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Data Article

Survey of public data sources on the Internet usage and other Internet statistics

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ABSTRACT

The Internet research is mainly driven by data. Obtaining such data by planning and launching measurement campaigns is rather time consuming and costly. Much more efficient, and in many cases, sufficient data acquisition strategy is to exploit the existing datasets available in public databases, repositories, and documents. Hence, the public data sources related to the Internet usage and other Internet statistics are systematically surveyed and categorized to make the search for the Internet data much easier and faster. Extensive online searches and exploring websites of the key organizations were used to identify the data sources. Each data source was then carefully explored to describe its characteristics and contents. The data are usually aggregated over certain time periods and regions, and often indexed by age, gender, application, website, activity and other attributes. Some data sources also support various data visualization options, and offer data export in multiple formats.

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Specifications Table

Subject area	*Engineering, Computer Science*
More specific subject area	*Computer networks, Telecommunications*
Type of data	*5 Table, 1 Figure*

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How data was acquired	*Survey of public datasets on WWW*
Data format	*URL with brief description*
Experimental factors	*Each dataset was explored for its contents and then categorized.*
Experimental features	*Guided searches on WWW. Search of WWW of relevant organizations.*
Data source location	*N/A*
Data accessibility	*Included with this data brief.*

Value of the data

- There is no other centralized collection of public datasets on the Internet usage and other Internet statistics while searching for such datasets is a very time consuming process.
- The identified data sources can be used to identify and understand the current and future trends in the Internet usage.
- Having the Internet usage data and statistics is important to understand a rapidly ongoing digitalization of many sectors of the economy including manufacturing, healthcare, education and entertainment.
- It is vital that data sources on the Internet usage are regularly updated and made available to the researchers as well as policy and decision makers in order to keep evolving the Internet for the maximum benefits of the society.

1. Data

There are different types of data associated with the Internet. The Internet measurements are used for real-time network management, long-term network planning as well as to evaluate how the Internet is used and its impact on the economy and the society. The measurements used for network management are obtained directly from the Internet traffic flows. The network planning for 1 or 2 years ahead of the current demand is based on the traffic trend forecasting by extrapolating historical data. For longer-term planning beyond a 2 year horizon and to evaluate the long-term and large scale impacts of the Internet, the user questionnaires and other market research methods are necessary. The Internet data are regularly published by the government institutions, regulatory bodies, communication service providers, and private organizations. The data with low level of aggregation are usually only accessible for a fee. The published Internet usage data are highly aggregated which reduces the resolution, but also the variations in data. In order to obtain measurements for high volume and high throughput traffic, or to efficiently represent the Internet topology at multiple time scales, statistical sampling strategies are required to process smaller but statistically relevant traffic traces.

The collected datasets were somewhat liberally organized in the following 5 tables:

Table 1. Internet measurements: These datasets mostly contain data on the Internet usage in a given region such as the number of subscribers, cellular coverage, security issues and the quality of service including access speeds and response times.
Table 2. Internet applications: These datasets can be used to evaluate how the users spent their time on the Internet, often focusing on the specific regions of the world and specific websites such as social networking applications or Youtube.
Table 3. Various Internet statistics: These datasets provides information about the Internet usage and usage analytics in various parts of the world.
Table 4. Internet availability: These datasets are concerned with the Internet accesses in different countries and world regions.

Table 1
Internet measurements.

	Data source	Data	Notes
1.	Individual usage of the Internet. The World Bank Group. http://data.worldbank.org	1960–2015: Number of Internet users. Fixed broadband subscriptions. Fixed telephone subscriptions. Secure Internet. servers. Mobile cell. subscriptions.	Yearly updates. XLS, XML and CSV format. Indexing by global, region, country and income. In 5 langs.[b]
2.	The World Factbook. The CIA. https://www.cia.gov	2014: Number of Internet users.	Updated 2014 (15th ed.). TXT format. Indexing by country. In 8 langs.
3.	ICT facts and figures. ITU. https://www.itu.int	2000 and 2015: Internet users. 2011 and 2015: 3G mobile broadband coverage. 2005–2015: Mobile and fixed broadband subscriptions. Individuals using Internet. Household Internet access. 2008–2014: Internet prices. 2014: Internet speeds.	A report published in 2015. PDF format. Indexing by global, region, country and level of development.
4.	ICT Fact and figures. ITU. https://www.itu.int	2005–2014: Fixed and mobile broadband subscriptions. Individuals using Internet. Household Internet access 2013: Internet speeds.	A report published in 2014. PDF format. Indexed by country and level of development.
5.	Measuring the information society. ITU. https://www.itu.int	2020: The targets. 2015: Internet access. 2005–2015: Individuals using the Internet. 2005–2015: Household Internet access. 3G network coverage. 2014: Cyber security level. 2010 and 2015: Internet development induction. 2008–2014: Internet prices and speeds. 2000–2015: Fixed and mobile broadband subscriptions. Individuals using Internet. Household Internet access.	A report published in 2015. PDF format. Indexed by global, level of development, gender, region and country.
6.	Women's rights online. WWW Foundation. http://webfoundation.org	2014: Internet user and access. Barriers to using Internet. Reasons for using social media. Internet use in political and economic issues.	A report published in 2015. PDF format. Indexed by gender, education, age and gender. For 9 countries.
7.	Men vs. Women: Who Is more active on social media? Iris Vermere. https://www.brandwatch.com	2014: Internet user activity in social media.	A 2015 online article. PNG and BMP format. Indexed by gender. In 5 langs.
8.	Map of Internet users. Visually website. https://visual.ly	2014: Internet users.	Last update in 2012. PNG format. Indexed by country and gender.[a,b]
9.	Internet users by country and gender. Gilly Wright. https://www.gfmag.com	2000–2014: Internet users.	Last update in 2014. JPG and TXT format. Indexed by level of development, country and gender.[a]
10.	Global Internet report. Internet Society Organization. http://www.internetsociety.org	2007–2012: Internet users. 2008–2012: Fixed Internet subscriptions. Mobile broadband. 2010–2018: Fixed Internet traffic. 2011–2018: Mobile Internet traffic. 2013: Traffic generated different apps. 2014: Open and sustainable Internet survey.	Survey published in 2014. PDF format. Indexed by global, region and gender. For 20 countries.

