Internet Association

IA Industry Indicators™

Data And Analysis For The U.S. Internet Industry
Q4 2020 Data, Q3 2021 Release
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3i Report
Internet Industry Indicators

IA Internet Association

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Economic 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 *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.

In 2020, Covid-19 became one of the top 5 risk factors in the first quarter and we continue to see its rise in the upcoming quarters. It initially overtook Security & Data Privacy and Customer Satisfaction & Subscription Rates, which were among our top 5 risk factors in 2019. With each quarter we saw a rise in the percent of Covid-19 as a risk factor, soon overthrowing other risk factors such as Market and Competition. In this issue, we highlight the top 5 risk factors through the quarters of 2020. We see that even with Covid-19 taking a place in the top 5 risk factors, Product & Services Development continues to hold the number one spot throughout 2020 closely followed by Economic & Financial Conditions.

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 people use the internet, how broader trends impact the internet, and so on. 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.

Summary & Highlights

Investment

Total capital expenditures rose by about 78 percent in Q4 2020 since Q4 2019 and nearly 13 percent since Q3 2020. Average capital expenditures per firm increased by 13 percent in Q4 2020 over Q3 2020 and by 82 percent since Q4 2019.

Revenues

- *Macro*

  IA's macroeconomic indicators show total revenues for the sector rose by nearly 7.98 percent in Q4 2020 over Q3 2020 and 5.04 percent since Q4 2019.

- *Micro*

  IA's microeconomic indicators show gross revenue increased by 8.16 percent in Q4 2020 over Q3 2020 and 19.65 percent since Q4 2019. Average revenues increased by 8.16 percent for the quarter over quarter in Q4 2020 and 19.65 percent year over year.

Hiring

Hiring levels increased by 6.27 percent in Q4 2020 over Q3 2020, and increased by 7.84 percent since Q4 2019.

Customer Focus

The internet sector continued to prioritize the area of Product & Services Development according to IA's assessment of firm risk factors. The percentage of companies citing Product & Services Development as a risk factor was 35.45 percent in Q4 2020, and it remains the primary risk factor for the internet sector. The internet sector continues to see signs of risks associated with COVID-19, however it has come down in the overall ranking from 14.67 percent in Q3 2020 to 12.27 percent in Q4 2020. The top 5 major risk factors are Product & Services Development, Economic & Financial Conditions, Competition, Market, and COVID-19.

Time Online

Average internet usage decreased in Q4 2020 over Q3 2020, by 8.11 percent, with the average American spending 3 hours and 16 minutes online per day for personal use. Average time spent online was down by 0.89 percent over the past year since Q4 2019 when the total was approximately 3 hours and 17 minutes per day.

Industry Leader: Risk factors through 2020

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

In 2020, Covid-19 became one of the top 5 risk factors in the first quarter and we continue to see its rise in the upcoming quarters. It initially overtook Security & Data Privacy and Customer Satisfaction & Subscription Rate, which were among our top 5 risk factors in 2019. With each quarter we saw a rise in the percent of risk factors, soon overthrowing other risk factors such as Market and Competition.

The graph below shows the top 5 risk factors in 2020 for each quarter. Even with Covid-19 taking a place in the top 5 risk factors, Product & Services Development continues to hold the number one spot throughout 2020. In 2020, the percent of risk factor for Product & Services Development dropped from 38.22 percent to 35.45 percent, Economic & Financial Conditions dropped from 31.56 percent to 29.55 percent, Covid-19 entered and rose from 12 percent to 12.27 percent peaking at 14.67 percent in Q2 2020 and Q3 2020, Market dropped from 14.22 percent to 12.73 percent, and Competition dropped from 16.89 percent to 14.09 percent.

