Consumer Use Of The Internet & Mobile Web 2018-2019

Richard K. Miller & Associates
since 1972
16.5 App-Based Meal Delivery. .................................................. 162
16.6 Meal-Kits. ................................................................. 163

17 EBOOK READING. .......................................................... 165
17.1 Adult Readers. ............................................................. 165
17.2 E-readers. ................................................................. 166

18 EMAIL. ........................................................................... 168
18.1 Use Of Email. ............................................................. 168
18.2 Devices Used For Email. ............................................... 169
18.3 Personal And Work Email. .......................................... 170

19 EVENT TICKETING. .......................................................... 171
19.1 Overview. .................................................................... 171
19.2 Secondary Ticketing. .................................................. 171
19.3 Ticketing Through Social Networks. ............................ 172
19.4 Sporting Events Ticketing. .......................................... 172

20 FANTASY SPORTS. ............................................................ 173
20.1 Overview. .................................................................... 173
20.2 Legality. ...................................................................... 174
20.3 Market Assessment. ................................................... 174
20.4 Demographics. .......................................................... 175
20.5 Season-Long Fantasy Sports. ....................................... 175
20.6 Daily Fantasy Sports. .................................................. 177
20.7 Market Resources. ...................................................... 178

21 FITNESS TRACKING. .......................................................... 179
21.1 Types Of Tracking. ...................................................... 179
21.2 Fitness Apps. ............................................................ 180
21.3 Fitness Tracking Devices. ............................................ 180

22 GENEALOGY. .................................................................. 182
22.1 Overview. .................................................................... 182
22.2 Genealogy Research Online. ....................................... 182
22.3 Top Genealogy Websites. .......................................... 182

23 HEALTH & HEALTHCARE. ................................................ 185
23.1 Online Sources For Health Information. ....................... 185
23.2 Top Health Sites. ........................................................ 186
23.3 Online Patient Groups. ................................................ 187
23.4 Shopping Online For Healthcare Providers. ................... 188
23.5 Virtual Visits. .............................................................. 188
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.6</td>
<td>Provider Ratings Online.</td>
<td>189</td>
</tr>
<tr>
<td>23.7</td>
<td>Use Of Health Apps.</td>
<td>190</td>
</tr>
<tr>
<td>24</td>
<td><strong>INTERNET RADIO</strong>.</td>
<td>191</td>
</tr>
<tr>
<td>24.1</td>
<td>Audience Assessment.</td>
<td>191</td>
</tr>
<tr>
<td>24.2</td>
<td>Top Internet Radio Markets.</td>
<td>191</td>
</tr>
<tr>
<td>24.3</td>
<td>Top Internet Radio Groups.</td>
<td>191</td>
</tr>
<tr>
<td>24.4</td>
<td>Connected Radio.</td>
<td>192</td>
</tr>
<tr>
<td>24.5</td>
<td>Market Resources.</td>
<td>192</td>
</tr>
<tr>
<td>25</td>
<td><strong>MAPS</strong>.</td>
<td>193</td>
</tr>
<tr>
<td>25.1</td>
<td>Web Mapping.</td>
<td>193</td>
</tr>
<tr>
<td>25.2</td>
<td>Use Of Map Sites.</td>
<td>193</td>
</tr>
<tr>
<td>25.3</td>
<td>Top Map Sites.</td>
<td>194</td>
</tr>
<tr>
<td>25.4</td>
<td>Online Cartography.</td>
<td>195</td>
</tr>
<tr>
<td>26</td>
<td><strong>MESSAGING</strong>.</td>
<td>196</td>
</tr>
<tr>
<td>26.1</td>
<td>Overview.</td>
<td>196</td>
</tr>
<tr>
<td>26.2</td>
<td>Instant Messaging.</td>
<td>197</td>
</tr>
<tr>
<td>26.3</td>
<td>Text Messaging.</td>
<td>197</td>
</tr>
<tr>
<td>26.4</td>
<td>Mobile Messaging Apps.</td>
<td>198</td>
</tr>
<tr>
<td>27</td>
<td><strong>NEWS</strong>.</td>
<td>199</td>
</tr>
<tr>
<td>27.1</td>
<td>How Consumers Obtain The News.</td>
<td>199</td>
</tr>
<tr>
<td>27.2</td>
<td>Adult Use Of Digital News Sites.</td>
<td>199</td>
</tr>
<tr>
<td>27.3</td>
<td>Digital Native News Publishers.</td>
<td>200</td>
</tr>
<tr>
<td>27.4</td>
<td>Market Resources.</td>
<td>201</td>
</tr>
<tr>
<td>28</td>
<td><strong>ONLINE DATING</strong>.</td>
<td>202</td>
</tr>
<tr>
<td>28.1</td>
<td>Use Of Online Dating Services.</td>
<td>202</td>
</tr>
<tr>
<td>28.2</td>
<td>Consumer Spending.</td>
<td>202</td>
</tr>
<tr>
<td>28.3</td>
<td>Top Online Dating Sites.</td>
<td>203</td>
</tr>
<tr>
<td>28.4</td>
<td>Dating Apps.</td>
<td>203</td>
</tr>
<tr>
<td>29</td>
<td><strong>ONLINE GAMBLING</strong>.</td>
<td>205</td>
</tr>
<tr>
<td>29.1</td>
<td>Market Assessment.</td>
<td>205</td>
</tr>
<tr>
<td>29.2</td>
<td>Online Parimutuel Wagering.</td>
<td>206</td>
</tr>
<tr>
<td>29.3</td>
<td>Offshore Internet Gaming Sites.</td>
<td>206</td>
</tr>
<tr>
<td>29.4</td>
<td>Market Resources.</td>
<td>208</td>
</tr>
<tr>
<td>30</td>
<td><strong>PERSONAL WEBSITES</strong>.</td>
<td>209</td>
</tr>
<tr>
<td>30.1</td>
<td>Objectives And Content.</td>
<td>209</td>
</tr>
<tr>
<td>30.2</td>
<td>Creating And Hosting A Website.</td>
<td>209</td>
</tr>
</tbody>
</table>
37 STREAMING MUSIC SERVICES .......................................................... 234
  37.1 Overview ................................................................. 234
  37.2 Market Assessment ...................................................... 234
  37.3 Demographics ........................................................... 234
  37.4 Streaming Service Listener Share ................................. 235
  37.5 Streaming Service Subscribers ...................................... 235

38 TRAVEL RESEARCH & BOOKING ............................................ 237
  38.1 Top Travel Sites ......................................................... 237
  38.2 Travel Research Online ............................................... 237
  38.3 Online Travel Booking ............................................... 238
  38.4 Travel Apps ............................................................... 239
  38.5 Travel Reviews .......................................................... 239

40 THE ONLINE CONSUMER ...................................................... 244
  40.1 Shopping Online ........................................................ 244
  40.2 Why People Shop Online ............................................. 245
  40.3 Top Online Shopping Categories ................................. 247
  40.4 Characteristics Of Online Shopping ................................ 247
  40.5 Expectations Online .................................................... 248
  40.6 Selecting An Online Retailer ....................................... 248
  40.7 Omnichannel Shopping ............................................... 249
  40.8 Customer Preference For Omnichannel Retail .................. 250
  40.9 Cross-Channel Shopping .............................................. 251
  40.10 Buy Online, Pick Up In-Store ....................................... 252
  40.11 Shopping On Social Sites ............................................ 252
  40.12 Buying Direct From Brands ....................................... 253

41 ONLINE BUYING TRENDS ...................................................... 254
  41.1 Overview ................................................................. 254
  41.2 Buying Online ............................................................ 254
  41.3 Online Spending ......................................................... 254
  41.4 Types Of Online Purchases ......................................... 255
  41.5 Market Drivers ........................................................... 258
  41.6 Quality Concerns When Shopping Online ........................ 259
60 MOBILE PAYMENTS
60.1 Consumer Use Of Mobile Payment Apps
60.2 Market Assessment
60.3 Consumer Attitudes Toward Mobile Payment
60.4 Types Of Payments
60.5 Peer-to-Peer Mobile Payment Apps

61 MOBILE COUPONS/REWARDS
61.1 Overview
61.2 Market Assessment
61.3 Mobile Device Use In Shopping

62 MOBILE CHECK-IN
62.1 Location Tagging
62.2 Privacy Concerns

PART IX: TECHNOLOGY

63 INTERNET TECHNOLOGIES
63.1 Overview
63.2 Internet Technologies

64 INTERNET OF THINGS
64.1 Overview
64.2 Device Connections
64.3 Market Assessment
64.4 Applications
64.5 IoT Device Ownership
64.6 Assessment of Top IoT Markets

65 WEARABLE TECHNOLOGY
65.1 Overview
65.2 Market Assessment
65.3 Consumer Demand

66 SMART HOMES
66.1 Overview
66.2 Market Penetration
66.3 User Satisfaction

67 CONNECTED CARS
67.1 Overview
67.2 Market Forecast
74 GLOBAL E-COMMERCE. ......................................................... 407
  74.1 Sales, Year-by-Year. ..................................................... 407
  74.2 Digital Buyer Penetration By Region. ............................... 407
  74.3 Sales By Country. ........................................................ 408

75 GLOBAL MOBILE PAYMENTS. .............................................. 409
  75.1 Market Assessment. ..................................................... 409
  75.2 Assessment By Country. ................................................. 409
  75.3 Alipay. ........................................................................ 410

APPENDIX - MARKET RESOURCES. ........................................... 411

REFERENCES ................................................................. 414
PART I: OVERVIEW
1

USE OF THE INTERNET

1.1 Use Of The Internet

Since 2000, the Center for the Digital Future (www.digitalcenter.org) at the University of Southern California, Annenberg School for Communication has conducted the Digital Future Project.

The Digital Future Project reports use of the Internet among U.S. adults has been as follows:

- 2000: 67%
- 2001: 72%
- 2002: 71%
- 2003: 76%
- 2005: 79%
- 2006: 78%
- 2007: 79%
- 2008: 80%
- 2009: 82%
- 2010: 82%
- 2012: 86%
- 2013: 88%
- 2014: 91%
- 2015: 90%

Note: Surveys were not conducted in 2004 and 2011.

The 2016 Digital Future Project reported that 92% of adult men and 88% of adult women used the Internet.

According to eMarketer, Internet user penetration by race/ethnicity in 2017 was as follows (percentage of U.S. adults in each group):

- Caucasian: 84.3%
- Asian: 83.1%
- African-American: 82.7%
- Hispanic/Latino: 79.0%
- Native American, Hawaiian and Pacific Islanders: 76.6%

1.2 Devices Used For Internet Connection

The 2016 Digital Future Project reported devices used to connect to the Internet
as follows (percentage of Internet users):
• Computer: 89%
• Mobile phone: 83%
• Tablet: 55%

Among Internet users who connect through two or more devices, the device used most often is as follows (percentage of respondents):
• Mobile phone: 45%
• Computer: 44%
• Tablet: 11%

Among Internet users who connect through three or more devices, the device used most often is as follows (percentage of respondents):
• Computer: 43%
• Mobile phone: 38%
• Tablet: 19%

The 2016 Consumer Adoption & Usage Study, by Adestra (www.adestra.com), reported devices owned by U.S. Internet users, by age, as follows (percentage of Internet users):

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Smartphone</th>
<th>Laptop</th>
<th>Tablet</th>
<th>Desktop</th>
<th>Landline telephone</th>
<th>Mobile phone (excluding smartphone)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-to-18</td>
<td>87%</td>
<td>83%</td>
<td>51%</td>
<td>43%</td>
<td>30%</td>
<td>15%</td>
</tr>
<tr>
<td>19-to-34</td>
<td>92%</td>
<td>84%</td>
<td>56%</td>
<td>46%</td>
<td>22%</td>
<td>16%</td>
</tr>
<tr>
<td>56-to-67</td>
<td>65%</td>
<td>64%</td>
<td>47%</td>
<td>67%</td>
<td>62%</td>
<td>30%</td>
</tr>
</tbody>
</table>

By device, eMarketer (www.emarketer.com) assessed the number of U.S. Internet users as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Dual Desktop/Laptop and Mobile Users</th>
<th>Desktop/Laptop Only Users</th>
<th>Mobile Only Users</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>204.0 million</td>
<td>24.7 million</td>
<td>32.1 million</td>
<td>260.8 million</td>
</tr>
<tr>
<td>2016</td>
<td>210.4 million</td>
<td>20.3 million</td>
<td>36.6 million</td>
<td>267.4 million</td>
</tr>
<tr>
<td>2017</td>
<td>214.6 million</td>
<td>17.9 million</td>
<td>40.7 million</td>
<td>273.3 million</td>
</tr>
<tr>
<td>2018</td>
<td>219.3 million</td>
<td>15.2 million</td>
<td>44.5 million</td>
<td>278.0 million</td>
</tr>
<tr>
<td>2019</td>
<td>221.1 million</td>
<td>12.9 million</td>
<td>47.2 million</td>
<td>281.2 million</td>
</tr>
<tr>
<td>2020</td>
<td>222.6 million</td>
<td>11.5 million</td>
<td>49.8 million</td>
<td>283.9 million</td>
</tr>
<tr>
<td>2021</td>
<td>223.5 million</td>
<td>10.7 million</td>
<td>52.3 million</td>
<td>286.4 million</td>
</tr>
</tbody>
</table>

1.3 Technology Adoption
Pew Research Center (www.pewresearch.org) reported technology adoption at year-end 2016 as follows (percentage of U.S. adults):
• Use the Internet: 88%
• Own a smartphone: 77%
• Have broadband at home: 73%
• Use social media: 69%
• Own a tablet: 51%

1.4 Affluent Adults Online

The 2016 Ipsos Affluent Survey, by Ipsos (www.ipsos.com), reported weekly time spent online by affluent Internet users as follows (percentage of respondents):
• Millennials (ages 18-to-34): 53.0 hours
• Gen Xers (ages 35-to-51): 45.4 hours
• Baby Boomers (ages 52-to-70): 32.2 hours
• Seniors (ages 71 and older): 28.0 hours

1.5 Broadband Access

Leichtman Research Group (www.leichtmanresearch.com) reported 93.92 million households with broadband access as of April 2017, distributed by provider as follows:

**Cable Providers**
- Comcast: 25,131,000
- Charter: 23,051,000
- Altice: 4,002,000
- Mediacom: 1,179,000
- WOW (WideOpenWest): 729,000
- Cable One: 523,327
- Other major private company: 4,830,000
- Total: 59,445,327

**Telephone Providers**
- AT&T: 15,695,000
- Verizon: 7,011,000
- CenturyLink: 5,945,000
- Frontier: 4,164,000
- Windstream: 1,047,600
- Cincinnati Bell: 307,400
- FairPoint: 305,353
- Total: 34,475,353

1.6 Spending For Internet Access

Entertainment & Media Outlook 2017-2021, by PricewaterhouseCoopers (PwC, www.pwc.com), assessed consumer spending for Internet access in 2017 as follows:
• Mobile access: $109 billion
• Broadband: $ 57 billion
• Total: $166 billion

PwC forecasts total spending to increase to $193 billion by 2021.

1.7 Internet User Global Census


• 1993: 14,161,570
• 1994: 25,454,590
• 1995: 44,838,900
• 1996: 77,433,860
• 1997: 120,758,310
• 1998: 188,023,930
• 1999: 280,866,670
• 2000: 413,425,190
• 2001: 500,609,240
• 2002: 662,663,600
• 2003: 778,555,680
• 2004: 910,060,180
• 2005: 1,027,580,990
• 2006: 1,160,335,280
• 2007: 1,373,327,790
• 2008: 1,571,601,630
• 2009: 1,766,206,240
• 2010: 2,045,865,660
• 2011: 2,282,955,130
• 2012: 2,518,453,569
• 2013: 2,756,198,420
• 2014: 2,956,385,569
• 2015: 3,185,996,155
• 2016: 3,424,971,237
2

MOBILE PHONES

2.1 Mobile Phone Use

Ninety-one percent (91%) of adults have a cellphone or smartphone. Usage of mobile phones is as follows (source: Pew Research Center [www.pewresearch.org]):

- 18-to-29: 98%
- 30-to-49: 97%
- 50-to-64: 89%
- 65 and older: 76%

The number of mobile phone users in the U.S. has essentially reached a plateau, with annual growth now at about 2%, or only slightly higher than the 0.8% rate of population growth.

2.2 Smartphone Use

In 2016, 64% of the U.S. population used a smartphone on a regular basis, according to eMarketer (www.emarketer.com). The number of smartphone users is expected to increase from 207.2 million in 2016 to over 241.0 million in 2020. Growth will be driven mainly by cheaper prices, larger-sized phones, and greater adoption by adults ages 55 and older.

eMarketer assesses U.S. smartphone user penetration, by age, as follows (percentage of mobile phone users in each group):

<table>
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<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0-to-11:</td>
<td>28.7%</td>
<td>35.3%</td>
<td>41.0%</td>
<td>45.0%</td>
<td>47.1%</td>
<td>48.9%</td>
<td>49.7%</td>
</tr>
<tr>
<td>12-to-17:</td>
<td>71.0%</td>
<td>78.5%</td>
<td>84.0%</td>
<td>89.0%</td>
<td>91.0%</td>
<td>92.0%</td>
<td>92.9%</td>
</tr>
<tr>
<td>18-to-24:</td>
<td>85.2%</td>
<td>90.1%</td>
<td>94.9%</td>
<td>98.0%</td>
<td>98.4%</td>
<td>99.0%</td>
<td>99.4%</td>
</tr>
<tr>
<td>25-to-34:</td>
<td>84.0%</td>
<td>90.2%</td>
<td>95.2%</td>
<td>97.0%</td>
<td>97.1%</td>
<td>97.2%</td>
<td>97.3%</td>
</tr>
<tr>
<td>35-to-44:</td>
<td>81.6%</td>
<td>87.7%</td>
<td>92.0%</td>
<td>94.0%</td>
<td>94.8%</td>
<td>96.1%</td>
<td>97.0%</td>
</tr>
<tr>
<td>45-to-54:</td>
<td>66.9%</td>
<td>75.8%</td>
<td>82.8%</td>
<td>88.3%</td>
<td>92.8%</td>
<td>95.9%</td>
<td>97.9%</td>
</tr>
<tr>
<td>55-to-64:</td>
<td>59.1%</td>
<td>67.6%</td>
<td>75.7%</td>
<td>80.9%</td>
<td>85.5%</td>
<td>89.5%</td>
<td>93.0%</td>
</tr>
<tr>
<td>65 and older:</td>
<td>36.6%</td>
<td>40.7%</td>
<td>44.4%</td>
<td>49.6%</td>
<td>52.8%</td>
<td>55.7%</td>
<td>55.4%</td>
</tr>
<tr>
<td>Total:</td>
<td>67.6%</td>
<td>73.8%</td>
<td>79.0%</td>
<td>82.7%</td>
<td>84.8%</td>
<td>86.5%</td>
<td>87.3%</td>
</tr>
</tbody>
</table>

A January 2017 report by Pew Research Center put the number of smartphones users slightly higher than eMarketer, assessing that 77% of Americans used a smartphone at year-end 2016. Smartphone adoption has more than doubled since 2011; 35% of Americans owned a smartphone of some kind in that year. Smartphones
are nearly ubiquitous among younger adults, with 92% of 18-to-29 year-olds owning one.

There was a sharp uptick in smartphone usage among lower-income Americans and those ages 50 and older during 2016, according to Pew Research Center. Seventy-four percent (74%) of Americans ages 50-to-64 were smartphone owners at year-end 2016 (a 16-percentage-point increase compared with 2015), as were 42% of those 65 and older (up 12 points from 2015). There was a 12-point increase in smartphone ownership among households earning less than $30,000 per year; 64% of these lower-income Americans now own a smartphone.

According to Nielsen (www.nielsen.com), adults spent 3.41 hours per day (representing 103.7 hours per month or an annual total of 1,244.6 hours) connecting with content via a mobile device in 2016.

2.3 Internet Access Via Smartphone

According to eMarketer, of the 267.4 million U.S. Internet users in 2016, 79% accessed the Internet regularly via a mobile phone. By 2020, 86% of all U.S. Internet users will do so.

Approximately 12% of Internet users exclusively used a mobile device to access the Internet in 2016. This mobile-only audience will grow to 42.3 million, or 15% of total U.S. Internet users, by 2020.

“Though Internet penetration won’t see any significant changes through 2020, people will increasingly rely on mobile devices for their Internet access. And the number of individuals in the U.S. who only use a mobile phone or tablet to access the Internet is growing.”

eMarketer, 9/22/16

2.4 Top Platforms and Smartphone OEMs

According to comScore (www.comscore.com), the top smartphone platforms in First Quarter 2017 were as follows (share of smartphone subscribes, ages 13 and older):

- Android: 54.0%
- Apple: 43.9%
• Microsoft: 1.5%
• BlackBerry: 0.5%

The top smartphone original equipment manufacturers (OEMs) in First Quarter 2017 were as follows (share of smartphone subscribes, ages 13 and older):
• Apple: 43.9%
• Samsung: 28.9%
• LG: 9.9%
• Motorola: 4.0%
• HTC: 2.2%

2.5 Mobile Phone Activities

The Digital Future Project 2016, by the Center for the Digital Future at the University of Southern California, Annenberg School for Communication (www.digitalcenter.org) reports use of mobile phones as follows (percentage of Internet users):
• Talk: 92%
• Text message: 87%
• Take pictures: 83%
• Access Internet: 79%
• Send/receive picture/video messages: 69%
• Send/receive email: 72%
• Use apps: 72%
• GPS mapping: 65%
• Access social networking sites: 61%
• Stream video/music: 59%
• Take videos: 58%
• Play games: 54%
• PDA functions: 53%
• Instant message: 50%
• Check into locations: 36%
• Download music/videos: 35%

2.6 Dependence On Mobile Phones

A February 2017 study of Android users by Dscout (www.dscout.com) found that people, on average, touch their smartphone 2,617 times a day.

In aggregate, Americans looked at their smartphone more than 9 billion times per day in 2016, a 13% increase from 2015, according to Deloitte (www.deloitte.com). About one-half wake up at least once during the night and check their phones. Two-thirds of smartphone owners check their device within 15 minutes of waking up; 90% do so within an hour.
Smartphone use continues to rise: 45% of smartphone users reported more use of video calls in 2016 compared with the previous year, 44% reported more instant messaging, 35% reported increased mobile social media use, and 25% reported more traditional voice calls.

“It’s become routine to see Americans staring at screens anytime, anyplace. Whether out to dinner and sending a text, on vacation and searching the web, or simply hanging at home and watching a show, it can be a real challenge to put away our smartphones and take the time to focus on what’s in front of us.”

The Harris Poll, 2/25/17

Ninety-three percent (93%) of adult smartphone owners use their device while shopping.

2.7 Cellphone-Only Households

The Fall 2016 Survey Of The American Consumer, by GfK (www.gfk.com) reported that 52% of U.S. adults live in households with cellphones but no landline telephones, an increase from 26% that did so in 2010. The demographics of cellphone-only adults is as follows:

Generation
• Millennials: 47%
• Generation Xers: 55%
• Baby Boomers: 40%
• Seniors: 23%

Race/Ethnicity
• African-Americans: 50%
• Asian-Americans: 54%
• Caucasians: 51%
• Hispanic-Americans: 67%
Region
• Northeast: 39%
• Midwest: 53%
• South: 57%
• West: 55%
TRENDS

3.1 Overview
Since 2000, the Center for the Digital Future at the University of Southern California, Annenberg School for Communication (www.digitalcenter.org) has conducted the Digital Future Project. The annual report is the longest continuing study of its kind.

This chapter includes year-to-year data on various topics assessed in 2016 Digital Future Project: Surveying The Digital Future. (Note: Surveys were not conducted in 2004 and 2011.)

3.2 Internet Use At Home
Among adults who use the Internet, time spent weekly using the Internet at home has been as follows:

- 2000: 3.3 hours
- 2001: 5.9 hours
- 2002: 6.8 hours
- 2003: 6.9 hours
- 2005: 8.8 hours
- 2006: 8.9 hours
- 2007: 10.0 hours
- 2008: 10.1 hours
- 2009: 10.6 hours
- 2010: 12.3 hours
- 2012: 14.1 hours
- 2013: 14.1 hours
- 2014: 16.1 hours
- 2015: 17.2 hours

3.3 Internet Use At Work
Time spent weekly using the Internet at work has been as follows:

- 2003: 6.2 hours
- 2005: 6.5 hours
- 2006: 6.8 hours
• 2007: 7.2 hours
• 2008: 7.7 hours
• 2009: 8.7 hours
• 2010: 9.4 hours
• 2012: 10.0 hours
• 2013: 10.8 hours
• 2014: 11.7 hours
• 2015: 13.5 hours

3.4 Surfing The Web

When asked how often users go online without a specific destination, adult Internet users responded as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>25%</td>
<td>47%</td>
<td>29%</td>
</tr>
<tr>
<td>2006</td>
<td>30%</td>
<td>44%</td>
<td>26%</td>
</tr>
<tr>
<td>2007</td>
<td>27%</td>
<td>51%</td>
<td>22%</td>
</tr>
<tr>
<td>2008</td>
<td>30%</td>
<td>50%</td>
<td>20%</td>
</tr>
<tr>
<td>2009</td>
<td>29%</td>
<td>52%</td>
<td>29%</td>
</tr>
<tr>
<td>2010</td>
<td>30%</td>
<td>52%</td>
<td>28%</td>
</tr>
<tr>
<td>2012</td>
<td>33%</td>
<td>46%</td>
<td>21%</td>
</tr>
<tr>
<td>2013</td>
<td>32%</td>
<td>49%</td>
<td>20%</td>
</tr>
<tr>
<td>2014</td>
<td>41%</td>
<td>43%</td>
<td>16%</td>
</tr>
<tr>
<td>2015</td>
<td>37%</td>
<td>47%</td>
<td>17%</td>
</tr>
</tbody>
</table>

3.5 Online Social Relationships

When adult Internet users were asked how important the Internet is for maintaining social relationships, responses were as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Very Important</th>
<th>Important</th>
<th>Neutral</th>
<th>Unimportant</th>
<th>Not At All</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>14%</td>
<td>31%</td>
<td>25%</td>
<td>16%</td>
<td>14%</td>
</tr>
<tr>
<td>2008</td>
<td>18%</td>
<td>34%</td>
<td>19%</td>
<td>13%</td>
<td>15%</td>
</tr>
<tr>
<td>2009</td>
<td>18%</td>
<td>34%</td>
<td>22%</td>
<td>12%</td>
<td>15%</td>
</tr>
<tr>
<td>2010</td>
<td>22%</td>
<td>36%</td>
<td>20%</td>
<td>10%</td>
<td>12%</td>
</tr>
<tr>
<td>2012</td>
<td>20%</td>
<td>36%</td>
<td>20%</td>
<td>14%</td>
<td>11%</td>
</tr>
<tr>
<td>2013</td>
<td>19%</td>
<td>39%</td>
<td>18%</td>
<td>12%</td>
<td>12%</td>
</tr>
<tr>
<td>2014</td>
<td>25%</td>
<td>35%</td>
<td>20%</td>
<td>12%</td>
<td>10%</td>
</tr>
<tr>
<td>2015</td>
<td>25%</td>
<td>35%</td>
<td>19%</td>
<td>12%</td>
<td>9%</td>
</tr>
</tbody>
</table>

3.6 Children And The Internet

Adult Internet users with children in the household assessed their children’s time spent online as follows:
<table>
<thead>
<tr>
<th>Year</th>
<th>Too Much</th>
<th>Just Right</th>
<th>Too Little</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>11%</td>
<td>79%</td>
<td>10%</td>
</tr>
<tr>
<td>2001</td>
<td>16%</td>
<td>72%</td>
<td>12%</td>
</tr>
<tr>
<td>2002</td>
<td>18%</td>
<td>69%</td>
<td>13%</td>
</tr>
<tr>
<td>2003</td>
<td>15%</td>
<td>76%</td>
<td>10%</td>
</tr>
<tr>
<td>2005</td>
<td>19%</td>
<td>72%</td>
<td>9%</td>
</tr>
<tr>
<td>2006</td>
<td>21%</td>
<td>70%</td>
<td>10%</td>
</tr>
<tr>
<td>2007</td>
<td>25%</td>
<td>66%</td>
<td>9%</td>
</tr>
<tr>
<td>2008</td>
<td>28%</td>
<td>69%</td>
<td>4%</td>
</tr>
<tr>
<td>2009</td>
<td>23%</td>
<td>71%</td>
<td>6%</td>
</tr>
<tr>
<td>2010</td>
<td>28%</td>
<td>69%</td>
<td>4%</td>
</tr>
<tr>
<td>2012</td>
<td>32%</td>
<td>65%</td>
<td>3%</td>
</tr>
<tr>
<td>2013</td>
<td>31%</td>
<td>63%</td>
<td>6%</td>
</tr>
<tr>
<td>2014</td>
<td>34%</td>
<td>60%</td>
<td>7%</td>
</tr>
<tr>
<td>2015</td>
<td>44%</td>
<td>53%</td>
<td>3%</td>
</tr>
</tbody>
</table>

3.7 Internet And The Political Process

Online adults were asked if they thought the Internet has become important for the political campaign process. Responses were as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>34%</td>
<td>28%</td>
<td>24%</td>
<td>8%</td>
<td>6%</td>
</tr>
<tr>
<td>2006</td>
<td>27%</td>
<td>29%</td>
<td>24%</td>
<td>11%</td>
<td>9%</td>
</tr>
<tr>
<td>2007</td>
<td>28%</td>
<td>32%</td>
<td>25%</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>2008</td>
<td>30%</td>
<td>30%</td>
<td>27%</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>2009</td>
<td>38%</td>
<td>31%</td>
<td>19%</td>
<td>8%</td>
<td>5%</td>
</tr>
<tr>
<td>2010</td>
<td>33%</td>
<td>36%</td>
<td>18%</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>2012</td>
<td>39%</td>
<td>31%</td>
<td>20%</td>
<td>6%</td>
<td>4%</td>
</tr>
<tr>
<td>2013</td>
<td>42%</td>
<td>29%</td>
<td>19%</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>2014</td>
<td>42%</td>
<td>32%</td>
<td>18%</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>2015</td>
<td>44%</td>
<td>34%</td>
<td>15%</td>
<td>4%</td>
<td>2%</td>
</tr>
</tbody>
</table>

3.8 Market Resources


Center for the Digital Future, University of Southern California, Annenberg School for Communication, 300 S. Grand Avenue, Suite 3950, Los Angeles, CA 90071. (213) 437-4433. (www.digitalcenter.org)
4.1 Overview
The 2016 Digital Future Project, by the Center for the Digital Future, University of Southern California, Annenberg School for Communication (www.digitalcenter.org), asked Internet users about their engagement in 34 types of online activities. This chapter presents findings of the survey.

4.2 Activities By Adult Internet Users
When asked how frequently they engaged in various online activities, adult Internet users responded as follows:

**Browse The Web**
- Several times a day: 35%
- Daily: 33%
- Weekly: 15%
- Monthly: 5%
- Less than monthly: 7%
- Never: 6%

**Buy Things**
- Several times a day: 1%
- Daily: 2%
- Weekly: 20%
- Monthly: 34%
- Less than monthly: 30%
- Never: 13%

**Check Email**
- Several times a day: 55%
- Daily: 31%
- Weekly: 8%
- Monthly: 2%
- Less than monthly: 1%
- Never: 3%
Compare Prices Of Products/Services
• Several times a day: 2%
• Daily: 9%
• Weekly: 31%
• Monthly: 30%
• Less than monthly: 14%
• Never: 15%

Distance Learning For A Degree Or Job Training
• Several times a day: 1%
• Daily: 4%
• Weekly: 5%
• Monthly: 6%
• Less than monthly: 15%
• Never: 69%

Download/Listen To Music
• Several times a day: 16%
• Daily: 19%
• Weekly: 20%
• Monthly: 10%
• Less than monthly: 15%
• Never: 21%

Download/Watch Videos
• Several times a day: 11%
• Daily: 20%
• Weekly: 22%
• Monthly: 10%
• Less than monthly: 13%
• Never: 23%

Find/Check A Fact
• Several times a day: 10%
• Daily: 25%
• Weekly: 31%
• Monthly: 13%
• Less than monthly: 12%
• Never: 9%
Gamble
• Several times a day:  1%
• Daily:  2%
• Weekly:  4%
• Monthly:  5%
• Less than monthly:  12%
• Never:  76%

Get Information For School/Work
• Several times a day:  6%
• Daily:  14%
• Weekly:  13%
• Monthly:  4%
• Less than monthly:  9%
• Never:  54%

Get Product Information
• Several times a day:  4%
• Daily:  14%
• Weekly:  33%
• Monthly:  27%
• Less than monthly:  15%
• Never:  7%

Instant Messaging
• Several times a day:  22%
• Daily:  22%
• Weekly:  14%
• Monthly:  5%
• Less than monthly:  12%
• Never:  25%

Investing
• Several times a day:  1%
• Daily:  1%
• Weekly:  2%
• Monthly:  6%
• Less than monthly:  12%
• Never:  78%
### Listen To Online Radio
- Several times a day: 6%
- Daily: 16%
- Weekly: 16%
- Monthly: 8%
- Less than monthly: 19%
- Never: 35%

### Look At Religious/Spiritual Sites
- Several times a day: 1%
- Daily: 5%
- Weekly: 8%
- Monthly: 10%
- Less than monthly: 21%
- Never: 55%

### Look At Sites With Sexual Content
- Several times a day: 2%
- Daily: 6%
- Weekly: 12%
- Monthly: 7%
- Less than monthly: 15%
- Never: 58%

### Look For Health Information
- Several times a day: 1%
- Daily: 7%
- Weekly: 22%
- Monthly: 26%
- Less than monthly: 31%
- Never: 13%

### Look For Humorous Content
- Several times a day: 6%
- Daily: 18%
- Weekly: 19%
- Monthly: 10%
- Less than monthly: 21%
- Never: 27%
Look For News
• Several times a day: 14%
• Daily: 33%
• Weekly: 23%
• Monthly: 8%
• Less than monthly: 12%
• Never: 10%

Look For Travel Information
• Several times a day: 1%
• Daily: 4%
• Weekly: 11%
• Monthly: 22%
• Less than monthly: 42%
• Never: 20%

Look For Work
• Several times a day: 2%
• Daily: 6%
• Weekly: 10%
• Monthly: 8%
• Less than monthly: 28%
• Never: 47%

Look Up A Definition
• Several times a day: 4%
• Daily: 14%
• Weekly: 31%
• Monthly: 19%
• Less than monthly: 21%
• Never: 10%

Make Travel Reservations
• Several times a day: <1%
• Daily: 1%
• Weekly: 3%
• Monthly: 15%
• Less than monthly: 50%
• Never: 31%
<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make/Receive Phone Calls</td>
<td>Several times a day:</td>
<td>4%</td>
</tr>
<tr>
<td></td>
<td>Daily:</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Weekly:</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Monthly:</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td>Less than monthly:</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>Never:</td>
<td>50%</td>
</tr>
<tr>
<td>Online Banking</td>
<td>Several times a day:</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>Daily:</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>Weekly:</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>Monthly:</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>Less than monthly:</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td>Never:</td>
<td>23%</td>
</tr>
<tr>
<td>Pay Bills</td>
<td>Several times a day:</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Daily:</td>
<td>3%</td>
</tr>
<tr>
<td></td>
<td>Weekly:</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>Monthly:</td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td>Less than monthly:</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td>Never:</td>
<td>23%</td>
</tr>
<tr>
<td>Play Games</td>
<td>Several times a day:</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>Daily:</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>Weekly:</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td>Monthly:</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td>Less than monthly:</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Never:</td>
<td>31%</td>
</tr>
<tr>
<td>Post On Discussion Boards</td>
<td>Several times a day:</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td>Daily:</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Weekly:</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>Monthly:</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>Less than monthly:</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>Never:</td>
<td>43%</td>
</tr>
</tbody>
</table>
Post On Social Networking Sites
- Several times a day: 10%
- Daily: 15%
- Weekly: 20%
- Monthly: 12%
- Less than monthly: 12%
- Never: 32%

Post Self-Made Content (Photos/Videos)
- Several times a day: 3%
- Daily: 8%
- Weekly: 14%
- Monthly: 14%
- Less than monthly: 19%
- Never: 42%

Re-post/Share Links/Content Created By Others
- Several times a day: 5%
- Daily: 12%
- Weekly: 22%
- Monthly: 11%
- Less than monthly: 21%
- Never: 29%

Read Blogs
- Several times a day: 4%
- Daily: 10%
- Weekly: 16%
- Monthly: 12%
- Less than monthly: 18%
- Never: 40%

Sell Things
- Several times a day: 1%
- Daily: 1%
- Weekly: 2%
- Monthly: 6%
- Less than monthly: 27%
- Never: 63%
Visits Social Networking Sites
• Several times a day: 30%
• Daily: 30%
• Weekly: 11%
• Monthly: 4%
• Less than monthly: 7%
• Never: 18%

4.3 Online Content
When asked how frequently they access various types of online content, adult
Internet users responded as follows:

TV - Pay
• Often: 19%
• Sometimes: 16%
• Rarely: 12%
• Never: 52%

TV - Free
• Often: 14%
• Sometimes: 22%
• Rarely: 21%
• Never: 43%

Movies - Pay
• Often: 28%
• Sometimes: 22%
• Rarely: 12%
• Never: 38%

Movies - Free/File Sharing
• Often: 4%
• Sometimes: 8%
• Rarely: 10%
• Never: 79%

News - Pay
• Often: 4%
• Sometimes: 7%
• Rarely: 10%
• Never: 79%
Music Via Subscription
• Often: 22%
• Sometimes: 18%
• Rarely: 15%
• Never: 44%

4.4 Market Resources
Digital Future Project, Center for the Digital Future, University of Southern California, Annenberg School for Communication, 300 S. Grand Avenue, Suite 3950, Los Angeles, CA 90071. (213) 437-4433. (www.digitalcenter.org)
RELIABILITY & ACCURACY OF ONLINE INFORMATION

5.1 Overview
The 2016 Digital Future Project, by the Center for the Digital Future, University of Southern California, Annenberg School for Communication (www.digitalcenter.org), asked adult Internet users their views on the reliability and accuracy of information on the Internet. This chapter presents findings of the survey.

5.2 User Assessment
How much of the information on the Internet overall do you think is reliable?
- All: 2%
- Most: 38%
- About one half: 45%
- A small portion: 14%
- None: <1%

How much information posted by various groups do you think is generally reliable?
- Posted on government websites: 74%
- Posted by established media: 69%
- Posted by individuals: 15%
- Posted on search engines: 15%
- Posted in social networking sites: 11%

How much of the information on social networking sites do you feel is reliable and accurate?
- All: 1%
- Most: 10%
- About one half: 41%
- A small portion: 45%
- None: 3%

How much of the information on government sites do you feel is reliable and accurate?
- All: 17%
- Most: 57%
- About one half: 28%
• A small portion: 8%
• None: 1%

How much of the information by established media do you feel is reliable and accurate?
• All: 8%
• Most: 61%
• About one half: 22%
• A small portion: 9%
• None: 1%

How much of the information provided by search engines do you feel is reliable and accurate?
• All: 5%
• Most: 45%
• About one half: 37%
• A small portion: 13%
• None: 1%

How much of the information by individuals do you feel is reliable and accurate?
• All: 2%
• Most: 13%
• About one half: 43%
• A small portion: 41%
• None: 2%

5.3 Market Resources

*Digital Future Project*, Center for the Digital Future, University of Southern California, Annenberg School for Communication, 300 S. Grand Avenue, Suite 3950, Los Angeles, CA 90071. (213) 437-4433. ([www.digitalcenter.org](http://www.digitalcenter.org))
6

DIGITAL ADVERTISING

6.1 Internet Advertising Revenue

According to the *IAB Internet Advertising Revenue Report*, by the Interactive Advertising Bureau (IAB, www.iab.net) and PricewaterhouseCoopers (PwC, www.pwc.com), digital advertising spending has been as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Desktop/Laptop</th>
<th>Mobile</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>$12.5 billion</td>
<td>-</td>
<td>$12.5 billion</td>
</tr>
<tr>
<td>2006</td>
<td>$16.9 billion</td>
<td>-</td>
<td>$16.9 billion</td>
</tr>
<tr>
<td>2007</td>
<td>$21.2 billion</td>
<td>-</td>
<td>$21.2 billion</td>
</tr>
<tr>
<td>2008</td>
<td>$23.4 billion</td>
<td>-</td>
<td>$23.4 billion</td>
</tr>
<tr>
<td>2009</td>
<td>$22.7 billion</td>
<td>-</td>
<td>$22.7 billion</td>
</tr>
<tr>
<td>2010</td>
<td>$25.4 billion</td>
<td>-</td>
<td>$26.0 billion</td>
</tr>
<tr>
<td>2011</td>
<td>$30.1 billion</td>
<td>$1.6 billion</td>
<td>$31.7 billion</td>
</tr>
<tr>
<td>2012</td>
<td>$33.2 billion</td>
<td>$3.4 billion</td>
<td>$36.6 billion</td>
</tr>
<tr>
<td>2013</td>
<td>$35.7 billion</td>
<td>$7.1 billion</td>
<td>$42.8 billion</td>
</tr>
<tr>
<td>2014</td>
<td>$37.0 billion</td>
<td>$12.5 billion</td>
<td>$49.5 billion</td>
</tr>
<tr>
<td>2015</td>
<td>$38.5 billion</td>
<td>$20.8 billion</td>
<td>$59.6 billion</td>
</tr>
<tr>
<td>2016</td>
<td>$35.9 billion</td>
<td>$36.6 billion</td>
<td>$72.5 billion</td>
</tr>
</tbody>
</table>

“Mobile makes up more than 50% of Internet advertising revenue for the first time.”

*IAB Internet Advertising Revenue Report*
IAB and PwC, 4/17

Social media advertising revenue has been as follows:

- 2012: $2.9 billion
- 2013: $4.5 billion
- 2014: $6.0 billion
- 2015: $10.8 billion
- 2016: $16.3 billion
Digital advertising spending by format in 2016 was distributed as follows:

- Mobile: 51%
- Search - desktop: 24%
- Banner - desktop: 12%
- Digital video - desktop: 7%
- Other: 6%

Mobile advertising was distributed as follows:

- Search: 47%
- Banner: 38%
- Digital video: 11%
- Other: 4%

Media formats were distributed as follows:

- Display: 51%
- Search: 45%
- Other: 5%

Internet ad spending by sector in 2016 was distributed as follows:

- Retail: 21%
- Financial services: 13%
- Automotive: 12%
- Telecommunications: 9%
- Leisure travel: 9%
- Consumer electronics and computers: 8%
- Consumer packaged goods: 6%
- Healthcare and pharmaceuticals: 5%
- Media: 5%
- Entertainment: 4%

6.2 Digital Ad Spending

eMarketer (www.emarketer.com) assesses digital ad spending as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Digital Ad Spending</th>
<th>Pct. Change</th>
<th>Pct. of Total Ad Spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>$59.82 billion</td>
<td>20.4%</td>
<td>32.7%</td>
</tr>
<tr>
<td>2016</td>
<td>$72.09 billion</td>
<td>20.5%</td>
<td>36.8%</td>
</tr>
<tr>
<td>2017</td>
<td>$82.86 billion</td>
<td>14.9%</td>
<td>40.0%</td>
</tr>
<tr>
<td>2018</td>
<td>$93.18 billion</td>
<td>12.5%</td>
<td>42.5%</td>
</tr>
<tr>
<td>2019</td>
<td>$103.39 billion</td>
<td>11.0%</td>
<td>44.8%</td>
</tr>
<tr>
<td>2020</td>
<td>$113.18 billion</td>
<td>9.5%</td>
<td>46.6%</td>
</tr>
</tbody>
</table>
By format, digital ad spending is assessed by eMarketer as follows (in billions):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
<td>$26.92</td>
<td>$34.56</td>
<td>$40.86</td>
<td>$46.19</td>
<td>$51.51</td>
<td>$56.63</td>
</tr>
<tr>
<td>Search</td>
<td>$28.84</td>
<td>$33.28</td>
<td>$37.44</td>
<td>$42.18</td>
<td>$46.86</td>
<td>$51.37</td>
</tr>
<tr>
<td>Lead generation</td>
<td>$1.73</td>
<td>$1.85</td>
<td>$1.95</td>
<td>$2.02</td>
<td>$2.07</td>
<td>$2.12</td>
</tr>
<tr>
<td>Classified/directories</td>
<td>$1.79</td>
<td>$1.80</td>
<td>$1.98</td>
<td>$2.14</td>
<td>$2.27</td>
<td>$2.37</td>
</tr>
<tr>
<td>Email</td>
<td>$0.28</td>
<td>$0.31</td>
<td>$0.34</td>
<td>$0.37</td>
<td>$0.39</td>
<td>$0.41</td>
</tr>
<tr>
<td>Mobile messaging</td>
<td>$0.27</td>
<td>$0.29</td>
<td>$0.29</td>
<td>$0.29</td>
<td>$0.28</td>
<td>$0.28</td>
</tr>
</tbody>
</table>

Display ad spending is assessed as follows (in billions):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Banners/other</td>
<td>$11.91</td>
<td>$14.38</td>
<td>$16.18</td>
<td>$17.84</td>
<td>$19.51</td>
<td>$21.45</td>
</tr>
<tr>
<td>Video</td>
<td>$7.68</td>
<td>$10.30</td>
<td>$12.55</td>
<td>$14.40</td>
<td>$16.29</td>
<td>$17.95</td>
</tr>
<tr>
<td>Rich media</td>
<td>$5.60</td>
<td>$7.97</td>
<td>$10.07</td>
<td>$11.79</td>
<td>$13.45</td>
<td>$14.87</td>
</tr>
<tr>
<td>Sponsorships</td>
<td>$1.73</td>
<td>$1.90</td>
<td>$2.05</td>
<td>$2.16</td>
<td>$2.27</td>
<td>$2.36</td>
</tr>
</tbody>
</table>

* Rich media refers to an ad that uses advanced technology such as streaming video, downloaded programs that interact with the user, and ads that change when the user’s mouse passes over it.

### 6.3 Spending by Sector

eMarketer assesses digital ad spending by sector as follows (in billions):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail</td>
<td>$13.18</td>
<td>$15.81</td>
<td>$18.15</td>
<td>$20.41</td>
<td>$22.65</td>
<td>$24.78</td>
</tr>
<tr>
<td>Automotive</td>
<td>$7.45</td>
<td>$9.13</td>
<td>$10.64</td>
<td>$12.15</td>
<td>$13.69</td>
<td>$15.21</td>
</tr>
<tr>
<td>Financial services</td>
<td>$7.33</td>
<td>$8.77</td>
<td>$10.09</td>
<td>$11.23</td>
<td>$12.35</td>
<td>$13.39</td>
</tr>
<tr>
<td>Telecom</td>
<td>$6.62</td>
<td>$7.90</td>
<td>$8.99</td>
<td>$10.02</td>
<td>$11.02</td>
<td>$11.95</td>
</tr>
<tr>
<td>Consumer goods</td>
<td>$5.07</td>
<td>$6.25</td>
<td>$7.26</td>
<td>$8.26</td>
<td>$9.27</td>
<td>$10.26</td>
</tr>
<tr>
<td>Travel</td>
<td>$4.95</td>
<td>$5.96</td>
<td>$6.77</td>
<td>$7.52</td>
<td>$8.24</td>
<td>$8.90</td>
</tr>
<tr>
<td>Computing/electronics</td>
<td>$4.53</td>
<td>$5.46</td>
<td>$6.27</td>
<td>$7.05</td>
<td>$7.82</td>
<td>$8.57</td>
</tr>
<tr>
<td>Media</td>
<td>$3.46</td>
<td>$4.24</td>
<td>$4.79</td>
<td>$5.38</td>
<td>$5.97</td>
<td>$6.54</td>
</tr>
<tr>
<td>Entertainment</td>
<td>$2.86</td>
<td>$3.45</td>
<td>$4.04</td>
<td>$4.64</td>
<td>$5.25</td>
<td>$5.86</td>
</tr>
<tr>
<td>Healthcare/pharma</td>
<td>$1.67</td>
<td>$2.02</td>
<td>$2.32</td>
<td>$2.66</td>
<td>$3.00</td>
<td>$3.34</td>
</tr>
<tr>
<td>Other</td>
<td>$2.69</td>
<td>$3.10</td>
<td>$3.54</td>
<td>$3.87</td>
<td>$4.14</td>
<td>$4.40</td>
</tr>
</tbody>
</table>

### 6.4 Digital Agencies

According to *Advertising Age* (May 2017), the following are the largest digital ad agencies and networks (parent companies or networks also given):

- Accenture Interactive: $1.74 billion
- Publicis.Sapient: $1.65 billion
- Deloitte Digital: $1.38 billion
- Epsilon (Alliance Data Systems Corp.): $1.19 billion
- IBM Interactive: $1.10 billion
- PwC Digital Services: $880 million
6.5 Top Advertisers

According to Advertising Age (July 2017), the top Internet display advertisers, ranked by annual spending, are as follows:

- Omnicom Health Group: $566 million
- Wunderman (WPP): $513 million
- Ogilvy (WPP): $467 million
- DigitasLBi (Publicis): $465 million

6.6 Real-Time Bidding On Ad Exchanges

Buying and selling digital ads in real time takes place on ad exchanges. The Interactive Advertising Bureau defines real-time bidding (RTB) as a data-driven model allowing advertisers or their agencies to bid on digital media (display, video, mobile, social, etc.) in real time at the impression level.

IAB defines an ad exchange as a virtual marketplace where participating suppliers auction their impressions to eligible buyers. The ad exchange announces each impression in real time and asks buyers if they are interested and at which price.

Larger ad exchanges include Facebook Exchange, Google’s AdX, and Yahoo’s Right Media.

6.7 Market Resources

Advertising Age, 711 Third Avenue, New York, NY 10017. (212) 210-0100. (www.adage.com)

eMarketer, 11 Times Square, New York, NY 10036. (800) 405-0844. (www.emarketer.com)

Interactive Advertising Bureau, 116 East 27th Street, 7th Floor, New York, NY 10016. (212) 380-4700. (www.iab.net)
TOP DIGITAL MEDIA PROPERTIES

7.1 Top Multi-Platform Properties

According to comScore (www.comscore.com), the top digital media properties (desktop and mobile), ranked by unique visitors in April 2017, are as follows:

- Google sites: 241.37 million
- Facebook: 203.16 million
- Yahoo sites: 191.98 million
- Amazon sites: 180.73 million
- Microsoft sites: 178.12 million
- Comcast NBCUniversal: 161.21 million
- CBS Interactive: 157.04 million
- AOL. Inc.: 154.71 million
- Apple Inc.: 142.30 million
- Time Inc. network: 136.77 million
- Turner digital: 136.57 million
- Hearst: 108.24 million
- The Weather Company: 108.20 million
- USA Today network: 107.03 million
- Wikimedia Foundation sites: 106.84 million
- Linkedin: 104.24 million
- Twitter: 96.96 million
- Condé Nast digital: 95.69 million
- eBay: 92.85 million
- Yelp: 91.96 million
- Snapchat. Inc: 91.42 million
- Pinterest.com: 90.80 million
- New York Times digital: 89.94 million
- Zillow Group: 87.60 million
- Fox News digital network: 86.77 million
- CafeMedia: 85.35 million
- Wal-Mart: 84.15 million
- ESPN: 82.20 million
- TripAdvisor Inc.: 81.05 million
- Pandora.com: 81.02 million
- WashingtonPost.com 78.66 million
- BuzzFeed.com 77.77 million
7.2 Top Desktop Properties

The top desktop properties, ranked by unique visitors in April 2017, are as follows (source: comScore):

- Google sites: 178.45 million
- Microsoft sites: 146.14 million
- Yahoo sites: 128.04 million
- Facebook: 116.70 million
- Amazon sites: 103.70 million
- AOL, Inc.: 69.83 million
- Apple Inc.: 63.78 million
- CBS Interactive: 56.06 million
- Comcast NBCUniversal: 51.67 million
- Wikimedia Foundation sites: 48.42 million
- eBay: 46.51 million
- Dropbox sites: 44.28 million
- Turner digital: 39.76 million
- Time Inc. network: 39.43 million
- PayPal: 36.12 million
- LinkedIn: 35.04 million
- Hearst: 34.99 million
- Wal-Mart: 34.85 million
- USA Today network: 34.83 million
- Pinterest.com: 33.85 million
- Yelp: 33.41 million
• Netflix: 31.52 million
• TripAdvisor: 30.80 million
• Zillow Group: 29.45 million
• Twitter: 29.31 million
• Meredith digital: 28.99 million
• Dotdash: 28.32 million
• craigslist: 27.96 million
• Spotify: 27.84 million
• Adobe sites: 27.72 million
• Expedia: 27.28 million
• The Weather Company: 27.22 million
• New York Times digital: 27.20 million
• Reddit: 26.49 million
• The Mozilla Organization: 26.23 million
• Condé Nast digital: 26.13 million
• Valve Corporation: 25.88 million
• Dictionary.com network: 25.34 million
• WebMD Health: 24.81 million
• Ask network: 23.83 million
• Intuit: 23.51 million
• CafeMedia: 23.47 million
• ESPN: 23.12 million
• Cox Enterprises digital: 22.28 million
• Roblox.com: 22.00 million
• Purch: 21.71 million
• tronc: 21.04 million
• Fox News digital network: 20.96 million
• Ziff Davis: 20.72 million
• JPMorgan Chase properties: 20.06 million

7.3 Syndicated Ad-Focus Entities

The top syndicated ad-focus entities, ranked by unique visitors in April 2017, are as follows (source: comScore):

<table>
<thead>
<tr>
<th>Entity</th>
<th>Unique Visitors</th>
<th>Reach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taboola</td>
<td>179.04 million</td>
<td>81.2%</td>
</tr>
<tr>
<td>Google</td>
<td>168.59 million</td>
<td>76.5%</td>
</tr>
<tr>
<td>MSN</td>
<td>137.81 million</td>
<td>62.5%</td>
</tr>
<tr>
<td>Yahoo sites</td>
<td>128.04 million</td>
<td>58.1%</td>
</tr>
<tr>
<td>Outbrain</td>
<td>114.99 million</td>
<td>52.1%</td>
</tr>
<tr>
<td>Facebook.com</td>
<td>113.25 million</td>
<td>51.4%</td>
</tr>
<tr>
<td>ShareThis</td>
<td>98.12 million</td>
<td>44.5%</td>
</tr>
<tr>
<td>YouTube.com</td>
<td>96.15 million</td>
<td>43.6%</td>
</tr>
<tr>
<td>Amazon.com</td>
<td>88.06 million</td>
<td>39.9%</td>
</tr>
</tbody>
</table>
- Windows Live: 73.64 million 33.4%
- AOL: 69.83 million 31.7%
- RevContent: 67.16 million 30.5%
- Linkedin: 35.04 million 15.9%
- USA Today network: 34.83 million 15.8%
- Yelp: 33.41 million 15.2%
- Apple.com: 31.38 million 14.2%
- CNN brand: 30.28 million 13.7%
- Walmart.com: 29.85 million 13.5%
- Zillow Group: 29.45 million 13.4%
- Twitter.com: 29.11 million 13.2%
- Dotdash: 28.32 million 12.8%
- Spotify: 27.84 million 12.6%
- Expedia Inc: 27.28 million 12.4%
- New York Times digital: 27.20 million 12.3%
- CBS News: 26.77 million 12.1%
- Reddit: 26.49 million 12.0%
- TripAdvisor.com: 26.14 million 11.9%
- NBC News digital: 26.05 million 11.8%
- Dictionary.com network: 25.34 million 11.5%
- WebMD Health: 24.81 million 11.3%

7.4 Ad Networks
The top ad networks, ranked by unique visitors in April 2017, are as follows (source: comScore):

<table>
<thead>
<tr>
<th>Unique Visitors</th>
<th>Reach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google ad network: 202.34 million 91.8%</td>
<td></td>
</tr>
<tr>
<td>Yahoo audience network: 186.56 million 84.6%</td>
<td></td>
</tr>
<tr>
<td>Conversant: 177.05 million 80.3%</td>
<td></td>
</tr>
<tr>
<td>RadiumOne: 164.87 million 74.8%</td>
<td></td>
</tr>
<tr>
<td>RhythmOne: 162.70 million 73.8%</td>
<td></td>
</tr>
<tr>
<td>Exponential: 153.99 million 69.8%</td>
<td></td>
</tr>
<tr>
<td>Media.net Contextual Ads: 150.00 million 68.0%</td>
<td></td>
</tr>
<tr>
<td>Gamut network: 130.22 million 59.1%</td>
<td></td>
</tr>
<tr>
<td>Rocket Fuel: 124.29 million 56.4%</td>
<td></td>
</tr>
<tr>
<td>Advertising.com: 114.56 million 52.0%</td>
<td></td>
</tr>
<tr>
<td>Amobee: 85.44 million 38.7%</td>
<td></td>
</tr>
<tr>
<td>Collective Display: 69.85 million 31.7%</td>
<td></td>
</tr>
<tr>
<td>Viant: 61.32 million 27.8%</td>
<td></td>
</tr>
<tr>
<td>Xaxis publisher network: 58.49 million 26.5%</td>
<td></td>
</tr>
<tr>
<td>GumGum: 49.93 million 22.6%</td>
<td></td>
</tr>
<tr>
<td>AcuityAds: 48.50 million 22.0%</td>
<td></td>
</tr>
<tr>
<td>AdSupply: 41.26 million 18.7%</td>
<td></td>
</tr>
</tbody>
</table>
• Bidtellect: 38.93 million 17.7%
• AdBlade network: 38.45 million 17.4%
• Undertone networks: 35.84 million 16.3%
• Vibrant Media: 28.75 million 13.0%
• Intergi Games network: 22.50 million 10.2%
• LiveIntent: 19.42 million 8.8%
• Valassis digital: 11.77 million 5.3%
• engage:BDR: 9.92 million 4.5%

7.5 Market Resources
comScore, 11950 Democracy Drive, Suite 600, Reston, VA 20190. (703) 438-2000. (www.comscore.com)
8

PUBLICALLY TRADED INTERNET CORPORATIONS

8.1 Overview

Companies involved in the following activities comprise the Internet sector:

- Domain names
- E-commerce companies
- Online entertainment (gaming, television networks, video and mobile games)
- Online financial services (banking, brokerage, transactions)
- Online services (coupons, dating, real estate, travel)
- Search engines
- Social media
- Websites and online content

Stocks for 53 U.S. Internet companies were traded on the New York Stock Exchange and NASDAQ at the end of 2nd Quarter 2017. Distribution by market capitalization was as follows:

- Large-cap (over $10 billion): 13
- Mid-cap (over $2 billion and under $10 billion): 13
- Small-cap (over $300 million and under $2 billion): 27

8.2 Revenue And Market Capitalization

Publically traded Internet corporations, FY2016 revenue, and market capitalization are as follows:

<table>
<thead>
<tr>
<th>Company</th>
<th>Ticker</th>
<th>FY2016 Rev.</th>
<th>Market Cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple Inc.:</td>
<td>AAPL</td>
<td>$215.6 billion</td>
<td>$795.3 billion</td>
</tr>
<tr>
<td>Amazon:</td>
<td>AMZN</td>
<td>$135.9 billion</td>
<td>$458.1 billion</td>
</tr>
<tr>
<td>Facebook:</td>
<td>FB</td>
<td>$27.6 billion</td>
<td>$349.2 billion</td>
</tr>
<tr>
<td>Google:</td>
<td>GOOG</td>
<td>$90.3 billion</td>
<td>$332.8 billion</td>
</tr>
<tr>
<td>Priceline.com:</td>
<td>PCLN</td>
<td>$10.7 billion</td>
<td>$88.2 billion</td>
</tr>
<tr>
<td>Netflix:</td>
<td>NFLX</td>
<td>$8.8 billion</td>
<td>$67.1 billion</td>
</tr>
<tr>
<td>Salesforce.com:</td>
<td>CRM</td>
<td>$8.4 billion</td>
<td>$62.1 billion</td>
</tr>
<tr>
<td>Paypal:</td>
<td>PYPL</td>
<td>$10.8 billion</td>
<td>$59.0 billion</td>
</tr>
<tr>
<td>Yahoo!:</td>
<td>YHOO</td>
<td>$5.2 billion</td>
<td>$47.6 billion</td>
</tr>
<tr>
<td>eBay:</td>
<td>EBAY</td>
<td>$9.0 billion</td>
<td>$36.5 billion</td>
</tr>
<tr>
<td>Expedia:</td>
<td>EXPE</td>
<td>$8.8 billion</td>
<td>$19.5 billion</td>
</tr>
<tr>
<td>Snapchat:</td>
<td>SNAP</td>
<td>$404 million</td>
<td>$13.8 billion</td>
</tr>
<tr>
<td>Company</td>
<td>Symbol</td>
<td>Market Cap</td>
<td>Revenue</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Twitter:</td>
<td>TWTR</td>
<td>$2.5 billion</td>
<td>$13.5 billion</td>
</tr>
<tr>
<td>Etrade:</td>
<td>ETFC</td>
<td>$1.9 billion</td>
<td>$9.2 billion</td>
</tr>
<tr>
<td>VeriSign:</td>
<td>VRSN</td>
<td>$1.1 billion</td>
<td>$9.0 billion</td>
</tr>
<tr>
<td>TripAdvisor:</td>
<td>TRIP</td>
<td>$1.5 billion</td>
<td>$5.7 billion</td>
</tr>
<tr>
<td>Zillow:</td>
<td>Z</td>
<td>$847 million</td>
<td>$5.1 billion</td>
</tr>
<tr>
<td>J2 Global:</td>
<td>JCOM</td>
<td>$874 million</td>
<td>$3.9 billion</td>
</tr>
<tr>
<td>GrubHub:</td>
<td>GRUB</td>
<td>$493 million</td>
<td>$3.8 billion</td>
</tr>
<tr>
<td>Go Daddy:</td>
<td>GDDY</td>
<td>$1.8 billion</td>
<td>$3.7 billion</td>
</tr>
<tr>
<td>Wayfair:</td>
<td>W</td>
<td>$3.4 billion</td>
<td>$3.3 billion</td>
</tr>
<tr>
<td>Wix.com:</td>
<td>WIX</td>
<td>$290 million</td>
<td>$3.3 billion</td>
</tr>
<tr>
<td>Zygna:</td>
<td>ANGA</td>
<td>$741 million</td>
<td>$2.6 billion</td>
</tr>
<tr>
<td>Yelp:</td>
<td>YELP</td>
<td>$713 million</td>
<td>$2.3 billion</td>
</tr>
<tr>
<td>WebMD:</td>
<td>WBMD</td>
<td>$705 million</td>
<td>$2.1 billion</td>
</tr>
<tr>
<td>Stamps.com:</td>
<td>STMP</td>
<td>$364 million</td>
<td>$2.0 billion</td>
</tr>
<tr>
<td>Groupon:</td>
<td>GRPN</td>
<td>$3.1 billion</td>
<td>$1.9 billion</td>
</tr>
<tr>
<td>Lending Tree:</td>
<td>TREE</td>
<td>$384 million</td>
<td>$1.8 billion</td>
</tr>
<tr>
<td>Neustar:</td>
<td>NSR</td>
<td>$1.2 billion</td>
<td>$1.8 billion</td>
</tr>
<tr>
<td>Cogent Communications:</td>
<td>CCOI</td>
<td>$404 million</td>
<td>$1.7 billion</td>
</tr>
<tr>
<td>Shutterfly:</td>
<td>SFLY</td>
<td>$1.1 billion</td>
<td>$1.7 billion</td>
</tr>
<tr>
<td>True Car:</td>
<td>TRUE</td>
<td>$278 million</td>
<td>$1.6 billion</td>
</tr>
<tr>
<td>BofI Federal Bank:</td>
<td>BOFI</td>
<td>$371 million</td>
<td>$1.5 billion</td>
</tr>
<tr>
<td>Etsy:</td>
<td>ETSY</td>
<td>$365 million</td>
<td>$1.5 billion</td>
</tr>
<tr>
<td>Shutterstock:</td>
<td>SSTK</td>
<td>$494 million</td>
<td>$1.5 billion</td>
</tr>
<tr>
<td>NIC Inc:</td>
<td>EGOV</td>
<td>$318 million</td>
<td>$1.4 billion</td>
</tr>
<tr>
<td>Endurance International:</td>
<td>EIGI</td>
<td>$1.1 billion</td>
<td>$1.1 billion</td>
</tr>
<tr>
<td>Web.com:</td>
<td>WEB</td>
<td>$711 million</td>
<td>$1.1 billion</td>
</tr>
<tr>
<td>Quotient:</td>
<td>QUOT</td>
<td>$275 million</td>
<td>$1.0 billion</td>
</tr>
<tr>
<td>Match.com:</td>
<td>MTCH</td>
<td>$1.2 billion</td>
<td>$920 million</td>
</tr>
<tr>
<td>Bankrate:</td>
<td>RATE</td>
<td>$434 million</td>
<td>$910 million</td>
</tr>
<tr>
<td>Blucora:</td>
<td>BCOR</td>
<td>$456 million</td>
<td>$900 million</td>
</tr>
<tr>
<td>Monotype Imaging:</td>
<td>TYPE</td>
<td>$203 million</td>
<td>$800 million</td>
</tr>
<tr>
<td>PC Connection:</td>
<td>CNXN</td>
<td>$2.7 billion</td>
<td>$720 million</td>
</tr>
<tr>
<td>PetMed Express:</td>
<td>PETS</td>
<td>$249 million</td>
<td>$715 million</td>
</tr>
<tr>
<td>Angie’s List:</td>
<td>ANGI</td>
<td>$323 million</td>
<td>$690 million</td>
</tr>
<tr>
<td>Boingo Wireless:</td>
<td>WIFI</td>
<td>$159 million</td>
<td>$605 million</td>
</tr>
<tr>
<td>Tucows:</td>
<td>TCX</td>
<td>$190 million</td>
<td>$605 million</td>
</tr>
<tr>
<td>Land’s End:</td>
<td>LE</td>
<td>$1.3 billion</td>
<td>$595 million</td>
</tr>
<tr>
<td>RetailMeNot:</td>
<td>SALE</td>
<td>$280 million</td>
<td>$560 million</td>
</tr>
<tr>
<td>Care.com:</td>
<td>CRCM</td>
<td>$162 million</td>
<td>$450 million</td>
</tr>
<tr>
<td>XO Group:</td>
<td>XOXO</td>
<td>$152 million</td>
<td>$445 million</td>
</tr>
<tr>
<td>Overstock.com:</td>
<td>OSTK</td>
<td>$1.8 billion</td>
<td>$365 million</td>
</tr>
</tbody>
</table>
9

PRIVACY ISSUES

9.1 Overview

General surveys show that consumers have concerns about their privacy, both online and offline. And there is a general misconception that the government is protecting their privacy.

