Google's Economic Impact in Europe

PublicFirst

Google's Economic Impact in Europe

PUBLICFIRST

About Us

Public First is a global strategic consultancy that works to help organisations better understand public opinion, analyse economic trends and craft new policy proposals.

A: Public First Ltd, 11 Tufton Street, SW1P 3QB, London
T: +44 (0) 2036 872 761
E: info@publicfirst.co.uk
www.publicfirst.co.uk

Contents

Key Facts

1

Even though they are provided free of charge, Google's core services of Search, Maps and YouTube create around **€420 billion in value** per year for European consumers.*

€420 bn

2

Last year, Google's products supported at least **€177 billion a year** in economic activity for businesses, developers, creators and publishers right across Europe.[1]

€177 billion

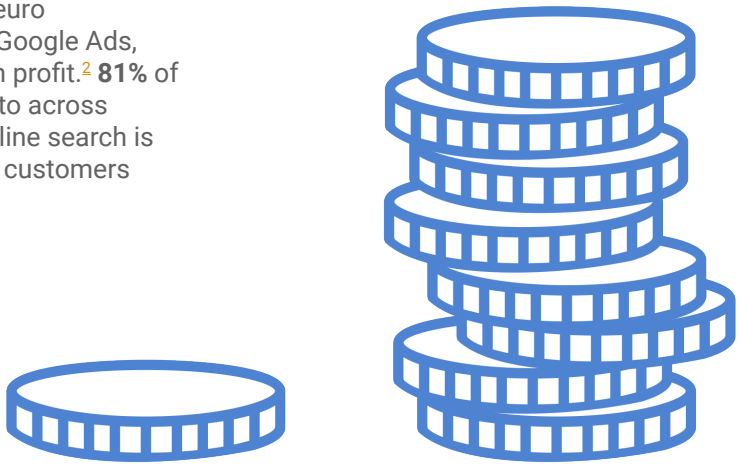
3

Google has **invested over €7 billion in constructing data centres** across Europe, supporting an average of **9,600 jobs per year**.*

€7 billion

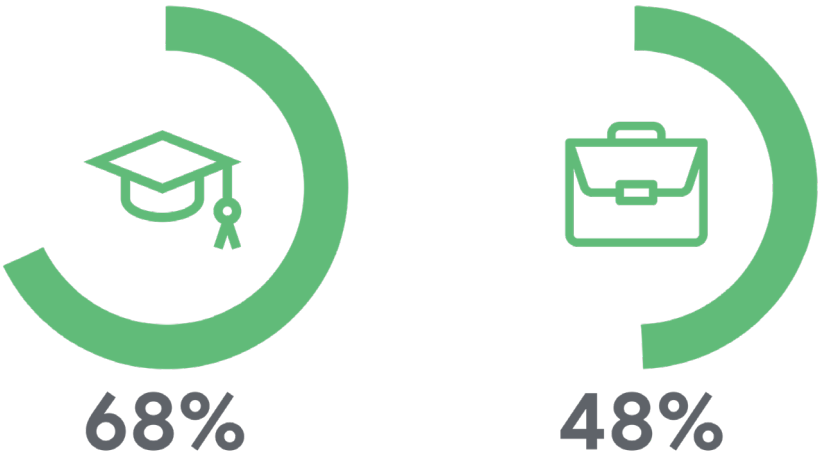
4

On average, for every euro businesses spend on Google Ads, they receive €8 back in profit.[2] **81%** of businesses we spoke to across Europe agreed that online search is an important way that customers find them.*



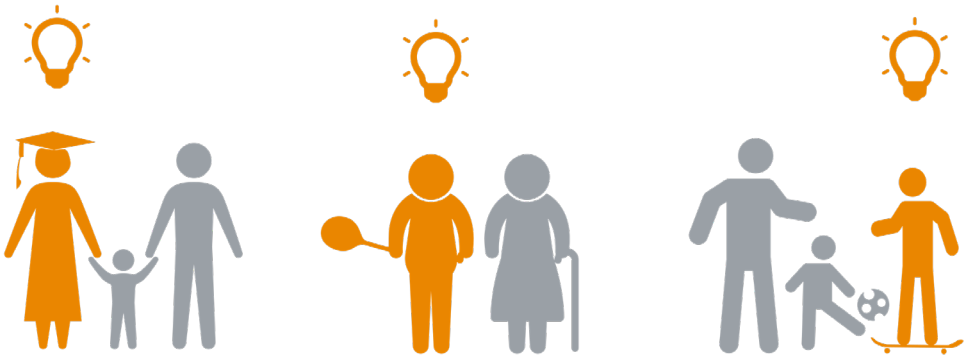
5

Every year, **68%** of Search users in Europe use it to learn a new skill, and **48%** to look for a new job.*



