

Alphabet Inc. (NASDAQ:GOOG) Q2 2023 Results Conference Call July 25, 2023 5:00 PM ET

Company Participants

Jim Friedland - Director, IR

Sundar Pichai - Chief Executive Officer

Philipp Schindler - Chief Business Officer

Ruth Porat - Chief Financial Officer

Conference Call Participants

Brian Nowak - Morgan Stanley

Eric Sheridan - Goldman Sachs

Doug Anmuth - JPMorgan

Lloyd Walmsley - UBS

Justin Post - Bank of America

Michael Nathanson - MoffettNathanson

Ken Gawrelski - Wells Fargo

Mark Mahaney - Evercore

Operator

Welcome, everyone. Thank you for standing by for the Alphabet Second Quarter 2023 Earnings Conference Call. At this time, all participants are in a listen-only mode. After the speaker presentation, there will be a question-and-answer session. [Operator Instructions]

I would now like to hand the conference over to your speaker today, Jim Friedland, Director of Investor Relations. Please go ahead.

Jim Friedland

Thank you. Good afternoon, everyone and welcome to Alphabet's second quarter 2023 earnings conference call. With us today are Sundar Pichai, Philipp Schindler and Ruth Porat. Now, I'll quickly cover the Safe Harbor.

Some of the statements that we make today regarding our business, operations and financial performance maybe considered forward-looking and such statements involve a number of risks and uncertainties that could cause actual results to differ materially. For more information, please refer to the risk factors discussed in our most recent Form 10-K filed with the SEC.

During this call, we will present both GAAP and non-GAAP financial measures. A reconciliation of non-GAAP to GAAP measures is included in today's earnings press release, which is distributed and available to the public through our Investor Relations website located at abc.xyz/investor. Our comments will be on year-over-year comparisons unless we state otherwise.

And now, I'll turn the call over to Sundar.

Sundar Pichai

Thank you, Jim, and hello, everyone. We are holding our call from London today. It's an important hub for us, and I'm excited to spend time with our local teams, including Google DeepMind as well as leaders and partners from across the region.

This quarter, we shared great progress at I/O, Brandcast and Google Marketing Live, and we are looking forward to Cloud Next in August. The momentum across the Company drove our results this quarter. We delivered solid performance in Search and YouTube and ongoing strong growth in Cloud, where we remain focused on long-term value creation. And we continue our important work to operate more efficiently, creating durable savings to fund investments in our biggest priorities. Today, I'll talk about this momentum, including our continued leadership in AI and our excitement about the evolution of Search.

At I/O, we shared how we are making AI helpful for everyone in four important ways: first, improving knowledge and learning. This is our seventh year as an AI-first company, and we intuitively know how to incorporate AI into our products. Large language models make them even more helpful, models like PaLM 2 and soon Gemini, which we are building to be multimodal. These advances provide an opportunity to reimagine many of our products, including our most important product, Search. We are in a period of incredible innovation for Search, which has continuously evolved over the years.

This quarter saw our next major evolution with the launch of the Search Generative Experience, or SGE, which uses the power of generative AI to make search even more natural and intuitive. User feedback has been very positive so far. It can better answer the queries people come to us with today, while also unlocking entirely new types of questions that Search can answer.

For example, we found that generative AI can connect the dots for people as they explore a topic or project, helping them weigh multiple factors and personal preferences before making a purchase or booking a trip. We see this new experience as another jumping off point for exploring the web, enabling users to go deeper to learn about a topic.

I'm proud of the engineering excellence underlying our progress. Since the May launch, we've boosted serving efficiency, reducing the time it takes to generate AI snapshots by half. We'll deliver even faster responses over time. We are engaging with the broader ecosystem and will continue to prioritize approaches that send valuable traffic and support a healthy open web.

Ads will continue to play an important role in this new search experience. Many of these new queries are inherently commercial in nature. We have more than 20 years of experience serving ads relevant to users' commercial queries, and SGE enhances our ability to do this even better. We are testing and evolving placements and formats and giving advertisers tools to take advantage of generative AI. Philipp will talk more about how we are using generative AI in our ads products to better serve both advertisers and users.

Second, we are helping people use AI to boost their creativity and productivity. One example is Bard, our experiment in conversational AI. Since launching in March, it continues to get better. We rolled out a number of exciting features and capabilities earlier this month. Bard is now available in most of the world and over 40 of the most widely spoken languages.

We also added Google Lens capabilities so you can take an image and ask all kinds of questions, turn it into code and more. This new feature has been really popular, and it's been great to see people sharing their experiences. Bard can now read its responses aloud, and you can adjust them for tone and style. We continue to see great interest in using Bard for coding tasks.

On productivity, earlier this year, we introduced Duet AI in both Google Cloud and Workspace. It helps people collaborate with AI to code, write and get better insights

from data and more. Today, more than 750,000 Workspace users have access to the new features in [preview] (ph).