Figure 1: Quarter over quarter change in risk factors in 2020
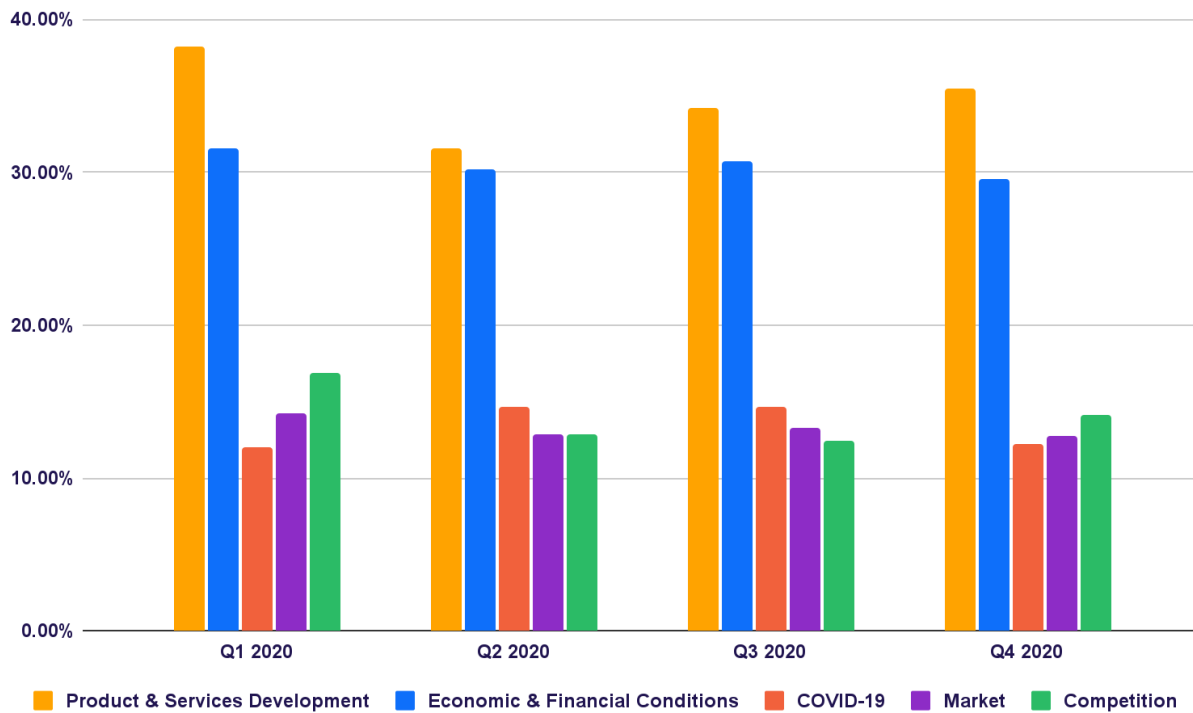
Macroeconomic Indicators

Overview: Tables 1 and 2 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 1: Internet Industry Revenue

	Qtr-over-Qtr Percent Change	Year-over-Year Percent Change
Total Revenue (Sum)	7.98%	5.04%
Revenue From Businesses (Sum)	2.88%	141.24%
Revenue From Government (Sum)	5.43%	8.10%
Revenue From Households (Sum)	4.28%	4.46%

Notes: Reports most recent quarterly figures available at time of collection. Quarterly figures for Q4 2020 over Q3 2020 changes. Yearly figures for Q4 2020 over Q4 2019 change.

Table 2: Internet Industry Employment

	Qtr-over-Qtr Percent Change	Year-over-Year Percent Change
Hires (Levels)	6.27%	7.84%
Hires (Rate)	141.81%	364.54%
Job Openings (Levels)	-6.05%	-10.41%
Job Openings (Rate)	-118.14%	-10.85%
Total Separations (Levels)	-2.42%	0.08%
Total Separations (Rate)	-75.25%	-81.49%

Notes: Reports most recent quarterly figures available at time of collection. Quarterly figures for Q4 2020 over Q3 2020 changes. Yearly figures for Q4 2020 over Q4 2019 change.

Microeconomic Indicators

Overview: Table 3 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 3: Internet Industry Financial Data, Annual

	Qtr-over-Qtr Percent Change	Year-over-Year Percent Change
Capital Expenditures (Absolute Value)	13.77%	73.17%
Capital Expenditures (Sum)	12.89%	77.59%
Market Capitalization (Sum)	4.02%	82.85%
Net Revenue (Sum)	6.57%	13.84%
Gross Revenue (Sum)	8.16%	19.65%
Employees (Sum)	2.74%	52.24%
Capital Expenditures (Average)	12.89%	81.45%
Market Capitalization (Average)	4.02%	82.85%
Net Revenue (Average)	8.94%	16.37%
Gross Revenue (Average)	8.16%	19.65%
Employees (Average)	2.74%	52.24%pri
Capital Expenditures (Median)	10.43%	52.30%
Market Capitalization (Median)	-9.68%	92.83%
Net Revenue (Median)	11.92%	-25.60%
Gross Revenue (Median)	-12.03%	8.65%
Employees (Median)	14.63%	0.00%

Notes: Reports most recent quarterly figures available at time of collection. Quarterly figures for Q4 2020 over Q3 2020 changes. Yearly figures for Q4 2020 over Q4 2019 change.