Table 1 (*continued*)

	Data source	Data	Notes
11.	UNECE Statistical Database. UNECE. http://w3.unece.org	1990–2016: Internet use	Yearly, quarterly and weekly updates. XLS, CSV and PX format. Indexed by age, gender and country.[a,b]
12.	Over a quarter of the world's Internet users are aged 16–24. Global Web Index by Jason Mander. http://blog.globalwebindex.net	Q3-Q4 2014: Internet users.	Article published in 2015. PNG and BMP format. Indexed by age (16–24), global and selected country.[a]
13.	World Internet users. UN Data Organization. http://data.un.org	1960–2015: Internet users.	Yearly updates. XML and CSV format. Indexed by global, region and country.[a]
14.	Internet users - for all countries. Fact Fish. http://www.factfish.com	1990–2011: Internet users.	Last update in 2011. SVG, PNG and BMP format. Indexed by country. In 3 langs.[a,b]
15.	Internet users - country rankings. The Global Economy. http://www.theglobaleconomy.com	1960–2015: Internet users.	Yearly. Free for JPG. Not free for Excel and CSV format. Indexed by global, region and country. In 6 langs.[a]
16.	Internet use and income. Internet Monitor. https://dashboard.thenetmonitor.org	2007–2014: Internet use and income.	SVG, PNG and BMP format. Indexed by country.[a]
17.	Real time web monitor for internet traffic and attack. Akami. https://www.akamai.com	Real time web monitor for Internet traffic and attack.	Continuous updates. SVG, PNG and BMP format. Indexed by country. In 8 langs.
18.	Traffic data. Internet Traffic Report. http://www.internetttrafficreport.com	Traffic index, response times and packet losses.	Daily, weekly and monthly updates. GIF and BMP format. Indexed by region and country.
19.	Fixed broadband subscriptions. Index Mundi. http://www.indexmundi.com	Internet users.	Yearly updates. Indexed by region and country.[a]
20.	Distribution of Internet users in Europe. Statista. https://www.statista.com	2014: Internet users in Europe.	Last update 2014. PNG, XLS, PPT and PDF format. Indexed by age. Sourced from more than 18,000 datasets. In 4 langs.
21.	Internet users. ITU. http://www.itu.int	2008–2010: Internet users.	Last update in 2012. JPG and BMP format. Indexed by gender and country in Europe.
22.	Internet users. Data Market. https://datamarket.com	1990–2015: Internet users.	Yearly updates. XLS, PDF, PPT, SVG, PNG, BMP, CSV and TSV format. Indexed by income and region.[a]
23.	Internet users. FRED. https://fred.stlouisfed.org	1990–2015: Internet users.	Yearly updates. XLS, PDF, PPT, JPG and CSV format. Indexed by global and country.[a]
24.	Middle East Internet users to hit 413 million in 2015. Arabian Gazette Ayesha Sarfraz. https://arabiangazette.com	2015: prediction of Internet users in the Middle East.	Article published in 2013. JPG and BMP format.
25.	Top 10 Internet countries in Africa. IT Web Africa by Gareth van Zyl. http://www.itwebafrica.com	2014: Most connected countries in Africa.	Article published in 2014. PNG and BMP format. Indexed by users and country.[a]
26.	Africa's top 20 most connected countries. IT News Africa. http://www.itnewsafrica.com	2015: Top 20 connected countries in Africa.	Article published in 2015. TXT format. Indexed by users and country.[a]
27.	Africa Internet User Statistics. Statistic Brain. http://www.statisticbrain.com	2000 and 2015: Internet users in Africa.	Data published in 2016. TXT format. Indexed by country.[a]

Table 1 (*continued*)