Third, we are making it easier for others to innovate using AI. One way is by providing Google Cloud's high-performance infrastructure, optimized for a range of generative AI models. It's being used by thousands of customers and partners to transform their businesses. I'll give an update on the cloud business in just a moment.

Finally, we are making sure we develop and deploy AI technology responsibly so that everyone can benefit. Last week, we signed on to joint commitments with other leading AI companies at the White House, building on the principles that have guided our work for many years. To take advantage of the AI opportunities ahead, we have been sharpening our focus as a company, investing responsibly with great discipline and finding areas where we can operate more cost effectively. We have made good progress in data center machine efficiency, which will pay dividends as we continue to invest in AI.

We continue to slow our expense growth and pace of hiring and ensure our teams are aligned to our highest priorities. This quarter, we reallocated a number of teams, including aligning Waze's ad sales with our existing business organization. We are combining various engineering efforts across core infrastructure and cloud. Products like Bard and SGE are being built by small fast-moving teams that have been reallocated to these high-priority efforts. Overall, we are actively moving people to higher priority activities within the Company, and we continue to optimize our real estate footprint for current and future needs.

Next, Google Cloud. We see continued growth with Q2 revenue of \$8 billion, up 28%, and operating profit of \$395 million. Our AI-optimized infrastructure is a leading platform for training and serving generative AI models. More than 70% of gen AI unicorns are Google Cloud customers, including Cohere, Jasper, Typeface and many more. We provide the widest choice of AI supercomputer options with Google TPUs and advanced NVIDIA GPUs, and recently launched new A3 AI supercomputers powered by NVIDIA's H100. This enables customers like AppLovin to achieve nearly 2 times better price performance than industry alternatives.

Our new generative AI offerings are expanding our total addressable market and winning new customers. We are seeing strong demand for the more than 80 models, including third-party and popular open source in our Vertex, Search and Conversational AI platforms with a number of customers growing more than 15x from April to June. Among them, Priceline is improving trip planning capabilities. Carrefour is creating full

marketing campaigns in a matter of minutes. And Capgemini is building hundreds of use cases to streamline time-consuming business processes. Our new anti-money laundering AI helps banks like HSBC identify financial crime risk. And our new AI-powered Target and Lead identification suite is being applied at Cerevel to help enable drug discovery.

Our generative AI capabilities also give us an opportunity to win new customers and upsell into our installed base of 9 million paying Google Workspace customers. I mentioned Duet AI earlier. Instacart is using it to improve customer service workflows. And companies like [Xtend] (ph) are scaling sales outreach and optimizing customer service. Customers confidently choose Workspace because of the safety and security we provide their distributed workforces.

Our AI capabilities are helping us differentiate core products like cybersecurity. We have integrated AI throughout our portfolio, winning organizations like Pfizer who are using Google Cloud to transform their security operations. Chronicle Security operations suite with Mandiant fully integrated is helping customers stay protected at every stage of the security life cycle. In the first half of 2023, we saw a 35% increase in incident response engagements compared to the same period last year.

Finally, our AI capabilities are also expanding our partner ecosystem with hundreds of ISVs and SaaS providers, such as Box, Salesforce and Snorkel and the world's largest consulting firms like Accenture and Deloitte. They've collectively committed to train more than 150,000 people on Google Cloud generative AI.

Turning next to YouTube. Earlier this year, we shared that revenues across YouTube products were nearly \$40 billion for the 12 months ending in March. I'm really pleased with how YouTube is growing audiences and driving increased engagement. YouTube Shorts are now watched by over 2 billion logged-in users every month, up from 1.5 billion just one year ago. The living room remained our fastest-growing screen in 2022 in terms of watch time. We are reaching more than 150 million people on connected TV screens in the U.S. and seeing growth in momentum internationally.

And on Subscriptions, there is good growth. Late last year, we announced over 80 million YouTube Music and Premium subscribers. Sign-ups for NFL Sunday Ticket kicked off in April, and we look forward to hosting our first football season on YouTube this fall.

Finally, hardware and Android. Pixel continues to have strong sales momentum. We introduced new Pixel devices at I/O, including Pixel Fold, Pixel Tablet and Pixel 7A, and

we've had a great response. Android 14, our latest OS, will incorporate our advances in generative AI to personalize Android phones. The Pixel and Android teams are working together to advance the latest devices. The Pixel Fold is a great example with its many hardware and software innovations.

Before I close, you may have seen that we just announced some exciting news that Ruth is taking on the important new role of President and Chief Investment Officer. As our longest-serving CFO, she has helped guide the company through an amazing period of growth, a global pandemic and the ongoing economic uncertainty that has followed. I'm excited to continue to work with Ruth, who will lead our 2024 planning and remain as CFO while we do a full search for a successor. So, it's business as usual now and no change in approach for the future. I look forward to seeing the impact Ruth will have in our new role, driving our investments, engaging with our stakeholders and creating opportunities for people and communities everywhere.