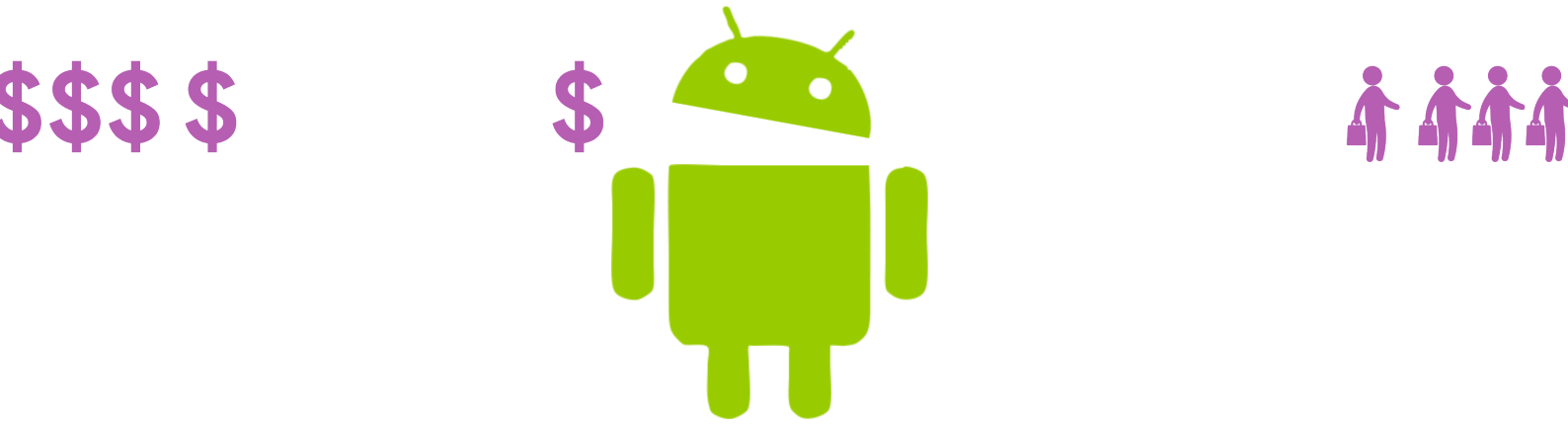
6

Every month **71%** of European YouTube consumers use the product to learn something, from new skills to help around the home.*



7

The Android app ecosystem supports **€11.7 billion** in revenue for European developers* and over **1.4 million jobs**.[3]



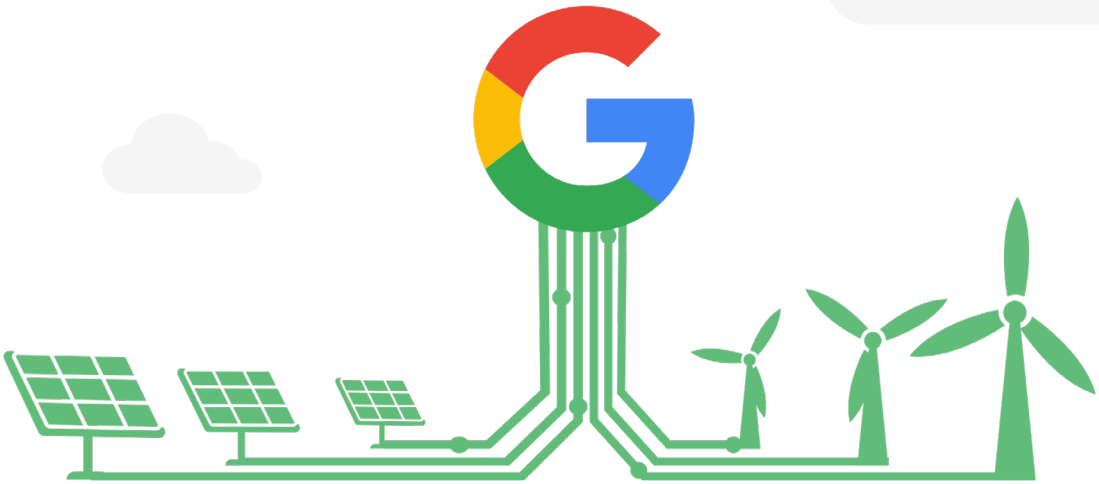
8

The enhanced productivity from Google Search and Apps is helping save European workers over **2,800 million hours** a year, while Google Cloud has increased business productivity in Europe **by over €2.4 billion**.[10]

2,800,000,000
hours a year

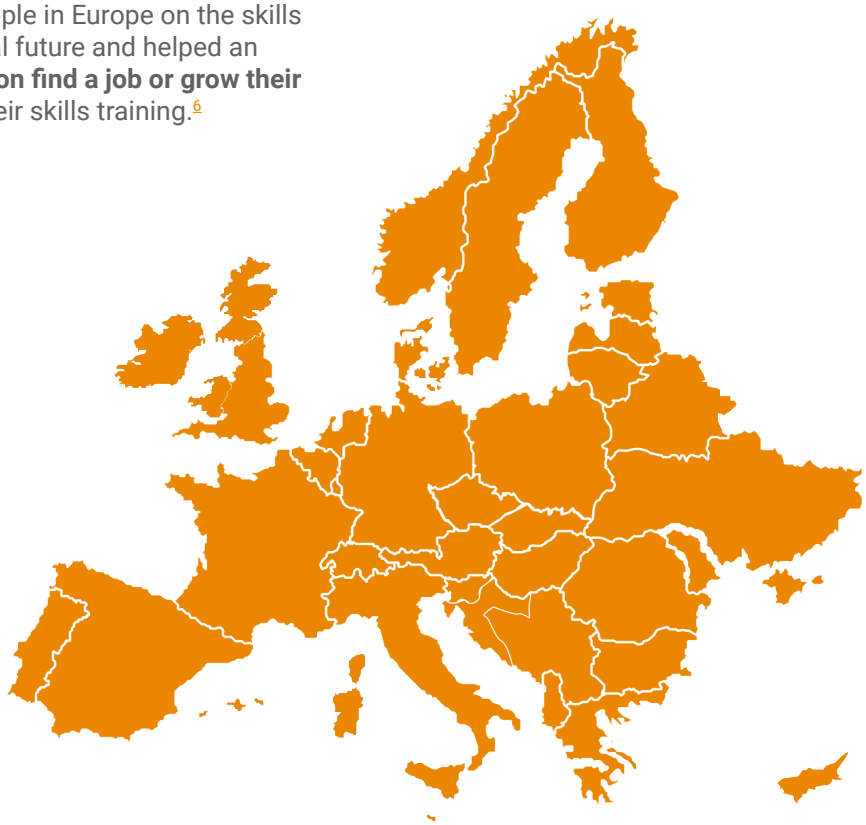
9

Google is the world's largest business purchaser of renewable energy, and has enabled more than **€1.2 billion in renewable energy investment** across Europe.[4]



10

Through Grow with Google, Google has trained over **6.4 million**[5] people in Europe on the skills needed for the digital future and helped an estimated **1.25 million find a job or grow their business** through their skills training.[6]



* Public First polling / modelling

1 https://www.copenhageneconomics.com/dyn/resources/Publication/publicationPDF/0/500/1569061077/copenhagen-economics-google-european-dcs-infrastructures-impact-study_september2019.pdf

2 https://economicimpact.google.com/methodology/

3 The App Economy in Europe: Leading Countries and Cities, Dr Michael Mandel and Elliot Long, Progressive Policy Institute, 2017

4 https://blog.google/around-the-globe/google-europe/accelerating-europes-clean-energy-transition/

5 https://blog.google/outreach-initiatives/grow-with-google/helping-1-million-europeans-find-job-or-grow-their-business-2020/

6 Analysis by Google based on data from an independent ongoing survey by Ipsos

Introduction

Introduction

Google's products like Search, YouTube and Android help people navigate the immense amount of new information created by the internet. In this report, Google commissioned independent consultancy Public First to explore the impact of greater access to information created by Google products for European workers, businesses, nonprofits and content creators.

