

## Q4 2021 Earnings Call

### Company Participants

- Jim Friedland, Director, Investor Relations
- Philipp Schindler, Senior Vice President & Chief Business Officer
- Ruth M. Porat, Senior Vice President & Chief Financial Officer
- Sundar Pichai, Chief Executive Officer

### Other Participants

- Brent Thill
- Brian Nowak
- Daniel Salmon
- Douglas Anmuth
- Eric Sheridan
- Justin Post
- Mark Mahaney
- Michael Nathanson
- Stephen Ju

### Presentation

#### Operator

Welcome, everyone, and thank you for standing by for the Alphabet Fourth Quarter 2021 Earnings Conference Call. At this time, all participants are in a listen-only mode. After the speakers' presentation, there will be a question-and-answer session. (Operator Instructions).

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

#### **Jim Friedland** {BIO 22252778 <GO>}

Thank you. Good afternoon, everyone, and welcome to Alphabet's Fourth Quarter 2021 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, including the effect of the COVID-19 pandemic on those areas, may be 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 Forms 10-K and 10-Q filed with the SEC, including our upcoming Form 10-K filing for the year ended December 31, 2021.

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 press release, which is distributed and available to the public through our Investor Relations website located at [abc.xyz/investor](http://abc.xyz/investor).

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

**Sundar Pichai** {BIO 15004624 <GO>}

Thank you, Jim, and Happy New Year, everyone.

The last few months have been challenging for communities everywhere because of Omicron. I'm grateful for the frontline healthcare workers, who are helping us through it, and glad to see signs that this wave is receding in many parts of the world. Whether it's helping people find a COVID testing center, learn a new skill or launch a new business, our mission to organize the world's information and make it universally accessible and useful, is as relevant today as it's ever been. In 2022, we'll stay focused on evolving our knowledge and information products, including Search, Maps, and YouTube, to be even more helpful. Investments in AI will be key, and we'll continue to make improvements to conversational interfaces like the Assistant.

I'll begin by touching on a few highlights from Q4. Our new AI models are helping to create information experiences that are truly conversational, multimodal, and personal. For example, Multitask Unified Model, or MUM for short, has improved searches for vaccine information, and soon, we'll introduce new ways to search with images and words simultaneously.

In October, we introduced a new AI architecture called Pathways. AI models are typically trained to do only one thing, with Pathways, a single model can be trained to do thousands, even millions of things. From MUM to Pathways to BERT and more, these deep AI investments are helping us lead in search quality. They're also powering innovations beyond Search. For example, DeepMind's protein folding system AlphaFold, was recently recognized by Nature & Science Magazine as a defining breakthrough. To illustrate the scale of the team's achievement, it took scientists more than 50 years to figure out the structure of 150,000 proteins. The DeepMind team has now expanded that number to 1 million, and they think they will get to more than 100 million this year.

Philipp will talk in great detail about our advertising business, which also benefits from our investments in AI. It's been a very strong quarter for us. Our teams have helped millions of businesses of all sizes, and launched dozens of important features to help them get the most out of their online marketing spend. These businesses are the backbone of our global economy and the heart of our community. So helping them thrive is more important than ever.

We are also seeing exciting momentum at YouTube. YouTube Shorts continues to drive significant engagement. We just hit 5 trillion all-time views, and have over 15 billion views each day globally. This is helping our creator community reach newer and bigger audiences. In fact, more people are creating content on YouTube than ever before. Last year, the number of YouTube channels that made at least \$10,000 in revenue was up more than 40% year-over-year, and we are continuing to improve support for artists and creators. More creators than ever are earning money from our non-ads products like Super Chat and channel memberships, and the Shorts fund is now available in more than 100 countries.

Another big area for investment is combining the best of AI software and hardware to deliver helpful experiences across our family of devices. In Q4, we set an all-time quarterly sales record for Pixel. This came in spite of an extremely challenging supply chain environment. The response to Pixel 6 from our customers and carrier partners was incredibly positive. And AI is making Pixel even more helpful. As one example, Live Translate detects whether a chat message is in a different language and automatically translates it in up to 48 languages.