To close, I'm energized by the pace of innovation and the momentum across the Company. With 15 products that each serve 0.5 billion people and 6 that serve over 2 billion each, we have so many opportunities to deliver on our mission. Thank you to our employees around the world for their great work this quarter. Over to you, Philipp.

Philipp Schindler

Thanks, Sundar, and hello, everyone. Happy to be here with you all today. Let's jump right into our performance for the quarter.

Google Services revenues of \$66 billion were up 5% year-on-year. In Google Advertising, Search and Other revenues grew 5% year-on-year, led by solid growth in the retail vertical. In YouTube ads, revenues were up 4% year-on-year, driven by growth in brand, followed by direct response, reflecting further stabilization in advertiser spend. In Network, revenues declined 5% year-on-year. Google Other revenues were up 24% year-on-year, led by strong growth in YouTube subscriptions revenues.

Let's now take a few minutes to cover our 3 key priority areas: Google AI, Retail and YouTube, which I've laid out in prior quarters as clear opportunities for long-term advertising growth. I'll then turn it over to Ruth for more details on our financial performance.

Q2 was a big quarter for Google AI and our ads products. I/O, GML and Brandcast were a testament to our deep commitment to building cutting-edge tools and solutions that help businesses navigate complexity in real time and deliver the results they need, all

while improving the experience for users. Sunder covered some of these innovations. I'll share more.

It's worth reiterating that while generative AI is now supercharging new and existing ads products with tons of potential ahead, AI has been at the core of our ads business for years. In fact, today, nearly 80% of advertisers already use at least one AI-powered search ads product.

Our approach to AI and ads remains grounded in understanding what drives real value for businesses right now and what's most helpful for users. Advertisers tell us they're looking for more assistive experience to get set up with us faster. So at GML, we launched a new conversational experience in Google Ads powered by a LLM tuned specifically from ads data to make campaign construction easier than ever. Advertisers also tell us they want help creating high-quality ads that work in an instant. So, we're rolling out a revamped asset creation flow in Performance Max that helps customers adapt and scale their most successful creative concepts in a few clicks.

And there's even more with PMax. We launched a new asset insights and new search term insights that improve campaign performance understanding and new customer life cycle goals that led advertisers optimize for new and existing customers while maximizing sales.

We've long said it's all about reaching the right customer with the right creative at the right time. So later this year, automatically created assets, which are already generating headlines and descriptions for search ads, will start using generative AI to create assets that are even more relevant to customer queries.

Broad match also got updates. AI-based keyword prioritization ensures the right keyword, bid, budget, creative and landing page is chosen when there are multiple overlapping keywords eligible. And then to make it easier for advertisers to optimize visual storytelling and drive consideration in the mid funnel, we're launching two new AI part ad solutions, Demand Gen and Video View campaigns, and both will include Shorts inventory.

Sundar talked earlier about SGE and our early experiments with new ad formats. We're in active conversations with advertisers, publishers and partners to get their input on how to make these solutions work best for them and are excited to test and evolve this experience as we learn more.

Let's pivot to Retail, where we had a good quarter. Profitability remains a top theme for retailers, so solutions like PMax that drive bottom line value continue to do well. We also

continue to see success in helping businesses unlock efficient growth and deliver on their omnichannel goals.

Take Ace Hardware, who tapped into AI-powered search and omnibidding to capture increased seasonal demand leading up to Memorial Day. This drove increases across online sales, store visits and in-store sales, resulting in 87% year-over-year growth in omni revenue from Google Ads and led to one of the largest revenue weeks ever for Ace store owners.

Q2 also brought innovation on the consumer and merchant front. We've rolled out a new gen AI-powered virtual try-on tool that brings the fitting room experience online. Shoppers can try on women's tops across a wide array of models from brands like Anthropologie, Everlane, H&M and Loft. Rich, visual engaging content is a win-win for both consumers and merchants. In fact, product offers with more than one image see a 76% average increase in impressions and a 32% increase in clicks.

Our new product studio uses gen AI to help retailers create tailored eye-catching imagery for free, and we are working towards optimizing for performance. We think this will be a game changer, especially for SMBs who can now create high-quality images to use both across Google and their own sites without spending a lot of time or money.

As we continue to make Google a valuable place for merchants to grow their businesses and connect with users, Merchant Center Next is another win. We've seen 2x growth in the number of businesses using Merchant Center in the past two years. And we're now simplifying it by automating inventory management and giving a consolidated view of performance insights. Better tools means better growth for merchants and better experiences for users.

Moving to YouTube. I've said it before, I'll say it again: YouTube starts with our Creators, and it's their success and our multi-format strategy that will drive YouTube's long-term growth. In prior quarters, I've laid out how we think about this. Enabling our Creators to make a living on our platform with more formats and awesome tools leads to more content, which leads to quality consumption of video content, another big focus of the team. And this leads to better opportunities for monetization and for advertisers to support this incredible ecosystem.

As we think about growth, we're focused on Shorts, Connected TV and our subscription offerings, all of which grew nicely this quarter. Let me double-click into Shorts and CTV.