As part of our research, we used a range of different methods to help quantify the impact of Google's products and services in Europe:

- We constructed new economic models across 26 European countries[7] to help us quantify the total size of the benefits created by Google for the European economy or standard of living.
- We ran representative polls across 28 European countries, exploring how they used Google products in their ordinary life. **In total, we spoke to over 28,000 Europeans.**
- We spoke to senior business leaders across different types of industry and size of business in 18 countries, trying to assess the difference these products were making to their workforce. **In total, we spoke to over 6,000 businesses across Europe.**

We found that Google products and services and the wider opportunities created by the internet were having a real impact across Europe:

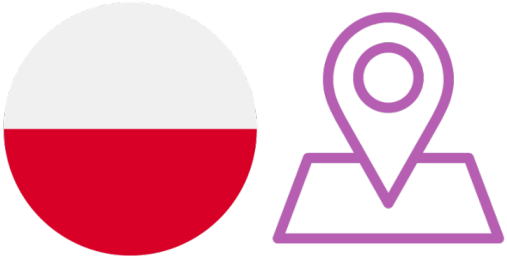
In **Finland**, Android developers are estimated to generate €3 billion in annual revenue for the Finnish economy, with per capita app revenue ten times higher than in the US.

In **Portugal**, 63% of 18-24 year-olds use Google Search at least once a year to get advice on their CV.

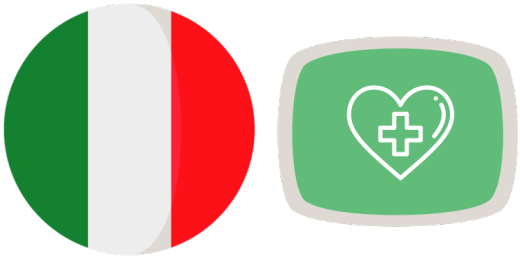
7 Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK.

In the **United Kingdom**, the average household would rather lose their car, TV licence or an hour's sleep a night than access to online search.

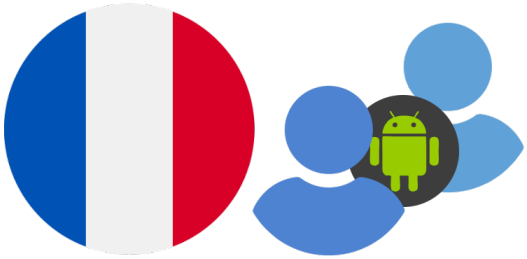
In **Germany**, workers were more likely to use Google Search for work in the average week than a laptop, desktop computer, or car.



In **Poland**, three-quarters (75%) of small businesses agreed that the internet has made it far easier for global customers to find their business.



In **Italy**, two-thirds of 18-24 years old regularly use YouTube to help learn about fitness or health.



In **France**, 44% of Android users use their phone to keep in daily contact with their friends, and 56% to talk to extended family at least once a week.

In **Ireland**, a third of its users used Google Maps at least once a month to allow them to walk or cycle rather than drive.

In **Spain**, 87% of businesses regularly use a search engine to research a new business opportunity or competitor.

In **Romania**, Google Ads spending is driving 1.9 billion lei in exports a year, helping businesses like madeinromania.ro increase turnover by 40% year over year.[8]

8 Based on polling data that just under half of Google Ads spending is going on international spending

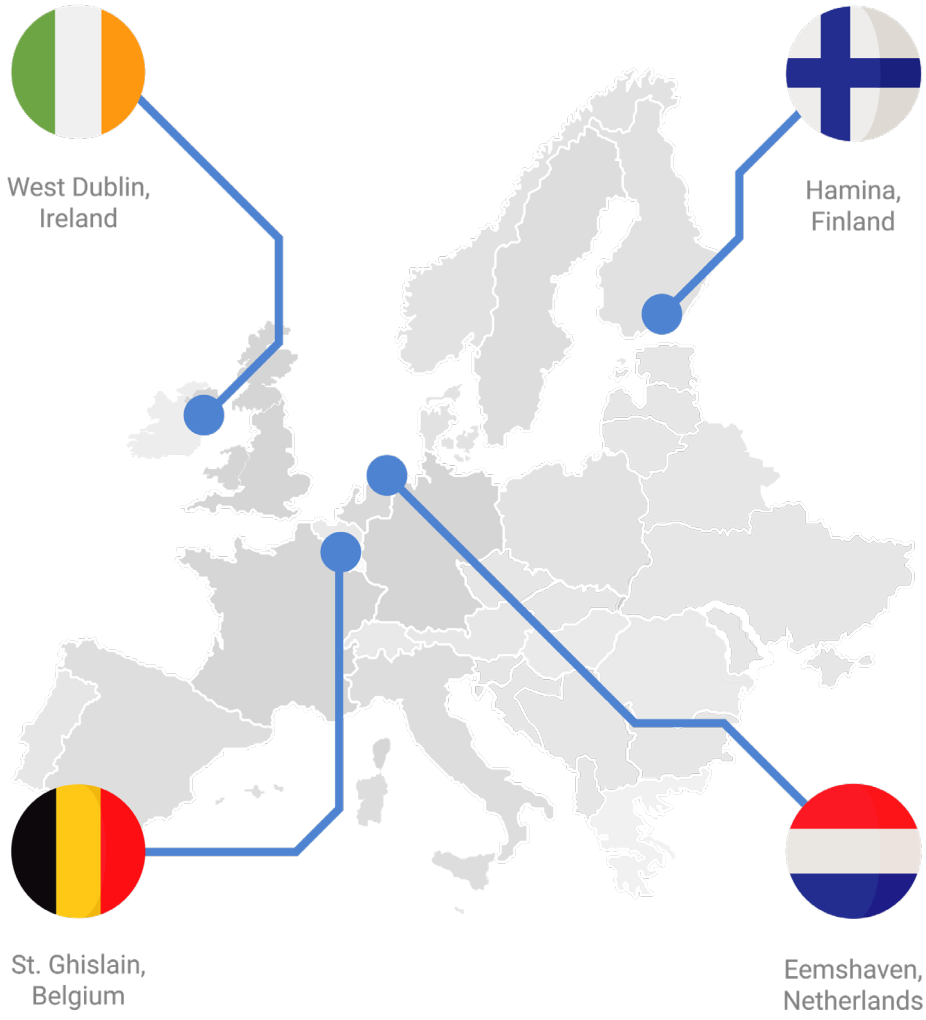
Google supports economic growth in Europe