We are also focused on ensuring devices across the Android and Chrome ecosystems work well together. For example, at CES last month, we announced that we are working with Acer, HP, and Intel, to bring great experiences to their devices. Also announced at CES, the new Ripple open standard will broaden the capabilities of radar technology opening the door for new products and services.

Another priority is ensuring our products and services are private, secure, and safe. To that end, I'll note our new privacy sandbox proposal called Topics API. We think it will be a big improvement for protecting user privacy, while also ensuring businesses are able to thrive online. We'll begin testing this year, and look forward to feedback from the industry.

Next on to Cloud. It's been a big year, so let me go a bit deeper this quarter. In Q4, Cloud revenue grew 45% year-over-year to \$5.5 billion. Alphabet's backlog increased more than 70% to \$51 billion, most of which is attributed to Google Cloud. This growth comes from many leading businesses, including Albertsons and LVMH, digital natives including Box and Spotify, and public sector agencies including the Commonwealth of Massachusetts, the Defense Innovation Unit, and the USDA.

Our sales force, which we have more than tripled since 2019, delivered strong results across geographies, products and industries, and we continue to invest. For the full year 2021, compared with the full year 2020, we saw over 80% growth in total deal volume for Google Cloud Platform and over 65% growth in the number of deals over \$1 billion.

Our partner ecosystem is helping accelerate our growth. For the full year 2021 compared with the full year 2020, the number of customers spending more than \$1 million through the marketplace increased by 6x. Customer spend through channel partners on GCP more than doubled, and the number of active certifications within our top global systems integrators more than doubled as well.

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Our product leadership continues with more than 2,000 new cloud products and feature releases in the last year. These were in four categories. First, our data cloud and our AI/ML platform is helping organizations like Cartier, Groupe Roche and Mitsubishi Heavy Industries, understand and use their data intelligently across multiple clouds. Our fast, secure data sharing capability helps the National Cancer Institute advance breast cancer research. Our unified data lake and data warehouse, which brings together unstructured and structured data, helps Telus and Tyson Foods improve their understanding of customers. And our AI/ML platform helps CEN deliver better customer experience.

Second, our open multi-cloud infrastructure enables customers like BBVA and Wells Fargo to run mission-critical systems on our cloud. We believe new autoscaling in our Kubernetes engine, which allows customers to run 15,000 node clusters, outpaces the competition by up to 10x. Our Edge Cloud helps us grow in telecommunications, driving partnerships in Q4 with Indosat, Ooredoo, Hutchison, Telenor, and Verizon. They join existing customers and partners, including Ericsson, Reliance Jio, and Nokia.

Third, our cybersecurity products are helping protect organizations like ANZ Bank, Meditech, and Wayfair, as a trusted cloud provider. VirusTotal helps protect organizations from software supply chain vulnerabilities. Chronicle and Security Command Center help organizations detect and protect themselves from cyber threats, and our fraud prevention and identity verification solutions are protecting over 5 million websites.

Finally, our secure communication and collaboration platform, Google Workspace, is helping public sector organizations like USAID and the U.S. Air Force Research Laboratory, as well as global brands including Colgate and Roche, adopt secure hybrid work. Our new Work Safer program launched in Q4, provides the highest security for e-mail, meetings, and documents, by bringing together Google Workspace, Titan Security Keys, Zero Trust, and other security advances.

Customers come to Google Cloud because of our expertise in bringing enterprises and consumer ecosystems closer together. One example is Shopify. From Black Friday through Cyber Monday, Shopify reported \$6.3 billion in global sales by 47 million customers, all safely transacted on Google Cloud. Importantly, we have made progress operating 24/7 on carbon-free energy, and continue to provide customers the cleanest cloud in the industry.

On to our Other Bets. October marked the one year anniversary of our Waymo One fully autonomous commercial ride-hailing service in Arizona. In San Francisco, hundreds of riders are using Waymo One as part of our trusted tester program, with many more on the waiting list. And Waymo Via continues delivering freight into the Southwest U.S. and developing partnerships with key industry players.