“A surveillance society is taking root. Video cameras peer constantly from lamp poles and storefronts. Smartphones relay a dizzying barrage of information about their owners to sentinel towers dotting cities and punctuating pasture-land. Meanwhile, on the information superhighway, every stop by every traveler is noted and stored by Internet service providers like Google, Verizon, and Comcast. Retailers scan, remember, and analyze each purchase by every consumer. Smart TVs know what we’re watching – soon they will have eyes to watch us watching them – and smart meters know if we’ve turned out the lights.”

Time

Consumers’ concerns about privacy are also sometimes difficult to gauge because they are self-contradictory about marketer’s use of their information.
“People may claim to worry about privacy issues but look at what they actually do online ... willingly surrendering personal information for a coupon or in a Facebook discussion. The disconnect between what people say and do shows that policymakers and academics misjudge the extent to which the public really cares about the use of data about them by marketers.”

Mark Dolliver, Analyst
*The Digital Privacy Dilemma*

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**9.2 Attitudes About Privacy**

*Americans’ Attitudes About Privacy, Security, And Surveillance*, by Pew Research Center [www.pewresearch.org](http://www.pewresearch.org), reported the following attitudes among U.S. adults:

- Ninety-three percent (93%) of adults say that being in control of who can get information about them is important.
- Ninety percent (90%) say that controlling what information is collected about them is important.
- Americans say they do not wish to be observed without their approval; 88% say it is important that they not have someone watch or listen to them without their permission.
- Eighty-five percent (85%) of adults say that not being disturbed at home is important.
- The following percentages of adults say they are not confident that records of their activity maintained by various online entities will remain private and secure:
  - Online advertisers who place ads on the websites they visit: 75%
  - Social media sites they use: 69%
  - Search engine providers: 66%
  - Online video sites they use: 66%
- Adult Internet users think that various online entities should not save records or archives of their activity:
  - Online advertisers who place ads on the websites they visit: 50%
  - Social media sites they use: 40%
  - Search engine providers: 40%
  - Online video sites they use: 44%
• Just 6% of adults say they are ‘very confident’ that government agencies can keep their records private and secure, while another 25% say they are ‘somewhat confident.’

“The majority of Americans believe it is important that they be able to maintain privacy and confidentiality in commonplace activities of their lives. Most strikingly, these views are especially pronounced when it comes to knowing what information about them is being collected and who is doing the collecting. These feelings also extend to their wishes that they be able to maintain privacy in their homes, at work, during social gatherings, at times when they want to be alone and when they are moving around in public.”

Pew Research Center

9.3 Online Privacy

Since 2010, TRUSTe (www.truste.com) has published a Consumer Privacy Index study.

The following are findings from the U.S. Consumer Privacy Index 2016:
• Ninety-two percent (92%) of U.S. Internet users worry about their privacy online. Forty-five percent (45%) are more worried than they were one year ago.
• Fifty-six percent (56%) of U.S. Internet users trust businesses with their personal information; 44% do not have this trust.
• Sixty-four percent (64%) of adult consumers think online privacy should be a human right; 37% think losing online privacy is part of being more connected.
• Twenty-two percent (22%) of U.S. Internet users do not trust anyone to protect their online privacy.
• Companies collecting and sharing personal information with other companies is the top concern among U.S. Internet users about their online privacy; 37% of adult consumers rate this as their #1 concern.
• Eighty-nine percent (89%) of U.S. Internet users avoid doing business with companies they do not believe protect their online privacy.
• Seventy-four percent (74%) of U.S. Internet users have moderated their online activity in the past year due to privacy concerns. The following are actions taken:
  - Have not clicked on an online ad: 51%
  - Withheld personal information: 44%
  - Stopped using a website: 36%
  - Have not downloaded an app product: 32%
  - Stopped using an app: 29%
  - Stopped an online transaction: 28%

• Seventy-eight percent (78%) of U.S. Internet users believe they are primarily responsible for protecting their privacy online; 22% do not trust anyone other than themselves to protect their privacy online. The following are steps taken to protect privacy in the past year:
  - Deleted cookies: 55%
  - Changed privacy settings: 29%
  - Turned off location tracking: 29%
  - Read privacy policies: 16%

9.4 Violations Of Privacy Online

The 2016 Digital Future Project: Surveying The Digital Future, by the Center for the Digital Future (www.digitalcenter.org) at the University of Southern California, Annenberg School for Communication, reported that online adults have concerns about entities violating their privacy online as follows:
• Corporations: 54%
• Government agencies: 51%
• Other people: 43%

Thirty percent (30%) of online adults report having their privacy violated online; 10% say these violations affected their job/career, had financial consequences, affected personal relationships, or were embarrassing.

Participants in the 2016 Digital Future Project survey voiced the following views about online privacy:
• I actively protect my privacy online: 72%
• I have nothing to hide: 66%
• There is no privacy, get over it: 48%
• I feel that I can control my privacy online: 41%
• Concerns about privacy online are exaggerated: 23%

9.5 Whom Do Consumers Trust?

The Harris Poll (www.theharrispoll.com) asked adults how much trust they have in various entities handling their personally identified information (such as credit card information, contact information and so forth) in a properly confidential and secure
manner. Responses were as follows:

<table>
<thead>
<tr>
<th>Entity</th>
<th>Trust (%)</th>
<th>Don't Trust (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health providers (e.g. doctors and hospitals):</td>
<td>79%</td>
<td>21%</td>
</tr>
<tr>
<td>Major online retailers (e.g. Amazon, eBay):</td>
<td>74%</td>
<td>26%</td>
</tr>
<tr>
<td>Banks and brokerage companies:</td>
<td>68%</td>
<td>32%</td>
</tr>
<tr>
<td>Small and/or independent online retailers:</td>
<td>55%</td>
<td>45%</td>
</tr>
<tr>
<td>State and local governments:</td>
<td>52%</td>
<td>48%</td>
</tr>
<tr>
<td>Search and portal sites (e.g. Google, Yahoo!):</td>
<td>49%</td>
<td>51%</td>
</tr>
<tr>
<td>Federal government:</td>
<td>48%</td>
<td>52%</td>
</tr>
<tr>
<td>Social networking sites (like Facebook or MySpace):</td>
<td>28%</td>
<td>72%</td>
</tr>
</tbody>
</table>

By age, adults trust the following entities handling their personal identification:

<table>
<thead>
<tr>
<th>Entity</th>
<th>18-to-34</th>
<th>35-to-44</th>
<th>45-to-54</th>
<th>55+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health providers (e.g. doctors and hospitals):</td>
<td>78%</td>
<td>78%</td>
<td>76%</td>
<td>82%</td>
</tr>
<tr>
<td>Major online retailers (e.g. Amazon, eBay):</td>
<td>74%</td>
<td>72%</td>
<td>74%</td>
<td>76%</td>
</tr>
<tr>
<td>Banks and brokerage companies:</td>
<td>70%</td>
<td>65%</td>
<td>63%</td>
<td>71%</td>
</tr>
<tr>
<td>Small and/or independent online retailers:</td>
<td>55%</td>
<td>58%</td>
<td>58%</td>
<td>53%</td>
</tr>
<tr>
<td>State and local governments:</td>
<td>61%</td>
<td>52%</td>
<td>49%</td>
<td>46%</td>
</tr>
<tr>
<td>Search and portal sites (e.g. Google, Yahoo!):</td>
<td>55%</td>
<td>54%</td>
<td>50%</td>
<td>41%</td>
</tr>
<tr>
<td>Federal government:</td>
<td>58%</td>
<td>51%</td>
<td>48%</td>
<td>39%</td>
</tr>
<tr>
<td>Social networking sites (like Facebook or MySpace):</td>
<td>42%</td>
<td>34%</td>
<td>27%</td>
<td>14%</td>
</tr>
</tbody>
</table>

Adults said they view the following as a threat to their privacy:

<table>
<thead>
<tr>
<th>Entity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyber-criminals:</td>
<td>88%</td>
</tr>
<tr>
<td>Social networking sites (e.g. Facebook, Google+):</td>
<td>70%</td>
</tr>
<tr>
<td>People with wearable, camera-equipped devices:</td>
<td>63%</td>
</tr>
<tr>
<td>The federal government:</td>
<td>60%</td>
</tr>
<tr>
<td>People with camera-equipped phones:</td>
<td>59%</td>
</tr>
<tr>
<td>State and local governments:</td>
<td>56%</td>
</tr>
<tr>
<td>Search and portal sites (e.g. Google, Yahoo!):</td>
<td>53%</td>
</tr>
<tr>
<td>Banks and brokerage companies:</td>
<td>43%</td>
</tr>
<tr>
<td>Small and/or independent online retailers:</td>
<td>42%</td>
</tr>
<tr>
<td>Major online retailers (e.g. Amazon, eBay):</td>
<td>35%</td>
</tr>
<tr>
<td>Health providers (e.g. doctors and hospitals):</td>
<td>31%</td>
</tr>
</tbody>
</table>
SECURITY THREATS

10.1 Overview

According to *Americans and Cybersecurity*, a 2017 report by Pew Research Center (www.pewresearch.org), 64% of U.S. adults have been impacted by at least one type of online data theft. The following are types of data theft experienced (percentage of U.S. adults):

- Have had fraudulent charges on credit cards: 41%
- Received notices that some type of sensitive information (like an account number) had been compromised: 35%
- Someone had taken over an email account: 16%
- Received notices that their Social Security number had been compromised: 15%
- Attempt to take out loans or lines of credit in their name: 14%
- Someone had taken over a social media accounts: 13%
- Someone had impersonated them in order to file fraudulent tax returns: 6%

___________________________________________________________

“Computer security is a contradiction in terms. There is no way to make computers completely safe. Software is hugely complex. Across its products, Google must manage around 2 billion lines of source code – errors are inevitable. The average program has 14 separate vulnerabilities, each of them a potential point of illicit entry. Such weaknesses are compounded by the history of the Internet, in which security was an afterthought.”

*The Economist, 4/8/17*

___________________________________________________________

According to Qualtrics (www.qualtrics.com), about half of U.S. Internet users have an online security issue each year. Types of online security issues are as follows:

**CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019**

- 59 -
• Received a notice that personal information (e.g. username, password, credit card number, Social Security number, or insurance policy number) may have been compromised: 41%
• Online account hacked: 23%
• Password stolen: 17%

10.2 Identity Fraud

Javelin Strategy & Research (www.javelinstrategy.com) provides the following assessment of identity fraud in the United States:

<table>
<thead>
<tr>
<th>Year</th>
<th>Fraud Victims</th>
<th>Fraud Losses</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>11.6 million</td>
<td>$18.8 billion</td>
</tr>
<tr>
<td>2012</td>
<td>12.6 million</td>
<td>$21.8 billion</td>
</tr>
<tr>
<td>2013</td>
<td>13.1 million</td>
<td>$19.1 billion</td>
</tr>
<tr>
<td>2014</td>
<td>12.7 million</td>
<td>$16.2 billion</td>
</tr>
<tr>
<td>2015</td>
<td>13.1 million</td>
<td>$15.3 billion</td>
</tr>
<tr>
<td>2016</td>
<td>15.4 million</td>
<td>$16.0 billion</td>
</tr>
</tbody>
</table>

The following are findings of the 2017 Identity Fraud Study, by Javelin Strategy & Research:

• In 2016, 6.2% of consumers became victims of identity fraud, an increase by more than 2 million victims from the previous year; the incidence rate increased by 16%. This increase was driven by growth in existing credit card fraud, which saw a significant spike in card-not-present transactions.
• Driven by closing opportunities for point-of-sale fraud and the growth of e- and m-commerce, fraudsters are increasingly moving online, dramatically increasing the prevalence of card-not-present (CNP) fraud by 40%. Meanwhile incidence of fraud at the point-of-sale (POS) remained essentially unchanged from 2014 and 2015 levels.
• After reaching a low point in 2014, both account takeover (ATO) incidence and losses rose notably in 2016. Total ATO losses reached $2.3 billion, a 61% increase from 2015, while incidence rose 31%. Account takeover continues to be one of the most challenging fraud types for consumers, with victims paying an average of $263 in out of pocket costs and spending a total of 20.7 million hours to resolve ATO in 2016, 6 million more than in 2015.

The Bureau of Justice Statistics (www.bjs.gov) classifies identity theft as follows:

• Misuse of an existing account such as a credit card or online account: 86% of incidents
• Unauthorized use of personal information to open a new account: 4% of incidents
• Misuse of personal information for fraudulent purposes such as getting medical care, housing, a job, or other benefits: 3% of incidents
• Multiple types of theft: 7% of incidents
10.3 Malware
Malware refers to Internet-based programs of malicious intent that download software onto a computer. The following are the most common forms of malware:

Spyware
• Spyware refers to programs that surreptitiously monitor activity on a computer system and report that information to others without the user’s consent.

Ransomware
• Ransomware is a type of malware which restricts access to the computer system that it infects and demands a ransom be paid to the creator of the malware in order for the restriction to be removed. Some forms of ransomware encrypt files on the system’s hard drive, while some may simply lock the system and display messages intended to coax the user into paying.

Trojan Horses
• Trojan Horse is a general term for malicious software that a user willingly allows to be downloaded onto their computer.

Viruses
• Viruses are programs that can replicate their structures or effects by infecting other files or structures on a computer. The common use of a virus is to take over a computer to steal data.

Worms
• Worms are programs that can replicate themselves throughout a computer network to perform malicious tasks throughout.

10.4 Phishing
Phishing is an e-mail fraud method in which the perpetrator sends out email in an attempt to gather personal and financial information from recipients.

According to a December 2016 report by PhishMe (www.phishme.com), 91% of cyber attacks start with a phish. The top reasons people are duped by phishing emails are curiosity (13.7%), fear (13.4%), and urgency (13.2%), followed by reward/recognition, social, entertainment, and opportunity.

An estimated 160 million phishing emails are sent globally every day. Approximately 10%, or 16 million, make it through spam filters. Among these phishing emails, an estimated 800,000 embedded links are clicked, with some 80,000 people falling for a scam every day. The result: stolen identities, financial loss, credit card fraud, and other Internet scams.

Estimates of the number of U.S. adults who have replied to phishing email range from 7% to 14%; about 3% have entered bank details on a site they did not know.
The Security Division of EMC (www.emc.com) estimates global annual losses from phishing at $1.5 billion.

10.5 Data Breaches

Many data breaches occur when corporate databases are hacked, and consumers can do little about such incidences. But many data breaches occur because people do not adequately protect their access passwords.

“There was LinkedIn, hacked in 2012 (165 customers records accessed. Evernote in 2013 (50 million), Target in 2013 (110 million), Home Depot in 2014 (56 million credit cards; 53 million e-mail addresses), Yahoo in 2014 (500 million), and Anthem in 2015 (80 million).”

Scientific American, 1/17

10.6 Security Threats To Mobile Devices

According to Skycure (www.skycure.com), a wireless security company, almost a quarter of mobile devices are exposed to security attacks 30 days after being online, either via Wi-Fi or cellular networks. After four months, over 40% of devices become exposed to an attack.

According to Kaspersky Lab (www.kaspersky.com), the top mobile device threats are as follows:
• Data leakage caused by mobile apps
• Unsecured wi-fi
• Network spoofing
• Phishing attacks
• Spyware
• Broken cryptography
• Improper session handling

10.7 Use Of Public Wi-Fi

2016 Cyber Security Survey, by Precision Opinion (www.precisionopinion.com), reported adult access of the Internet via free public wi-fi as follows (percentage of
respondents):
• At least once a day: 8.2%
• At least a few times a week: 9.2%
• Once a week: 11.3%
• Once a month: 12.7%
• Once every few months: 17.1%
• Never: 40.2%

When asked the extent to which they believe free public wi-fi is safe, responses were as follows (percentage of respondents):
• Very safe: 4.8%
• Somewhat safe: 39.1%
• Not too safe: 27.6%
• Not safe at all: 21.6%
• Uncertain: 6.9%

10.9 Passwords
According to Cybersecurity Ventures (www.cybersecurityventures.com), 8.2 million passwords were pilfered per day in 2016.
Consumers frequently expose their personal information by sharing passwords, failing to adequately protect passwords, or using passwords that are easy for a hacker to guess.

“While breaches continue to happen to everyone, from companies and celebrities to consumers, people are continuing to engage in risky password behavior. Five to 10 years ago, cybersecurity was about protecting devices with anti-virus software. Today, data isn’t on our devices, but in the cloud. The best line of defense we have to protect this data is passwords.”
Emmanuel Schalit, CEO
Dashline
Research Brief, 11/24/16
According to a survey by Harris Poll (www.theharrispoll.com), 45% of adults have either trusted someone with, or been entrusted with, a password, with email (23%) and streaming services (21%) leading the list of shared passwords. Sixty-four percent (64%) of Millennials (ages 18-to-34) admit to sharing or receiving passwords; 37% of adults ages 35 and older have done so. Consumers may think that sharing a Netflix password is harmless. But, if part of that password aligns with an email or another password, it becomes easier for hackers to gain access to very personal information.

The average user has over 100 accounts, so it’s practically impossible to remember every password. Having a unique password for every account ensures that even if one account is breached, other accounts will be secure. Some breaches aren’t discovered or disclosed for years, so you never know when your information might be vulnerable. The strongest passwords are unique and random strings of letters and numbers, but Americans are continuing to make weak password choices with easily identifiable personal information.

According to Americans and Cybersecurity, adults use the following methods to keep track of their online passwords (percentage of Internet users):

<table>
<thead>
<tr>
<th>Method</th>
<th>Use</th>
<th>Use Most Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memorize them</td>
<td>86%</td>
<td>65%</td>
</tr>
<tr>
<td>Write them down on paper</td>
<td>49%</td>
<td>18%</td>
</tr>
<tr>
<td>Save in a note on computer or mobile device</td>
<td>24%</td>
<td>6%</td>
</tr>
<tr>
<td>Save in their Internet browser</td>
<td>18%</td>
<td>2%</td>
</tr>
<tr>
<td>Use password management program</td>
<td>12%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Considering the large number of password-protected accounts that most adults have and that they generally memorize passwords, it is not surprising that they frequently need help accessing online accounts. Harris Poll found that 81% have asked for assistance (hints, security questions, password resets, etc.) to access any of their accounts or apps, 62% needed assistance multiple times a year, and 23% of people seek help at least once a month. Many people seem to dread resetting passwords. In a November 2016 Harris Poll, 41% of people said they would rather give up their favorite food for a month than go through the password reset process for all their online accounts.
PART II: ANALYTICS
11 TOP WEBSITES

11.1 Alexa Ranking
Alexa Internet (www.alexa.com), a subsidiary of Amazon.com, provides commercial web traffic data, global rankings, and other information on 30 million websites.

Alexa Internet ranked the Top 50 U.S. and Canadian websites based on traffic in April 2017 as follows:

**United States**

1. Google.com
2. Youtube.com
3. Facebook.com
4. Amazon.com
5. Reddit.com
6. Yahoo.com
7. Wikipedia.org
8. Twitter.com
9. Ebay.com
10. Linkedin.com
11. Netflix.com
12. Ntd.tv
13. Imgur.com
14. Instagram.com
15. Diply.com
16. Craigslist.org
17. Live.com
18. Bing.com
19. Tumblr.com
20. Office.com
21. Microsoftonline.com
22. Cnn.com
23. Pinterest.com
24. T.co
25. Livejasmin.com

26. Pornhub.com
27. Chase.com
28. Imdb.com
29. Espn.com
30. Nytimes.com
31. Twitch.tv
32. Paypal.com
33. Wikia.com
34. Blogspot.com
35. Wordpress.com
36. Apple.com
37. Weather.com
38. Walmart.com
39. Bankofamerica.com
40. Msn.com
41. Salesforce.com
42. Wellsfargo.com
43. Washingtonpost.com
44. Microsoft.com
45. Stackoverflow.com
46. Breitbart.com
47. Yelp.com
48. Huffingtonpost.com
49. Zillow.com
50. Dropbox.com
Canada
1. Google.ca
2. Youtube.com
3. Google.com
4. Facebook.com
5. Reddit.com
6. Wikipedia.org
7. Yahoo.com
8. Live.com
9. Amazon.ca
10. Twitter.com
11. Dipy.com
12. Kijiji.ca
13. Netflix.com
14. Imgur.com
15. Instagram.com
16. Linkedin.com
17. Amazon.com
18. Livejasmin.com
19. Td.com
20. Royalbank.com
21. Cbc.ca
22. Pornhub.com
23. Ntd.tv
24. Tumblr.com
25. Twitch.tv
26. Imdb.com
27. Ebay.ca
28. T.co
29. Office.com
30. Msn.com
31. Theweathernetwork.com
32. Microsoftonline.com
33. Wikia.com
34. Vice.com
35. Thepiratebay.org
36. Pinterest.com
37. Wordpress.com
38. Ebay.com
39. Bing.com
40. Rbcroyalbank.com
41. Craigslist.ca
42. Cra-arc.gc.ca
43. Scotiabank.com
44. Stackoverflow.com
45. Microsoft.com
46. Apple.com
47. Cibc.com
48. Cnn.com
49. Gfycat.com
50. Indeed.com

11.2 Quantcast Ranking
Quantcast (www.quantcast.com) ranks websites based on the number of people in the United States who visit each site within a month. It includes sites with estimated traffic as well as sites with traffic that Quantcast has independently verified. Quantcast directly measures site traffic through the implementation of the Quantcast asynchronous tag on each website.

Of the Top 100 sites in April 2017, 63 allowed Quantcast to monitor their traffic; traffic for 37 sites was estimated.

Quantcast allows quantified publishers to hide their directly measured profile audience data from public view. Among the Top 100 sites in April 2017, 20 chose to exclude their data from public view. These sites are not presented in the list below; they are indicated as n/a.

The Top 100 websites for April 2017 are as follows:
1. google.com
2. youtube.com
3. facebook.com
4. msn.com
5. yahoo.com
6. bing.com
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>amazon.com</td>
</tr>
<tr>
<td>8.</td>
<td>twitter.com</td>
</tr>
<tr>
<td>9.</td>
<td>yelp.com</td>
</tr>
<tr>
<td>10.</td>
<td>buzzfeed.com</td>
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### 11.3 Moz Ranking

According to Mozscape API, by Moz (www.moz.com), there are 162 billion URLs on the Internet. Moz provides a monthly list of the top registered domains ranked by the number of linking root domains.

The top 100 registered domains in April 2017 were as follows:

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<th>Linking Root Domains</th>
<th>External Links</th>
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<td>Twitter.com</td>
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<td>4,321,147,815</td>
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<td>Google.com</td>
<td>4,831,553</td>
<td>2,276,666,991</td>
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<td>4.</td>
<td>Youtube.com</td>
<td>2,534,634</td>
<td>1,363,266,559</td>
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<td>Linkedin.com</td>
<td>1,767,831</td>
<td>711,380,241</td>
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<td>6.</td>
<td>Wordpress.org</td>
<td>1,726,677</td>
<td>151,505,307</td>
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<td>Instagram.com</td>
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<td>Pinterest.com</td>
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<td>Godaddy.com</td>
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<td>21,996,759</td>
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</tbody>
</table>

### 11.4 Market Resources


Moz, 1100 2nd Avenue, Suite 500, Seattle, WA 98101. (206) 602-2005. ([www.moz.com](http://www.moz.com))

Quantcast, 201 3rd Street, San Francisco, CA 94103. (415) 738-4755. ([www.quantcast.com](http://www.quantcast.com))
## TRAFFIC STATISTICS FOR TOP WEBSITES

### 12.1 Overview
Quantcast ([www.quantcast.com](http://www.quantcast.com)) assesses websites based on the number of people in the United States who visit each site within a month. The assessment includes sites with estimated traffic as well as sites with traffic that Quantcast has independently verified.

### 12.2 Monthly Unique Visitors
Quantcast assessed the number of visitors to major U.S. consumer websites in April 2017 as follows:

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<th>Visitors</th>
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<td>100percentfedup.com</td>
<td>2,786,739</td>
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<td>10best.com</td>
<td>480,882</td>
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<tr>
<td>10news.com</td>
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<tr>
<td>11alive.com</td>
<td>2,887,406</td>
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<td>1,903,097</td>
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<tr>
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<td>3,796,469</td>
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<td>1,326,088</td>
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<td>12tomatoes.com</td>
<td>420,151</td>
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<td>13abc.com</td>
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<tr>
<td>13newsnow.com</td>
<td>724,174</td>
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<tr>
<td>1800petmeds.com</td>
<td>439,689</td>
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<td>1911forum.com</td>
<td>402,277</td>
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<td>1funny.com</td>
<td>1,959,602</td>
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<td>2,005,272</td>
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<td>938,943</td>
</tr>
<tr>
<td>1tac.com</td>
<td>1,995,709</td>
</tr>
<tr>
<td>1worldonline.com</td>
<td>550,452</td>
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<tr>
<td>23andme.com</td>
<td>2,921,420</td>
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<td>247sports.com</td>
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<td>247wallst.com</td>
<td>1,305,011</td>
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<td>24timezones.com</td>
<td>488,504</td>
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<td>2ndamendmentinsider.com</td>
<td>491,292</td>
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<td>411.com</td>
<td>2,432,137</td>
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<td>Website</td>
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• addictinggames.com: 2,304,155
• addictinginfo.org: 1,837,452
• addictionblog.org: 1,064,856
• additionplus.com: 912,737
• adn.com: 338,337
• adobe.com: 12,956,250
• adomik.com: 2,339,004
• adorama.com: 1,594,401
• adp.com: 1,938,566
• advanceautoparts.com: 804,105
• advantagegold.com: 839,080
• advertiserurl.com: 1,281,368
• advocate.com: 1,613,015
• adweek.com: 573,928
• adworldmedia.com: 1,073,020
• ae.com: 827,669
• aemediataffic.com: 1,810,662
• aetna.com: 1,091,806
• af.mil: 570,732
• afamilyfeast.com: 446,680
• affi95.com: 612,621
• affiliatetechnology.com: 1,558,518
• affinitysolutions.com: 1,677,358
• affirm.com: 768,876
• agorafinancial.com: 1,377,943
• agweb.com: 500,142
• aimlb.com: 1,292,960
• airbnb.com: 1,926,647
• airfarewatchdog.com: 1,739,268
• aish.com: 434,424
• ajc.com: 4,029,890
• al.com: 4,096,518
• alaskaair.com: 1,795,428
• algebra.com: 2,392,434
• alhea.com: 586,852
• alibaba.com: 2,913,397
• aliexpress.com: 456,857
• aliexpress.com: 981,151
• all22.com: 524,727
• allaboutvision.com: 447,687

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019 • 74 •
• allegiancetech.com: 481,870
• allegrantair.com: 604,794
• allegiantdeals.com: 536,688
• allenbwest.com: 3,692,497
• allenwestrepublic.com: 401,797
• allianztravelinsurance.com: 532,859
• allmenus.com: 575,342
• allmodern.com: 424,606
• allmusic.com: 2,940,529
• allposters.com: 710,195
• allrecipes.com: 3,304,061
• allrookie.com: 1,725,206
• allstateagencies.com: 3,077,443
• allstaterewards.com: 344,818
• alltrails.com: 1,560,625
• allure.com: 430,569
• almanac.com: 2,886,434
• alocdn.com: 1,278,890
• alooma.com: 1,872,820
• alot.com: 909,332
• altdriver.com: 1,916,004
• alternet.org: 3,573,192
• alumniclass.com: 937,071
• amac.us: 995,938
• amarktflow.com: 420,447
• amazon.ca: 380,835
• amazon.com: 101,915,368
• amc.com: 545,289
• amctheatres.com: 1,113,405
• americanactionnews.com: 1,122,342
• americanairlines.com: 454,333
• americancolumn.com: 421,925
• americanexpress.com: 4,996,368
• americanfunds.com: 555,748
• americangreetings.com: 975,368
• americanhealthinsure.com: 1,578,457
• americanlifestylejournal.com: 531,225
• americanmilitarynews.com: 2,177,629
• americannews.com: 409,812
• americanow.com: 12,169,514
• americanpatriotdaily.com: 1,054,002
• americanpublicmediagroup.org: 496,880
• americanrifleman.org: 588,532
• americanthinker.com: 1,271,800

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
• 75 •
• americantowns.com: 471,955
• americanupdate.com: 760,647
• americastestkitchen.com: 695,408
• ameriprise.com: 666,881
• ameritrade.com: 1,023,283
• amextravel.com: 535,400
• amilliamilli.com: 485,205
• ampproject.net: 722,290
• amtrak.com: 648,583
• ancestry.com: 3,363,291
• ancestrycdn.com: 1,233,550
• ancestrydata.com: 1,404,934
• ancient-origins.net: 723,560
• andiesisle.com: 953,403
• androidauthority.com: 2,193,857
• androidcentral.com: 7,801,246
• androidpolice.com: 1,400,268
• anedot.com: 748,168
• angelfire.com: 2,492,232
• angieslist.com: 2,486,202
• angryarcade.com: 918,811
• animenewsnetwork.com: 1,090,014
• answers.com: 21,067,744
• antiagingnewsdaily.com: 451,697
• anywho.com: 682,804
• aol.com: 23,433,382
• aopa.org: 1,065,755
• apache.org: 381,749
• apartmentguide.com: 723,433
• apartments.com: 529,408
• apesters.com: 658,118
• app.com: 440,933
• appadvice.com: 942,967
• appboy.com: 1,865,227
• appinthestore.com: 718,594
• apple.com: 14,113,990
• appspot-preview.com: 1,277,403
• appstopp.com: 690,244
• arbys.com: 696,685
• arcgis.com: 1,499,376
• archive.org: 3,260,667
• archivegalleries.net: 442,855
• archives.gov: 846,491
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CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
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**CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019**

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CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
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CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
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CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
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CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
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**CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019**

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CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
• 104 •
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- law.com: 429,395
- lawweekly.com: 2,375,794
- lawnewz.com: 849,545
- lawsuitwinning.com: 366,243
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- lendingtree.com: 2,941,981
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- lexblab.com: 1,516,484
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CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
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**CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019**

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• mybloodsugarsecret.com: 467,633
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• mydentalvisit.com: 1,037,442
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• myfitnesspal.com: 2,494,976
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• myidcare.com: 869,416
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CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019

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- sciencehealthnews.com: 731,145
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• ultimateweddingtips.com: 376,649
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• usajobs.gov: 476,594
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• usasocialcondition.com: 429,774
• usatestprep.com: 1,283,938
• usatoday.com: 1,989,989
• usbank.com: 2,466,395
• usccb.org: 1,563,548
• uscellular.com: 425,676
• uschronicle.com: 396,420
• usconcealedcarry.com: 764,052
• usda.gov: 1,174,452
• usf.edu: 431,466
• usgs.gov: 867,407
• usherald.com: 3,418,639
• usmagazine.com: 17,101,548
• usmint.gov: 564,189
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CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
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• virtualtourist.com: 382,357
• visa.com: 4,273,219
• visitphilly.com: 739,009
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• visualstudio.com: 6,092,942
• vitacost.com: 2,038,280
• vitalmx.com: 1,117,871
• vitals.com: 3,241,195
• vitaminshoppe.com: 418,477
• vividseats.com: 700,029
• vizio.com: 410,502
• vizury.com: 1,055,216
• vons.com: 547,275
• votevets.org: 2,007,675
• vox-cdn.com: 2,236,898
• voxmedia.com: 2,818,389
• vrbo.com: 1,877,586
• vulture.com: 356,669
• w3.org: 543,592
• wa.gov: 2,334,543
• wabazaar.net: 1,385,619
• wacotrib.com: 437,413
• walgroens.com: 6,864,078
• walmart.com: 25,408,644
• walottery.com: 449,478
• walterfootball.com: 636,806
• walthers.com: 353,267
• warhistoryonline.com: 745,976
• washington.edu: 385,244
• washingtonexaminer.com: 4,923,513
• washingtonpost.com: 19,522,844
• washingtonposttimes.com: 7,043,378
• watchthescreen.com: 545,948
• wave3.com: 469,978
• wayfair.com: 7,062,350
• wayfairsupply.com: 358,734
• wcax.com: 328,659
• wcnc.com: 880,668
• wcpo.com: 1,467,090
• wctv.tv: 544,478
• wdbj7.com: 455,691
• wealthauthority.com: 373,561
• wealthyretirement.com: 594,800
• weather.com: 15,356,746
• weather.gov: 5,530,813
• web.com: 377,338
• webaction.org: 540,476
• webconnex.com: 777,413
• webcrawler.com: 386,078
• webdealscentral.com: 572,367
• webdealspro.com: 609,356
• webex.com: 545,347
• webmasterplan.com: 399,703
• webmd.com: 6,538,589
• webpromotionsusa.com: 1,766,422
• webs.com: 737,872
• webshots.com: 691,642
• webspectator.com: 2,824,473
• websudoku.com: 480,766
• webyclip.com: 1,479,711
• weddingwire.com: 2,816,045
• weei.com: 645,424
• weeklyhomebusinesstrends.com: 1,667,481
• weeklystandard.com: 1,060,782
• weightwatchers.com: 1,539,538
• wellhello.com: 841,308
• wellness.com: 1,346,540
• wellsfargo.com: 18,578,508
• wellsfargoadvisors.com: 812,411
• wennernermedia.com: 1,179,874
• wepay.com: 451,413
• westernjournalism.com: 6,282,424
• westword.com: 1,232,391
• wetpaint.com: 347,883
• wetwebmediaforum.com: 3,071,204
• wf.com: 377,298
• wfaa.com: 1,755,113
• wfmynews2.com: 607,991
• wftv.com: 1,656,214
• wgmtv.com: 3,219,535
• wgrz.com: 761,692
• whas11.com: 640,611
• whatcounts.com: 1,147,912
• whatculture.com: 1,489,269
• whateverworks.com: 986,520
• whec.com: 849,919
• whio.com: 1,173,456
• whirlpool.com: 586,028
• whiskeyriff.com: 1,628,151
• whitehouse.gov: 3,009,934
• whitepages.com: 24,629,482
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• wi.gov: 526,702
• wideopencountry.com: 3,071,799
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• wikidot.com: 1,313,967
• wikihow.com: 4,684,422
• wikimedia.org: 4,131,989
• wikipedia.org: 38,727,868
• wiktionary.org: 1,124,937
• wildandwonderful.com: 374,435
• williams-sonoma.com: 647,422
• wilsola.com: 1,527,611
• windows.com: 5,854,457
• windows.net: 1,718,070
• windowscentral.com: 1,868,265
• windstream.net: 1,196,272
• winknews.com: 929,778
• winndixie.com: 403,704
• wired.com: 1,491,518
• wiredforchange.com: 2,621,688
• wisc.edu: 699,488
• wisebread.com: 984,428
• wish.com: 546,804
• wishesmessages.com: 598,772
• wishloop.com: 691,802
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• wkyc.com: 1,239,026
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• wn.com: 2,263,116
• wnd.com: 3,957,976
• wndu.com: 491,403
• wnyt.com: 520,642
• womenshealthmag.com: 742,245
• womensmarch.com: 1,254,005
• wonderhearingaid.com: 404,342
• wondershare.com: 610,771
• woodcraft.com: 456,049
• wordfly.com: 412,267
• wordpress.com: 27,888,254
• wordreference.com: 387,300
• wordsmith.org: 510,920
• workingmother.com: 353,173
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• worldatlas.com: 429,306
• worldcat.org: 492,297
• worldlifestyle.com: 9,596,852
• worldmarket.com: 1,182,387
• worldnewspolitics.com: 427,764
• worldofsolitaire.com: 515,875
• wormconzist.com: 1,391,991
• worthpoint.com: 998,814
• worthsharingit.com: 808,882
• wow.com: 800,635
• wowt.com: 563,430
• wptv.com: 1,328,940
• wpix.com: 1,621,405
• wrdw.com: 439,890
• wsaz.com: 733,550
• wsbtv.com: 3,284,711
• wsdot.com: 329,232
• wsj.com: 5,106,073
• wsj.net: 773,147
• wsoctv.com: 1,474,538
• wsu.edu: 331,695
• wtop.com: 3,117,389
• wtsp.com: 1,059,595
• wunderground.com: 3,868,504
• wusa9.com: 1,443,526
• wwe.com: 472,488
• wweek.com: 517,691
• wwoo.com: 401,557
• wxyz.com: 1,833,792
• wyndhamhotels.com: 613,526
• wyndhamrewards.com: 644,815
12.3 Market Resources
Quantcast, 201 3rd Street, San Francisco, CA 94103. (415) 738-4755.
(www.quantcast.com)
PART III: ONLINE ACTIVITIES & CONTENT
13

BLOGS

13.1 Overview
Blogs, a contraction of the term ‘Web log,’ are websites, usually maintained by an individual, with regular entries of commentary, descriptions of events, or other content such as graphics or video. Entries are commonly displayed in reverse-chronological order. The majority are interactive, allowing visitors to leave comments and even message each other.

“Blogging has reinvented a media landscape previously dominated by the mass-media broadcast industry. People now have more sources from which to obtain their news. [Blogs] have been instrumental in helping the Web become the participatory medium it was always envisioned to be.”

100 Ideas That Changed The Web

13.2 Use Of Blogs
According to the 2016 Digital Future Project, by the Center for the Digital Future (www.digitalcenter.org) at the University of Southern California, Annenberg School for Communication, the frequency at which online adults read blogs is as follows:

- Several times a day: 4%
- Daily: 10%
- Weekly: 16%
- Monthly: 12%
- Less than monthly: 18%
- Never: 40%
**13.3 Bloggers**

According to Blogging.org, there are 31 million bloggers in the U.S.

> “Blogging is having an incredibly positive impact on their lives, with bloggers receiving speaking or publishing opportunities, career advancement, and personal satisfaction.”

Technorati

---

Technorati (www.technorati.com) provides the following distribution of U.S. adult bloggers:

**Gender**
- Female: 43%
- Male: 57%

**Age**
- 18-to-34: 42%
- 35 and older: 58%

**Household Income**
- Less than $75,000: 49%
- $75,000 and higher: 51%

**Education**
- High school or some college: 26%
- College graduate: 74%

---

**13.4 Characteristics Of Blogs**

According to Technorati, 90% of bloggers say they post about brands, music, movies, and books. Four in five bloggers post brand or product reviews, with 37% posting such content frequently.

The lines between what a blog is and what a mainstream media site is have blurred. Larger blogs are taking on more characteristics of mainstream sites and mainstream sites are incorporating styles and formats of blogs.
According to The Bivings Group (www.bivings.com), 95% of the 100 largest U.S. newspapers have reporter blogs.

The majority of bloggers have advertising on their blogs. According to Technorati, the mean annual revenue is $6,000 among those with advertising, with $75,000 or more in revenue for those with 100,000 or more unique visitors per month. Blog ads earn CPMs (i.e. cost per impression) on par with large publishers.

Spam and splogs (spam blogs) are an increasing problem in the blogosphere. Between 3,000 and 7,000 new splogs are created each day, according to Technorati.

### 13.5 Top Blogs

Ranked by monthly unique visitors, the top blog sites are as follows (sources: Alexa [www.alexa.com], Compete [www.compete.com], eBizMBA [www.ebizmba.com], and Quantcast [www.quantcast.com]):

- Huffington Post (www.huffingtonpost.com): 110.00 million
- TMZ (www.tmz.com): 30.00 million
- Business Insider (www.businessinsider.com): 25.50 million
- Mashable (www.mashable.com): 24.00 million
- Gizmodo (www.gizmodo.com): 23.50 million
- LifeHacker (www.lifehacker.com): 23.25 million
- Gawker (www.gawker.com): 22.00 million
- The Daily Beast (www.thedailybeast.com): 15.50 million
- Tech Crunch (www.techcrunch.com): 15.00 million
- Perez Hilton (www.perezhilton.com): 14.50 million
- Engadget (www.engadget.com): 14.00 million
- Cheezburger (www.cheezburger.com): 13.00 million
- Jezebel (www.jezebel.com): 12.50 million
- Deadspin (www.deadspin.com): 12.25 million
- Kotaku (www.kotaku.com): 10.00 million

### 13.6 Blog Platforms

There are various platforms designed specifically for blogs. According to Blogger.org, content is distributed on blog platforms as follows:

- WordPress: 43%
- Blogger: 35%
- Tumblr: 7%
- Typepad: 6%
- Other: 9%

Over 58 million posts are published monthly on WordPress, the largest blog platform. Every day, over one million new articles and over two million comments are published.
14

COMPUTER & VIDEO GAMES

14.1 Market Assessment

According to the Entertainment Software Association (ESA, www.theesa.com) and The NPD Group (www.npd.com), total consumer spending on computer and video games was $30.4 billion in 2016, distributed as follows:

- Software (downloadable content, mobile games, physical packaged goods, and subscriptions): $24.5 billion
- Hardware and accessories: $5.9 billion

*Bloomberg Businessweek* estimates the U.S. market for used video games at $1.6 billion.

14.2 Participation

According to *Gaming and Gamers*, by Pew Research Center (www.pewresearch.org), 49% of U.S. adults have played video games on a computer, TV, game console, or portable device like a cellphone; 10% consider themselves to be gamers. A nearly identical share of men and women report ever playing video games (50% of men and 48% of women). Among those ages 18-to-29, 77% of men and 57% of women have played video games.

The *2017 Essential Facts About the Computer and Video Game Industry*, by ESA, provides the following assessment:

- There is at least one video gamer in 65% of American households. (Note: A video gamer is defined as a person who plays games at least three hours per week.)
- Gamers age 18 or older represent 72% of the video game-playing population.
- The average gamer is 35 years old.
- Adult women represent 31% of the video game-playing population.
- Sixty-seven percent (67%) of parents play video games with their children at least once a week.
- Fifty-three percent (53%) of the most frequent video game players report playing video games with others. These players average 6 hours per week playing with others online and 5 hours playing with others in person.
- Eleven percent (11%) of U.S. households own a headset used to play virtual reality (VR) games.
14.3 Mobile Gaming

According to eMarketer, mobile gaming revenues have been, and are projected, as follows:

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<td>$1.56 billion</td>
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<td>$1.33 billion</td>
<td>$1.79 billion</td>
<td>$655 million</td>
<td>$3.77 billion</td>
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</table>

More than half of all U.S. mobile phone users – about 125.9 million people or 39.8% of the total U.S. population – play games on their phones.

14.4 Types of Games

The following types of online games are played most often (source: ESA):

- Casual/social games: 30%
- Puzzle, board game, game show, trivia, card games: 28%
- Action, sports, strategy, role-playing: 24%
- Persistent multi-player universe: 11%
- Other: 8%

Forty-four percent (44%) of gamers play on their smartphone; 33% play on their wireless device.

The following types of mobile games are played most often:

- Casual/social games: 46%
- Puzzle, board game, game show, trivia, card games: 31%
- Action, sports, strategy, role-playing: 11%
- Persistent multi-player universe: 4%
- Other: 9%

The popularity of casual/social gaming has increased 55% since 2012, according to the ESA. Among all gamers, 47% now play social games.

14.5 Top Gaming Sites

Ranked by number of monthly visitors, the top game and video game sites are as follows (sources: Alexa [www.alexa.com], Compete [www.compete.com], eBizMBA [www.ebizmba.com], and Quantcast [www.quantcast.com]):
Game Sites

- Yahoo! Games (https://games.yahoo.com): 25.00 million
- Y8 (www.y8.com): 19.00 million
- Pogo (www.pogo.com): 18.00 million
- MiniClip (www.miniclip.com): 14.50 million
- Big Fish Games (www.bigfishgames.com): 9.00 million
- Zynga (www.zynga.com): 8.50 million
- Addicting Games (www.addictinggames.com): 6.00 million
- Games (www.games.com): 4.20 million
- FOG (www.fog.com): 4.00 million
- Pop Cap (www.popcap.com): 3.00 million
- Game House (www.gamehouse.com): 2.90 million
- Shockwave (www.shockwave.com): 2.50 million
- iPlay (www.iplay.com): 2.00 million
- Bored (www.bored.com): 1.75 million
- Free Ride Games (www.freeridegames.com): 1.50 million

Video Game Sites

- IGN (www.ign.com): 20.50 million
- Game FAQs (www.gamefaqs.com): 17.50 million
- GameSpot (www.gamespot.com): 15.00 million
- Kotaku (www.kotaku.com): 10.00 million
- N4G (www.n4g.com): 5.00 million
- Escapist Magazine (www.escapistmagazine.com): 4.40 million
- PC Gamer (www.pcgamer.com): 4.00 million
- NEO Seeker (www.neoseeker.com): 3.70 million
- Giant Bomb (www.giantbomb.com): 3.50 million
- Game Front (www.gamefront.com): 3.25 million
- Joystiq (www.joystiq.com): 3.00 million
- Game Trailers (www.gametrailers.com): 2.50 million
- Games Radar (www.gamesradar.com): 2.25 million
- Cheat CC (www.cheatcc.com): 2.00 million
- Super Cheats (www.supercheats.com): 1.50 million

14.6 Casual and Social Games

Casual games, also called social games because they generally involve online social networking, have become immensely popular. The category includes games such as solitaire played on desktop or mobile platforms, classic two-player games such as Scrabble, and recently developed games such as Candy Crush Saga, which was downloaded 500 million times and played more than 150 billion times in 2013.

eMarketer (www.emarketer.com) estimates that 73.7 million people, or 40% of Internet users, are social gamers, playing at least one game on a social network at least
once a month. Facebook overwhelmingly dominates as the top social gaming destination, with 83% of weekly gamers playing on the site. For many, game play is their main reason to use such sites; about one-half of the time players log in to social sites is to play.

Casual gamers differ sharply from those who make up the video gaming demographic. According to Information Solutions Group (ISG, www.isgconsulting.com), 89% of casual gamers are 30 or older, 72% are female, and 53% are married with kids. Nearly half are college graduates.

Casual gamers play to relax – the same reason people play solitaire, dominoes, or mahjong. The games can be played for 5 minutes – while the baby is sleeping or between office meetings – or for hours at a stretch.

ISG reported the demographics of those playing casual social games as follows:

**Gender**
- Female: 54%
- Male: 46%

**Age**
- 18-to-21: 9%
- 22-to-29: 21%
- 30-to-39: 17%
- 40-to-49: 14%
- 50-to-59: 18%
- 60 and older: 20%

**14.7 Market Resources**
15

DIGITAL BANKING

15.1 Consumer Use Of Digital Banking

*Trends in Consumer Mobility Report 2016*, by Bank of America (www.boa.com), reported the percentage of Americans who primarily use digital banking as follows:

- 2014: 47%
- 2015: 51%
- 2016: 62%

Seventy percent (70%) of Gen Xers and 68% of Millennials primarily use digital banking.

“Going to the bank was once an errand that required getting up early on a Saturday or taking a long lunch. With online and mobile banking options, however, gone are the days of driving to the bank to deposit a check or even open a checking or savings account.”

CreditCards.com, 3/20/17

According to a survey by Mitek (www.mitek.com), digital channels are the most popular way for customers to open credit, savings, and checking accounts. In 2016, 72 percent of consumers used digital channels to open a checking account, up from 12% in 2014.
“Consumers still prefer online over mobile for opening new accounts, but this may be a function of demand outstripping supply – only a third of the top 30 financial institutions support end-to-end account opening via mobile devices.”

Mitek, 11/16

According to Javelin Research & Strategy (www.javelinstrategy.com), Millennials use smart devices to open checking accounts at 1.5 times the rate of older generations (27% versus 19%). However, many Millennials have thin credit files that often prevent their identities from being successfully verified as part of a digital account opening flow.

15.2 Digital Bill Pay

U.S. consumers pay approximately 14.7 billion bills annually, shelling out roughly $3.9 trillion. According to U.S. Bank Bill Pay: An Update, a February 2017 report by Aite Group (www.aitegroup.com), 2.2 billion bills are paid online via a financial institution’s website or mobile app. However, bank bill pay represents only 27% percent of all online consumer bill payments. Most bills are paid online at the individual biller’s website.

15.3 Mobile Financial Services

According to Consumers and Mobile Financial Services 2016, by the Board of Governors of the Federal Reserve System (www.federalreserve.gov), 53% of smartphone owners with a bank account used mobile banking in the prior 12-month period, virtually the same percentage that had done so in 2015.

The three most common mobile banking activities among mobile banking users were as follows:

- Checking account balances or recent transactions: 95%
- Transferring money between an individual’s own accounts: 58%
- Receiving an alert (e.g. a text message, push notification, or e-mail) from their bank: 56%
15.4 Digital Services

The 2016 North America Consumer Digital Banking Survey, by Accenture Consulting (www.accenture.com), asked adults about digital services that would increase loyalty to their primary bank. Responses were as follows (percentage of respondents):

- Locating discounts: 45%
- Helping in the car buying process: 43%
- Simplifying the home buying process: 41%
- Providing more personalized service: 40%
- Helping to proactively pay and manage bills: 39%
- Providing actionable financial advice on a proactive, real-time basis: 39%

15.5 Robo-Advice

Robo-advice is the use of automation and digital banking techniques to assist customers with their financial needs. It uses questionnaires and advanced algorithms to profile customers and make insight-based financial recommendations.

A 2016 survey by Accenture found that 46% of adults are willing to bank using robo-advice in the future.
16.1 Use Of Restaurant Apps

A 2016 survey by ATYM Market Research (www.atym.com) asked adult Internet users if they had mobile apps for restaurants or food-ordering services installed on their mobile device. Responses were as follows:

• Yes, multiple apps: 12.7%
• Yes, one app: 10.7%
• No: 62.8%
• Don’t have a smartphone: 13.8%

Based on number of downloads, App Annie (www.appannie.com) ranked restaurant apps in August 2017 as follows:

1. McDonald's
2. Starbucks
3. Chick-fil-A
4. Domino's Pizza
5. Dunkin' Donuts
6. Panera Bread
7. Pizza Hut
8. Burger King
9. Subway
10. Papa John's Pizza
11. Texas Roadhouse
12. Buffalo Wild Wings
13. El Pollo Loco
14. Chipotle Mexican Grill
15. Taco Bell
16. Sonic Drive-In
17. Jimmy John's Sandwiches
18. Whataburger
19. Wendy's
20. Baskin-Robbins
21. Smoothie King
22. Steak 'n Shake
23. Krispy Kreme
16.2 Online Restaurant Reviews

According to the National Restaurant Association (www.restaurant.org), 35% of U.S. adults have used online reviews to research a restaurant they had not yet visited. Fifty-seven percent (57%) of consumers say they will avoid a business that has negative reviews and ratings.

The two top national sites for restaurant reviews are OpenTable (www.opentable.com) and Yelp (www.yelp.com). Each have about four million written reviews and 15 million visitors a month. Other popular restaurant review destinations include Eat24 (www.eat24.com), Gayot (www.gayot.com), MenuPages (www.manupages.com), Zagat (www.zagat.com), and Zomato (formerly Urbanspoon; www.zomato.com).

A study by Harvard Business School (www.hbs.edu) reported that a one-star Yelp rating increase can lead to a 5% to 9% boost in revenue for a restaurant. A half-star improvement on Yelp’s 5-star rating makes it 30% to 49% more likely that a restaurant will sell out seats during peak hours.

16.3 Mobile Payment

OpenTable, reported use and attitudes about using mobile devices for restaurant payment as follows:

- Tried it, like it: 7%
- Tried it, neutral: 4%
- Tried it, disliked it: 2%
- Haven’t tried, like the idea: 46%
- Haven’t tried, neutral: 25%
- Haven’t tried, dislike the idea: 16%

While only about 13% of adults have used mobile payment in restaurants, the fact that 46% of those who have not used the technology like the concept suggests increasing use in the future.

“Customers like their smartphones, so enabling them to pay for their food seems like a no-brainer. Or is it? Many say it’s inherently limited, at least for now, because it’s just not that hard to pay with a credit card.”

Nation’s Restaurant News, 2/6/17
16.4 Digital Ordering

According to The NPD Group (www.npd.com), the use of mobile apps, text messages, and the Internet to order food from a restaurant or other foodservice outlets accounted for 3% of all restaurant traffic or 1.9 billion foodservice visits in 2016, an 18% increase over the prior year.

Fifty percent (50%) of digital orders come at dinner time, and 35% of digital ordering includes parties with kids. People under age 35 and those with higher household incomes are among above-average users of digital ordering. When consumers order digitally, they are twice as likely to order on a deal; 29% of all digital orders used a coupon. People under age 35, African-American consumers, and those with high household income are above average users of digital ordering.

“At a time when in-person visits to restaurants are declining, electronic orders have been a boon to the industry. They've tripled over the past five years.”

*Fortune, 6/15/17*

According to the U.S. QSR Benchmark Study, by Market Force Information (www.marketforce.com), adult Internet users used the following technologies in 2016 to place an order at a quick-service or fast-casual restaurant (percentage of respondents):

- Smartphone app: 23%
- Tablet at table: 22%
- Kiosk in the restaurant: 16%
- None of the above: 56%

The 2016 Takeout & Off-Premise Dining Consumer Trend Report, by Technomic (www.technomic.com), reported that adults are likely to use ordering technologies when offered by restaurants (percentage of respondents):

<table>
<thead>
<tr>
<th>Technology</th>
<th>Limited-Service</th>
<th>Full-Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online ordering via computer</td>
<td>48%</td>
<td>45%</td>
</tr>
<tr>
<td>Online ordering via mobile device</td>
<td>40%</td>
<td>40%</td>
</tr>
</tbody>
</table>

According to a 2016 survey by Toast (http://pos.toasttab.com), adult Internet users order food via smartphone or tablet as follows (percentage of respondents):

- Once a month: 34%
- Once a week: 25%
KeyBanc Capital Markets (www.key.com/corporate/knowledge-center/capital-markets.jsp) reported the following percentages of consumers increased online and mobile ordering at restaurants in 2016:

- Millennials: 39%
- Generation Xers: 37%
- Baby Boomers: 19%
- Seniors: 25%

Domino’s and Pizza Hut each receive more than 60% of orders via digital channels; for Pizza Hut digital orders make up about one-half of all orders. Orders coming from mobile devices account for more than 60% or digital orders for all three chains.

16.5 App-Based Meal Delivery

Consumers have long been torn between the quality of restaurant meals and the convenience of dining at home. A host of startups are providing the best of both worlds, offering on-demand meal delivery that are ordered via smartphone apps. They have developed restaurant delivery services using a model similar to that developed by Uber and Lyft to revolutionize the taxi industry.

“It’s been about five years since the latest wave of third-party delivery disruptors burst onto the scene. Grubhub/Seamless. DoorDash. Postmates. UberEats. These tech-fueled companies are training consumers to embrace the notion of getting just about anything they want delivered to their door.”

Restaurant Hospitality, 2/17

According to the 2016 Takeout & Off-Premise Dining Consumer Trend Report, by Technomic, when ordering takeout, adults use third party delivery services as follows (percentage of respondents):
• Always: 2%
• Most of the time: 10%
• Sometimes: 15%
• Rarely: 16%
• Never: 57%

According to the National Restaurant Association, the percentages of restaurant operators offering delivery service via a third-party aggregator service are as follows:

• Casual-dining: 30%
• Family-dining: 31%
• Fast-casual: 32%
• Fine-dining: 19%
• Quick-service: 28%

According to the 2016 Takeout & Off-Premise Dining Consumer Trend Report, among adults using delivery for to-go from a restaurant, the following services are preferred (percentage of respondents):

<table>
<thead>
<tr>
<th>Service</th>
<th>Age 18-to-34</th>
<th>Age 35 and Older</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restaurant-specific site</td>
<td>42%</td>
<td>46%</td>
</tr>
<tr>
<td>GrubHub</td>
<td>24%</td>
<td>9%</td>
</tr>
<tr>
<td>Yelp Eat24</td>
<td>17%</td>
<td>6%</td>
</tr>
<tr>
<td>Delivery.com</td>
<td>11%</td>
<td>4%</td>
</tr>
<tr>
<td>Uber Eats</td>
<td>13%</td>
<td>3%</td>
</tr>
<tr>
<td>Amazon Delivery</td>
<td>9%</td>
<td>2%</td>
</tr>
<tr>
<td>Seamless</td>
<td>7%</td>
<td>1%</td>
</tr>
<tr>
<td>Postmates</td>
<td>6%</td>
<td>1%</td>
</tr>
</tbody>
</table>

16.6 Meal-Kits

A meal kit, or meal delivery kit, is a package containing food ingredients and recipes for consumers to prepare their own fresh meals. Sold as a subscription service, orders are placed digitally and delivered directly to the customer.

As of December 2016, 30% of adults had ordered a meal kit digitally, according to a survey by Acosta Sales & Marketing (www.acosta.com). Those that have done so by age are as follows:

• Millennials (ages 18-to-35): 60%
• Generation Xers (ages 36-to-51): 31%
• Baby Boomers (ages 52-to-70): 10%
• Seniors (ages 71 and older): 4%
“Some 60% of respondents ages 18-to-35 have tried a meal delivery kit, according to Acosta. This makes sense. Like many other digital services, meal delivery kits were adopted first by Millennials. And, as this group approaches their peak earning years and starts families, their desire for convenience and customization grows.”

eMarketer, 12/22/16

In a survey by The NPD Group of adults who had tried meal-kit services, over 80% were satisfied with the ingredients, freshness, and instructions they received with the box. Still, 56% discontinued purchasing meal kits, citing cost as the primary reason. Meals typically cost about $10.

Blue Apron, HelloFresh, and Plated were the first three companies in the meal kit market and remain the market leaders. Numerous startups have entered the meal kit market including Home Chef, Just Add Cooking, PeachDish, Purple Carrot, and Sun Basket.