	Data source	Data	Notes
28.	Latin American Internet Audience Nears 310 Million. eMarketer. https://www.emarketer.com	2013–2018: Internet users in Latin America.	Article published in 2014. GIF and BMP format. Indexed by country.
29.	Internet User in the UK. ONS. https://www.ons.gov.uk	2011–2017: Internet users in the UK.	Yearly updates. XLS format. Indexed by age, gender, economy and location.[a]
30.	Internet Users in Georgia. IDFI. https://idfi.ge	2012: Internet users in Georgia.	Data published in 2013. PNG and BMP format. Indexed by regions, cities, operators and activities.[a]
31.	India to have the second-largest internet user base in the world. Your Story by Radhika P Nair. https://yourstory.com	2015: Internet users in India.	Article published in 2015. PNG and BMP format. Indexed by rural and urban area.
32.	Internet Users in the USA. NCES. U.S. Dept. of Education. https://nces.ed.gov	2013: Internet users in the USA.	Yearly updates. XLS format. Indexed by gender, race, age, education and income.[a]
33.	First Look: Internet Use in 2015. NTIA. John B. Morris. https://www.ntia.doc.gov	2013–2015: Internet users in the USA.	Report published in 2016. PNG and BMP format. Indexed by age and education level.[a]
34.	United Kingdom fact file. Euro Monitor. http://www.euromonitor.com	2011–2016: Internet users.	Yearly updates. TXT format. Indexed by country.[a] Some data not free.
35.	Share of the Internet users. Knoema. https://knoema.com	2000–2015: Internet users.	Yearly updates. XLS, PPT, PDF, SVG, PNG and BMP format. Indexed by country. In 10 langs.[a,b]
36.	Internet use in the Middle East and North Africa. eMarketer. https://www.emarketer.com	2012: Internet use in Middle East and North Africa.	Article published in 2013. JIF and BMP format. Indexed by region.
37.	A snapshot of Internet use in Africa. PC Mag. by Stephanie Mlot. http://uk.pcmag.com	2012: Internet use in Africa.	Article published in 2013. JIF and BMP format. Indexed by region.[a]
38.	Internet users. Internet World Stats. http://www.internetworldstats.com	2017: Internet users.	Yearly updates. TXT, PNG and BMP format. Indexed by region.[a]
39.	Internet topology data. CAIDA. http://www.caida.org/data/	2017: Macroscopic Internet topology data kit.	Router level topology data on the Internet nodes and links.
40.	Internet topology data. Topology Zoo project. http://topology-zoo.org	2017: University of Adelaide project of Internet topologies.	250 datasets on various Internet networks at different scales.

[a] Other data available.
[b] Various visualization options available.

Table 2
Internet applications.

	Data source	Data	Notes
1.	World internet and digital future. Digital Centre Organization http://www.digitalcenter.org	2009–2015 and 2000–2016: Internet usage in social, political, media, entertainment, security and economy for selected countries.	Project reports. PDF format. Indexed by age, gender, income, location and education.
2.	Global internet usage. Build Export. https://build.export.gov	2013: Global internet usage.	A PDF report. Indexed by region, language, browsers, search engine, social media and mobile vs. desktop.
3.	Daily time spent on social networks rises to over 2 h. Global Web Index Jason Mander. http://blog.globalwebindex.net	2012–2016: Time spent on social networks.	Article published in 2017. PNG and BMP format. Indexed by avg. daily time.[a]
4.	How people spent time on the Internet. Go-Gulf. https://www.go-gulf.com	2012: How users spent time on the Internet.	Infographics published in 2012. GIF and BMP format. Indexed by global, activity, website and apps.[a]
5.	Internet access and use in Europe. European Commission. https://ec.europa.eu	2006–2008: Internet access and use in Europe.	Data published in 2008. PDF and DOC format. Indexed by country.[a]
6.	Internet usage in Asia-Pacific. Visually. https://visual.ly	2000–2010: Internet usage in Asia-Pacific.	Infographic. JPG and BMP format. Indexed by selected countries.
7.	Internet usage in Asia-Pacific. comScore Inc. http://www.comscore.com	2007: Internet usage in Asia-Pacific.	Data published in 2007. TXT format. Indexed by global, countries, region and avg. time spent on website.[a]
8.	Asia Internet Usage. SCRIBD. https://www.scribd.com	2000 and 2010: Asia Internet Usage.	Data published in 2010. PNG and BMP format. Indexed by selected countries.
9.	Mobile Internet Usage in Asia-Pacific. Internet Society Organization. https://www.internetsociety.org	2016: Mobile Internet usage in Asia-Pacific.	Report published in 2016. PDF format. Indexed by activity, operator, device, age and app.
10.	The Arab World Online 2014. Mohammed Bin Rashid School of Government. http://www.mbrsg.ae	2014: Arab world online.	Report. PDF format. Indexed by device, location, spending time, social media, age, income, and app.[a]
11.	Internet usage in the Middle East. Go-Gulf. https://www.go-gulf.ae	2001, 2012 and 2015: Internet usage in the Middle East.	Infographics published in 2013. Indexed by country and app.[a]
12.	Internet usage in the Middle East. Info Graphicspedia http://www.infographicspedia.com/author/admin/ http://www.infographicspedia.com	Internet Usage in the Middle East.	Infographics. JPG and BMP format. Indexed by access and app.
13.	Mobile internet usage in the Middle East. https://www.middleeast-infographics.com	2014–2017: Mobile internet usage in the Middle East.	Infographics. PNG format. Indexed by age, device, users, employment, education, gender and app.
14.	Out-of-home use of the Internet. BSG. http://www.broadbanduk.org	2014: Internet use in the UK	Report published in 2014. PDF format. Indexed by activity, downloading speed, device, age and app.
	Ofcom. https://www.ofcom.org.uk	2011–2017: Internet use in the UK. Adults media use and attitudes.	Reports. PDF format. Indexed by location, device, activities, game, browsing, access, age and app.[a]
		2013: Internet use in the UK. Internet citizens.	Reports. PDF format. Indexed by gender, age, activities and use of websites.[a]