First, Shorts. Momentum remains strong. Watch time and monetization are moving in the right direction. Last year, we introduced ads on Shorts to help drive performance in

direct response campaigns. We have video action, Performance Max and ad campaigns. As of Q2, brand advertisers can start testing Shorts ads and awareness campaigns. It's still early days, but we're excited by the results.

LANEIGE, Amorepacific's number one premium skin care brand, was an early adopter. It leaned into video reach campaigns and new creative over a 10-day test to drive a 21% increase in unique users reached from Shorts and in Feed, all in a more efficient CPM.

Second, Connected TV. Substantial engagement by viewers and ROI for advertisers is driving monetization of the living room. We are very pleased with the growth we've seen and how we're delivering the reach, results and relevance that businesses are looking for at scale.

At Brandcast, we announced two new ad offerings for streaming. First, 30-second unskippable ads are coming to YouTube Select, which is landing 70% plus of impressions on the TV screen. 30-second ads are a TV industry staple, and now YouTube is bringing our advanced audience capabilities and unparalleled reach to the format. We're also exploring new pause experiences so brands can drive awareness or action when you hit pause.

Looking at YouTube holistically, according to our measurement partners, Nielsen, TransUnion and Ipsos MMA, YouTube delivers higher ROI than TV and other online video on average. Take The Hershey Company. As part of a multiyear partnership to optimize its YouTube strategy, Hershey's brands have been tapping into CTV, efficient AI-powered formats and Made for Platform creative, leading to YouTube becoming its number one ROI driving media partner, producing a 65% plus increase in ROI from 2018 to 2023.

One last highlight that bridges the power of YouTube with our continued efforts to bring the best across Google to our partners. With Warner Bros. Discovery, we expanded our multiyear relationship across our entire Android ecosystem, including partnering on the launch of Max, a deepened mutually beneficial relationship on Google TV, and plans to work together on new surfaces. YouTube's expanded deal for Max, inclusive of a Max NFL Sunday Ticket bundle on YouTube TV, also underscores our joint commitment to bring the highest quality content and experiences to our customers.

I'll close by echoing Sundar with a huge thank you to Googlers everywhere for their incredible passion and hard work and to our customers and partners for their continued collaboration and trust. Ruth, over to you.

Ruth Porat

Thank you, Philipp. Before I go into the results, first, Sundar, thank you very much for the opportunity. I'm very excited about the new role, and I look forward to it.

So, turning to the results. We're very pleased with our financial results for the second quarter, which reflect an acceleration of growth in Search and momentum in Cloud. My comments will be on year-over-year comparisons for the second quarter unless I state otherwise. I will start with results at the Alphabet level, followed by segment results and conclude with our outlook.

For the second quarter, our consolidated revenues were \$74.6 billion, up 7% or up 9% in constant currency. Search remained the largest contributor to revenue growth. Total cost of revenues was \$31.9 billion, up 6%, driven by other cost of revenues of \$19.4 billion, which was up 8%. Growth here was driven by content acquisition costs, primarily for YouTube subscription offerings, followed by hardware costs associated with Pixel family launches in the second quarter. As noted in our earnings release, the overall increase in data center and other operations costs was partially offset by a reduction in depreciation expense due to the change in estimated useful lives we discussed last quarter.

Operating expenses were \$20.9 billion, up 4%. Operating income was \$21.8 billion, up 12%, and our operating margin was 29%. I will cover our expense and margin performance in our outlook. Other income and expense was \$65 million. Net income was \$18.4 billion. We delivered free cash flow of \$21.8 billion in the second quarter and \$71 billion for the trailing 12 months, reflecting improved operating performance as well as the deferral of certain tax payments to the fourth quarter of 2023 as noted in our earnings release. We ended the quarter with \$118 billion in cash and marketable securities.

Turning to our segment results. Prior period results have been recast for two changes that we made as of the first quarter. First, DeepMind is now reported as part of Alphabet's unallocated corporate costs. Second, we updated our cost allocation methodologies. In the second quarter, we then combined the Brain team from Google Research with DeepMind to form Google DeepMind. Costs associated with the Brain team, which were previously included in Google Services, are now reported as part of Alphabet's unallocated corporate costs. We have not recast prior period results to reflect this additional change.

Within Google Services, revenues were \$66.3 billion, up 5%. Google Search and other advertising revenues of \$42.6 billion in the quarter were up 5%, led by growth in retail. YouTube advertising revenues of \$7.7 billion were up 4%, driven by brand advertising,

followed by direct response, reflecting further stabilization in spending by advertisers. Network advertising revenues of \$7.9 billion were down 5%. Other revenues were \$8.1 billion, up 24%, reflecting growth in YouTube non-advertising revenues, primarily from subscription growth in YouTube Music Premium and YouTube TV, followed by growth in hardware revenues, primarily driven by the launch of the Pixel 7a in the second quarter. Finally, Play returned to positive growth in the second quarter. TAC was \$12.5 billion, up 3%. Google Services operating income was \$23.5 billion, up 8%, and the operating margin was 35%.