In May 2017, Amazon introduced a product line of boxes of premeasured ingredients and easy-to-follow instructions to a select group of customers. With its June 2017 acquisition of Whole Foods, Amazon could emerge as a dominant player in the meal kit market.
## EBOOK READING

### 17.1 Adult Readers

Pew Research Center (www.pewresearch.org) reports adult reading as follows:

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Print</th>
<th>eBook</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>79%</td>
<td>71%</td>
<td>17%</td>
</tr>
<tr>
<td>2012</td>
<td>74%</td>
<td>65%</td>
<td>23%</td>
</tr>
<tr>
<td>2014</td>
<td>76%</td>
<td>69%</td>
<td>28%</td>
</tr>
<tr>
<td>2015</td>
<td>72%</td>
<td>63%</td>
<td>27%</td>
</tr>
<tr>
<td>2016</td>
<td>73%</td>
<td>65%</td>
<td>28%</td>
</tr>
</tbody>
</table>

By demographic, those who read at least one book in 2016 were as follows:

#### Gender

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Print</th>
<th>eBook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>77%</td>
<td>70%</td>
<td>29%</td>
</tr>
<tr>
<td>Male</td>
<td>68%</td>
<td>61%</td>
<td>27%</td>
</tr>
</tbody>
</table>

#### Age

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Print</th>
<th>eBook</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-to-29</td>
<td>80%</td>
<td>72%</td>
<td>35%</td>
</tr>
<tr>
<td>30-to-49</td>
<td>73%</td>
<td>65%</td>
<td>32%</td>
</tr>
<tr>
<td>50-to-64</td>
<td>70%</td>
<td>63%</td>
<td>24%</td>
</tr>
<tr>
<td>65 and older</td>
<td>67%</td>
<td>61%</td>
<td>19%</td>
</tr>
</tbody>
</table>

#### Race/Ethnicity

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Print</th>
<th>eBook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>69%</td>
<td>63%</td>
<td>23%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>58%</td>
<td>48%</td>
<td>18%</td>
</tr>
<tr>
<td>White</td>
<td>76%</td>
<td>70%</td>
<td>31%</td>
</tr>
</tbody>
</table>

#### Education

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Print</th>
<th>eBook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than high school</td>
<td>45%</td>
<td>38%</td>
<td>11%</td>
</tr>
<tr>
<td>High school grad</td>
<td>62%</td>
<td>55%</td>
<td>19%</td>
</tr>
<tr>
<td>Some college</td>
<td>81%</td>
<td>74%</td>
<td>32%</td>
</tr>
<tr>
<td>College graduate</td>
<td>86%</td>
<td>79%</td>
<td>41%</td>
</tr>
</tbody>
</table>

#### Household Income

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Print</th>
<th>eBook</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; $30,000</td>
<td>65%</td>
<td>59%</td>
<td>19%</td>
</tr>
<tr>
<td>$30,000 to $49,999</td>
<td>74%</td>
<td>68%</td>
<td>26%</td>
</tr>
<tr>
<td>$50,000 to $74,999</td>
<td>75%</td>
<td>69%</td>
<td>33%</td>
</tr>
<tr>
<td>$75,000 and higher</td>
<td>81%</td>
<td>73%</td>
<td>40%</td>
</tr>
</tbody>
</table>

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019

- 165 -
Community

- Rural: 75%  61%  22%
- Suburban: 73%  64%  30%
- Urban: 75%  69%  29%

By format, adults read books in 2016 as follows:

- Read only print books: 38%
- Read both print and digital books: 28%
- Read no books: 26%
- Read only digital books: 6%

### 17.2 E-readers

According to eMarketer (www.emarketer.com), 26.6% of adults owned an e-reader in 2016; 51.4% owned a tablet. Ownership of these devices increased 3.5% and 4.7%, respectively, in 2016.

The growth in use of these devices has paralleled the increase in eBook reading. Pew Research Center reports that 28% of adults use their device to read eBooks; only 17% did so in 2010.

“When Apple introduced the iPad in 2010, many thought it would make dedicated eBook readers obsolete. But, six years later, it turns out that didn’t happen.”

eMarketer, 2/29/16

Among adults who owned an eBook reader, a tablet, a desktop, and a smartphone, the following percentages read an eBook on their devices (source: Pew Research Center):

- E-reader: 87%
- Tablet: 78%
- Smartphone: 32%
- Computer: 31%

The number of owners of e-readers in 2016, by age, is as follows (change from previous year in parenthesis):
• 12-to-17:  0.6 million (2.1%)
• 28-to-24:  9.6 million (1.4%)
• 25-to-34:  14.4 million (2.9%)
• 35-to-44:  14.1 million (2.0%)
• 45-to-54:  19.0 million (1.4%)
• 55-to-64:  15.0 million (3.6%)
• 65 and older:  13.5 million (10.1%)

“The age of users is shifting for e-readers. This year, Baby Boomers will be the most likely e-reader users, with 44% of Internet users in that generation using the devices. But the number of Baby Boomers using e-readers is shrinking, and next year, a higher proportion of Gen X Internet users will use one.”

eMarketer, 2/29/16

In a survey by The Harris Poll (www.theharrispoll.com), adults reported their reading activities as follows:
• Only read print books: 48%
• Read more print books than eBooks: 17%
• Read print books and eBooks about the same: 14%
• Read more eBooks than print books: 15%
• Only read eBooks: 6%

“According to Harris, adults are far more likely to only read printed books than eBooks or a mix of the two. When asked about their attitudes toward reading printed books vs. eBooks, nearly half of respondents said they only read print books. This was far ahead of other responses, with loyal eBook readers grabbing just 6% of the total. Only around one-fifth of respondents favored eBooks over hard copy versions.”

eMarketer
18

EMAIL

18.1 Use Of Email

The 2016 Digital Future Project, by the Center for the Digital Future (www.digitalcenter.org) at the University of Southern California, Annenberg School for Communication, reports that adult Internet users check email as follows:

- Several times a day: 55%
- Daily: 31%
- Weekly: 8%
- Monthly: 2%
- Less than monthly: 1%
- Never: 3%

The total volume of email dropped about 10% between 2010 and 2016, in large part because younger users prefer mobile devices and faster communications, like text messaging. Still, email remains the essential Internet service.

______________________________________________________________

“E-mail still has certain advantages. Whereas tweets and texts feel ephemeral – you read them, then they’re gone, into an endless string – email still feels like something you have, that you can file, search and return to later. It’s easy to imagine that it will continue to feel more appropriate for formal communications: agreements, important news, longer explanations. No, e-mail won’t go away completely.”

Scientific American

______________________________________________________________

The Inbox Report 2016, by Fluent (www.fluentco.com), reported that adults check their email as follows:
According to The Inbox Report 2016, Americans are addicted to email. Over 4 in 5 Americans check their email at least once per day, 2 in 3 check their email more than once per day, and over 1 in 5 use notifications to check their emails as they arrive.

Center for Media Research
Research Brief, 12/2/16

18.2 Devices Used For Email

The Inbox Report 2016 reported devices most used to check emails as follows:

- Smartphone: 67%
- Laptop computer: 12%
- Tablet: 11%
- Desktop computer: 10%

“Smartphone-first consumers can be reached more readily than other consumers because they check their email more frequently than those who primarily use other devices. Seventy-three percent of these consumers who most often use smartphones to check their email do so more than once a day, 19% higher than those who primarily check on another device, says the [Fluent] report.”

Center for Media Research
Research Brief, 12/2/16
18.3 Personal And Work Email

Personal and work emails are mingled for many adults as both are often directed or forwarded to the same inbox.

According to the *Adobe Email Survey 2016*, by Adobe Systems Inc. (www.adobe.com), people are spending 17% more time on personal emails year-over-year and about 20% more on work emails.

Forty-five percent (45%) of people use their smartphone to check for their work email, with the percentage rising to 63% for personal email.

The time spent on work email increased by 28% in 2016, while personal email communication increased by 6%.

Adobe reported that adults consider their ‘go-to’ email device as follows (percentage of respondents):

<table>
<thead>
<tr>
<th>Personal primary</th>
<th>Work primary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smartphone:</td>
<td>63%</td>
</tr>
<tr>
<td>Desktop/laptop:</td>
<td>29%</td>
</tr>
</tbody>
</table>
19.1 Overview

From Broadway theatre to sporting events and from rock music concerts to orchestra performances, the bulk of tickets for live events are now sold online. Live event operators and venues typically contract for online ticket sales. Ticketmaster (www.ticketmaster.com), which sells over 150 million tickets valued at about $10 billion annually, is the largest primary ticket broker.

Online booking of live event is migrating from desktop and laptop platforms to smartphones and tablets. According to The Harris Poll (www.theharrispoll.com), 22% of U.S. smartphone users have booked event tickets via their device.

19.2 Secondary Ticketing

The reselling of event tickets is referred to as the secondary ticketing market. In the secondary ticketing marketplace, tickets for major events such as Super Bowl, the Kentucky Derby, and concerts by star performers are commonly resold for more than face value.

Richard K. Miller & Associates (www.rkma.com) estimates the secondary ticket market at $8 billion to $10 billion. The amount could be much higher; no one knows for certain because so much of the selling can never be tracked. Many tickets to major events such as the Super Bowl and Kentucky Derby are bundled in travel packages without the ticket price being broken out.

According to Online Event Ticket Sales, a June 2016 report by IBISWorld (www.ibisworld.com), there are 562 companies in the U.S. secondary ticketing market with annual sales of $5.0 billion. The following are among the largest secondary ticket providers:

- Coast to Coast Tickets (www.coasttocoasttickets.com)
- eBay (www.ebay.com)
- Go Tickets (www.gotickets.com)
- RazorGator (www.razorgator.com)
- SeatGeek (www.seatgeek.com)
- StubHub (www.stubhub.com)
- TickCo (www.tickco.com)
- Ticket Liquidator (www.ticketliquidator.com)
- Ticketmaster (www.ticketmaster.com)
- TicketsNow (www.ticketsnow.com)
With about a 50% share of the secondary ticket market and $3 billion in annual ticket sales, according to *Bloomberg Businessweek*, StubHub is the largest operator. Ticketmaster, with an 11% marketshare, ranks second.

As competition in the segment has increased, the main players have created sub-niches for themselves to establish market differentiation. RazorGator, for example, specializes in the corporate travel market; StubHub works primarily through fan-to-fan connections and advertises heavily in mass media; TicketsNow takes sales listings only through prescreened, licensed brokers; and Ticketmaster works in a more traditional vendor capacity, only selling tickets on the secondary market for its own TeamExchange clients.

### 19.3 Ticketing Through Social Networks

Ticketmaster makes tickets to sports events available through Twitter and Facebook. Via Facebook, users can see where friends are sitting on an interactive map.

According to LiveAnalytics (www.liveanalytics.com), the research arm of Ticketmaster, 14% of those who purchase sports tickets from Ticketmaster are influenced to attend a game by a Facebook post, 20% use social media to invite friends to attend with them, and 47% are interested in seeing where their Facebook friends are sitting. LiveAnalytics also found that 16% of sports ticket buyers use their mobile phone to check in at the game to a location-based platform such as Foursquare.

### 19.4 Sporting Events Ticketing

Consumers spend roughly $20 billion annually for tickets to sporting events. Increasingly, tickets are sold online; over 50% of individual game tickets are sold online. Online sales allow teams to gain access to a wealth of data about their customers. The average NBA franchise, for example, has 500,000 names in its database, and some big-market teams have double that number.

Once worried that ticket resales would eat into overall sales, major sports leagues have realized these concerns were unfounded, and many teams have begun contracting with secondary ticket resellers, primarily as a service to their season-ticket holders. Surveys show that season-ticket holders – who contribute about 80% of overall ticket revenue – worry about unused tickets, thus offering them the option to resell tickets is one of the best ways of retaining season-ticket holders.

According to *SportsBusiness Journal*, between 11% and 39% of primary ticket inventory goes unsold. ScoreBig (www.scorebig.com), dubbed a Priceline.com for sports tickets, launched an online service in 2010 that aids teams in moving unsold tickets. ScoreBig secures inventory from teams, leagues, venues, promoters, or anyone else holding large blocks of unsold seats and sells it based on preference in price, location, and game. The model is loosely based on travel sites that sell hotel rooms or airline tickets at discounted rates.
20.1 Overview

Fantasy sports leagues and daily fantasy sports (DFS) are based online. In fantasy sports leagues, players draft teams from professional sports rosters and follow season-long statistics to compile their scores. DFS is similar to season-long competitions but last for just one day. In general, DFS does not compete for the same players as season-long games.

According to annual assessments for the Fantasy Sports Trade Association (FSTA, www.fsta.org) by Ipsos (www.ipsos.com), participation in fantasy sports in the U.S. and Canada has been as follows:

- 2013: 40.6 million
- 2014: 56.8 million
- 2015: 57.4 million
- 2016: 58.0 million

The increase in 2014 reflects the popularity of daily fantasy sports.

The following are findings of the 2016 assessment by Ipsos:

- Eighty-two percent (82%) of all players play in a season-long league; just 19% exclusively play daily formats; and 17% play both formats.
- In 18 states surveyed, 61% of adults support a law that makes playing fantasy sports for cash prizes legal.
- Fifty-four percent (54%) of players would cancel a league-supported media service (TV channels, satellite service, apps, etc.) if not for fantasy sports.
- Mobile and other emerging platforms (i.e. gaming consoles, Internet-connected TV) continue to grow as the predominant way 61% of players engage in fantasy sports. This figure grew from 56% in 2014 and 32% in 2013.
- Fifty-five percent (55%) of players say they are playing more fantasy sports because of technological innovations including the ability to play on a mobile device.
- The average number of teams managed per player increased to 7.0 in 2016 from 5.8 the prior year.
- Sixty-four percent (64%) report they are watching more live sports because of fantasy; 61% say they read more about sports because of fantasy.
- The number of players who play some form of daily fantasy sports has increased to 64% in 2016 from 31% in 2012.
While fantasy sports leagues for football, baseball, basketball, and hockey are most popular, the range of sports attracting fantasy play include virtually every category of sport and competition. There are even fantasy leagues for bass fishing.

### 20.2 Legality

The Unlawful Internet Gambling Enforcement Act of 2006 (UIGEA) exempts fantasy sports games or any online contest that has an outcome that reflects the relative knowledge of the participants rather than chance from classification as gambling. UIGEA requires that prizes and awards offered to winning participants in fantasy sports be established and made known to the participants in advance of the game and their value not be determined by the number of participants or the amount of any fees paid by those participants.

Even with the non-gambling classification, daily fantasy sports captures an excitement and has a potential for high stakes winning similar to gambling.

“*If you fill a fantasy lineup with the players who perform well on a given weekend, an entry fee of $20 can win you $1 million or more on either of the two leading sites, DraftKings and FanDuel.*”

*Bloomberg Businessweek*

Several states have challenged the classification of daily fantasy sports as non-wagering. Nevada was the first state in 2015 to rule that daily fantasy is a form of wagering and prohibits sites from operating without gaming licenses. More recently, officials in Illinois and New York requested that daily fantasy sites DraftKings and FanDuel stop accepting entries from their respective states.

### 20.3 Market Assessment

Estimates of total spending for traditional fantasy sports are as high as $5 billion annually – up to $468 per player – for publication subscriptions, league entrance fees, mail-order draft kits, fantasy software, and other products. League entrance fees are returned to winning players, however, so net spending is considerably less than the $5 billion figure. The FSTA places annual net spending at $1.7 billion.

Each year, 1.5 million people pay more than $1 billion in DFS tournament fees. FanDuel (www.fanduel.com), the largest DFS site, reported paying out over $400
million in prizes (i.e. returning a percentage of entry fees to winners). 

*SportsBusiness Journal* estimates annual net spending (i.e. total entry fees minus prizes) for daily fantasy sports at $660 million.

### 20.4 Demographics

According to ESPN Sports Poll (http://espn.go.com/sportsnation/polls), the percentages of people by age and gender who play online fantasy sports daily are as follows:

<table>
<thead>
<tr>
<th>Age</th>
<th>Men (%)</th>
<th>Women (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-to-17</td>
<td>6.8%</td>
<td>1.0%</td>
</tr>
<tr>
<td>18-to-34</td>
<td>8.0%</td>
<td>1.7%</td>
</tr>
<tr>
<td>35-to-54</td>
<td>8.4%</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

The following percentages play online fantasy sports weekly:

<table>
<thead>
<tr>
<th>Age</th>
<th>Men (%)</th>
<th>Women (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-to-17</td>
<td>12.5%</td>
<td>5.1%</td>
</tr>
<tr>
<td>18-to-34</td>
<td>13.5%</td>
<td>3.0%</td>
</tr>
<tr>
<td>35-to-54</td>
<td>8.4%</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

### 20.5 Season-Long Fantasy Sports

Fantasy players create teams using real statistics from actual players and compete with other players in a league based on the performance of their fantasy team. Leagues typically consist of between eight and 14 teams. Fantasy players pay an entry fee to play; winning players receive cash prizes.

> “In a typical league, a dozen or so participants chip in money – $20 on the low end and $1,300 or more for high-stakes contests. The team with the best aggregate statistics wins at the end of the regular season and takes the lion’s share of prize money.”

*Forbes*

League winners can earn a grand prize of $100,000 in national competitions such as NBC Sports’ national fantasy baseball competition, a season-long contest of 26
leagues and 309 teams.

Most fantasy sport players play multiple sports, with football being the most popular. According to the FSTA, the following are percentages of participants and total spending for the five most popular sports:

<table>
<thead>
<tr>
<th>Sport</th>
<th>Participation</th>
<th>Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Football</td>
<td>93%</td>
<td>48%</td>
</tr>
<tr>
<td>Baseball</td>
<td>70%</td>
<td>33%</td>
</tr>
<tr>
<td>Basketball</td>
<td>35%</td>
<td>12%</td>
</tr>
<tr>
<td>Hockey</td>
<td>24%</td>
<td>3%</td>
</tr>
<tr>
<td>NASCAR</td>
<td>23%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Major media companies, including CBS, ESPN, Fox, and Yahoo!, have become active in the fantasy sports business, operating leagues and providing services to players. While most fantasy operators previously charged players a fee to play, more leagues are now free. A company like CBS makes money by selling to players a range of products, such as draft guides and expert analysis, and through advertising.

Fantasy sports is supported by about a dozen magazines, about 200 websites (some fee-based), and countless amateur blogs.

At the pinnacle of traditional fantasy sports are football leagues where winning participants can make as much as $300,000 in a good year.

“The Diamond [National Fantasy Football Championship’s Diamond League] may well be the world’s most serious fantasy football league. The entry fee is $10,000. The winner stands to pocket $80,000. It is the most expensive among more than 300 pay-to-play leagues run by the sports information company Stats, which holds its drafts in Las Vegas, New York, and Chicago, as well as online. More than 1,000 players, nearly all of them men, spend a combined $2 million for the right to manage some 4,000 teams in Stats football leagues.”

_Bloomberg Businessweek_
20.6 Daily Fantasy Sports

FanDuel and Draft Kings (www.draftkings.com) garner 96% of the DFS market. Revenue for the two companies are estimated at $180 million and $150 million, respectively.

The high stakes of daily fantasy sports has attracted high rollers who use sophisticated research and improve their chances by submitting multiple entries. According to RotoGrinders (www.rotogrinders.com), the top 100 players on FanDuel and DraftKings win, on average, 330 times every day they play. The top 10 players win 873 daily plays.

DFS affords a huge advantage to skilled players. An assessment of the first half of the 2015 Major League Baseball season by McKinsey & Company (www.mckinsey.com) found 91% of DFS player profits were won by 1.3% of players. Here is the breakdown of the assessment:

- The top 11 players paid, on average, $2 million in entry fees and profited $135,000 each. They accounted for 17% of all entry fees. The winningest player in the McKinsey sample profited $400,000 on $3 million in entry fees.
- The rest of the top 1.3% of players paid, on average, $9,100 in entry fees and profited $2,400 each, for a 27% return on investment. These contestants accounted for 23% of all entry fees and 77% of all profits.
- Five percent (5%) of players lost $1,100 each on entry fees of $3,600 on average.
- Eighty percent (80%) of players lost $25 each on entry fees of $49 on average.

A survey of fantasy sports players conducted by Eilers Research (www.eilersresearch.com) found that 70% of participants have lost money.

“Most daily fantasy bettors will end up disappointed by season’s end. They can’t quite compete with sharks.”

Bloomberg Businessweek

The popularity of DSF waned in 2016 as states began imposing regulations and many novice players dropped out after losing money. FanDuel and Draft Kings publicly proposed a merger in November 2016. The deal was described by the companies as a “merger of equals” and not an acquisition. Merger plans were scrapped in July 2017 after federal regulators all but doomed the union of dominant daily fantasy sports.
“FanDuel ... incurred a fiscal loss of $59 million in the period of January-October 2016 on $91 million in revenue. Despite the fiscal issues and a marked slowdown in the daily fantasy market last year, FanDuel carried an estimated $1.2 billion value at the time of the document’s issuance in January.”

*SportsBusiness Journal, 6/5/17*

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**20.7 Market Resources**

*Fantasy Sports Business* (www.fantasysportsbusiness.com) - an online newsletter

Fantasy Sports Trade Association, 600 N. Lake Shore Drive, Suite 2009, Chicago, IL 60611. (312) 771-7019. (www.fsta.org)
FITNESS TRACKING

21.1 Types Of Tracking

Those who monitor their fitness, health, and wellbeing via apps, smartphones, wearable fitness trackers, or websites are dubbed ‘self-trackers.’ A survey by RocketFuel (http://rocketfuel.com) reported that self-trackers were monitoring the following parameters:

- Weight: 51%
- Number of calories burned: 47%
- Number of steps taken: 47%
- Diet (calories consumed): 42%
- Heart rate: 33%
- Blood pressure: 25%
- Quality of sleep: 25%
- Body fat: 24%
- Average running speed: 21%
- Mood: 13%

A survey by Makovsky Health (www.makovsky.com) and Kelton Research (http://keltonglobal.com) asked U.S. Internet users reasons that they use, or would use, a wearable health/fitness device. Responses were as follows:

- Track fitness: 48%
- Help with personal health issues: 41%
- Track diet and nutrition: 33%
- Track sleeping conditions: 29%
- Manage stress and mental health: 27%
- Other: 2%
- Would never use a wearable device: 19%

The NPD Group (www.npd.com) reported that 44% of activity tracking devices sold in 2016 included a heart rate monitor, an increase from 12% in 2015.
“Heart rate monitors have emerged as the must-have feature in high-end and mid-tier activity trackers. On-device GPS is also beginning to experience stronger growth, albeit at much lower numbers than heart rate monitors.”

The NPD Group, 9/22/16

21.2 Fitness Apps
According to Parks Associates (www.parksassociates.com), 42% of U.S. smartphone/tablet owners use at least one fitness app. Among these people, more than one-third use two or more fitness apps. Fitness app users participate in fitness activities as follows:
- Track fitness programs: 57%
- Log food and calories: 45%
- Use health/fitness coaching services: 18%

In March 2017, Parks Associates assessed that smart watches were used in 13.3 million U.S. broadband households. Among these users, fitness activities engaged in are as follows:
- Track steps: 60%
- Monitor heart rate: 52%
- Track calories burned: 47%
- Set/use timer: 43%
- Track location of route run/walked/biked: 38%

21.3 Fitness Tracking Devices
Consumer Technology Association (www.cta.tech) estimates U.S. sales of 37 million fitness tracking devices in 2017, a 20% increase over the previous year. Sales will total $3.2 billion, a 19% increase over 2016.

The following are the most popular fitness tracking devices:
- Apple Watch (www.apple.com/watch/)
- Fitbit Charge (www.fitbit.com/charge)
- Garmin Vivofit (http://sites.garmin.com/en-US/vivo/)
- Jawbone UP3 (https://jawbone.com/store/buy/up3)
• Microsoft Band (www.microsoft.com/microsoft-band/en-us)
• Samsung Gear Fit (www.samsung.com/us/mobile/wearable-tech/SM-R3500ZKAXAR)

According to The NPD Group, Fitbit is the market leader, with a 67% share; Jawbone has a 14% marketshare.
22.1 Overview
Genealogy is second in popularity only to gardening among American hobbies, according to The New York Times. According to IBISWorld (www.ibisworld.com), there are 10,088 ancestry research businesses in the United States; combined revenue is $1 billion.

22.2 Genealogy Research Online
Through the Internet, the number of resources available to genealogists has vastly increased. According to The Wall Street Journal, The Generations Networks – founded as MyFamily.com, Inc. nearly a decade ago and now operating eight sites including Ancestry.com – has built its $200 million a year businesses primarily by selling subscriptions to passionate family historians for access to archives that track family lineage. Ancestry.com’s 2.2 million paying subscribers have created over 60 million family trees and more than 6 billion profiles. About 4% of subscribers cancel every month, however – meaning roughly half the customer base turns over every year – because many stay active only while engaged in a research project.

Geni.com, acquired by MyHeritage in 2012, offers a genealogy model based on connecting living relatives. The site is part genealogy, part six degrees of separation: Instead of paying a fee to research family records buried in archives, users build their own family trees using the knowledge of living relatives.

Rather than user fees, Geni sells advertising and also generates revenue by creating premium accounts and selling products such as posters or coffee-table books of family trees. Without any traditional marketing, the site had more than 100,000 users in the first month following its January 2007 launch.

Geni.com incorporates some of the elements of popular social-networking and user-generated content sites such as Wikipedia and MySpace. Geni has over 100 million profiles and more than 6 million users.

22.3 Top Genealogy Websites
Based on the number of monthly visitors, Genealogy In Time (www.genealogyintime.com) ranked the top U.S.-based genealogy websites in 2016 as follows:
2. Find A Grave (www.findagrave.com): Cemetery*
3. FamilySearch (www.familysearch.org): Records *
5. Geni.com (www.geni.com): Family tree
7. Family Tree DNA (www.familytreedna.com): DNA testing
10. WikiTree (www.wikitree.com): Family tree*
12. FamilyTreeNow (www.familytreenow.com): Family tree*
15. GEDmatch (http://gedmatch.com): DNA testing*
17. AncientFaces (www.ancientfaces.com): Forum*
18. USGenWeb Archives (http://usgwarchives.net): Records*
22. Cyndi’s List (http://cyndislist.com): Links*
23. Billion Graves (http://billiongraves.com): Cemetery*
24. myrelatives.com (www.myrelatives.com): Records
25. JewishGen (www.jewishgen.org): Ethnic heritage*
28. Eastman’s Online Newsletter (http://blog.eogn.com): Blog*
30. Tribal Pages (http://tribalpages.com): Family tree
32. Statue of Liberty Ellis Island (www.libertyellisfoundation.org): Records*
33. Steve Morse (http://stevemorse.org): Search engine*
34. Family Tree Magazine (www.familytreemagazine.com): Magazine
35. Legacy Family Tree (www.legacyfamilytree.com): Software
38. Fulton History (http://fultonhistory.com): Newspapers*
40. FamilyLink (www.familylink.com): Records
41. Death Indexes (www.deathindexes.com): Links*
42. Family Tree Webinars (www.familytreewebsinars.com): Magazine
43. The Legal Genealogist (www.legalgenealogist.com): Blog*
<table>
<thead>
<tr>
<th></th>
<th>Website</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>Access Genealogy (<a href="http://www.accessgenealogy.com">www.accessgenealogy.com</a>)</td>
<td>Search engine*</td>
</tr>
<tr>
<td>45</td>
<td>ObituariesHelp.org (<a href="http://www.obituarieshelp.org">www.obituarieshelp.org</a>)</td>
<td>Links*</td>
</tr>
<tr>
<td>46</td>
<td>Historic Mapworks (<a href="http://www.historicmapworks.com">www.historicmapworks.com</a>)</td>
<td>Records</td>
</tr>
<tr>
<td>47</td>
<td>Forever (<a href="http://www.forever.com">www.forever.com</a>)</td>
<td>Services</td>
</tr>
<tr>
<td>48</td>
<td>Family Tree Maker (<a href="http://familytreemaker.com">http://familytreemaker.com</a>)</td>
<td>Software</td>
</tr>
<tr>
<td>49</td>
<td>GenoPro (<a href="http://www.genopro.com">www.genopro.com</a>)</td>
<td>Software</td>
</tr>
<tr>
<td>50</td>
<td>One Great Family (<a href="http://www.onegreatfamily.com">www.onegreatfamily.com</a>)</td>
<td>Family tree</td>
</tr>
<tr>
<td>51</td>
<td>DNAeXplained (<a href="http://dna-explained.com">http://dna-explained.com</a>)</td>
<td>Blog*</td>
</tr>
<tr>
<td>52</td>
<td>RecordsBase (<a href="http://www.recordsbase.com">www.recordsbase.com</a>)</td>
<td>Records</td>
</tr>
<tr>
<td>53</td>
<td>Interment (<a href="http://interment.net">http://interment.net</a>)</td>
<td>Cemetery*</td>
</tr>
<tr>
<td>54</td>
<td>Geneabloggers (<a href="http://www.geneabloggers.com">www.geneabloggers.com</a>)</td>
<td>Blog*</td>
</tr>
<tr>
<td>55</td>
<td>Katagogi (<a href="http://www.katagogi.com">www.katagogi.com</a>)</td>
<td>Forum*</td>
</tr>
<tr>
<td>56</td>
<td>Newspaper Obituaries on Net (<a href="http://newspaperobituaries.net">http://newspaperobituaries.net</a>)</td>
<td>Links*</td>
</tr>
<tr>
<td>57</td>
<td>We Relate (<a href="http://www.werelate.org">www.werelate.org</a>)</td>
<td>Wiki*</td>
</tr>
</tbody>
</table>

* Free site
23.1 Online Sources For Health Information

According to the Pew Internet & American Life Project (www.pewresearch.org), 80% of online adults search for health information on the Internet. The following are percentages of Internet users who have performed an online search related to specific health topics:

- Specific disease or medical problem: 66%
- Certain medical treatment or procedure: 55%
- Exercise or fitness: 52%
- Prescription or over-the-counter drugs: 45%
- Health insurance, including Medicare/Medicaid: 37%
- Alternative treatments or medicines: 35%
- How to lose weight or weight control: 33%
- Depression, anxiety, stress, or mental health: 28%
- Experimental treatments or medicines: 20%
- How to stay healthy on a trip overseas: 12%
- Other health issues: 26%

A poll by Harris Interactive (www.harrisinteractive.com) found that 89% of online adults, or 74% of all adults, had used the Internet to search for health-related information in the prior year; 60% had done so in the prior month. Among those who searched for health-related information in the prior month, 19% did so 10 or more times.

Adults who have looked online for information about health topics say they usually use the following sources:

- Search engines: 69%
- Medical websites: 62%
- Forums: 16%
- Social media websites: 8%
- Other: 11%

Among those who have searched for health-related information, 90% said the information they obtained is reliable; only 4% believe it is unreliable. Fifty-seven percent (57%) of those who conducted online searches discussed the information they found with their doctor.
“Consumers’ use of the Internet for health information is now on par with their use of the more traditional, longstanding sources of books, magazines and newspapers, and friends or relatives.”

American Hospital Association

A survey by Makovsky Health (www.makovskyhealth.com) found that adults spend, on average, 52 hours looking for health information on the Internet annually. Online resources used are as follows:

- WebMD: 53%
- Wikipedia: 22%
- Health magazine websites: 19%
- Advocacy group websites: 16%
- YouTube: 10%
- Facebook: 10%
- Blogs: 10%
- Pharmaceutical company websites: 9%

23.2 Top Health Sites

Ranked by monthly unique visitors, the top health and healthcare sites are as follows (sources: Alexa [www.alexa.com], Compete [www.compete.com], eBizMBA [www.ebizmba.com], and Quantcast [www.quantcast.com]):

- WebMD (www.webmd.com): 80.00 million
- NIH (www.nih.gov): 55.00 million
- Mayo Clinic (www.mayoclinic.org): 30.00 million
- MedicineNet (www.medicinenet.com): 25.50 million
- Drugs (www.drugs.com): 22.00 million
- Everyday Health (www.everydayhealth.com): 18.00 million
- HealthGrades (www.healthgrades.com): 17.00 million
- Healthline (www.healthline.com): 16.00 million
- Dr. Joseph Mercola (www.mercola.com): 15.50 million
- Health (www.health.com): 15.00 million
- Mind Body Green (www.mindbodygreen.com): 10.50 million
23.3 Online Patient Groups

Social networks have long been used to make connections as well as to create communities of people seeking a wide range of information. Among healthcare-focused social networks are online patient groups where participants chart their medical histories in detail. Along with providing insight and support for group members with similar conditions, these groups have become invaluable partners to physicians and researchers searching for cures. Patient groups which operate this patients-as-partners model are sometimes referred to as Health 2.0 or Patients 2.0.

There are several hundred online patient groups, most of which provide support for single diseases or rare conditions. The larger groups have sub-groups that address numerous conditions. The following are some of the more prominent groups:

- **Army Of Women** ([www.armyofwomen.org](http://www.armyofwomen.org)): in partnership with the Avon Foundation for Women ([www.avonfoundation.org](http://www.avonfoundation.org)); has helped 360,000 women sign up for breast-cancer-prevention research
- **Association of Cancer Online Resources** ([www.acor.org](http://www.acor.org)): a collaboration of 142 online cancer groups that work with researchers to inform patients of clinical trials, tissue banks, and genetic studies
- **CureTogether** ([www.curetogether.com](http://www.curetogether.com)): with 6,600 members, helps people anonymously track and compare health data, contribute data to research, better understand their bodies, and make more informed treatment decisions
- **Diabetic Connect** ([www.diabeticconnect.com](http://www.diabeticconnect.com)): over 35,000 registered users who share advice on managing their condition
- **LMSarcoma Direct Research Foundation** ([www.lmsrd.org](http://www.lmsrd.org)): a resource for patients with leiomyosarcoma, a rare soft-tissue cancer
- **Myeloproliferative Disorders** ([www.mpdinfo.org](http://www.mpdinfo.org)): for patients with blood cancer who provide DNA samples to researchers and participate in quality-of-life studies
- **Patients Like Me** ([www.patientslikeme.com](http://www.patientslikeme.com)): over 300,000 active members share information about 2,300 conditions, including chronic diseases such as amyotrophic lateral sclerosis (ALS), chronic fatigue syndrome, epilepsy, fibromyalgia, HIV/AIDS, Parkinson’s disease, mood disorders, and multiple sclerosis
- **Trusera** ([http://blog.trusera.com](http://blog.trusera.com)): online health network where people can share about real-world health experiences, ask questions, or provide answers

A survey by the Strategic & Analytic Consulting Group at Epsilon ([www.epsilon.com](http://www.epsilon.com)) found that 40% of adults use social media sites such as these to guide decision making related to their health.
23.4 Shopping Online For Healthcare Providers

According to the Center for Health System Change (www.hschange.com), 11% of American adults look for a new primary care physician each year, 28% need a new specialist physician, and 16% undergo a medical procedure at a new facility. Many conduct searches for these services online.

Pew Internet & American Life Project found that 57% of people use online sources when in need of information or assistance in dealing with health or medical issues.

Forty-seven percent (47%) of adults have looked online for information about doctors or other healthcare professionals. Thirty-eight percent (38%) have looked online for information about hospitals or other medical facilities.

23.5 Virtual Visits

The American Medical Association (AMA, www.ama-assn.org) has created a reimbursement code (code 0074T) for online communication between doctors and patients, making it easier for doctors to seek reimbursement from health plans. Insurers ultimately decide whether to cover email consultations; an increasing number are doing so.

Insurers that cover digital visits typically require the use of specific technologies or formats, in part, to meet federal privacy requirements and also to ensure that a digital visit is legitimate. Digital visits are being reimbursed by Aetna, BlueCross BlueShield, Cigna, Humana, United Health, WellPoint, and other plans.

Certain diagnoses, such as whether a sore throat is a virus or a strep infection, of course, are difficult to make using a webcam. Still, the virtual visit can save valuable time in the case of a serious condition because an online doctor can recommend that a patient visit an emergency room or specialist immediately, which eliminates the patient’s wait to see a general practitioner before the referral.

Ailments most frequently treated via a virtual visit include sinus problems, cold and flu symptoms, urinary infections, and coughs. Other common conditions are back pain and sleep issues. Online service can be especially useful for patients who need medication refills or follow-up consultations after surgery, and for those who are elderly and homebound.

Physicians typically won’t treat certain conditions through an online appointment, particularly chest pain or other symptoms that may signal an emergency. Even with minor ailments, many physicians will offer digital advice only to regular patients – for liability reasons and also because they feel that in-person visits are important to discuss broader health issues.

Most state medical boards permit doctors to diagnose and treat online only those patients whom they’ve seen at least once in person.

The Medical Board of California prohibits doctors from prescribing prescription medications without a prior exam. If technology such as videoconferencing can provide the same information as a face-to-face visit, however, Internet prescribing is allowed.
Companies such as MDLiveCare.com and RingADoc.com are offering such video-conferencing services in California.

### 23.6 Provider Ratings Online

With growing demand for information on healthcare services, such as quality and pricing, an increasing number of online resources provide consumers with such insight.

Types of online ratings of hospitals and doctors include the following:

- The U.S. Department of Health and Human Services (HHS, [www.hhs.gov](http://www.hhs.gov)) provides quality measures of all U.S. community hospitals with its Hospital Compare ([www.hospitalcompare.hhs.gov](http://www.hospitalcompare.hhs.gov)) program.
- Several organizations publish online provider ratings as part of their overall healthcare quality initiatives.
- State online healthcare reporting initiatives have been launched by several government agencies and hospital associations.
- *Consumer Reports* offers several healthcare assessment services.
- Consumers post peer reviews of healthcare services on such sites as RateMDs.
- Hundreds of hospitals post their own quality data for consumers.

Hospital Compare is a consumer-oriented website that provides information on how well hospitals provide care to their patients. The website scores more than 4,200 acute-care hospitals in 26 clinical quality and 10 patient satisfaction areas. Called “the granddaddy of quality reporting sites” by the American Hospital Association (AHA, [www.aha.org](http://www.aha.org)), Hospital Compare was launched in 2005 by the Centers for Medicare & Medicaid Services (CMS, [www.cms.gov](http://www.cms.gov)), part of the HHS, and the Hospital Quality Alliance ([www.hospitalqualityalliance.org](http://www.hospitalqualityalliance.org)).

Online peer reviews have become popular among consumers shopping for all kinds of services and products. A 2014 assessment published in the *Journal of the American Medical Association* reported that 35% of online consumers have selected a physician based on positive ratings; 37% have avoided a physician based on negative ratings. Still, 43% of online consumers said they didn’t fully trust the information found on physician-rating sites.

With over two million ratings for more than 250,000 physicians as of May 2015, RateMDs ([www.ratemds.com](http://www.ratemds.com)) is the largest physician rating site. Other popular consumer healthcare ratings sites include TheHealthcareScoop.com and CareSeek.com.

Some general consumer blog sites have expanded to include reviews of doctors. Angie’s List ([www.angieslist.com](http://www.angieslist.com)), which publishes consumer reviews on service providers ranging from fitness centers to home improvement contractors, posts reviews in 150 healthcare categories, including dentists, dermatologists, hospitals, pediatricians, plastic surgeons, primary care physicians, and psychiatrists. Angie’s List members post some 10,000 reviews a month in more than 200 geographic areas.

Many hospitals and physician practices have programs to monitor what is said online about their medical services. Services such as Reputation Defender
(www.reputationdefender.com) work with hospitals to respond to negative posts and to correct inaccuracies.

### 23.7 Use Of Health Apps

There are 43,700 health-related mobile apps available at Apple’s iTunes app store. IMS Institute for Healthcare Informatics (www.imshealth.com/institute) found that 69% target consumers and patients, while 31% were built for use by clinicians. The apps available at iTunes represent about one-half of all healthcare apps that have been developed.

A survey by Research Now (www.researchnow.com) reported that health apps aid users in the following ways:

- Record workouts or daily activities: 60%
- Motivate to exercise: 53%
- Record food/calorie intake: 49%
- Monitor weight loss: 42%
- Monitor existing health condition: 30%
- Remind to take medication: 29%
- Help reduce stress: 24%
- Monitor sleep: 21%
- Help to quit a bad habit: 11%
- Monitor child’s health: 7%
24

INTERNET RADIO

24.1 Audience Assessment

The Wall Street Journal estimates there are approximately 30,000 Internet radio stations in the U.S.

According to a survey by Triton Media Group (www.tritondigital.com), of all Americans ages 12 and older, 47% of the population, roughly 124 million people, listen to Internet radio at least once a month.

Higher percentages of teens and younger adults make up the listening audience, with 75% of Americans ages 12-to-24 listening to Internet radio over a given month compared to 50% of those ages 25-to-54.

A report by Edison Research (www.edisonresearch.com) and Triton Digital put the number of weekly digital radio listeners at 44% of the population ages 12 and older.

24.2 Top Internet Radio Markets

According to International Demographics (www.themediaaudit.com), the following are the metropolitan areas where the highest percentage of adults have listened to Internet radio each week:

- Charleston, SC: 29.3%
- Atlanta, GA: 27.2%
- Salt Lake City, UT: 27.0%
- Boston, MA: 26.0%
- Southern New Hampshire: 25.1%

24.3 Top Internet Radio Groups

According to International Demographics, the top local Internet radio groups, ranked by reach, are as follows:

- Clear Channel (Cincinnati, OH): 9.1%
- Entercom Radio (Buffalo, NY): 8.5%
- Clear Channel (Lexington, KY): 8.2%
- Clear Channel (Tampa-St. Petersburg, FL): 7.7%
- Clear Channel (Houston, TX): 7.6%
- Clear Channel (Pittsburgh, PA): 7.5%
- Entercom Radio (Seattle-Tacoma, WA): 7.5%
24.4 Connected Radio

One of the growth areas for radio is connected radio, where users connect through the Internet (wired or wireless) to radio stations or audio streams throughout the world. Content aggregators let users choose from hundreds of music and talk categories.

One site offering the service is RadioTime.com, which provides access to more than 100,000 radio stations and shows. Another site, Reciva.com, is like an electronic TV guide for online audio streams and offers more than 60 genres. Both of these companies generate revenue from a license fee they charge each radio manufacturer carrying their playlists.

Connected technology also includes devices that access Internet content. Livio Connect (www.livioradio.com), for example, has contracted to stream select content to these devices. In a venture with National Public Radio, Livio developed the NPR Radio, which retails for $200 and features more than 800 NPR stations. A Pandora Livio Radio is available and provides users with automatic music selections from 20,000 Internet radio streams from around the world and without subscriptions or monthly fees.

24.5 Market Resources

Radio and Internet Newsletter, 65 E. Wacker Place, Suite 930, Chicago, IL 60601. (312) 284-2444. (www.kurthanson.com)

Triton Digital, 15303 Ventura Boulevard, Sherman Oaks, CA 91403. (818) 528-8860. (www.tritondigital.com)
25.1 Web Mapping

Web mapping is the process of developing and using maps delivered by geographical information systems (GIS). Web mapping dates to 1994 when researchers at the University of Minnesota created UMN MapServer, a Web-based tool for exploring a million acres of U.S. Forestry Service land. MapQuest (www.mapquest.com) and OpenStreetMap (www.openstreetmap.com) popularized web mapping for the general public.

“Maps are no longer about geographical landscapes, they are about data. Where maps were static, they are now dynamic. Where before we turned the page of an atlas, now we pan and zoom our way around a screen.”

100 Ideas That Changed The Web

25.2 Use Of Map Sites

comScore reported that U.S. Internet users do almost all of their map activity via mobile devices, with more than 90% of users’ time spent with maps using either tablet or smartphone apps since 2013. Ranked by average monthly unique visitors, the most popular mobile apps in 2016 were as follows (source: comScore):

- Google Maps: 96 million (50% of all U.S. smartphone users)
- Apple Maps: 56 million (29% of all U.S. smartphone users)
“Map usage has exploded in the smartphone era, with double-digit gains in users and usage now accounting for billions of minutes of mobile device time each month.”

eMarketer

Including desktop and mobile users, Google Maps averaged 100.6 million unique U.S. monthly visitors in 2016.

25.3 Top Map Sites

Google Maps (https://maps.google.com) has been the most popular digital map site since 2010, when it surpassed MapQuest in usage. The site provides directions, interactive maps, and satellite/aerial imagery of the United States and most countries worldwide. Google replaced its classic map with New Google Map and Lite Mode in April 2015.

Ed Parsons, Geospatial Technologist at Google Research, reported in 2016 that 41% of Internet users worldwide use Google Maps services; there are over 1 billion monthly users. One million third party websites use Google Maps APIs (Application Programming Interfaces), an increase from 800,000 developers in 2012 and 350,000 in 2010.

Apple Maps (www.apple.com/ios/maps/) was launched in 2012 to replace Google Maps as the default map service on iOS devices. Apple Maps features the unique ‘Flyovers’ mode, a feature that enables a user to explore densely populated urban centers in a 3D landscape composed of models of buildings and structures.

Bing Maps (https://www.bing.com/maps/) is Microsoft’s mapping service with road maps and aerial/satellite imagery.

Bing Maps has used road data from NAVTEQ, owned by Nokia HERE (https://here.com/en), since 2005. HERE is also used by Yahoo!, FedEx, and Amazon.com, among others. Bloomberg Businessweek reported Nokia HERE annual revenue at $1.1 billion. Eighty percent (80%) of cars in the U.S. and Europe with built-in navigation systems use HERE.

MapQuest is the third largest U.S. online map service in the U.S., with approximately 60 million monthly site visits, according to Experian Marketing Services (www.experian.com/marketing-services).

Other online map services active in the U.S. are TomTom Maps (https://www.tomtom.com/en_us/drive/maps-services/maps/), Waze Map
(www.waze.com/livemap), Wiki Mapia (http://wikimapia.org/country/USA/), and Yandex Map (https://yandex.com/maps/).

25.4 Online Cartography

Advances in user-friendly digital mapping technology have turned millions of Internet users into amateur cartographers. In the race to popularize their map services, Google, Microsoft, and others have created tools that allow people with minimal technical skills to do what only professional mapmakers were able to do before.

At Google Maps, more advanced tools allow users to create personalized, annotated, customized maps, complete with placemarks, lines, or shapes. Additional content can be added, including rich text, photos, and videos. Maps can then be shared or opened in Google Earth. My Maps (www.google.com/mymaps), unveiled by Google in 2007, makes it easy for users to create the maps.

User-generated maps cover a wide range of interests. There are maps of biodiesel fueling stations in New England, yarn shops in Illinois, and hydrofoils around the world. Some maps display real-time activities such as the route of whale migration.
26

MESSAGING

26.1 Overview
Messaging on the Internet and mobile devices takes three primary forms, as follows:
• Instant messaging (IM)
• Text messaging, or texting, between mobile devices via SMS (short message service)
• Mobile messaging apps

Successive generations of digital communications – IM, texting, and apps – have cut into a world of digital communications that was once the sole domain of email.

“The decline of e-mail corresponds neatly to the dawn of the mobile era. Let’s face it: e-mail has historically been an activity. You sit down to do it. You fill up a block of time. But instantaneous written messages are different. These are neatly tailored to fit in just about any time: before a movie, in a taxi, waiting for lunch. And because these notes are invariably brief, they’re a natural for smartphone typing. With these formats, you also have control over who can correspond with you, which you usually don’t in e-mail. As a bonus, none of these channels have been overrun by spam.”

Scientific American
26.2 Instant Messaging

Most social networking sites offer instant messaging (IM) features. Facebook Chat is a form of instant messaging, and Twitter can be thought of as a Web 2.0 instant messaging system.

According to the 2016 Digital Future Project, by the Center for the Digital Future (www.digitalcenter.org) at the University of Southern California, Annenberg School for Communication, adult Internet users engage in instant messaging as follows:

- Several times a day: 22%
- Daily: 22%
- Weekly: 14%
- Monthly: 5%
- Less than monthly: 12%
- Never: 25%

Fifty percent (50%) of smartphone users send instant messages using their device.

26.3 Text Messaging

The introduction of smartphones and similar devices in the early 2000s gave rise to SMS, or text messaging. Texting is now more popular on smartphones than voice communications.

According to the 2016 Digital Future Project, 87% of adult smartphone users send/receive text messages using their device, an increase from 62% that did so in 2010 and 31% in 2007. Twenty-seven percent (27%) say that text messaging is the most important function of their mobile device use.

Mobile Messaging Futures, by Portio Research (www.portioresearch.com), projects that about 2.4 trillion text messages will be sent in 2017, a number that has been relatively unchanged since 2011.

IBM/Silverpop Marketing Cloud (www-01.ibm.com/software/info/silverpop/) assesses texting similarly, estimating that 6 billion SMS texts are sent per day in the U.S.

According to a 2016 survey by OpenMarket (www.openmarket.com), 72% of Millennials text 10 or more times a day; 31% text more than 50 times a day.
“SMS is the first choice for consumers ages 18-to-34 for engagement, with texting cited as their most preferred communications channel.”

Center for Media Research
Research Brief, 9/21/16

26.4 Mobile Messaging Apps

Apps from over-the-top (OTT) mobile messaging providers bypass cellular carriers to offer text messaging.

“The appeal of the apps is simple. They are faster to use than email, and they generally allow you to send text, links, video and photos to friends more cheaply than traditional texting services offered by wireless carriers like AT&T or Verizon.”

The New York Times

360 View Update: Mobile First: App Usage Trends, published in November 2016 by Parks Associates (www.parksassociates.com), reported use of messaging apps as follows (percentage of mobile messaging app users):

- Facebook Messenger: 73%
- iMessage: 32%
- Snapchat: 28%

Snapchat has the highest percentage of users in the under-35 age group, followed by WhatsApp and Facebook Messenger. Nearly 75% of Snapchat users are under 35, compared to 58% of WhatsApp users and 47% of Facebook Messenger users. While WhatsApp users are mostly male, nearly 60% of Facebook Messenger and Snapchat users are female.

According to comScore (www.comscore.com), Facebook Messenger had a 68.1% reach among smartphone users in April 2017.
27

NEWS

27.1 How Consumers Obtain The News

State of the News Media 2016, by Pew Research Center for Journalism and Media (www.journalism.org), reported that U.S. adults often get their news from the following media sources (percentage of respondents):

- Television: 57%
  - Local TV news: 46%
  - Cable TV news: 31%
  - National nightly network TV news: 30%
- Digital: 38%
  - News websites or apps: 28%
  - Social networking sites: 18%
- Radio: 25%
- Print newspaper: 20%

A recent Gallup Poll (www.gallup.com) found the preferred source of news among adults, by age, as follows:

<table>
<thead>
<tr>
<th>Age Group</th>
<th>TV</th>
<th>Internet</th>
<th>Print</th>
<th>Radio</th>
<th>Other</th>
<th>No opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-29</td>
<td>50%</td>
<td>27%</td>
<td>7%</td>
<td>3%</td>
<td>6%</td>
<td>7%</td>
</tr>
<tr>
<td>30-49</td>
<td>50%</td>
<td>28%</td>
<td>6%</td>
<td>7%</td>
<td>6%</td>
<td>2%</td>
</tr>
<tr>
<td>50-64</td>
<td>58%</td>
<td>18%</td>
<td>8%</td>
<td>7%</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>65+</td>
<td>68%</td>
<td>6%</td>
<td>18%</td>
<td>4%</td>
<td>2%</td>
<td>3%</td>
</tr>
</tbody>
</table>

According to a survey by Donald W. Reynolds Journalism Institute at the University of Missouri (www.rjionline.org), 70% of adult owners of mobile devices use their smartphone or tablet to access news websites or apps.

State of the News Media 2016 reported that 63% of U.S. adults watch videos online; 36% of U.S. adults watch news videos. This is roughly the same percentage of Americans who get news from Facebook or watch cable news channels regularly.

27.2 Adult Use Of Digital News Sites

State of the News Media 2016 reported that 38% of adults often get their news
from digital media sources. Twenty-eight percent (28%) cite news websites and apps as a frequent source of news; social networking sites are a frequent source for 18% of adults.

The 38% of adults using digital news sites make this second only to television as the most frequently accessed type of media source. That trails the 57% who often get news from a television source but outpaces both radio (25%) and print newspapers (20%).

According to State of the News Media 2016, 62% of adults get news on social media sites, although only 18% consider them as a frequent source.

A recent Gallup Poll (www.gallup.com) found digital sources are the preferred source of news among adults, by age, as follows:

- 18-to-29: 27%
- 30-to-49: 28%
- 50-to-64: 18%
- 65 and older: 6%

According to a survey by Donald W. Reynolds Journalism Institute at the University of Missouri (www.rjionline.org), 70% of adult owners of mobile devices use their smartphone or tablet to access news websites or apps.

State of the News Media 2016 reported that 36% of U.S. adults watch news videos online.

### 27.3 Digital Native News Publishers

Pew Research Center dubs digital news organizations not tied to a legacy platform as “digital native news sites.”

There are 40 digital native news publishers that meet the following criteria: they were “born on the web,” cover a range of news subjects. User-generated and aggregated content platforms (e.g. Medium, Reddit, and Wikipedia), and branded content such as NBA.com, are excluded.

The following are 40 digital native news sites:

- 247sports.com
- Aplus.com
- Bleacherreport.com
- Breitbart.com
- Businessinsider.com
- Bustle.com
- Buzzfeed.com
- Cheatsheet.com
- Cinemablend.com
- Cnet.com
- Dailydot.com
- Deadspin.com
- Digitaltrends.com
- Elitedaily.com
- Engadget.com
- Gizmodo.com
- Hellogiggles.com
- Hollywoodlife.com
- Huffingtonpost.com
- Ibtimes.com
- Ijreview.com
- Mashable.com
- Mic.com
- Opposingviews.com
- qz.com
- Rare.us
The 40 sites include broad-interest sites such as the Huffington Post and BuzzFeed, as well as sites focused on a narrower range of subjects such as business (qz.com), the entertainment industry (TMZ.com), or politics (Salon.com).

Among the 40 sites, the following percentages have a presence on social sites or other digital media:

- Facebook: 100%
- Twitter: 100%
- YouTube: 100%
- Instagram: 90%
- Snapchat: 50%
- Email newsletters: 88%
- Podcasts: 48%

“As digital audiences expand and move beyond news websites to social media, mobile apps, podcasting and even email newsletters, news publishers are making an effort to be in those places as well.”

State of the News Media 2016

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27.4 Market Resources

Pew Research Center for Journalism and Media, 1615 L Street NW, Suite 700, Washington, DC 20036. (202) 419-3650. (www.journalism.org)

28.1 Use Of Online Dating Services

According to the 2016 Digital Future Project, by the Center for the Digital Future (www.digitalcenter.org) at the University of Southern California, Annenberg School for Communication, 19% of adult Internet users have used online dating sites; 79% have not. Among those who have used online dating sites, experiences have been as follows:

• Did not date anyone: 33%
• Casually dated one or more people: 35%
• Entered a relationship: 16%
• Got engaged or married: 16%

A 2016 report by Pew Research Center (www.pewresearch.org) found that 15% of adults have used online dating sites or apps. By age, those that have done so are as follows:

• 18-to-24: 27%
• 25-to-34: 22%
• 35-to-44: 21%
• 45-to-54: 13%
• 55-to-64: 12%
• 65 and older: 3%

According to Pew, 59% of adults view online dating as a good way to meet people, whether they have used such sites or not. Twenty-nine percent (29%) of people say they know someone who has found a spouse or long-term partner through online dating.

28.2 Consumer Spending

A February 2017 report by IBISWorld (www.ibisworld.com) estimates that consumers spent $3.0 billion annually for online dating site memberships and services.
“To be sure, paid services – and premium versions of free sites – often include more detailed compatibility questionnaires, more filtering options for candidates or anonymous browsing of profiles, and could weed out daters who are just looking for a quick fling.”

MSN Money

28.3 Top Online Dating Sites

Ranked by number of monthly visitors, the top online dating sites are as follows (sources: Alexa [www.alexa.com], Compete [www.compete.com], eBizMBA [www.ebizmba.com], and Quantcast [www.quantcast.com]):

- Match (www.match.com): 35.00 million
- Plenty Of Fish (www.plentyoffish.com): 23.00 million
- Zoosk (www.zoosk.com): 11.50 million
- Ok Cupid (www.okcupid.com): 10.15 million
- eHarmony (www.eharmony.com): 7.10 million
- Badoo (www.badoo.com): 6.00 million
- Christian Mingle (www.christianmingle.com): 5.50 million
- Our Time (www.ourtime.com): 3.50 million
- Date Hookup (www.datehookup.com): 3.00 million
- Black People Meet (www.blackpeoplemeet.com): 1.20 million
- How About We (www.howaboutme.com): 1.00 million
- Senior People Meet (www.seniorpeoplemeet.com): 900,000
- Speed Date (www.speeddate.com): 850,000
- Chemistry (www.chemistry.com): 550,000
- JDate (www.jdate.com): 500,000

28.4 Dating Apps

Smartphone dating apps, most of which are free, have surged in popularity.
Tinder (www.tinder.com), among the first dating apps, is the market leader. The app allows users to filter potential matches by age, sex and location only; profiles consist of a few photos from Facebook and a couple of lines of text. A left swipe on the mobile device is rejection; right, acceptance. If two people both swipe right they match, and only then can they talk and arrange a date.

Tinder users swipe right or left on their smartphones more than two billion times in aggregate daily. *The Economist* (June 2017) estimates that Tinder produces 26 million matches each day.

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“Tinder’s free app isn’t the only mobile dating game in town. Many app makers are trying to capitalize on the Tinder method of simple, smartphone-based dating. Of course, they add a twist to the swipe. An app called Hinge sifts only through your Facebook connections for friends of friends. Clover offers Tinder-like features but with an added, if dubious, bonus called ‘On-Demand Dating.’ Think Uber for dating – you pick a location and a date, and Clover sends someone to meet you. And there are others with variations on the theme, including How About We, where you pose an idea for a fun date and see who bites, and the League, sort of a mobile dating app for the 1% percent: it promotes exclusivity and a carefully selected clientele.”

*The New York Times*
ONLINE GAMBLING

29.1 Market Assessment

The American Gaming Association (www.americangaming.org) estimates that 15 million Americans have placed bets via the Internet.

According to The Nielsen Company (www.nielsen.com), 8.1% of adults online gamble on the Internet, compared with 6.9% who gamble in a casino. Online gambling is most popular among households with lower incomes. Those with an annual income between $25,000 and $35,000 are over 25% more likely than the average Web user to engage in online gambling. In contrast, those with an annual household income of over $150,000 are 22% less likely than the average Web user to gamble online.

Global Betting and Gaming Consultants (www.gbgc.com) assesses annual global revenue for online gambling sites at $30 billion.

Estimates of annual online gambling spending by Americans range from $4 billion to $16 billion; total U.S. handle is estimated at more than $100 billion.

Delaware, Nevada, and New Jersey are the only states to legalize online gambling. Legislation enabling online gaming has been considered in California, Massachusetts, New York, and Pennsylvania.

“Somewhat surprisingly, there has not yet been a flood of other states approving Internet wagering. Although bills have been offered in a variety of jurisdictions, a number of states have either rejected Internet gaming or shown no urgency in deciding to adopt it.”

Lloyd D. Levenson, Esq.
Chair, Casino Law Practice
Cooper Levenson
29.2 Online Parimutuel Wagering

Account wagering or advance deposit wagering (ADW) on horse racing was the only form of online wagering legal in the United States until 2013. Changes made in 2000 to the federal Interstate Horse Racing Act allow state-licensed interstate interactive parimutuel betting.

Most ADW is processed through wagering hubs licensed in Oregon, which created conditions favorable to ADW operators in 1999. Other states, including California and Indiana, also enable ADW.

Consumers spend about $1.2 annually, or about 25% of total horse racing handle, via ADW.

29.3 Offshore Internet Gaming Sites

Because of legal issues in the United States, online card rooms and casino portals typically base their computer servers offshore.

According to Casino City’s iGaming Business Directory, there are approximately 2,200 gaming sites that offer wagering (excluding those which do not offer real-money wagering, such as free-play sites). Sites are classified by category as follows:

- Casino portals
- Poker portals
- Sports betting portals
- Bingo portals

The directory ranks the sites based on overall website traffic; the following have the highest traffic rankings:

**Casino Portals**

- Party Casino (www.partycasino.com)
- bet365 Casino (http://casino.bet365.com)
- 888 Casino (www.888casino.com)
- SportingBet (www.sportingbet.com)
- Casino.com (www.casino.com)
- Sky Vegas (www.skyvegas.com)
- ME Casino (http://casino.metro.co.uk)
- EuroGrand (www.eurogrand.com)
- Unibet Casino & Games (www.unibet.com/casino)
- Online Vegas (www.onlinevegas.com)
- Betfred Casino (www.betfredcasino.com)
- Stan James Casino (www.stanjames.com/casino)
- 32Red Online Casino (www.32red.com)
- All Slots Casino (www.allslotscasino.com)

**Poker Portals**

- Party Poker (www.partypoker.com)
• Party Poker Italy (http://partypoker.it)
• Full Tilt Poker (www.fulltiltpoker.com)
• PokerStars (www.pokerstars.eu)
• PKR (www.pkr.com)
• Poker Kings (www.pokerkings.com)
• WPTpoker (www.wptpoker.com)
• Ladbrokes Poker (http://poker.ladbrokes.com)
• bwin France (www.bwin.fr/en)
• ClubWPT (www.clubwpt.com)
• ComeOn (www.comeon.com)

Sports Book Portals, Racing Book Portals, and Betting Exchanges
• Betfair Sportsbook & Racebook (http://sports.betfair.com)
• bwin Sportsbook (www.bwin.com)
• bet365 Sportsbook & Racebook (www.bet365.com)
• Paddy Power Sportsbook (www.paddypower.com)
• Racing Post Betting Site (http://betting.racingpost.com)
• Scandic Bookmakers (www.scandicbookmakers.com)
• Ladbrokes Sportsbook & Racebook (http://sports.ladbrokes.com)
• TwinSpires (www.twinspires.com)
• ZEturf (www.zeturf.com)
• TAB Sportsbet (www.tab.com.au)
• TVG Interactive Horseracing (www.tvg.com)
• Pinnacle Sports (www.pinnaclesports.com)
• bet-at-home (www.bet-at-home.com)
• Singapore Pools (www.singaporepools.com.sg)
• Bettor (www.bettor.com)
• SBOBET Sportsbook & Casino (www.sbobet.com)
• SkyBet Sports (www.skybet.com)

Bingo Portals
• bet365 Bingo (http://bingo.bet365.com)
• Jackpotjoy (www.jackpotjoy.com)
• Foxy Bingo (www.foxybingo.com)
• Tombola (www.tombola.co.uk)
• Unibet Bingo and Skill Games (www.unibet.com/bingo)
• Mecca Bingo (www.meccabingo.com)
• 123Bingo Online (www.123bingoonline.com)
• Sky Bingo (www.skybingo.com)
• Betsson Bingo, Games & Scratch Cards (http://bingo.betsson.com)
• Bingo Hall (www.bingohall.com)
• Sun Bingo (www.sunbingo.co.uk)
• Wink Bingo (www.winkbingo.com)
• Virgin Bingo (www.virgingames.com/bingo)
29.4 Market Resources

Casino City Press, 95 Wells Avenue, Newton, MA 02459. (617) 332-2850. (www.casinocitypress.com)

30.1 Objectives And Content
People create a personal website for a variety of reasons. Most commonly these websites present information about personal interests and leisure activities. They serve as a space of personal expression and social networking among people with similar interests. Personal websites can include information about hobbies, family genealogy, opinions or support for causes, and an online journal.

Websites can be created to support a person’s career or business endeavors. Some sites host resumes, portfolios, examples of written work, music clips, videos, or an online shop. According to CareerBuilder (www.careerbuilder.com), 29% of workers, including 44% of people ages 25-to-24, have a side gig; many create a website to promote this activity.

Some websites are created for a special occasion, such as a wedding, then removed from the web after the event.