Table 2 (*continued*)

	Data source	Data	Notes
		2016: Internet use in the UK. Smartphone cities.	Reports. PDF format. Indexed by speed and operator.[a]
		2014 and 2015: Mobile broadband performance in the UK.	Reports. PDF format. Indexed by operator, speed, latency, cities, device, activity, speed, and operator.[a]
		2011–2016: Internet use and attitudes in the UK bulletin.	Reports. PDF format. Indexed by age, gender, income, unemployed, rural/urban area, ethnicity and disability.[a]
15.	Internet and computer use in London. Datahub. https://datahub.io	2013: Internet and computer use in London area.	Data published in 2013. XLS format. Indexed by access.[a]
16.	Mobile connectivity research study. UK Government. https://www.gov.uk	2016: Internet use in the UK trains.	Report published in 2016. PDF format. Indexed by device, spend time, connectivity and activity.
17.	How internet use has ballooned in the last decade. The Telegraph. http://www.telegraph.co.uk	2012–2014: Internet use among teenagers in the UK.	Article published in 2015. SVG, PNG, BMP, JPG and PDF format. Indexed by device and social website.
18.	India Internet Usage. Google. https://storage.googleapis.com	2015: Internet usage in India.	Infographic. PDF format. Indexed by speed, time spend, gender, area and speed.[a]
19.	Internet Usage in China. Go-Globe. https://www.go-globe.com	2012: Internet usage in China.	Infographic published in 2013. Indexed by device, gender, area, access and activity.[a]
20.	Internet Usage in China. Simply Mandarin. http://simplymandarin.com	2013: Internet Usage in China.	Infographics. PNG and BMP format. Indexed by gender, age, education, occupation, device and activity.[a]
21.	Internet usage in Hong Kong. Go-Globe. https://www.go-globe.hk	2013 and 2014: Internet usage in Hong Kong.	Infographics published in 2014. Indexed by device, access, activity, age, gender, spent time and area.[a]
22.	Internet use in Canada. Statistics Canada. http://www.statcan.gc.ca	2005, 2007 and 2009: Internet use in Canada.	Last update 2010. XLS, CSV and HTML format. Indexed by individuals, location of access and province.[a]
23.	Internet usage in Brazil. Tech in Brazil. https://techinbrazil.com	2014: Internet usage in Brazil.	Last update 2014. TXT format. Indexed by activity, access, spend time and app.
24.	Internet usage in Brazil. Business of apps. http://www.businessofapps.com	2015: Internet usage in Brazil.	Published in 2016. PNG and BMP format. Indexed by device, activity and app.
25.	Global internet industry research. Avazu. http://avazuinc.com	Different years.	Report. PDF format. Indexed by operator, device, age, activity, social media and app.
26.	The 100 websites that rule the internet in the USA. Visual Capitalist. http://www.visualcapitalist.com	2017: Top 100 websites in the USA.	Infographic published in 2017. JPG format.
27.	The state of the Internet. Akamai https://www.akamai.com/us/en/about/our-thinking/state-of-the-internet-report/https://www.akamai.com	State of the Internet connectivity, security and speeds.	Quarterly updates. Data form 2008. Indexed by region and country. In 8 langs.
28.	The Internet usage.	The top 500 sites on the web.	

Table 2 (*continued*)

	Data source	Data	Notes
	Alexa https://www.alexa.com		Daily updates. Indexed by global, country, category, spent time, traffic, website and apps. Free and non-free data.
29.	Measuring broadband America. FCC https://www.fcc.gov	Lots of data and reports on telecommunications and the Internet in the US and international. Mobile and fixed broadband, QoS, Internet access, high-speed access.	Reports from as early as 1985 in PDF or TXT formats. Index by performance, coverage, subscriptions, pricing,
30.	Social apps usage. Social Blade https://socialblade.com	User data for YouTube, Twitch, Instagram and Twitter.	Rich indexing and filtering.
31.	Personal data on Google. Google account. https://myaccount.google.com	Access to one's own personal data on Google.	Export, share and manage personal data on Google.
32.	Social apps usage. Social Bakers https://www.socialbakers.com	Usage data for selected social applications including Youtube, Facebook and Twitter.	Indexed by country, global, industry, most active profiles, daily and monthly uses.
33.	Wiki groups statistics. Wikimedia https://stats.wikimedia.org/	Statistics about wiki groups.	Monthly update. Various formats.
34.	Media use in the Middle East. North Western University in Qater. http://qatar.northwestern.edu	2016: Data about the Internet and social networks in the Middle East.	Report. PDF format. Indexed by country, penetration, device, usage, age and app.
35.	http://www.socialblade.com	Usage statistics on Youtube, Twitch, Instagram, Twitter and Daily motion.	HTTP tables with sorting. Also in real time.

[a] Other data available.

Table 3
Various Internet statistics.