Google is a major investor in Europe

From 2007 up to and including 2018**, Google has invested approximately €7 billion in constructing data centres across Europe.** This investment is estimated by Copenhagen Economics to have supported 9,600 full-time jobs per year on average between 2008 and 2018.[9]

In order to ensure the operation of these data centres is environmentally sustainable, Google has become the world's largest business buyer of renewable electricity. **Across Europe, Google has signed 14 power purchase agreements for wind and solar projects, enabling €1.2 billion in investment.**[10] Thanks to its renewable energy programmes and carbon offset programmes, Google has been carbon neutral since 2007.

Google's data centres in Europe



9 https://www.copenhageneconomics.com/dyn/resources/Publication/publicationPDF/0/500/1569061077/copenhagen-economics-google-european-dcs-infrastructures-impact-study_september2019.pdf

10 https://blog.google/around-the-globe/google-europe/accelerating-europes-clean-energy-transition/

Google's data centres in Europe

Whenever someone uses Gmail, performs a Google Search, edits a Google Doc or watches a YouTube video, they are using a Google data centre. The rapid growth of demand for data has required companies like Google to invest significant resources into the underlying infrastructure that powers the internet.

There are currently four active Google data centres in Europe, serving computers in their own countries and around the world:

In **Belgium,** Google opened its first data centre in Europe in 2010. St. Ghislain was the first Google data centre to run entirely without refrigeration, relying instead on evaporative cooling through the water from a nearby canal.[11] Google has invested €1.6 billion in the Saint Ghislain data centre, supporting an estimated average 1,500 jobs per year.[12]

In **Ireland,** Google has invested €500 million since 2011 to convert an old warehouse in West Dublin into an energy efficient data centre. Thanks to its advanced air cooling system, the centre can run completely without the use of power intensive air conditioning.

In **Finland**, Google purchased the Summa Mill in Hamina, converting it into a data centre. The centre is cooled by an innovative seawater system reducing energy use, and its interiors were designed by the celebrated Finnish architect Alvar Aalto. In 2019 Google announced that it intended to invest a further €1.2 billion euros by 2020 to continue to expand its data centre presence in Hamina, supporting an approximate 4,300 jobs per year on average.[13]

In **the Netherlands,** Google opened its first data centre at Eemshaven in 2016, investing €600 million. In 2018, the company announced a €500 million expansion of Eemshaven, followed in 2019 by a further expansion and the announcement of a new site 130 miles to the south at Agriport. This will take the total investment to €2.5 billion, and make the country the first to host two data centres.[14]

11 https://www.google.com/about/datacenters/locations/st-ghislain/

12 https://www.brusselstimes.com/all-news/business/technology/57709/google-to-invest-600-million-euros-in-saint-ghislain/ and https://www.copenhageneconomics.com/dyn/resources/Publication/publicationPDF/0/500/1569061077/copenhagen-economics-google-european-dcs-infrastructures-impact-study_september2019.pdf

13 https://www.blog.google/around-the-globe/google-europe/unleashing-digital-opportunities-europe/

14 https://www.google.com/about/datacenters/locations/eemshaven/

Google connects businesses with new customers and markets

Google products are a significant driver of higher growth, productivity and wages in Europe. By making it easier for businesses of any size to connect with new customers, they have helped millions of businesses across the continent grow. **On average, Google calculates that for every euro businesses spend on Google Ads, they receive back €8 back in profit.**[15]

81% of businesses we spoke to across Europe agreed that online search is an important way that customers find them. The most important source of referrals comes from organic, unpaid search - with estimates by independent researchers suggesting that businesses receive around five clicks on their search results for every one click on their ads.[16]

While the direct impact of Google Ads is important for European businesses, even more important is the organic referral provided by Google Search. In our polling, businesses in Europe estimated that online search was the most important way of customers finding them, ahead of word of mouth**. 75% of the businesses we spoke to agreed that thanks to search engines, it was far easier for local customers and clients to find them.**

Measured conservatively, we estimate that Google Search and Ads support **at least €163 billion of economic activity for European businesses** by connecting customers with businesses and driving revenue to content creators**.** This value is generated right across the continent, and supports the equivalent of 2.3 million jobs.