30.2 Creating And Hosting A Website
Numerous online services are available that let people design, build, and host their own website. Many are free, deriving income from fees for optional add-on or advertising. The following are among the more popular services:

• About.me (www.about.me)
• Angelfire (www.angelfire.com)
• Boldgrid (www.boldgrid.com)
• eHost (www.ehost.com)
• Enthuse.me (www.enthuse.me)
• Flavors.me (www.flavors.me)
• Jimdo (www.jimdo.com)
• Moonfruit (www.moonfruit.com)
• Own-Free-Website (www.own-free-website.com)
• Register.com (www.register.com)
• Site123 (www.site123.com)
• SiteBuilder (www.sitebuilder.com)
• SnackWebsites (www.snackwebsites.com)
• Somewhere (www.somewhere.com)
• Squarespace (www.squarespace.com)
• Strikingly (www.strikingly.com)
• uCoz (www.ucoz.com)
• Vizualize.me (www.vizualize.me)
• Web.com (www.web.com)
• webnode (https://us.webnode.com)
• Webs (www.webs.com)
• Website (www.website.com)
• Websitebuilder (www.websitebuilder.com)
• Webstarts (www.webstarts.com)
• Weebly (www.weebly.com)
• Wix.com (www.wix.com)
• WordPress (https://wordpress.com)
• Yola (www.yola.com)
• Zoho (www.zoho.com/sites)

Wix.com, the largest among these services, reported 77 million users as of January 2017, a count that includes both personal and business users.
PHOTO SHARING

31.1 Digital Photos


Popular Photography assesses that about one trillion digital photos are taken worldwide each year.

“The Web has become an extension of our identities. Displaying our interests – or at least the interests we wish to present to the world – offers friends and followers a snapshot of our personality. There is no easier way to do this than through images.”

100 Ideas That Changed The Web

31.2 Photo Uploads To The Web

According to InfoTrends, 4.7 trillion digital photos will be stored in 2017, an increase from 2.7 trillion in 2014.

Social network sites generally do not make public the number of photos that are uploaded, but several analysts have made estimates.

Gizmodo (www.gizmodo.com) estimates that there are 300 million photo uploads to Facebook every day.

ClickZ (www.clickz.com) assessed 80 million photos are posted on Instagram daily; 91% of Instagram posts are photos.

Mary Meeker, partner at Kleiner Perkins (www.kpcb.com), estimated in State of the Internet that people upload 1.8 billion images to Facebook, Instagram, Flickr, Snapchat, and WhatsApp every day.
31.3 Photo Sharing Sites

Ranked by monthly unique visitors, the top photo sharing sites are as follows (sources: Alexa [www.alexa.com], Compete [www.compete.com], eBizMBA [www.ebizmba.com], and Quantcast [www.quantcast.com]):

- Instagram (www.instagram.com): 100.00 million
- Imgur (www.imgur.com): 87.50 million
- Flickr (www.flickr.com): 80.00 million
- Photobucket (www.photobucket.com): 60.00 million
- Deviant Art (www.deviantart.com): 45.00 million
- Shutterfly (www.shutterfly.com): 20.00 million
- Tiny Pic (www.tinypic.com): 9.00 million
- We Heart It (www.weheartit.com): 8.10 million
- Image Shack (www.imageshack.com): 8.00 million
- Image Venue (www.imagevenue.com): 5.75 million
- Image Bam (www.imagebam.com): 5.50 million
- Smug Mug (www.smugmug.com): 5.00 million
- Picasa (www.picasa.com): 4.50 million
- Twitpic (www.twitpic.com): 4.00 million
- Snapfish (www.snapfish.com): 3.40 million

31.4 Sharing Creators And Curators

According to the Pew Internet & American Life Project [www.pewresearch.org], those who share photos online are as follows:

Creators
- Fifty-two percent (52%) of adult Internet users post original photos online that they themselves have created.

Curators
- Forty-two percent (42%) of adult Internet users repost photos they find online onto sites designed for sharing images with many people.

By demographic group, those who share photos (and videos) online are as follows:

<table>
<thead>
<tr>
<th>Gender</th>
<th>Creators</th>
<th>Curators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>56%</td>
<td>49%</td>
</tr>
<tr>
<td>Male</td>
<td>48%</td>
<td>36%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Creators</th>
<th>Curators</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-to-29</td>
<td>79%</td>
<td>61%</td>
</tr>
<tr>
<td>30-to-49</td>
<td>56%</td>
<td>48%</td>
</tr>
<tr>
<td>50-to-64</td>
<td>37%</td>
<td>30%</td>
</tr>
<tr>
<td>65 and older:</td>
<td>19%</td>
<td>14%</td>
</tr>
</tbody>
</table>
**Education**

- High school: 49% 43%
- Some college: 54% 46%
- College graduate: 53% 39%

**Household Income**

- Less than $30,000: 55% 52%
- $30,000 to $49,999: 48% 31%
- $50,000 to $74,999: 53% 46%
- $75,000 and more: 54% 39%

### 31.5 Mobile Phone Use For Photo Taking

According to the *2016 Digital Future Project*, by the Center for the Digital Future at the University of Southern California, Annenberg School for Communication (www.digitalcenter.org), 83% of mobile phone users use their device to take pictures; 58% take videos.

According to a survey conducted by Edelman (www.edelman.com) for Shutterfly (www.shutterfly.com), 81% of people who had taken at least 10 digital photos in the three months prior to polling used mobile phones and smartphones; 55% used point-and-shoot digital cameras, the second-highest response. Among those using mobile phones to take pictures, the frequency of this activity was as follows:

- Several times a day: 24%
- Daily: 40%
- A few times a week: 36%
32.1 Overview
A podcast is a digital audio file made available on the Internet or for downloading to a portable media player. The earliest podcasts were audio-only files, but today are just as likely to be video. Podcasts consist of an episodic series of audio, video, digital radio, PDF, or ePub files subscribed to and downloaded through web syndication or streamed on-line to a computer or mobile device.

A podcatcher, or podcast client, is a website used to download various media via an RSS or XML feed. They generally allow users to manually subscribe directly to a feed by providing the URL; some also include a directory of high-profile podcasts. Apple’s iTunes, which added podcatching to its iTunes software in 2005, is the largest podcast client. Top shows routinely gather over one million listens per month.

The following links to a list of podcatchers: www.rkma.com/podcasters.pdf.

32.2 Market Assessment
Bridge Ratings (www.bridgeratings.com) assesses U.S. podcast ad spending as follows (change from prior year in parenthesis):
- 2014: $ 90 million (19%)
- 2015: $133 million (48%)
- 2016: $167 million (25%)
- 2017: $207 million (24%)
- 2018: $256 million (24%)
- 2019: $318 million (24%)
- 2020: $395 million (24%)

Forbes (May 2016) suggests that the podcast sector could ultimately become a billion-dollar industry once a better revenue-generating business model is developed.

32.3 Podcast Audience
State of the News Media 2016, by Pew Research Center for Journalism and Media (www.journalism.org), reports the percentage of people ages 12 and older who listen to a podcast on a monthly basis as follows:
The 21% of people who listened to podcasts in 2016 represented about 57 million people ages 12 and older. In all, 36% have listened to a podcast at least once. Still, Pew Research Center reports that 51% of people are not familiar with the term ‘podcasting.’

“Weekly podcast listeners tend to be more educated and have higher incomes when compared to the rest of the population. Thirty percent (30%) of Americans with a college degree listen to podcasts weekly compared with the 12% of Americans without a college degree who are listening weekly. And you’re twice as likely to be a weekly podcast listener if you make $100k or above than if you make $50k or below.”

State of the News Media 2016
Pew Research Center, 6/15/16

32.4 Podcast Networks

There are approximately 50 podcast networks in the United States. Many do not release data on the number of downloads.
“There are no widely accepted estimates of the total number of podcasts produced in the U.S. However, publicly available data from some of the largest commercial podcast hosting companies ... indicate an upward trend in both the number of podcast shows hosted and the number of download requests.”

State of the News Media 2016
Pew Research Center, 6/15/16

Libsyn (www.libsyn.com), one of the largest podcast hosting companies, hosted 28,000 shows in 2016 and reported 3.3 billion requests for downloads.

RawVoice (www.rawvoice.com), which hosts 20,000 shows, reports downloads tripled between 2010 and 2016.

PodcastOne (www.podcastone.com) is the largest revenue generator among advertiser-supported podcast networks. Founded in 2013 by Norm Pattiz, also founder of radio-giant Westwood One, and 30% owned by Hubbard Broadcasting, PodcastOne hosts over 200 podcasts. Their podcasts can be found on their website, the PodcastOne app, and iTunes. PodcastOne’s annual revenue is $20 million, according to Forbes.

32.5 Most Popular Podcasts

The following were iTunes’ top podcasts in 2016:

- Revisionist History
- Radiolab Presents: More Perfect
- Invisibilia
- Stuff You Should Know
- This American Life
- The Joe Rogan Experience
- The Nerdist
- TED Radio Hour
- Fresh Air
- Radiolab
By genre, the most popular iTune podcasts in 2016 were as follows:

**Arts**
- NPR - Fresh Air
- Night Vale Presents - Within the Wires
- The Moth - The Moth Podcast
- Roman Mars - 99% Invisible
- Pacific Northwest Stories - The Black Tapes

**Comedy**
- Joe Rogan - The Joe Rogan Experience
- Chris Hardwick - The Nerdist
- NPR - Wait Wait ... Don’t Tell Me!
- Marc Maron - WTF with Marc Maron Podcast
- MaximumFun.org - Adam Ruins Everything

**Games & Hobbies**
- Giant Bomb - Giant Bombcast
- NPR - Car Talk
- Player One Podcast - Player One Podcast
- Geekbox.net - The Geekbox
- GamingUnion.net - Final Fantasy & Kingdom Hearts Union

**Music**
- NPR - All Songs Considered
- Play.it - Drink Champs
- Song Exploder - Song Exploder
- KEXP - KEXP Song of the Day
- WBEZ Chicago - Sound Opinions

**Religion & Spirituality**
- Chris Rosebrough @PirateChristian - Fighting for the Faith
- Joel Osteen - Joel Osteen Podcast
- Brian Hardin - 1 Year Daily Audio Bible
- Rob Bell - The RobCast
- Premier - Unbelievable?

**Science & Medicine**
- NPR - Invisibilia
- WNYC Studios - Radiolab
- StarTalk Radio - StarTalk Radio
- NPR - Hidden Brain
- HowStuffWorks.com - Stuff To Blow Your Mind
Sports & Recreation
• The Ringer - The Bill Simmons Podcast
• Live Audio Wrestling - The LAW: Live Audio Wrestling
• The Dan Patrick Show on PodcastOne
• ColtCabana - Art of Wrestling
• She Explores

Television & Film
• The Ringer - Channel 33
• AndersonAndBryan.com - The Film Vault
• Bald Move - Game of Thrones The Podcast
• Trek.fm - Mission Log: A Roddenberry Star Trek Podcast
• Slate Magazine/Panoply - Slate’s Spoiler Specials

Technology
• NPR - TED Radio Hour
• Gimlet
• Paul’s Security Weekly
• Ken Ray
• Apple Keynotes

The following were the top podcasts on PodcastOne in June 2016:
• The Adam Carolla Show
• Art of Charm
• The Big Podcast With Shaq
• The Dan Patrick Show
• Healther Dubrow’s World
• Juicy Scoop With Heather McDonald
• KFC Radio
• The Steve Austin Show Unleashed
• Talk is Jericho
• Thechive

Serial, the most downloaded podcast in history, topped 100 million listens when it aired its first series. The Tim Ferriss podcast, one of the top rated business shows in the world, passed 60 million downloads in early 2016.

32.6 Market Resources
State of the News Media 2016: Podcasting Fact Sheet, June 2016. (www.journalism.org/2016/06/15/podcasting-fact-sheet/)

33

REVIEWS

33.1 Reading and Using Online Reviews

According to AYTM Market Research (www.aytm.com), adults who read online reviews before making a purchase or leave online reviews after making a purchase are as follows (percentage of respondents):

<table>
<thead>
<tr>
<th></th>
<th>Read Reviews</th>
<th>Post Reviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always:</td>
<td>20.1%</td>
<td>6.2%</td>
</tr>
<tr>
<td>Most of the time:</td>
<td>29.5%</td>
<td>14.8%</td>
</tr>
<tr>
<td>About half the time:</td>
<td>24.6%</td>
<td>24.2%</td>
</tr>
<tr>
<td>Rarely:</td>
<td>15.9%</td>
<td>35.2%</td>
</tr>
<tr>
<td>Never:</td>
<td>9.9%</td>
<td>19.6%</td>
</tr>
</tbody>
</table>

33.2 Response To Reviews

A survey by ChannelAdvisor (www.channeladvisor.com) found that 92% of Internet users read product reviews. Among these people, 89% have been influenced to make a purchase or deterred from purchasing a specific product as the result of reviews. Only 3% of those who have read reviews say their decisions have been unaffected by reviews.

In a survey by The Society For New Communications Research (www.sncr.org), 73% of Internet users said customer reviews were important in helping form their impression of companies.

According to the Local Consumer Review Study 2016, by BrightLocal (www.brightlocal.com), consumers take the following actions after reading a positive online review about a local business:

- Visit a business website: 54%
- Visit the business: 19%
- Search for more reviews about the business: 17%
- Contact the business: 7%
- Continue looking for other businesses: 3%

A study by YouGov (www.yougov.com) found that 79% of Internet users check online reviews at least some of the time before making a purchase; only 7% say they never check reviews. YouGov classified reviews as follows:

- Mixed reviews: 57%
- Good reviews: 54%
• Bad reviews: 21%
• Neutral reviews: 12%

According to *Online Shopping And E-Commerce*, a December 2016 report by Pew Research Center [www.pewresearch.org](http://www.pewresearch.org), 82% of adults say they consult online ratings and reviews when buying something for the first time. Forty percent (40%) of all adults and 50% of those under the age of 50 nearly always turn to online reviews when buying something new. Moreover, nearly half of adults feel that customer reviews help a lot to make consumers feel confident about their purchases (46%) and to make companies be accountable to their customers (45%). But even as the public relies heavily on online reviews when making purchases, many adults express concerns over whether these reviews can be trusted. Fifty-one percent (51%) of those who read online reviews say that they generally paint an accurate picture of the products or businesses in question; 48% say it’s often hard to tell if online reviews are truthful and unbiased.

Consumers are increasingly accessing reviews while shopping. Compete ([www.compete.com](http://www.compete.com)) reports that 45% of smartphone users have looked at third-party or consumer reviews of a product while in a store.

### 33.3 Posting Reviews

Among those who use reviews, about a quarter also post their own opinions, according to eMarketer ([www.emarketer.com](http://www.emarketer.com)).

A survey by YouGov asked Internet users who posted online consumer reviews their reasons for doing so. Responses were as follows:

- Help others make better purchase decisions: 62%
- Polite to leave feedback: 35%
- Share positive good experience: 27%
- Make sure good vendors get business: 25%
- Warn about bad experience: 13%
- Expose bad vendors: 12%
- Improve ranking as customer: 7%
- Become well known reviewer: 5%

By age, reasons for posting reviews were as follows:

<table>
<thead>
<tr>
<th>Reason</th>
<th>18-34</th>
<th>35-54</th>
<th>55+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Help others make better purchase decisions</td>
<td>56%</td>
<td>62%</td>
<td>67%</td>
</tr>
<tr>
<td>Polite to leave feedback</td>
<td>36%</td>
<td>38%</td>
<td>33%</td>
</tr>
<tr>
<td>Share positive good experience</td>
<td>19%</td>
<td>27%</td>
<td>34%</td>
</tr>
<tr>
<td>Make sure good vendors get business</td>
<td>18%</td>
<td>25%</td>
<td>30%</td>
</tr>
<tr>
<td>Warn about bad experience</td>
<td>10%</td>
<td>11%</td>
<td>17%</td>
</tr>
<tr>
<td>Expose bad vendors</td>
<td>8%</td>
<td>10%</td>
<td>16%</td>
</tr>
<tr>
<td>Improve ranking as customer</td>
<td>6%</td>
<td>10%</td>
<td>3%</td>
</tr>
<tr>
<td>Become well known reviewer</td>
<td>7%</td>
<td>6%</td>
<td>3%</td>
</tr>
</tbody>
</table>
34

SEARCH

34.1 Importance Of Online Search

Search engines have become one of the most important segments of the online experience for Internet users. After email, search is the second-most-used Internet application.

According to the Pew Research Center [www.pewresearch.org], 49% of Internet users use search engines on a typical day.

Since 2001, Edelman (www.edelman.com) has conducted a survey assessing consumers’ trust in media. The 2017 Edelman Trust Barometer reported that online search engines had surpassed traditional media to become the most-trusted media source. Sixty-seven percent (67%) of Internet users trust search engines the most for information. For comparison, 57% of people trust

34.2 Search Categories

According to Experian Hitwise (www.experian.com/hitwise/), traffic (website visits) for various categories originates from search engines as follows:

- Education: 45%
- Health and medical: 44%
- Food and beverage: 40%
- Music: 39%
- Community: 35%
- Travel: 33%
- Government: 32%
- Shopping and classifieds: 26%
- Aviation: 25%
- Automotive: 24%
- Lifestyle: 23%
- News and media: 21%
- Entertainment: 21%
- Gambling: 21%
- Business and finance: 17%
- Computers and Internet: 14%
- Sports: 10%
34.3 Mobile And Desktop Search
Mobile search surpassed desktop search use in the U.S. in 2015. According to BIA/Kelsey (www.biakelsey.com), 94.7 billion mobile local searches and 63.8 billion desktop local searches were performed in the U.S. in 2016.

The most recent estimate by comScore (www.comscore.com) reported 10.4 billion desktop search queries per month in the U.S.; comScore does not assess mobile search queries.

According to comScore, desktop search queries are distributed by search engine as follows:
- Google sites: 64%
- Microsoft sites, primarily Bing: 20%
- Yahoo! sites: 13%
- Ask network: 2%

34.4 Top Search Engines
Ranked by number of monthly visitors, the top search sites are as follows (sources: Alexa [www.alexa.com], Compete [www.compete.com], eBizMBA [www.ebizmba.com], and Quantcast [www.quantcast.com]):
- Google (www.google.com): 1.10 billion
- Bing (www.bing.com): 350.00 million
- Yahoo! Search (https://search.yahoo.com): 300.00 million
- Ask (www.ask.com): 245.00 million
- AOL Search (http://search.aol.com): 125.00 million
- Wow (www.wow.com): 100.00 million
- Web Crawler (www.webcrawler.com): 65.00 million
- My Web Search (www.mywebsearch.com): 60.00 million
- Infospace (www.infospace.com): 24.00 million
- Info (www.info.com): 13.50 million
- Duck Duck Go (www.duckduckgo.com): 13.00 million
- Blekko (www.blekko.com): 12.50 million
- Contenko (www.contenko.com): 11.00 million
- Dogpile (www.dogpile.com): 10.50 million
- Alhea (www.alhea.com): 7.50 million

34.5 Use Of Google Search
The number of Google searches have been as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual</th>
<th>Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>438,000,000,000</td>
<td>1,200,000,000</td>
</tr>
<tr>
<td>2008</td>
<td>637,200,000,000</td>
<td>1,745,000,000</td>
</tr>
<tr>
<td>2009</td>
<td>953,700,000,000</td>
<td>2,610,000,000</td>
</tr>
<tr>
<td>2010</td>
<td>1,324,670,000,000</td>
<td>3,627,000,000</td>
</tr>
</tbody>
</table>
34.6 **Search Ad Spending**

According to eMarketer (www.emarketer.com), U.S. search ad spending totaled $20.28 billion in 2016, a 15.4% increase over the previous year.

<table>
<thead>
<tr>
<th>Year</th>
<th>Search Ad Spending</th>
<th>Mobile Ad Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>1,722,071,000,000</td>
<td>4,717,000,000</td>
</tr>
<tr>
<td>2012</td>
<td>1,873,910,000,000</td>
<td>5,134,000,000</td>
</tr>
<tr>
<td>2013</td>
<td>2,161,530,000,000</td>
<td>5,922,000,000</td>
</tr>
<tr>
<td>2014</td>
<td>2,095,100,000,000</td>
<td>5,740,000,000</td>
</tr>
<tr>
<td>2015</td>
<td>2,834,650,000,000</td>
<td>7,766,000,000</td>
</tr>
<tr>
<td>2016</td>
<td>3,293,250,000,000</td>
<td>9,022,000,000</td>
</tr>
</tbody>
</table>
35

SELF-PUBLISHING

35.1 Overview
An informal survey by Stack Exchange (http://writers.stackexchange.com) found that 80% of the U.S. population have an interest in writing a book and getting it published sometime in their lifetime. Only a fraction, however, pursue this aspiration seriously. It is estimated that slightly under one million adults are actually writing seriously with a goal of getting published. Most have a turnaround, or period of time they stick to writing, of about 3.5 years.

The Internet has been a boon for writers who wish to self-publish in electronic format without dealing with a publisher or incurring the cost of publishing in print format. Forbes estimates that about 300,000 to 500,000 books are self-published each year.

“Anyone with access to the Internet can be a publisher.”

The Economist, 6/4/16

Millions of people who write for enjoyment, of course, have no intention of becoming published nor the illusion that they will ever pen a best-seller.

35.2 Electronic Publishing
Ebooks are generally published in ePub, Mobi, and printable PDF formats. Most self-published authors use a publishing platform to prepare manuscripts for publication, generate files in these formats, and host the eBook. Publishing platforms include Amazon Kindle Direct Publishing (https://kdp.amazon.com), Blurb (www.blurb.com), Bookbaby (www.bookbaby.com), CinnamonTeal Publishing (www.cinnamonteal.in), CreateSpace (www.createspace.com), ebook leap (www.ebookleap.com), Breezeway Books (www.breezewaybooks.com), Lulu (www.lulu.com), Papyrus Editor (http://papyrus.yourstory.com), Pronoun (www.pronoun.com), and Smashwords (www.smashwords.com).

35.3 eBook Publishers

The Author Earnings Report (www.authorearnings.com), an author-focused quarterly assessment of ebook publishing, reports market share of ebook unit sales in 4Q 2016 as follows:

- Indie published: 37%
- Small- and medium-sized publishers: 18%
- Amazon published: 14%
- Uncategorized single-author publisher: 8%

Prior to 2015, Big Five publishers dominated the ebook market. Independent-published books passed Big Five in unit sales in 1Q 2015. The gap between independent-published ebooks was 15 percentage points in early 2016. Independent sales declined in late 2016, surpassing Big Five unit sales by about 10 percentage points at year-end 2016. The change in marketshare was attributed to pricing.

“The savvier and more agile smaller traditional publishers (such as Bookouture, Open Road Media, Sourcebooks, and the like) are increasingly adopting bookselling strategies and tactics that were first pioneered by indie authors. We’ve seen them adopt retailer-specific Amazon ebook metadata, hold more frequent $0.99 and $1.99 sales advertised through BookBub and similar discount newsletters, run Facebook ad campaigns for their books, and the like. The largest publishers are also beginning to do the same, too.”

Author Earnings Report
The Author Earnings Report assessed year-end 2016 ebook pricing as follows:

- Indie published ebooks generally sell for 99¢ to $3.99.
- Most Amazon imprint ebooks are priced at $4.99.
- Big Five publisher prices are typically in the $9.99 to $14.99 range.

Ebook author earnings in 4Q 2016 were distributed as follows (source: the Author Earnings Report):

- Indie published: 38%
- Big Five publishers: 23%
- Small- and medium-sized publishers: 22%
- Amazon published: 12%
- Uncategorized single-author publisher: 5%

35.4 Author Earnings

Stories of successful self-published authors are well publicized. The New York Times, for instance, reported in 2016 on Meredith Wild, who sold 1.4 million copies of her self-published erotic novels on Amazon and other sites, and subsequently launched Waterhouse Press to publish for other authors. And Forbes reported on John Milton, a self-published writer who draws $450,000 a year from Amazon.com. But, truth is, such success is rare among the millions of authors that have self-published.

According to The New York Times, 40 self-published authors have sold more than one million ebook copies in the last five years.

Competition in the ebook market is on the rise. There were over 4 million titles in the Kindle Store in 2016; in 2012 there were 600,000. Approximately one-third of the list of 100 best-selling Kindle ebooks each week are self published.

Amazon.com dominates that market for sales of ebooks. Eighty-five percent (85%) of all non-traditionally published book sales of any format and 50% of traditionally published book sales occur on Amazon.com.

According to the Author Earnings Report, 9,900 authors earn $10,000 a year on more from their Amazon U.S. sales alone. Approximately 4,600 authors earn more than $25,000 annually. Among these authors, 40% of these are indie authors deriving at least half of their income from self-published titles, 35% are Big Five authors deriving the majority of their income from Big Five-published titles, and 22% are authors who derive most of their income from titles published by small- or medium-sized traditional publishers.

Over 2,500 authors earn $50,000 or more a year from sales on Amazon.com. Among these authors, 1,080 are independent, self-published authors. Approximately 1,340 authors earn $100,000 a year from Amazon.com sales; half of them are independents and Amazon-imprint authors.

Approximately 1,120 authors earn $250,000 or more from sales on Amazon. An estimated 565 self-published authors are in this group; 220 debuted in the past five years.
36.1 Market Assessment

According to eMarketer (www.emarketer.com), annual revenues at U.S. sports websites is $3.0 billion, distributed as follows:

- Online advertising: $2.0 billion
- Paid content: $530 million
- Other: $470 million

Estimated online revenue of the four major professional sports leagues is as follows (source: SportsBusiness Journal):

- National Football League: $500 million
- Major League Baseball: $450 million
- National Basketball Association: $225 million
- National Hockey League: $120 million

“Like other forms of entertainment, sports programming is shifting to the digital space. U.S. sports leagues and broadcasters are streaming increasing amounts of content on their broadband and mobile channels, and consumers are responding by tuning in on multiple screens.”

eMarketer

36.2 Sports Websites

Quantcast (www.quantcast.com) assesses the number of unique visitors to major U.S. sports websites as follows:
<table>
<thead>
<tr>
<th>Website</th>
<th>Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>espn.com</td>
<td>14,273,430</td>
</tr>
<tr>
<td>sbnation.com</td>
<td>14,633,191</td>
</tr>
<tr>
<td>247sports.com</td>
<td>8,541,134</td>
</tr>
<tr>
<td>nbcsports.com</td>
<td>7,375,597</td>
</tr>
<tr>
<td>cbssports.com</td>
<td>7,368,285</td>
</tr>
<tr>
<td>sportingnews.com</td>
<td>4,308,922</td>
</tr>
<tr>
<td>nesn.com</td>
<td>3,889,342</td>
</tr>
<tr>
<td>nfl.com</td>
<td>3,511,626</td>
</tr>
<tr>
<td>mlb.com</td>
<td>3,019,852</td>
</tr>
<tr>
<td>nba.com</td>
<td>2,419,784</td>
</tr>
<tr>
<td>120sports.com</td>
<td>1,903,097</td>
</tr>
<tr>
<td>yardbarker.com</td>
<td>1,114,605</td>
</tr>
<tr>
<td>sportingz.com</td>
<td>1,104,649</td>
</tr>
<tr>
<td>scout.com</td>
<td>912,719</td>
</tr>
<tr>
<td>nascar.com</td>
<td>760,183</td>
</tr>
<tr>
<td>larrybrownsports.com</td>
<td>753,466</td>
</tr>
<tr>
<td>ncaa.com</td>
<td>735,070</td>
</tr>
<tr>
<td>motorsport.com</td>
<td>691,982</td>
</tr>
<tr>
<td>lakersnation.com</td>
<td>684,239</td>
</tr>
<tr>
<td>walterfootball.com</td>
<td>636,806</td>
</tr>
<tr>
<td>golfweek.com</td>
<td>611,414</td>
</tr>
<tr>
<td>packers.com</td>
<td>583,947</td>
</tr>
<tr>
<td>nhl.com</td>
<td>576,069</td>
</tr>
<tr>
<td>bassmaster.com</td>
<td>569,822</td>
</tr>
<tr>
<td>golfnow.com</td>
<td>536,293</td>
</tr>
<tr>
<td>golfdigest.com</td>
<td>509,829</td>
</tr>
<tr>
<td>thesportsdrop.com</td>
<td>499,908</td>
</tr>
<tr>
<td>baseballamerica.com</td>
<td>496,703</td>
</tr>
<tr>
<td><a href="http://www.patriots.com">www.patriots.com</a></td>
<td>493,602</td>
</tr>
<tr>
<td>revolutiongolf.com</td>
<td>477,544</td>
</tr>
<tr>
<td>hockeydb.com</td>
<td>462,020</td>
</tr>
<tr>
<td>bleacherreport.com</td>
<td>449,287</td>
</tr>
<tr>
<td>runnersworld.com</td>
<td>440,116</td>
</tr>
<tr>
<td>cybergolf.com</td>
<td>439,437</td>
</tr>
<tr>
<td>golfvacationinsider.com</td>
<td>435,181</td>
</tr>
<tr>
<td>golf.com</td>
<td>405,473</td>
</tr>
<tr>
<td>sportjust.com</td>
<td>396,046</td>
</tr>
<tr>
<td>golfballs.com</td>
<td>394,354</td>
</tr>
<tr>
<td>outsports.com</td>
<td>376,197</td>
</tr>
<tr>
<td>sportschew.com</td>
<td>368,110</td>
</tr>
<tr>
<td>dallascowboys.com</td>
<td>364,596</td>
</tr>
<tr>
<td>tennis.com</td>
<td>359,342</td>
</tr>
<tr>
<td>halfmarathons.net</td>
<td>334,776</td>
</tr>
</tbody>
</table>
36.3 Sports Website Visitor Demographics

According to Experian Simmons (www.experian.com), 20% of Internet users visit an online sports site monthly. By age, the following percentages do so:

- 18-to-34: 25%
- 35-to-49: 21%
- 50 and older: 14%

The Nielsen Company (www.nielsen.com) reported demographics for visitors to sports-related websites as follows:

**Gender**
- Male: 58%
- Female: 42%

**Age**
- 2-to-11: 3%
- 12-to-17: 8%
- 18-to-24: 5%
- 25-to-34: 14%
- 35-to-44: 35%
- 45 and older: 46%
- 55 and older: 21%
- 65 and older: 8%

**Household Income**
- Under $25,000: 5%
- $25,000 to $49,999: 18%
- $50,000 to $74,999: 25%
- $75,000 to $99,999: 21%
- $100,000 to $149,999: 18%
- $150,000 and above: 10%

36.4 Major League Sports Streaming Packages

The following is a summary of the paid video streaming packages of major sports leagues:

**Major League Baseball**
- Package: MLB.tv
- Pricing: $13 to $20 per month or $80 to $110 per season
- Selection: All out-of-market games

**National Basketball Association**
- Package: NBA League Pass Broadband
- Pricing: $100 to $150 per season
• Selection: All games of seven selected teams ($100) or up to 40 games per week ($150); all games out-of-market

**National Football League**
• Package: SuperFan
• Pricing: $90 per year for subscribers to DirecTV’s NFL Sunday Package
• Selection: All Sunday games (up to 14 per week)

**National Hockey League**
• Package: GameCenter Live
• Pricing: $21 per month or $170 per season
• Selection: Up to 40 out-of-market games per week

### 36.5 Live Sports Online

The following is a summary of some of the live sports events accessible online:

- ESPN3 features millions of hours of live events online, including MLB, NBA and WNBA basketball, Major League Lacrosse, NCAA baseball, NCAA basketball (both men’s and women’s), NCAA football games, NCAA lacrosse, all four Grand Slam tennis events, major golf championships, high school football, Canadian Football League, Premier League and other major international soccer leagues, cricket (international), rugby (international), American Le Mans Series races, FIFA World Cup, and more. ESPN3 allows fans to switch among as many as 20 events in a main viewing window. To watch ESPN3, a user’s Internet service provider must have a licensing agreement with ESPN.
- More than five million college basketball fans watch March Madness on their computers, streamed by CBS SportsLine and available for free at NCAA.com.
- Major League Baseball draws more than one million subscribers to its $89 MLB.tv package of live baseball games and highlights.
- More than 300 live college football games are offered on sports sites such as ESPN3 and CSTV.com.
- Most regular-season out-of-market hockey games are streamed on NHL.com.

Marquee events such as championship series and all-star games that drive television ratings are generally available only on television and not streamed online.

### 36.6 Independent Sports Sites

Several independent sports sites have gained a large online following without being under the control of a TV network, league, or major online portal. The following are the largest of such sites (source: *SportsBusiness Journal*):
24/7 Sports (www.247sports.com)
• 24/7 Sports is a network of program-specific sites offering news about college sports teams. Subscribers pay more than $100 a year for content.

Big Lead Sports (www.thebiglead.com and other sites)
• Big Lead Sports is a network of more than 500 independent sites covering a wide range of sports blogs, fantasy content, news, and statistics.

Bleacher Report (www.bleacherreport.com)
• Bleacher Report is an open-source platform for sports writers to publish their work. The site employs professional writers, and contributors may have commentary published following review for compliance with the site’s editorial standards.

SB Nation (www.sbnation.com)
• SB Nation is a network of sports blogs. According to comScore, SB Nation sites receive more than six million unique monthly visitors.

• The Los Angeles-based company operates ThePostGame.com, a sports journalism site in partnership with Yahoo! Sports; SportsFanLive.com; FanFinder, an online and mobile tool to find sports bars with specific team loyalties; a social-oriented sports news aggregation site; and a series of sports-related Twitter aggregations.

36.7 Sports On Social Networks
Catalyst, an IMG company (www.catalystimg.com), conducted the Sports Fan Engagement Study to examine sports-related social media activities among avid sports fans. The following is a summary of the survey:

Which of the following social media sites do you use in relation to sports?
• Facebook: 75%
• YouTube: 54%
• Twitter: 37%
• Google+: 33%
• Instagram: 18%
• Pinterest: 8%
• Foursquare: 7%

By sport, which social media sites do you use?

<table>
<thead>
<tr>
<th></th>
<th>Soccer</th>
<th>NBA</th>
<th>College Basketball</th>
<th>College Football</th>
<th>MLB</th>
<th>NFL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook:</td>
<td>72%</td>
<td>70%</td>
<td>71%</td>
<td>72%</td>
<td>72%</td>
<td>78%</td>
</tr>
<tr>
<td>YouTube:</td>
<td>78%</td>
<td>60%</td>
<td>63%</td>
<td>51%</td>
<td>42%</td>
<td>37%</td>
</tr>
<tr>
<td>Twitter:</td>
<td>45%</td>
<td>39%</td>
<td>41%</td>
<td>36%</td>
<td>36%</td>
<td>32%</td>
</tr>
</tbody>
</table>
On a typical game day, which social media do you use?

- **Facebook**
  - Before game: 50%
  - During game: 54%
  - After game: 70%

- **YouTube**
  - Before game: 15%
  - During game: 10%
  - After game: 59%

- **Twitter**
  - Before game: 48%
  - During game: 64%
  - After game: 64%

- **Instagram**
  - Before game: 35%
  - During game: 54%
  - After game: 56%

### 36.8 Social Media Engagement

Hookit (www.hookit.com) assesses sports fan engagement based on social media interactions. The Social Media Engagement Index is calculated based on how often people view posts on Facebook, Twitter and Instagram, how often they share them, the number of likes, new followers, and other interactions.

Based on seven million social media posts from June 2016 to June 2017, Hookit ranked sports league/federation and team engagement as follows:

#### League/Federation

<table>
<thead>
<tr>
<th>Rank</th>
<th>League</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>NBA:</td>
<td>2.48</td>
</tr>
<tr>
<td>2.</td>
<td>NFL:</td>
<td>1.81</td>
</tr>
<tr>
<td>3.</td>
<td>MLB:</td>
<td>1.43</td>
</tr>
<tr>
<td>4.</td>
<td>World Surf League:</td>
<td>1.27</td>
</tr>
<tr>
<td>5.</td>
<td>NHL:</td>
<td>1.27</td>
</tr>
<tr>
<td>6.</td>
<td>UFC:</td>
<td>1.10</td>
</tr>
<tr>
<td>7.</td>
<td>USA Gymnastics:</td>
<td>1.06</td>
</tr>
<tr>
<td>8.</td>
<td>U.S. Soccer:</td>
<td>0.92</td>
</tr>
<tr>
<td>9.</td>
<td>Street League Skateboarding:</td>
<td>0.90</td>
</tr>
<tr>
<td>10.</td>
<td>Supercross:</td>
<td>0.88</td>
</tr>
</tbody>
</table>
11. USA Basketball: 0.84
12. PGA Tour: 0.80
13. USA Swimming: 0.78
14. USA Volleyball: 0.78
15. MLS: 0.76
16. (tie) NASCAR: 0.73
16. (tie) WTA Tour: 0.70
18. WNBA: 0.70
19. (tie) USA Track & Field: 0.66
19. (tie) USA Wrestling: 0.65
21. USA Baseball: 0.64
22. (tie) Lucas Oil Pro Motocross: 0.63
22. (tie) NHRA: 0.63
24. Monster Jam: 0.61
25. USA Softball: 0.60

Team
1. Golden State Warriors (NBA): 1.81
2. Cleveland Cavaliers (NBA): 1.40
4. Dallas Cowboys (NFL): 1.25
5. (tie) Chicago Bulls (NBA): 1.18
5. (tie) Chicago Cubs (MLB): 1.18
7. Los Angeles Lakers (NBA): 1.12
8. (tie) San Antonio Spurs (NBA): 1.04
8. (tie) Seattle Seahawks (NFL): 1.04
8. (tie) New York Yankees (MLB): 1.03
11. Pittsburgh Steelers (NFL): 1.03
12. Green Bay Packers (NFL): 1.00
13. U.S. women’s national soccer team: 0.99
14. Los Angeles Dodgers (MLB): 0.98
15. Chicago Blackhawks (NHL): 0.96
16. (tie) Boston Red Sox (MLB): 0.94
16. (tie) Carolina Panthers (NFL): 0.94
16. (tie) Pittsburgh Penguins (NHL): 0.94
16. (tie) San Francisco Giants (MLB): 0.94
20. Oakland Raiders (NFL): 0.93
21. Boston Celtics (NBA): 0.92
22. (tie) New York Giants (MLB): 0.91
22. (tie) Toronto Blue Jays (MLB): 0.91
24. Houston Rockets (NBA): 0.90
25. Oklahoma City Thunder (NBA): 0.89

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
• 233 •
37

STREAMING MUSIC SERVICES

37.1 Overview

Services that offer on-demand music streaming of full-length content over the Internet have become popular. Streaming services provide music without requiring the listener to purchase a file to download. Many sites include features for browsing by song title, artist, and genre. Such sites generally offer free, ad-supported listening and a commercial-free subscription option.

37.2 Market Assessment

According to The Recording Industry Association of America (RIAA, www.riaa.org), there were 22.6 million subscriptions for streaming music services in 2016, a 108.7% increase from the previous year. Spending for subscriptions was $2.26 billion, a 94.9% increase from the previous year.

Ad-supported on-demand streaming revenue in 2016 was $469 million, a 25.8% increase from the previous year.

There were 751.2 million digital single downloads in 2016, a 24.5% decrease from 2015; sales were $907 million, a 24.1% drop.

There were 86.0 million digital album downloads in 2016, a 21.3% decrease from 2015; sales were $876 million, a 19.6% drop.

SoundExchange distributions (i.e. payments to performers and copyright holders for streaming services) were $803 million.

37.3 Demographics

The following is the demographic distribution of consumers of music streaming services (source: Music Watch [www.musicwatchinc.com]):

<table>
<thead>
<tr>
<th>Gender</th>
<th>Music Streamers</th>
<th>Paid Subscribers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female:</td>
<td>53%</td>
<td>50%</td>
</tr>
<tr>
<td>Male:</td>
<td>47%</td>
<td>50%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Music Streamers</th>
<th>Paid Subscribers</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-to-17:</td>
<td>11%</td>
<td>4%</td>
</tr>
<tr>
<td>18-to-25:</td>
<td>16%</td>
<td>26%</td>
</tr>
<tr>
<td>26-to-35:</td>
<td>21%</td>
<td>33%</td>
</tr>
</tbody>
</table>
• 36-to-50: 26%  26%
• 51 and older: 26%  11%

37.4 Streaming Service Listener Share

According to The NPD Group (www.npd.com), listeners use streaming services as follows (multiple responses allowed):
• Pandora: 70%
• YouTube: 43%
• iHeart Radio: 23%
• iTunes Radio: 15%
• Google Play Music: 10%
• Spotify: 5%
• Slacker: 4%
• Rdio: 1%
• Other: 4%

“The streaming music business is one crowded jam session. Pandora Media, Spotify, Rdio, Songza, Google Play Music All Access, iTunes Radio, and others all vie for music lovers. The category is full of conflicting formats, pricing strategies, and features, and no dominant business strategy has emerged.”

Bloomberg Businessweek

37.5 Streaming Service Subscribers

According to Parks Associates (www.parksassociates.com), subscriptions to online music services in 2016 and change from 2015 is as follows:

<table>
<thead>
<tr>
<th>Service</th>
<th>Pct. of Broadband Households</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon Prime Music</td>
<td>15.0%</td>
<td>52.6%</td>
</tr>
<tr>
<td>Spotify Premium</td>
<td>8.1%</td>
<td>64.9%</td>
</tr>
<tr>
<td>Pandora One</td>
<td>6.0%</td>
<td>-12.5%</td>
</tr>
<tr>
<td>SiriusXM Streaming</td>
<td>5.5%</td>
<td>33.3%</td>
</tr>
<tr>
<td>Apple Music</td>
<td>3.6%</td>
<td>50.0%</td>
</tr>
</tbody>
</table>
“The majority of paid streaming music services experienced an increase in their number of subscribers in 2016, with Amazon Prime Music leading the market with 15% of U.S. broadband households. Amazon Prime Music experienced a 50% increase in subscription during the one-year period.”

Parks Associates, 2/8/17
TRAVEL RESEARCH & BOOKING

38.1 Top Travel Sites

Ranked by number of monthly visitors, the top travel sites are as follows (sources: Alexa [www.alexa.com], Compete [www.compete.com], eBizMBA [www.ebizmba.com], and Quantcast [www.quantcast.com]):

- Booking (www.booking.com): 40.00 million
- TripAdvisor (www.tripadvisor.com): 38.00 million
- Yahoo! Travel (www.yahoo.com/travel): 36.00 million
- Expedia (www.expedia.com): 25.00 million
- Priceline (www.priceline.com): 20.00 million
- Hotels (www.hotels.com): 16.00 million
- Travelocity (www.travelocity.com): 14.00 million
- Kayak (www.kayak.com): 13.00 million
- Orbitz (www.orbitz.com): 11.00 million
- Hotwire (www.hotwire.com): 8.50 million
- HomeAway (www.homeaway.com): 8.25 million
- TravelZoo (www.travelzoo.com): 7.00 million
- AirBnB (www.airbnb.com): 6.00 million
- Lonely Planet (www.lonelyplanet.com): 4.00 million
- Viator (www.viator.com): 3.00 million

38.2 Travel Research Online

eMarketer (www.emarketer.com) estimates that 117.6 million adults, or 61% of Internet users, research travel online; 98.3 million (51%) book online.

A 2016 survey by Fuel (www.fueltravel.com) found that leisure travelers use the following sources when beginning to research a trip (percentage of respondents):

- Search engine: 48.4%
- Supplier website: 20.4%
- Online travel agent: 13.9%
- Review site: 5.8%

A recent survey by Burst Media (www.burstmedia.com) found that among those who use the Internet for travel planning, the following types of travel research are conducted online (percent of survey respondents):

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019

• 237 •
• Hotel accommodations and prices: 50%
• Travel destinations: 46%
• Airline flights and fares: 39%
• Tour/travel operators: 24%
• Car rental availability and rates: 12%

The following are select website features that most attract Internet users to travel websites (source: Burst Media):
• Ability to check availability and rates: 55%
• Destination information: 50%
• Travel promotion and specials: 49%
• Travel bulletins and alerts: 22%
• Chat/forum areas for travel information: 13%
• Ability to personalize pages: 11%
• Opt-in newsletter: 10%

38.3 **Online Travel Booking**

According to PhoCusWright (www.phocuswright.com), online travel reservations garner over 40% of the total travel market. Excluding corporate travel, which is typically booked offline through travel agents and in-house travel departments, online booking surpassed offline in 2007. Over 60% of leisure and individually booked business travel reservations are made online.

eMarketer (www.emarketer.com) assesses U.S. digital travel sales as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Desktop (Billions)</th>
<th>Mobile (Billions)</th>
<th>Total Online (Billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>$118 billion</td>
<td>$32 billion</td>
<td>$150 billion</td>
</tr>
<tr>
<td>2015</td>
<td>$116 billion</td>
<td>$52 billion</td>
<td>$168 billion</td>
</tr>
<tr>
<td>2016</td>
<td>$116 billion</td>
<td>$65 billion</td>
<td>$181 billion</td>
</tr>
<tr>
<td>2017</td>
<td>$114 billion</td>
<td>$75 billion</td>
<td>$190 billion</td>
</tr>
<tr>
<td>2018</td>
<td>$112 billion</td>
<td>$86 billion</td>
<td>$198 billion</td>
</tr>
<tr>
<td>2019</td>
<td>$111 billion</td>
<td>$95 billion</td>
<td>$206 billion</td>
</tr>
</tbody>
</table>

eMarketer assesses the number of adults using mobile devices to book travel as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number (Millions)</th>
<th>Pct. of Digital Travel Bookers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>38.3 million</td>
<td>35.9%</td>
</tr>
<tr>
<td>2015</td>
<td>48.8 million</td>
<td>43.8%</td>
</tr>
<tr>
<td>2016</td>
<td>59.8 million</td>
<td>51.8%</td>
</tr>
<tr>
<td>2017</td>
<td>69.2 million</td>
<td>59.2%</td>
</tr>
<tr>
<td>2018</td>
<td>78.8 million</td>
<td>64.8%</td>
</tr>
<tr>
<td>2019</td>
<td>86.8 million</td>
<td>69.8%</td>
</tr>
</tbody>
</table>

Online travel agent (OTA) market leaders, ranked by annual online sales, are as follows (source: *Travel Weekly*):

---

**CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019**

• 238 •
38.4 Travel Apps

According to Harris Poll (www.theharrispoll.com), the following travel-related apps are used by U.S. smartphone owners while traveling (percentage of respondents):

- Map apps: 45%
- Traveler recommendations: 18%
- Airline apps: 17%
- Hotel apps: 13%
- Hotel check-in: 9%
- Translation apps: 9%
- Car or transportation apps: 8%
- None: 17%

38.5 Travel Reviews

Among all product and service categories, travel reviews are the most used by consumers.

According to Forrester Research (www.forrester.com), approximately one-third of travelers who research trips via the Internet read reviews. Of those who book hotels online, a third have changed plans based on other travelers’ comments.

Expedia-owned TripAdvisor (www.tripadvisor.com), the largest online travel review site, had posted more than 320 million consumer reviews of hotels, attractions, and restaurants across the globe as of April 2017. The site has 350 million unique monthly visitors, according to comScore (www.comscore.com).

TripAdvisor has acquired such popular travel sites as Smartertravel.com, IndependentTraveler.com, CruiseCritic.com, and SeatGuru.com.
PART IV: E-COMMERCE
39

ONLINE RETAIL

39.1 E-Commerce Spending

According to the U.S. Department of Commerce (www.doc.gov), e-commerce sales in the U.S. have been as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>E-commerce Sales</th>
<th>Percent of Total Retail Sales</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>$86.3 billion</td>
<td>2.3%</td>
<td>25%</td>
</tr>
<tr>
<td>2006</td>
<td>$114.6 billion</td>
<td>2.8%</td>
<td>33%</td>
</tr>
<tr>
<td>2007</td>
<td>$132.8 billion</td>
<td>3.2%</td>
<td>16%</td>
</tr>
<tr>
<td>2008</td>
<td>$132.3 billion</td>
<td>3.3%</td>
<td>no change</td>
</tr>
<tr>
<td>2009</td>
<td>$134.9 billion</td>
<td>3.7%</td>
<td>2%</td>
</tr>
<tr>
<td>2010</td>
<td>$167.7 billion</td>
<td>4.3%</td>
<td>24%</td>
</tr>
<tr>
<td>2011</td>
<td>$194.7 billion</td>
<td>4.7%</td>
<td>16%</td>
</tr>
<tr>
<td>2012</td>
<td>$225.5 billion</td>
<td>5.0%</td>
<td>16%</td>
</tr>
<tr>
<td>2013</td>
<td>$264.3 billion</td>
<td>5.7%</td>
<td>17%</td>
</tr>
<tr>
<td>2014</td>
<td>$304.9 billion</td>
<td>6.5%</td>
<td>15%</td>
</tr>
<tr>
<td>2015</td>
<td>$341.7 billion</td>
<td>7.3%</td>
<td>15%</td>
</tr>
<tr>
<td>2016</td>
<td>$390.9 billion</td>
<td>8.1%</td>
<td>15%</td>
</tr>
</tbody>
</table>

“Despite all this growth, online purchases remain a very small portion of retail sales. Over 90% of all United States retail commerce still takes place in physical stores.”

The New York Times

E-commerce sales by quarter in 2016 were as follows (change from same quarter in previous year in parenthesis):

- First quarter: $85.4 billion (14.6%)
- Second quarter: $90.4 billion (15.6%)
- Third quarter: $92.6 billion (15.5%)
- Fourth quarter: $122.5 billion (14.0%)
39.2 Online Spending By Category

According to eMarketer, online retail spending is distributed by product category as follows:

- Computer and consumer electronics: $76.1 billion
- Apparel and accessories: $59.7 billion
- Automotive and parts: $36.2 billion
- Books, music, and video: $31.5 billion
- Furniture and home furnishings: $23.1 billion
- Health and personal care: $19.6 billion
- Toys and hobby: $13.8 billion
- Office equipment and supplies: $9.3 billion
- Food and beverage: $7.9 billion
- Other: $70.1 billion

39.3 Top Online Shopping Sites

An assessment by Millward Brown (www.millwardbrown.com) found that five sites garner one-half of shopping visits.

The share of e-commerce traffic among the top sites is as follows:

- Amazon.com: 22%
- eBay.com: 17%
- Walmart.com: 6%
- Target.com: 3%
- Etsy.com: 2%
- All others: 50%

39.4 Web-Influenced Retail Sales

Forrester Research (www.forrester.com) assessed web-influenced retail sales as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Non-web Influenced Off-line Sales</th>
<th>Web Influenced Off-line Sales</th>
<th>Online Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>$1.61 billion</td>
<td>$1.16 billion</td>
<td>$231 billion</td>
</tr>
<tr>
<td>2013</td>
<td>$1.57 billion</td>
<td>$1.29 billion</td>
<td>$261 billion</td>
</tr>
<tr>
<td>2014</td>
<td>$1.55 billion</td>
<td>$1.41 billion</td>
<td>$290 billion</td>
</tr>
<tr>
<td>2015</td>
<td>$1.49 billion</td>
<td>$1.55 billion</td>
<td>$319 billion</td>
</tr>
<tr>
<td>2016</td>
<td>$1.47 billion</td>
<td>$1.67 billion</td>
<td>$345 billion</td>
</tr>
<tr>
<td>2017</td>
<td>$1.44 billion</td>
<td>$1.80 billion</td>
<td>$371 billion</td>
</tr>
</tbody>
</table>

39.5 Market Resources

eMarketer, 75 Broad Street, 31st Floor, New York, NY 10004. (212) 763-6010. (www.emarketer.com)
CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019

• 243 •
40.1 Shopping Online


Online Shopping And E-Commerce, published in December 2016 by Pew Research Center www.pewresearch.org, reported that 79% of U.S. adults have purchased online, 51% have done so using a smartphone, and 15% have purchased through social media links. The purchasing frequency of U.S. adults is as follows:

- Weekly: 15%
- A few times a month: 28%
- Less often: 36%
- Never: 21%

“Overall, 64% of Americans indicate that, all things being equal, they prefer buying from physical stores to buying online. Of course, all things are often not equal – and a substantial share of the public says that price is often a far more important consideration than whether their purchases happen online or in physical stores. Fully 65% of Americans indicate that when they need to make purchases they typically compare the price they can get in stores with the price they can get online and choose whichever option is cheapest.”

Pew Research Center, 12/19/16
A survey by Berkeley Research Group (BRG, www.thinkbrg.com) found U.S. Internet users, by generation, who have made a digital purchase as follows (percentage of respondents):

- Millennials (ages 18-to-35): 90%
- Gen Xers (ages 36-to-51): 93%
- Baby Boomers (ages 52-to-70): 84%
- All adults ages 18-to-70: 88%

“Despite the fact that Millennials grew up with the Internet, actual online purchasing rates aren’t significantly different from other generations. In fact, a BRG survey found that Gen X Internet users had a slightly higher rate of digital buying than Millennials: 93% vs. 90%. Even Boomers lagged by only 6 percentage points.”

eMarketer, 2/1/17

The Pew and BRG estimates of the percentage of Internet users (79% and 88%), respectively, differ because Pew uses all adults as a baseline and BRG includes only Internet users ages 18-to-70.

### 40.2 Why People Shop Online

A poll of Internet users by The Nielsen Company (www.nielsen.com) asking primary reasons for shopping online found the following:

- Able to shop 24 hours a day: 81%
- Saves time: 76%
- Able to comparison shop: 61%
- Easy to find what I am looking for: 56%
- Selection of items: 49%
- Can search by brands I like: 46%
- Available product information: 46%
- Low prices: 45%
- Items are in stock: 35%
- Low shipping costs: 24%
• Recommendations for items: 15%
• Customer service and communication: 12%
• Easy to return purchases: 11%
• Gift services such as cards, wrapping, or birthday/holiday reminders: 10%

A survey by Impulse Research (www.impulseresearch.com) found the primary reasons that Millennial adults, ages 18-to-34, shop online are as follows:
• Better prices: 37%
• Avoid shopping hassles and crowds: 29%
• Convenience: 18%
• Better selection: 13%
• Direct shipping to home: 3%

A survey by Accenture (www.accenture.com) found parents with children in school liked to shop online for the following reasons (percentage of respondents):
• Save money/find discounts: 70%
• To research products and prices: 63%
• Avoid going to many stores: 40%
• Avoid boring trips for kids: 28%
• Avoid kid pressure to buy items: 17%
• School works with e-retailers to ensure supplies are in stock: 7%

In a survey by the IBM Institute For Business Value (www.ibm.com), one-half of shoppers said they preferred shopping online.

“Shoppers are getting used to – and growing fond of – the online shopping experience. They enjoy the feeling of going to a favorite retailer’s webpage and opening tabs of different items to compare as they scroll down the page. They like the 1-2-3 browse, click and purchase experience.”

eMarketer
40.3 Top Online Shopping Categories

According to a survey by The Harris Poll (www.theharrispoll.com), the following percentages of adults have made select purchases online:

<table>
<thead>
<tr>
<th>Category</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothing</td>
<td>75%</td>
<td>63%</td>
<td>69%</td>
</tr>
<tr>
<td>Digital content (movies, music, e-books)</td>
<td>56%</td>
<td>62%</td>
<td>59%</td>
</tr>
<tr>
<td>Shoes and accessories</td>
<td>60%</td>
<td>47%</td>
<td>54%</td>
</tr>
<tr>
<td>Personal electronics</td>
<td>43%</td>
<td>55%</td>
<td>49%</td>
</tr>
<tr>
<td>Household electronics</td>
<td>37%</td>
<td>49%</td>
<td>43%</td>
</tr>
<tr>
<td>Cosmetics and personal grooming</td>
<td>41%</td>
<td>28%</td>
<td>35%</td>
</tr>
<tr>
<td>Prescription medications</td>
<td>24%</td>
<td>27%</td>
<td>26%</td>
</tr>
<tr>
<td>Specialty food and beverages</td>
<td>24%</td>
<td>27%</td>
<td>25%</td>
</tr>
<tr>
<td>O-T-C medications</td>
<td>19%</td>
<td>18%</td>
<td>18%</td>
</tr>
<tr>
<td>Groceries</td>
<td>15%</td>
<td>16%</td>
<td>15%</td>
</tr>
</tbody>
</table>

By age, consumers have made purchases online as follows:

<table>
<thead>
<tr>
<th>Age Range</th>
<th>18-36</th>
<th>37-48</th>
<th>49-67</th>
<th>68+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothing</td>
<td>68%</td>
<td>77%</td>
<td>70%</td>
<td>61%</td>
</tr>
<tr>
<td>Digital content (movies, music, e-books)</td>
<td>65%</td>
<td>72%</td>
<td>53%</td>
<td>38%</td>
</tr>
<tr>
<td>Shoes and accessories</td>
<td>58%</td>
<td>60%</td>
<td>52%</td>
<td>38%</td>
</tr>
<tr>
<td>Personal electronics</td>
<td>57%</td>
<td>57%</td>
<td>44%</td>
<td>26%</td>
</tr>
<tr>
<td>Household electronics</td>
<td>44%</td>
<td>49%</td>
<td>43%</td>
<td>27%</td>
</tr>
<tr>
<td>Cosmetics and personal grooming</td>
<td>39%</td>
<td>41%</td>
<td>32%</td>
<td>20%</td>
</tr>
<tr>
<td>Prescription medications</td>
<td>18%</td>
<td>26%</td>
<td>27%</td>
<td>40%</td>
</tr>
<tr>
<td>Specialty food and beverages</td>
<td>25%</td>
<td>32%</td>
<td>21%</td>
<td>27%</td>
</tr>
<tr>
<td>O-T-C medications</td>
<td>18%</td>
<td>19%</td>
<td>17%</td>
<td>18%</td>
</tr>
<tr>
<td>Groceries</td>
<td>18%</td>
<td>23%</td>
<td>11%</td>
<td>16%</td>
</tr>
</tbody>
</table>

40.4 Characteristics Of Online Shopping

When asked how they typically find what they’re shopping for online, responses were as follows (source: Nielsen; multiple responses allowed):

- Know the site by name: 69%
- Search engines: 62%
- Comparison shopping tools: 23%
- Subscribe to an e-newsletter from retailers: 15%
- Blogs/chat rooms/consumer reviews: 5%

Shopzilla (www.shopzilla.com) asked U.S. adults how they first saw the product they most recently purchased online. Responses were as follows:

- While surfing online: 29%
- Looking for something specific: 24%
- In email from store: 11%
- While “out and about”: 8%
• In friend’s house: 8%
• In a magazine: 7%
• In an ad: 6%
• On blog or other website content: 4%
• On Facebook: 2%
• On Pinterest: <1%
• On Twitter: <1%

40.5 Expectations Online
According to a survey by OneUpWeb (www.oneupweb.com), Internet users expect the following from e-commerce sites (percentage of respondents):
• Pricing/shipping information clearly stated: 96%
• Site looks credible and trustworthy: 76%
• Product displayed on homepage: 71%
• Visually appealing: 67%
• Total cost calculator: 59%
• Search function: 48%
• Privacy statement: 46%
• Onsite customer reviews: 41%
• Online customer service (live chat): 32%
• Links to social networks (Facebook, Twitter): 23%

According to a survey by A.T. Kearney (www.atkearney.com), the following attributes are important to consumers when shopping online (percentage of respondents):
• Finding specific products: 96%
• Free shipping: 93%
• Finding favorite brands: 92%
• Best price: 90%
• Ease of navigation: 88%
• Site security: 87%
• Special promotions: 78%
• Free samples: 67%
• Peer reviews: 59%
• New products: 55%

40.6 Selecting An Online Retailer
A survey by comScore (www.comscore.com) asked online shoppers the factors driving them to shop with an online retailer. Responses were as follows (two responses per survey participant):
• The ability to buy online and then make returns at the store: 62%
• The push of a coupon/promotion to my smartphone: 47%
• The ability to buy online and pick up in store: 44%
• The availability of an application designed specifically for a tablet: 41%
• The option to conduct one-click check-out online: 40%
• The ability to complete a purchase in store using mobile device: 37%
• The availability of a mobile application for a smartphone: 36%
• The availability of an in-store kiosk to browse products: 25%
• The ability to start a purchase online and then complete the purchase in store: 23%
• The ability to make an appointment for an in-store consult after researching online: 18%

When asked what factors have led them to recommend an online retailer to others, responses were as follows (multiple responses allowed):
• Free shipping: 68%
• Receiving my product when expected: 47%
• Free returns: 34%
• Easy returns and exchanges: 34%
• Tracking services: 29%
• Fast credits/refunds if I return products: 25%

40.7 Omnichannel Shopping

Omnichannel shopping allows consumers to shop across multiple channels – in-store, online, and on a tablet or cellphone – potentially at the same time. Shopping by catalog and by TV are also part of the omnichannel retail mix.

In the 17th Annual Customer Engagement Survey, conducted in January 2016 by Boston Retail Partners (www.bostonretailpartners.com), 85% of retail executives reported that unified commerce was their leading priority. Similarly, retail executives said in a survey by KPMG (www.kpmg.com) that omnichannel strategies were their #1 priority.

Boston Retail Partners reported the following percentages of retailers offered select omnichannel options:
• Returns accepted across all channels: 62%
• Inventory visibility across channels: 60%
• Special order from any channel: 49%
• Order visibility across channels: 47%
• Buy in-store and ship from digital channel, other store, or vendor: 44%
• Buy online, pick up in-store: 42%
• Buy anywhere, ship anywhere: 41%
• Buy online, ship from store: 38%
• Reserve online, pick up in-store: 38%
The State of Retail 2016, by TimeTrade (www.timetrade.com), reported that 51% of retail executives believe that retailers provide a consistent customer experience across all channels. According to the same study, however, only 26% of customers feel the same; 44% feel that the experience is somewhat consistent, and 20% believe that great improvement is needed.

40.8 Customer Preference For Omnichannel Retail

A 2016 survey by iModerate Research Technologies (www.imoderate.com) reported Internet users who believe it is important for e-commerce brands to operate physical stores as follows:

- Baby Boomers: 65%
- Generation Xers: 69%
- Millennials: 82%
- Generation Zers: 80%

According to the Omnichannel Preferences Study, a report by A.T. Kearney, 67% of consumers who purchase online use the physical store before or after the transaction.

Forrester Research (www.forrester.com) found that 71% of consumers expect to view in-store inventory online.

In the Multichannel Consumer Survey, by PricewaterhouseCoopers (PwC, www.pwc.com), 56% of U.S. adults said they are likely to spend more with multichannel retailers than with either online-only retailers or stores with bricks-and-mortar-only locations.

“Our research shows that when consumers use multiple channels, they spend more. That flies in the face of conventional wisdom that launching an online store steals sales from physical stores.”