Before I close, I want to say how proud I am of Google's work to help with economic recovery around the world. Nearly a third of small business owners say that without digital tools, they would have had to close their business during the pandemic. Digital skills have also been a lifeline to help people find jobs and grow their careers. Since 2014, we have provided digital skills training to over 90 million people around the world. In the months

and years ahead, technology will help unleash new opportunities globally, especially as hundreds of millions more people come online in places, including Southeast Asia and Africa.

With that, let me thank Googlers everywhere for their contributions this quarter and throughout 2021. Over to you, Philipp.

**Philipp Schindler** {BIO 21014597 <GO>}

Thanks, Sundar. Hi, everyone. It's great to be here today.

We're pleased with the growth in Google services revenues in the fourth quarter. Year-on-year performance was driven by broad-based strength in advertiser spend and strong consumer online activity. In the fourth quarter, retail was again by far the largest contributor to year-on-year growth of our ads business. Finance, media and entertainment, and travel, were also strong contributors.

Before we dive into some of the trends that drove this quarter's performance, let's zoom out for a second. Quarter-after-quarter, for the last 20-some months, we've said that the world is in flux, that the recovery is uneven, that uncertainty is the new normal. Q4 proved no different. What we know for certain though is that businesses are the lifeblood of a thriving economy, and our role in helping them remains more important than ever.

AI continues to power our ability to help via insights, new tools, and automation. In fact, the same cutting-edge AI that's advancing our understanding of everything, from search to protein folding, is also driving innovation across our ads products.

Let's start with automation. It's become a key differentiator for businesses in navigating complexity and efficiently reaching customers, wherever they are in a privacy-first wave. Our news campaign, Performance Max, went global in November and has been quickly embraced by advertisers. It brings the best of Google Ads, AI and automation together, to let brands promote their businesses across all Google services from a single campaign, helping them drive more online sales, leads and/or foot traffic. It's also an example of how we are radically simplifying our products and making them easier for customers to use.

French children's wear retailer Petit Bateau tested PMax over a three-week period. Return on ad spend jumped 35%, click-through rates increased 40%, and valuable insights were gleaned into what messaging resonated most.

We've also evolved our insights tools. Four new features launched in Q4, including demand forecast, which uses ML to help businesses predict forward-looking trends and better understand what goods to stock and what services to offer when. Whether it's insights, automation or new features, our work to help businesses more easily connect with their customers has been non-stop.

On top of the 100-plus enhancements made to our ads products every quarter, we've launched 200-plus features and tools since March 2020. A recent example. We made it

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easier for businesses to claim and verify their business profile on Google Search and Maps, and respond to customer messages directly in Search. In Germany, completed business profiles receive an average of over 5x more calls versus those that aren't. For an SMB, that can be really meaningful.

Let's transition to retail, where we had a terrific quarter. Since the beginning of the pandemic, we've seen ongoing shifts in consumer spending patterns. Pre-COVID, each year, we saw increased spikes in demand between Black Friday and Cyber Monday. What's interesting is that in 2020, and again in 2021, we actually saw shoppers start shopping earlier and spending more throughout the quarter. In Q4, we also saw a parallel lead year-over-year retail query growth with hobbies and leisure a close second.

I've said it before, I'll say it again, the future of retail is omnichannel. And we continue to invest in new features and next-gen experiences so merchants and shoppers can benefit.

Global searches for "gift shops near me" jumped 60% year-over-year in October, with searches for "gifts near me" up 70% in Google Maps. People increasingly want to know what's available nearby before they get to the store. Our new in-stock filter helps with just that. Shoppers can find local stores that carry the products they want, right from Search, like a new tennis racket or that last-minute birthday gift. Showing in-store availability helps businesses attract local customers, and they've caught on. One in four local offers across Shopping and Google.com are taking advantage of our curbside pickup badge.