Turning to the Google Cloud segment. Revenues were \$8 billion for the quarter, up 28%. GCP revenue growth remained strong across geographies, industries and products. That being said, we saw a continued moderation in the rate of consumption growth as consumers optimize their spend. Google Workspace strong revenue growth was driven by increases in both seats and average revenue per seat. Google Cloud had operating income of \$395 million and the operating margin was 5%.

As to our Other Bets, for the second quarter, revenues were \$285 million, and the operating loss was \$813 million. The decrease in operating loss was primarily driven by a reduction in valuation-based compensation liabilities related to certain Other Bets.

Turning to our outlook for the business. With respect to Google Services, first, within advertising. We were pleased with the acceleration of Search advertising revenue growth in the second quarter. Our continued ability to generate sustained growth reflects our unparalleled engineering innovation that creates extraordinary experiences for users and capabilities for advertisers and delivered with the deep expertise of our go-to-market team. And in YouTube, we saw ongoing signs of stabilization in advertiser spending. We are prioritizing product focus on increasing quality consumption of video content with both Shorts and in the living room, which is translating into improved monetization.

Second, within other revenues. In our YouTube subscription products, the sustained, strong growth in revenues reflects significant subscriber growth. You may have seen that last week, we increased subscription prices for YouTube Music and Premium, which underscores the value of the products. Strong year-on-year growth in hardware revenues was due, in large part, to a timing change given the Pixel 7a was launched in the second quarter, whereas the Pixel 6a launch occurred in the third quarter last year. Looking ahead, the launch timing change will be a headwind to hardware revenue growth in the third quarter. Play returned to positive growth in the second quarter, driven primarily by a solid increase in the number of buyers.

Turning to Google Cloud. We are particularly excited about the customer interest in our AI-optimized infrastructure, our large language models, our AI platform services and our new generative AI offerings such as Duet AI for Google Workspace, although we are still clearly in the early days. At the same time, we continue to experience headwinds in the second quarter for moderation in consumption growth as customers optimize their spend. We continue to invest aggressively while remaining focused on profitable growth.

In terms of expenses and profitability, we remain very focused on durably reengineering our cost base. Most evident to date are the actions we have taken to reduce the pace of headcount growth, including the workforce reductions we announced in the first quarter and a slower pace of organic hiring, in part given our focus on reallocating talent from within to fuel our growth priorities.

A quick comment on the sequential improvement in operating margins in the second quarter. There are two factors to note. First, the benefit from an acceleration in search advertising revenue growth in the second quarter. Second, the vast majority of the charges related to our workforce reduction and optimization of our global office space were taken in Q1.

Finally, as it relates to CapEx, in Q2, the largest component was for servers, which included a meaningful increase in our investments in AI compute. The sequential step up in the second quarter was lower than anticipated for two reasons. First, with respect to office facilities, we continue to moderate the pace of fit-outs and ground-up construction to reflect the slower expected pace of headcount growth. Second, there were delays in certain data center construction projects. We expect elevated levels of investment in our technical infrastructure increasing through the back half of 2023 and continuing to grow in 2024. The primary driver is to support the opportunities we see in AI across Alphabet, including investments in GPUs and proprietary TPUs as well as data center capacity. With all that said, we remain committed to durably reengineering our cost base in order to help create capacity for these investments in support of long-term, sustainable financial value.

Thank you. Sundar, Philipp and I will now take your questions.

Question-and-Answer Session

Operator

Thank you. [Operator Instructions] Our first question comes from Brian Nowak of Morgan Stanley. Please go ahead.

Brian Nowak

I have two. The first one for Sundar. Sundar, I'd be curious to learn about some of your early learnings and surprises around consumer behavior on how people are using Bard versus Search. And what new behaviors or consumer utility are you most excited about as you think about what Gemini could provide for people over the course of the next year or so?

And then the second one for Ruth. Ruth, congrats on the new position. One question just about the durable expense comment. I think last quarter, you talked about the idea that expenses could grow slower than revenue in 2024. Is that still the right way to think about it? And just to confirm, does that include the impact of depreciation in those comments? Thanks.

Sundar Pichai

Thanks, Brian. I'll take the first part. It's definitely early days, but both across Bard and Search Generative Experience, feedback has been very positive from our users. I think we are definitely now able to serve, I would say, deeper and broader information use cases, which is very exciting. I wouldn't say surprised. So for example, people are really using it to -- for coding, something we understood, but it's definitely on the new side. There's a lot of excitement around -- we integrated Google Lens into Bard. We have known how big Google Lens can be. We see that in the visual searches we get and how much it has grown over the last two years, and so we've been doing this for a while. But definitely, that, in Bard, has been super well received. So which gives me a sense that as -- given Gemini is being built from the ground up to be multimodal, I think that's an area that's going to excite users. When I go back many years ago when we did universal search, whenever, for users, we can abstract different content types and put them in a seamless way, they tend to receive it well. And so I'm definitely excited about what's ahead.