Lisa Feigen Dugel, Director
PwC Retail and Consumer Advisory Practice

In a survey of cardholders, VISA found that 83% of adults would choose a retailer based on how easy it is to transact across online, in-store, and mobile.
40.9 Cross-Channel Shopping

“Showrooming” is the practice where customers go to a bricks-and-mortar retail location, make a decision on what item to buy and, instead of heading to the check-out aisle, use a mobile device to find a better price online where they ultimately make their purchase. “Webrooming” occurs when consumers buy in a store after researching a purchase online.

GfK (www.gfk.com) reported that 28% of consumers engage in showrooming; 41% practice webrooming. By age, those who engage in these practices are as follows:

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Showrooming</th>
<th>Webrooming</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-to-24:</td>
<td>39%</td>
<td>34%</td>
</tr>
<tr>
<td>25-to-34:</td>
<td>32%</td>
<td>46%</td>
</tr>
<tr>
<td>35-to-49:</td>
<td>29%</td>
<td>43%</td>
</tr>
<tr>
<td>50-to-68:</td>
<td>18%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Showrooming and webrooming are only two of the cross-channel shopping options used by today’s consumers. Among those who said they had searched using one channel and made a purchase through another channel, a survey by Cisco Internet Business Solutions Group (www.cisco.com/web/about/ac79) found these consumers had engaged in the following cross-channel shopping activities (percentage of respondents):

- PC-to-store: 57%
- Store-to-online: 38%
- Mobile-to-PC: 26%
- Kiosk-to-store (immediate in-store sale): 24%
- Mobile-to-store: 24%
- Kiosk-to-store (delivery to location of choice): 15%

In a survey by comScore conducted for UPS, consumers said their preferred method of access to multichannel retailers was as follows:

<table>
<thead>
<tr>
<th>Method</th>
<th>Researching Products</th>
<th>Purchasing Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online via desktop or laptop</td>
<td>61%</td>
<td>44%</td>
</tr>
<tr>
<td>In physical store</td>
<td>13%</td>
<td>41%</td>
</tr>
<tr>
<td>Online via tablet</td>
<td>11%</td>
<td>7%</td>
</tr>
<tr>
<td>Online via smartphone</td>
<td>10%</td>
<td>4%</td>
</tr>
<tr>
<td>With catalog, by phone, or email</td>
<td>4%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Gallup (www.gallup.com) found that use of a mobile device had increased retail store trips for 22% of consumers while decreasing store trips among 19%.

Deloitte (www.deloitte.com) reported that smartphone shoppers are 14% more likely than non-smartphone shoppers to convert in-store, even when those smartphone shoppers used a mobile app or site not belonging to the retailer. Seventy-two percent (72%) of shoppers who used their smartphone on their most recent in-store trip made a
purchase while in the store, compared with 63% of shoppers who did not use a smartphone to assist in making a purchase during their last in-store trip.

40.10  Buy Online, Pick Up In-Store

A March 2016 survey by King Retail Solutions (www.kingrs.com) found that 54% of online consumers have purchased products online, picked up in-store, and said they like the option. By demographic, the percentages are as follows:

**Gender**
- Female: 50%
- Male: 58%

**Generation**
- Baby Boomers: 41%
- Generation Xers: 57%
- Millennials: 63%

In a survey by Blackhawk Engagement Solutions (www.bhengagement.com), 86% of adults who shop online said they would consider purchasing online and picking up in-store to save $10 to $50 per item; 78% said they would do so to receive an item three days earlier.

Slice Intelligence (https://intelligence.slice.com) reported the percentage of total e-commerce sales for select retailers that were picked up in-store as follows:
- Sam’s Club: 30.2%
- Kmart: 22.6%
- Toys “R” Us: 15.0%
- Best Buy: 11.8%
- Home Depot: 9.0%
- Walmart: 8.4%
- Target: 6.6%
- Bloomingdales: 3.1%

40.11  Shopping On Social Sites

E-commerce transactions through storefronts on social media sites, dubbed social commerce, held great promise a few years ago with the rise in popularity of social networking. Consumers, however, have shown that they do not prefer to shop on social sites. The Harris Poll found that just 5% of U.S. adult Internet users had made a purchase on a social network such as Facebook, Twitter, or Pinterest.
“How many digital buyers in the U.S. actually take the final lead on a social platform? Not too many. Social media storefronts are now a relic.”

eMarketer

Most social network storefronts have now closed. According to 8th Bridge (www.8thbridge.com), 62% of retailers with Facebook apps had product browsing in 2012. Now, less than 15% do so.

40.12 Buying Direct From Brands
For some product categories, consumers prefer to bypass third-party retailers and buy online directly from brands.
In a survey by BrandShop (www.brandshop.com), digital buyers said they prefer to purchase the following types of products directly from the brand (percentage of respondents):
• Apparel: 57%
• Electronics: 56%
• Household and consumer goods: 38%
• Food products: 37%
• Beauty and skincare: 30%
ONLINE BUYING TRENDS

41.1 Overview
Since 2000, the Center for the Digital Future (www.digitalcenter.org) at the University of Southern California, Annenberg School for Communication has conducted the Digital Future Project. The assessment includes online consumer behavior. This chapter includes year-to-year data on various online buying behaviors assessed in 2016 Digital Future Project: Surveying The Digital Future.

41.2 Buying Online
The following percentage of adult Internet users purchased online:
- 2000: 45%
- 2001: 51%
- 2002: 40%
- 2003: 43%
- 2005: 46%
- 2006: 51%
- 2007: 67%
- 2008: 65%
- 2009: 65%
- 2010: 68%
- 2012: 76%
- 2013: 79%
- 2014: 78%
- 2015: 80%

41.3 Online Spending
Among adult Internet users that purchase online, spending in a typical month has been as follows:
- 2001: $ 70
- 2002: $101
- 2003: $ 95
- 2005: $113
- 2006: $121
- 2007: $ 66
• 2008: $ 85
• 2009: $ 88
• 2010: $ 73
• 2012: $ 91
• 2013: $106
• 2014: $115
• 2015: $109

### 41.4 Types Of Online Purchases

When asked what type of product and services were purchased using the Internet, responses were as follows (percentage of respondents):

#### Books
- 2002: 29%
- 2005: 33%
- 2006: 34%
- 2007: 58%
- 2008: 50%
- 2009: 59%
- 2010: 63%
- 2012: 66%
- 2013: 61%
- 2014: 52%
- 2015: 52%

#### CDs
- 2002: 15%
- 2005: 18%
- 2006: 17%
- 2007: 45%
- 2008: 42%
- 2009: 40%
- 2010: 41%
- 2012: 35%
- 2013: 30%
- 2014: 28%
- 2015: 27%

#### Children’s Goods/Toys
- 2013: 35%
- 2014: 35%
- 2015: 35%
Clothes
• 2002: 39%
• 2005: 49%
• 2006: 42%
• 2007: 57%
• 2008: 61%
• 2009: 59%
• 2010: 58%
• 2012: 68%
• 2013: 68%
• 2014: 65%
• 2015: 76%

Computers/Peripherals
• 2002: 10%
• 2005: 11%
• 2006: 11%
• 2007: 36%
• 2008: 43%
• 2009: 41%
• 2010: 44%
• 2012: 40%
• 2013: 38%
• 2014: 36%
• 2015: 39%

Electronic Goods/Appliances
• 2002: 14%
• 2005: 16%
• 2006: 11%
• 2007: 41%
• 2008: 47%
• 2009: 47%
• 2010: 50%
• 2012: 51%
• 2013: 54%
• 2014: 55%
• 2015: 57%

Gifts
• 2002: 10%
• 2005: 13%
• 2006: 12%
• 2007: 51%
• 2008: 61%
• 2009: 55%
• 2010: 63%
• 2012: 60%
• 2013: 54%
• 2014: 61%
• 2015: 67%

Products for Hobbies
• 2013: 41%
• 2014: 39%
• 2015: 44%

Software/Games
• 2002: 12%
• 2005: 12%
• 2006: 11%
• 2007: 41%
• 2008: 43%
• 2009: 40%
• 2010: 44%
• 2012: 37%
• 2013: 43%
• 2014: 36%
• 2015: 39%

Sporting Goods
• 2013: 31%
• 2014: 28%
• 2015: 30%

Travel Arrangements
• 2002: 15%
• 2005: 19%
• 2006: 17%
• 2007: 57%
• 2008: 57%
• 2009: 53%
• 2010: 57%
• 2012: 66%
• 2013: 58%
• 2014: 50%
• 2015: 54%
Videos/DVDs
• 2002: 6%
• 2005: 10%
• 2006: 13%
• 2007: 41%
• 2008: 48%
• 2009: 46%
• 2010: 47%
• 2012: 42%
• 2013: 43%
• 2014: 36%
• 2015: 37%

41.5 Market Drivers
When adults that shop online were asked what could lead to purchasing more online, responses were as follows (percentage of respondents):

Better Prices
• 2012: 58%
• 2013: 64%
• 2014: 67%
• 2015: 75%

Cheaper Shipping
• 2012: 61%
• 2013: 63%
• 2014: 64%
• 2015: 66%

Easy Returns
• 2012: 44%
• 2013: 49%
• 2014: 51%
• 2015: 53%

Fast Delivery
• 2012: 51%
• 2013: 63%
• 2014: 59%
• 2015: 64%

More Choices
• 2012: 29%
• 2013: 32%
• 2014: 28%
• 2015: 32%

More User Reviews
• 2012: 29%
• 2013: 31%
• 2014: 34%
• 2015: 34%

No Sales Tax
• 2012: 52%
• 2013: 61%
• 2014: 55%
• 2015: 62%

Product/Service Unavailable Elsewhere
• 2012: 38%
• 2013: 44%
• 2014: 39%
• 2015: 41%

Promotions/Coupons
• 2012: 45%
• 2013: 51%
• 2014: 55%
• 2015: 59%

41.6 Quality Concerns When Shopping Online
The following percentages of adults feel that it is difficult to judge product quality and the accuracy of product descriptions when shopping online:
• 2006: 49%
• 2007: 58%
• 2008: 54%
• 2009: 56%
• 2010: 52%
• 2012: 56%
• 2013: 52%
• 2014: 58%
• 2015: 55%
41.7 E-Commerce Privacy Concerns

Concern among adult Internet users about the security of credit card or bank card information when buying online has been as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Very/Extremely</th>
<th>Somewhat</th>
<th>Not At All</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>66%</td>
<td>29%</td>
<td>6%</td>
</tr>
<tr>
<td>2002</td>
<td>54%</td>
<td>35%</td>
<td>11%</td>
</tr>
<tr>
<td>2003</td>
<td>46%</td>
<td>43%</td>
<td>12%</td>
</tr>
<tr>
<td>2005</td>
<td>51%</td>
<td>39%</td>
<td>11%</td>
</tr>
<tr>
<td>2006</td>
<td>47%</td>
<td>40%</td>
<td>13%</td>
</tr>
<tr>
<td>2007</td>
<td>61%</td>
<td>34%</td>
<td>6%</td>
</tr>
<tr>
<td>2008</td>
<td>55%</td>
<td>38%</td>
<td>8%</td>
</tr>
<tr>
<td>2009</td>
<td>54%</td>
<td>39%</td>
<td>7%</td>
</tr>
<tr>
<td>2010</td>
<td>48%</td>
<td>44%</td>
<td>8%</td>
</tr>
<tr>
<td>2012</td>
<td>48%</td>
<td>43%</td>
<td>9%</td>
</tr>
<tr>
<td>2013</td>
<td>52%</td>
<td>42%</td>
<td>7%</td>
</tr>
<tr>
<td>2014</td>
<td>55%</td>
<td>37%</td>
<td>8%</td>
</tr>
<tr>
<td>2015</td>
<td>54%</td>
<td>39%</td>
<td>6%</td>
</tr>
</tbody>
</table>

41.8 E-Commerce Security Concerns

Concern among adult Internet users about the security of credit card or bank card information when buying online has been as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Very/Extremely</th>
<th>Somewhat</th>
<th>Not At All</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>71%</td>
<td>23%</td>
<td>6%</td>
</tr>
<tr>
<td>2002</td>
<td>63%</td>
<td>29%</td>
<td>8%</td>
</tr>
<tr>
<td>2003</td>
<td>54%</td>
<td>39%</td>
<td>7%</td>
</tr>
<tr>
<td>2005</td>
<td>57%</td>
<td>35%</td>
<td>7%</td>
</tr>
<tr>
<td>2006</td>
<td>53%</td>
<td>40%</td>
<td>6%</td>
</tr>
<tr>
<td>2007</td>
<td>57%</td>
<td>37%</td>
<td>6%</td>
</tr>
<tr>
<td>2008</td>
<td>52%</td>
<td>41%</td>
<td>8%</td>
</tr>
<tr>
<td>2009</td>
<td>50%</td>
<td>41%</td>
<td>9%</td>
</tr>
<tr>
<td>2010</td>
<td>45%</td>
<td>44%</td>
<td>11%</td>
</tr>
<tr>
<td>2012</td>
<td>44%</td>
<td>45%</td>
<td>11%</td>
</tr>
<tr>
<td>2013</td>
<td>47%</td>
<td>44%</td>
<td>9%</td>
</tr>
<tr>
<td>2014</td>
<td>52%</td>
<td>39%</td>
<td>9%</td>
</tr>
<tr>
<td>2015</td>
<td>51%</td>
<td>43%</td>
<td>6%</td>
</tr>
</tbody>
</table>

41.9 Buying Online Vs. Traditional Retail Stores

When those who shopped online were asked if buying online affected purchasing in traditional retail stores, responses were as follows (percentage of respondents):

<table>
<thead>
<tr>
<th>Not Reduced</th>
<th>Somewhat</th>
<th>Reduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>At All</td>
<td>Reduced</td>
<td>A Lot</td>
</tr>
</tbody>
</table>

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019

- 260 -
The following percentages of adults that shop online said that loyalty to local stores affected online purchases:

- 2012: 22%
- 2013: 20%
- 2014: 29%
- 2015: 29%

### 41.10 Cross-Channel Shopping

“Showrooming” is the practice where customers go to a bricks-and-mortar retail location, make a decision on what item to buy and, instead of heading to the check-out aisle, use a mobile device to find a better price online where they ultimately make their purchase. “Webrooming” occurs when consumers buy in a store after researching a purchase online.

Internet users who buy online report showrooming as follows (percentage of respondents):

<table>
<thead>
<tr>
<th>Year</th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>47%</td>
<td>47%</td>
<td>6%</td>
</tr>
<tr>
<td>2001</td>
<td>50%</td>
<td>43%</td>
<td>7%</td>
</tr>
<tr>
<td>2002</td>
<td>35%</td>
<td>55%</td>
<td>10%</td>
</tr>
<tr>
<td>2003</td>
<td>31%</td>
<td>61%</td>
<td>9%</td>
</tr>
<tr>
<td>2005</td>
<td>26%</td>
<td>62%</td>
<td>12%</td>
</tr>
<tr>
<td>2006</td>
<td>30%</td>
<td>59%</td>
<td>11%</td>
</tr>
<tr>
<td>2007</td>
<td>29%</td>
<td>65%</td>
<td>6%</td>
</tr>
<tr>
<td>2008</td>
<td>25%</td>
<td>67%</td>
<td>8%</td>
</tr>
<tr>
<td>2009</td>
<td>25%</td>
<td>67%</td>
<td>8%</td>
</tr>
<tr>
<td>2010</td>
<td>22%</td>
<td>69%</td>
<td>8%</td>
</tr>
<tr>
<td>2012</td>
<td>27%</td>
<td>67%</td>
<td>7%</td>
</tr>
<tr>
<td>2013</td>
<td>23%</td>
<td>67%</td>
<td>10%</td>
</tr>
</tbody>
</table>
• 2014: 33%  60%  7%
• 2015: 35%  56%  9%

Internet users who buy online report webrooming as follows (percentage of respondents):
• 2005: 12%  70%  18%
• 2006: 17%  67%  17%
• 2007: 9%   76%  15%
• 2008: 8%   76%  16%
• 2009: 9%   74%  17%
• 2010: 9%   75%  16%
• 2012: 10%  75%  16%
• 2013: 12%  72%  16%
• 2014: 9%   75%  16%
• 2015: 13%  71%  16%

### 41.11 Market Resources


Center for the Digital Future, University of Southern California, Annenberg School for Communication, 300 S. Grand Avenue, Suite 3950, Los Angeles, CA 90071. (213) 437-4433. (www.digitalcenter.org)
MOBILE COMMERCE

42.1 Overview

The use of a smartphone or tablet to assist in shopping, or even to make a purchase, continues to increase in popularity. Product research, price comparisons, and mobile coupon redemption are the most common uses of mobile devices by shoppers. Many smartphone users also have used their device to make a purchase, an activity typically referred to as ‘mobile commerce’ or ‘m-commerce.’

eMarketer (www.emarketer.com) assesses the percentages of mobile buyers as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Smartphone</th>
<th>Tablet</th>
<th>Total Mobile</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>51.9%</td>
<td>79.1%</td>
<td>69.7%</td>
</tr>
<tr>
<td>2015</td>
<td>52.4%</td>
<td>80.9%</td>
<td>71.2%</td>
</tr>
<tr>
<td>2016</td>
<td>53.0%</td>
<td>85.1%</td>
<td>73.9%</td>
</tr>
<tr>
<td>2017</td>
<td>53.5%</td>
<td>86.8%</td>
<td>75.7%</td>
</tr>
<tr>
<td>2018</td>
<td>53.7%</td>
<td>88.1%</td>
<td>76.0%</td>
</tr>
<tr>
<td>2019</td>
<td>53.9%</td>
<td>88.3%</td>
<td>76.2%</td>
</tr>
</tbody>
</table>

The number of smartphone buyers and percentage of total digital buyers is assessed as follows (source: eMarketer):

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
<th>Pct. of Digital Buyers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014:</td>
<td>67.2 million</td>
<td>40.8%</td>
</tr>
<tr>
<td>2015:</td>
<td>78.3 million</td>
<td>45.6%</td>
</tr>
<tr>
<td>2016:</td>
<td>87.8 million</td>
<td>49.1%</td>
</tr>
<tr>
<td>2017:</td>
<td>95.1 million</td>
<td>51.2%</td>
</tr>
<tr>
<td>2018:</td>
<td>100.7 million</td>
<td>52.6%</td>
</tr>
<tr>
<td>2019:</td>
<td>105.6 million</td>
<td>54.1%</td>
</tr>
</tbody>
</table>

comScore (www.comscore.com) reported that mobile accounts for 40% of time spent by consumers engaged in digital retail activities but only 13% of spending.

A 2016 survey of mobile device users by AdColony (www.adcolony.com) found use of mobile devices while shopping in-store as follows:

- Research competitor prices: 47%
- Look up product reviews: 36%
- Sign up to receive in-store promotions/discounts: 30%
- Take pictures for future reference: 28%
42.2 Market Assessment

According to eMarketer, spending via mobile devices has been, and is projected, as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales</th>
<th>Pct. of E-commerce Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>$24.78 billion</td>
<td>11%</td>
</tr>
<tr>
<td>2013</td>
<td>$42.13 billion</td>
<td>16%</td>
</tr>
<tr>
<td>2014</td>
<td>$56.67 billion</td>
<td>19%</td>
</tr>
<tr>
<td>2015</td>
<td>$88.53 billion</td>
<td>26%</td>
</tr>
<tr>
<td>2016</td>
<td>$123.13 billion</td>
<td>32%</td>
</tr>
<tr>
<td>2017</td>
<td>$151.11 billion</td>
<td>35%</td>
</tr>
<tr>
<td>2018</td>
<td>$178.27 billion</td>
<td>37%</td>
</tr>
<tr>
<td>2019</td>
<td>$208.58 billion</td>
<td>39%</td>
</tr>
<tr>
<td>2020</td>
<td>$242.08 billion</td>
<td>41%</td>
</tr>
</tbody>
</table>

The bulk of m-commerce spending is via tablets, which consumers tend to use more like a desktop than a phone. eMarketer assesses the percentage of total m-commerce sales that are via tablet as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>62.3%</td>
</tr>
<tr>
<td>2015</td>
<td>53.8%</td>
</tr>
<tr>
<td>2016</td>
<td>50.6%</td>
</tr>
<tr>
<td>2017</td>
<td>48.7%</td>
</tr>
<tr>
<td>2018</td>
<td>47.3%</td>
</tr>
<tr>
<td>2019</td>
<td>46.4%</td>
</tr>
<tr>
<td>2020</td>
<td>45.5%</td>
</tr>
</tbody>
</table>

“Mobile commerce had a breakthrough year in 2015. Smartphone retail m-commerce sales in the U.S. nearly doubled, driven by larger screens, smoother buying experiences, better mobile search and context-driven discovery. The same trend should continue throughout 2016. By 2020, smartphones will capture $129.44 billion of all retail m-commerce outlays in the U.S., a growth rate of 18.3%.”

eMarketer, 5/4/16
42.3 Use Of Mobile Devices For Online Purchases

According to The Harris Poll (www.theharrispoll.com), the following percentages of adults have made select online purchases via cellphone or tablet (for comparison, using a laptop or desktop):

<table>
<thead>
<tr>
<th>Category</th>
<th>Laptop/Desktop</th>
<th>Smartphone</th>
<th>Tablet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothing</td>
<td>65%</td>
<td>6%</td>
<td>10%</td>
</tr>
<tr>
<td>Digital content (movies, music, e-books)</td>
<td>48%</td>
<td>12%</td>
<td>17%</td>
</tr>
<tr>
<td>Shoes and accessories</td>
<td>49%</td>
<td>5%</td>
<td>9%</td>
</tr>
<tr>
<td>Personal electronics</td>
<td>43%</td>
<td>5%</td>
<td>7%</td>
</tr>
<tr>
<td>Household electronics</td>
<td>38%</td>
<td>4%</td>
<td>5%</td>
</tr>
<tr>
<td>Cosmetics and personal grooming</td>
<td>31%</td>
<td>4%</td>
<td>5%</td>
</tr>
<tr>
<td>Prescription medications</td>
<td>21%</td>
<td>3%</td>
<td>4%</td>
</tr>
<tr>
<td>Specialty food and beverages</td>
<td>23%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>O-T-C medications</td>
<td>15%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Groceries</td>
<td>12%</td>
<td>2%</td>
<td>2%</td>
</tr>
</tbody>
</table>

42.4 Customer Service For Mobile Shoppers

In a survey by Contact Solutions (www.contactsolutions.com), 75% of mobile shoppers said access to customer care impacts their shopping experience.

Fifty-five percent (55%) of survey respondents report that they struggle at least 20% of the time when using a mobile app to shop. Forty-three percent (43%) say they have come to expect no customer service at all from mobile apps.

Mobile shoppers respond to shopping difficulties via an app as follows (percentage of respondents):

- Close app and abandon cart: 51.3%
- Go to web using desktop or laptop: 36.9%
- Go to store and shop: 11.5%
- Call customer service: 8.2%

Ninety-five percent (95%) say that a great customer experience will make them more likely to do business again with a retailer.

Ninety-two percent (92%) of shoppers say it would be helpful to have customer care automatically provided within an app to help complete a task.

42.5 In-Store Mobile

A study by the Consumer Technology Association (www.cta.tech) found that 58% of shoppers prefer to look up information on their mobile devices while shopping in stores, rather than talk to a salesperson. Shoppers ages 25-to-44 and men were most likely to prefer to access their device for product information. Nearly two-thirds felt that...
the information they gather on their mobile devices is more helpful than in-store information from product displays or sales literature.

By product category, mobile shopper use of devices for assistance when shopping is as follows:

- Electronics: 60%
- Groceries: 55%
- Apparel: 47%
- Shoes: 45%
- Health and beauty products: 39%

“One thing is clear: Consumers still value customer service, but the way they want it delivered is changing with their consumption habits. As the retail path to purchase changes – mobile is now a significant part of the process, especially for researching on the go and even in-store – so do consumers’ preferences for how retailers connect with them.”

eMarketer
KEY PLAYERS

43.1 Largest Online Retailers

The annual Top 500 Guide®, published since 2003 by Internet Retailer, ranks and profiles the 500 largest e-retailers in the United States. Top 500 Guide 2017 reported sales in 2016 for the Top 500 e-retailers were $333.24 billion, or 84.4% of total U.S. e-commerce.

The following are the Top 10 e-retailers:

1. Amazon.com: Mass merchant
2. Apple: Computers/electronics
3. Staples: Office supplies
4. Walmart.com: Mass merchant
5. Sears Holdings Corp.: Mass merchant
6. Liberty Interactive Corp.: Mass merchant
7. Netflix: Books/music/videos
8. Macy’s: Mass merchant
9. Office Depot: Office supplies
10. Dell: Computers/electronics

Listed alphabetically, the Top 500 e-retailers are as follows:

• 1 Sale A Day: Specialty/non-apparel
• 1800Mattress.com: Housewares/home furnishings
• 1-800 Contacts: Health/beauty
• 1-800-Flowers.com: Flowers/gifts
• 3balls.com: Sporting goods
• 47St. Photo: Computers/electronics
• A/X Armani Exchange: Apparel/accessories
• Abercrombie & Fitch Co.: Apparel/accessories
• Abt Electronics: Computers/electronics
• AC Lens: Health/beauty
• Action Village: Sporting goods
• adidas America: Apparel/accessories
• Advance Auto Parts: Automotive parts/accessories
• AED Superstore: Health/beauty
• Aéropostale: Apparel/accessories
• Air & Water: Hardware/home improvement
• AirSplat.com: Toys/hobbies
• AJ Madison: Housewares/home furnishings
• ALDO Group: Apparel/accessories
• Alibris: Books/music/videos
• Alice.com: Specialty/non-apparel
• Allied Electronics: Office supplies
• Altrex.com: Sporting goods
• AMainHobbies.com: Toys/hobbies
• Amazon.com: Mass merchant
• American Apparel: Apparel/accessories
• American Eagle Outfitters: Apparel/accessories
• American Girl: Toys/hobbies
• American Greetings Corp.: Flowers/gifts
• American Musical Supply: Specialty/non-apparel
• AmeriMark Direct: Apparel/accessories
• AMI Clubwear: Health/beauty
• Amway: Specialty/non-apparel
• Ancestry.com: Apparel/accessories
• Ann Taylor: Computers/electronics
• Apple: Hardware/home improvement
• Appliance Zone: Mass merchant
• Army & Air Force Exchange: Housewares/home furnishings
• Art.com: Specialty/non-apparel
• Artbeads.com: Apparel/accessories
• Ascena Retail Group: Jewelry
• Ashford.com: Automotive parts/accessories
• AutoAnything: Automotive parts/accessories
• AutoZone: Health/beauty
• Avon: Apparel/accessories
• AZ3 dba BCBG Max Azria: Computers/electronics
• B&H Photo-Video-Pro Audio: Specialty/non-apparel
• BabyAge.com: Apparel/accessories
• BagBorroworSteal.com: Specialty/non-apparel
• Balsam Brands: Health/beauty
• Bare Escentuals: Apparel/accessories
• Bare Necessities: Books/music/videos
• BarnesandNoble.com: Apparel/accessories
• Barneys New York: Sporting goods
• Bass Pro Outdoor Online: Computers/electronics
• Batteries.com: Health/beauty
• Beachbody: Mass merchant
• Bealls: Flowers/gifts
• Beau-Coup Favors: Health/beauty
• Beauty Encounter:
• bebe Stores: Apparel/accessories
• Bed Bath & Beyond: Housewares/home furnishings
• Belk Ecommerce: Mass merchant
• Bellacor: Housewares/home furnishings
• Benchmark Brands: Apparel/accessories
• Best Buy Co.: Computers/electronics
• Better World Books: Books/music/videos
• Beyond the Rack: Apparel/accessories
• Biblio: Books/music/videos
• Bidz.com: Jewelry
• Big Fish Games: Toys/hobbies
• BikeBandit.com: Sporting goods
• BJ’s Wholesale Club: Mass merchant
• Blinds.com: Housewares/home furnishings
• BlissWorld: Health/beauty
• Blockbuster: Books/music/videos
• Blue Nile: Jewelry
• Bluefly: Apparel/accessories
• Bluestem Brands: Apparel/accessories
• Boden USA: Apparel/accessories
• Body Central Corp.: Apparel/accessories
• Books-A-Million: Books/music/videos
• Boot Barn: Apparel/accessories
• Boscov’s Department Store: Mass merchant
• Bose Corp.: Health/beauty
• Boston Green Goods: Computers/electronics
• BrickHouseSecurity.com: Computers/electronics
• Brooks Brothers: Apparel/accessories
• Brookstone: Housewares/home furnishings
• Build.com: Hardware/home improvement
• BuildASign.com: Specialty/non-apparel
• Burberry Ltd.: Apparel/accessories
• Burton: Sporting goods
• Buy.com: Mass merchant
• BuyAutoParts.com: Automotive parts/accessories
• BuyOnlineNow: Office supplies
• Cabela’s: Sporting goods
• CableOrganizer.com: Computers/electronics
• CafePress.com: Mass merchant
• Calendars.com: Specialty/non-apparel
• Callaway Golf Interactive: Sporting goods
• Calumet Photographic: Specialty/non-apparel
• Camping World: Sporting goods
• Carter’s: Apparel/accessories
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Product Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casual Male Retail Group</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>CD Listening Bar</td>
<td>Books/music/videos</td>
</tr>
<tr>
<td>CDW Corp.</td>
<td>Computers/electronics</td>
</tr>
<tr>
<td>CDWow.com Ltd.</td>
<td>Books/music/videos</td>
</tr>
<tr>
<td>Charlotte Russe Holding</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>Charming Shoppes</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>Chasing Fireflies</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>Cheaper Than Dirt</td>
<td>Sporting goods</td>
</tr>
<tr>
<td>Chefs Catalog</td>
<td>Housewares/home furnishings</td>
</tr>
<tr>
<td>Chegg</td>
<td>Books/music/videos</td>
</tr>
<tr>
<td>Chelsea &amp; Scott Ltd.</td>
<td>Specialty/non-apparel</td>
</tr>
<tr>
<td>Chico's FAS</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>Christian Book Distributors</td>
<td>Books/music/videos</td>
</tr>
<tr>
<td>Christopher &amp; Banks</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>Coach</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>Coastal Contacts</td>
<td>Health/beauty</td>
</tr>
<tr>
<td>CoffeeForLess.com</td>
<td>Food/drug</td>
</tr>
<tr>
<td>Coldwater Creek</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>Colony Brands</td>
<td>Food/drug</td>
</tr>
<tr>
<td>Columbia Sportswear Co.</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>Comp-U-Plus</td>
<td>Computers/electronics</td>
</tr>
<tr>
<td>Cooking.com</td>
<td>Housewares/home furnishings</td>
</tr>
<tr>
<td>Cost Plus</td>
<td>Housewares/home furnishings</td>
</tr>
<tr>
<td>Costco Wholesale Corp.</td>
<td>Mass merchant</td>
</tr>
<tr>
<td>Costume Craze</td>
<td>Specialty/non-apparel</td>
</tr>
<tr>
<td>CPA2Biz</td>
<td>Books/music/videos</td>
</tr>
<tr>
<td>CPO Commerce</td>
<td>Hardware/home improvement</td>
</tr>
<tr>
<td>Crate and Barrel</td>
<td>Housewares/home furnishings</td>
</tr>
<tr>
<td>Crocs</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>Crucial Technology</td>
<td>Computers/electronics</td>
</tr>
<tr>
<td>Crutchfield Corp.</td>
<td>Computers/electronics</td>
</tr>
<tr>
<td>Custom Ink</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>CVS Caremark Corp.</td>
<td>Food/drug</td>
</tr>
<tr>
<td>Cymax Stores</td>
<td>Housewares/home furnishings</td>
</tr>
<tr>
<td>Danskin.com</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>Databazaar.com</td>
<td>Office supplies</td>
</tr>
<tr>
<td>David’s Bridal</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>Deckers Outdoor Corp.</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>dELiA*s</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>Dell</td>
<td>Computers/electronics</td>
</tr>
<tr>
<td>Deluxe Corp.</td>
<td>Office supplies</td>
</tr>
<tr>
<td>Dermstore</td>
<td>Health/beauty</td>
</tr>
<tr>
<td>Destination Maternity Corp.</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>Diamond Nexus Labs</td>
<td>Jewelry</td>
</tr>
</tbody>
</table>
• Dick’s Sporting Goods: Sporting goods
• Dillard’s: Mass merchant
• Directron.com: Computers/electronics
• Discount Dance Supply: Apparel/accessories
• Discount Ramps.com: Automotive parts/accessories
• DiscountOfficeItems.com: Office supplies
• Disney: Specialty/non-apparel
• Dover Saddlery: Specialty/non-apparel
• DrillSpot.com: Hardware/home improvement
• DrJays.com: Apparel/accessories
• Drs. Foster and Smith: Specialty/non-apparel
• DSW: Apparel/accessories
• Eastern Mountain Sports: Sporting goods
• eBags: Apparel/accessories
• eCampus.com: Books/music/videos
• Eddie Bauer: Apparel/accessories
• Edible Arrangements: Food/drug
• eDiets.com: Food/drug
• eForCity Corp.: Computers/electronics
• eHobbies.com: Toys/hobbies
• Eileen Fisher: Apparel/accessories
• eMusic.com: Books/music/videos
• Entertainment Earth: Toys/hobbies
• Envelopes.com: Office supplies
• Everything Furniture: Housewares/home furnishings
• evo: Sporting goods
• Express: Apparel/accessories
• Fab.com: Housewares/home furnishings
• Fanatics: Apparel/accessories
• FansEdge: Apparel/accessories
• Fat Brain Toys: Toys/hobbies
• Fathead: Specialty/non-apparel
• Folica: Health/beauty
• Follett Higher Education Group: Books/music/videos
• Foot Locker: Apparel/accessories
• Forever 21: Apparel/accessories
• Fossil: Apparel/accessories
• FragranceNet.com: Health/beauty
• Franklin Covey Products: Office supplies
• Frederick’s of Hollywood: Apparel/accessories
• FreshDirect: Food/drug
• Frys.com: Computers/electronics
• FTD Group: Flowers/gifts
• Furniture.com: Housewares/home furnishings

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019

• 271 •
- Gaiam: Health/beauty
- GameFly: Toys/hobbies
- GameStop Corp.: Toys/hobbies
- Gander Direct: Sporting goods
- Gap Direct: Apparel/accessories
- Garmin Ltd.: Computers/electronics
- Geeks.com: Computers/electronics
- General Nutrition Centers: Health/beauty
- GiftTree.com: Flowers/gifts
- Gilt Groupe: Apparel/accessories
- GlassesUSA.com: Apparel/accessories
- Godiva Chocolatier: Food/drug
- Golden Eagle Coins: Toys/hobbies
- Golfsmith International Holdings: Sporting goods
- GourmetGiftBaskets.com: Flowers/gifts
- Green Mountain Coffee Roasters: Food/drug
- Guess?: Apparel/accessories
- Hallmark Cards: Flowers/gifts
- HamGo Corp.: Computers/electronics
- Hammacher Schlemmer & Co.: Specialty/non-apparel
- Hanna Andersson Corp.: Apparel/accessories
- Harry and David Holdings: Food/drug
- Hat World: Apparel/accessories
- Hayneedle: Mass merchant
- hhgregg Appliances: Computers/electronics
- Hickory Farms: Food/drug
- Highland Products Group: Specialty/non-apparel
- Hot Topic: Apparel/accessories
- HP Home & Home Office: Computers/electronics
- HRM USA: Health/beauty
- HSN: Apparel/accessories
- Hudson’s Bay: Apparel/accessories
- Hugo Boss: Jewelry
- Ice.com: Specialty/non-apparel
- ID Wholesaler: Apparel/accessories
- ideeli: Health/beauty
- iHerb: Housewares/home furnishings
- IKEA.com: Books/music/videos
- Indigo Books & Music: Books/music/videos
- iNetVideo.com: Specialty/non-apparel
- Instawares: Computers/electronics
- International Software Solutions Systems: Computers/electronics
- InterWorld Highway: Hardware/home improvement
• iStores: Sporting goods
• ivgStores: Housewares/home furnishings
• J. Crew Group: Apparel/accessories
• J&P Cycles: Automotive parts/accessories
• J&R Electronics: Computers/electronics
• Jackthreads.com: Apparel/accessories
• James Allen: Jewelry
• JCPenney Co.: Mass merchant
• Jeffers: Specialty/non-apparel
• Jenson USA: Sporting goods
• Jewelry Television: Jewelry
• JJBuckley.com: Food/drug
• Joann.com: Toys/hobbies
• Jockey international: Apparel/accessories
• Jomashop.com: Jewelry
• Jones Retail Corp.: Apparel/accessories
• Jos. A. Bank Clothiers: Apparel/accessories
• K&L Wine Merchants: Food/drug
• Karmaloop.com: Apparel/accessories
• Kenneth Cole Productions: Food/drug
• King Arthur Flour Co.: Mass merchant
• Kohl's Corp.: Apparel/accessories
• L.L. Bean: Apparel/accessories
• Lafayette 148 New York: Specialty/non-apparel
• Lakeshore Learning Materials: Housewares/home furnishings
• Lakeside Collection: Housewares/home furnishings
• Lamps Plus: Specialty/non-apparel
• Lancome-USA.com: Housewares/home furnishings
• LD Products: Office supplies
• LeapFrog Enterprises: Toys/hobbies
• LeatherUp.com: Apparel/accessories
• LEGO: Toys/hobbies
• Levenger Co.: Specialty/non-apparel
• Levi Strauss & Co.: Apparel/accessories
• Liberty Interactive Corp.: Mass merchant
• Lifetime Brands: Housewares/home furnishings
• LifeWay Christian Resources: Books/music/videos
• Limoges Jewelry: Jewelry
• Living Direct: Housewares/home furnishings
• Lowe’s Cos.: Hardware/home improvement
• Luggage Online: Specialty/non-apparel
• LuLuLemon Athletica: Apparel/accessories
• LumberLiquidators.com: Hardware/home improvement
• Luxottica Group s.p.A.: Apparel/accessories
• Macy’s: Mass merchant
• Marc Ecko Enterprises: Apparel/accessories
• Market America: Mass merchant
• Mattress USA: Housewares/home furnishings
• Meijer: Mass merchant
• Microsoft Corp.: Computers/electronics
• Miles Kimball Co.: Housewares/home furnishings
• MLB Advanced Media: Apparel/accessories
• ModCloth: Apparel/accessories
• Monkey Sports: Sporting goods
• Moosejaw Mountaineering: Sporting goods
• Motorcycle Superstore: Sporting goods
• Mountain Equipment Co-op: Sporting goods
• MovieMars.com: Books/music/videos
• Musician’s Friend: Specialty/non-apparel
• Musicnotes: Specialty/non-apparel
• MyJewelryBox.com: Jewelry
• Myotcstore.com: Health/beauty
• NASCAR.com Superstore: Apparel/accessories
• Nasty Gal: Apparel/accessories
• National Builder Supply: Hardware/home improvement
• National Business Furniture: Office supplies
• National Football League: Apparel/accessories
• National Geographic Society: Specialty/non-apparel
• National Hockey League: Apparel/accessories
• National Trade Supply: Hardware/home improvement
• NB Web Express: Apparel/accessories
• NBA Media Ventures: Apparel/accessories
• NBTY: Food/drug
• Nebraska Furniture Mart: Housewares/home furnishings
• Net-a-Porter: Apparel/accessories
• Net Direct Merchants: Hardware/home improvement
• Netflix: Books/music/videos
• New York & Co.: Apparel/accessories
• Newegg: Computers/electronics
• Nike: Apparel/accessories
• Nordstrom: Apparel/accessories
• Northern Tool + Equipment Co.: Hardware/home improvement
• Nutrisystem: Food/drug
• Office Depot: Office supplies
• OfficeMax: Office supplies
• OmahaSteaks.com: Food/drug
• One Kings Lane: Housewares/home furnishings
• OneCall.com: Computers/electronics
<table>
<thead>
<tr>
<th>Online Stores:</th>
<th>Mass merchant</th>
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<tbody>
<tr>
<td>Onlineshoes.com:</td>
<td>Apparel/accessories</td>
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<tr>
<td>OpticsPlanet:</td>
<td>Sporting goods</td>
</tr>
<tr>
<td>Orchard Brands Corp.:</td>
<td>Apparel/accessories</td>
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<tr>
<td>Oriental Trading Co.:</td>
<td>Specialty/non-apparel</td>
</tr>
<tr>
<td>OvernightPrints.com:</td>
<td>Office supplies</td>
</tr>
<tr>
<td>Overstock.com:</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>Ozbo.com:</td>
<td>Mass merchant</td>
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<tr>
<td>Pacific Sunwear of California:</td>
<td>Apparel/accessories</td>
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<tr>
<td>Panasonic Corp. of North America:</td>
<td>Computers/electronics</td>
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<tr>
<td>Parts Express:</td>
<td>Computers/electronics</td>
</tr>
<tr>
<td>Party City Corp.:</td>
<td>Specialty/non-apparel</td>
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<tr>
<td>Paul Fredrick:</td>
<td>Apparel/accessories</td>
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<tr>
<td>Payless ShoeSource:</td>
<td>Apparel/accessories</td>
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<tr>
<td>PC Connection:</td>
<td>Computers/electronics</td>
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<td>PC Mall:</td>
<td>Computers/electronics</td>
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<td>pcRUSH.com:</td>
<td>Computers/electronics</td>
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<td>Peapod:</td>
<td>Food/drug</td>
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<tr>
<td>Performance:</td>
<td>Sporting goods</td>
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<td>PersonalizationMall.com:</td>
<td>Apparel/accessories</td>
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<td>Peruvian Connection Ltd.:</td>
<td>Specialty/non-apparel</td>
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<tr>
<td>PETCO Animal Supplies:</td>
<td>Specialty/non-apparel</td>
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<tr>
<td>PetMed Express:</td>
<td>Specialty/non-apparel</td>
</tr>
<tr>
<td>PetSmart:</td>
<td>Apparel/accessories</td>
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<tr>
<td>Phat Fashions:</td>
<td>Computers/electronics</td>
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<tr>
<td>Philips Electronics N.V.:</td>
<td>Flowers/gifts</td>
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<tr>
<td>Potpourri Group:</td>
<td>Books/music/videos</td>
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<tr>
<td>Powell's Books:</td>
<td>Hardware/home improvement</td>
</tr>
<tr>
<td>Power Equipment Direct:</td>
<td>Office supplies</td>
</tr>
<tr>
<td>PrintingForLess.com:</td>
<td>Specialty/non-apparel</td>
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<tr>
<td>PropertyRoom.com:</td>
<td>Health/beauty</td>
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<tr>
<td>PureFormulas.com:</td>
<td>Computers/electronics</td>
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<tr>
<td>RadioShack Corp.:</td>
<td>Apparel/accessories</td>
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<tr>
<td>Ralph Lauren:</td>
<td>Sporting goods</td>
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<tr>
<td>Recreational Equipment Inc.:</td>
<td>Apparel/accessories</td>
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<tr>
<td>Redcats USA:</td>
<td>Apparel/accessories</td>
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<tr>
<td>Reitmans:</td>
<td>Apparel/accessories</td>
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<tr>
<td>Replacements Ltd.:</td>
<td>Housewares/home furnishings</td>
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<tr>
<td>ReStockIt.com:</td>
<td>Office supplies</td>
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<tr>
<td>Restoration Hardware:</td>
<td>Housewares/home furnishings</td>
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<tr>
<td>Road Runner Sports:</td>
<td>Apparel/accessories</td>
</tr>
<tr>
<td>Rock Bottom Golf:</td>
<td>Sporting goods</td>
</tr>
<tr>
<td>Rockler Woodworking and Hardware:</td>
<td>Hardware/home improvement</td>
</tr>
<tr>
<td>Rooms To Go:</td>
<td>Housewares/home furnishings</td>
</tr>
</tbody>
</table>
• Roots Canada Ltd.: Apparel/accessories
• Ross-Simons: Jewelry
• RoyalDiscount.com: Computers/electronics
• RueLaLa.com: Mass merchant
• Rugs Direct: Housewares/home furnishings
• Rugs USA: Housewares/home furnishings
• Safeway: Food/drug
• Saks Direct: Apparel/accessories
• Sally Beauty: Health/beauty
• Sam Ash Music Corp.: Specialty/non-apparel
• Scentiments.com: Health/beauty
• Scholastic: Books/music/videos
• School Specialty Online: Books/music/videos
• Sears Holdings Corp.: Mass merchant
• Select Comfort Corp.: Housewares/home furnishings
• Sephora USA: Health/beauty
• Sheet Music Plus: Specialty/non-apparel
• Sheplers: Apparel/accessories
• Shoebuy.com: Apparel/accessories
• ShoeDazzle.com: Apparel/accessories
• ShoeMall.com: Apparel/accessories
• Shoes.com, a subsidiary of Brown Shoe Co.: Apparel/accessories
• Shop PBS: Books/music/videos
• Shoplet: Office supplies
• ShopNBC.com: Mass merchant
• ShoppersChoice.com: Mass merchant
• Shutterfly: Specialty/non-apparel
• Sierra Trading Post: Apparel/accessories
• Signet Jewelers Ltd.: Jewelry
• Skechers USA: Apparel/accessories
• SkinCareRX: Health/beauty
• SkyMall: Mass merchant
• SmartPak Equine: Specialty/non-apparel
• SmartSign.com: Specialty/non-apparel
• SmoothFitness.com: Sporting goods
• Softchoice Corp.: Computers/electronics
• Softmart: Computers/electronics
• SolidSignal.com: Computers/electronics
• Sonic Electronix: Computers/electronics
• Sony Electronics: Computers/electronics
• Spanx: Apparel/accessories
• Spreadshirt: Apparel/accessories
• Stacks and Stacks: Housewares/home furnishings
• Staples: Office supplies
• Starbucks Corp.: Food/drug
• Stroll: Specialty/non-apparel
• Summit Sports: Sporting goods
• Sundance Catalog Co.: Apparel/accessories
• Super Warehouse Business Products: Computers/electronics
• SuperBiiz.com: Computers/electronics
• Sur La Table: Housewares/home furnishings
• Sweetwater.com: Specialty/non-apparel
• Symantec Corp.: Computers/electronics
• Systemax: Specialty/non-apparel
• TABcom: Mass merchant
• Team Express: Sporting goods
• Tech for Less: Computers/electronics
• Tempur-Pedic International: Housewares/home furnishings
• Textbooks.com: Books/music/videos
• The Buckle: Apparel/accessories
• The Bon-Ton Stores: Apparel/accessories
• The Children’s Place: Apparel/accessories
• The Container Store: Housewares/home furnishings
• The Discovery Channel Store: Specialty/non-apparel
• The Estée Lauder Cos.: Health/beauty
• The Finish Line: Apparel/accessories
• The Gymboree Corp.: Apparel/accessories
• The Home Depot: Hardware/home improvement
• The Limited: Apparel/accessories
• The Men’s Wearhouse: Apparel/accessories
• The Neiman Marcus Group: Apparel/accessories
• The Original Honey Baked Ham Co.: Food/drug
• The Orvis Co.: Apparel/accessories
• The Shopping Channel: Mass merchant
• The Sports Authority: Sporting goods
• The Talbots: Apparel/accessories
• The Vermont Teddy Bear Co.: Flowers/gifts
• The Wet Seal: Apparel/accessories
• The Yankee Candle Co.: Flowers/gifts
• Things Remembered: Flowers/gifts
• ThinkGeek: Mass merchant
• Thompson and Co. of Tampa: Housewares/home furnishings
• Threadless.com: Apparel/accessories
• Tiffany & Co.: Jewelry
• Tilly’s: Apparel/accessories
• Timberland: Apparel/accessories
• TimeLife.com: Books/music/videos
• Title 9 Sports: Apparel/accessories
• Tool King: Hardware/home improvement
• Toolfetch.com: Hardware/home improvement
• Toolup.com: Hardware/home improvement
• Tory Burch: Apparel/accessories
• Touch of Class: Housewares/home furnishings
• Toys "R" Us: Toys/hobbies
• Tractor Supply Co.: Hardware/home improvement
• TrollandToad.com: Toys/hobbies
• Tumi: Specialty/non-apparel
• Turn5: Automotive parts/accessories
• U.S. Auto Parts Network: Automotive parts/accessories
• U.S. Toy Co.: Toys/hobbies
• ULTA Salon, Cosmetics & Fragrance: Health/beauty
• UnbeatableSale.com: Mass merchant
• Under Armour: Apparel/accessories
• UniqueSquared.com: Computers/electronics
• Urban Outfitters: Apparel/accessories
• Vann’s: Apparel/accessories
• Vera Bradley: Apparel/accessories
• VF Corp.: Apparel/accessories
• Victoria’s Secret Direct/Bath and Body Works: Apparel/accessories
• Vintage Tub and Bath: Hardware/home improvement
• Vistaprint NV: Office supplies
• Vitacost.com: Health/beauty
• VitaminShoppe.com: Health/beauty
• W.W. Grainger: Hardware/home improvement
• Walgreen Co.: Food/drug
• Walmart.com: Mass merchant
• Wayfair: Housewares/home furnishings
• Weight Watchers: Food/drug
• West Marine Products: Specialty/non-apparel
• Williams-Sonoma: Housewares/home furnishings
• Wine.com: Food/drug
• Wolverine World Wide: Apparel/accessories
• World Wrestling Entertainment: Apparel/accessories
• XO Group: Specialty/non-apparel
• YesAsia Holdings Ltd.: Books/music/videos
• YOOX Group: Apparel/accessories
• Zale Corp.: Jewelry
• Zazzle: Specialty/non-apparel
• Zones: Office supplies
• ZooStores.com: Housewares/home furnishings
• Zumiez: Apparel/accessories
### 43.2 Consumers’ Favorite E-retailers

The National Retail Federation ([www.retail.org](http://www.retail.org)) compiles an annual ranking of consumers’ preferred e-commerce sites. The ranking is based on surveys by Prosper Insights and Analytics ([www.goprosper.com](http://www.goprosper.com)).

The most recent list, published in the June 2016 issue of *Stores*, is as follows:

<table>
<thead>
<tr>
<th>Rank</th>
<th>Site</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>Amazon.com</td>
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<td>2.</td>
<td>Walmart.com</td>
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<tr>
<td>3.</td>
<td>Kohls.com</td>
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<td>4.</td>
<td>eBay.com</td>
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<td>5.</td>
<td>BestBuy.com</td>
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<td>6.</td>
<td>Macys.com</td>
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<td>7.</td>
<td>Target.com</td>
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<td>8.</td>
<td>JCPenney.com</td>
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<td>9.</td>
<td>OldNavy.com</td>
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<td>10.</td>
<td>Sears.com</td>
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<td>11.</td>
<td>Google.com</td>
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<td>12.</td>
<td>LLBean.com</td>
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<td>13.</td>
<td>Kmart.com</td>
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<td>15.</td>
<td>Forever21.com</td>
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<td>16.</td>
<td>AE.com/American Eagle</td>
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<td>17.</td>
<td>Nike.com</td>
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<td>18.</td>
<td>HomeDepot.com</td>
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<td>19.</td>
<td>LandsEnd.com</td>
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<td>20.</td>
<td>Zulily.com</td>
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<td>21.</td>
<td>Costco.com</td>
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<td>22.</td>
<td>WomanWithin.com</td>
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<td>23.</td>
<td>Overstock.com</td>
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<td>24.</td>
<td>Wish.com</td>
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<td>25.</td>
<td>Gap.com</td>
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<td>26.</td>
<td>Wayfair.com</td>
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<td>27.</td>
<td>Lowes.com</td>
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<td>28.</td>
<td>BedBathandBeyond.com</td>
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<td>29.</td>
<td>QVC.com</td>
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<td>30.</td>
<td>Belk.com</td>
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<td>31.</td>
<td>Zappos.com</td>
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<td>32.</td>
<td>TJMaxx.com</td>
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<td>33.</td>
<td>Blair.com</td>
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<td>34.</td>
<td>BananaRepublic.com</td>
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<td>35.</td>
<td>HM.com</td>
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<td>36.</td>
<td>Express.com</td>
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<td>37.</td>
<td>Haband.com</td>
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<td>38.</td>
<td>RossStores.com</td>
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<tr>
<td>39.</td>
<td>LOFT.com</td>
</tr>
</tbody>
</table>
40. Roamans.com
41. HSN.com
42. REI.com
43. Groupon.com
44. LaneBryant.com
45. Chicos.com
46. J.Crew.com
47. HotTopic.com
48. Victoria's Secret.com
49. BurlingtonCoatFactory.com
50. Talbots.com
43.3 Market Resources
Internet Retailer, 125 S. Wacker Drive, Suite 2900, Chicago, IL 60606.
(312) 362-9527. (www.internetretailer.com)

National Retail Federation, 325 7th Street NW, Suite 1100, Washington, DC 20004.
(202) 783-7971. (www.nrf.com)

(www.digitalcommerce360.com/internet-retailer/)
PART V: THE SHARING ECONOMY
44

PEER-TO-PEER MARKET

44.1 Overview

The peer-to-peer marketplace – which goes by a host of monikers such as collaborative consumption, communal consumption, asset-light lifestyle, the peer economy, the gig economy, and the sharing economy – lets individuals rent unused assets or services to other individuals. The economic downturn was the impetus for growth of the concept.

_Time_ calls the sharing economy one of the 10 most important ideas that is changing the world.

There are numerous Internet-based services available to aggregate supply and demand.

The following are some examples of the sharing economy:

Automotive and Transportation
- RelayRides, Hitch, Uber, Lyft, Getaround, Sidecar

Hospitality and Dining
- CouchSurfing, Airbnb, Feastly, LeftoverSwap

Media and Entertainment
- Amazon Family Library, Wix, Spotify, SoundCloud, Earbits

Retail and Consumer Goods
- Neighborgoods, SnapGoods, Poshmark, Tradesy

People have always bartered and traded services, but the usability of this process is unprecedented thanks to the growing number of digital devices that make matching demand and supply easier than ever.

Sharing economy business models are hosted through digital platforms that enable a more precise, real-time measurement of spare capacity and the ability to dynamically connect that capacity with those who need it. Shared access can come in five forms, as follows:

- Lending
- Renting
- Reselling
- Subscribing
- Swapping

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019

• 283 •
“A variety of apps and online platforms are making it easier than ever for people to connect with customers who might like to hire them to do any number of jobs – from performing various types of online tasks to driving for ride-hailing services or cleaning someone’s home. These platforms also allow users to earn money in a range of other ways, such as sharing their possessions with others or selling their used goods or personal creations.”

Pew Research Center, 11/17/16

44.2 Market Assessment
The Current And Future State Of The Sharing Economy, a December 2016 report by The Brookings Institution (www.brookings.edu), forecast the sharing economy will grow from $14 billion in 2014 to $335 billion by 2025. This estimate is based on the rapid growth of Uber and Airbnb.

44.3 Characteristics Of The Sharing Economy
Arun Sundararajan, Ph.D., Professor at New York University’s Stern School of Business and author of The Sharing Economy (MIT Press, 2016), defines the sharing economy as an economic system with the following five characteristics:

Largely market-based
• The sharing economy creates markets that enable the exchange of goods and the emergence of new services, resulting in potentially higher levels of economic activity.

High-impact capital
• The sharing economy opens new opportunities for everything, from assets and skills to time and money, to be used at levels closer to their full capacity.

Crowd-based “networks” rather than centralized institutions or “hierarchies”
• The supply of capital and labor comes from decentralized crowds of individuals
rather than corporate or state aggregates; future exchange may be mediated by distributed crowd-based marketplaces rather than by centralized third parties.

**Blurring lines between the personal and the professional services**

- The supply of labor and services often commercializes and scales peer-to-peer activities like giving someone a ride or lending someone money, activities which used to be considered "personal."

**Blurring lines between fully employed and casual labor, between independent and dependent employment, and between work and leisure**

- Many traditional full-time jobs are supplanted by contract work that features a continuum of levels of time commitment, granularity, economic dependence, and entrepreneurshp.

According to Prof. Sundararajan, the largest question for academics is whether the sharing economy simply replaces existing businesses or creates new value. People have purchased residential properties and automobiles solely to rent them out, for example, indicating the concept has an extended impact.

### 44.4 Benefits Of The Sharing Economy

*According to The Sharing Economy, an April 2016 report by Pricewaterhouse-Coopers (www.pwc.com), among adults who have participated in or are familiar with the sharing economy, perceived benefits are as follows:*

- It is based on trust between providers and users: 89%
- It makes life more affordable: 86%
- It makes life more convenient and efficient: 83%
- It is less expensive to share goods than to own them individually: 81%
- It builds a stronger community: 78%
- It is better for the environment: 76%
- It is more fun than engaging with conventional businesses: 63%
- Access is the new ownership: 57%
- Owning feels like a burden: 43%
“A new wave of peer-to-peer, access-driven businesses is shaking up established categories. Whether borrowing goods, renting homes, or serving up micro-skills in exchange for access or money, consumers are showing a robust appetite for the sharing-based economy.”

PricewaterhouseCoopers

According to *Gig Work, Online Selling, And Home Sharing*, a November 2016 report by Pew Research Center, benefits of Internet-enabled gig work are as follows (percentage of respondents):

- Are great for people who want flexible work schedules: 68%
- Are good for older people who don’t work full-time: 54%
- Are good entry-level jobs for those entering the workforce: 37%

The following are some concerns:

- The sharing economy experience is not consistent: 72%
- Do not trust sharing economy companies until they are recommended by a trusted friend: 69%
- Peer regulation is more important than government regulation in the sharing economy: 64%
PARTICIPATION IN THE GIG ECONOMY

45.1 Providers

According to *Gig Work, Online Selling, And Home Sharing*, by Pew Research Center, 24% of U.S. adults earned money in the digital commerce, or “gig” economy in 2016. Activities were as follows:

- Selling goods online (such as eBay): 18%
- Selling services/labor through a digital platform (such as Uber): 8%
- Renting out property on a home-sharing site (such as Airbnb): 1%

Among those earning money by selling goods online, types of goods sold were as follows (percentage of U.S. adults):

- Used/second-hand goods: 14%
- Handmade items: 2%
- Consumer goods: 2%
- Other: 3%

Types of services sold among those earning money in the online gig economy were as follows (percentage of U.S. adults):

- Online tasks (surveys, data entry, etc.): 5%
- Ride hailing: 2%
- Shopping/delivery: 1%
- Cleaning/laundry: 1%
- Other: 2%

Demographics of adults who sell online or provide gig services are as follows (percentage of U.S. adults):

<table>
<thead>
<tr>
<th>Age</th>
<th>Sell Online</th>
<th>Provide Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-to-29:</td>
<td>23%</td>
<td>16%</td>
</tr>
<tr>
<td>30-to-49:</td>
<td>27%</td>
<td>10%</td>
</tr>
<tr>
<td>50-to-64:</td>
<td>12%</td>
<td>4%</td>
</tr>
<tr>
<td>65 and older:</td>
<td>7%</td>
<td>2%</td>
</tr>
</tbody>
</table>

| Race/Ethnicity | Sell Online | Provide Services |
|               | 11%         | 14%              |
| Black:         | 16%         | 11%              |
| White:         | 20%         | 5%               |
Income
• Less than $30,000: 13% 10%
• $30,000 to $75,000: 22% 8%
• More than $75,000: 22% 4%

Education
• High school: 12% 9%
• Some college: 21% 9%
• College graduate: 24% 6%

“There are pronounced differences between Americans who earn money from labor platforms where users contribute their time and effort, versus those who earn money from capital platforms where they contribute their goods or possessions.”