People also want deals. They're looking for value. For shoppers, we made it possible to browse and discover the hottest deals for major moments like Black Friday and Cyber Monday on Search. For merchants, we made it even easier to list promotions via automated imports from third-party integrations like Shopify and WooCommerce. Moving inventory, attracting new customers and building brand loyalty during the holidays and beyond, got a lot easier.

In Q4, the number of merchants using promo features jumped 280% year-over-year. Retailers are also turning to us to help them transform and accelerate growth. Take Warby Parker, who drove a 32% year-over-year increase in its Q3 sales, by not only opening stores and expanding its contact lens business, but also by tapping into Google across surfaces. Omnichannel bidding, smart shopping campaigns and an expanded presence in Maps to promote in-store eye exams, contributed to Warby's success. And it has since launched its first-ever brand awareness campaign on YouTube, which brings me to YouTube, where our commerce opportunity remains really exciting.

We're making it easier for viewers to buy what they see and simpler for advertisers to drive action with innovative solutions like product, feeds and video action campaigns, and emerging formats like live commerce.

Backcountry.com generated a 12-to-1 return on ad spend with product feeds in 2021 and plans to double its investment in 2022. While Samsung, Walmart, and Verizon, partnered with creators to host shoppable holiday livestream events in the U.S.

As for our brand business, momentum remains strong. We continue to make inroads in unlocking TV brand budgets, and we're still in the early innings of what's possible with Connected TV.

Let's take a minute to double-click into the full funnel trend I talked about last quarter. YouTube's ability to drive both massive reach and action is becoming more clear to more advertisers. In a recent study, DR Advertisers, who added YouTube branding formats not only drove increased reach, but also averaged 9% more conversions. At the same time, we see more brand advertisers adding action, like Nike Korea, which saw higher conversion rates and drove 50% plus incremental reach by adding video action, another huge focus for us is continuing to deliver for our partners and key ecosystems, all while delighting users.

Our expanded partnership with Snap to deliver a first of its kind quick tap to Snap feature is a great example. On Pixel 4A with 5G or newer Pixel phones, users can access Snapchat directly from their lock screen, making Pixel the fastest phone to make a Snap. And then across our Pixel and AR teams, we're working with the NBA to create exciting immersive experiences for fans using 3D and AR technology.

And the lighting doesn't stop there. With Adobe, we are collaborating on a multiyear journey to bring Photoshop, Illustrator and its other flagship products to the web, a testament to the web as a first-class platform for creativity and productivity.

As we close out another extraordinary and challenging year, I want to express deep gratitude to our customers and partners for their trust and collaboration. Our success is only possible because of their success.

I also want to say a gigantic thank you to our product, engineering, partnerships, sales, and many support teams, for their outstanding work and unwavering commitment to helping our users, customers, and partners.

Ruth, over to you.

**Ruth M. Porat** {BIO 2536317 <GO>}

Thank you, Philipp. We are very pleased with our performance in the fourth quarter and for the full year, which reflected broad-based strength in advertiser spend, strong consumer online activity, as well as substantial ongoing revenue growth from Google Cloud.

My comments will be on year-over-year comparisons for the fourth quarter, unless I state otherwise. We will start with results at the Alphabet level, followed by segment results and conclude with our outlook.

For the fourth quarter, our consolidated revenues were \$75.3 billion, up 32% or up 33% in constant currency, rounding out a strong year. Our total cost of revenues was \$33 billion, up 26%, primarily driven by other cost of revenues, which was \$19.6 billion, up 25%.

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The biggest factors here were: first, content acquisition costs, primarily driven by costs for YouTube's advertising-supported content, followed by costs for subscription content; second, hardware costs; and third, costs associated with data centers and other operations, including depreciation, which were offset in part by the impact of the change in useful lives made at the beginning of 2021.

Operating expenses were \$20.5 billion, up 35%. In terms of the three component parts of OpEx: first, the increase in R&D expenses was driven primarily by headcount growth; second, the growth in sales and marketing expenses was driven primarily by increased spending on ads and promo for the 2021 holiday season, in contrast to the sizable pullback in the fourth quarter of 2020; finally, the increase in G&A reflects the impact of charges relating to legal matters as well as charitable contributions.