15 https://economicimpact.google.com/methodology/

16 https://faculty.ist.psu.edu/jjansen/academic/jansen_click_through_sponsored_links.pdf

Tracktest.eu is catapulted into Germany, Brazil and Indonesia

Tracktest.eu is a comprehensive resource for businesses and individuals looking to test their English language skills online. With established players like TOEFL already on the market, it can be tough for start-ups to compete. To meet the challenge, Co-Owner and CEO Braňo Pokrivčák explains that the company sells through word of mouth in Slovakia, and uses Google AdWords internationally, and this approach has paid off. Braňo explains, “20% of enquiries from AdWords convert into business – that’s a great result.” Within just a few months, Tracktest.eu has topped search results marked as advertising in its segment. An important aspect is raising awareness among the company’s target group, and AdWords is not only positively influencing, but also shaping, the company’s international expansion. Braňo continues: “Google Global Market Finder helps us pinpoint target markets, then AdWords lets us see where our service has generated the most interest.”


Google creates
products that are
helpful and valued
by everyone

Google helps people get things done

Before the arrival of the search engine, the only way to get the answer to a question might be to ask a friend or drive to the library - and often, we simply wouldn't bother. In total, we estimate **users across Europe save around 12 billion hours a year** by using Search instead of other methods of finding information.[17]

This information is making a real difference to Europeans lives:

62%

of users say that the information provided by Google Search helps solve their problem the majority of the time.

69%

of users say that the information provided by Google Search saves them time.

87%

of users say they are more likely to look something up when they are unsure than before search engines existed.

How Europeans are using Google Search (size= frequency)

17 Based upon estimates in Economic Value of Google, Hal Varian, 2011

Like Search, YouTube is a platform through which people increasingly learn more about the world, pursue their hobbies and get help with day to day tasks. Every month, **71% of European YouTube consumers use the product to learn something, from new skills to help around the home.** Around half of YouTube consumers (47%) use it around once a month to learn about fitness or health, over two thirds of European YouTube consumers use it at least once a year to help with cooking (72%), or home maintenance (73%).

How Europeans are using YouTube

Google Maps has made it easier for people to find local businesses and restaurants, navigate around new cities, and travel faster. 70% of users of Google Maps regularly used it to get directions while travelling, and 74% to find a local business.[18] **In total, we estimate that the use of Google Maps is saving Europeans over 1,180 million hours a year.**

Many of Google's consumer products are provided free of charge, which can make their value challenging to measure in traditional metrics such as GDP. Just because we do not pay for them directly, however, does not mean that they are worthless. One alternative measure of value that economists often use is the *consumer surplus*: the difference between what a consumer would theoretically be willing to and actually do pay for a product. We found that the **total consumer surplus** of Google's core products in Europe is worth around €420 billion:

Google Search

€230bn

For **Google Search,**. the total consumer surplus is equivalent to €230 billion.

You Tube

€136bn

For **YouTube,** the total consumer surplus is €136 billion a year.

Google Maps

€53bn

For **Google Maps,** the total consumer surplus is €53 billion a year.

18 Unless stated otherwise, we use 'regularly' in this report to refer to an action taken at least once a month.

Koffieblom gets found with Google My Business

Hans and his wife Margo have owned and run coffee shop Koffieblom for the past 19 years. With their passion for and wide knowledge of coffee, starting the shop was the perfect move for them. As well as coffee they now sell different kinds of nuts, tropical fruits, teas and gifts, and they knew that with their product line growing, their digital strategy needed to as well.

That's when the couple discovered Google My Business. It offers Koffieblom the opportunity to easily promote their products by uploading updates on new products, along with images. They say that because it's simple and free, it's been a great way for them to inform existing and potential new customers about what's new. Koffieblom also say that they get found more easily by customers since using Google My Business.

Hans and Margo are passionate about their customers and care about making sure they have a great experience every time they visit. They've particularly found that the option to reply to reviews through Google My Business has helped them build loyalty with customers, and say, "Google My Business encourages more customers to visit our shop."

Google helps businesses grow and innovate

Google helps small businesses grow and innovate

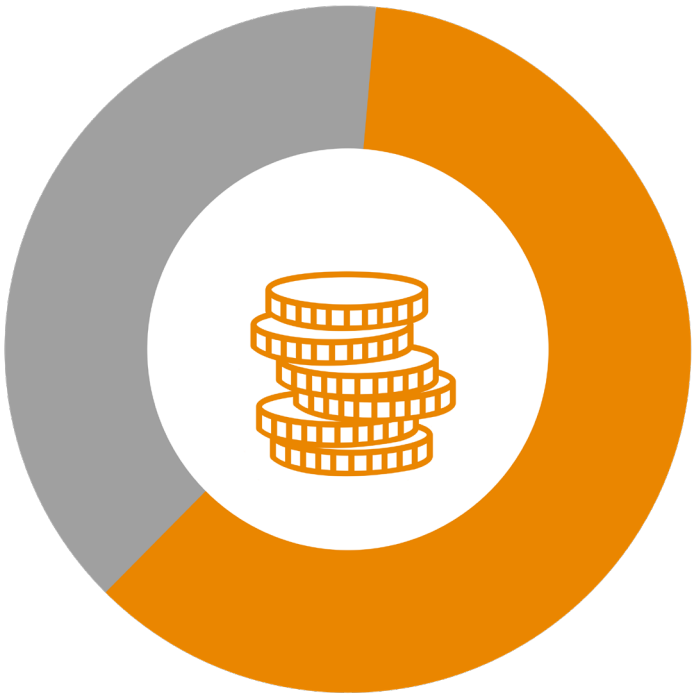
At the heart of the business model for many of Google's products is advertising. Google has been able to create more relevant, targeted advertising - making it easier for advertisers to reach the right audience at the moment where they might need a product or service. That has meant fewer, better ads for the customer - and a much higher rate of return for business.

61%

of small businesses in Europe agreed that online tools have made it easier for their business to compete with larger enterprises.

This had made it easier for businesses of any size to reach new customers wherever they might be located: from an out of the way coffee shop using Google My Business to attract local customers, to a niche manufacturer targeting clients on the other side of the world. **72% of the businesses we spoke to agree that compared to the time before search engines, it was now far easier for global customers or clients to find their business.**

The increased availability of information on Google Search has created a more transparent and competitive economy, making it easier for the companies offering the highest quality service to stand out. 65% of European Google Search users regularly use it to research a big purchase, while **79% of European shoppers think they make better purchasing decisions because of online information**. At the same time, **82% of European businesses agree that search engines have made maintaining high levels of customer and client satisfaction more important**.