Pew Research Group, 11/17/16

Among adults who provide gig services, income is important or essential for 56%; 42% say that the income is nice but not essential. The following is a comparison of the two groups:

<table>
<thead>
<tr>
<th>Important/Essential</th>
<th>Nice/Not Essential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed full-time:</td>
<td>36% 57%</td>
</tr>
<tr>
<td>HH Income &lt;$30,000:</td>
<td>57% 36%</td>
</tr>
<tr>
<td>Types of work</td>
<td></td>
</tr>
<tr>
<td>- Online tasks:</td>
<td>49% 69%</td>
</tr>
<tr>
<td>- Ride hailing:</td>
<td>32% 13%</td>
</tr>
<tr>
<td>- Cleaning/laundry:</td>
<td>25% 10%</td>
</tr>
<tr>
<td>Motivations</td>
<td></td>
</tr>
<tr>
<td>- Need to control schedule:</td>
<td>45% 11%</td>
</tr>
<tr>
<td>- Enjoyment/something to do:</td>
<td>28% 62%</td>
</tr>
<tr>
<td>- Other jobs are scarce:</td>
<td>25% 12%</td>
</tr>
<tr>
<td>- To gain work experience:</td>
<td>24% 12%</td>
</tr>
</tbody>
</table>

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
• 288 •
45.2 Users

According to *The New Digital Economy*, a 2016 report by Pew Research Center, 74% of adults have used some type of shared or on-demand online service. Types of services used and products purchased are as follows (percentage of U.S. adults):

- Purchased used or second-hand goods online: 50%
- Used programs offering same-day or expedited delivery: 41%
- Purchased tickets from an online reseller: 28%
- Purchased handmade or artisanal products online: 22%
- Contributed to online funding project: 22%
- Used ride-hailing apps: 15%
- Used online home sharing services: 11%
- Ordered delivery of groceries online from local store: 6%
- Hired someone online for task/labor services: 4%

Services used by consumers are as follows (percentage of U.S. adults):

- None: 28%
- One: 20%
- Two: 18%
- Three: 14%
- Four: 9%
- Five: 6%
- Six or more: 7%

The following are demographic profiles for users of peer-to-peer services, selling, and sharing:

<table>
<thead>
<tr>
<th>Gender</th>
<th>Ride-Hailing</th>
<th>Home-Sharing</th>
<th>Crowdsourced Fund Raising</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>16%</td>
<td>10%</td>
<td>19%</td>
</tr>
<tr>
<td>Female</td>
<td>14%</td>
<td>13%</td>
<td>24%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Ride-Hailing</th>
<th>Home-Sharing</th>
<th>Crowdsourced Fund Raising</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>14%</td>
<td>13%</td>
<td>24%</td>
</tr>
<tr>
<td>Latino</td>
<td>15%</td>
<td>5%</td>
<td>19%</td>
</tr>
<tr>
<td>White</td>
<td>18%</td>
<td>9%</td>
<td>16%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Ride-Hailing</th>
<th>Home-Sharing</th>
<th>Crowdsourced Fund Raising</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-to-29</td>
<td>28%</td>
<td>11%</td>
<td>30%</td>
</tr>
<tr>
<td>30-to-49</td>
<td>19%</td>
<td>15%</td>
<td>27%</td>
</tr>
<tr>
<td>50-to-64</td>
<td>8%</td>
<td>10%</td>
<td>18%</td>
</tr>
<tr>
<td>65 and older</td>
<td>4%</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>Used Items Purchased Online</td>
<td>Speedy Delivery Programs</td>
<td>Online Ticket Resellers</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------------</td>
<td>--------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>52%</td>
<td>43%</td>
<td>31%</td>
</tr>
<tr>
<td>Female</td>
<td>48%</td>
<td>39%</td>
<td>26%</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>53%</td>
<td>41%</td>
<td>31%</td>
</tr>
<tr>
<td>Latino</td>
<td>36%</td>
<td>33%</td>
<td>19%</td>
</tr>
<tr>
<td>White</td>
<td>48%</td>
<td>39%</td>
<td>24%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-to-29</td>
<td>64%</td>
<td>56%</td>
<td>38%</td>
</tr>
<tr>
<td>30-to-49</td>
<td>62%</td>
<td>51%</td>
<td>36%</td>
</tr>
<tr>
<td>50-to-64</td>
<td>42%</td>
<td>30%</td>
<td>23%</td>
</tr>
<tr>
<td>65 and older</td>
<td>23%</td>
<td>20%</td>
<td>11%</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td>37%</td>
<td>26%</td>
<td>15%</td>
</tr>
<tr>
<td>Some college</td>
<td>57%</td>
<td>45%</td>
<td>32%</td>
</tr>
<tr>
<td>College graduate</td>
<td>61%</td>
<td>57%</td>
<td>44%</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $30,000</td>
<td>36%</td>
<td>31%</td>
<td>17%</td>
</tr>
<tr>
<td>$30,000 to $75,000</td>
<td>56%</td>
<td>39%</td>
<td>28%</td>
</tr>
<tr>
<td>More than $75,000</td>
<td>61%</td>
<td>55%</td>
<td>44%</td>
</tr>
<tr>
<td>Community</td>
<td>Handmade Goods Purchased Online</td>
<td>Groceries Ordered Online</td>
<td>Tasks/Labor Services Hired Online</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------------------------------</td>
<td>--------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Urban:</td>
<td>51%</td>
<td>43%</td>
<td>29%</td>
</tr>
<tr>
<td>Suburban:</td>
<td>50%</td>
<td>41%</td>
<td>31%</td>
</tr>
<tr>
<td>Rural:</td>
<td>46%</td>
<td>34%</td>
<td>20%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Handmade Goods Purchased Online</th>
<th>Groceries Ordered Online</th>
<th>Tasks/Labor Services Hired Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male:</td>
<td>15%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Female:</td>
<td>29%</td>
<td>6%</td>
<td>4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Handmade Goods Purchased Online</th>
<th>Groceries Ordered Online</th>
<th>Tasks/Labor Services Hired Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black:</td>
<td>25%</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Latino:</td>
<td>10%</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>White:</td>
<td>20%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Handmade Goods Purchased Online</th>
<th>Groceries Ordered Online</th>
<th>Tasks/Labor Services Hired Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-to-29:</td>
<td>34%</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td>30-to-49:</td>
<td>28%</td>
<td>7%</td>
<td>6%</td>
</tr>
<tr>
<td>50-to-64:</td>
<td>15%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>65 and older:</td>
<td>7%</td>
<td>2%</td>
<td>2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>Handmade Goods Purchased Online</th>
<th>Groceries Ordered Online</th>
<th>Tasks/Labor Services Hired Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school:</td>
<td>11%</td>
<td>3%</td>
<td>4%</td>
</tr>
<tr>
<td>Some college:</td>
<td>25%</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>College graduate:</td>
<td>34%</td>
<td>8%</td>
<td>5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Income</th>
<th>Handmade Goods Purchased Online</th>
<th>Groceries Ordered Online</th>
<th>Tasks/Labor Services Hired Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $30,000:</td>
<td>14%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>$30,000 to $75,000:</td>
<td>23%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>More than $75,000:</td>
<td>33%</td>
<td>9%</td>
<td>4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community</th>
<th>Handmade Goods Purchased Online</th>
<th>Groceries Ordered Online</th>
<th>Tasks/Labor Services Hired Online</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban:</td>
<td>24%</td>
<td>7%</td>
<td>5%</td>
</tr>
<tr>
<td>Suburban:</td>
<td>23%</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Rural:</td>
<td>17%</td>
<td>2%</td>
<td>3%</td>
</tr>
</tbody>
</table>
46.1 Overview
Peer-to-peer services companies are rarely the actual service provider; instead, they act as facilitator, making transactions easy and secure for both the provider and the user. They break down the barriers that otherwise exist to starting a business or having a side job for many people and make it easy and lucrative to participate in the collaborative economy.

The peer-to-peer sharing economy includes such offerings as accommodations, ride-sharing, tool rental, parking spaces, checken rental, and more.

The most popular categories of peer-to-peer services are assessed in this chapter, as follows:
• Accommodations
• Car-Sharing services
• Crowdfunding
• Fashion rental and sales
• Freelance services
• Lending
• Ride-hailing
• Secondary ticket resale
• Sharing resources

46.2 Accommodations
Individuals offer accommodations ranging from furnished houses to spare bedrooms to couches for travelers.

Phocuswright (www.phocuswright.com) assesses the U.S. private accommodations market as follows:
• 2012: $22.9 billion
• 2013: $24.2 billion
• 2014: $25.8 billion
• 2015: $28.4 billion
• 2016: $32.0 billion
• 2017: $34.5 billion
• 2018: $36.6 billion
Airbnb, the largest peer-to-peer accommodations rental service, reported that 80 million people booked stays in 2016, double the number in the previous year. Revenues have been as follows:

- 2015: $900 million
- 2016: $1.7 billion
- 2017: $2.8 billion

According to Airdna (www.airdna.co), there are 550,000 Airbnb listings in the U.S. California and New York lead all states with 125,800 and 95,000 listings, respectively. Inside Airbnb (www.insideairbnb.com), an independent data-tracking website, estimated the number of hosts in New York City alone in April 2017 at 36,888.

“Airbnb, the short-term home rental service that began operations eight years ago, is now valued at $31 billion. The annual median earnings for a host are $5,468. The so-called sharing economy of Airbnb has nothing to do with actual sharing, as in a traditional house swap in which money is not exchanged. Travelers pay hosts for accommodation, and Airbnb matches supply with demand, collecting fees from both guests and hosts that range from 3% to 12% on every booking.”

The New York Times, 4/7/17

Home sharing is an important source of income for many older Americans. The typical U.S. Airbnb host aged 65 and older earns an extra $8,350 a year, equal to a 52% increase over typical Social Security income. Fifty-eight percent (58%) of older hosts report that Airbnb has helped them stay in their homes.

As of August 2017, VRBO and its parent company, HomeAway, listed over 2 million rentals worldwide. HomeAway was acquired by Expedia in 2015 for $3.9 billion. Other services include 9flats, Bed and Fed, Couchsurfing, Dwellable, Mr. B&B, Home Exchange, Noirbnb, OneFineStay, and Roomorama.
“What Airbnb has popularized – the peer-to-peer rental of apartments, homes and spare bedrooms – the market has embellished with a roster of new and growing services that offer home sharing. In a sign of a maturing market, these alternatives to Airbnb often carve potential users into niches, targeting, for example, interior design fans or gay travelers.”

_The New York Times, 3/13/17_

### 46.3 Car-Sharing Services

*Forbes* estimates that roughly 50,000 of the tens of millions of cars idling in America’s driveways are available through car-sharing services. Among providers serving this market are DriveMyCar Rentals, Getaround, RelayRides, Tamyca, Turo, and WhipCar.

The business model is similar to Airbnb’s: Car owners post their vehicles on a website, and users, after their driver’s licenses are verified, ask to rent them. The sites take a cut of each transaction. Partners such as Allianz provide roadside assistance and insurance for damage, theft, and liability. Rates are discounted for longer-term rentals. Renters pay for fuel.

San Francisco-based Getaround, founded in 2011, has 350,000 renters sharing 2,500 cars in five states. It has raised about $40 million from investors.

Navigant (www.navigant.com) forecasts global car-sharing revenue will climb to $6.5 billion by 2024, up from $1.1 billion in 2015.
“Zipcar allowed people to borrow cars for very short periods of time. And now, services like Getaround enable individuals to share their cars with neighbors and get paid for it by connecting the users on the Getaround platform, automating payments, and even insuring the cars for up to $1 million.”

Forbes, 10/21/16

46.4 Crowdfunding
Crowdfunding is the collective effort of individuals who network and pool their money to support businesses, organizations, and individuals. Funded projects can include startup companies, disaster relief, support of artists by fans, political campaigns, software and product development, and research projects.
CrowdExpert (www.crowdexpert.com) estimated the U.S. equity crowdfunding volume of capital raised in 2016 at $3.5 billion to $4.0 billion.
Crowdfunding services include GoFundMe, Catarse, Crowdcube, Indiegogo, Kickstarter, Patreon, Pozible, and StartSomethingGood.

46.5 Fashion Rental And Sales
Several companies rent special-occasion and designer apparel online. With over 100,000 items of clothing, jewelry, and accessories by some 100 designers, Rent the Runway is the largest in the sector.
Rent the Runway’s revenues surpassed $100 million in 2016. The company launched a $139/month Unlimited plan which allows women to rent and wear up to three pieces at a time from sought-after contemporary design houses including Proenza Schouler, Jason Wu, and Derek Lam. They can keep an item for a month or send it back after a day, choosing new looks with a swipe of the company’s mobile app. Shipping and dry-cleaning are included.
Rent the Runway’s valuation was estimated by Forbes at $600 million in October 2016.
“Rent the Runway has certainly redefined the fashion business, bringing high-end fashion wear to Everywoman. It is also upending storefronts big and small – why buy a dress when you can borrow at a sweet price?”

*Forbes, 10/21/16*

Other fashion rental services include Bag Borrow or Steal, Dress Vault, Fashion Hire, and Le Tote.

Sites like Poshmark and threadUP allow individuals to sell their gently used apparel and accessories.

### 46.6 Freelance Services

The peer-to-peer marketplace offers an opportunity for individuals with marketable skills and talents to provide their services on a freelance basis. Sites like TaskRabbit, Care.com, Upwork, elance.com, Exec, guru.com, fiverr.com, and Amazon’s Mechanical Turk provide a marketplace for consumers looking for technology services, creative services, or business services. Everything from web developing to bookkeeping to legal services to writing to illustrating can be provided through such sites.

“Sites like TaskRabbit, Care.com and Upwork have taken the freelance market to a new level. The platforms each of these sites have built make it possible to connect those offering services with those seeking the services.”

*Forbes, 10/21/16*
46.7 Lending

Peer-to-peer lending, or social lending, brings together individual borrowers and lenders via online platforms. The two biggest lending platforms are Lending Club and Prosper, both founded in 2006 and based in San Francisco. The bulk of lending is for debt consolidation by credit-card borrowers. With little overhead, rates of 14% are attractive for individual lenders and well below standard charges of 18% for borrowers.

Lending Club reports loans made as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>699,000</td>
<td>$ 9.3 billion</td>
</tr>
<tr>
<td>2014</td>
<td>1.75 million</td>
<td>$22.9 billion</td>
</tr>
<tr>
<td>2015</td>
<td>3.94 million</td>
<td>$49.8 billion</td>
</tr>
<tr>
<td>2016</td>
<td>7.01 million</td>
<td>$86.7 billion</td>
</tr>
</tbody>
</table>

As of April 2017, Lending Club had made $26.6 billion in loans.

46.8 Ride-Hailing

Services like Uber and Lyft allow individual drivers to operate like a taxi service by carrying fee-paying passengers. These apps allow users to request a ride using their smartphone, track the approach of their driver in real-time, and offer an integrated payment and ratings system. The drivers for these services are frequently part-time workers who use their own vehicle and combine their ride-hailing work with other sources of income. Sixty percent (60%) of Uber drivers also work another job.

“Few services exemplify the modern on-demand economy more than ride-hailing apps. Uber has become technology industry shorthand for a range of services that let users connect in real time with people who are willing to be hired to do various tasks.”

Pew Research Center, 5/19/17

According to Phocuswright, U.S. business and leisure travelers spent $1.5 billion on ride-hailing services in 2016.
Uber, founded in 2009, has 87% of the U.S. ride-hailing market. In 2017, Uber had 40 million active riders worldwide, with about two million rides each day. Net revenue – the amount of money Uber generates after it pays drivers – was $6.8 billion in 2016, according to Bloomberg Businessweek. Fortune (January 2017) estimated Uber’s valuation at $70 billion.

Launched in June 2012, Lyft operated in approximately 300 U.S. cities as of June 2017, with 18.7 million rides a month. The company was valued at $7.5 billion as of April 2017 and has raised a total of $2.61 billion in funding.

46.9 Secondary Ticket Resale

Online brokers provide a platform for peer-to-peer sales of tickets for concerts, sport games, and other events.

The online secondary ticketing market is estimated at $6 billion.

While re-selling tickets online at face value is legal in all 50 states and the District of Columbia, about 15 states have some restriction on how much tickets can be marked up by sellers. The laws vary widely, depending on the state and type of event and venue, and they range in scope. Conversely, several states have relaxed their regulations by removing bans on online individual ticket auctions. Online brokers largely have to rely on sellers to abide by their respective states’ rules, yet there is no way of knowing if they actually do so. And the overall online ticket market is difficult to police given the borderless nature of the business.

The following are the largest secondary ticket providers:

• AXS (www.axs.com)
• Coast to Coast Tickets (www.coasttocoasttickets.com)
• eBay (www.ebay.com)
• Go Tickets (www.gotickets.com)
• RazorGator (www.razorgator.com)
• ReplyBuy (www.replybuy.com)
• SeatGeek (www.seatgeek.com)
• StubHub (www.stubhub.com)
• TickCo (www.tickco.com)
• Ticket Liquidator (www.ticketliquidator.com)
• Tickets.com (www.tickets.com)
• Ticketmaster (www.ticketmaster.com)
• TicketsNow (www.ticketsnow.com)

Among companies in the secondary ticketing market, StubHub is the largest. eBay acquired StubHub in 2007 for $310 million.

46.10 Sharing Resources

As the sharing economy grows, so, too, do the types of items and services being
offered. No item is too small to spawn a peer-to-peer market and the list seems limitless.

Neighborgoods and similar sites allow people to borrow resources — like tools and kitchen appliances — directly from their neighbors. Rather than buying a specialized tool for a single project, people can connect with and borrow from their neighbors, facilitated by the platform.

“A few dozen square feet in a driveway can now produce income via Parking Panda. A pooch-friendly room in your house is suddenly a pet penthouse via DogVacay. On Rentoid, an outdoorsy type with a newborn who suddenly notices her camping tent never gets used can rent it out at $10 a day to a city slicker who’d otherwise have to buy one. On SnapGoods, a drill lying fallow in a garage can become a $10-a-day income source from a homeowner who just needs to put up some quick drywall. On Liquid, an unused bicycle becomes a way for a traveler to cheaply get around while visiting town for $20 a day.”

Forbes, 10/21/16

46.11 Market Resources
The following are lists of sharing economy and peer-to-peer services platforms:
- https://hurdlr.com/blog/on-demand/on-demand-economy-gigs
- http://moneynomad.com/100-sharing-economy-apps-websites/
- https://due.com/blog/101-websites-to-find-freelancing-gigs/
- www.web-strategist.com/blog/2013/02/24/the-master-list-of-the-collaborative-economy-rent-and-trade-everything/
PART VI: SOCIAL MEDIA
47

CONSUMER USE OF SOCIAL MEDIA

47.1 Use Of Social Networking Sites

EMarketer (www.emarketer.com) assesses the total number of social network users (all ages) in the U.S. as follows:

• 2015: 180.1 million
• 2016: 185.7 million
• 2017: 191.1 million
• 2018: 196.3 million
• 2019: 200.6 million
• 2020: 204.1 million

The 2016 Nielsen Social Media Report, published by Nielsen (www.nielsen.com) in January 2017, reported the time in 2016 spent on social media as follows (hours:minutes):

- Average weekly time spent on all media: All Adults 25:07, Females 26:41, Males 23:27
- Average weekly time spent on social media: All Adults 5:30, Females 6:33, Males 4:23
- Percent of media time that is social: All Adults 22%, Females 25%, Males 19%
- Pct. social media time increase from 2015: All Adults 36%, Females 34%, Males 38%

47.2 Top Sites

Pew Research Center’s Internet & American Life Project (www.pewresearch.org) has annually assessed social media use in the U.S. since 2012. Social Media Update 2016, by Pew, reported social media use at year-end 2016 as follows:

- Facebook: Pct. of Internet Users 79%, Pct. of All Adults 68%
- Instagram: Pct. of Internet Users 32%, Pct. of All Adults 28%
- Pinterest: Pct. of Internet Users 31%, Pct. of All Adults 26%
- LinkedIn: Pct. of Internet Users 29%, Pct. of All Adults 25%
- Twitter: Pct. of Internet Users 24%, Pct. of All Adults 21%

According to eMarketer, the number of users (in millions) for the five most popular social media sites has been, and is projected, as follows:
• Facebook: 162.1 166.8 171.4 175.6 179.1 182.0
• Instagram: 57.4 67.2 76.2 83.6 89.5 95.1
• Twitter: 51.2 52.2 53.2 54.2 55.3 55.8
• Pinterest: 49.9 54.3 58.1 61.4 64.2 66.3
• Tumblr: 21.0 23.2 25.2 26.8 28.2 29.4

Penetration (percent of social network users) for these five sites has been, and is projected, as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Facebook</th>
<th>Instagram</th>
<th>Twitter</th>
<th>Pinterest</th>
<th>Tumblr</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>90.0%</td>
<td>31.9%</td>
<td>28.4%</td>
<td>27.7%</td>
<td>11.7%</td>
</tr>
<tr>
<td>2016</td>
<td>89.8%</td>
<td>36.2%</td>
<td>28.1%</td>
<td>29.2%</td>
<td>12.5%</td>
</tr>
<tr>
<td>2017</td>
<td>89.7%</td>
<td>39.9%</td>
<td>27.9%</td>
<td>30.4%</td>
<td>13.2%</td>
</tr>
<tr>
<td>2018</td>
<td>89.4%</td>
<td>42.6%</td>
<td>27.6%</td>
<td>31.3%</td>
<td>13.7%</td>
</tr>
<tr>
<td>2019</td>
<td>89.3%</td>
<td>44.6%</td>
<td>27.6%</td>
<td>32.0%</td>
<td>14.1%</td>
</tr>
<tr>
<td>2020</td>
<td>89.2%</td>
<td>46.6%</td>
<td>27.3%</td>
<td>32.5%</td>
<td>14.4%</td>
</tr>
</tbody>
</table>

**47.3 Use Of Social Media By Platform**

The share of time spent using social media in 2016, by device and age, among U.S. social media users was as follows (source: Nielsen):

<table>
<thead>
<tr>
<th>Platform</th>
<th>18-to-34</th>
<th>35-to-49</th>
<th>50 and Older</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smartphone</td>
<td>78%</td>
<td>69%</td>
<td>63%</td>
</tr>
<tr>
<td>Desktop/laptop</td>
<td>12%</td>
<td>18%</td>
<td>25%</td>
</tr>
<tr>
<td>Tablet</td>
<td>10%</td>
<td>13%</td>
<td>12%</td>
</tr>
</tbody>
</table>

**47.4 Use Of Social Media By Generation**

According to eMarketer, 70.6% of adults ages 18-to-71 (160.26 million people) used social media in 2017. By generation, social media user penetration in 2017 was as follows (percentage of population):

<table>
<thead>
<tr>
<th>Generation</th>
<th>Number</th>
<th>Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Millennials (age 17-to-37 in 2017):</td>
<td>34.69 million</td>
<td>47.6%</td>
</tr>
<tr>
<td>Generation X (age 38-to-52 in 2017):</td>
<td>46.18 million</td>
<td>74.7%</td>
</tr>
<tr>
<td>Baby Boomers (age 53-to-71 in 2017):</td>
<td>73.39 million</td>
<td>86.1%</td>
</tr>
</tbody>
</table>

*U.S. Internet & Interactive Entertainment*, published in January 2017 by USB Evidence Lab (http://about-neo.ubs.com/content/evidence-lab), reported that teenagers’ (ages 13-to-17) use social media daily as follows (percentage of respondents):

<table>
<thead>
<tr>
<th>Platform</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook</td>
<td>65%</td>
</tr>
<tr>
<td>Instagram</td>
<td>63%</td>
</tr>
<tr>
<td>Snapchat</td>
<td>54%</td>
</tr>
<tr>
<td>YouTube</td>
<td>54%</td>
</tr>
</tbody>
</table>
• Facebook Messenger: 50%
• WhatsApp: 49%
• Twitter: 46%
• Pinterest: 25%
• LinkedIn: 10%
48.1 Social Networking Sites

Social networking sites are online platforms where people share interests. Members share ideas, pictures, posts, activities, events, and interests with people in their network.

A few social network sites are popular among the general public, most serve a niche audience with a focus on specific activities or interests.

Based on their June 2017 rank among all U.S. websites by Alexa Internet (www.alexa.com), the following are the most popular social networking sites:

- Facebook (www.facebook.com): 3
- Twitter (www.twitter.com): 8
- Instagram (www.instagram.com): 14
- Tumblr (www.tumblr.com): 21
- Pinterest (www.pinterest.com): 22
- Yelp (www.yelp.com): 37
- DeviantArt (www.deviantart.com): 100
- Goodreads (www.goodreads.com): 165
- Crunchyroll (www.crunchyroll.com): 198
- Flickr (www.flickr.com): 223
- Meetup (www.meetup.com): 300
- Vox (www.vox.com): 358
- Academia.edu (www.academia.edu): 569
- StumbleUpon (www.stumbleupon.com): 691
- Wattpad (www.wattpad.com): 746
- Tagged (www.tagged.com): 1,371
- CafeMom (www.cafemom.com): 1,381
- Foursquare (www.foursquare.com): 1,427
- MySpace (www.myspace.com): 1,609
- Ravelry (www.ravelry.com): 1,812
- Gaia Online (www.gaiamobile.com): 1,847
- Classmates.com (www.classmates.com): 2,265
- MyHeritage (www.myheritage.com): 2,431
- MyLife (www.mylife.com): 2,535
- Yammer (www.yammer.com): 2,547
- Ning (www.ning.com): 3,191
- ReverbNation.com (www.reverbnation.com): 3,889
• Doximity (www.doximity.com): 4,063
• Stage 32 (www.stage32.com): 4,144
• Influenster (www.influenster.com): 4,221
• We Heart It (www.weheartit.com): 4,370
• CaringBridge (www.caringbridge.com): 4,374
• CouchSurfing (www.couchsurfing.com): 4,509
• Geni.com (www.geni.com): 5,171
• Care2 (www.care2.com): 5,173
• italki.com (www.italki.com): 6,303
• Experience Project (www.experienceproject.com): 7,287
• About.me (www.about.me): 8,727
• LibraryThing (www.librarything.com): 8,860
• Spot.IM (www.spot.im): 9,652
• Flixster (www.flixster.com): 12,077
• MocoSpace (www.mocospace.com): 12,612
• Mubi (www.mubi.com): 13,853
• Athlinks (www.athlinks.com): 14,406
• PatientsLikeMe (www.patientslikeme.com): 19,388
• Vampirefreaks.com (www.vampirefreaks.com): 21,893
• Listography (www.listography.com): 24,114
• Habbo (www.habbo.com): 24,207
• Fotki (www.fotki.com): 27,938
• BlackPlanet (www.blackplanet.com): 28,756
• DailyStrength (www.dailystrength.com): 29,540
• Gapyear.com (www.gapyear.com): 33,016
• WriteAPrisoner.com (www.writeaprisoner.com): 45,240
• GovLoop (www.govloop.com): 45,767
• MeWe (www.mewe.com): 46,619
• Indaba Music (www.indabamusic.com): 48,689
• Xanga (www.xanga.com): 48,695
• Buzznet (www.buzznet.com): 49,485
• FullCircle (www.fullcircle.com): 64,804
• HR.com (www.hr.com): 71,283
• Bebo (www.bebo.com): 75,240
• TravBuddy.com (www.travbuddy.com): 101,356
• Playfire (www.playfire.com): 107,400
• Cross.tv (www.cross.tv): 116,744
• Friendster (www.friendster.com): 167,586

48.2 Social Bookmarking Sites
Social bookmarking sites are online services which allow users to store and share Internet bookmarks. They typically offer a blend of social and organizational tools, such as annotation, categorization, folksonomy-based tagging, commenting,
and interface with other kinds of services like citation management software and social networking sites.

Based on their rank among all websites by Alexa Internet (www.alexa.com), the following are the most popular social bookmarking sites:

- Reddit (www.reddit.com): 4
- Pinterest (www.pinterest.com): 22
- StumbleUpon (www.stumbleupon.com): 691
- Digg (www.digg.com): 776
- We Heart It (www.weheartit.com): 4,370
- Xmarks (www.xmarks.com): 22,773
- Google Bookmarks (www.google.com/bookmarks/): n/a
49

USER DEMOGRAPHICS

49.1 Facebook

According to Pew Research Center www.pewresearch.org, 71% of online adults (68% of all adults) used Facebook in 2016. The demographics of Facebook users are as follows:

Gender
- Female: 83%
- Male: 75%

Age
- 18-to-29: 88%
- 30-to-49: 84%
- 50-to-64: 72%
- 65 and older: 62%

Education
- High school graduate or less: 77%
- Some college: 82%
- College graduate: 79%

Household Income
- Less than $30,000: 84%
- $30,000 to $49,999: 80%
- $50,000 to $74,999: 75%
- $75,000 or more: 77%

Community
- Urban: 81%
- Suburban: 77%
- Rural: 81%

Among adults who use Facebook, the frequency at which they do so is as follows:
- Daily: 76%
- Weekly: 15%
- Less often: 7%
49.2 Instagram

Thirty-two percent (32%) of online adults (28% of all adults) used Instagram in 2016. The demographics of Instagram users are as follows (source: Pew Research Center):

Gender
• Female: 38%
• Male: 26%

Age
• 18-to-29: 59%
• 30-to-49: 33%
• 50-to-64: 18%
• 65 and older: 8%

Education
• High school graduate or less: 27%
• Some college: 37%
• College graduate: 33%

Household Income
• Less than $30,000: 38%
• $30,000 to $49,999: 32%
• $50,000 to $74,999: 32%
• $75,000 or more: 31%

Community
• Urban: 39%
• Suburban: 28%
• Rural: 31%

Among adults who use Instagram, the frequency at which they do so is as follows:
• Daily: 51%
• Weekly: 26%
• Less often: 22%

49.3 LinkedIn

Twenty-nine percent (29%) of online adults (25% of all adults) used LinkedIn in 2016. The demographics of LinkedIn users are as follows (source: Pew Research Center):
Gender
• Female: 27%
• Male: 31%

Age
• 18-to-29: 34%
• 30-to-49: 33%
• 50-to-64: 24%
• 65 and older: 20%

Education
• High school graduate or less: 12%
• Some college: 27%
• College graduate: 50%

Household Income
• Less than $30,000: 21%
• $30,000 to $49,999: 13%
• $50,000 to $74,999: 32%
• $75,000 or more: 45%

Community
• Urban: 34%
• Suburban: 30%
• Rural: 18%

Among adults who use LinkedIn, the frequency at which they do so is as follows:
• Daily: 18%
• Weekly: 31%
• Less often: 51%

49.4 Pinterest
Thirty-one percent (31%) of online adults (26% of all adults) used Pinterest in 2016. The demographics of Pinterest users are as follows (source: Pew Research Center):

Gender
• Female: 45%
• Male: 17%

Age
• 18-to-29: 36%
• 30-to-49: 34%
Among adults who use Pinterest, the frequency at which they do so is as follows:

- Daily: 25%
- Weekly: 31%
- Less often: 43%

49.5 Twitter

Twenty-four percent (24%) of online adults (21% of all adults) used Twitter in 2016. The demographics of Twitter users are as follows (source: Pew Research Center):

**Gender**
- Female: 25%
- Male: 24%

**Age**
- 18-to-29: 36%
- 30-to-49: 23%
- 50-to-64: 21%
- 65 and older: 10%

**Education**
- High school graduate or less: 20%
- Some college: 25%
- College graduate: 29%
Household Income
- Less than $30,000: 23%
- $30,000 to $49,999: 18%
- $50,000 to $74,999: 28%
- $75,000 or more: 30%

Community
- Urban: 26%
- Suburban: 24%
- Rural: 24%

Among adults who use Twitter, the frequency at which they do so is as follows:
- Daily: 42%
- Weekly: 24%
- Less often: 33%

49.6 Market Resources
CHARACTERISTICS OF SOCIAL SITE USE

50.1 Reasons For Visiting Sites

According to the 2016 Digital Future Project, by the Center for the Digital Future (www.digitalcenter.org) at the University of Southern California, Annenberg School for Communication, Internet users visit social networking sites for the following reasons (percentage of respondents; multiple responses allowed):

- Relax or fill time: 64%
- Conversation and social interaction: 58%
- Find relevant events and information: 52%
- Gain insight into circumstances of others: 30%
- Escaping: 28%
- Cultural and aesthetic enjoyment: 24%
- Seek advice or opinions: 17%
- Emotional release: 14%
- Sense of belonging: 14%
- Gain insight into oneself: 12%
- Find reinforcement for personal values: 10%
- Find models of behavior: 5%

50.2 Relationships Through Social Media

The 2016 Digital Future Project reported that Internet users, on average, maintain regular personal contact on a weekly basis through social media messages with 5.0 people. For female and male Internet users, that figure is 5.7 people and 6.2 people, respectively.

When asked how important social media sites are for helping to maintain social relationships, Internet users responded as follows (percentage of respondents):

- Very important: 16%
- Important: 32%
- Neutral: 18%
- Not very important: 17%
- Not important at all: 17%

Responses by age were as follows:
### 50.3 Privacy Concerns

The 2016 Digital Future Project reported privacy concerns about personal information on social networking sites among Internet users as follows:

- Extremely concerned: 36%
- Very concerned: 30%
- Somewhat concerned: 28%
- Not at all concerned: 6%

Responses by gender were as follows:

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely concerned</td>
<td>36%</td>
<td>36%</td>
</tr>
<tr>
<td>Very concerned</td>
<td>33%</td>
<td>28%</td>
</tr>
<tr>
<td>Somewhat concerned</td>
<td>28%</td>
<td>28%</td>
</tr>
<tr>
<td>Not at all concerned</td>
<td>4%</td>
<td>8%</td>
</tr>
</tbody>
</table>

### 50.4 Positive Outcomes From Social Media

In a recent Harris Poll (www.theharrispoll.com), adult Internet users were asked if they ever had positive, tangible benefits from being active on social media. Responses were as follows:

- Received a good suggestion for something to try: 16% 35% 29%
- Made a connection regarding a job opportunity: 7% 15% 58%
- Found a new apartment or house: 3% 7% 68%

By age, those reporting benefits were as follows:

<table>
<thead>
<tr>
<th></th>
<th>18-37</th>
<th>38-49</th>
<th>50-68</th>
<th>69+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Received a good suggestion for something to try</td>
<td>66%</td>
<td>56%</td>
<td>37%</td>
<td>33%</td>
</tr>
<tr>
<td>Made a connection regarding a job opportunity:</td>
<td>37%</td>
<td>24%</td>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>Found a new apartment or house:</td>
<td>19%</td>
<td>11%</td>
<td>5%</td>
<td>2%</td>
</tr>
</tbody>
</table>

### 50.5 Social Media Consequences

The Harris Poll asked online adults if they ever had a negative experience as a result of being active on social media. Responses were as follows:
• Offended by posts, comments or pictures: 8% 43% 49%
• Unintended people viewed my posts/comments: 5% 23% 73%
• Got in trouble at school/work because of posts: 3% 6% 92%
• Lost potential job opportunity due to posts: 3% 4% 93%

By age, those reporting consequences were as follows:

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Frequently</th>
<th>Occasionally</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-37</td>
<td>58%</td>
<td>50%</td>
<td>47%</td>
</tr>
<tr>
<td>38-49</td>
<td>36%</td>
<td>27%</td>
<td>20%</td>
</tr>
<tr>
<td>50-68</td>
<td>15%</td>
<td>6%</td>
<td>4%</td>
</tr>
<tr>
<td>69+</td>
<td>11%</td>
<td>6%</td>
<td>3%</td>
</tr>
</tbody>
</table>

50.6 Market Resources
Center for the Digital Future, University of Southern California, Annenberg School for Communication, 300 S. Grand Avenue, Suite 3950, Los Angeles, CA 90071.
(213) 437-4433. (www.digitalcenter.org)

(585) 272-8400. (www.theharrispoll.com)
PART VII: DIGITAL VIDEO
51

VIEWING DIGITAL VIDEO CONTENT

51.1 Digital Video Viewers

According to eMarketer (www.emarketer.com), the number of U.S. digital video viewers* has been, and is projected, as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number (change)</th>
<th>Pct. of Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>196.1 million (5.3%)</td>
<td>61.5%</td>
</tr>
<tr>
<td>2015</td>
<td>205.8 million (5.0%)</td>
<td>64.2%</td>
</tr>
<tr>
<td>2016</td>
<td>213.2 million (4.5%)</td>
<td>66.5%</td>
</tr>
<tr>
<td>2017</td>
<td>221.8 million (2.8%)</td>
<td>67.8%</td>
</tr>
<tr>
<td>2018</td>
<td>227.5 million (2.4%)</td>
<td>69.6%</td>
</tr>
<tr>
<td>2019</td>
<td>232.1 million (1.8%)</td>
<td>69.7%</td>
</tr>
<tr>
<td>2020</td>
<td>236.0 million (1.5%)</td>
<td>70.3%</td>
</tr>
<tr>
<td>2021</td>
<td>239.2 million (3.1%)</td>
<td>70.7%</td>
</tr>
</tbody>
</table>

* Internet users of any age who watch digital video content via any device at least once a month.

**U.S. Digital Media Usage: 2016**, by eMarketer, reports types of digital video viewers as follows (change from 2015 in parenthesis):

- Over-the-top viewers: 186.9 million (3.3%)
- Mobile gamers: 180.4 million (9.4%)
- Digital TV viewers: 164.3 million (7.0%)
- Digital movie viewers: 120.5 million (6.8%)
- Smartphone video viewers: 116.4 million (10.1%)

The **2016 Digital Video Trends**, by eMarketer, provided the following assessment:

- Full-length TV shows and movies dominate digital video viewing, but the legions of content creators who emerged on YouTube are also flexing their muscles and increasingly exploring social video venues.
- Mobile continued to overtake desktop in 2016 as the preferred device for digital video viewing, but home-based viewing on connected TVs was also a big draw. Subscription video-on-demand providers are licensing their apps to as many device platforms as possible, including traditional cable boxes.
- Audience patterns in 2016 included growth in digital video viewership overall (particularly in viewers of premium-length content), erosion of the pay TV user base, and especially strong digital video adoption among young adults.
- As video ad monetization continues to grow across the board, marketers and
agencies are increasingly focusing on social venues such as Facebook, Snapchat, and Periscope.

• Hulu discontinued its ad-supported streaming tier in 2016 to focus on subscription-based monetization.

51.2 Content Viewed

According to the 2016 Digital Future Project, by the Center for the Digital Future (www.digitalcenter.org) at the University of Southern California, Annenberg School for Communication, the following digital video content is viewed on desktops and laptops (percentage of Internet users):

- How-to videos: 54%
- News clips: 42%
- Music videos: 41%
- User-generated content: 30%
- TV shows: 29%
- Sports highlights: 27%
- Feature-length movies: 24%

Digital video content viewed on smartphones is as follows (percentage of smartphone users):

- How-to videos: 46%
- Music videos: 45%
- News clips: 39%
- User-generated content: 35%
- Sports highlights: 29%
- TV shows: 21%
- Feature-length movies: 13%

51.3 Devices Used For Digital Video

Most households that view digital video do so via several devices. A 2016 survey by The Diffusion Group (TDG, www.tdgresearch.com) found the number of video-capable devices owned by U.S. broadband households as follows (percentage of respondents):

- One device: 0.2%
- 2 devices: 8.0%
- 3 devices: 21.0%
- 4 devices: 38.0%
- 5 or more devices: 33.0%
“U.S. adults spend an average of 5 hours, 14 minutes watching video each day and they’re doing so across several devices. Research from TDG found that few U.S. broadband households own just one or two video-capable devices. Indeed, a third of broadband households own more than five, and at least four devices is the norm. That number is not surprising given the plethora of devices currently in the market, including TVs, PCs, tablets, smartphones, and wearables.”

eMarketer, 11/3/16

51.4 Digital Video Priorities

According to a survey by Wibbitz Research Hub (www.wibbitz.com), digital video publishers have the following goals as their #1 priority in 2017:

- Increase video production and creation: 48%
- Further monetizing video content: 36%
- Video distribution to multiple channels and social platforms: 16%

Wibbitz Research Hub provides the following video performance analysis:

- People watch 4.8 videos when visiting a web page from their desktop and 1.3 videos when accessing a page through their mobile device.
- Eighty-seven percent (87%) of videos are watched to completion when visiting a page from a desktop; 45% of mobile users watch videos to completion.
- Facebook videos receive 375% more clicks than images do and generate 291% more reach than images.
- The ideal length of a video is 51 seconds for viewing and 47 seconds if aiming for the highest completion rate.
- The most effective days to publish a digital video are Monday and Wednesday.
- The biggest reach for Facebook videos occurs on Tuesday and Friday.
- The optimum times to publish/post digital video are as follows:
  - Desktop; most views: 11:00 a.m. to 2:00 p.m.
  - Mobile; most views: 9:00 p.m. to 10:00 p.m. and 10:00 a.m. to 12:00 p.m.
  - Facebook; most reach: 6:00 p.m. to 6:30 p.m. and 10:30 a.m. to 12:30 p.m.
“According to Wibbitz Research Hub, the explosive growth of video in 2016 makes 2017 an important year for video content, and as more publishers are tempted to use it, it’s useful to consider the best strategies to maximize its effectiveness. Video is steadily growing and publishers have begun to explore the best ways to include it in their digital strategies for 2017.”

Center For Media Research
Research Brief, 2/21/17
52.1 Overview
Video hosting services allow users to upload and share personal, business or royalty-free videos. Content ranges from short video clips to full length movies. Most services are free to content publishers and viewers. Among those supported by advertising, some share ad revenue with video publishers to encourage sharing of content. Some services host pay-per-view videos or accommodate private sharing.

52.2 User-Generated Video Hosting Services
Based on their U.S. rank (as of June 2017) by Alexa Internet (www.alexa.com), the following are the most popular U.S.-based user-generated video hosting services:
- YouTube (www.youtube.com): 2
- Hulu (www.hulu.com): 73
- Vimeo (www.vimeo.com): 89
- Wikimedia Commons (https://commons.wikimedia.org/wiki/Main_Page): 241
- Archive.org (www.archive.org): 242
- LiveLeak (www.liveleak.com): 460
- Funnyordie.com (www.funnyordie.com): 1,348
- College Humor (www.collegehumor.com): 1,457
- Break.com (www.break.com): 2,704
- Metacafe (www.metacafe.com): 3,238
- Crackle (www.crackle.com): 4,275
- SchoolTube (www.schooltube.com): 9,727
- GodTube (www.godtube.com): 14,200
- DaCast (www.dacast.com): 30,860
- Viewster (www.viewster.com): 46,238
- Buzznet (www.buzznet.com): 49,617
- Mefeedia (www.mefeedia.com): 51,778
- ExpoTV (www.expotv.com): 84,467
53

OVER-THE-TOP VIDEO SERVICES

53.1 Overview
Streamed TV programming, or over-the-top (OTT) content, refers to delivery of media over the Internet without a multiple-system operator controlling or distributing the content.

Original programming on Netflix and other OTT services has driven the recent popularity of streamed TV programming.

Parks Associates (www.parksassociates.com) reported that 63% of U.S. broadband households subscribed to an OTT video service at year-end 2016, up from 57% at the beginning of 2015.

Thirty-one percent (31%) of U.S. broadband households, or about one-half of OTT subscribers, have multiple OTT service subscriptions.

The average monthly spending on subscription OTT video in 2016 was $7.95.

“The average monthly spend on subscription OTT video services is remarkably close to the $7.99 pricing of the lowest tiers of service for Netflix and Hulu, indicating that consumer expectations for U.S. market pricing has been set by Hulu and Netflix.”

Glenn Hower, Senior Analyst
Parks Associates, 12/28/16

53.2 OTT Streaming Services
Ranked by number of subscribers, the following were the top OTT video services in 2016 (source: Parks Associates):

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
• 321 •
• Netflix
• Amazon Video (Amazon Prime)
• Hulu
• MLB.TV
• WWE Network
• Sling TV
• HBO Now
• Crunchyroll
• Showtime
• CBS All Access

“Importantly, all of these services have increased their subscriber base over the past year. The top five OTT services have stayed consistent, primarily through maintaining or growing the massive user and subscriber bases that they have built over the past several years. Showtime and CBS All Access have made a significant push into the OTT space. Their recognized brands and popular content ... have provided them with a good basis for building an OTT service. Sling TV has continued to evolve its offering, testing new options and adding several new channels in order to grow its customer base.”

Brett Sappington
Senior Director of Research
Parks Associates, 10/26/16

53.3 OTT User Statistics

OTT subscription service user counts have been, and are projected, as follows (source: eMarketer [www.emarketer.com]):
### 53.4 Sports OTT Video Services

Parks Associates reported that 16% of U.S. broadband households had a sports OTT video service subscription in 2016. Subscriptions to the top four sports OTT video services are as follows (percentage of broadband households):

- NFL Game Pass: 6%
- WWE Network: 4%
- MLB.TV: 4%
- NBA League Pass: 4%

### 53.5 Hispanic Use Of OTT Services

According to Parks Associates, OTT video service adoption is approximately 15% higher among Latino and Hispanic U.S. broadband households when compared to all U.S. broadband households. One-half of Latino or Hispanic U.S. broadband households are service stackers and subscribe to two or more paid OTT video services. Latino or Hispanic-American broadband households also have the highest adoption of sports services (29%) and Netflix (64%) when compared to the national average.
54.1 Overview
Connected televisions are TV sets capable of connecting to the Internet through built-in technology or through another device such as Blu-ray player, game console, or set-top box (e.g. Apple TV, Google TV, Roku).
Smart TVs are defined more narrowly as sets with built-in Internet capability.

54.2 Market Penetration
The NPD Group (www.npd.com) put the installed base of U.S. connected TVs at 55 million as of April 2017, up 5 million from a year prior.

“The average connected home has three devices installed and able to deliver apps to their TVs, but the mix of those devices continues to change. Shifts are also occurring in the industry as TV manufacturers migrate to operating systems from Roku, Amazon and Google. This benefits content owners, as they can reach a larger audience through distribution on fewer platforms, and viewers, as they’ll be able to find more of the programming they want in a single location.”

John Buffone, Executive Director
NPD Connected Intelligence, 4/19/17

EMarketer (www.emarketer.com) assesses U.S. connected TV users as follows:
### 54.3 Use Of On-Screen Apps

Smart and connected TVs allow users to watch shows by accessing branded apps on the screen. According to a survey by HUB Research (www.hubresearch.com), those with connected TVs watch shows via on-screen apps as frequently as follows:

- Every day: 14%
- At least once a week: 19%
- Several times a month: 14%
- At least once a month: 9%
- Less often: 17%
- Never: 27%

Usage was higher among Millennials; 39% of this demographic with a smart or connected TV watched shows by accessing apps on the screen at least weekly.

### 54.4 Addressable Advertising

The rise in use of connected TVs has created the opportunity for advertisers to target TV ads through addressable advertising. Each connected TV has a unique IP address, which allows marketers to track viewers just as people’s online activities are now tracked.

According to Gartner (www.gartner.com), segmentation for addressable TV can occur at geographic, demographic, behavioral and, in some cases, self-selected individual household levels through cable, satellite, and Internet Protocol television (IPTV) delivery systems and set-top boxes (STBs). Using this method advertisers can segment TV audiences and serve different ads or ad pods (groups of ads) within a common program or navigation screen.
55

YOUTUBE

55.1 User Visits To YouTube

According to comScore (www.comscore.com), YouTube had 96.2 million unique U.S. visitors in April 2017.

YouTube delivered approximately three trillion videos worldwide in 2016. An analysis with more than 10,000 engagements apiece by Tubular Labs (www.tubularlabs.com) found the average YouTube video was longer than 14 minutes. Among the top trending YouTube videos, the average length was 4.76 minutes.

Like many social networking sites, YouTube is widely used by younger users – 82% of 18- to 29-year-olds used YouTube in 2016. But, unlike most other sites, YouTube is immensely popular across the complete range of demographics. In 2016, time spent on YouTube grew 80% faster among adults 55+ than among adults overall. Seventy-two percent (72%) of 6-to-8 year-olds visit YouTube daily.

“YouTube is the ultimate destination for kids logging onto the Internet. It pretty much owns kids’ eyeballs at this point.”

Time

Google is available in 61 languages. YouTube viewers worldwide watch a billion hours of video content each day, a milestone attributable, in part, to personalized algorithms which recommend videos to viewers and keeps viewers watching longer.
“YouTube viewers worldwide are now watching more than 1 billion hours of videos a day, threatening to eclipse U.S. television viewership, a milestone fueled by the Google unit’s aggressive embrace of artificial intelligence to recommend videos. The number represents a ten-fold increase from 2012.”

The Wall Street Journal, 2/28/17

According to comScore (www.comscore.com), YouTube had 96.15 million unique viewers in the U.S. in April 2017. AYTM Market Research (www.atym.com) reports Internet user visits to YouTube as follows (percentage of respondents):
• Every day: 21.7%
• A few times per week: 27.5%
• About once per week: 10.0%
• A few times per month: 14.5%
• About once per month: 4.0%
• Rarely: 13.7%
• Never: 8.5%

55.2 Ad Sharing With Talent Creators
eMarketer (www.emarketer.com) assesses YouTube video ad revenue as follows:
• 2013: $ 810 million
• 2014: $1.13 billion
• 2015: $1.51 billion
• 2016: $1.75 billion

In 2007, YouTube launched a revenue-sharing program available to the most popular video channels. Parent company Google presents advertising along with the content, giving the channel a 65% cut and retaining 45%.

YouTube also contracts with networks which recruit YouTube content creators. Each network offers a slate of services to content creators and gets them more visibility than they would promoting content themselves. Creators typically earn 30% of gross revenue from ads.
“The top content creators on YouTube have their own channels, and that structure gives marketers a distinct focus for ad placement. Does the channel offer beauty tips? Does it focus on video games? Is it a specific music performer’s channel? In most of those cases, brands have a clearer idea of a specific channel’s audience than they would of a bunch of related YouTube videos from multiple creators. The value of these specific content creators and their channels is their ability to give marketers a worthy mix of context and audience.”

eMarketer

55.3 Top Channels
SocialBlade (www.socialblade.com) ranked YouTube channels based on number of video views in May 2017 as follows:

<table>
<thead>
<tr>
<th>Channel</th>
<th>Subscribers</th>
<th>Video Views</th>
</tr>
</thead>
<tbody>
<tr>
<td>PewDiePie</td>
<td>55,164,039</td>
<td>15,348,719,491</td>
</tr>
<tr>
<td>JustinBieberVEVO</td>
<td>29,303,284</td>
<td>15,257,244,537</td>
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<tr>
<td>WWE</td>
<td>16,153,618</td>
<td>15,131,983,502</td>
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<td>Fun Toys Collector Disney Toys Review</td>
<td>9,179,129</td>
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<td>Ryan Toys Review</td>
<td>7,835,181</td>
<td>12,728,192,953</td>
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<tr>
<td>KatyPerryVEVO</td>
<td>22,647,257</td>
<td>12,122,276,261</td>
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<tr>
<td>TaylorSwiftVEVO</td>
<td>22,314,499</td>
<td>11,546,146,531</td>
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<tr>
<td>RihannaVEVO</td>
<td>24,755,210</td>
<td>11,282,932,347</td>
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<tr>
<td>BuzzFeedVideo</td>
<td>12,475,370</td>
<td>9,995,992,648</td>
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<tr>
<td>Family Fun Pack</td>
<td>5,263,381</td>
<td>9,561,536,335</td>
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<tr>
<td>shakiraVEVO</td>
<td>14,083,296</td>
<td>9,541,559,815</td>
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<tr>
<td>TheEllenShow</td>
<td>19,859,701</td>
<td>9,257,106,917</td>
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<tr>
<td>EminemVEVO</td>
<td>22,070,933</td>
<td>8,610,605,677</td>
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<tr>
<td>PopularMMOs</td>
<td>11,590,186</td>
<td>8,512,776,433</td>
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<tr>
<td>EnriqueIglesiasVEVO</td>
<td>10,870,539</td>
<td>8,348,624,229</td>
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<tr>
<td>Movieclips Trailers</td>
<td>11,012,270</td>
<td>8,269,263,327</td>
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<tr>
<td>David Guetta</td>
<td>13,605,913</td>
<td>8,089,378,609</td>
</tr>
<tr>
<td>Channel Name</td>
<td>Subscribers</td>
<td>Views</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-------------</td>
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</tr>
<tr>
<td>Blu Toys Club Surprise</td>
<td>5,495,731</td>
<td>7,593,679,155</td>
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<tr>
<td>Fueled By Ramen</td>
<td>8,314,501</td>
<td>7,580,812,255</td>
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<td>Maroon5VEVO</td>
<td>13,423,582</td>
<td>7,345,681,070</td>
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<tr>
<td>Markiplier</td>
<td>17,461,402</td>
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<td>Boldly</td>
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<td>CalvinHarrisVEVO</td>
<td>11,079,010</td>
<td>7,204,059,981</td>
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<tr>
<td>The Tonight Show Starring Jimmy Fallon</td>
<td>13,666,886</td>
<td>7,129,999,023</td>
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<tr>
<td>ArianaGrandeVEVO</td>
<td>16,665,686</td>
<td>7,002,248,557</td>
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<tr>
<td>beyonceVEVO</td>
<td>12,222,772</td>
<td>6,979,584,253</td>
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<td>DisneyCarToys</td>
<td>5,237,412</td>
<td>6,947,101,572</td>
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<tr>
<td>Movieclips</td>
<td>11,163,504</td>
<td>6,089,654,662</td>
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<td>DCTC Toy Channel</td>
<td>7,549,962</td>
<td>6,562,265,478</td>
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<tr>
<td>PitbullIVEVO</td>
<td>9,068,830</td>
<td>6,517,885,554</td>
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<tr>
<td>Smosh</td>
<td>22,668,262</td>
<td>6,450,800,437</td>
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<td>IGN</td>
<td>8,365,860</td>
<td>6,409,880,304</td>
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<tr>
<td>Bruno Mars</td>
<td>15,126,669</td>
<td>6,336,505,338</td>
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<tr>
<td>Ultra Music</td>
<td>8,530,237</td>
<td>6,287,485,890</td>
</tr>
<tr>
<td>Wiz Khalifa</td>
<td>11,163,504</td>
<td>6,089,654,662</td>
</tr>
<tr>
<td>Machinima</td>
<td>12,601,947</td>
<td>5,656,265,478</td>
</tr>
<tr>
<td>ToyPudding TV</td>
<td>6,280,523</td>
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<tr>
<td>Toy Freaks</td>
<td>6,599,853</td>
<td>5,560,557,896</td>
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<tr>
<td>MalumaVEVO</td>
<td>8,904,697</td>
<td>5,519,894,788</td>
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<td>CollegeHumor</td>
<td>11,753,230</td>
<td>5,438,016,018</td>
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<td>ChrisBrownVEVO</td>
<td>10,428,341</td>
<td>5,416,220,520</td>
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<td>Atlantic Records</td>
<td>5,856,429</td>
<td>5,414,315,157</td>
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<td>CookieSwirlC</td>
<td>4,523,955</td>
<td>5,348,834,404</td>
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<td>FBE</td>
<td>15,461,189</td>
<td>5,253,249,950</td>
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<tr>
<td>Mother Goose Club</td>
<td>4,271,447</td>
<td>5,111,407,046</td>
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<tr>
<td>SiaVEVO</td>
<td>8,808,650</td>
<td>5,009,595,658</td>
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<tr>
<td>Rooster Teeth</td>
<td>9,020,946</td>
<td>4,960,866,676</td>
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<tr>
<td>SelenaGomezVEVO</td>
<td>12,407,911</td>
<td>4,832,999,681</td>
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<tr>
<td>HobbyKidsTV</td>
<td>2,434,212</td>
<td>4,819,922,141</td>
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<tr>
<td>LadyGagaVEVO</td>
<td>8,622,963</td>
<td>4,767,274,771</td>
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<tr>
<td>NickiMinajAtVEVO</td>
<td>12,241,889</td>
<td>4,754,389,834</td>
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<tr>
<td>ToyScouter</td>
<td>6,350,819</td>
<td>4,761,925,620</td>
</tr>
<tr>
<td>Trap Nation</td>
<td>13,922,972</td>
<td>4,722,739,523</td>
</tr>
<tr>
<td>Jimmy Kimmel Live</td>
<td>9,367,304</td>
<td>4,516,276,878</td>
</tr>
<tr>
<td>ChainsmokersVEVO</td>
<td>9,330,655</td>
<td>4,462,529,862</td>
</tr>
<tr>
<td>FifthHarmonyVEVO</td>
<td>9,006,642</td>
<td>4,356,315,697</td>
</tr>
<tr>
<td>MeghanTrainorVEVO</td>
<td>8,008,353</td>
<td>4,315,063,968</td>
</tr>
<tr>
<td>Annoying Orange</td>
<td>5,855,032</td>
<td>4,294,253,300</td>
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<tr>
<td>JenniferLopezVEVO</td>
<td>6,075,276</td>
<td>4,244,939,276</td>
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<tr>
<td>TheRichiest</td>
<td>7,885,294</td>
<td>4,151,372,530</td>
</tr>
<tr>
<td>michaeljacksonVEVO</td>
<td>6,397,463</td>
<td>4,123,915,625</td>
</tr>
</tbody>
</table>
CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019

- NBA: 7,702,474 4,104,011,676
- RomeoSantosVEVO: 6,365,435 4,085,898,229
- FGTEE: 3,581,075 4,060,708,918
- Skrillex: 15,696,322 3,966,426,869
- MattyBRaps: 8,394,629 3,886,602,176
- Just4fun290: 2,059,945 3,800,794,621
- FailArmy: 12,533,230 3,782,076,179
- WorldStarHipHop: 5,462,029 3,737,052,714
- Kids TV - Nursery Rhymes And Children’s Songs: 3,842,861 3,713,874,791
- Sesame Street: 2,697,542 3,708,711,478
- EllieGouldingVEVO: 7,237,089 3,680,478,045
- BritneySpearsVEVO: 4,658,944 3,676,323,468
- Linkin Park: 7,962,967 3,671,145,703
- The Young Turks: 3,351,825 3,558,701,774
- RomanAtwoodVlogs: 12,426,658 3,559,215,632
- Sky Does Minecraft: 11,986,136 3,497,630,179
- Jason Derulo: 6,827,649 3,463,440,967
- Team Coco: 4,943,415 3,446,758,905
- DisneyMusicVEVO: 6,034,111 3,420,476,570
- Expertvillage: 3,113,187 3,406,399,668
- Mother Goose Club Playhouse: 2,470,860 3,381,358,782
- Good Mythical Morning: 12,316,554 3,365,179,026
- nigahiga: 19,665,640 3,332,695,353
- TheEngineeringFamily: 2,090,175 3,324,516,142
- FUNnel Vision: 3,881,217 3,325,891,314
- boyceavenue: 9,720,242 3,316,226,017
- emimusic: 7,068,623 3,279,833,764
- SurpriseToys: 2,885,835 3,209,829,541
- DemiLovatoVEVO: 10,130,151 3,170,178,734
- GameGrumps: 3,881,217 3,162,405,355
- BlackEyedPeasVEVO: 3,483,749 3,159,406,017
- Vat19: 3,744,684 3,113,077,323
- DrakeVEVO: 7,395,240 3,071,677,726
- Dude Perfect: 18,486,310 3,059,659,980
- RickyMartinVEVO: 3,334,410 3,044,224,316
- FRESH: 2,686,611 3,026,188,891
- Ray William Johnson: 10,380,238 3,022,543,406
- Kids Channel - Cars Nursery Rhymes Learning Videos: 2,272,476 3,004,432,887
- OneRepublicVEVO: 5,153,397 2,982,774,837
### Top Networks

SocialBlade ranked YouTube networks based on the number of subscribers in May 2017 as follows:

<table>
<thead>
<tr>
<th>Members</th>
<th>Subscribers</th>
<th>Video Views</th>
</tr>
</thead>
<tbody>
<tr>
<td>BroadbandTV: 236,630</td>
<td>69,240,388</td>
<td>19,267,122,918</td>
</tr>
<tr>
<td>vevo: 12,038</td>
<td>36,854,064</td>
<td>19,923,060,762</td>
</tr>
<tr>
<td>Yoola: 43,639</td>
<td>25,463,268</td>
<td>5,691,973,947</td>
</tr>
<tr>
<td>Fullscreen Network: 61,582</td>
<td>24,914,750</td>
<td>6,232,507,363</td>
</tr>
<tr>
<td>AIR: 37,512</td>
<td>15,858,561</td>
<td>5,549,924,876</td>
</tr>
<tr>
<td>Studio71: 13,227</td>
<td>15,011,970</td>
<td>5,542,712,199</td>
</tr>
<tr>
<td>ScaleLab: 23,181</td>
<td>13,630,564</td>
<td>3,195,802,129</td>
</tr>
<tr>
<td>Maker Studios: 9,499</td>
<td>12,539,180</td>
<td>4,418,634,827</td>
</tr>
<tr>
<td>Union for Gamers: 10,575</td>
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<td>1,041,493</td>
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<td>WatanNetwork</td>
<td>4,339</td>
<td>1,034,404</td>
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<td>gmmgrammy</td>
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<td>1,034,193</td>
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<td>HolaSoyGerman</td>
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<td>989,134</td>
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<td>I-MediaProduction</td>
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<td>977,729</td>
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**CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019**

**332**
<table>
<thead>
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<th>Channel Name</th>
<th>Followers</th>
<th>View Count</th>
<th>Total Views</th>
</tr>
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<tr>
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<td>976,218</td>
<td>300,022,736</td>
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<td>RedpointsAffiliate:</td>
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<td>JarooOcial:</td>
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<td>375,340,851</td>
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<td>TheOnlineCreators:</td>
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<td>popsww:</td>
<td>1,717</td>
<td>806,233</td>
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<tr>
<td>TEDtalksDirector:</td>
<td>676</td>
<td>796,365</td>
<td>134,458,653</td>
</tr>
</tbody>
</table>

### 55.5 Market Resources
Social Blade, 3008 Geiger Circle, Apex, NC 27539. (919) 355-8746. (www.socialblade.com)

YouTube LLC, 901 Cherry Avenue, San Bruno, CA 94066. (650) 253-0000. (www.youtube.com)
56

LIVE STREAMING VIDEO

56.1 Overview

According to U.S. Internet & Interactive Entertainment, published in January 2017 by UBS Evidence Lab (http://about-neo.ubs.com/content/evidence-lab), 36% of adults have watched live video on social media; 22% have created live video content. By age, those that have done so are as follows:

<table>
<thead>
<tr>
<th>Age</th>
<th>Watched</th>
<th>Created</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-to-17</td>
<td>53%</td>
<td>32%</td>
</tr>
<tr>
<td>18-to-34</td>
<td>63%</td>
<td>42%</td>
</tr>
<tr>
<td>35-to-54</td>
<td>32%</td>
<td>22%</td>
</tr>
<tr>
<td>55 and older</td>
<td>12%</td>
<td>3%</td>
</tr>
</tbody>
</table>

56.2 Live Video Platforms

UBS Evidence Lab reported platforms on which U.S. Internet users have watched live streaming video as follows (percentage of respondents):

- Facebook Live: 17%
- YouTube - live streaming: 16%
- Snapchat Live Stories: 12%
- Periscope: 9%
- Twitter: 9%
- YouNow: 8%
- Meerkat: 7%
- Other: 5%
“Live video is a big priority for social platforms like Facebook and Twitter, as well as for publishers and other media companies that increasingly use those platforms to reach viewers and readers. Consumers have shown high levels of interest, and marketers are experimenting even before there’s a clear monetization case around this emerging genre of digital content.”

eMarketer, 2/17/17

56.3 Facebook Live
Facebook introduced Live Videos in December 2015 and introduced new products and tools throughout 2016. In January 2017, the company rolled out a dedicated video tab for the Facebook app to make videos easier to find. According to UBS Evidence Lab, Facebook Live viewership increased 21% from June 2016 through year-end 2016;

“Consumers ... seem to have embraced Facebook Live over the past year, while moving away from virtually every other platform. The jury is still out on recent experiments such as Twitter’s streaming of NFL games and Instagram’s entry into the space.”

eMarketer, 2/17/17
56.4 Live Content Creation

According to eMarketer, Millennials are the biggest consumers and creators of live video: 63% have watched live content and 42% have created it.

“Millennials are the most likely age demographic to watch live video. Although the rate of live video creation predictably lags the rate of consumption, the gap between the two isn’t as pronounced as with other forms of content.”

eMarketer, 2/17/17
PART VIII: MOBILE APPS
57

APPS

57.1 Use Of Mobile Apps

*The 2016 U.S. Mobile App Report*, by comScore (www.comscore.com), reports the distribution of time spent on digital platforms in 2016 as follows:

- Share of digital time spent on mobile:  67%
- Share of digital time spent on mobile apps:  58%
- Share of digital time spent on smartphone apps:  49%
- Share of digital time spent on desktop:  33%

Average monthly time per smartphone and tablet app user, by age, was as follows:

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Smartphone</th>
<th>Tablet</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-to-24</td>
<td>93.5 hours</td>
<td>27.6 hours</td>
</tr>
<tr>
<td>25-to-34</td>
<td>85.6 hours</td>
<td>19.4 hours</td>
</tr>
<tr>
<td>35-to-44</td>
<td>78.8 hours</td>
<td>17.3 hours</td>
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<td>45-to-54</td>
<td>62.7 hours</td>
<td>23.0 hours</td>
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<tr>
<td>55-to-64</td>
<td>55.6 hours</td>
<td>28.0 hours</td>
</tr>
<tr>
<td>65 and older</td>
<td>42.1 hours</td>
<td>23.4 hours</td>
</tr>
<tr>
<td>All ages</td>
<td>73.8 hours</td>
<td>22.6 hours</td>
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</table>

The distribution of time spent using apps and the web in 2016 was as follows:

<table>
<thead>
<tr>
<th></th>
<th>Apps</th>
<th>Web</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smartphone</td>
<td>88%</td>
<td>12%</td>
</tr>
<tr>
<td>Tablet</td>
<td>83%</td>
<td>17%</td>
</tr>
<tr>
<td>All mobile:</td>
<td>87%</td>
<td>13%</td>
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</tbody>
</table>

57.2 Time Spent Using Apps

According to Nielsen (www.nielsen.com), time spent per day by U.S. adults using smartphone apps/web has been as follows (hours:minutes):

<table>
<thead>
<tr>
<th>Year</th>
<th>All Adults</th>
<th>Smartphone Users</th>
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<tbody>
<tr>
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<td>1:02</td>
<td>1:49</td>
</tr>
<tr>
<td>2015</td>
<td>1:15</td>
<td>2:02</td>
</tr>
<tr>
<td>2016</td>
<td>1:32</td>
<td>3:41</td>
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</table>

The top reason cited for downloading an application, according to Nielsen, is
because apps are fun. Fifty-three percent (53%) of smartphone owners and 59% of tablet owners cite leisure or entertainment as the reason for downloading. Among tablet owners, 48% also say they download an app because they have the same or similar app on another device.