Operating income was \$21.9 billion, up 40%, and our operating margin was 29%. Other income and expense was \$2.5 billion, which primarily reflects unrealized gains in the value of investments in equity securities. Net income was \$20.6 billion.

We continue to generate strong free cash flow with \$18.6 billion in the quarter and \$67 billion in 2021. We ended the year with \$140 billion in cash and marketable securities. We also repurchased a total of \$50 billion of our shares in 2021.

Well, let me now turn to our segment financial results, starting with our Google Services segment. Total Google Services revenues were \$69.4 billion, up 31%. Google Search and other advertising revenues of \$43.3 billion in the quarter, were up 36% with broad-based strength across our business, led again by strong growth in retail. YouTube advertising revenues of \$8.6 billion were up 25%, reflecting strength in both direct response and brand advertising.

The deceleration in the growth rate versus the third quarter of 2021 was driven primarily by lapping a strong recovery in brand in the fourth quarter of 2020.

Network advertising revenues of \$9.3 billion were up 26%, driven by AdMob. Other revenues were \$8.2 billion, up 22%, driven primarily by growth in hardware, which benefited from the successful launch of the Pixel 6 and Pixel 6 Pro, as well as the addition of Fitbit revenues followed by YouTube non-advertising revenues.

In terms of Google Services cost, TAC was \$13.4 billion, up 28%. Google Services operating income was \$26 billion, up 36%, and the operating margin was 37%.

Turning to the Google Cloud segment. Revenues were \$5.5 billion for the fourth quarter, up 45%. GCP's revenue growth was again greater than Cloud's, and that reflects significant growth in both infrastructure and platform services. Strong revenue growth in Google Workspace was driven by solid growth in both seats and average revenue per seat. Google Cloud had an operating loss of \$890 million.

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As to our Other Bets, for the full year 2021, revenues were \$753 million. The operating loss was \$5.3 billion for the full year 2021 versus an operating loss of \$4.5 billion in 2020.

Let me close with some comments on our outlook. We are nearly two years into a global pandemic that has brought unprecedented change and uncertainty in the macro environment. Throughout these difficult times, Googlers have remained focused on delivering helpful services for users and partners as well as on driving innovation for long-term growth.

In terms of outlook by segment, for Google Services, we are very pleased with our year-on-year revenue growth in Q4, and for the full year 2021, which continued to be driven by broad-based advertiser strength and strong consumer online activity. The year-on-year growth rate also reflected a benefit from lapping COVID-related weakness in 2020, which obviously will not be a factor in 2022.

Within other revenues, we are pleased with the momentum from Pixel 6 and Pixel 6 Pro, reflected in our hardware revenues in the fourth quarter. As a reminder, hardware revenues in 2021 also reflected the acquisition of Fitbit, which we lapped a couple of weeks ago.

With respect to Play, the underlying consumer spend and engagement trends remained healthy in the fourth quarter. That being said, in 2022, Google Play's contribution to revenue growth will reflect the fee changes we started to implement in the third quarter of 2021. In terms of investment levels within Google Services, we are focused investing meaningfully in the many opportunities we see for growth.

Turning to Google Cloud, 2021 represented another year of substantial growth. Our investments in our go-to-market organization, product innovation and partner ecosystem, have been paying off as we help customers with their digital transformation. You can see that Google Cloud revenues increased by 47% for the full year 2021 compared to 2020, with GCP revenues continuing to grow at a faster rate than Cloud overall.

While Cloud operating loss and operating margin improved in 2021, we plan to continue to invest aggressively in Cloud given the sizable market opportunity we see. We do remain focused on the longer-term path to profitability, and over time, operating loss and operating margin should benefit from increased scale.

