

Google

Google!

Google™

Google

Google

Where is the search giant heading?

*A look into recent
and developing innovations*

A publication by

ZN

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Right from day one, Google has always been seen as an inventor and an innovator. Today, the company continues to push the boundaries, developing new technologies that could completely transform our lives in the next decade or two.

Google's innovations are transformational, far-reaching, and often difficult to keep pace with. Over the coming pages, we aim to give you some insight into the company's recent innovations, strategic direction, and futuristic projects.

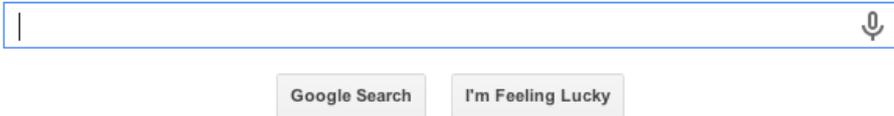
1998



2009



Today



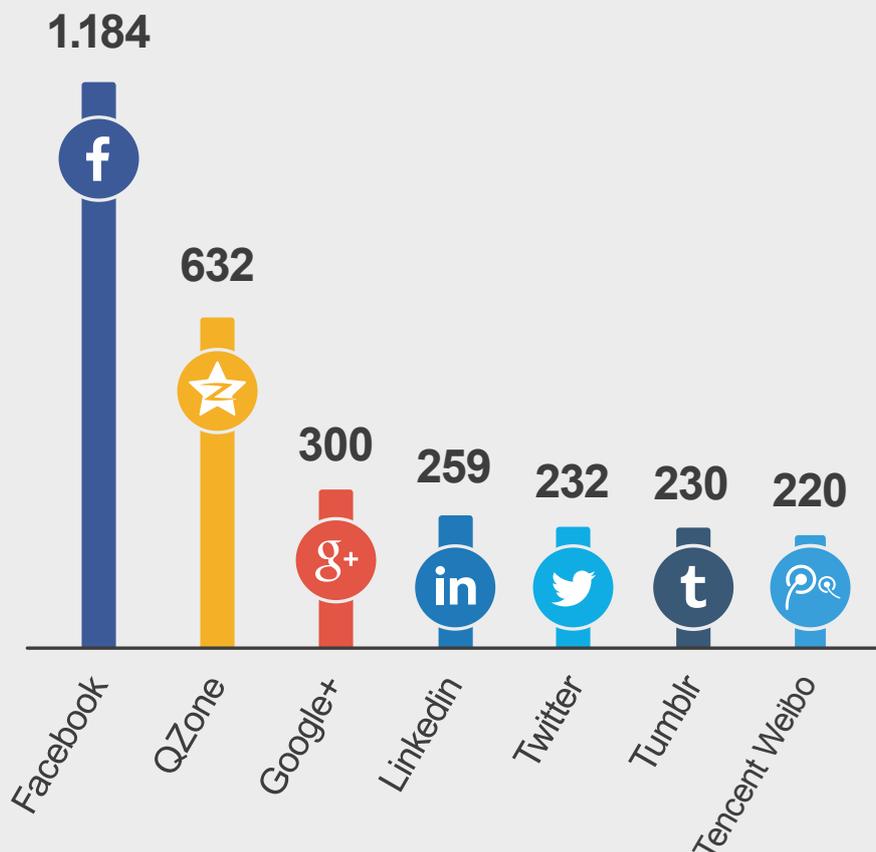
Google⁺: from social engagement to a services platform

There has been much debate recently about whether Google will overtake Facebook in the race for social media supremacy with Google+. With social media of growing importance to brands, organizations, and governments that want to engage consumers, supporters, and citizens, knowing the answer is crucial. Where should they invest their resources in the coming years?

Facebook is generally acknowledged as the social media leader today, but will the fast growing Google+ ever catch up, or even overtake it? Let's look at the stats. Today, Facebook has **1.23 billion active users**, compared with **Google+'s 300 million** active social network users.