Digital Price Index

Overview: Table 4 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 4: Digital Price Index

	Year-over-Year Percent Change	Qtr-over-Qtr Percent Change
DPI	-4.28%	-1.36%
National CPI	3.5%	0.2%

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 prices annually for 2013-2017 and began collecting 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 Q4 2020 over Q3 2020 changes. Yearly figures for Q4 2020 over Q4 2019 changes.

Internet Industry Risk Assessment

Overview: Tables 5-7 provide 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.

Tables 5-7: Most Commonly Cited Risks to Internet Sector Companies

Top 5 Internet Sector Risk Factors Q4 2020	Percent of Risk Factor Observations
Product & Services Development	35.45%
Economic & Financial Conditions	29.55%
Competition	14.09%
Market	12.73%
COVID-19	12.27%

Top 5 Internet Sector Risk Factors Q3 2020	Percent of Risk Factor Observations
Product & Services Development	34.22%
Economic & Financial Conditions	30.67%
COVID-19	14.67%
Market	13.33%
Competition	12.44%

Top 5 Internet Sector Risk Factors Q4 2019	Percent of Risk Factor Observations
Product & Services Development	43.11%
Economic & Financial Conditions	25.33%
Competition	19.56%
Market	17.33%
Security & Data Privacy	14.22%

Notes: Table shows the citation frequency of the five most commonly cited risk factors for Q4 2020, Q3 2020, and Q4 2019 among the five most important risk factors of every individual company.

Internet User Sentiment

Overview: Table 8 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 and year-over-year changes.

Table 8: Internet User Sentiment Responses

Q #	Question	Q4 2020	Q3 2020	Q4 2019	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?	195.66	212.92	197.41	-8.11%	-0.89%
2^	For personal use, how much time on average per day do you expect to use the internet over the coming three months?	211.71	233.47	221.01	-9.32%	-4.21%
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.	46.19%	51.06%	45.38%	-9.54%	1.78%
9	Is the internet essential for you to pursue these passion project(s) and/or hobby(ies)?	40.87%	43.73%	39.88%	-6.54%	2.48%
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.	$101.26	$105.38	$94.34	-3.91%	7.34%
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?	$130.00	$131.05	$128.71	-0.80%	1.00%
Q #	Question	Q4 2020	Q3 2020	Q4 2019	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?	0.2585	0.2321	0.2457	0.026	0.013
5	Do you spend more personal money shopping online or in ('brick and mortar'/physical) stores?	0.0673	0.0878	0.0269	-0.021	0.040
6	For personal use, do you use taxis more often or do you use ride-sharing apps like uber, and others?	0.0694	0.0781	0.0921	-0.009	-0.023
7	Do you spend more personal time watching movies, tv, and other videos online or watching them on cable/satellite?	0.1755	0.2304	0.2215	-0.055	-0.046
12	Do you prefer staying in hotels or short-term rentals (e.g. Airbnb, homeaway, other vacation rentals) for personal trips?	-0.2358	-0.2140	-0.2682	-0.022	0.032
13	Do you prefer conducting your personal banking and attending to personal finances online or in a physical, 'brick-and-mortar' bank?	0.2102	0.2280	0.2007	-0.018	0.010
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.	-0.3347	-0.3596	-0.3840	0.025	0.049
15	How do you view the internet's contribution(s) to society?	0.4100	0.4285	0.4153	-0.019	-0.005
16	For personal use, do you use rental cars or do you use peer-to-peer car sharing services (such as Turo or others) more often?	-0.0841	-0.0836	-0.1031	0.000	0.019

17	Do you prefer to book home services through the internet or an app (e.g. a cleaner through Handy, a contractor through Angie's List, etc.) or do you prefer to book them through a phone call or in-person?	-0.0050	0.0184	0.0124	-0.023	-0.017

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.

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 rice index data and estimates

IA developed its Digital Price Index using a basket of 13 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, and 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 1700+ respondents with no segment/demographic targeting and a 3% error margin.

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