Ruth Porat

And on your second question, Brian. We are really pleased with the operating performance in the second quarter. We've been saying for some time that we are focused on revenue growth ahead of expense growth and achieved that for the first in some time, and that is cost of sales plus operating expense overall. And we do remain very focused on durably reengineering our cost base. There are a lot of stream -- work streams that are in flight, and I mentioned a couple of them in opening comments. This remains a major priority as Sundar and I both commented on.

Operator

The next question comes from Eric Sheridan of Goldman Sachs. Please go ahead.

Eric Sheridan

Maybe one for Sundar and one also for Ruth. Sundar, can you talk a little bit about elements of open source versus closed and things like custom silicon and how you're thinking about AI offerings broadly developing over the next couple of years and what you see as some of the key differentiation points that Google, either through the cloud business or the consumer offerings, are going to bring to market, and how we should think about differentiation playing out to a greater degree in AI in the years ahead? That would be number one.

And then, Ruth, I'll echo Brian's congrats as well on the new role. Maybe both of you could talk to why this type of role might be important at this point in time for Alphabet? And Ruth, what you're looking to sort of drive into the organization from this new role as you move into it in the fall. Thanks.

Sundar Pichai

Thanks Eric. On the first part, obviously, a big topic. I would broadly say, the investments for AI, when you look at the type of deep computer science work, the talent we have worked hard to bring to the Company, and from the ground up, the infrastructure we have built from the earliest days, Google has been a company, we've thought about the switches in our data centers, wherever we think we can do the best and get an advantage by innovating, we have chosen to do so. We have done that on AI, on the silicon side. But what's important to us is really stay focused on our users and customers and support all the innovations that's needed. So for example, with cloud, we've been -- we've really embraced open architecture. We have embraced customers wanting to be multi-cloud when it makes sense for them. So similarly, you would see with AI, we will embrace -- we will offer not just our first-party models, we'll offer third-party models, including open source models. I think open source has a critical role to play in this ecosystem.

Google contributes -- we are one of the largest contributors to -- if you look at Hugging Face and in terms of the contribution there, when you look at projects like Android, Chromium and so on, Kubernetes and so on. So, we'll embrace that and we'll stay at the cutting edge of technology, and I think that will serve us well for the long term.

On the second part of your question, first of all, I'm very grateful and thankful to all the work that Ruth has done for the Company. It's too invaluable to capture in words. I am super thrilled that she's going to continue on an impactful new role. And the scale of our company, with the broad changes in technology, I think it's more important than ever before to engage on these issues globally at scale and advocate on the economic opportunity of the investments we make across Alphabet and Google. And I'm glad that she's going to continue as CFO. And so no changes there, and we'll take the time to find a successor, and Ruth will be closely involved, not just on that, but also our long-range planning, including 2024. Ruth, anything to add?

Ruth Porat

Just to underscore, when you ask the point about impact, one of the places Sundar and I have discussed quite a bit is landing well the 2024 capital plan and the multiyear plan and completing all of the very important efforts we have underway. We're excited about what they mean, setting the company up well to be able to invest for long-term growth. And so we're continuing to execute against those. And then I think Sundar summarized it well. We see technology can make such a difference in the lives of so many and [in the lives of] (ph) economies. And to be able to focus on the impact on economic growth and the opportunity for people, for organizations, for countries, I think, is a privilege. I'm really excited about it, in particular, with this amazing company. And so focusing there as well as the investments that we make across Alphabet to drive economic growth globally across numerous sectors.

Operator

The next question comes from Doug Anmuth of JPMorgan. Please go ahead.

Doug Anmuth

One for Sundar and one for Ruth. For Sundar, curious, how do you think about timing for more broadly integrating generative AI into Search? And more specifically, what are some of the things you'll need to see to do that?

And then, Ruth, just on CapEx, the 2Q CapEx is lower than expected, as you explained. Do you still expect modestly higher CapEx in '23 versus '22? And then, I know it's getting a little bit ahead, but how should we think about kind of timing of that real estate and office optimization efforts through '23 and then also into '24? Thanks.

Sundar Pichai

Look, on the Search Generative Experience, we definitely wanted to make sure we're thinking deeply from first principles. While it's exciting new technology, we've constantly been bringing in AI innovations into Search for the past few years, and this is the next step in that journey. But it is a big change, so we thought about from first principles. It really gives us a chance to now not always be constrained in the way Search was working before, allowed us to think outside the box. And I see that play out in the Experience. So I would say we are ahead of where I thought we'd be at this point in time. The feedback has been very positive. We've just improved our efficiency pretty dramatically since the product launch. The latency has improved significantly. We are keeping a very high bar, and -- but I would say we are ahead on all the metrics in terms of how we look at it internally and so couldn't be more pleased with it. And so you will see us continue to bring it to more and more users. And over time, this will just be how Search works. And so while it's -- we are taking deliberate steps, we are building the next major evolution in Search, and I'm pleased with how it's going so far.