Leading social networks worldwide as of January 2014, ranked by number of active users (in millions)

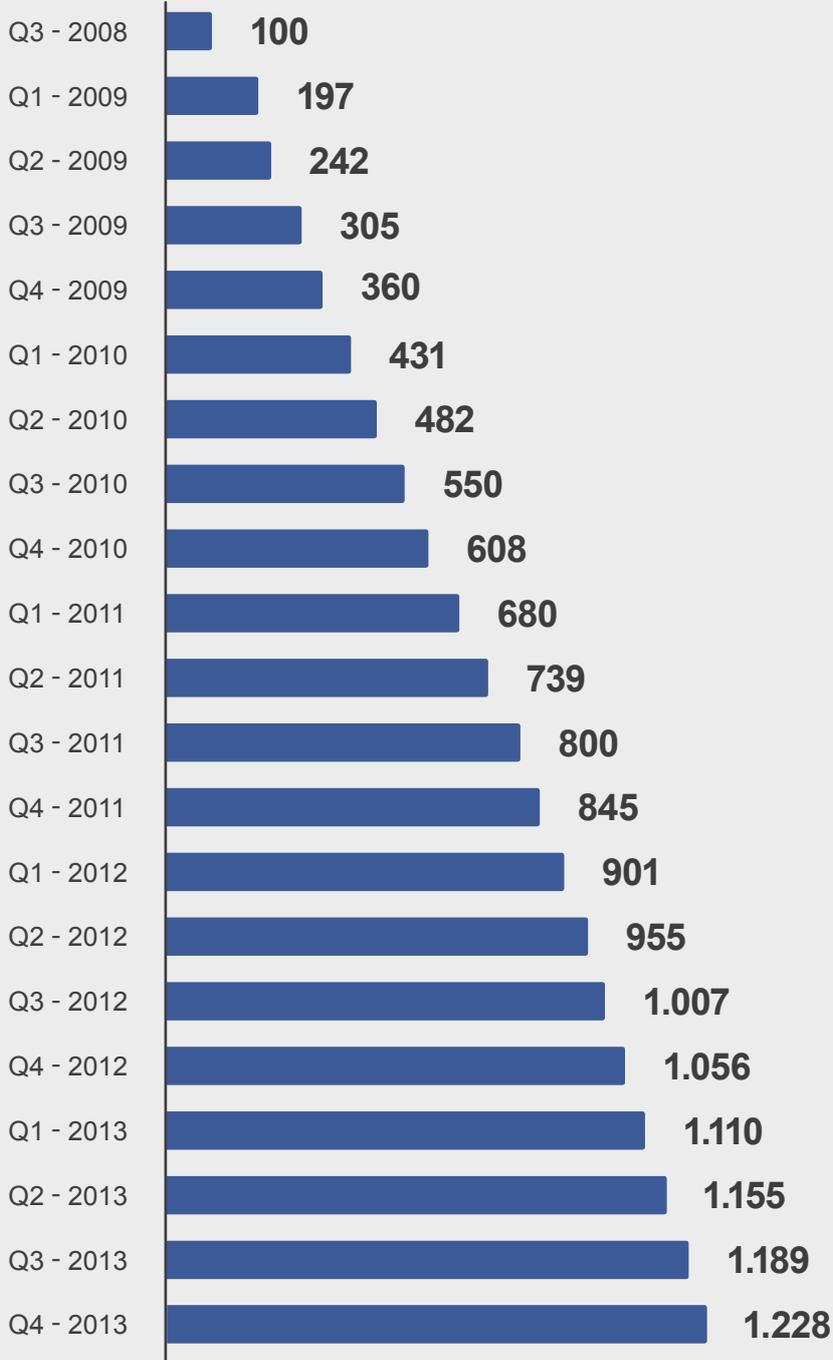
Data & figures courtesy of Statista and Facebook



Launched back in 2004, Facebook continues to see **steady growth in active users.**

Number of monthly active Facebook users worldwide from 3rd quarter 2008 to 4th quarter 2013 (in millions)