64%

of new European businesses agreed that the costs of starting a business have reduced substantially because of internet tools.

Given their lower entry costs, internet tools are often particularly important for the productivity of small businesses and start-ups. In our poll, **61% of small businesses in Europe agreed that online tools have made it easier for their business to compete with larger enterprises.**[19] At the same time, **64% of new European businesses agreed that the costs of starting a business have reduced substantially because of internet tools.**[20]

19 We defined 'small business' as any business with fewer than 250 employees.

20 We defined 'new business' as any business under five years old.

How a small village opened its doors to the world

Like many small villages in Greece, Rokka faced a problem where its young people had moved away to study or find work. To encourage them to come back, locals came up with the idea of holding a festival every summer – Giortes Rokkas – a celebration of the arts, society and culture.

With help from Grow Greek Tourism Online, a Grow with Google local programme, locals learned how to use technology to spread the word – not only helping to bring young people back, but inviting people across the world to share in the local culture. Every year the festival grows, places reopen, new businesses start, and once again the village is full of life.

Now, every summer Giortes Rokkas tells a remarkable story. The story of a place that is craving life and development and expresses it through a series of music, art, theater and cultural events, all taking place under the August full moon.

“With the help of the Internet and technology, these villages in Crete are in contact with the whole world and vice versa.”

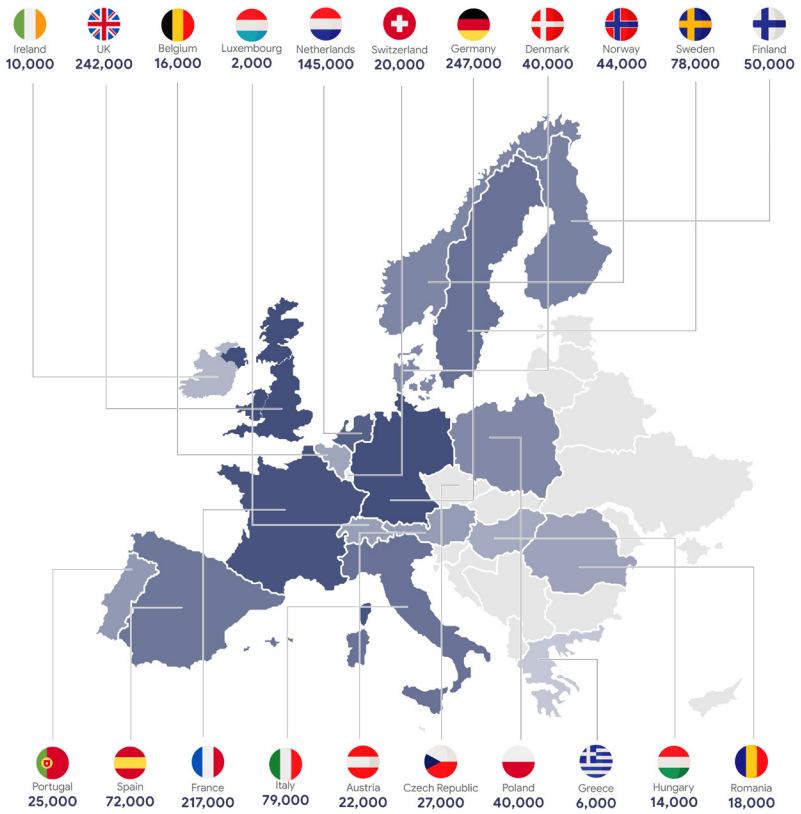
Mety Panagiotopoulou, Creative Coordinator at Giortes Rokkas

Google's products are enabling entirely new types of business

Google platforms have made possible entirely new types of business model. For the first time, it is possible for writers, developers and video makers to distribute their work across the whole world, creating a long tail of diverse, innovative content. This not only helps a new generation of content creators to earn a living - but gives audiences far greater choice in what they read, watch or play.

For developers, Android provides access to over 2 billion monthly active users across 190 countries worldwide. In Europe, we estimate that Android developers **generate €11.7 billion in annual revenue** for the European economy. Independent estimates have found that **the Android ecosystem supports over 1.4 million jobs in Europe.**[21]

Jobs supported in the Android ecosystem by country (thousands)



YouTube has a global audience of over 2 billion users, with over 500 hours of content uploaded every minute and one billion hours of content watched every day. The number of YouTube channels with more than one million subscribers globally has grown by more than 65% year on year, and the number of channels earning five or six figures per year has grown more than 40% year on year.[22]

---

21 The App Economy in Europe: Leading Countries and Cities, Dr Michael Mandel and Elliot Long, Progressive Policy Institute, 2017

22 https://variety.com/2019/digital/news/youtube-2-billion-users-tv-screen-watch-time-hours-1203204267/, https://youtube-creators.googleblog.com/2019/11/my-final-letter-in-2019.html and https://www.statista.com/statistics/259477/hours-of-video-uploaded-to-youtube-every-minute/

Sallys Welt

YouTuber Saliha (Sally) Özcan is a German cook and baker who has built up a successful franchise, now including her own TV show and online shop. It all began with her channel Sallys Welt (Sally's World), started in 2012, where the then elementary school teacher showcased her culinary skills by posting her first online recipe video. The channel has since grown to be the largest German YouTube food channel, with upwards of 1.6 million subscribers.

Her company was honored as one of the 10 most innovative companies in Baden-Wuerttemberg and she is one of the 20 most influential Germans in the digital world. Furthermore, the food blogger is visited several times a year by thousands of spectators at trade fairs and she even founded her own foundation in 2018, with which she expands her social commitment and supports disadvantaged children and families.


Google helps
workers be more
productive, learn new
skills and develop
their careers

Google helps workers be more productive, learn new skills and develop their careers

85%

of European businesses used a search engine at least once a month to keep up to date with industry trends.