Ruth Porat

In terms of CapEx, I tried to lay out sort of the cadence of CapEx, and the point was an important one that the sequential step up in the second quarter was lower than anticipated for the two reasons I noted: one, the work that we're doing around office facilities; and then the delays in certain data center construction projects. That's why we wanted to be really clear that we do expect elevated levels of investment in our technical infrastructure, and that would be increasing through the back half of 2023, consistent with the comments we've made previously that we expected 2023 to be higher given the slower start at the front half of the year and then continuing to grow into 2024.

And the primary driver of this, as you know well, is to support the opportunities we see in AI across the Company, including the investments that we've already talked about, proprietary TPUs, all that we're doing with GPUs as well as data center capacity. And as we continue to see the pace of innovation accelerate, we just want to make sure we're positioned to address the opportunity across Alphabet.

And to your -- the other part of your question, when we look at real estate optimization, that's one of many work streams that are important when we talk about durably reengineering our cost base to create capacity for investments and support long-term sustainable financial value, and we're continuing to work against that.

Operator

The next question comes from Lloyd Walmsley of UBS. Please go ahead.

Lloyd Walmsley

I wanted to just follow up on the -- some of the SGE questions and just get a sense -- I know it's early, but what are you seeing in terms of monetization? And how do you guys think about that as you scale up the deployment of SGE? Is that -- I think there's a lot of concern out there that maybe in the short term, it's a bit of a headwind. But over the longer term, maybe query growth from a more useful product can kind of kind of make up for that. But how do you guys see that playing out? And what can you share there?

Sundar Pichai

Maybe I can give some color here. We have obviously been focused on bringing this experience and making sure it works well for users. And it's very clear to me, first of all, as a user myself, there are certain queries for which the answers are so significantly better. It's a clear quality win. And so I think we are definitely headed in the right direction, and we can see it in our metrics and the feedback we are getting from our users as well.

And the thing that doesn't change with these experiences is that many -- a lot of user journeys are commercial in nature. There are inherent commercial user needs. And what's exciting to me is that SGE gives us an opportunity to serve those needs again, better, right, and better. So it's clearly an exciting area. And as part of that, the fundamentals don't change. Users have commercial needs, and they are looking for choices, and there are merchants and advertisers looking to provide those choices.

So, those fundamentals are true in SGE as well. And we have a number of experiments in flight, including ads, and we are pleased with the early results we are seeing. And so we will continue to evolve the experience, but I'm comfortable at what we are seeing, and we have a lot of experience working through these transitions, and we'll bring all those learnings here as well.

Operator

The next question comes from Justin Post of Bank of America. Please go ahead.

Justin Post

Great. Thank you. Just ask about the Cloud. It really looks like revenue growth stabilized despite optimization. So could you talk about the pipeline and the client wins in the

quarter, how you felt about those? And then any uptick are you seeing related to AI spending in the total revenues this quarter or in the second half? Thank you.

Sundar Pichai

Thanks, Justin. Okay. It is an exciting moment overall in Cloud because there is definitely a lot of interest from customers on AI, and they definitely are engaging in many more conversations with us. So I would say, without commenting on the short term, but when I think about it long term, I view the AI opportunity as expanding our total addressable market and allows us to win new customers. Scale of investments that we can directly bring to cloud now. As I said earlier, we have over 80 models across Vertex, Enterprise Search and Conversational AI, and we are taking all of them, translating it into deep industry solutions. So, I'm excited about it.

Second, it gives us an opportunity to upsell and cross-sell into our installed base. So for example, if you think about Duet AI in Google Workspace now, it's a collection of all our generative AI-powered collaboration features. We can bring it and make it available to more than 9 million paying Google Workspace customers. Similarly, with Duet AI in Google Cloud, again, allows us to go back to our installed base and engage in deeper conversations.

And finally, I think AI helps us differentiate our core products. For example, if you take a look at cybersecurity, we are deeply incorporating AI to drive profound changes there. So overall, I'm excited, and I view this as a long-term opportunity. And all the investments we are doing in AI across Alphabet, including the work we are doing in Google DeepMind and Google Research on Gemini and so on are directly applicable to Cloud as well. So excited about it.

Justin Post

Great. Thank you. Maybe one follow-up for Ruth. Did the infrastructure cloud grow faster than Workspaces again this quarter?

Ruth Porat

So, we -- I don't think we commented on that. And yes, in the second quarter, GCP growth was above the growth rate for cloud overall.

Operator

The next question comes from Michael Nathanson of MoffettNathanson. Please go ahead.

Michael Nathanson

One for Philipp and one for Sundar. Philipp, can you talk about the ad market? If you step back, you're seeing real signs now of weakness in linear TV, ad agencies, small and digital companies were all slowing, and the macro backdrop is I think cloudy, yet you guys have accelerated your growth this quarter. What factors are you looking at? Do you see that would identify why are you growing while others are really struggling and slowing down?

