarters in Washington, DC. All searches are conducted on the same business day using the same computer and carried out in the sixth week of each quarter with a one-quarter lag. IA uses a 3-month average of monthly prices for this basket for quarterly estimates.

The index does not account for quality changes of services and products over time. Where there are free options available for a particular service/good, IA uses the cheapest, premium subscription or per unit cost. Where there are no free options available for a particular service/good, IA uses the cheapest subscription or per unit cost. IA selected services/goods from a range of online activities to reflect a spectrum of typical online activities engaged in by users. IA emphasizes the fact that these are premium options and that many of the documented services include basic, free options as well. The current basket of services includes: Amazon Prime, Blue Apron, DropBox, Hulu, iCloud Storage, LinkedIn Premium, Netflix, New York Times, OneDrive, Spotify Premium, and Wall Street Journal. National and quarterly inflation from Bureau of Labor Statistics CPI-All Urban Consumers (Current Series). National Inflation reports annual average 12-month percent change for each year. Quarterly inflation reports aggregated 1-month percent change (not seasonally adjusted). Quarterly figures for quarter over quarter changes. Yearly figures for year over year changes.

Risk Assessment Data And Estimates

IA develops its risk assessment utilizing 10-K and 10-Q filings from each of the public internet companies included in its microeconomic dataset. IA aggregates risk assessments from each company filing and standardizes across uniform categories of risk.

Internet User Sentiment And Estimates

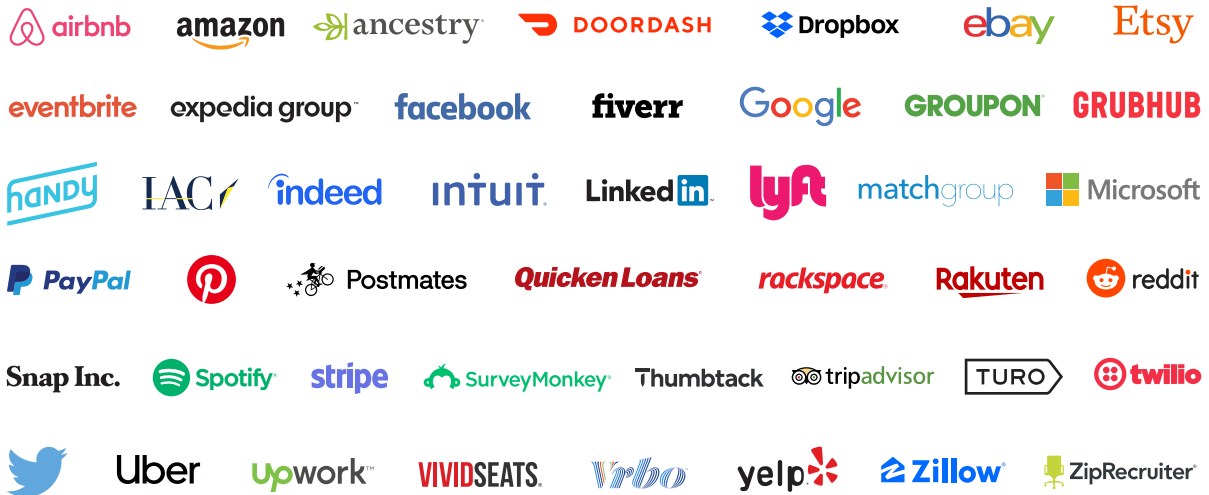
IA conducts a national survey of the U.S. general population utilizing SurveyMonkey panel service. IA runs the survey using a representative, statistically significant national sample of 1600+ respondents with no segment/demographic targeting and a 3% error margin.



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We are the unified voice of the internet economy

www.internetassociation.org

Internet Association is the only trade association that exclusively represents leading global internet companies on matters of public policy. Our mission is to foster innovation, promote economic growth, and empower people through the free and open internet. We believe the internet creates unprecedented benefits for society, and as the voice of the world’s leading internet companies, Internet Association works to ensure legislators, consumers, and other stakeholders understand these benefits.