Data & figures courtesy of Statista

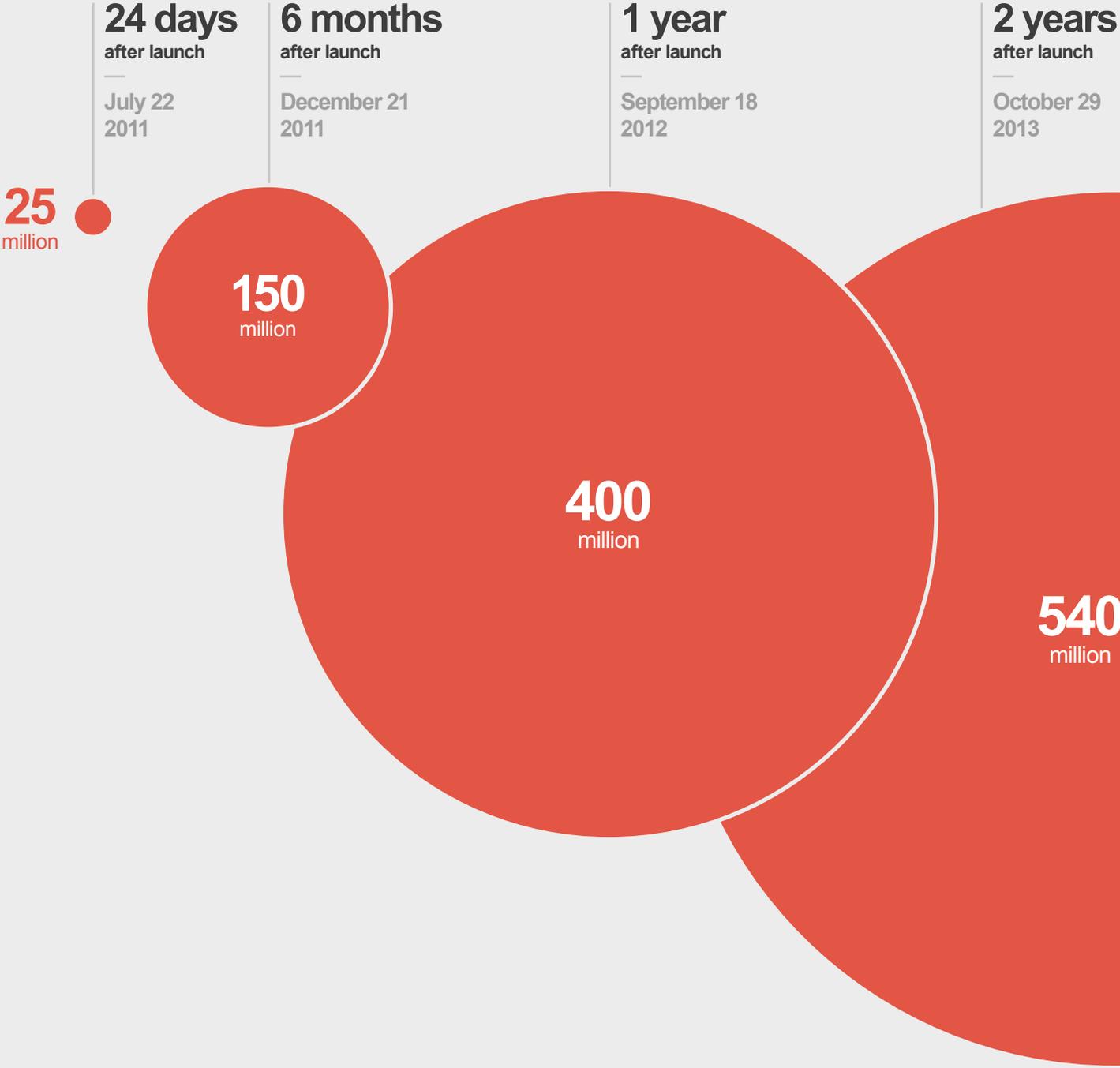


Number of users in millions

However, launched only in 2011, Google+'s growth in active users has been rather impressive. On top of its 300 million social network users, Google+ also has a further 240 million users. These are users with Google+ accounts that they use to access Google services, but who don't engage with its social network. We'll talk about these people a little later.

Number of active Google+ users worldwide (in millions)

Data & figures courtesy of Wikipedia



Google+'s user numbers may be catching up with Facebook, but the numbers are worlds apart when it comes to user engagement. According to [Mashable](#), in March 2013 active Facebook users are engaged for 6 hours and 44 minutes each per month, whereas Google+ users engage for only 6 minutes and 47 seconds. So is the battle lost?