At the Alphabet level, in the first quarter, based on current spot rates, we expect the foreign exchange impact on reported revenues to be a headwind. With respect to Alphabet headcount, we added nearly 6,500 people in the fourth quarter, and the majority of hires were for technical roles. We continue to attract great talent and expect a strong pace of hiring in 2022 across Alphabet.

Turning to CapEx, the results in the fourth quarter primarily reflect ongoing investment in our technical infrastructure, most notably in servers, to support ongoing growth in both Google Services and Google Cloud. We also increased the pace of investment in fitouts and ground-up construction of office facilities.

In 2022, we expect a meaningful increase in CapEx. In technical infrastructure, servers will again be the largest driver of spend. With respect to office facilities, after fairly muted CapEx over the past two years, we are re-accelerating investment in fitouts and ground-up construction. Recently, you have also seen us pursue real estate acquisitions where they make sense. For example, last month, we announced plans to purchase for \$1 billion of previously leased headquarters building in London. And in the first quarter, we have completed the \$2.1 billion purchase of a New York office building that we announced in the third quarter of 2021.

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

## Questions And Answers

### Operator

(Question And Answer)

Thank you. (Operator Instructions) And our first question comes from the line of Doug Anmuth from JPMorgan. Your line is now open.

### Q - Douglas Anmuth {BIO 5591566 <GO>}

Thanks for taking the questions. One for Sundar and one for Ruth; Sundar, first, just curious to get your view on Web3, just how you're thinking about Alphabet's approach and where your primary efforts here may lie going forward.

And then Ruth, you mentioned the 6,500 increase in headcount. I think, it was the biggest that you've seen in any quarter ever. I know you're catching up on hiring from the last several quarters, but can you just help us understand a little bit more on where these investments are going in tech and how to think about the cost structure in '22? Thanks.

### A - Sundar Pichai {BIO 15004624 <GO>}

Thanks. Look, I'm -- anytime there is innovation, I find it exciting and I think it is something we want to support the best we can. The web has always evolved and it's going to continue to evolve. And as Google, we have benefited tremendously from open source technologies, and so, we do plan to contribute there. There's several areas of interest. AR is a big one at the computing layer. We've been investing there for a long time and we will continue to play a role and it's something both not just at the computing layer, the services layer, be it Maps, YouTube, Google Meet, et cetera, I think, will contribute a lot.

On Web3, we are definitely looking at blockchain and such an interesting and powerful technology with broad applications, so much broader again than any one application. So, as a company, we are looking at how we might contribute to the ecosystem and add value. Just one example, our cloud team is looking at how they can support our customers' needs in building, transacting, storing value, and deploying new products on blockchain based platform. So, we'll definitely be watching the space closely and

supporting it where we can. Overall, I think technology will continue to evolve and innovate and we want to be pro innovation and approach it that way.

**A - Ruth M. Porat** {BIO 2536317 <GO>}

And in terms of the headcount, we do continue to be a magnet for great talent; the number of applications is up year-on-year. And as I said, as you noted, we added almost 6,500 people in the fourth quarter. We do expect the strong pace to continue. And it really goes to comments from Sundar, from Philipp, and from me; we're excited about the opportunities ahead of us. In particular, Google Services, Google Cloud, we're adding. We intend to ensure we have the scale that we need to execute well. And so, we're continuing to hire, as I said, the majority were again in technical roles and really pleased with the opportunities we see ahead.

**Q - Douglas Anmuth** {BIO 5591566 <GO>}

Thank you.

**Operator**

Thank you. Our next question comes from Eric Sheridan from Goldman Sachs. Your line is now open.

**Q - Eric Sheridan** {BIO 22465717 <GO>}

Thanks so much. Maybe two questions if I can. First, following up on Doug's question, Susan has been writing a fair bit on YouTube and the way it's exposed to the creator economy in which trying to build for the medium to long term. Can you talk about elements of the creator economy, and how it sort of fits into your products both on the advertising side and the commerce side over the medium to long term?

And then Ruth, maybe just one follow-up on the expense side; was there anything of a one-time nature in Q4, because just looking at some of the corporate expense or some of the elements of the core margin? Just trying to make sure if there were any one-timers that needed to be called out, because I think you talked about legal and charitable donations as well just so we could model that right. Thank you.