	Data source	Data	Notes
1.	The Internet statistics and resources. Info Please. http://www.infoplease.com	2001–2016: a lot of various Internet statistics in the USA and worldwide.	Last updated in 2016. TXT format. Indexed by gender, age, race, income, education, employment, region and country.[a]
2.	Smartphone Ownership and Internet Usage Continues to Climb in Emerging Economies. Pew Research Center. http://www.pewglobal.org	2000–2017: Internet statistics.	Data published in 2017. BNG and BMP format. Indexed by country, age, education, income, access and devices.[a]
3.	The Internet. Our World in Data. https://ourworldindata.org	Internet statistics, various years.	BNG and BMP format. Indexed by country, access, economy and app.[a,b]
4.	Social Media Facts and Statistics. Jeff Bullas. http://www.jeffbullas.com	2013 and 2015: Social media statistics.	Articles. TXT format. Indexed by age, gender, region, device and app.[a]
5.	Internet Stats & Facts for 2016. Hosting Facts. https://hostingfacts.com	2016: Internet statistics.	Article published in 2016. TXT, BNG and BMP format.[a]

Table 3 (*continued*)

	Data source	Data	Notes
6.	96 Amazing Social Media Statistics and Facts. Brand Watch. https://www.brandwatch.com	2016: Social media statistics.	Article published in 2016. TXT format. Indexed by app. In 5 langs.[a]
7.	Internet Trends 2017. VPN Mentor Guy Fawkes. https://www.vpnmentor.com	2017: Stats & Facts in the USA and Worldwide.	Article. JPG and BMP format. Indexed by region, users, age, device, speed, activity and browser. In 25 langs.[a]
8.	There are now 3 billion Internet users worldwide in 2015. Mobile Industry Review. http://www.mobileindustryreview.com	2015: Internet statistics in the UK.	Article published in 2015. PNG and BMP format. Indexed by use mobile web, mobile broadband, mobile data growth, spend time, speed, region, device, social media and app.[a]
9.	Mobile usage statistics. Internet Stats Today. http://internetstatstoday.com	Live mobile usage statistics.	Live updates. Indexed by activity, device and app.
10.	How the world uses the internet. IDC. http://www.idc.com	2009–2018: Internet statistics.	Infographics. PDF format. Indexed by region, country, activity. In 11 langs.[a]
11.	Internet trends. Kleiner Perkins Caufield and Byers. http://www.kpcb.com	2017: Global internet trends, advertisement, game, media, China and India internet and healthcare.	Report and presentation. JPG and BMP format.
12.	Internet use and statistics. Eurostat. http://ec.europa.eu	2013 statistics in Europe.	Article. PNG and BMP format. Indexed by users, age, activity, websites and shopping. In 22 langs.[a]
13.	Digital economy and society statistics - households and individuals. Eurostat. http://ec.europa.eu	2016 statistics in Europe.	Articles. PNG, BMP and XLS format. Indexed by access, usage and device. In 22 langs.[a]
14.	Social Media Report. Sensis. https://www.sensis.com.au	2015 and 2017: Social media statistics in Australia.	Reports. PDF format. Indexed by device, age, gender, access and social media.[a]
15.	Digital landscape of Southeast Asia. Tech in Asia. https://www.techinasia.com	2015: Internet statistics in Southeast Asia.	Presentation. JPG and BMP format. Indexed by Facebook usage, gender, age and country.[a]
16.	Digital landscape in Asia. Go-Globe. https://www.go-globe.com	2015: Internet statistics in Asia.	Infographics published in 2015. Indexed by country, users, device, spend time and speed.[a]
17.	Internet usage in Hong Kong. Go-Globe. https://www.go-globe.hk	2013 and 2014: Internet statistics in Hong Kong.	Infographics published in 2014. Indexed by device, access, activity, age, gender, spend time and area.[a]
18.	Internet user statistics in Asia. Statistic Brain. http://www.statisticbrain.com	2000 and 2016: Internet user statistics in Asia.	Data published in 2016. TXT format. Indexed by internet users, Facebook users and country.[a]
19.	Social media statistics in the Middle East. Middle East media organization. http://www.mideastmedia.org	2015: Social media statistics in the Middle East.	Annual survey. PNG and BMP format. Indexed by activity and app.
20.	Social media statistics in the Middle East. Go -Gulf. https://www.go-gulf.ae	2013: Social media statistics in the Middle East.	Infographics published in 2013. Indexed by language, age, gender, access and country.[a]

Table 3 (*continued*)