According to eMarketer (www.emarketer.com), the distribution of time spent with mobile devices in 2016 was as follows:

<table>
<thead>
<tr>
<th></th>
<th>Apps</th>
<th>Web</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smartphone:</td>
<td>85.7%</td>
<td>14.3%</td>
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<tr>
<td>Tablet:</td>
<td>76.5%</td>
<td>23.6%</td>
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</table>

eMarketer assesses average time spent per day with apps and the mobile web as follows (hours: minutes):

<table>
<thead>
<tr>
<th></th>
<th>Smartphone</th>
<th>Tablet</th>
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<tbody>
<tr>
<td>2015:</td>
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<tr>
<td>2016:</td>
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<td>0:26</td>
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<tr>
<td>2018:</td>
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<td>0:26</td>
</tr>
<tr>
<td>2019:</td>
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<td>0:27</td>
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</tbody>
</table>

### 57.3 App Census

The number of apps available as of March 2017 was as follows:

- Google Play (Android): 2.8 million
- Apple App Store (iOS): 2.2 million
- Windows Store: 669,000
- Amazon App Store: 600,000
- BlackBerry World: 234,500

### 57.4 Frequency of App Use

The average smartphone downloader has 42 apps on a device, according to Nielsen. Among smartphone app users, 87% use less than 10 apps on a daily basis, 55% use between one and four apps, and 32% use between five and nine. The average tablet downloader has 35 apps on the device; 89% use less than 10 apps on a daily basis.

According to The 2016 U.S. Mobile App Report, by comScore, smartphone owners, on average, use 27 apps per month; tablet owners use 14.

Of all time spent with apps, smartphone users spend 45% of their time with their favorite app; tablet users do so with 61% of their time. The share of time users spend with their top ranked apps is as follows:
Smartphone                        Tablet
[72x698]• 1: 45% 61%
• 2: 18% 18%
• 3: 10% 8%
• 4: 7% 5%
• 5: 4% 3%
• 6: 3% 2%
• 7: 2% 1%
• 8: 2% 1%
• All other: 7% 2%

Smartphone users download the following number of apps per month:
• None: 49%
• 1: 13%
• 2: 11%
• 3: 8%
• 4: 6%
• 5-to-7: 7%
• 8 or more: 6%

57.5 Reasons For App Use

According to Nielsen, mobile device owners use apps for the following reasons:
• Alone/by myself: 70% 65%
• Bored/killing time: 68% 63%
• Waiting for something/someone: 61% 48%
• While watching TV: 48% 54%
• Before going to sleep: 41% 44%
• When first wake up: 34% 27%
• Improve/help what currently doing: 33% 29%
• While shopping: 30% 18%
• Finding a place to eat: 29% 18%
• At work: 28% 20%
• Socializing with friends: 27% 19%
• Commuting: 26% 18%
• Working out/exercising: 20% 14%
• At school: 10% 11%

According to Tune (www.tune.com), smartphone owners download apps for the following reasons (percentage of respondents):
• Has a specific task, thought the app would help: 37%
• Friend’s recommendation: 31%
• Ad for app looked interesting: 20%
• Googled something, app looked like a good answer: 13%
• App was featured by Apple of Google: 13%
• Was a customer of company, wanted to get services: 11%

57.6 Distribution of App Time
According to The 2016 U.S. Mobile App Report, time spent using mobile apps is distributed by category as follows:
• Social networking: 20%
• Music: 16%
• Games: 12%
• Multimedia: 7%
• Instant messengers: 5%
• Retail: 4%
• Photos: 3%
• Search/navigation: 3%
• Portals: 2%
• News/information: 2%
• All other: 26%

57.7 App Store Downloads
According to App Annie (www.appannie.com), there were 90 billion apps downloaded across iOS and Google Play in 2016, a 17% increase over the prior year. App publishers were paid $35 billion for downloads across iOS and Google Play. When including in-app advertising, app store revenue, and third-party Android stores, total app publisher revenue was $89 billion in 2016.

57.8 Market Resources

58

TOP APPS

58.1 Most Popular Apps

Ranked by reach, the top smartphone apps (iOS and Android platforms) among adults in April 2017 were as follows (source: comScore [www.comscore.com]):

• Facebook: 77.1%
• YouTube: 68.1%
• Facebook Messenger: 68.1%
• Google Search: 59.3%
• Google Maps: 56.0%
• Google Play: 49.0%
• Instagram: 46.5%
• Gmail: 45.5%
• Snapchat: 45.2%
• Pandora Radio: 38.7%
• Google Calendar: 36.1%
• Apple Maps: 29.5%
• Apple Music: 29.4%
• Apple News: 28.0%
• Amazon Mobile: 27.3%

Ranked by average monthly unique visitors, the most popular mobile apps in 2016 were as follows (source: comScore):

• Facebook: 149,562,000
• Facebook Messenger: 129,676,000
• YouTube: 116,403,000
• Google Maps: 95,311,000
• Google Search: 89,924,000
• Google Play: 86,713,000
• Gmail: 78,734,000
• Pandora Radio: 76,500,000
• Instagram: 75,385,000
• Amazon Mobile: 67,489,000
• Apple Music: 66,734,000
• Apple Maps: 60,351,000
• Snapchat: 51,955,000
• Pinterest: 51,428,000
- Google Drive: 50,090,000
- Yahoo Stocks: 47,770,000
- Twitter: 46,916,000
- The Weather Channel: 40,362,000
- Weather Channel Widget: 39,511,000
- Netflix: 37,821,000
- Spotify: 33,337,000
- Groupon: 30,213,000
- Walmart: 27,804,000
- eBay: 27,547,000
- Yahoo Mail: 23,723,000

Among apps with more than 1.5 million, the following had the highest concentration of Millennial users (source: comScore):

- Yik Yak: 99%
- PlayStation Official App: 81%
- Venmo: 81%
- Twitch: 80%
- MeetMe: 77%
- GroupMe: 76%
- Tinder: 75%
- SoundCloud: 74%
- Wattpad: 72%
- Xbox One SmartGlass: 70%
- Snapchat: 70%
- YouTube Music: 69%
- Clash Royale: 69%
- Layout From Instagram: 68%
- Color Switch: 67%
- Timehop: 67%
- Mint.com Personal Finance: 66%
- Kik Messenger: 66%
- Airbnb: 66%

58.2 Most Downloaded Apps
The most downloaded apps in June 2017 were as follows (source: AppAnnie [www.appannie.com]):
Android (Google Play)

Free Apps
1. Messenger (Facebook)
2. Snapchat
3. Facebook
4. Instagram
5. Wish - Shopping Made Fun
6. Fidget Spinner
7. Bitmoji
8. Pandora Music
9. CM Launcher 3D - Theme Wallpaper
10. Kika Keyboard
11. Netflix
12. WhatsApp Messenger
13. Pokémon: Magikarp Jump
14. Spotify Music
15. Word Cookies
16. letgo
17. Color Switch
18. Roll the Ball
19. Google Play Games
20. ROBLOX
21. Uber
22. Pinterest
23. Super Mario Run (Nintendo)
24. OfferUp
25. Subway Surfers (Kiloo)

Paid Apps
1. Toca Lab: Elements
3. Bloons TD 5
4. Pool Break Pro 3D Billiards
5. Sorcery! (inkle Ltd)
6. Solar Eclipse Timer
7. Farming Simulator 18
8. Geometry Dash
9. HotSchedules
10. Ultimate Guitar Tabs & Chords
11. Call Recorder License - ACR
12. Bloons Supermonkey 2 (ninja kiwi)
13. Nova Launcher Prime
14. Scribblenauts Remix (Warner Bros.)
15. Terraria.
16. Torque Pro (OBD 2 & Car)
17. Pocket Casts
18. The Sims 3
19. Daniel Tiger’s Day & Night
20. Grand Theft Auto: San Andreas
21. Assassin’s Creed Identity (Ubisoft Entertainment)
22. After the End Forsaken Destiny
23. Five Nights at Freddy’s
24. 3D Parallax Background
25. QR Code Reader PRO

**Top Grossing**
1. Clash of Clans
2. Mobile Strike (Epic War)
3. Game of War - Fire Age
4. Candy Crush Saga
5. Candy Crush Soda Saga
6. Star Wars: Galaxy of Heroes
7. Google Drive
8. Clash Royale
9. Slotomania Slots Free Casino (Playtika)
10. Pandora Music
11. Gardenscapes - New Acres
12. King of Avalon: Dragon Warfare
13. Clash of Kings
14. Lords Mobile
15. Slots Casino - House of Fun
16. Township
17. Summoners War
18. Marvel Contest of Champions
19. Slots Huuuge Casino
20. Toy Blast
21. Tinder
22. HBO NOW
23. Bubble Witch 3 Saga
24. Cashman Casino - Free Slots
25. Jackpot Party Casino Slots 777

**iOS (Apple Store)**

**Free Apps**
1. Balls vs Blocks (Voodoo)
2. Snapchat
3. YouTube
4. Instagram
5. Floor is Lava Challenge
6. Messenger (Facebook)
7. Google Maps
8. Bitmoji
9. Facebook
10. Spotify Music
11. Netflix
12. Uber
13. Pandora
14. Fidget Spinner (Ketchapp)
15. Ballz (Ketchapp)
16. Gmail (Google)
17. WhatsApp Messenger
18. Waze
19. Amazon App
20. Wish - Shopping Made Fun
21. Pinterest
22. Twitter
23. Framed (Loveshack)
24. SoundCloud - Music & Audio
25. Yeah Bunny! (Adrian Zarzycki)

Paid Apps
1. Monument Valley 2
3. Heads Up! (Warner Bros.)
4. Farming Simulator 18
5. Plague Inc.
6. Bloons TD 5 (Ninja Kiwi)
7. HotSchedules
8. Geometry Dash (RobTop Games)
9. Monument Valley (ustwo Games)
10. Facetune
11. LightX
12. Enlight
13. The Game of Life
14. Tabs & Chords by Ultimate Guitar
15. NBA 2K17
16. Flick Home Run ! (infinity pocket)
17. Full Fitness: Exercise Workout Trainer
18. Videoshop
19. Monopoly Game (Electronic Arts)
20. NBA JAM (Electronic Arts)
21. Papa’s Freezeria To Go!
22. Grand Theft Auto: San Andreas
23. Terraria
24. Goat Simulator PAYDAY
25. Plants vs. Zombies (PopCap)

Top Grossing
1. Clash of Clans (Supercell)
2. Netflix
3. Clash Royale (Supercell)
4. Pandora
5. Candy Crush Saga
6. Mobile Strike
7. Game of War - Fire Age
8. Tinder
9. YouTube
10. Candy Crush Soda Saga
11. HBO NOW
12. Star Wars: Galaxy of Heroes (Electronic Arts)
13. Hulu
14. Spotify Music
15. Big Fish Casino
16. DoubleDown Casino & Slots
17. Marvel Contest of Champions (Kabam)
18. Gardenscapes - New Acres (Playrix)
19. Toy Blast (Peak Games)
20. Slotomania Slots Casino: Vegas Slot Machines Games
21. Pokémon GO
22. Episode - Choose Your Story
23. Roblox
25. Lords Mobile

58.3 Market Resources
App Annie, 23 Geary Street, Suite 800, San Francisco, CA 94108. (415) 638-6840. (www.appannie.com)

comScore, 11950 Democracy Drive, Suite 600, Reston, VA 20190. (703) 438-2000. (www.comscore.com)
59

VOICE-ENABLED PERSONAL ASSISTANTS

59.1 Overview
Built into smartphones and other smart devices, personal assistants are bots that use voice interaction to provide information and perform various tasks for users much like a human assistant would. Siri, introduced by Apple in 2011, was the first personal assistant to enter the mainstream.

“The rise of Siri et al signals two important trends that will shape the future of the consumer Internet: the evolution of search away from typed search-engine queries towards a more personalized, interactive service, and a gradual shift from individual apps to an ecosystem of services that is mediated by a powerful software assistant.”

*The Economist, 9/12/16*

59.2 Virtual Personal Assistants
There are four popular virtual personal assistants, as follows:

Alexa
- Amazon’s Alexa is the intelligent personal assistant embedded in its Echo home device that is capable of voice interaction. It offers weather reports provided by AccuWeather and news provided by TuneIn from a variety of sources including local radio stations, NPR, and ESPN. Alexa-supported devices stream music from Amazon Music accounts, have built-in support for Pandora and Spotify, and can play music from streaming services such as Apple Music and Google Play Music from a phone or tablet. It can manage voice-controlled alarms, timers, shopping and to-do lists, and can access Wikipedia articles. Alexa connects with Amazon’s TV device to control streaming video and can also control several smart devices using itself as a home automation hub.
Cortana
• Cortana is an intelligent personal assistant launched in April 2014 by Microsoft for Windows 10, Windows 10 Mobile, Windows Phone 8.1, Microsoft Band, Xbox One, iOS, and Android. Named after the AI character in the Xbox game Halo, Cortana can provide information from Microsoft’s Bing, weather forecasts, and reminders from personal calendars. It can solve mathematical equations, convert units of measurement, and determine the exchange rates between currencies. Cortana can forecast results of MLB, NBA, and NFL games.

Google Assistance
• Launched in May 2016 as an extension of Google Now, Google Assistant engages in two-way conversations, gives directions, performs tasks like finding flights, and can call up information. Assistant is integrated with the Google Pixel Android phone, syncs with Chromecast to give users voice control over their digital TV experience, and is included in Google Home.

Siri
• Siri, which debuted on the Apple iPhone in 2011, is part of Apple iOS, watchOS, macOS, and tvOS operating systems. Siri uses a natural language user interface to answer questions, search for information, make recommendations, send text messages by voice, play music, book restaurant reservations, and more. Siri opened to third-party apps in 2016 with the arrival of iOS 10.

59.3 Market Assessment
According to eMarketer (www.emarketer.com), 35.6 million people in the U.S. will use a voice-activated personal assistant at least once a month in 2017, a 128.9% increase from the previous year. Virtual assistant user share is as follows:
• Amazon Echo: 70.6%
• Google Home: 23.8%
• Other: 5.6%

59.4 Use Of Personal Assistants
According to Gartner (www.gartner.com), approximately two-thirds of U.S. smartphone users had used virtual-assistant services as of year-end 2016.
In a 2016 survey by 451 Research (www.451research.com), 37% of mobile phone users reported using a voice-controlled personal assistant at least once a month; 14% use one weekly and 13% said they do so daily.
According to AYTM Market Research (www.aytm.com), those with personal assistants use them for the following tasks (percentage of respondents):
• Asking general questions: 64.5%
• Obtaining directions while driving: 39.7%
• Making calls: 25.2%
• Dictating texts/emails: 22.8%
• Checking updates: 16.9%

Six percent (6%) of Internet users say they would be lost without their virtual personal assistant, according to a November 2016 survey by Sequence (www.sequence.com), a brand agency.
60

MOBILE PAYMENTS

60.1 Consumer Use Of Mobile Payment Apps

In 2016, 38.4 million Americans ages 14 and older – 19.4% of U.S. smartphone users – used their mobile device to pay at the point of sale at least once, according to eMarketer (www.emarketer.com). It is forecast that 33.1% of smartphone users will make proximity mobile payments by 2020.

“Despite double-digit growth this year and next, Americans’ use of mobile wallets like Apple Pay, Android Pay and Samsung Pay, as well as branded apps that include mobile wallets like the Starbucks app, Walmart Pay and CVS Pay, will not reach mass adoption in the foreseeable future.”

eMarketer, 11/7/16

By age, U.S. proximity mobile payment user demographics are as follows:

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Number</th>
<th>Pct. of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-to-17</td>
<td>1.27 million</td>
<td>3.3%</td>
</tr>
<tr>
<td>18-to-24</td>
<td>7.72 million</td>
<td>20.1%</td>
</tr>
<tr>
<td>25-to-34</td>
<td>11.94 million</td>
<td>31.1%</td>
</tr>
<tr>
<td>35-to-44</td>
<td>8.06 million</td>
<td>21.0%</td>
</tr>
<tr>
<td>45-to-54</td>
<td>5.41 million</td>
<td>14.1%</td>
</tr>
<tr>
<td>55-to-64</td>
<td>3.22 million</td>
<td>8.4%</td>
</tr>
<tr>
<td>65 and older</td>
<td>0.81 million</td>
<td>2.1%</td>
</tr>
</tbody>
</table>

age, made in-store payments via smartphone in 2016 as follows (percentage of respondents):

<table>
<thead>
<tr>
<th>Age Group</th>
<th>&gt; Once A Week</th>
<th>&gt; Once A Month</th>
<th>&lt; Once A Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-to-24:</td>
<td>10%</td>
<td>12%</td>
<td>12%</td>
</tr>
<tr>
<td>25-to-34:</td>
<td>21%</td>
<td>14%</td>
<td>12%</td>
</tr>
<tr>
<td>35-to-44:</td>
<td>8%</td>
<td>8%</td>
<td>6%</td>
</tr>
<tr>
<td>45-to-54:</td>
<td>3%</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>55-to-64:</td>
<td>2%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>65-to-74:</td>
<td>1%</td>
<td>1%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Javelin Strategy & Research (www.javelinstrategy.com) estimated that 21% of smartphone users made a mobile payment in 2016, an increase from 11% that did so in 2013. However, monthly frequency of wallet purchases per person has declined from 3.7 transactions per month in 2013 to 3 transactions in 2016, a 20% decline in purchases per person.

_________________________________________________________________

“While consumer adoption and use of mobile wallets continues to rise, both in dollar volume and total new users, mean monthly mobile wallet use has dipped 20% in the past three years. Most mobile wallet providers, in particular the three major ‘Pays’ – Apple Pay, Android Pay, and Samsung Pay – are failing to show consumers clear reasons to reach for their phones instead of their credit or debit cards. Providers are attracting first-time mobile wallet users but failing to demonstrate clear value that drives repeat purchasing behavior.”

Javelin Research & Strategy, 8/17/16

_________________________________________________________________

A March 2017 survey by Parks Associates (www.parksassociates.com) found that 20% of U.S. smartphone users have used mobile payment at a retail location. PayPal, the most popular app, has been used by 63% of payment app users; 38% have used the Starbucks app.
60.2 Market Assessment

eMarketer assesses proximity mobile payment transactions as follows (change from prior year in parenthesis):

• 2015: $ 9.77 billion (165.5%)
• 2016: $ 27.67 billion (183.3%)
• 2017: $ 62.49 billion (125.8%)
• 2018: $ 85.83 billion (85.4%)
• 2019: $199.49 billion (72.2%)
• 2020: $314.13 billion (57.5%)

According to Javelin Research & Strategy, transaction revenue for the major mobile wallet apps in 2016 was as follows:

• Apple Pay: $6.8 billion
• Android Pay: $3.9 billion
• Samsung Pay: $3.2 billion

60.3 Consumer Attitudes Toward Mobile Payment

FutureBuy 2016, by GfK (www.gfk.com), reported U.S. Internet users’ attitudes toward mobile payment security as follows (percentage of respondents):

• Worried about personal information when using payment apps: 55%
• Confident that mobile payments are 100% secure: 24%
• Making payments via mobile device is more secure than other methods: 19%

60.4 Types Of Payments

Among U.S. adults that made at least one mobile payment, Deloitte reported payments made at the following types of businesses (percentage of respondents):

• Coffee shops: 39%
• Quick-service restaurant: 39%
• Casual dining restaurant: 37%
• Supermarket/grocery: 36%
• Apparel store: 33%
• Taxi: 32%
• Public parking: 28%
• Hotel: 26%
• Public transport: 25%
• Gas station pay-at-pump: 25%

60.5 Peer-to-Peer Mobile Payment Apps

Mobile peer-to-peer P2P payments are transactions made between two individuals using a mobile phone as a payment method via mobile browsers and mobile
apps. The most popular P2P apps are Venmo (owned by PayPal) and Square Cash. eMarketer estimates that 45.8 million U.S. adults, or about one-quarter of adult smartphone users, used a P2P payment app at least once per month in 2016. P2P payment app users are forecast to exceed one-third of smartphone users by 2018. In 2016, P2P mobile phone transactions totaled $59.4 billion. Transactions are forecast at $92.1 billion for 2017.

“Mobile peer-to-peer payment apps ... have been more widely adopted by U.S. consumers than proximity mobile payments.”

eMarketer, 11/7/16
61

MOBILE COUPONS/REWARDS

61.1 Overview
Redemption captured by offers that shoppers load directly to their retailer loyalty accounts via a mobile device is dubbed 'load-to-card' (L2C). According to Inmar (www.inmar.com), L2C grew 20% between 2015 and 2016. In comparison, share of redemption for paper coupons found in the Sunday newspaper (free-standing inserts; FSI) fell 10% over the same period. The L2C redemption rate was 6.2% in 2016.

“In shopper behavior research finds shoppers reporting – for the first time ever – that consumers use L2C offers more often than coupons found in FSIs or store circulars. This activity is continuing confirmation that shopper behavior is irrevocably changing – with convenience becoming an increasingly important factor in determining whether or not shoppers engage with coupons.”

Inmar, 2/14/17

For many people, engagement with redeeming discounts with their mobile device is more than simply saving money. In a survey by Valassis (www.valassis.com), one-third say they feel “rewarded” by the number of deals/savings received in a given day via text, social, and app notification.

61.2 Market Assessment
Koupon Media (www.kouponmedia.com) estimates the number of adult mobile coupon users as follows:

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
• 355 •
• 2013: 61 million
• 2014: 79 million
• 2015: 93 million
• 2016: 104 million

eMarketer (www.emarketer.com) assesses and forecasts the number of adult mobile coupon users as follows:
• 2014: 82 million
• 2015: 98 million
• 2016: 112 million
• 2017: 123 million
• 2018: 131 million
• 2019: 137 million
• 2020: 142 million

61.3 Mobile Device Use In Shopping
According to 2K17 Valassis Coupon Intelligence Report, by Valassis (www.valassis.com), 71% of adults use smartphone coupons. By generation, those that do so are as follows:
• Millennials: 89%
• Generation Xers: 79%
• Baby Boomers: 54%

Smartphone/mobile device use in shopping is as follows (percentage of U.S. adults):
• Download paperless discounts onto store ID/loyalty card while at the store: 61%
• Switch brands based on a discount notification I receive on smartphone/mobile device in the store: 58%
• Search for discounts on smartphone/mobile device in the store: 55%
• Make a purchase based on a mobile notification in the store: 51%

Use of smartphone apps in 2017 is as follows (percentage of U.S. adults):
• Grocery/drug store/supercenter savings app: 51%
• Coupon app: 44%
• Cash back/points app: 41%
• In-store shopping rewards app: 39%
• Shopping list app: 34%
• Deal comparison app: 32%

Fifty-three percent (53%) of adults scan receipts to receive cash back or points.
Sixty-seven percent (67%) of adults are influenced about which store to shop based on use of paperless discounts received on a smartphone or mobile device and/or downloaded onto store ID/loyalty card.
62

MOBILE CHECK-IN

62.1 Location Tagging

According to the Pew Research Group [www.pewresearch.org](http://www.pewresearch.org), among adult social media users ages 18 and older, 30% have set up at least one of their accounts to include their location in their posts, an increase from 14% who had done so three years prior.

The demographics of U.S. social media users who use location tagging are as follows:

**Gender**
- Female: 30%
- Male: 30%

**Age**
- 18-to-29: 32%
- 30-to-49: 34%
- 50-to-64: 26%
- 65 and older: 18%

There has been a modest drop in the number of smartphone owners who use check-in location services. Pew found that 12% of adult smartphone owners use a geosocial service to check in to certain locations or to share their location with friends. Among those who use a geosocial service, 39% check into places on Facebook, 18% use Foursquare, and 14% use Google Plus.

Among mobile device users who use the Foursquare app and retail-branded mobile services, most do so to receive coupons or promotional deals for nearby stores. These mobile users receive alerts announcing special sales or deals once they are within a certain area designated by the store. For example, if a customer comes within 5 miles of a particular store during a rainstorm, he or she may get an alert about umbrellas or rain boots.

62.2 Privacy Concerns

According to the Pew Research Group, 54% of mobile app users have chosen not to install an app due to concerns about personal information; 30% have uninstalled an app because of such concerns. The demographics of those who have taken these actions are as follows:
Gender

- Female: 56% 24%
- Male: 52% 35%

Age

- 18-to-29: 49% 29%
- 30-to-49: 55% 31%
- 49 and older: 57% 27%

Household Income

- Less than $30,000: 50% 38%
- $30,000 to $49,999: 46% 29%
- $50,000 to $74,999: 59% 30%
- $75,000 or more: 57% 26%

Education

- High school graduate or less: 45% 25%
- Some college: 57% 32%
- College graduate: 60% 33%

Twenty-four percent (24%) of smartphone users have turned off the location-tracking features on their device to protect their privacy. By age, the percentages that have done so are as follows (source: Pew Research Group):

- 18-to-24: 22%
- 25-to-34: 32%
- 35-to-44: 25%
- 45-to-54: 17%
- 55-to-64: 9%
- 65 and older: 4%

A survey by ISACA (www.isaca.com) found that 58% of smartphone users have used location-based apps, 15% use mobile apps but have not used location-based apps, and 27% do not use apps of any type. ISACA reported that 22% of smartphone users have disabled location-based features on all apps and services; 38% have done so on some apps.

When asked in the ISACA survey about the benefits and risks associated with location-based apps/services, responses were as follows:

- The risks of location-based apps and services outweigh the benefits: 22%
- The benefits of location-based apps and services outweigh the risks: 17%
- The risk and benefits of location-based apps and services are appropriately balanced: 54%
Survey participants said their greatest concern related to the use of location-tracking apps was as follows:

- Strangers knowing too much about my activities: 24%
- My information being shared and used for marketing purposes: 24%
- Personal safety: 21%
- Government knowing too much about my activities: 12%
- Family and friends knowing too much about my activities: 5%
- Employer knowing too much about my activities: 4%
- No concerns: 6%

According to a survey by the e-tailing Group (www.e-tailing.com), 34% of smartphone users find it somewhat undesirable to be geo-targeted on their mobile device, 24% have no concerns or find it desirable, and 42% have mixed feelings.
PART IX: TECHNOLOGY
63

INTERNET TECHNOLOGIES

63.1 Overview

The Internet rose from relative obscurity during the 1980s to become the dominant communications medium in the world. This chapter assesses some of the technologies that fostered this rise.

63.2 Internet Technologies

Broadband

• Deployment of broadband began in the late 1990s when digital subscriber lines (DSLs) were converted from existing copper telephone lines into a data link 30 times faster than the speed of a 56k modem. The asymmetric digital subscriber line (DSL) is still the most common form of broadband.

• In 1998, CCITT (www.itu.int), an international standards group, defined broadband service as transmission channels capable of supporting bit rates greater than about 1.5 to 2 megabits per second (Mbps).

• In January 2015, the Federal Communications Commission (FCC, www.fcc.gov) voted to update its broadband benchmark speeds to 25 Mbps for downloads and 3 Mbps for uploads. This replaced the previous (2010) standard of 4 Mbps/1 Mbps.

“Before broadband the Web did not really work. Broadband meant the Web could finally compete with TV on its own terms. When the Web launched, standard dial-up speeds were 14k. A slow broadband connection today is 4Mb. That is 300 times faster, yet users still complain.”

100 Ideas That Changed The Web

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
• 362 •
Cloud Computing
• Distributed computing over a network is dubbed ‘cloud computing.’ The term originates from the stylized cloud used to depict the Internet on computer network diagrams.
• Amazon dominates cloud computing with its Amazon Web Services (AWS), launched in 2006. AWS annual revenues are estimated at $5 billion to $6 billion. Top rivals include Microsoft and Google.
• A survey by the Harris Poll (www.theharrispoll.com) for SOASTA (www.soasta.com) found 86% of cloud users said the cloud had improved their life online. Users recognize the following benefits of cloud computing (percentage of respondents):
  - Makes file sharing easier: 41%
  - Don’t have to worry about backing up data: 41%
  - Sharing photos with family and friends: 40%
  - Accessing music anywhere: 37%
  - Security: 22%
  - Makes work easier (e.g. organization): 18%
  - Can get a smartphone without paying extra for more memory: 17%

“Cloud computing is not just about sharing resources and economics of scale. It is a move away from dedicated hardware to a shared model where you pay for what you use. This means that software can be accessed from anywhere. You are no longer tied to a single machine. Files can no longer be lost. Backup is automatic. Downtime is reduced. Upgrades are built in.”

100 Ideas That Changed The Web

Collaborative Filtering
• Collaborative filtering makes automatic predictions (filtering) about a user’s interests by collecting information on preferences or tastes from many users (collaborating). It is commonly used to help people find things of interest on the Internet and is now a fundamental part of people’s Web experience.
• Alexa (www.alexa.com), acquired by Amazon in 1999, was among the first to apply collaborative filtering to the Internet. Amazon adopted the technology to present to
customers recommendations of related products based on their purchase history. When customers buy a book, for example, the Amazon bookstore provides a list of related books based on other customers’ purchase history.

- Collaborative filtering is used by social bookmarking services such as Digg. Stories appear on the front page of Digg as they are “voted up” (rated positively) by its user community. As the community becomes larger and more diverse, the promoted stories can better reflect the average interest of the community members. StumbleUpon uses collaborative filtering as the basis for its discovery engine. Last.fm applies the same approach to music and Netflix applys the technology to film.

“As the Web matures, our willingness to divulge personal information is growing. In an increasingly connected world, this data is shared across sites and applications. Collaborative filters will develop tailored experiences based on our demographics and interests as well as our purchase history. Instead of our having to seek out information, collaborative filtering will bring it to us before we have even asked for it.”

100 Ideas That Changed The Web

Domain Names
- The Domain Name System (DNS) is the system for identifying a device that is connected to the Internet. It translates numerical Web addresses into identifiable domain names.
- According to the Mozscape (http://moz.com), there are 162 billion URLs on the Internet. The top 100 domains are listed in Section 11.3 of this handbook.
“DNS servers receive billions of simultaneous requests. Millions of domain names and IP addresses are changed every day. DNS handles all of these with ease, yet its importance is more fundamental than that. Without DNS, there would have been no dot-com, and without dot-com, there would have been no dot-com revolution.”

100 Ideas That Changed The Web

Geolocation
- Geolocation identifies the geographic location of a mobile phone or Internet-connected computer terminal. Location is assessed by the device using Global Positioning System (GPS) technology. Virtually all cellphones and smartphones sold in the United States since 2010 have GPS tracking technology embedded. The advancement of geolocation technology has been rapid; the first use of GPS technology in conjunction with mobile phones dates only to 1995.

Internet Service Providers
- Internet service providers (ISPs) provide services for accessing, using, or hosting a website on the Internet.
- Pioneer ISPs were Telenet, launched by BBN Technologies in 1975; CompuServe, launched as a timesharing service in 1979; Prodigy, the first dial-up service to offer full access in 1994; and America Online (AOL), which popularized consumer use of the Internet with its free CDs. AOL was acquiring a new subscriber every six seconds in the late 1990s.
- The largest ISPs are AT&T, CenturyLink, Charter Communications, Comcast, Time Warner, and Verizon. ISP subscriber statistics are presented in section 1.5 of this handbook.
- The largest website hosting services are Bluehost, Go Daddy, Hostgator, iPower, IX Web Hosting, Lunar Pages, and Yahoo! Web Hosting.

Podcasts
- A podcast is a digital file, originally made for downloading to a portable media player. The earliest podcasts were audio-only files, but today are just as likely to be video. Podcasts consist of an episodic series of audio, video, digital radio, PDF, or ePub files subscribed to and downloaded through web syndication or streamed on-line to a computer or mobile device.
• The built-in support for podcasts by Apple’s iTunes in the mid-1990s enhanced the popularity of podcasts. Video-supporting iPads in the mid-2000s took podcasts multimedia. User-generated videos became popular and broadcast media soon adopted the format.

“The podcast added another dimension to self-publishing but, more significantly, it redefined how we watch TV and listen to the radio. No longer tied to a traditional media schedule, we now consume our favorite shows where we want, whenever we want.”

*100 Ideas That Changed The Web*

Search Engines
• A web search engine is a software system that is designed to search for information on the World Wide Web and present results to users in a line of results often referred to as search engine results pages (SERPs). SERPs present lists of websites, webpages, images, videos, maps, and more. Search engines maintain real-time information by running an algorithm on a web crawler.
• Search applications are further assessed in Chapter 36 of this handbook.

User-Generated Content
• User-generated content (UGC) refers to content such as blogs, wikis, discussion forums, posts, chats, tweets, podcasts, pins, digital images, video, audio files, and other forms of media that is created by Internet users. The content often is made available via social media websites.
“User-generated content is at the heart of the Web – a reaction against 100 years of passive media consumption. Ever since there has been content, there has been UGC. In fact, it only became user-generated when it had an opposite – professionally made content produced for broadcast. Whenever we participate in something, we increase our understanding of it. This is the true value of UGC.”

100 Ideas That Changed The Web

Voice Over IP
• Voice over IP (VoIP) is a technology for the delivery of voice communications and multimedia sessions over the Internet or Internet Protocol (IP) networks. Other terms commonly associated with VoIP are IP telephony, Internet telephony, broadband telephony, and broadband phone service.
• There are over 9,500 IP telephony and VoIP service providers. The most popular VoIP service is Skype, with over 600 million users.

Webcams
• A webcam is a video camera that feeds or streams its image in real time to or through a computer or computer network. The video stream may be saved, viewed, or sent on to other networks via the Internet, typically as an email attachment.
• Applications include monitoring, aerial and astro photography, security cameras, telemedicine, traffic cameras, video clips, videocalling, and videoconferencing.

“As the Web and the physical world converge, the role of the webcam becomes more central to our online experience, so much so that the next generation of webcams are likely to be wearable.”

100 Ideas That Changed The Web

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
• 367 •
Websites

- An Internet website, or simply site, is a set of related web pages typically served from a single web domain and hosted on a web server, accessible through an Internet address known as a uniform resource locator (URL). All publicly accessible websites collectively constitute the World Wide Web and are available on a royalty-free basis to the public domain.
- The first website (info.cern.ch) was published in August 1991 by Tim Berners-Lee.
- The number of Internet sites has been as follows (sources: NetCraft and Internet Live Stats (www.internetlivestats.com):
  - 1991: 1
  - 1992: 10
  - 1993: 130
  - 1994: 2,738
  - 1995: 23,500
  - 1996: 257,601
  - 1997: 1,117,255
  - 1998: 2,410,067
  - 1999: 3,177,453
  - 2000: 17,087,182
  - 2001: 29,254,370
  - 2002: 38,760,373
  - 2003: 40,912,332
  - 2004: 51,611,646
  - 2005: 64,780,617
  - 2006: 85,507,314
  - 2007: 121,892,559
  - 2008: 172,338,726
  - 2009: 238,027,855
  - 2010: 206,956,723
  - 2011: 346,004,403
  - 2012: 697,089,489
  - 2013: 672,985,183
  - 2014: 968,882,453
  - 2015: 863,105,652
  - 2016: 1,102,474,072

Wi-Fi

- Wi-Fi, or WiFi, is a local area wireless computer networking technology that allows electronic devices to network, mainly using the 2.4 gigahertz UHF and 5 gigahertz SHF ISM radio bands. Wi-Fi is governed by the Institute of Electrical and Electronics Engineers (IEEE, www.ieee.org) 802.11 standards. Personal computers, video-game consoles, smartphones, digital cameras, tablet computers, and digital audio players use Wi-Fi to connect to the Internet via a wireless network access point, or hotspot.
“The term Wi-Fi was coined by Interbrand in 1999, and we have not looked back since. Liberated from our desks, we use Wi-Fi to surf the Web, send email, find our location, and make phone calls. Wireless networking has taken the Web mobile.”

100 Ideas That Changed The Web

• Some cities provide broadband access via Wi-Fi to large parts or all of a municipal area by deploying a wireless mesh network. According to MuniWireless (www.muniwireless.com), over 400 cities and counties in the United States have deployed wireless networks.

• Many university campuses provide Wi-Fi coverage, generally with access limited by authentication to students and faculty. Wireless Andrew, launched at Carnegie Mellon University in 1993, was the first such network.

Wikis

• A wiki is a content management system which allows collaborative modification, extension, or deletion of its content and structure. Wikis allow websites that can be edited simultaneously by multiple people.

• Ward Cunningham is credited as the developer of the first wiki software in 1995. He described the program, WikiWikiWeb, as “the simplest online database that could possibly work.”

• Wikipedia, an encyclopedia project with over 48 billion monthly visitors, is the most popular wiki on the World Wide Web, but there are many sites running many different kinds of wiki software.
64.1 Overview

Internet of Things (IoT) refers to an advanced level of networked connectivity between objects, platforms, systems, and services that enables the exchange of data. The premise behind the IoT is that any object, whether natural or manufactured, has the ability to transmit data over a network.

Eighty-three percent (83%) of U.S. adults expect the IoT to have widespread and beneficial effects on the everyday lives of the public by 2025, according to Pew Research Center [www.pewresearch.org].

64.2 Device Connections

IHS (www.ihs.com) forecasts that the IoT market will grow from an installed base of 15.4 billion devices in 2015 to 30.7 billion devices in 2020 and 75.4 billion in 2025.

64.3 Market Assessment

McKinsey (www.mckinsey.com) estimates the total IoT market size in 2015 at $900 million, and forecasts growth to $3.7 billion in 2020, a compound annual growth rate of 32.6%.

64.4 Applications

According to Internet Of Things Survey, by SOASTA (www.soasta.com), the most highly anticipated IoT technologies among users are as follows (percentage of respondents):

- Cars: 39%
- Smart home applications: 34%
- Heart monitors: 23%
- Fitness devices: 22%
- Pet monitors (i.e. GPS trackers): 22%
- Child monitors: 20%
- Toys: 19%
- Drones: 18%
- Glasses: 15%
• Clothes: 15%
• Sports equipment: 9%

When asked what areas they expect IoT technology to improve their lives, SOASTA survey participants responded as follows (percentage of respondents):
• Improve any activity: 77%
• Stay healthy: 47%
• Save energy: 46%
• Working out: 31%
• Work: 29%
• School: 28%
• Updating friends and colleagues: 17%
• Babysitting: 16%
• Dating: 8%

64.5 IoT Device Ownership

In January 2017, eMarketer (www.emarketer.com) reported the top IoT devices owned by U.S. adults as follows (percentage of respondents):
• Smart TV: 42%
• Connected TV device (e.g. Roku, Apple TV): 42%
• Health/fitness tracking device: 28%
• Smart toys: 20%
• Smart video monitor: 17%
• Smart-home devices/home security: 14%
• Connected car: 10%
• Smart watch: 9%
• Smart speaker/virtual assistance: 9%

A 2016 survey by ISACA (www.isaca.org) found IoT devices owned by U.S. Internet users as follows (percentage of respondents):
• Smart TV: 43%
• Internet-connected camera: 26%
• Connected car: 25%
• Wireless fitness tracker: 21%
• Internet-connected audio/stereo speakers: 16%
• Employee access card with sensor: 11%
• Internet-connected home alarm system: 10%
• Smart thermostat or utility meter: 9%
• Internet-connected children’s toy: 8%
• Smart watch: 7%
• Smart weight scale: 5%
• Internet-connected garage door opener: 3%
• Internet-connected medical device: 3%

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019 • 371 •
• Internet-connected door locks: 2%
• Internet-connected baby monitor: 2%
• Internet-connected refrigerator: 1%
• Other: 12%
• None: 24%

64.6 Assessment of Top IoT Markets

The three top IoT markets – wearable technology, smart homes, and connected cars – are assessed in Chapters 65, 66, and 67, respectively.
65.1 Overview

Wearable computers, commonly referred to as wearables, are electronic devices that are worn by the user on the wrist, as eyewear, or integrated with clothing. Wearables provide constant interactivity between the computer and user; there is no need to turn a device on or off. Essentially, wearable computers are like an extension of the user’s mind or body.

“When it comes to the future of computing, there is one major known and a principal unknown. The known, with almost guaranteed certainty, is that the next era of computing will be wearables. The unknown, with commensurate guaranteed uncertainty, is what these wearables will be and where on your body they will live.”

*The New York Times*

The most popular category of wearables is fitness trackers, which are assessed in Chapter 21 of this handbook. Smartwatches are sold by Apple, LG Electronics, Motorola Mobility, Pebble, and Samsung, among others.

Google introduced a prototype of Google Glass in 2013, a head-mounted display designed as eyewear. Approximately 10,000 of the prototypes were sold at $1,500. The device became available to the public in May 2014, but Google Glass was taken off the market in January 2015.

OMsignal (www.omsignal.com) has developed an Internet-connected shirt that functions as a breathing monitor, calorie counter, fitness tracker, heart rate monitor, and step counter. Intel has demonstrated a similar smart shirt.

An emerging class of wearables are devices that attach to the body or adhere to the skin like temporary tattoos. MC10 (www.mc10inc.com), for instance, is testing small
attachable computers that include wireless antennas, and temperature and heart-rate sensors, with a tiny battery.

Researchers in the Department of Materials Science and Engineering at the University of Illinois at Urbana-Champaign have been working for nearly a decade to perfect flexible devices that can be worn on the skin or implanted internally. Researchers have been working with patients with Parkinson’s disease to monitor their motions, with dermatologists to treat skin diseases, and with beauty companies like L’Oréal to develop digital stickers that track skin hydration.

65.2 Market Assessment

Kantar Insights (www.us.kantar.com) assessed that 15.6% of U.S. adults owned a wearable device at year-end 2016. Eight percent (8%) of adults planned to purchase one in 2017.

Kantar estimated that 4.2% of U.S. adults owned a smartwatch at year-end 2016. Apple has garnered a 50% share of the smartwatch market, followed by Samsung at 17%.

A December 2016 assessment by eMarketer (www.emarketer.com) estimated that 17.6% of U.S. adults use a wearable device at least once a month. By age, those that do so are as follows:

- 18-to-24: 29.1%
- 25-to-34: 30.8%
- 35-to-44: 25.3%
- 45-to-54: 14.5%
- 55-to-64: 6.3%
- 65 and older: 4.6%

A February 2017 survey by AYTM Market Research (www.aytm.com) found that 18% of adult Internet users had purchased one wearable device or smart clothing, 8% had purchased more than one, and 74% had not purchased any. Among those that have made a purchase, the type of wearable device was as follows (percentage of respondents):

- Fitness/health tracking: 83.9%
- Smartwatch: 52.8%
- Location services: 22.2%
- Other: 2.2%

65.3 Consumer Demand

According to Kantar, among adults that have not purchased and do not plan to purchase a wearable device, reasons are as follows (percentage of respondents):

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
• 374 •
“Manufacturers have struggled to convince consumers to purchase wearables. An old saying may apply here: ‘jack of all trades, master of none.’ It is a fitting metaphor for the current state of the wearable market, but for consumers looking for a specific use case instead of general functionality, the future holds some promise.”

Lauren Guenveur, Director
Kantar Worldpanel, 1/25/17

eMarketer expected wearable usage among U.S. adults to increase 60% in 2016 but at year-end found growth of only 24.7%.

“eMarketer has significantly revised its estimates of wearable device users. The still-young category showed early promise, but usage has not expanded beyond early adopters. Smart watches, in particular, have failed to impress consumers. This year, 39.5 million U.S. adults will use a wearable device with Internet connectivity at least once a month, far less than the 63.7 million previously forecast.”

eMarketer, 12/20/16
While market penetration of wearables has not met forecasts, it may be that the market is simply slower to take off than anticipated. A February 2017 survey by AYTM Market Research found that 46% of U.S. adults planned to make a purchase within the next five years; another 26% said they might buy a device.
SMART HOMES

66.1 Overview
Homes with an Internet-connected controller for monitoring and control of HVAC, security, and other systems are dubbed smart homes or connected homes.

Any device in the home that uses electricity can be a component of a home network. The most popular applications are door locks, lighting, home security, home theater and entertainment, and thermostat regulation.

Among the most novel smart home components is a smart mattress by Luna (www.lunasleep.com) that controls the temperature of the bed, tracks vitals, and communicates with other smart devices such as thermostats, lighting systems, and coffee makers.

While many homes have a single device connected to the Internet, this generally is not considered to classify a residence as a smart home. The Smart Home Marketplace Survey, conducted in 2016 by Coldwell Banker Real Estate (www.coldwellbanker.com), reported that 76% of adults think that having just one category of smart technology in a home is not enough for it to be considered smart. Sixty percent (60%) feel that a home needs to have at least three categories of smart products to be considered a smart home.

66.2 Market Penetration
Parks Associates (www.parksassociates.com) assesses smart home device penetration in North America in 2017 as follows:

- Networked/IP cameras: 15%
- Smart light bulbs: 12%
- Smart thermostats: 10%
- Smart outlets/switches/dimmers: 7%

66.3 User Satisfaction
A recent Harris Poll (www.theharrispoll.com) asked smart home technology owners about their attitude toward the technology which they had installed. By age, responses were as follows (percentage of respondents):
<table>
<thead>
<tr>
<th>Statement</th>
<th>18-to-44</th>
<th>45 and Older</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I recommend smart home technology:</td>
<td>92%</td>
<td>86%</td>
<td>91%</td>
</tr>
<tr>
<td>Smart-home products make my life easier:</td>
<td>90%</td>
<td>80%</td>
<td>87%</td>
</tr>
<tr>
<td>I would be more likely to buy a home if smart technology were already</td>
<td>85%</td>
<td>71%</td>
<td>81%</td>
</tr>
<tr>
<td>installed:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I consider myself an early adopter of technology:</td>
<td>84%</td>
<td>58%</td>
<td>77%</td>
</tr>
<tr>
<td>Smart home products give me peace of mind when it comes to home security:</td>
<td>75%</td>
<td>64%</td>
<td>72%</td>
</tr>
<tr>
<td>I made my home 'smart' when I moved in:</td>
<td>62%</td>
<td>46%</td>
<td>57%</td>
</tr>
</tbody>
</table>
CONNECTED CARS

67.1 Overview
A connected car is a vehicle that is equipped with Internet access that allows the car to communicate with other devices both inside and outside of the vehicle. Typically, a connected car has an in-car entertainment unit and an in-dash system with a screen from which the operations of the connections can be managed.

Connected cars give drivers access to such things as Internet access, navigation, links to roadside assistance, automatic notifications of traffic congestion, and safety alerts.

Smart devices and apps are available that interact with the car from distance. Users can unlock their car, check the status of batteries on electric cars, find the location of the car, or remotely activate the climate control system.

Intel (www.intel.com) reports that the connected car is the third fastest-growing technological device after phones and tablets.

According to GSMA (www.gsma.com), more than 50% of vehicles sold in 2016 were connected to the Internet in at least some minor way, and by 2025 it is expected that every car will be connected in multiple ways.

67.2 Market Forecast

*Connected Car Report 2016*, by PricewaterhouseCoopers (www.pwc.com), forecasts the value from the sale of connected car packages to end customers at $155.9 billion globally in 2022, an increase from $45.0 billion in 2016 and $52.5 billion in 2017, an average annual growth rate of 24.3%.

IHS Automotive (www.ihs.com/industry/automotive.html) forecasts the number of Internet-connected cars will increase globally to 152 million in 2020.

An estimate by Gartner Research (www.gartner.com) puts the number of cars in 2020 with some form of embedded connectivity at 250 million, or about one in five vehicles on the road worldwide.

GSMA forecasts revenues from the sale of connectivity, in-vehicle hardware, and related services will reach $39 billion by 2018.
67.3 Consumer Demand

A survey by McKinsey & Company (www.mckinsey.com) found that 80% of car buyers consider connectivity “important” or “very important.”

IHS Automotive reports that over 50% of consumers are swayed by the presence of an Internet-capable device.

According to Accenture (www.accenture.com), technology is the top selling point for 39% of U.S. car buyers, almost triple the 14% who care most about horsepower and handling.

“The industry has taken notice, trying to rebrand cars as jumbo smartphones that are stuffed with apps and can be accessed remotely via other devices.”

_Bloomberg Businessweek_

Despite the excitement about connected cars among consumers, many are reluctant to pay the extra costs associated with embedded connectivity and instead use their smartphones for their in-car connectivity needs. There are also privacy concerns among many consumers.

“Once mobile devices are connected to car infotainment systems and cars are connected to the Internet, vehicles will become a rich source of data for manufacturers, marketers, insurance providers, and the government. Oh, and they’ll be a lucrative target for hackers, too.”

_Computerworld_
67.4 Market Resources


68.1 Overview
Research in virtual reality (VR) – computer technology that simulates a user’s physical presence in an environment, real or imagined, allowing for user interaction – dates to the 1980s. Only recently have commercial VR products and content become available for consumers.

Augmented reality is the integration of digital information with the user’s environment in real time. Unlike virtual reality, which creates a totally artificial environment, augmented reality uses the existing environment and overlays new information on top of it. The development of AR dates to the late 1990s.

68.2 Awareness/Use Of VR And AR
A January 2017 survey by YuMe (www.yume.com) found awareness and use of virtual reality and augmented reality among U.S. adults as follows (percentage of respondents):

- Awareness: 47% 25%
- Usage: 16% 9%

According to Parks Associates (www.parksassociates.com), 3.4 million households, or 3.5% of U.S. broadband households, owned a virtual reality headset at year-end 2016. Less than one million households owned a VR headset at year-end 2015. The top uses for VR include gaming, healthcare, live events such as concerts or sporting events, social interaction, marketing, and education.

68.3 Satisfaction With VR Headsets
Parks Associates found that 50% of consumers who try a VR (virtual reality) headset enjoy it and make plans to purchase one. Still, more than 60% of U.S. broadband households say they know little or nothing about virtual reality.
“VR and AR technologies have great potential but are in the very earliest stages of their market lifecycle. VR headsets have only recently entered the consumer market, and 360-degree and VR content production is just beginning. Content creators are still in the process of finding the best ways to use VR to tell stories and generate revenues.”

Brett Sappington
Senior Director of Research
Parks Associates, 12/8/16

A March 2017 survey by Magid (www.magid.com) asked users of VR headsets about their satisfaction with the device. Three types of VR headsets were assessed: headsets designed for a specific smartphone, headsets that connect to a PC, and headsets designed for use with any smartphone. Responses were as follows:

<table>
<thead>
<tr>
<th></th>
<th>Specific Smartphone</th>
<th>PC-Based</th>
<th>Any Smartphone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Far exceeded:</td>
<td>41%</td>
<td>35%</td>
<td>30%</td>
</tr>
<tr>
<td>Slightly exceeded:</td>
<td>13%</td>
<td>29%</td>
<td>30%</td>
</tr>
<tr>
<td>Met expectations:</td>
<td>37%</td>
<td>31%</td>
<td>31%</td>
</tr>
<tr>
<td>Slightly below:</td>
<td>6%</td>
<td>2%</td>
<td>6%</td>
</tr>
<tr>
<td>Far below:</td>
<td>3%</td>
<td>2%</td>
<td>3%</td>
</tr>
</tbody>
</table>

68.4 Pokémon Go
Pokémon Go, released by Nintendo in July 2016, introduced the public to augmented reality as players around the globe walked around staring at their smartphones in search of a Pikachu to add to their Pokedex.
“Pokémon Go monopolized the summer for millions of U.S. consumers. The location-based augmented reality game is compelling and addictive.”

eMarketer, 11/3/16

Pokémon Go had more first-week downloads from the Apple App Store than any app in history. There were 50 million downloads worldwide within 19 days of launch. MGH Inc. (www.mghus.com) reported the following percentages of U.S. smartphone users, by age, who downloaded Pokémon Go during the first month after launch:

- 18-to-29: 48%
- 30-to-44: 23%
- 45-to-55: 9%

There were over 650 million Pokémon Go downloads as of February 2017. The AR game generated $1 billion in revenue for Nintendo. While engagement with the game had peaked, there were still 65 million monthly active users as of April 2017.

“Pokémon Go put augmented reality on the map and now people understand what it is, what it does, and why it is fun.”

eMarketer, 9/14/16

Pokémon Go has been a successful promotional tool, with retailers and destinations paying to set Pokéstop “lures” to draw players, turning their locations into portals, and drawing extra foot traffic. Sponsors are charged for every customer visiting a store, as confirmed by the app. As of March 2017, Pokémon Go had driven more than 500 million visits to 35,000 sponsored locations.
PART X: THE WORLD WIDE WEB
GLOBAL USE OF THE INTERNET

69.1 Users, Year-by-Year

The International Telecommunication Union (ITU, www.itu.int) reports the number of Internet users worldwide as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Users</th>
<th>Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>14,161,570</td>
<td>0.3%</td>
</tr>
<tr>
<td>1994</td>
<td>25,454,590</td>
<td>0.4%</td>
</tr>
<tr>
<td>1995</td>
<td>44,838,900</td>
<td>0.8%</td>
</tr>
<tr>
<td>1996</td>
<td>77,433,860</td>
<td>1.3%</td>
</tr>
<tr>
<td>1997</td>
<td>120,758,310</td>
<td>2.0%</td>
</tr>
<tr>
<td>1998</td>
<td>188,023,930</td>
<td>3.1%</td>
</tr>
<tr>
<td>1999</td>
<td>280,866,670</td>
<td>4.6%</td>
</tr>
<tr>
<td>2000</td>
<td>414,794,957</td>
<td>6.8%</td>
</tr>
<tr>
<td>2001</td>
<td>502,292,245</td>
<td>8.1%</td>
</tr>
<tr>
<td>2002</td>
<td>665,065,014</td>
<td>10.6%</td>
</tr>
<tr>
<td>2003</td>
<td>781,435,983</td>
<td>12.3%</td>
</tr>
<tr>
<td>2004</td>
<td>913,327,771</td>
<td>14.2%</td>
</tr>
<tr>
<td>2005</td>
<td>1,030,101,289</td>
<td>15.8%</td>
</tr>
<tr>
<td>2006</td>
<td>1,162,916,818</td>
<td>17.6%</td>
</tr>
<tr>
<td>2007</td>
<td>1,373,226,988</td>
<td>20.6%</td>
</tr>
<tr>
<td>2008</td>
<td>1,575,067,520</td>
<td>23.3%</td>
</tr>
<tr>
<td>2009</td>
<td>1,766,403,814</td>
<td>25.8%</td>
</tr>
<tr>
<td>2010</td>
<td>2,023,202,974</td>
<td>29.2%</td>
</tr>
<tr>
<td>2011</td>
<td>2,231,957,359</td>
<td>31.8%</td>
</tr>
<tr>
<td>2012</td>
<td>2,494,736,248</td>
<td>35.1%</td>
</tr>
<tr>
<td>2013</td>
<td>2,728,428,107</td>
<td>38.0%</td>
</tr>
<tr>
<td>2014</td>
<td>2,956,385,569</td>
<td>40.7%</td>
</tr>
<tr>
<td>2015</td>
<td>3,185,996,155</td>
<td>43.4%</td>
</tr>
<tr>
<td>2016</td>
<td>3,424,971,237</td>
<td>46.1%</td>
</tr>
</tbody>
</table>

69.2 Users By Region

According to ITU, Internet access by region in 2016 was as follows:
### Individuals Using The Internet

<table>
<thead>
<tr>
<th>Region</th>
<th>Number</th>
<th>Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa:</td>
<td>240 million</td>
<td>25.1%</td>
</tr>
<tr>
<td>Arab States:</td>
<td>161 million</td>
<td>41.6%</td>
</tr>
<tr>
<td>Asia-Pacific Region:</td>
<td>1.72 billion</td>
<td>41.9%</td>
</tr>
<tr>
<td>Commonwealth of Independent States:</td>
<td>188 million</td>
<td>66.6%</td>
</tr>
<tr>
<td>Europe:</td>
<td>499 million</td>
<td>79.1%</td>
</tr>
<tr>
<td>The Americas:</td>
<td>647 million</td>
<td>65.0%</td>
</tr>
<tr>
<td>Total:</td>
<td>3.49 billion</td>
<td>52.3%</td>
</tr>
</tbody>
</table>

### Fixed Broadband Subscribers

<table>
<thead>
<tr>
<th>Region</th>
<th>Number</th>
<th>Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa:</td>
<td>8 million</td>
<td>0.7%</td>
</tr>
<tr>
<td>Arab States:</td>
<td>19 million</td>
<td>4.8%</td>
</tr>
<tr>
<td>Asia-Pacific Region:</td>
<td>432 million</td>
<td>10.5%</td>
</tr>
<tr>
<td>Commonwealth of Independent States:</td>
<td>43 million</td>
<td>15.4%</td>
</tr>
<tr>
<td>Europe:</td>
<td>190 million</td>
<td>30.0%</td>
</tr>
<tr>
<td>The Americas:</td>
<td>188 million</td>
<td>18.9%</td>
</tr>
<tr>
<td>Total:</td>
<td>884 million</td>
<td>11.9%</td>
</tr>
</tbody>
</table>

### Mobile Broadband Subscribers

<table>
<thead>
<tr>
<th>Region</th>
<th>Number</th>
<th>Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa:</td>
<td>280 million</td>
<td>29.3%</td>
</tr>
<tr>
<td>Arab States:</td>
<td>185 million</td>
<td>47.6%</td>
</tr>
<tr>
<td>Asia-Pacific Region:</td>
<td>1.78 billion</td>
<td>42.6%</td>
</tr>
<tr>
<td>Commonwealth of Independent States:</td>
<td>150 million</td>
<td>53.0%</td>
</tr>
<tr>
<td>Europe:</td>
<td>483 million</td>
<td>76.6%</td>
</tr>
<tr>
<td>The Americas:</td>
<td>778 million</td>
<td>78.2%</td>
</tr>
<tr>
<td>Total:</td>
<td>3.65 billion</td>
<td>49.4%</td>
</tr>
</tbody>
</table>

### 69.3 Top User Countries

Ranked by number of Internet users, the top user countries in 2016 were follows (source: ITU):

<table>
<thead>
<tr>
<th>Country</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>692,152,618</td>
</tr>
<tr>
<td>India</td>
<td>340,873,137</td>
</tr>
<tr>
<td>United States</td>
<td>239,882,242</td>
</tr>
<tr>
<td>Brazil</td>
<td>122,796,320</td>
</tr>
<tr>
<td>Japan</td>
<td>118,131,030</td>
</tr>
<tr>
<td>Russia</td>
<td>105,311,724</td>
</tr>
<tr>
<td>Nigeria</td>
<td>86,436,611</td>
</tr>
<tr>
<td>Mexico</td>
<td>72,945,992</td>
</tr>
<tr>
<td>Germany</td>
<td>70,675,097</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>59,538,545</td>
</tr>
<tr>
<td>Indonesia</td>
<td>56,612,527</td>
</tr>
<tr>
<td>France</td>
<td>54,536,418</td>
</tr>
<tr>
<td>Vietnam</td>
<td>49,265,575</td>
</tr>
</tbody>
</table>
• South Korea: 45,213,802
• Turkey: 42,275,017
• Philippines: 40,984,654
• Italy: 39,209,342
• Spain: 36,293,165
• Iran: 34,871,367
• Pakistan: 34,006,477
• Egypt: 32,851,402
• Canada: 31,796,053
• Argentina: 30,131,228
• South Africa: 28,291,419
• Colombia: 26,959,845

Ranked by penetration, the top countries in 2016 were as follows (source: ITU):
• Bermuda: 98.32%
• Iceland: 98.20%
• Luxembourg: 97.33%
• Andorra: 96.91%
• Falkland Islands: 96.90%
• Norway: 96.81%
• Liechtenstein: 96.64%
• Denmark: 96.33%
• Faroe Islands: 94.20%
• Bahrain: 93.48%
• Monaco: 93.36%
• Japan: 93.33%
• Netherlands: 93.10%
• Qatar: 92.88%
• Finland: 92.65%
• United Kingdom: 92.00%
• United Arab Emirates: 91.24%
• Sweden: 90.61%
• South Korea: 89.90%
• Aruba: 88.66%
• Canada: 88.47%
• Estonia: 88.41%
• New Zealand: 88.22%
• Switzerland: 87.97%
• Germany: 87.59%