Google+ has something up its sleeve, something that Facebook will never be able to compete with – the wealth of already popular services we all use every day. From search to translation, email to calendars, maps to news; how many Google services do you make use of each day?

The search giant is looking at [combining these stand-alone services into a single platform](#), where users would need to log into a Google+ account to make full use of them. You already need to have a Google+ account to comment on YouTube; and Chat and Talk have been brought together and renamed Hangout and – you guessed it – brought into Google+.

[Talking to USA Today](#), Bradley Horowitz, vice president of product management at Google+, asserts “the goal of Google+ is to make all Google services better.”

As a platform, Google+'s main threat may not be from Facebook, but from Microsoft. Today, users have a single account to access all their services across the Microsoft platform – Outlook.com, SkyDrive, Windows Phone, Office 365 or Xbox LIVE, for example.

Will there be winners and losers in the race for our loyalty – or are we likely to have accounts across all providers, using the different services they offer to cater to our different needs?

Search Engine Optimization: it's not just about the content anymore

Google's SEO algorithms change regularly, but recently there have been some fundamental changes that put more of the focus on the content creator.

First there is Google Authorship. This innovation adds your name and photo to any of your content returned in the search results – if you have a Google+ account and link the content to it.

[Google Authorship Markup: How to get your picture in search results.](#)



[blog.kissmetrics.com/google-authorship/](#) ▼

by Andy Crestodina - in 5.968 Google+ circles

Ever wonder why some people's faces are showing up in search results? How do they do that? They do it by linking and then adding the **Google Authorship** ...

[Setting up Google Authorship for Your Website - Treehouse Blog](#)



[blog.teamtreehouse.com/setting-google-authorship-website](#) ▼

by Matt West - in 124 Google+ circles

Nov 29, 2013 - Learn how to set up **Google Authorship** so that your profile photo appears in search results.

Content now becomes as much about the author as it does about the words. When readers are considering whether they want to click through, they won't just be thinking about the potential of the content, they will also be thinking: Is the author credible? Can I trust them? Is their content relevant? What do other people think about them? How many followers do they have?

Furthermore, **John Hall, CEO of Influence & Co., wrote on Forbes** that experts believe Google will also be using your Google+ profile to determine your credibility, expertise, and authority on a subject.

To improve click through rates (CTR) – one of the most important metrics for SEO experts as it helps them gauge site traffic – content creators will need to set up a Google+ account and go about building their profile, their followers, and their reputation.

Having a Google+ account has other advantages: if someone likes a piece you have written, by linking it to your Google+ account they can easily find your other content.

Google Authorship does not have a direct impact on Google's SEO algorithm, but it is certainly something that needs to be looked at seriously when you are finding ways of improving your CTR and ultimately your ranking.

There is also another way in which (it is widely believed) your Google+ account can have a positive impact on your SEO statistics.

One of the benefits of having a Google+ account is that Google can personalize the services it delivers to you, and that includes search. This means – **as reported by SEO experts** – an article by someone you are following in Google+ is likely to appear higher in your search results, simply because you have shown you are interested in that person and what they have to say by following them.

Your plus 1



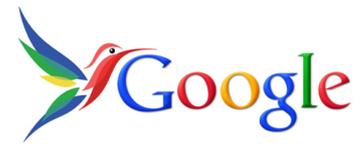
Now, there is also another ranking advantage to having a Google+ account: the “+1” button. Adding one of these to your content allows readers to endorse it. The more people “+1” your article, the higher it will appear in the search results, it would seem.

Mark Traphagen, social media director for Virante, has **explained that it is not the +1's causing the high rankings** but the fact that most +1's result in a shared post on Google+, which in turn creates a followed link back to the post.

This means that content creators, in order to increase that all-important CTR, might very well consider:

- + Getting a Google+ account
- + Working on building their reputation
- + Working on increasing their followers
- + Persuading followers to read and endorse their content

Google Hummingbird: from keywords to conversations



There's another recent change to the algorithm that Google uses to provide what it believes to be the best results from the billions of web pages and other content that it parses every day.

Codenamed Hummingbird, the algorithm update is aimed at enabling conversational search. This is all about helping the search engine to better understand and respond to the intent or meaning behind our queries.