	Data source	Data	Notes
21.	Internet statistics in selected countries. Slideshare users. https://www.slideshare.net	2015: Internet statistics in India. 2015: China mobile Internet statistics. 2014: Internet statistics in Russia.	Presentations. PDF and PPT format. Indexed by many different attributes.[a]
22.	Global internet report in Latin America and North America. Sandvine. https://www.sandvine.com	2015: Internet statistics in America.	Report. PDF format. Indexed by access and activity.[a]
23.	Irish communications market. Commission for Communications Regulation https://www.comreg.ie	2015: Internet statistics in Ireland.	Report. PDF format. Indexed by access, usage, penetration, pricing, users, operators, speed and traffic.
24.	Analysis of broadband performance in Ireland. Sam Knows. https://www.samknows.com	2014: Broadband quality in Ireland.	Study. PDF format. Indexed by download, upload, latency and packet loss.
25.	Statistics of Internet Users in Georgia. IDFI. https://idfi.ge	2012: Internet statistics in Georgia.	Data published in 2013. PNG and BMP format. Indexed by activity, region, operators and access.
26.	Social Media Users in Argentina. Innovatemedtec. https://innovatemedtec.com	2015: Social media statistics in Argentina.	Article published in 2015. PNG format. Indexed by spend time and users.
27.	Internet statistics in India. Social Prachar. https://socialprachar.com	2015: Internet statistics in India.	Infographics. Indexed by gender, activity and area.
28.	Statistical report on the Internet development in China. By China Network Information Centre CNNIC. http://www.apira.org	1997–2016: Internet statistics in China.	37 reports published annually. PDF format. Indexed by user provinces, gender, age, education, occupation, income, access, usage and app.[a]
29.	Chinese social media statistics. Make a website hub. https://makeawebsitehub.com	2015: Chinese social media statistics.	Infographics. PNG and BMP format. Indexed by users, usage, access, device, gender, age and app.
30.	China internet statistics. China Internet Watch. https://www.chinainternetwatch.com	2009–2017: Chinese social media statistics.	Whitepapers, presentations, articles, posts. PPT, PNG, BMP and TXT format. Indexed by users, area, age, gender, education, occupation, income, access, device, activity and app.[a]
31.	Internet statistics in Vietnam. Chabrol. http://chabrol.net	2015–2016: Internet statistics in Vietnam.	Post published in 2016. TXT format. Indexed by users, activity, spend time, device and app.[a]
32.	Internet statistics in Russia. East-West digital news. http://www.ewdn.com	2015: Internet statistics in Russia.	Article published in 2016. PNG and BMP format. Indexed by penetration, device, age and city size.[a]
33.	Russian internet growth and development. Russian Search Marketing. http://russiansearchmarketing.com	2014: Internet statistics in Russia.	Article published in 2015. JPG and BMP format. Indexed by penetration and area.[a]
34.	Internet statistics in Malaysia. Department of Statistics Malaysia. https://www.dosm.gov.my	2013 and 2015: Internet statistics in Malaysia.	Infographics published in 2016. PDF format. Indexed by usage, access, activity and device.

Table 3 (*continued*)

	Data source	Data	Notes
35.	The Canadian internet. CIRA. https://cira.ca	2011–2012: Internet statistics in Canada.	Post published in 2014. PNG and BMP format. Indexed by access, area, activity, device and app.[a]
36.	Internet statistics in the USA. NTIA. https://www.ntia.doc.gov	1998–2015: Internet statistics in the USA.	Yearly updates. XLS format. Indexed by device, access, activity, age, income, employment, education, gender and race.[a,b]
37.	Global broadband penetration. Global Finance Magazine. https://www.gfmag.com	2011: Global broadband penetration.	Online article. Indexed by access, penetration and country.[a]
38.	Internet statistics in the Arab countries. IPSOS. https://www.ipsos.com	2013: Internet statistics in the Arab countries.	Study published in 2013. PDF format. Indexed by penetration, access, device, browsers, country, gender, age and activity.[a]
39.	Internet statistics. Internet Monitor. https://thenetmonitor.org	Various Internet statistics.	Indexed by country, access, cost and speed.[a]
40.	Global Internet Maps. Internet Society. http://www.internetsociety.org	2013: Internet statistics. Internet Measurement Project.	Reports, surveys, external references to free and non-free documents.
41.	Avazu. http://avazuinc.com	Internet and online games statistics in Russia and Brazil.	White papers. PDF format.
42.	Social media statistics. UK Business Insider. http://uk.businessinsider.com	2016: Social media statistics.	Article published in 2016. PNG and BMP format. Indexing by app.
43.	Web Traffic Analytics. Alexa Internet. https://www.alexa.com/	2002-present: Web traffic data analytics, traffic, ranking and other information.	Data on 30 million websites. Partly free. HTML format. Complete web access statistics with paid account.

[a] Other data available.
[b] Various visualization options available.

Table 4
Internet availability.

	Data source	Data	Notes
1.	Internet access. OECD. https://data.oecd.org	2005–2015: Internet access.	Yearly updates. XLS format. Indexed by country.[a,b]
2.	Internet access and use in the EU27. European Commission. https://ec.europa.eu	2006–2008: Internet access in Europe.	Data published in 2008. PDF and DOC format. Indexed by access, activity and country.[a]
3.	Digital economy and society statistics. Eurostat. http://ec.europa.eu	2016: Internet access for households and individuals in Europe.	Data published in 2017. XLS, PNG and BMP format. Indexed by usage, household, area, device and shopping.
4.	The net-children go mobile project. LSE Research Online. http://eprints.lse.ac.uk	2013: Internet access among European children.	Initial findings published in 2013. PDF format. Indexed by usage, age, device, activity, social media and gender.[a]

Table 4 (*continued*)