Google services like Search, Maps, and Cloud make it easier for workers and companies to find information, collaborate, and to improve the efficiency of their underlying infrastructure. Like the PC and the spreadsheet a generation ago, the most important personal productivity tools are arguably now the smartphone and the search engine. **43% of European workers agreed that search engines make their work easier and take less time.**

A recent report by Deloitte found that businesses have seen an average net return of up to €2.5 for every €1 invested in cloud services such as Google Cloud Platform. Some of the most successful Google Cloud users saw returns of up to €10 for every €1 invested.[23] By replacing the need for traditional IT infrastructure, Google Cloud can generate significant costs savings while improving efficiency, reliability and scalability. **In total, based upon Deloitte modelling, we estimate that Google Cloud has increased productivity in Europe by over €2.4 billion.**[24]

Business owners and managers are also increasingly turning to Google products to stay on top of trends and opportunities, be aware of what their competitors are doing, and help improve their own practices and management. In our business poll, we found that **85% of European businesses used a search engine at least once a month to keep up to date with industry trends.**

Previous work by Forrester Consulting estimated that the deployment of G Suite and tools like Docs, Sheets and Slides had the potential to save employees between 15 minutes to two hours per week in more efficient collaboration.[25] Based upon this, and other work on the time saved by Google Search, we estimate that Google services could be saving European workers **2,800 million hours a year.**

23 Economic and social impacts of Google Cloud, Deloitte, September 2018

24 Public First extrapolation based on Economic and social impacts of Google Cloud, Deloitte, September 2018

25 The Total Economic Impact of Google Apps for Work, Forrester Consulting, 2015

Metro

German wholesale giant and food specialist METRO is using Google Cloud Platform to help its customers take more advantage of digital possibilities.

With more than 100,000 employees in 34 countries and sales of more than €27.1 billion in 2018/19, METRO Group is one of the largest companies in the food industry. By migrating its ecommerce platform to the cloud, the company can now deliver more stable, scalable services for customers and internal teams. At the same time, a new data lake provides a base from which to explore innovative analytics and machine learning.

METRO CIO and CSO Timo Salzsieder says: “For us, Google Cloud’s reliability and its leading technology—not to mention its pricing—were decisive. With Google machine learning and artificial intelligence, we’ve found the perfect partner for the future.”

Google helps people find work

68%

of European Google Search users learn new skills using Google Search

For over a hundred years an important goal of public policy has been to help match workers with the right jobs, and once they are in work to train and improve their skills. Today, Google Search is increasingly an important tool workers use to find work and build their skills. Every year, **48% of European Google Search users look for a new job using Google Search, and 68% to learn a new skill.**

As digital technology becomes more central to the future of the economy, an increasing number of workers are likely to need digital skills. **Since 2015, Grow with Google has helped train over 6.4 million Europeans**[26] in skills such as the Basics of Machine Learning or Understanding Code. We estimate that this will result in **1.25 million trainees finding a job or growing in their career or business** by the end of 2020.[27]

26 https://blog.google/outreach-initiatives/grow-with-google/helping-1-million-europeans-find-job-or-grow-their-business-2020/

27 Analysis by Google based on data from an independent ongoing survey by Ipsos

Grow with Google

Alex Valero was working as a graphic designer in Zaragoza, Spain when suddenly and tragically, his father died. He quit his job and returned to his native Granada, to be near his mother, who was unwell. But finding a job proved difficult and he spent a year out of work.

In that time, he started hearing about the problems restaurant owners had finding staff and easily managing paperwork - and one day, when out for a bike ride, he had a brainwave. What about an app that would bring employers in hospitality together with people looking for jobs? The only problem was how to make it a reality. “I had the idea, but not the knowledge. That’s when I discovered Google Actívate.”

Through the free training with Google Actívate, Alex learnt everything he needed to get his new business up and running. “I learnt a lot from the courses - like how to start your company, understand your audience, create digital marketing campaigns and most importantly, how to turn users into clients.”

“BuscoExtra is what restaurants in Spain and Malaga need” says Juan, owner of El Gallo Ronco restaurant in Malaga. “Having this app fixes our problems and helps people find jobs.”

Now, from struggling with unemployment himself, Alex is proud that not only is the business going from strength to strength, but helping others find new jobs. “We’ve gone from a team of 4 to 12 - and now we’re hoping to take BuscoExtra across Spain and Europe. We are so proud to have helped people find work - all from an idea I had when riding my bike.”

Zuzana finds a confidence and a whole new career path with Udacity

Zuzana Kunckova was 33 when she completed her degree in psychology – a field she'd always been passionate about. "I've always wanted to know how the human mind works, how we make choices and decisions," she says. After graduating, Zuzana worked as a teaching assistant, but wasn't feeling fulfilled; she found it difficult to combine her job with looking after her young children. "It wasn't for me. I felt disappointed in myself. A lack of confidence and not knowing what to do was holding me back."

Seeing an ad offering a Developer Scholarship for a Google Udacity Nanodegree was the inspiration Zuzana had been waiting for. "It focused on turning coding skills into future employment, and had a module on accessibility," she says. "I began to see the link between web accessibility and psychology and realised I had found a way to use my degree, earn money and be there for my family – and it's something I like!"

During the six-month course, Zuzana developed the skills and confidence to approach future employers in the digital industry. She soon found her first job as a web developer at branding and web development agency, Twin Dots. "I never thought you could turn your career around later in life. Because of the new things I've learnt, I feel like I've finally found something that I want to do and that fulfils me."

Appendix

How we calculate Google's economic impact

Accurately estimating the value created by digital products is challenging. This is particularly true for products that are free at the point of use, are used widely across the economy, and contain elements of both consumption and production.