**A - Sundar Pichai** {BIO 15004624 <GO>}

On YouTube, look, one of the -- YouTube from day one, it's been very focused on making sure we can support creators well. It's been a big part and even recently, I mentioned in my remarks earlier about the growth we are seeing not just in ads, but beyond ads with Super Chat, channel memberships and so on. Susan mentioned in her creator letter that they -- while early, they'll be taking a look at NFT and so on with a view towards making sure the user experience works and -- but there is value. We are constantly thinking about how we can support and do more for creators.

So, that's going to be an integral part. I think all the commerce experiences we are thinking about in YouTube is a whole additional layer of opportunity. And again, it's another area, where it all feels very early to me. We are seeing tremendous traction in

YouTube across newer areas, be it podcast, gaming, learning, sports, and so across all these areas, we'll kind of take a vertical specific look and see how we can support creators better.

**A - Ruth M. Porat** {BIO 2536317 <GO>}

And then in terms of expense, I gave a number of the items; R&D was mostly an increase in headcount. In sales and marketing, I would note that sales and marketing was elevated in the fourth quarter by ads and promo in part to support the holiday season and -- more so than last year. The additional items to note that I called out is in the fourth quarter we did have a one-time wellbeing bonus. We also had a year-on-year increase in charitable contributions, including a higher Google Gift Match. And in fact, I would say that it's more helpful in particular on the corporate costs on allocated to think of that line on a trailing 12-month basis, because it can be lumpy to your question.

**Q - Eric Sheridan** {BIO 22465717 <GO>}

Thanks so much.

**Operator**

Thank you. And our next question comes from Brian Nowak from Morgan Stanley. Your line is now open.

**Q - Brian Nowak** {BIO 16819013 <GO>}

Great. Thanks for taking my questions. I've two. Maybe the first one for Philipp; you've made so much progress over the last 12 to 24 months about improving the retail and e-commerce Search product for advertisers. As you look across the other verticals of Search, where are you most excited or see the most opportunity for innovation to really drive more value for advertisers in non-retail verticals as we go into 2022?

And the second question, either Philip or Sundar; you both talked about the commerce shopping opportunity on YouTube. Can you just sort of talk to us a little bit about what aspects are already built out versus what areas of innovation or hurdles you still have to clear to really realize that commerce opportunity on YouTube? Thanks.

**A - Philipp Schindler** {BIO 21014597 <GO>}

Yes. Thank you so much for your question. Look, consumers now have a lot of different ways to access information and more than they've ever had before and Search is just one of them, but we're constantly trying to innovate and improve the experience for both users and advertisers over the long term. And as I've discussed previously, I can share some of the questions. We actually ask ourselves to give you a sense of how we think about the opportunity.

So, the first one obviously, are we the best place users turn when they need information or want to discover and be inspired, so things like queries and discover. And we're focused on providing better and more comprehensive answers to more types of questions and we

need to obviously deliver high-quality relevant info for all types of queries, including ones where they may be looking for specific brand or product, or just look for an inspiration.

And how people search is changing and it needs to become more multimodal and more conversational. So, what does that mean for ads, for example? So, getting user experience right across commercial queries is essential way beyond and obviously the area that you mentioned, and there's a lot of innovation that goes into this.

The second part is really, are we providing the most relevant ads when and where consumers are and we only want to show ads when they're helpful to people. On 80% of the searches, actually we show no top ads and most of the ads that you see are on searches with commercial intent and we're -- for those with commercial interest. The question is really, how do we provide the best answer in a way that's meaningful to users and where advertiser actually have something relevant to offer.