Previously, result rankings were based on individual keywords within the content; the algorithm didn't understand the intent of the requestor, the meaning of the content or how the content might be related to other content based on the same theme.

Robert Hof on Forbes explains how with Hummingbird the algorithm will now understand that if we ask it "Where is the Mississippi source?" then we are interested in a river in the United States. It may also know and be able to respond directly that the river starts at Lake Itasca.



Lake Itasca

Lake Itasca is a small glacial lake, approximately 1.8 square miles in area, in the Headwaters area of north central Minnesota. [Wikipedia](#)

Surface elevation: 450 m

Area: 4.7 km²

Outflow location: [Mississippi River](#)

Islands: [Schoolcraft Island](#)



Mississippi mud pie

Mississippi mud pie is a chocolate-based dessert pie that is likely to have originated in the U.S. state of Mississippi. The treat contains a gooey chocolate sauce on top of a crumbly chocolate crust. The pie is usually served with ice cream. [Wikipedia](#)

People also search for



[Dirt cake](#)

[Pie](#)

[Pecan pie](#)

[Rocky road](#)

[Oreo](#)

You could also ask it "How do I make a Mississippi mud pie?" and it will know that mud pie is a food and return some relevant recipes – and maybe some recipes for similar cakes and puddings.

Then if you ask "Can I have a diabetic one?" it will know that you are still interested in Mississippi mud pie, just about making a diabetic one.

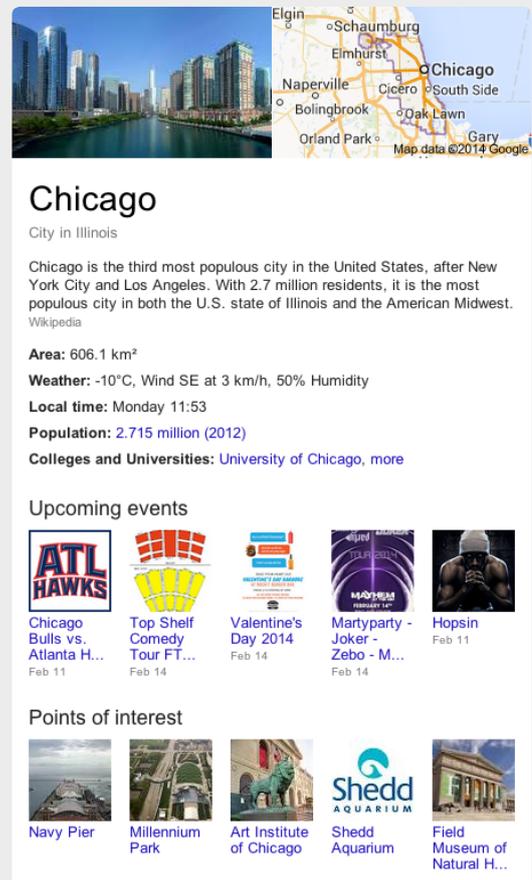
It does this using Google's **Knowledge Graph**, a semantic network – or encyclopedia – with details of over 570 million objects and over 18 billion facts, including details of relationships between the objects. Each object has its own “card.” The search engine can access the cards to learn more about the objects in a query, helping it to better understand the intent of the request.

For example, a card for Chicago might hold its location on a map, current time, state, size, population, current weather, places of interest, and upcoming events.

For SEO, this means a move to semantic search, with less focus on individual keywords and more on answering the questions that people are going to be asking. To increase their rankings, content creators are going to need to be asking themselves “What questions does my content answer? Is it topical? Is it relevant?”

Hummingbird is important because it gives the search engine a better understanding of human language, allowing us to interact with it in a more natural way. This will allow us to interrogate the search engine using natural requests – a capability that is of growing importance as more and more of us move from the desktop to small screen mobile devices.

You already ask direct questions by speaking to your device. Imagine how much better this can be in just a few years... and how much more relevant the content you'll get will be.