While we believe our estimates are based on conservative assumptions, it is worth being aware of their limitations:

- Many of our estimates are based on the gross impact of Google's products as it is hard to accurately quantify what a counterfactual world without Google would look like.
- In some cases we have not been able to fully quantify all the impacts created by Google products, suggesting that our estimates should be viewed as a lower bound.
- Many of our estimates make use of new polling carried out for this report – but as in any poll, consumers may underestimate or overestimate their use of products. Best practice in many of these areas, such as valuing an hour of leisure time or using stated preferences to calculate consumer surplus, remains an area of academic debate.
- Google did not provide any new or internal data to generate these estimates. All our modelling is based on third-party or public data, alongside our own internal estimates.

While we sought to work off country specific polling or data wherever possible, in some cases where this was impractical we have fallen back to interpolated data drawing on neighbouring countries and adjusting for differences in GDP per capita.

Consumer Benefits

Google Search

Our headline estimate of the total consumer surplus of Google Search is calculated as the geometric average of:

- **Time saved.** Following the methodology of Varian (2011), we assume that using Google saves 15 minutes per question, with the average person asking 1 answerable question every 2 days. Time saved is valued at the self-reported polling data of average incomes, and we scale the overall estimate by third party estimates of Internet prevalence and polling information on Google Search usage. (More information on this overall approach can be found in the *Economic Value of Google*, a presentation by Google Chief Economist Hal Varian.)

- **Stated preference (Willingness to Accept).** As part of our polling, we asked participants a single discrete binary choice question of "Would you prefer to keep access to Google Search or go without access to Google Search for one month and get paid [Price]" with the price offered randomised between the national equivalent of €1.25, €2.5, €5, €10, €20, €50, €100, €200 and €500. We linearly regressed the results of this poll to derive a demand curve and used this to calculate total consumer surplus per user. Finally, we scaled this estimate by third party estimates of Internet prevalence and polling information on Google Search usage.

Following Brynjolfsson et al (2017), we chose a Willingness to Accept (WTA) rather than Willingness to Pay format for our Stated Preference question as we believed this best matched the status quo, given that the majority of Google Services are free to the end user and required no up-front investment.

As with many other products, the mean consumer surplus is significantly higher than the median – or, in other words, a few dedicated users use it disproportionately more than the average.

In order to ensure that our household level figures were not misleading, we based them not on the mean household value for WTA compensation, but instead a separate estimate of the median WTA. We derived this by regressing our polling data again, using an exponential method which we judged was more likely to accurately represent the bottom of the distribution.

Google Maps

Our headline estimate of the total consumer surplus of Google Maps is calculated as the geometric average of:

- **Time saved.** We calculate time saved by Google Maps, using estimates of time saved by advanced traveller information systems from Levinson (2003) and total time spent travelling by mode from our polling, calibrated where possible by official national travel surveys. Time saved is valued at 37.5% of the estimated hourly income of Google Maps users, following standard practice for calculating the value of travel time savings.

- **Stated preference.** As with Google Search, we asked the participants of our poll a single discrete binary choice question of "Would you prefer to keep access to Google Maps or go without access to Google Maps for one month and get paid [Price]" with the price offered randomised between the national equivalent of €1.25, €2.5, €5, €10, €20, €50, €100, €200 and €500. We linearly regressed the results of this poll to derive a demand curve and used this to calculate total consumer surplus per user. Finally, we scaled this estimate by third party estimates of Internet prevalence and polling information on usage.

In addition, we constructed a separate estimate of the median WTA compensation for losing Google Maps which we used for our per person and household estimates.

YouTube

Our headline estimate of the total consumer surplus of YouTube is calculated as the geometric average of:

- **Time saved.** Extrapolating from the methodology Varian (2011), we assume that using YouTube saves 11 minutes per question, using self-reporting polling data to calibrate the number of questions asked. Time saved is valued at the self-reported polling data of average incomes, and we scale the overall estimate by third party estimates of Internet prevalence and polling information on YouTube usage.

- **Stated preference (Willingness to Accept).** As part of our polling, we asked participants a single discrete binary choice question of "Would you prefer to keep access to YouTube or go without access to Google Search for one month and get paid [Price]" with the price offered randomised between the national equivalent of €1.25, €2.5, €5, €10, €20, €50, €100, €200 and €500. We linearly regressed the results of this poll to derive a demand curve and used this to calculate total consumer surplus per user. Finally, we scaled this estimate by third party estimates of Internet prevalence and polling information on Google Search usage.

Business Benefits

Google Ads

Following the precedent of past Google impact reports, we use third-party data to estimate the total size of the European Google Ads market, combining PWC Global Entertainment & Media Outlook data on the total European paid search market with other estimates of Google's market share.

Following the methodology of the US Google Economic Impact Report, we then scale this revenue by an assumed Return on Investment (ROI) factor of 8, from:

- Varian (2009) estimates that businesses make on average $2 for every $1 they spend on AdWords.
- Jansen and Spink (2009) estimate that businesses receive 5 clicks on their search results for every 1 click on their ads.
- Google estimates that search clicks are about 70% as valuable as ad clicks.
- Total ROI is then 2 * spend + 70% * 5 * 2 * spend – spend = 8 (spend).

More information on this methodology is available at https://economicimpact.google.com/methodology/

AdSense

In order to estimate total European Adsense revenues, we scale Google's 2018 global Traffic Acquisition Costs to network members by Europe's share of global display spending, derived from PWC Global Entertainment & Media Outlook data. In addition, we also include the estimated returns to advertisers, drawing on the estimated ROI of display advertising from Kireyev et al (2013).

YouTube

In order to estimate total European revenues to European creators, we scale PWC Global Entertainment & Media Outlook data on European countries video advertising revenue by Google's 2018 global Traffic Acquisition Costs to network members by Sandvine data on YouTube's 2017 EMEA share of video bandwidth. We then further scale this by an assumed conservative ROI factor.

Android

We scale Sensor Tower (2019) data on worldwide Google Play spend by European Commission / Gigaom Research (2014) data on Europe's share of global developer revenue, multiplied by the developer's standard share of Play Store revenue (70%). In addition, we add on European Commission / Gigaom Research (2014)'s estimate of European contract work revenue, scaled by the Play Store's share of total app store spend.

PUBLICFIRST

© Public First - All Rights Reserved 2020