And then, Sundar, I think you spent over \$100 billion on R&D over the past five years, and yet there's a narrative that it's so competitive and so expensive to compete going forward. Can you talk a bit about how you're visiting that R&D spend? Any near-term cadence updates you can give us for growth? And any factors that could change the growth going forward for research and development spending for you guys? Thanks.

Sundar Pichai

Look, maybe I can comment on the -- how we think about R&D. And look, if anything, I think two things. We are always committed to driving deep computer science research and innovation. That's the foundation on which the Company is built. And taking that and applying it and building new products and services and generating value is the virtuous cycle. And nothing changes in that fundamental thesis.

We are definitely, both -- as Ruth mentioned, on AI investments, we are going to be committed to making sure we invest to realize the opportunity. But all the work we are doing on efficiency and optimization applies to -- on the AI side as well. And so we're bringing all that lens there so that we do this responsibly. But no overall changes in our philosophy or approach there. And maybe I'll let Philipp comment on the overall market dynamics.

Philipp Schindler

Yes. Look, I can't comment on others, but our focus continues, obviously, to be helping customers through whatever uncertainty or complexity they're facing, and a lot of companies are focused on profitability, driving efficiencies, and they're carefully evaluating the effectiveness of their budgets. And our goal is really to help them maximize efficiency and drive strong ROI. And I think we have the proven AI-powered tools and solutions to actually do it. I called out Search and Other revenues being led by solid growth in the retail vertical. We talked about the DR and brand side on the YouTube side. I think those are the key points I would make.

Operator

The next question comes from Ken Gawrelski of Wells Fargo. Please go ahead.

Ken Gawrelski

Can I ask on Performance Max? You've had great success there. Could you talk about any vertical or use case expansions? And how long until we possibly get to the point of more automated AI-generated creative in production?

Philipp Schindler

Yes. Look, this is a great question. AI is a foundational component that really allows us to help users advertise those pubs partners at scale. And we've been on a journey for years, right, to take the key components of advertising, whether it's bidding, targeting and creatives as well as innovation, frankly, in the core advertiser and publisher experiences and improve them dramatically through AI.

And Performance Max is an example of how all this comes together at scale for advertisers. They provide us with a business goal, of assets, and we can then take care of the rest to meet consumer demand and really deliver on advertiser ROI. And as you heard it at GML, we've seen over many quarters, we continue to build new AI features really on top of this.

I think I talked a bit in my prepared remarks about where we're taking some of our products from a gen AI perspective. And if you take a look at some of the things we announced there, it's fair to say, whether you look at our revamped asset creation flow in Performance Max, whether you look at Automatically Created Assets, whether you look at Product Studio and so on, there we're on a right path to deliver some really exciting new innovation in automated -- let me call it, asset creation in the broader sense.

Operator

Our last question comes from Mark Mahaney of Evercore. Please go ahead.

Mark Mahaney

Okay. Actually, I'll follow up on that last question, Philipp. You pointed out AI has been used to improve the advertising mousetrap at Google for many years. Do you view generative AI as just a material accelerant of your ability to improve return on ad spend for the millions of marketers who use Google? And if you think about where generative AI would have the most impact, could you peel it apart, what's your guess now over the

next couple of years where it's going to have the most impact on the creative, on the audience creation, on the campaign optimization? Where do you think the most impact will come from generative AI, just for all the -- your advertising customers? Thanks.

Philipp Schindler

Look, as I said earlier, generative AI is supercharging new and existing ads products with really tons of potential ahead. And we're really helping advertisers here make better decisions, solve problems, enhance creativity. And I covered this earlier. For example, we launched a new conversational experience in Google Ads, the asset creation flow in PMax. I mentioned the Automatically Created Assets, the Product Studio and so on.

When I talk to customers, they're very excited about AI, and understandably, have some questions. One of the top questions is, for example, what's the next best step I should take. And this is a key reason why we launched our Google Ads AI Essentials, which was a big announcement at GML. It's a checklist of simple steps customers can take right now to unlock the power of AI, and it has to do with the foundation of data and measurement. It has to do with taking action with our AI products and really is a mindset shift to set up organizations for AI success.

So those are just some of the examples. If you extrapolate those going forward, those are some of the examples where I see a lot of upside, apart from the points that Sundar already mentioned.

Sundar Pichai

And I think all of this is before we have multimodal capabilities really in the mix. And so, looking at the early innovations there, I think it's going to be an exciting couple of years ahead. Thanks, Mark.

Mark Mahaney

Thanks, Sundar. Thank you, Philipp. Congratulations, Ruth.

Operator

Thank you. And that concludes our question-and-answer session for today. I'd like to turn the conference back over to Jim Friedland for any further remarks.

Jim Friedland

Thanks, everyone, for joining us today. We look forward to speaking with you again on our third quarter 2023 call. Thank you, and have a good evening.

Operator

Thank you, everyone. This concludes today's conference call. Thank you for participating. You may now disconnect.