	Data source	Data	Notes
5.	Internet access statistical bulletins. ONS. https://www.ons.gov.uk	2012–2016: Internet access of households and individuals in the UK.	Yearly updates. PDF, JPG and XLS format. Indexed by device, activity, age and city.[a]
6.	Internet access quarterly update. Government UK. https://data.gov.uk	2011–2014: Internet access in the UK.	Quarterly updates; last in 2014. PDF format. Indexed by age, gender and region.[a]
7.	Internet access and use. Tower Hamlets Council. http://www.towerhamlets.gov.uk	2013: Internet access in the UK.	Report published in 2014. PDF format. Indexed by households, usage, activity, age, city, race and gender.
8.	Internet access datasets. Singapore Gov. https://data.gov.sg	2017: 19 datasets on Internet access in Singapore.	Yearly updates. XLS format.[a]
9.	Internet access among children in the USA. Child Trends Org. https://www.childtrends.org	1994–2013: Internet access among children in the USA.	A report. PDF format. Index by age, gender, race, income and region.
10.	Americans internet access. Pew Research Center. http://www.pewinternet.org	2000–2014: Internet access in the USA.	Report published in 2015. PDF, SVG, PNG and BMP format. Indexed by use, age, education, income, race, area and gender.[a,b]
11.	Computer and Internet Access in the USA. The U.S. Census Bureau. https://www.census.gov	1984–2012: Internet access in the USA.	Reports. XLS format. Indexed by age, gender, ethnicity and income.

[a] Other data available.
[b] Various visualization options available.

Table 5. More comprehensive datasets related to the Internet: These datasets often contain various other data in addition to the Internet data.

2. Experimental design, materials and methods

The most important data sources on the Internet usage containing the most comprehensive datasets are summarized in Fig. 1. The following two main strategies were used to find the relevant datasets. First, the World Wide Web (WWW) was searched using various combinations of keywords to find about 80% of the collected datasets. The keywords considered combined the word `Internet' with one or more of the following search terms: traffic, database, data, access, usage, users, and statistics. The keyword search can be further modified, for example, by specifying the country or a region. The second strategy for finding the relevant datasets is to first identify the institutions which are known to be reporting various Internet related statistics, and then examine their websites. Overall, over 400 candidate websites were explored to select the relevant datasets. It is not surprising that often, but fortunately, not always, the high quality datasets (i.e., those which are reliable and regularly kept up to date) are only available to the paying subscribers. However, these pay-for-access datasets have been excluded from the survey. The main attributes of interest that were checked for when screening the datasets are: whether the data are provided for free, who is maintaining the dataset, how often the data are updated, in what format the data are available, and especially, what data are specifically provided and how they are indexed or categorized. Moreover, many international institutions have a policy to publish datasets with description in multiple languages. The total volume of data in each dataset varies significantly among the data providers including the time coverage and the availability of historical data. Most data seem to be normally accessible in smaller chunks, usually organized around a specific reporting purpose or issue.

Table 5
More comprehensive datasets related to the Internet.

	Data source	Data	Notes
1.	Data hub. https://datahub.io	Total 11,238 datasets with 312 about the Internet.	Different formats. In 47 langs.
2.	European data portal. https://www.europeandataportal.eu	Total 764,778 datasets with 60,239 about the Internet.	Different formats. In 24 langs. European countries only.
3.	European Union Open Data Portal. https://data.europa.eu	Total 10,850 datasets with 293 about the Internet.	Different formats. In 24 langs. EU countries.
4.	Internet live stats. http://www.internetlivestats.com	Live data about internet users, number of websites and apps.	Real-time data.
5.	ITU. http://www.itu.int	Datasets about broadband, Internet use, mobile-cellular and mobile-broadband networks in the world.	Yearly updated data. Different formats. In 5 langs.
6.	World Bank Group. http://www.worldbank.org	Total 774 million. Datasets about the Internet and other fields.	Yearly updates. Different formats. In 20 langs. Good for data on developing countries.
7.	Statista. https://www.statista.com	Thousands of datasets about the Internet and other fields.	Yearly updates. Different formats. In 4 langs. Free and non-free access.
8.	Info Please. https://www.infoplease.com	Lots of data about the Internet and other fields in the USA and in the world.	Yearly updates. Different formats.
9.	Ofcom. https://www.ofcom.org.uk	Lots of data about the Internet in the UK.	Yearly updates. Different formats.
10.	FCC https://www.fcc.gov	Lots of data about the Internet in the US.	Yearly updates. PDF format.
11.	Pew Research Center. http://www.pewglobal.org	Lots of data about the Internet and other fields in the USA and in the world.	Data polling, research and analysis. Yearly updates.
12.	Internet Society. https://www.internetsociety.org	Data about the Internet.	Different formats and visualizations. In 8 langs.
13.	ONS. https://www.ons.gov.uk	Lots of data about the Internet and other fields in the UK.	Collect, analyse and publish data about the UK. Yearly updates. Different formats.
14.	Stat. Counter. http://gs.statcounter.com	Data about the Internet.	Daily updates. Different formats and visualizations. Data from 2.5 million websites. Indexed by browser, device, country, region and app.
15.	Our World in Data. https://ourworldindata.org	Lots of data about the Internet and many other fields.	Free data research and analysis. PNG and BMP format.
16.	UN data. http://data.un.org	Lots of data about the Internet and other fields also listing the UN organizations with the last and next update datasets.	Monthly updates. Different formats. Indexed by topic, country and time period.