The image shows a Knowledge Graph card for Chicago. At the top left is a photograph of the Chicago skyline. To its right is a map of the Chicago area with labels for Elgin, Schaumburg, Elmhurst, Naperville, Cicero, Chicago, South Side, Bolingbrook, Oak Lawn, Orland Park, and Gary. Below the map is the title "Chicago" and the subtitle "City in Illinois". A short paragraph describes Chicago as the third most populous city in the US, with 2.7 million residents. Below this are several data points: Area (606.1 km²), Weather (-10°C, Wind SE at 3 km/h, 50% Humidity), Local time (Monday 11:53), Population (2.715 million in 2012), and Colleges and Universities (University of Chicago, more). The "Upcoming events" section features five items: Chicago Bulls vs. Atlanta Hawks (Feb 11), Top Shelf Comedy Tour (Feb 14), Valentine's Day 2014 (Feb 14), Martyparty - Joker - Zebo - M... (Feb 14), and Hopsin (Feb 11). The "Points of interest" section features five items: Navy Pier, Millennium Park, Art Institute of Chicago, Shedd Aquarium, and Field Museum of Natural History.

The future is mobile: from devices to assistants

With advertising as Google's core business and people increasingly turning to their mobile devices to search for information, winning the battle for dominance in the mobile search arena is vital for the search giant.

Mobile Search Statistics

In the past **2 years**, search queries via mobile have grown



3 out of 5 searches are from mobile devices



95% of mobile users utilize their smart devices for local searches



9 out of 10 mobile searches lead to a visit or purchase

Google is already winning market share for mobile devices. **IDC's recent research** identified that more than 80% of smartphones shipped between July and September 2013 used Google's Android operating system. Dominating the smartphone market – where it competes primarily with Microsoft's Windows Phone and Apple's iPhone – is certainly going to help.

Top Four Operating Systems, Shipments, and Market Share (Units in Millions)

Operating System	3Q - 2013 Shipment Volumes	3Q - 2013 Market Share	3Q - 2012 Shipment Volumes	3Q - 2012 Market Share	Year-Over-Year Change
Android	211.6	81.0%	139.9	74.9%	51.3%
iOS	33.8	12.9%	26.9	14.4%	25.6%
Windows Phone	9.5	3.6%	3.7	2.0%	156.0%
BlackBerry	4.5	1.7%	7.7	4.1%	-41.6%
Others	1.7	0.6%	8.4	4.5%	-80.1%
Total	261.1	100.0%	186.7	100.0%	39.9%

Data & figures courtesy of *International Data Corporation*

But mobile is more than just about search. Already today our mobile devices have many roles to play: they are our address books, diaries, music players, books, journey planners, TVs, and much more. But there is one more mobile battleground where, **writes Christopher Williams** of the Daily Telegraph, Google is competing against Apple, battling to dominate the very important market of future digital personal assistants.

We already see our mobile devices evolving into our own digital personal assistants. Intelligent and controlled through our voices, our mobile devices help us organize and manage our increasingly complex lives. And it will only get better.

Hummingbird will have an important role to play here too; it will allow us to interact with our devices as we would with another human being.

Just as you would expect a personal assistant to understand you and anticipate your every need, Google expects its digital personal assistant to be able to do the same. **Google Now** is already able to anticipate your needs and provide you with the information you need at relevant times throughout the day.

Flights

Pacifica Airlines
flight 2340

Status: Delayed / Wed, June 27, 2012

Depart San Francisco
SFO 7:09pm (sched. 5:20pm)
Terminal 4, Gate A3

Arrive Taipei
TPE 10:32pm
Terminal 2, Gate 50

▲ Navigate to SFO / 34 min

No digging required.

Cards appear when they're needed most, organizing the things you need to know and freeing you up to focus on what's important to you.

Sports

MLB Regular Season

1 TOP NINTH 4

Clovers Blaze

Today @Blaze

	1	2	3	4	5	6	7	8	9	R	H	E
Clovers	0	0	1	0	0	0	0	0	0	-	1	2
Blaze	0	0	1	1	0	2	0	0	0	-	4	8

Play-by-Play

Get just the right information, at just the right time.

Just swipe up, and you've got the latest information you want to see, when you want to see it.

Next appointment

Lunch with Brad @ 12pm

2368 3rd Street, San Jose, CA 94107

Get directions / 33min via 101

Alternate route / 45min via 200

You're in control.