69.4 Users By Country
The number of Internet users and penetration in 2016 was as follows (source: ITU):
<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Users</th>
<th>Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>2,686,694</td>
<td>8.26%</td>
</tr>
<tr>
<td>Albania</td>
<td>1,740,904</td>
<td>63.25%</td>
</tr>
<tr>
<td>Algeria</td>
<td>15,152,610</td>
<td>38.20%</td>
</tr>
<tr>
<td>Andorra</td>
<td>68,295</td>
<td>96.91%</td>
</tr>
<tr>
<td>Angola</td>
<td>3,102,725</td>
<td>12.40%</td>
</tr>
<tr>
<td>Antigua and Barbuda</td>
<td>59,865</td>
<td>65.20%</td>
</tr>
<tr>
<td>Argentina</td>
<td>30,131,228</td>
<td>69.40%</td>
</tr>
<tr>
<td>Armenia</td>
<td>1,757,817</td>
<td>58.25%</td>
</tr>
<tr>
<td>Aruba</td>
<td>92,108</td>
<td>88.66%</td>
</tr>
<tr>
<td>Australia</td>
<td>20,268,164</td>
<td>84.56%</td>
</tr>
<tr>
<td>Austria</td>
<td>7,171,471</td>
<td>83.93%</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>7,510,555</td>
<td>77.00%</td>
</tr>
<tr>
<td>Bahrain</td>
<td>1,287,441</td>
<td>93.48%</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>23,183,372</td>
<td>14.40%</td>
</tr>
<tr>
<td>Barbados</td>
<td>216,316</td>
<td>76.11%</td>
</tr>
<tr>
<td>Belarus</td>
<td>5,909,252</td>
<td>62.23%</td>
</tr>
<tr>
<td>Belgium</td>
<td>9,609,963</td>
<td>85.05%</td>
</tr>
<tr>
<td>Belize</td>
<td>149,427</td>
<td>41.59%</td>
</tr>
<tr>
<td>Benin</td>
<td>738,740</td>
<td>6.79%</td>
</tr>
<tr>
<td>Bermuda</td>
<td>60,962</td>
<td>98.32%</td>
</tr>
<tr>
<td>Bhutan</td>
<td>308,382</td>
<td>39.80%</td>
</tr>
<tr>
<td>Bolivia</td>
<td>4,836,842</td>
<td>45.10%</td>
</tr>
<tr>
<td>Bosnia and Herzegovina</td>
<td>2,479,437</td>
<td>65.07%</td>
</tr>
<tr>
<td>Botswana</td>
<td>622,183</td>
<td>27.50%</td>
</tr>
<tr>
<td>Brazil</td>
<td>122,796,320</td>
<td>59.08%</td>
</tr>
<tr>
<td>British Virgin Islands</td>
<td>14,456</td>
<td>37.60%</td>
</tr>
<tr>
<td>Brunei</td>
<td>301,310</td>
<td>71.20%</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>4,051,069</td>
<td>56.66%</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>2,062,224</td>
<td>11.39%</td>
</tr>
<tr>
<td>Burundi</td>
<td>544,413</td>
<td>4.87%</td>
</tr>
<tr>
<td>Cape Verde</td>
<td>223,920</td>
<td>43.02%</td>
</tr>
<tr>
<td>Cambodia</td>
<td>2,959,801</td>
<td>19.00%</td>
</tr>
<tr>
<td>Cameroon</td>
<td>4,827,576</td>
<td>20.68%</td>
</tr>
<tr>
<td>Canada</td>
<td>31,796,053</td>
<td>88.47%</td>
</tr>
<tr>
<td>Cayman Islands</td>
<td>46,174</td>
<td>77.00%</td>
</tr>
<tr>
<td>Central African Republic</td>
<td>223,452</td>
<td>4.56%</td>
</tr>
<tr>
<td>Chad</td>
<td>379,011</td>
<td>2.70%</td>
</tr>
<tr>
<td>Chile</td>
<td>11,538,860</td>
<td>64.29%</td>
</tr>
<tr>
<td>China</td>
<td>692,152,618</td>
<td>50.30%</td>
</tr>
<tr>
<td>Colombia</td>
<td>26,959,845</td>
<td>55.90%</td>
</tr>
<tr>
<td>Comoros</td>
<td>58,820</td>
<td>7.46%</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>2,873,171</td>
<td>59.76%</td>
</tr>
<tr>
<td>Croatia</td>
<td>2,959,741</td>
<td>69.80%</td>
</tr>
<tr>
<td>Country</td>
<td>Population</td>
<td>Internet Penetration</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Cuba</td>
<td>3,543,293</td>
<td>31.11%</td>
</tr>
<tr>
<td>Cyprus</td>
<td>835,753</td>
<td>71.72%</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>8,571,610</td>
<td>81.30%</td>
</tr>
<tr>
<td>Democratic Republic of the Congo</td>
<td>2,936,139</td>
<td>3.80%</td>
</tr>
<tr>
<td>Denmark</td>
<td>5,461,026</td>
<td>96.33%</td>
</tr>
<tr>
<td>Djibouti</td>
<td>105,833</td>
<td>11.92%</td>
</tr>
<tr>
<td>Dominica</td>
<td>49,132</td>
<td>67.60%</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>5,467,393</td>
<td>51.93%</td>
</tr>
<tr>
<td>Ecuador</td>
<td>7,901,051</td>
<td>48.94%</td>
</tr>
<tr>
<td>Egypt</td>
<td>32,851,402</td>
<td>35.90%</td>
</tr>
<tr>
<td>El Salvador</td>
<td>1,649,276</td>
<td>26.92%</td>
</tr>
<tr>
<td>Equatorial Guinea</td>
<td>180,166</td>
<td>21.32%</td>
</tr>
<tr>
<td>Eritrea</td>
<td>56,460</td>
<td>1.08%</td>
</tr>
<tr>
<td>Estonia</td>
<td>1,160,432</td>
<td>88.41%</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>11,529,327</td>
<td>11.60%</td>
</tr>
<tr>
<td>Faroe Islands</td>
<td>45,403</td>
<td>94.20%</td>
</tr>
<tr>
<td>Fiji</td>
<td>413,331</td>
<td>46.33%</td>
</tr>
<tr>
<td>Finland</td>
<td>5,098,953</td>
<td>92.65%</td>
</tr>
<tr>
<td>France</td>
<td>54,536,418</td>
<td>84.69%</td>
</tr>
<tr>
<td>French Polynesia</td>
<td>182,552</td>
<td>64.56%</td>
</tr>
<tr>
<td>Gabon</td>
<td>405,443</td>
<td>23.50%</td>
</tr>
<tr>
<td>Georgia</td>
<td>1,806,315</td>
<td>45.16%</td>
</tr>
<tr>
<td>Germany</td>
<td>70,675,097</td>
<td>87.59%</td>
</tr>
<tr>
<td>Ghana</td>
<td>6,435,843</td>
<td>23.48%</td>
</tr>
<tr>
<td>Gibraltar</td>
<td>18,878</td>
<td>65.02%</td>
</tr>
<tr>
<td>Greece</td>
<td>7,322,066</td>
<td>66.84%</td>
</tr>
<tr>
<td>Greenland</td>
<td>37,982</td>
<td>67.60%</td>
</tr>
<tr>
<td>Grenada</td>
<td>57,482</td>
<td>53.81%</td>
</tr>
<tr>
<td>Guam</td>
<td>124,254</td>
<td>73.14%</td>
</tr>
<tr>
<td>Guatemala</td>
<td>4,428,925</td>
<td>27.10%</td>
</tr>
<tr>
<td>Guinea</td>
<td>592,604</td>
<td>4.70%</td>
</tr>
<tr>
<td>Guinea-Bissau</td>
<td>65,289</td>
<td>3.54%</td>
</tr>
<tr>
<td>Guyana</td>
<td>293,026</td>
<td>38.20%</td>
</tr>
<tr>
<td>Haiti</td>
<td>1,306,750</td>
<td>12.20%</td>
</tr>
<tr>
<td>Honduras</td>
<td>1,644,082</td>
<td>20.36%</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>6,191,142</td>
<td>84.95%</td>
</tr>
<tr>
<td>Hungary</td>
<td>7,177,413</td>
<td>72.83%</td>
</tr>
<tr>
<td>Iceland</td>
<td>323,495</td>
<td>98.20%</td>
</tr>
<tr>
<td>India</td>
<td>340,873,137</td>
<td>26.00%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>56,612,527</td>
<td>21.98%</td>
</tr>
<tr>
<td>Iran</td>
<td>34,871,367</td>
<td>44.08%</td>
</tr>
<tr>
<td>Iraq</td>
<td>6,272,109</td>
<td>17.22%</td>
</tr>
<tr>
<td>Ireland</td>
<td>3,756,398</td>
<td>80.12%</td>
</tr>
<tr>
<td>Israel</td>
<td>6,361,718</td>
<td>78.89%</td>
</tr>
<tr>
<td>Country</td>
<td>Population</td>
<td>Internet Access Rate</td>
</tr>
<tr>
<td>------------------------</td>
<td>------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Italy</td>
<td>39,209,342</td>
<td>65.57%</td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>4,767,327</td>
<td>21.00%</td>
</tr>
<tr>
<td>Jamaica</td>
<td>1,206,162</td>
<td>43.18%</td>
</tr>
<tr>
<td>Japan</td>
<td>118,131,030</td>
<td>93.33%</td>
</tr>
<tr>
<td>Jersey</td>
<td>38,958</td>
<td>41.03%</td>
</tr>
<tr>
<td>Jordan</td>
<td>4,055,488</td>
<td>53.40%</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>12,843,502</td>
<td>72.87%</td>
</tr>
<tr>
<td>Kenya</td>
<td>21,008,148</td>
<td>45.62%</td>
</tr>
<tr>
<td>Kiribati</td>
<td>14,615</td>
<td>13.00%</td>
</tr>
<tr>
<td>Kuwait</td>
<td>3,194,648</td>
<td>82.08%</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>1,796,838</td>
<td>30.25%</td>
</tr>
<tr>
<td>Laos</td>
<td>1,237,968</td>
<td>18.20%</td>
</tr>
<tr>
<td>Latvia</td>
<td>1,560,638</td>
<td>79.20%</td>
</tr>
<tr>
<td>Lebanon</td>
<td>4,329,550</td>
<td>74.00%</td>
</tr>
<tr>
<td>Lesotho</td>
<td>343,098</td>
<td>16.07%</td>
</tr>
<tr>
<td>Liberia</td>
<td>265,703</td>
<td>5.90%</td>
</tr>
<tr>
<td>Libya</td>
<td>1,194,159</td>
<td>19.02%</td>
</tr>
<tr>
<td>Liechtenstein</td>
<td>36,270</td>
<td>96.64%</td>
</tr>
<tr>
<td>Lithuania</td>
<td>2,054,605</td>
<td>71.38%</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>551,968</td>
<td>97.33%</td>
</tr>
<tr>
<td>Macau</td>
<td>455,982</td>
<td>77.60%</td>
</tr>
<tr>
<td>Macedonia</td>
<td>1,462,815</td>
<td>70.38%</td>
</tr>
<tr>
<td>Madagascar</td>
<td>1,010,616</td>
<td>4.17%</td>
</tr>
<tr>
<td>Malawi</td>
<td>1,601,017</td>
<td>9.30%</td>
</tr>
<tr>
<td>Maldives</td>
<td>21,553,214</td>
<td>71.06%</td>
</tr>
<tr>
<td>Malta</td>
<td>198,048</td>
<td>54.46%</td>
</tr>
<tr>
<td>Mali</td>
<td>1,819,808</td>
<td>10.34%</td>
</tr>
<tr>
<td>Malta</td>
<td>318,943</td>
<td>76.18%</td>
</tr>
<tr>
<td>Marshall Islands</td>
<td>10,217</td>
<td>19.28%</td>
</tr>
<tr>
<td>Mauritania</td>
<td>618,270</td>
<td>15.20%</td>
</tr>
<tr>
<td>Mauritius</td>
<td>638,388</td>
<td>50.14%</td>
</tr>
<tr>
<td>Mexico</td>
<td>72,945,992</td>
<td>57.43%</td>
</tr>
<tr>
<td>Micronesia, Federated States of:</td>
<td>32,905</td>
<td>31.50%</td>
</tr>
<tr>
<td>Moldova</td>
<td>2,027,938</td>
<td>49.84%</td>
</tr>
<tr>
<td>Monaco</td>
<td>35,226</td>
<td>93.36%</td>
</tr>
<tr>
<td>Mongolia</td>
<td>634,438</td>
<td>21.44%</td>
</tr>
<tr>
<td>Montenegro</td>
<td>404,004</td>
<td>64.56%</td>
</tr>
<tr>
<td>Morocco</td>
<td>19,622,683</td>
<td>57.08%</td>
</tr>
<tr>
<td>Mozambique</td>
<td>2,518,008</td>
<td>9.00%</td>
</tr>
<tr>
<td>Myanmar</td>
<td>11,749,580</td>
<td>21.80%</td>
</tr>
<tr>
<td>Namibia</td>
<td>548,565</td>
<td>22.31%</td>
</tr>
<tr>
<td>Nepal</td>
<td>14,650,000</td>
<td>58.00%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>15,757,109</td>
<td>93.10%</td>
</tr>
<tr>
<td>New Caledonia</td>
<td>194,707</td>
<td>74.00%</td>
</tr>
<tr>
<td>Country</td>
<td>Population</td>
<td>Internet Users</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------------</td>
<td>----------------</td>
</tr>
<tr>
<td>New Zealand</td>
<td>3,995,066</td>
<td>88.22%</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>1,198,160</td>
<td>19.70%</td>
</tr>
<tr>
<td>Niger</td>
<td>441,760</td>
<td>2.22%</td>
</tr>
<tr>
<td>Nigeria</td>
<td>86,436,611</td>
<td>47.44%</td>
</tr>
<tr>
<td>Norway</td>
<td>5,044,737</td>
<td>96.81%</td>
</tr>
<tr>
<td>Oman</td>
<td>3,330,634</td>
<td>74.17%</td>
</tr>
<tr>
<td>Pakistan</td>
<td>34,006,477</td>
<td>18.00%</td>
</tr>
<tr>
<td>Palestinian Authority</td>
<td>2,680,633</td>
<td>57.42%</td>
</tr>
<tr>
<td>Panama</td>
<td>2,012,113</td>
<td>51.21%</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>601,926</td>
<td>7.90%</td>
</tr>
<tr>
<td>Paraguay</td>
<td>2,946,443</td>
<td>44.38%</td>
</tr>
<tr>
<td>Peru</td>
<td>12,833,058</td>
<td>40.90%</td>
</tr>
<tr>
<td>Philippines</td>
<td>40,984,654</td>
<td>40.70%</td>
</tr>
<tr>
<td>Poland</td>
<td>26,256,020</td>
<td>68.00%</td>
</tr>
<tr>
<td>Portugal</td>
<td>7,103,070</td>
<td>68.63%</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>2,927,069</td>
<td>79.47%</td>
</tr>
<tr>
<td>Qatar</td>
<td>2,076,198</td>
<td>92.88%</td>
</tr>
<tr>
<td>Republic of the Congo</td>
<td>352,069</td>
<td>7.62%</td>
</tr>
<tr>
<td>Romania</td>
<td>10,879,514</td>
<td>55.76%</td>
</tr>
<tr>
<td>Russia</td>
<td>105,311,724</td>
<td>73.41%</td>
</tr>
<tr>
<td>Rwanda</td>
<td>2,089,740</td>
<td>18.00%</td>
</tr>
<tr>
<td>Saint Kitts and Nevis</td>
<td>42,068</td>
<td>75.70%</td>
</tr>
<tr>
<td>Saint Vincent and the Grenadines</td>
<td>56,668</td>
<td>51.77%</td>
</tr>
<tr>
<td>Saint Lucia</td>
<td>96,847</td>
<td>52.35%</td>
</tr>
<tr>
<td>Samoa</td>
<td>49,099</td>
<td>25.41%</td>
</tr>
<tr>
<td>San Marino</td>
<td>16,484</td>
<td>54.21%</td>
</tr>
<tr>
<td>São Tomé and Príncipe</td>
<td>49,147</td>
<td>25.82%</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>21,958,407</td>
<td>69.62%</td>
</tr>
<tr>
<td>Senegal</td>
<td>3,281,539</td>
<td>21.69%</td>
</tr>
<tr>
<td>Serbia</td>
<td>5,781,457</td>
<td>65.32%</td>
</tr>
<tr>
<td>Seychelles</td>
<td>56,068</td>
<td>58.12%</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>161,330</td>
<td>2.50%</td>
</tr>
<tr>
<td>Singapore</td>
<td>4,600,670</td>
<td>82.10%</td>
</tr>
<tr>
<td>Slovakia</td>
<td>4,613,404</td>
<td>85.02%</td>
</tr>
<tr>
<td>Slovenia</td>
<td>1,511,361</td>
<td>73.10%</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>58,359</td>
<td>10.00%</td>
</tr>
<tr>
<td>Somalia</td>
<td>189,853</td>
<td>1.76%</td>
</tr>
<tr>
<td>South Africa</td>
<td>28,291,419</td>
<td>51.92%</td>
</tr>
<tr>
<td>South Korea</td>
<td>45,213,802</td>
<td>89.90%</td>
</tr>
<tr>
<td>South Sudan</td>
<td>2,212,528</td>
<td>17.93%</td>
</tr>
<tr>
<td>Spain</td>
<td>36,293,165</td>
<td>78.69%</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>6,212,431</td>
<td>29.99%</td>
</tr>
<tr>
<td>Sudan</td>
<td>10,706,502</td>
<td>26.61%</td>
</tr>
<tr>
<td>Suriname</td>
<td>232,176</td>
<td>42.76%</td>
</tr>
<tr>
<td>Country</td>
<td>Population</td>
<td>Internet Users</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Swaziland</td>
<td>390,981</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>8,861,138</td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>7,300,334</td>
<td></td>
</tr>
<tr>
<td>Syria</td>
<td>5,547,023</td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td>18,639,773</td>
<td></td>
</tr>
<tr>
<td>Tajikistan</td>
<td>1,609,856</td>
<td></td>
</tr>
<tr>
<td>Tanzania</td>
<td>2,866,014</td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>26,721,620</td>
<td></td>
</tr>
<tr>
<td>The Gambia</td>
<td>340,846</td>
<td></td>
</tr>
<tr>
<td>The Bahamas</td>
<td>302,654</td>
<td></td>
</tr>
<tr>
<td>Timor Leste</td>
<td>158,758</td>
<td></td>
</tr>
<tr>
<td>Togo</td>
<td>520,086</td>
<td></td>
</tr>
<tr>
<td>Tonga</td>
<td>47,776</td>
<td></td>
</tr>
<tr>
<td>Trinidad and Tobago</td>
<td>941,181</td>
<td></td>
</tr>
<tr>
<td>Tunisia</td>
<td>5,460,224</td>
<td></td>
</tr>
<tr>
<td>Turkey</td>
<td>42,275,017</td>
<td></td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>806,025</td>
<td></td>
</tr>
<tr>
<td>U.S. Virgin Islands</td>
<td>58,279</td>
<td></td>
</tr>
<tr>
<td>Uganda</td>
<td>7,502,024</td>
<td></td>
</tr>
<tr>
<td>Ukraine</td>
<td>22,080,187</td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>239,882,242</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>59,538,545</td>
<td></td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>8,354,813</td>
<td></td>
</tr>
<tr>
<td>Uruguay</td>
<td>2,216,784</td>
<td></td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>12,794,413</td>
<td></td>
</tr>
<tr>
<td>Vanuatu</td>
<td>59,150</td>
<td></td>
</tr>
<tr>
<td>Venezuela</td>
<td>19,246,571</td>
<td></td>
</tr>
<tr>
<td>Vietnam</td>
<td>49,265,575</td>
<td></td>
</tr>
<tr>
<td>Yemen</td>
<td>6,734,886</td>
<td></td>
</tr>
<tr>
<td>Zambia</td>
<td>3,404,471</td>
<td></td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>2,552,610</td>
<td></td>
</tr>
</tbody>
</table>

### 69.5 Market Resources

Clock showing the number of Internet users worldwide:


International Telecommunication Union (ITU), Place des Nations, 1211 Geneva 20 Switzerland. +41 22 730 5111. ([www.itu.int](www.itu.int))
Key ICT Indicators For Developed And Developing Countries Of The World
GLOBAL ONLINE ACTIVITIES

70.1 Use By Device

eMarketer (www.emarketer.com) assesses total Internet users and penetration worldwide as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Users (Change)</th>
<th>Pct. of Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>3.27 billion (7.5%)</td>
<td>44.6%</td>
</tr>
<tr>
<td>2017</td>
<td>3.27 billion (6.1%)</td>
<td>46.8%</td>
</tr>
<tr>
<td>2018</td>
<td>3.65 billion (5.3%)</td>
<td>48.8%</td>
</tr>
<tr>
<td>2019</td>
<td>3.82 billion (4.7%)</td>
<td>50.6%</td>
</tr>
<tr>
<td>2020</td>
<td>3.99 billion (4.2%)</td>
<td>52.2%</td>
</tr>
</tbody>
</table>

Smartphone users and penetration worldwide are assessed as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Users (Change)</th>
<th>Pct. of Mobile Phone Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>2.10 billion (12.7%)</td>
<td>47.4%</td>
</tr>
<tr>
<td>2017</td>
<td>2.32 billion (10.6%)</td>
<td>50.6%</td>
</tr>
<tr>
<td>2018</td>
<td>2.53 billion (8.8%)</td>
<td>53.3%</td>
</tr>
<tr>
<td>2019</td>
<td>2.71 billion (7.3%)</td>
<td>55.7%</td>
</tr>
<tr>
<td>2020</td>
<td>2.87 billion (5.9%)</td>
<td>57.5%</td>
</tr>
</tbody>
</table>

Tablet users and penetration worldwide are assessed as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Users (Change)</th>
<th>Pct. of Internet Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>1.12 billion (15.3%)</td>
<td>32.7%</td>
</tr>
<tr>
<td>2017</td>
<td>1.23 billion (16.6%)</td>
<td>33.9%</td>
</tr>
<tr>
<td>2018</td>
<td>1.32 billion (17.7%)</td>
<td>34.7%</td>
</tr>
<tr>
<td>2019</td>
<td>1.40 billion (18.5%)</td>
<td>34.9%</td>
</tr>
<tr>
<td>2020</td>
<td>1.46 billion (19.2%)</td>
<td>35.1%</td>
</tr>
</tbody>
</table>
“A majority of growth in the number of Internet users will come from low-income and rural areas across Asia-Pacific, Central and Eastern Europe, Latin America, and the Middle East and Africa. In these regions, many people are expected to go online for the first time via mobile Internet. Nearly four in five Internet users worldwide will use a mobile phone to access the Internet this year – a 9.3% increase over 2016. Growth in mobile Internet usage will be bolstered by improving Wi-Fi coverage and expanded 3G/4G availability.”

eMarketer, 4/28/17

70.2 Online Activities By Region

According to comScore (www.comscore.com), distribution of activities among Internet users is as follows:

Asia-Pacific
- Portals: 17%
- Entertainment: 10%
- Social media: 8%
- Retail: 6%
- News/information: 4%
- Other: 56%

Europe-Middle East-Africa
- Social media: 22%
- Entertainment: 11%
- Portals: 10%
- Retail: 5%
- News/information: 4%
- Other: 48%
Latin America
• Social media: 29%
• Portals: 18%
• Entertainment: 15%
• Retail: 3%
• News/information: 3%
• Other: 32%

North America
• Portals: 15%
• Social media: 14%
• Entertainment: 12%
• Retail: 5%
• News/information: 4%
• Other: 50%

“Internet users in Latin America spend more of their online time with social media than their counterparts anywhere else in the world, according to research from comScore.”
eMarketer, 1/28/17
GLOBAL USE OF MOBILE DEVICES

71.1 Mobile Phone and Device Users

According to eMarketer (www.emarketer.com), global mobile phone use and penetration (percent of population) has been, and is projected, as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Users</th>
<th>Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>4.08 billion</td>
<td>58.2%</td>
</tr>
<tr>
<td>2013</td>
<td>4.33 billion</td>
<td>61.1%</td>
</tr>
<tr>
<td>2014</td>
<td>4.55 billion</td>
<td>63.5%</td>
</tr>
<tr>
<td>2015</td>
<td>4.77 billion</td>
<td>65.8%</td>
</tr>
<tr>
<td>2016</td>
<td>4.95 billion</td>
<td>67.7%</td>
</tr>
<tr>
<td>2017</td>
<td>5.15 billion</td>
<td>69.4%</td>
</tr>
<tr>
<td>2018</td>
<td>5.30 billion</td>
<td>70.9%</td>
</tr>
</tbody>
</table>

Global smartphone and tablet use and penetration are presented in Section 2.1.

71.2 Mobile Connections By Region

Mobile connections, by region are assessed as follows (source: Ericsson [www.ericsson.com]):

<table>
<thead>
<tr>
<th>Year</th>
<th>Asia Pacific</th>
<th>CE-ME-A*</th>
<th>Latin America</th>
<th>North America</th>
<th>Western Europe</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>2.61 billion</td>
<td>1.33 billion</td>
<td>563 million</td>
<td>320 million</td>
<td>512 million</td>
<td>5.34 billion</td>
</tr>
<tr>
<td>2011</td>
<td>2.99 billion</td>
<td>1.48 billion</td>
<td>630 million</td>
<td>349 million</td>
<td>528 million</td>
<td>5.98 billion</td>
</tr>
<tr>
<td>2012</td>
<td>3.20 billion</td>
<td>1.63 billion</td>
<td>681 million</td>
<td>361 million</td>
<td>533 million</td>
<td>6.41 billion</td>
</tr>
<tr>
<td>2013</td>
<td>3.42 billion</td>
<td>1.73 billion</td>
<td>711 million</td>
<td>364 million</td>
<td>535 million</td>
<td>6.76 billion</td>
</tr>
<tr>
<td>2014</td>
<td>3.60 billion</td>
<td>1.84 billion</td>
<td>722 million</td>
<td>381 million</td>
<td>543 million</td>
<td>7.08 billion</td>
</tr>
<tr>
<td>2015</td>
<td>3.72 billion</td>
<td>1.96 billion</td>
<td>708 million</td>
<td>393 million</td>
<td>548 million</td>
<td>7.33 billion</td>
</tr>
<tr>
<td>2016</td>
<td>3.90 billion</td>
<td>2.07 billion</td>
<td>723 million</td>
<td>408 million</td>
<td>553 million</td>
<td>7.66 billion</td>
</tr>
<tr>
<td>2017</td>
<td>4.06 billion</td>
<td>2.18 billion</td>
<td>741 million</td>
<td>420 million</td>
<td>558 million</td>
<td>7.96 billion</td>
</tr>
<tr>
<td>2018</td>
<td>4.22 billion</td>
<td>2.28 billion</td>
<td>759 million</td>
<td>429 million</td>
<td>564 million</td>
<td>8.24 billion</td>
</tr>
<tr>
<td>2019</td>
<td>4.36 billion</td>
<td>2.37 billion</td>
<td>775 million</td>
<td>436 million</td>
<td>569 million</td>
<td>8.50 billion</td>
</tr>
<tr>
<td>2020</td>
<td>4.49 billion</td>
<td>2.45 billion</td>
<td>789 million</td>
<td>441 million</td>
<td>574 million</td>
<td>8.74 billion</td>
</tr>
<tr>
<td>2021</td>
<td>4.60 billion</td>
<td>2.53 billion</td>
<td>802 million</td>
<td>446 million</td>
<td>578 million</td>
<td>8.96 billion</td>
</tr>
</tbody>
</table>

* Central Europe, Middle East, and Africa
71.3 Smartphone Connections By Region

Smartphone connections, by region are assessed as follows (source: Ericsson):

<table>
<thead>
<tr>
<th>Year</th>
<th>Asia Pacific</th>
<th>CE-ME-A*</th>
<th>Latin America</th>
<th>North America</th>
<th>Europe</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>0.20 billion</td>
<td>0.09 billion</td>
<td>32 million</td>
<td>97 million</td>
<td>122 million</td>
<td>0.54 billion</td>
</tr>
<tr>
<td>2011</td>
<td>0.34 billion</td>
<td>0.13 billion</td>
<td>60 million</td>
<td>143 million</td>
<td>170 million</td>
<td>0.85 billion</td>
</tr>
<tr>
<td>2012</td>
<td>0.60 billion</td>
<td>0.18 billion</td>
<td>105 million</td>
<td>185 million</td>
<td>225 million</td>
<td>1.30 billion</td>
</tr>
<tr>
<td>2013</td>
<td>0.99 billion</td>
<td>0.26 billion</td>
<td>174 million</td>
<td>220 million</td>
<td>275 million</td>
<td>1.92 billion</td>
</tr>
<tr>
<td>2014</td>
<td>1.41 billion</td>
<td>0.39 billion</td>
<td>274 million</td>
<td>254 million</td>
<td>320 million</td>
<td>2.65 billion</td>
</tr>
<tr>
<td>2015</td>
<td>1.71 billion</td>
<td>0.55 billion</td>
<td>345 million</td>
<td>284 million</td>
<td>353 million</td>
<td>3.24 billion</td>
</tr>
<tr>
<td>2016</td>
<td>2.01 billion</td>
<td>0.71 billion</td>
<td>407 million</td>
<td>306 million</td>
<td>378 million</td>
<td>3.82 billion</td>
</tr>
<tr>
<td>2017</td>
<td>2.33 billion</td>
<td>0.88 billion</td>
<td>460 million</td>
<td>324 million</td>
<td>400 million</td>
<td>4.39 billion</td>
</tr>
<tr>
<td>2018</td>
<td>2.65 billion</td>
<td>1.04 billion</td>
<td>501 million</td>
<td>339 million</td>
<td>423 million</td>
<td>4.95 billion</td>
</tr>
<tr>
<td>2019</td>
<td>2.94 billion</td>
<td>1.19 billion</td>
<td>534 million</td>
<td>350 million</td>
<td>440 million</td>
<td>5.45 billion</td>
</tr>
<tr>
<td>2020</td>
<td>3.19 billion</td>
<td>1.33 billion</td>
<td>559 million</td>
<td>362 million</td>
<td>456 million</td>
<td>5.90 billion</td>
</tr>
<tr>
<td>2021</td>
<td>3.44 billion</td>
<td>1.48 billion</td>
<td>578 million</td>
<td>375 million</td>
<td>468 million</td>
<td>6.34 billion</td>
</tr>
</tbody>
</table>

* Central Europe, Middle East, and Africa

71.4 Smartphone Use By Country

The top countries, ranked by number of smartphone users, are as follows (source: eMarketer):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>519.7 million</td>
<td>574.2 million</td>
<td>624.7 million</td>
</tr>
<tr>
<td>United States</td>
<td>165.3 million</td>
<td>184.2 million</td>
<td>198.5 million</td>
</tr>
<tr>
<td>India</td>
<td>123.3 million</td>
<td>167.9 million</td>
<td>204.1 million</td>
</tr>
<tr>
<td>Japan</td>
<td>50.8 million</td>
<td>57.4 million</td>
<td>61.2 million</td>
</tr>
<tr>
<td>Russia</td>
<td>49.0 million</td>
<td>58.2 million</td>
<td>65.1 million</td>
</tr>
<tr>
<td>Brazil</td>
<td>38.8 million</td>
<td>48.6 million</td>
<td>58.5 million</td>
</tr>
<tr>
<td>Indonesia</td>
<td>38.3 million</td>
<td>52.2 million</td>
<td>69.4 million</td>
</tr>
<tr>
<td>Germany</td>
<td>36.4 million</td>
<td>44.5 million</td>
<td>50.8 million</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>36.4 million</td>
<td>39.4 million</td>
<td>42.4 million</td>
</tr>
<tr>
<td>South Korea</td>
<td>32.8 million</td>
<td>33.9 million</td>
<td>34.5 million</td>
</tr>
<tr>
<td>Mexico</td>
<td>28.7 million</td>
<td>34.2 million</td>
<td>39.4 million</td>
</tr>
<tr>
<td>France</td>
<td>26.7 million</td>
<td>32.9 million</td>
<td>37.8 million</td>
</tr>
<tr>
<td>Italy</td>
<td>24.1 million</td>
<td>28.6 million</td>
<td>32.2 million</td>
</tr>
<tr>
<td>Turkey</td>
<td>22.6 million</td>
<td>27.8 million</td>
<td>32.4 million</td>
</tr>
<tr>
<td>Spain</td>
<td>22.0 million</td>
<td>25.0 million</td>
<td>36.9 million</td>
</tr>
<tr>
<td>Phillipines</td>
<td>20.0 million</td>
<td>24.8 million</td>
<td>39.7 million</td>
</tr>
<tr>
<td>Nigeria</td>
<td>19.5 million</td>
<td>23.1 million</td>
<td>26.8 million</td>
</tr>
<tr>
<td>Canada</td>
<td>17.8 million</td>
<td>20.0 million</td>
<td>21.7 million</td>
</tr>
<tr>
<td>Thailand</td>
<td>17.5 million</td>
<td>20.4 million</td>
<td>22.8 million</td>
</tr>
<tr>
<td>Vietnam</td>
<td>16.6 million</td>
<td>20.7 million</td>
<td>24.6 million</td>
</tr>
<tr>
<td>Egypt</td>
<td>15.5 million</td>
<td>18.2 million</td>
<td>21.0 million</td>
</tr>
</tbody>
</table>
### 71.5 Tablet Use By Country

The top countries, ranked by number of tablet users, are as follows (source: eMarketer):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>281.2 million</td>
<td>328.3 million</td>
<td>370.5 million</td>
</tr>
<tr>
<td>United States</td>
<td>147.1 million</td>
<td>156.0 million</td>
<td>162.7 million</td>
</tr>
<tr>
<td>India</td>
<td>32.3 million</td>
<td>40.4 million</td>
<td>47.1 million</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>29.6 million</td>
<td>32.2 million</td>
<td>34.5 million</td>
</tr>
<tr>
<td>Brazil</td>
<td>28.2 million</td>
<td>34.7 million</td>
<td>41.3 million</td>
</tr>
<tr>
<td>Germany</td>
<td>27.4 million</td>
<td>30.7 million</td>
<td>33.7 million</td>
</tr>
<tr>
<td>Russia</td>
<td>25.4 million</td>
<td>29.0 million</td>
<td>32.1 million</td>
</tr>
<tr>
<td>Japan</td>
<td>24.6 million</td>
<td>29.5 million</td>
<td>33.7 million</td>
</tr>
<tr>
<td>Indonesia</td>
<td>24.6 million</td>
<td>32.1 million</td>
<td>37.8 million</td>
</tr>
<tr>
<td>France</td>
<td>22.6 million</td>
<td>25.2 million</td>
<td>27.6 million</td>
</tr>
<tr>
<td>Mexico</td>
<td>18.1 million</td>
<td>22.9 million</td>
<td>26.5 million</td>
</tr>
<tr>
<td>Italy</td>
<td>15.6 million</td>
<td>17.6 million</td>
<td>19.5 million</td>
</tr>
<tr>
<td>Spain</td>
<td>14.9 million</td>
<td>16.5 million</td>
<td>18.2 million</td>
</tr>
<tr>
<td>Canada</td>
<td>13.4 million</td>
<td>14.7 million</td>
<td>15.9 million</td>
</tr>
<tr>
<td>Australia</td>
<td>9.2 million</td>
<td>10.3 million</td>
<td>11.2 million</td>
</tr>
<tr>
<td>South Korea</td>
<td>8.9 million</td>
<td>9.9 million</td>
<td>10.8 million</td>
</tr>
<tr>
<td>Netherlands</td>
<td>8.4 million</td>
<td>9.1 million</td>
<td>9.7 million</td>
</tr>
<tr>
<td>Argentina</td>
<td>5.4 million</td>
<td>6.6 million</td>
<td>7.7 million</td>
</tr>
<tr>
<td>Sweden</td>
<td>4.1 million</td>
<td>4.6 million</td>
<td>5.1 million</td>
</tr>
<tr>
<td>Denmark</td>
<td>2.6 million</td>
<td>2.8 million</td>
<td>3.0 million</td>
</tr>
<tr>
<td>Norway</td>
<td>2.5 million</td>
<td>2.8 million</td>
<td>3.0 million</td>
</tr>
<tr>
<td>Finland</td>
<td>1.7 million</td>
<td>2.0 million</td>
<td>2.4 million</td>
</tr>
</tbody>
</table>

### 71.6 Messaging Apps

According to GlobalWebIndex (www.globalwebindex.com), messaging apps used by Internet users worldwide are as follows (percentage of respondents):

- Facebook Messenger: 37%
- WhatsApp: 33%
- Skype: 21%
- Line: 10%
- Google Hangouts: 9%
- Viber: 8%
- Snapchat: 7%
• WeChat: 6%
• BBM: 4%
• KakaoTalk: 3%

Facebook Messenger app usage and average daily time spent in select countries are as follows (average daily percentage of app users among those who have it installed):

<table>
<thead>
<tr>
<th>Country</th>
<th>Active Users</th>
<th>Avg. Daily Time Spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>38.5%</td>
<td>5 hours; 55 minutes</td>
</tr>
<tr>
<td>Australia</td>
<td>36.7%</td>
<td>9 hours; 48 minutes</td>
</tr>
<tr>
<td>Austria</td>
<td>30.3%</td>
<td>8 hours; 59 minutes</td>
</tr>
<tr>
<td>Brazil</td>
<td>34.1%</td>
<td>6 hours; 17 minutes</td>
</tr>
<tr>
<td>France</td>
<td>34.0%</td>
<td>9 hours; 57 minutes</td>
</tr>
<tr>
<td>Germany</td>
<td>26.6%</td>
<td>9 hours; 08 minutes</td>
</tr>
<tr>
<td>Greece</td>
<td>51.1%</td>
<td>12 hours; 48 minutes</td>
</tr>
<tr>
<td>Hungry</td>
<td>51.6%</td>
<td>16 hours; 08 minutes</td>
</tr>
<tr>
<td>Israel</td>
<td>27.7%</td>
<td>8 hours; 54 minutes</td>
</tr>
<tr>
<td>Italy</td>
<td>30.4%</td>
<td>7 hours; 24 minutes</td>
</tr>
<tr>
<td>Mexico</td>
<td>43.4%</td>
<td>9 hours; 12 minutes</td>
</tr>
<tr>
<td>Netherlands</td>
<td>26.8%</td>
<td>9 hours; 38 minutes</td>
</tr>
<tr>
<td>Philippines</td>
<td>58.9%</td>
<td>17 hours; 22 minutes</td>
</tr>
<tr>
<td>Poland</td>
<td>49.0%</td>
<td>13 hours; 23 minutes</td>
</tr>
<tr>
<td>Portugal</td>
<td>40.7%</td>
<td>9 hours; 38 minutes</td>
</tr>
<tr>
<td>Singapore</td>
<td>30.3%</td>
<td>10 hours; 48 minutes</td>
</tr>
<tr>
<td>South Africa</td>
<td>27.7%</td>
<td>4 hours; 19 minutes</td>
</tr>
<tr>
<td>Thailand</td>
<td>47.2%</td>
<td>11 hours; 52 minutes</td>
</tr>
<tr>
<td>Turkey</td>
<td>37.4%</td>
<td>8 hours; 01 minutes</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>36.1%</td>
<td>10 hours; 04 minutes</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>30.3%</td>
<td>11 hours; 19 minutes</td>
</tr>
<tr>
<td>United States</td>
<td>30.0%</td>
<td>10 hours; 28 minutes</td>
</tr>
</tbody>
</table>
GLOBAL USE OF SOCIAL MEDIA

72.1  Social Network Users

According to eMarketer (www.emarketer.com), the number of social network users worldwide has been, and is projected, as follows (annual growth in parenthesis):

- 2012: 1.41 billion (17.6%)
- 2013: 1.61 billion (14.2%)
- 2014: 1.91 billion (12.5%)
- 2015: 2.14 billion (12.2%)
- 2016: 2.34 billion (9.2%)
- 2017: 2.51 billion (7.3%)
- 2018: 2.67 billion (6.2%)
- 2019: 2.82 billion (5.6%)
- 2020: 2.95 billion (4.7%)

“Approximately 2.34 billion people, or 32.0% of the global population and 68.3% of Internet users, accessed a social network regularly in 2016, up 9.2% from 2015. Greater access to the Internet, particularly through mobile phones, will drive growth over the coming years.”

eMarketer

72.2  Penetration By Country

By country, social network use has been as follows (source: eMarketer):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Norway</td>
<td>66.8%</td>
<td>69.2%</td>
<td>71.3%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>65.6%</td>
<td>68.0%</td>
<td>69.7%</td>
</tr>
<tr>
<td>Sweden</td>
<td>59.7%</td>
<td>61.9%</td>
<td>64.0%</td>
</tr>
</tbody>
</table>

CONSUMER USE OF THE INTERNET & MOBILE WEB 2018-2019
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>South Korea</td>
<td>57.0%</td>
<td>23.8%</td>
<td>59.0%</td>
<td>18.3%</td>
<td>60.6%</td>
<td>12.8%</td>
<td>62.6%</td>
<td>9.6%</td>
<td>64.8%</td>
<td>8.0%</td>
<td>66.8%</td>
<td>7.2%</td>
<td>69.8%</td>
<td>6.2%</td>
</tr>
<tr>
<td>Denmark</td>
<td>56.8%</td>
<td>59.8%</td>
<td>62.6%</td>
<td>60.2%</td>
<td>62.6%</td>
<td>59.4%</td>
<td>64.8%</td>
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<td>69.8%</td>
<td>55.0%</td>
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<td>55.0%</td>
</tr>
<tr>
<td>Finland</td>
<td>54.6%</td>
<td>57.5%</td>
<td>55.0%</td>
<td>60.2%</td>
<td>62.6%</td>
<td>55.4%</td>
<td>64.8%</td>
<td>58.9%</td>
<td>66.8%</td>
<td>56.0%</td>
<td>69.8%</td>
<td>55.0%</td>
<td>69.8%</td>
<td>55.0%</td>
</tr>
<tr>
<td>United States</td>
<td>53.1%</td>
<td>54.4%</td>
<td>55.0%</td>
<td>55.4%</td>
<td>55.0%</td>
<td>55.0%</td>
<td>64.8%</td>
<td>58.9%</td>
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<td>69.8%</td>
<td>55.0%</td>
<td>69.8%</td>
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<tr>
<td>Canada</td>
<td>53.0%</td>
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<td>69.8%</td>
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</tr>
<tr>
<td>United Kingdom</td>
<td>52.6%</td>
<td>53.9%</td>
<td>55.0%</td>
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<td>64.8%</td>
<td>58.9%</td>
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<td>56.0%</td>
<td>69.8%</td>
<td>55.0%</td>
<td>69.8%</td>
<td>55.0%</td>
</tr>
<tr>
<td>Australia</td>
<td>52.3%</td>
<td>55.6%</td>
<td>58.9%</td>
<td>58.9%</td>
<td>58.9%</td>
<td>58.9%</td>
<td>64.8%</td>
<td>58.9%</td>
<td>66.8%</td>
<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
</tr>
<tr>
<td>Russia</td>
<td>46.0%</td>
<td>44.6%</td>
<td>50.8%</td>
<td>50.8%</td>
<td>50.8%</td>
<td>50.8%</td>
<td>64.8%</td>
<td>58.9%</td>
<td>66.8%</td>
<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
</tr>
<tr>
<td>Argentina</td>
<td>44.5%</td>
<td>47.9%</td>
<td>49.4%</td>
<td>49.4%</td>
<td>49.4%</td>
<td>49.4%</td>
<td>64.8%</td>
<td>58.9%</td>
<td>66.8%</td>
<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
</tr>
<tr>
<td>Germany</td>
<td>43.7%</td>
<td>46.1%</td>
<td>48.1%</td>
<td>48.1%</td>
<td>48.1%</td>
<td>48.1%</td>
<td>64.8%</td>
<td>58.9%</td>
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<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
</tr>
<tr>
<td>France</td>
<td>40.5%</td>
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<td>43.7%</td>
<td>43.7%</td>
<td>43.7%</td>
<td>43.7%</td>
<td>64.8%</td>
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<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
</tr>
<tr>
<td>Japan</td>
<td>40.1%</td>
<td>41.5%</td>
<td>42.9%</td>
<td>42.9%</td>
<td>42.9%</td>
<td>42.9%</td>
<td>64.8%</td>
<td>58.9%</td>
<td>66.8%</td>
<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
</tr>
<tr>
<td>Spain</td>
<td>39.6%</td>
<td>41.7%</td>
<td>43.9%</td>
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<td>43.9%</td>
<td>43.9%</td>
<td>64.8%</td>
<td>58.9%</td>
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<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
</tr>
<tr>
<td>Brazil</td>
<td>37.7%</td>
<td>40.1%</td>
<td>42.5%</td>
<td>42.5%</td>
<td>42.5%</td>
<td>42.5%</td>
<td>64.8%</td>
<td>58.9%</td>
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<td>56.0%</td>
<td>69.8%</td>
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</tr>
<tr>
<td>Italy</td>
<td>36.9%</td>
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<td>39.6%</td>
<td>39.6%</td>
<td>39.6%</td>
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<td>69.8%</td>
<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
</tr>
<tr>
<td>Mexico</td>
<td>35.2%</td>
<td>39.2%</td>
<td>42.9%</td>
<td>42.9%</td>
<td>42.9%</td>
<td>42.9%</td>
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</tr>
<tr>
<td>Indonesia</td>
<td>31.3%</td>
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<td>38.6%</td>
<td>38.6%</td>
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<td>69.8%</td>
<td>56.0%</td>
</tr>
<tr>
<td>China</td>
<td>28.1%</td>
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<td>32.3%</td>
<td>32.3%</td>
<td>32.3%</td>
<td>32.3%</td>
<td>64.8%</td>
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<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
</tr>
<tr>
<td>India</td>
<td>10.5%</td>
<td>12.7%</td>
<td>15.1%</td>
<td>15.1%</td>
<td>15.1%</td>
<td>15.1%</td>
<td>64.8%</td>
<td>58.9%</td>
<td>66.8%</td>
<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
<td>69.8%</td>
<td>56.0%</td>
</tr>
</tbody>
</table>

**72.3 Social Networking Via Mobile Devices**

eMarketer assesses mobile social network users worldwide and penetration as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Users (Change)</th>
<th>Pct. of Social Network Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1.41 billion (23.8%)</td>
<td>64.8%</td>
</tr>
<tr>
<td>2015</td>
<td>1.66 billion (18.3%)</td>
<td>66.8%</td>
</tr>
<tr>
<td>2016</td>
<td>1.88 billion (12.8%)</td>
<td>68.3%</td>
</tr>
<tr>
<td>2017</td>
<td>2.06 billion (9.6%)</td>
<td>69.2%</td>
</tr>
<tr>
<td>2018</td>
<td>2.22 billion (8.0%)</td>
<td>69.8%</td>
</tr>
<tr>
<td>2019</td>
<td>2.38 billion (7.2%)</td>
<td>70.4%</td>
</tr>
<tr>
<td>2020</td>
<td>2.52 billion (6.2%)</td>
<td>70.7%</td>
</tr>
</tbody>
</table>
GLOBAL DIGITAL VIDEO

73.1 Worldwide Viewership

According to *Worldwide Digital Video Viewers: Estimates for 2016-2020*, published in January 2017 by eMarketer (www.emarketer.com), 60.8% of the world’s Internet users, or 1.98 billion people, watched digital video in 2016, a 10.1% increase from the prior year. In 2017, 2.15 billion people, or 62.0% of Internet users, watched digital video. By 2020, more than 2.5 billion people, or 63.4% of Internet users and 32.8% of the global population, will be watching digital video.

“Digital video viewership growth worldwide has been spurred by the general expansion of Internet and mobile Internet usage, faster mobile Internet connections, and increased data and Wi-Fi availability across developing countries.”

eMarketer, 1/13/17

Digital video viewing has lagged in developing markets such as India, Indonesia, and the Middle East and Africa, where slower mobile Internet speeds and expensive data plans have tended to limit video consumption.

Digital video viewership worldwide has recorded double-digit increases annually since 2013. While growth will drop to 8.2% in 2017, people who view video will spend more time watching content.

73.2 Asia-Pacific Region

Digital viewers and penetration in the Asia-Pacific region have been, and are forecast, as follows:
<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Viewers</th>
<th>Penetration</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>1.00 billion</td>
<td>56.8%</td>
<td>12.6%</td>
</tr>
<tr>
<td>2017</td>
<td>1.10 billion</td>
<td>58.4%</td>
<td>10.3%</td>
</tr>
<tr>
<td>2018</td>
<td>1.18 billion</td>
<td>58.9%</td>
<td>7.6%</td>
</tr>
<tr>
<td>2019</td>
<td>1.26 billion</td>
<td>59.2%</td>
<td>6.7%</td>
</tr>
<tr>
<td>2020</td>
<td>1.34 billion</td>
<td>59.4%</td>
<td>5.7%</td>
</tr>
</tbody>
</table>

The Asia-Pacific region accounts for more than half of worldwide digital video viewers, however, this represents only 27.0% of the total population in the region.

“Digital video viewers in Asia-Pacific will ... climb at a steady pace due to increased smartphone penetration and mobile broadband growth, along with faster data speeds.”

eMarketer, 1/16/17

At least half of the population in mature markets such as Australia, Japan, and South Korea will have viewed at least one digital video per month in 2017. China will have had 569.0 million digital video viewers in 2017, with penetration at 41.5%. Large parts of China lag in access to household broadband and mobile. Still, the share of Internet users who watch digital video is high, at 75.4%. Tencent’s WeChat, one of the leading social platforms in China, acts as a gateway for video consumption in China. Video-on-demand (VOD) streaming services are also popular. One such service, iQiyi, reported $1.5 billion in revenues in 2016.

In India, where only about one-third of the population is connected to the Internet, 178 million people, or 13.9% of the population, will have viewed digital video in 2017.

Indonesia also has low digital video penetration among the overall population, with 29.1% in 2017.

### 73.3 Western Europe

Digital viewers and penetration in the Asia-Pacific region have been, and are forecast, as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Viewers</th>
<th>Penetration</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>211.6 million</td>
<td>66.9%</td>
<td>4.3%</td>
</tr>
<tr>
<td>2017</td>
<td>219.0 million</td>
<td>68.2%</td>
<td>3.5%</td>
</tr>
<tr>
<td>2018</td>
<td>225.0 million</td>
<td>69.1%</td>
<td>2.8%</td>
</tr>
</tbody>
</table>
• 2019: 230.2 million  69.9%  2.3%
• 2020: 234.7 million  70.7%  2.0%

The largest digital video markets in Western Europe, ranked by 2017 viewership, were as follows:
• United Kingdom: 42.8 million
• Germany: 40.4 million
• France: 32.2 million
• Spain: 23.1 million
• Italy: 25.7 million

Approximately two-thirds of the population viewing digital video monthly in the United Kingdom. Germany, France and Spain have penetration rates of about 50%. Italy has the lowest penetration rate in Western Europe, at 41.4%, due to the rural character or the country, Internet speeds that are slower than most of the region as a result of low government investment, and a population that skews older.

The Nordic countries – Denmark, Finland, Norway and Sweden – have high Internet penetration and fast connection speeds. Digital video penetration is about 70% among Internet users in these countries.

eMarketer forecasts 234.7 million digital video viewers across Western Europe in 2020; more than seven in 10 Internet users in the region will watch digital video in that year.

73.4 Key Players

The top video sources worldwide are OTT services like Hulu, Netflix, and Vimeo and social media platforms Facebook and YouTube.

In 2016, Netflix expanded its service to 130 markets, bringing the total to 190 countries worldwide.

Among the top players in China, where 569.0 million digital video viewers reside, are Internet platform Sohu and video hosting site YouKu Tudou.
GLOBAL E-COMMERCE

74.1 Sales, Year-by-Year
According to eMarketer (www.emarketer.com), global retail e-commerce sales (excluding travel and event tickets), growth, and percent to total retail sales have been, and are projected, as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales</th>
<th>Change</th>
<th>Pct. Total Retail</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>$1.08 trillion</td>
<td>25.9%</td>
<td>5.1%</td>
</tr>
<tr>
<td>2014</td>
<td>$1.32 trillion</td>
<td>22.2%</td>
<td>5.9%</td>
</tr>
<tr>
<td>2015</td>
<td>$1.59 trillion</td>
<td>20.9%</td>
<td>6.7%</td>
</tr>
<tr>
<td>2016</td>
<td>$1.89 trillion</td>
<td>18.6%</td>
<td>7.4%</td>
</tr>
<tr>
<td>2017</td>
<td>$2.20 trillion</td>
<td>16.4%</td>
<td>8.2%</td>
</tr>
<tr>
<td>2018</td>
<td>$2.49 trillion</td>
<td>13.3%</td>
<td>8.8%</td>
</tr>
</tbody>
</table>

74.2 Digital Buyer Penetration By Region
The percentage of people ages 14 and older making at least one purchase via any digital channel – online, smartphone, or tablet – during the year has been as follows (source: eMarketer):

<table>
<thead>
<tr>
<th>Year</th>
<th>North America</th>
<th>Western Europe</th>
<th>Asia-Pacific Region</th>
<th>Central and Eastern Europe</th>
<th>Middle East and Africa</th>
<th>Latin America</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>73.6%</td>
<td>65.2%</td>
<td>44.1%</td>
<td>43.4%</td>
<td>33.1%</td>
<td>29.9%</td>
</tr>
<tr>
<td>2014</td>
<td>74.9%</td>
<td>66.3%</td>
<td>46.8%</td>
<td>44.3%</td>
<td>34.0%</td>
<td>30.9%</td>
</tr>
<tr>
<td>2015</td>
<td>76.3%</td>
<td>76.3%</td>
<td>48.9%</td>
<td>44.4%</td>
<td>35.0%</td>
<td>31.8%</td>
</tr>
<tr>
<td>2016</td>
<td>76.3%</td>
<td>76.3%</td>
<td>48.9%</td>
<td>44.4%</td>
<td>35.0%</td>
<td>31.8%</td>
</tr>
</tbody>
</table>
### 74.3 Sales By Country

By country, e-commerce sales have been as follows (source: eMarketer):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>$300.6 billion</td>
<td>$343.3 billion</td>
<td>$390.0 billion</td>
</tr>
<tr>
<td>China</td>
<td>$249.4 billion</td>
<td>$369.7 billion</td>
<td>$506.3 billion</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>$81.6 billion</td>
<td>$92.2 billion</td>
<td>$101.5 billion</td>
</tr>
<tr>
<td>Japan</td>
<td>$76.9 billion</td>
<td>$83.3 billion</td>
<td>$89.3 billion</td>
</tr>
<tr>
<td>Germany</td>
<td>$46.7 billion</td>
<td>$50.5 billion</td>
<td>$54.4 billion</td>
</tr>
<tr>
<td>France</td>
<td>$38.4 billion</td>
<td>$42.6 billion</td>
<td>$46.4 billion</td>
</tr>
<tr>
<td>Canada</td>
<td>$25.4 billion</td>
<td>$29.6 billion</td>
<td>$34.0 billion</td>
</tr>
<tr>
<td>Australia</td>
<td>$20.3 billion</td>
<td>$21.4 billion</td>
<td>$22.6 billion</td>
</tr>
<tr>
<td>Russia</td>
<td>$17.4 billion</td>
<td>$19.2 billion</td>
<td>$20.6 billion</td>
</tr>
<tr>
<td>South Korea</td>
<td>$16.8 billion</td>
<td>$17.7 billion</td>
<td>$18.5 billion</td>
</tr>
<tr>
<td>Brazil</td>
<td>$13.4 billion</td>
<td>$14.5 billion</td>
<td>$15.6 billion</td>
</tr>
<tr>
<td>Denmark</td>
<td>$8.7 billion</td>
<td>$9.6 billion</td>
<td>$10.4 billion</td>
</tr>
<tr>
<td>Italy</td>
<td>$8.6 billion</td>
<td>$9.6 billion</td>
<td>$10.5 billion</td>
</tr>
<tr>
<td>Netherlands</td>
<td>$8.5 billion</td>
<td>$9.4 billion</td>
<td>$10.1 billion</td>
</tr>
<tr>
<td>Spain</td>
<td>$8.4 billion</td>
<td>$9.4 billion</td>
<td>$10.4 billion</td>
</tr>
<tr>
<td>Finland</td>
<td>$8.3 billion</td>
<td>$8.4 billion</td>
<td>$8.5 billion</td>
</tr>
<tr>
<td>Norway</td>
<td>$6.9 billion</td>
<td>$7.8 billion</td>
<td>$8.6 billion</td>
</tr>
<tr>
<td>Sweden</td>
<td>$6.3 billion</td>
<td>$7.0 billion</td>
<td>$7.8 billion</td>
</tr>
<tr>
<td>India</td>
<td>$5.3 billion</td>
<td>$7.7 billion</td>
<td>$14.7 billion</td>
</tr>
<tr>
<td>Mexico</td>
<td>$3.6 billion</td>
<td>$4.2 billion</td>
<td>$5.8 billion</td>
</tr>
</tbody>
</table>
75

GLOBAL MOBILE PAYMENTS

75.1 Market Assessment
Jupiter Research (www.jupiterresearch.com) assesses global spend via mobile wallets in 2017 at $1.35 billion, a 32% increase over the prior year.

Mobile payment activity is currently concentrated in the Far East and China, due primarily to the success of Alipay and WeChat. Mobile wallets will increasingly become the default payment mechanism in other markets because of tools recently introduced by PayPal and Apple, among others, allowing wallets to be used both in-store and online. PayPal’s introduction of an HCE (Host Card Emulation) NFC solution to enable POS payments is an important advance.

75.2 Assessment By Country
In 2016, GfK (www.gfk.com) surveyed 20,000 Internet users in 20 countries about their mobile shopping habits. By region, adults who say they are interested in being able to make more transactions via their mobile device are as follows (percentage of respondents):

- Latin America: 65%
- South Africa and Turkey: 52%
- Asia Pacific: 51%
- Europe: 28%
- United States: 26%

The 2016 Loyalty Lens, by Aimia (www.aimia.com), reported smartphone owner interest in mobile wallets as follows (percentage of respondents):

<table>
<thead>
<tr>
<th>Country</th>
<th>Already Using</th>
<th>Very Likely To Use</th>
<th>Likely To Use</th>
<th>Less Likely To Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>23%</td>
<td>36%</td>
<td>24%</td>
<td>16%</td>
</tr>
<tr>
<td>South Korea</td>
<td>10%</td>
<td>19%</td>
<td>33%</td>
<td>38%</td>
</tr>
<tr>
<td>South Africa</td>
<td>9%</td>
<td>25%</td>
<td>25%</td>
<td>41%</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>9%</td>
<td>22%</td>
<td>28%</td>
<td>41%</td>
</tr>
<tr>
<td>United States</td>
<td>7%</td>
<td>12%</td>
<td>21%</td>
<td>59%</td>
</tr>
<tr>
<td>Australia</td>
<td>6%</td>
<td>14%</td>
<td>22%</td>
<td>58%</td>
</tr>
<tr>
<td>Canada</td>
<td>6%</td>
<td>12%</td>
<td>19%</td>
<td>64%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>5%</td>
<td>13%</td>
<td>21%</td>
<td>61%</td>
</tr>
<tr>
<td>Germany</td>
<td>4%</td>
<td>9%</td>
<td>13%</td>
<td>75%</td>
</tr>
</tbody>
</table>
“According to a survey of smartphone owners in nine countries by data-driven marketing and loyalty analytics company Aimia, respondents in Germany are less likely – in some cases significantly so – than their peers around the world to use a mobile wallet.”

eMarketer, 12/23/16

75.3 Alipay

Alipay, an Alibaba spin-off company and China’s top mobile wallet app, had 450 million users in 2016. Seventy-one percent (71%) of Alipay transactions were conducted on mobile devices, up from 65% in 2015.

Alipay can be used on many of the China’s top online shopping sites, including all Alibaba marketplaces, Walmart China, and thousands of local shops. It’s also used for transferring money to family or friends, and features a number of financial services including a personal savings fund and small loans. Alipay’s small loans service, Jiebei, issued loans worth $43.4 billion to 12 million users in 2016.

In 2016, 2.3 billion Alipay transactions were put on the slate by using the built-in Ant Credit Pay, allowing for payment in installments, up 344% from 2015.

In 2016, Alipay’s biggest group of spenders, the people of Shanghai, paid out an average $20,400 in 2016 (US$1 = RMB 6.92), 1.5 times more than in 2015.

The following are the top countries outside China where Alipay is used for in-store shopping:
• South Korea
• Hong Kong
• Thailand
• Macau
• Taiwan
• Japan
• Australia
• Singapore
• New Zealand
• Germany

Alipay’s main rival in China is WeChat, which contains features for online and in-store cashless payments. Apple Pay is another contender.
APPENDIX

MARKET RESOURCES

App Annie, 23 Geary Street, Suite 800, San Francisco, CA 94108. (415) 638-6840. (www.appannie.com)


Berkman Center For Internet & Society at Harvard University, 23 Everett Street, Second Floor, Cambridge, MA 02138. (617) 495-7547. (https://cyber.law.harvard.edu/research)

BIA/Kelsey, 14150 Parkeast Circle, Suite 110, Chantilly, VA 20151. (703) 818-2425. (www.biakelsey.com)


Center for Internet and Society at Stanford Law School, 559 Nathan Abbott Way, Stanford, CA 94305. (http://cyberlaw.stanford.edu/about-us)

Center for the Digital Future, University of Southern California, Annenberg School for Communication, 300 S. Grand Avenue, Suite 3950, Los Angeles, CA 90071. (213) 437-4433. (www.digitalcenter.org)

comScore, 11950 Democracy Drive, Suite 600, Reston, VA 20190. (703) 438-2000. (www.comscore.com)

Econsultancy, 350 7th Avenue, Suite 307, New York, NY 10001. (212) 971-0630. (www.econsultancy.com)

Electronic Retailing Association, 607 14th Street NW, Suite 530, Washington, DC 20005. (800) 987-6462. (www.retailing.org)

eMarketer, 11 Times Square, New York, NY 10036. (800) 405-0844. (www.emarketer.com)

Experian Marketing Services, 125 Summer Street, Suite 1910, Boston, MA 02110.
Forrester Research, 60 Acorn Park, Cambridge, MA 02140. (617) 613-5730. (www.forrester.com)

Gartner Inc., 56 Top Gallant Road, Stamford, CT 06904. (203) 964-0096. (www.gartner.com)

GfK, 200 Liberty Street, 4th Floor, New York, NY 10281. (212) 884-9200. (www.gfk.com/en-us/)

Hookit, 731 S. Highway 101, Solana Beach, CA 92075. (888) 874-3375. (www.hookit.com)

Imagining The Internet Center at Elon University, School of Communication, 100 Campus Drive, Elon, NC 27244. (www.elon.edu/e-web/imagining/default.xhtml)

International Demographics, 10333 Richmond Avenue, Suite 200, Houston, TX 77042. (713) 626-0333. (www.themediaaudit.com)

Internet Retailer, 125 S. Wacker Drive, Suite 2900, Chicago, IL 60606. (312) 362-9529. (www.internetretailer.com)

Leichtman Research Group, 567 Bay Road, Durham, NH 03824. (603) 397-5400. (www.leichtmanresearch.com)


MediaPost Communications, 1460 Broadway, New York, NY 10036. (212) 204-2000. (www.mediapost.com)

Online Publishers Association, 1350 Broadway, Suite 606, New York, NY 10018. (646) 473-1000. (www.online-publishers.org)

Parks Associates, 15950 N. Dallas Parkway, Suite 575, Dallas, TX 75248. (972) 490-1113. (www.parksassociates.com)


Richard K. Miller & Associates, 2413 Main Street, Suite 331, Miramar, FL 33025. (888) 928-7562.  (www.rkma.com)


The Nielsen Company, 85 Broad Street, New York, NY 10004. (800) 864-1224. (www.nielsen.com)

The NPD Group, 900 West Shore Road, Port Washington, NY 11049. (516) 625-0700. (www.npd.com)

Wired, 1 World Trade Center, New York, NY 10006. (515) 243-3273. (www.wired.com)
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**Chapter 4: Online Activities**

**Chapter 5: Reliability & Accuracy Of Online Information**

**Chapter 6: Digital Advertising**


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**Chapter 28: Online Dating**


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Chapter 41: Online Buying Trends

Chapter 43: Key Players

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**Chapter 46: The Sharing & Peer-to-Peer Marketplace**


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Chapter 49: User Demographics

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Chapter 53: Over-the-Top Video Services


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Chapter 55: YouTube

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Chapter 57: Apps


Chapter 58: Top Apps

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Chapter 60: Mobile Payments


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“eMarketer Slashes Growth Outlook For Wearables,” eMarketer, December 20, 2016.

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“Two In Five Shoppers Want To Make More Mobile Payments,” eMarketer, November 10, 2016.