Table 5 (*continued*)

	Data source	Data	Notes
17.	OECD. http://www.oecd.org	Lots of data about the Internet and other fields.	Yearly updates. XLS format. Indexed by penetration, usage, price, service, speed and coverage. In 2 langs.
18.	The Global Economy. http://www.theglobaleconomy.com	Lots of data about the Internet and other fields.	Free and non-free data. JPG format. Other formats with free registration. Different visualizations. In 6 langs.
19.	Slideshare. https://www.slideshare.net	Total 18 million presentations in 40 categories, many containing data about the Internet and other fields.	Different formats. In 5 langs.
20.	Knoema. https://knoema.com	Search engine for data.	Different formats. In 10 langs.
21.	Australian Bureau of Statistics. http://search.abs.gov.au	Official data Australia including the Internet.	Yearly updates. XLS format.
22.	Internet Stats Today. http://internetstatstoday.com/	Live mobile usage statistics.	Live updates. Indexed by activity, device and app.
23.	Apira. http://www.apira.org	The Internet developments in countries in the Asia-Pacific region.	Survey reports and Internet data in different countries.
24.	ABI research https://www.abiresearch.com/	Research on technology markets.	Quarterly updates. Data and reports on the Internet, markets and technology. Registration required. Data access not free.[a]
25.	Eurostat http://ec.europa.eu	Lots of data about the Internet and other things in Europe.	Data about the Internet in Europe. Indexed by user, access, activity and security. Many formats.
26.	Pingdom http://royal.pingdom.com	Data and analysis on the Internet.	Lots of data about the Internet and other fields.
27.	Strategy Analytics https://www.strategyanalytics.com	Data on the Internet and other fields.	Lots of data and reports, but registration required.
28.	PWC https://www.pwc.com	Investment data in the USA including the Internet.	Quarterly update. SVG, PNG and BMP format. Indexed by sector, region, state.
29.	UNCTAD statistics http://unctadstat.unctad.org	United Nations Conference on Trade and Development. Data on ICT and Internet usage and economics.	Yearly update. IVT, XLS and CSV format. In 2 langs.
30.	Statistics Canada http://www.statcan.gc.ca	Data on the Internet and other things in Canada.	Data about the Internet and other statistics.

[a] Other data available.

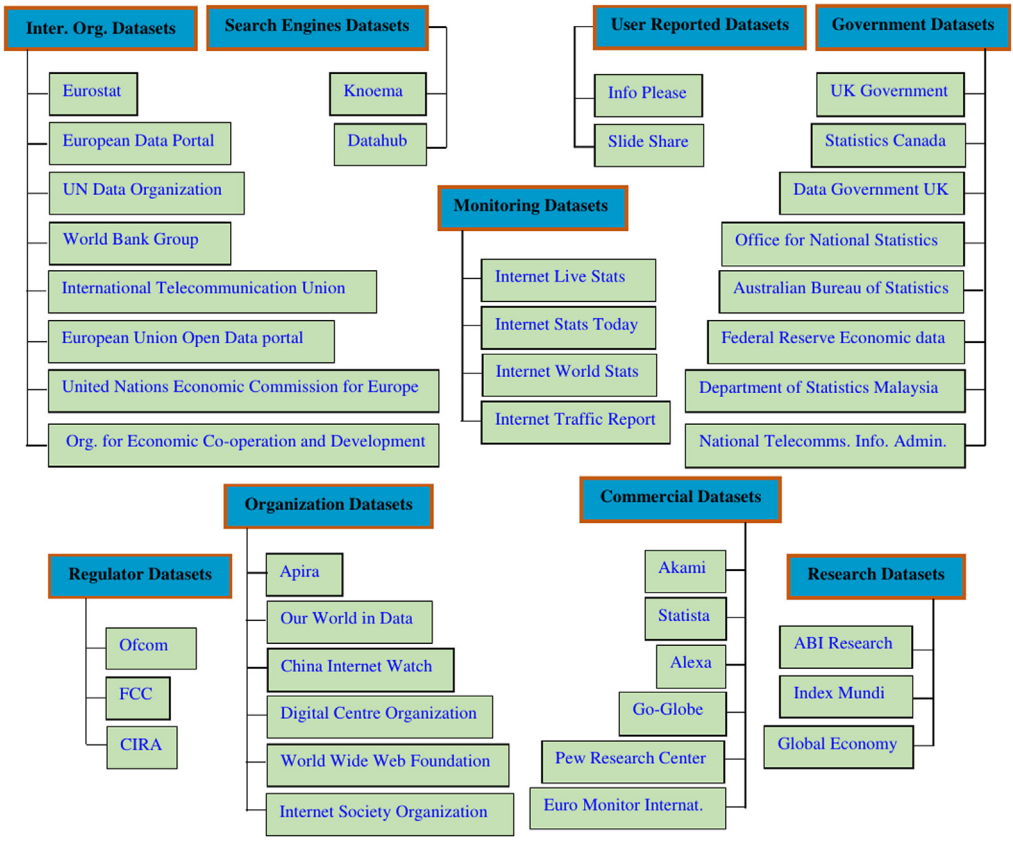

Fig. 1. The most comprehensive datasets on the Internet usage and other Internet statistics.

References [1–5] are recommended for performing longer-term traffic and applications forecasting in the Internet. The Internet measurement procedures are described in [6–9] whereas focus on measuring the digital economy can be found in [10–12]. Digitalization of the economy is explained in [13] while many technical and business aspects of digitalization of the Internet services are studied in [14]. The value of open access data and the associated data regulation are discussed in [15] and [16].

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Transparency document. Supplementary material

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