Choose exactly which cards you see. You control whether you get personalized results from your calendars, locations and searches after opting in.

Image courtesy of MyCase

Google Now anticipates what people will want by reading their calendar and emails, and analyzing their location from their smartphone. Google provides a nice example on its website with Google Now bringing you the weather before you get up, travel news before you leave for work, reminders for your day's meetings, and even local attractions that you might be interested in.

An informed assistant is a smart assistant

The more these digital personal assistants know about us, and the more of our lives they have access to, the better they will be able to serve us.

Over recent months, **Google has been on quite a shopping spree.** Their recent purchases include Nest Labs – a home automation specialist that develops products for the connected home, including a connected thermostat and a connected smoke alarm.

Give your digital personal assistant access to your diary, location, and home automation suite, and the possibilities are endless. Imagine your smartphone turning the heating on for you 20 minutes before you arrive home or turning the oven off because you are stuck in a traffic jam.

In the future, we can expect our digital personal assistants to access more information about our lives through the “Internet of Things” (IoT) – a network of sensors and intelligent devices that will be able to sense, analyze and intelligently act on information about the environment around us.

It is anticipated that Google will acquire other companies that provide technologies which will contribute to the IoT. By combining real time information provided by the IoT with our Google+ profile, their knowledge of our search preferences, the information in our calendars and more, Google should be able to fully understand our needs and provide the services we want, when we need them – even before we realize we need them.

Video courtesy of IDG



Is there anything I can keep private?

Of course, sharing so much information would make many people more than a little uncomfortable. Unsurprisingly, there is a big privacy debate with many questions to be answered:

- ♥ How will I be able to choose what information I am happy to share?
- ♥ Who will “own” all this data about me?
- ♥ Will it be clear how companies like Google will be using it?
- ♥ How do I influence how it is used?
- ♥ ... and more.

Many of us get frustrated with the endless stream of adverts that are loosely linked to the information we have been looking at on the web. We will all need to decide whether we want to provide more information so that these adverts and the services we use are more accurately tailored to our needs... or less information – keeping our lives private.

For those who are becoming increasingly dependent on services provided online from companies such as Google, it is likely that access to advanced service features – and sometimes services themselves – will be severely restricted if we are not willing to share.

Video courtesy of [febelin](#)



And there's more...

There are three further Google ideas that are going to take things even further: **Google's driverless car**, **Google Glass**, and **Google's smart contact lens**.

The driverless car

First tested in public in 2012, **Google's self-drive car project** is still a work in progress. Aimed at making driving safer, more enjoyable, and more efficient, Google hopes that the car may one day become a reality. The team has already completed 500,000 accident-free kilometers in their test group of at least 10 cars. And with four US states passing laws permitting autonomous cars, its dream may indeed come true.



Image courtesy of motortrend.com

Glasses that are cool

Launched last year, **Google Glass** is a revolutionary new wearable computing device that looks a bit like a pair of glasses without the lens. Still under development and only currently available in the US, it is made up of an “optical head-mounted display,” a camera, and a touchpad mounted on a frame.



Like many smartphones, you can communicate with it using spoken language to ask it to display directions, record a video of what you are seeing, share an image, answer a question, send a message, or even translate some text. Could this be a future means of interacting with your digital personal assistant?

Smart contacts

Google's smart contact lens is very different, as [Know Your Mobile explains](#). Aimed specifically at diabetes sufferers, it is a sensor that checks glucose levels in the tears of the wearer – every second! The plan is that an LED will alert the wearer when glucose levels creep outside of set limits.

Could this be Google's first venture into personal health monitoring devices that, connected to our digital personal assistants, will provide a complete picture of our lives and our needs?

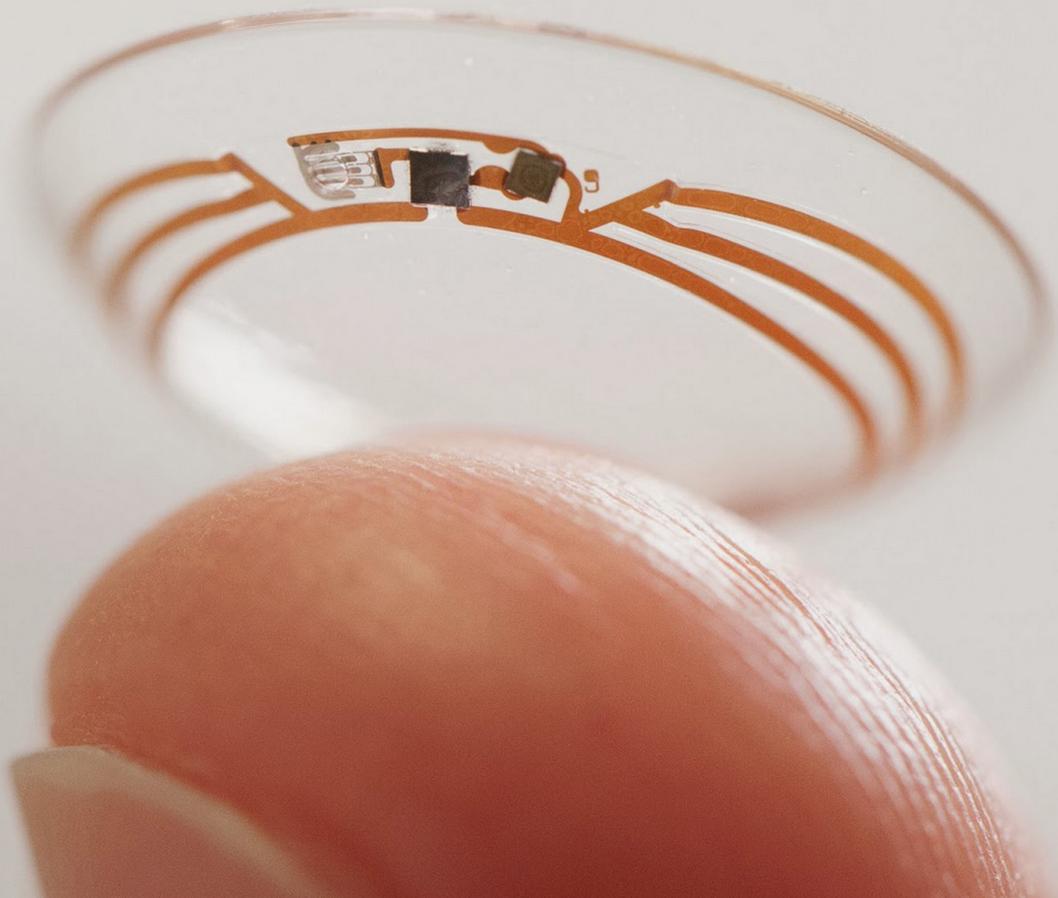


Image courtesy of gigaom.com



September 1995

Larry Page met Sergey Brin at Stanford

September 1997

Registers **Google.com** as a domain name



February 2003

Acquires **Blogger**



February 2005

Google Maps goes live



June 2005

Google Earth unveiled



August 2005

Acquires **Android**

May 2007

Street View debuts in 5 US cities

November 2007

Announces **Android mobile platform**



March 2009

Releases **Google Voice**

February 2011

Releases **Google Panda**



March 2011

Introduces **+1 button**



June 2011

Launches **Google+** project



October 2013

Acquires **Flutter**



September 2013

Launches **Google Hummingbird**



December 2013

Acquires **Boston Dynamics** robotics

December 2000

Launches **Google toolbar**, enabling Google in most browsers



April 2004

Launches **Gmail** on April Fool's Day



July 2004

Acquires **Picasa**



October 2006

Acquires **YouTube**



September 2008

First **Android phone**

January 2010

Introduces **Nexus smartphone**



October 2010

Announces **self-driving car**

April 2012

Unveils **Google Glass**



May 2012

Knowledge Graph in search

Acquires **Motorola Mobility**



June 2012

Introduces **Google Now**

January 2014

Acquires **Nest**



Sells **Motorola Mobility**

February 2014

Acquires **SlickLogin**



Unveils new prototype smartphone with **3D sensors**

What's Next?

Google has been an inventor and innovator from the very beginning. And from what we have seen here, there seems to be much, much more to come.



photo courtesy of fondosdepantallas.org