And then the last, the third point is, really the questions around and this goes again for the vertical you mentioned, but for many, many beyond. Are we delivering the most conversions for advertisers at the best ROI? And there's a lot of intelligence in our auction to deliver great ROI for advertisers, but there's always more we can do, and we're delivering or are we delivering the most relevant users by leveraging our users' signals, are we building the best creatives by combining advertisers' assets and ways that make it compelling for user, have we predicted the value of the user for that advertisers so we can help appropriately bid for each search with a unique user and query combinations we need, can we fully measure what users do after they click on ads from buying something to making phone calls to downloading the apps and all across devices. So, those are a lot of different things how we think about the runway ahead.

#### **A - Sundar Pichai** {BIO 15004624 <GO>}

Maybe quickly on YouTube and commerce, look, one thing I would say is, across both Search, YouTube, and other areas, there's a lot of common infrastructure that's getting done, right? So, this is focused on merchants, onboarding merchants and all the back end so that we can have the broadest and the most comprehensive inventory available and there our partnership with other e-commerce platforms is a basic foundational layer we are putting in.

And specifically on YouTube, while pretty early, there's a lot of pilots underway, just we've introduced a creator tagging pilot program so that viewers get a choice to browse, learn, and shop products featured in the favorite videos. Piloted shopping live streams with brands like Walmart and Target and more broadly, including product feeds more globally in video action campaign. So, there's a lot more to do. Super early also on testing how shopping can be integrated with shorts and so, again, early, but I find the opportunity space here pretty broad and it's exciting.

#### **Q - Brian Nowak** {BIO 16819013 <GO>}

Okay. Thank you both.

**Operator**

Thank you. And our next question comes from Justin Post from Bank of America. Your line is now open.

**Q - Justin Post** {BIO 3469195 <GO>}

Great. Thanks. Maybe one for Sundar and one for Ruth; first one Search, very strong growth. Just maybe you can help us understand where you are in kind of the AI cycle of improvements there. There's still a lot of room to go there. You have highlighted in several earnings reports. And second, is there any fundamental reason why Search could be higher growth today than it was pre-pandemic?

And then over to Ruth, Cloud had impressive growth. I'm assuming the infrastructure layer is highest in the sector and it grew \$500 million plus quarter-over-quarter, but margins did come down. And so, just kind of understanding, what drove that and then what it's going to take to really show a good leverage there? Thank you.

**A - Sundar Pichai** {BIO 15004624 <GO>}

On the first part, we obviously are investing deeply in AI R&D across both Google AI and DeepMind and so -- and then we take that and apply it across the company, but particularly in the context of Search. And so, that's what underlies Bird, MUM, Pathways, and LaMDA to power conversational experiences. And so, I -- when I look at the tip of tree about -- as to where the research on the AI side is progressing, it's progressing at an incredibly rapid pace. We're committed to leading there and then we have real good interfaces between the AI teams and our core product area teams including Search to kind of productize this.

So, primarily, I think you're going to continue to see us lead in search quality. I just find -- the world of information is only continuing to grow and it's getting increasingly multimodal in nature. Just like we took the lead from text to images, thinking through video, audio, incorporating it and then providing it back to users regardless of whether they are typing, speaking or looking at something wanting an answer. That's the journey between AI and Search and we will continue doing that.

**A - Ruth M. Porat** {BIO 2536317 <GO>}

And in terms of Cloud, if we step back to the comments that both Sundar and I made, overall we're very pleased with the ongoing progress in the business and that's reflected in the revenue growth, as you noted our backlog, the breadth of customer wins, the industry verticals. Our view is that we're in an extraordinary time to help customers digitally transform their businesses. And the key thing is, we believe it remains very early innings.

So, as a result, our focus remains on revenue growth and investing as needed as we're looking over the long term. We're continuing to invest aggressively and it's in our go-to-market capabilities. It's our products. It's our infrastructure. We do remain focused on the longer-term path to profitability, but we are continuing to invest here as we're seeing early innings and pleased with the ongoing progress.

**Q - Justin Post** {BIO 3469195 <GO>}

Thank you.

**Operator**

Thank you. And our next question comes from Mark Mahaney from Evercore ISI. Your line is now open.

**Q - Mark Mahaney** {BIO 3027058 <GO>}

Okay. I'll try two questions. I just want to follow up on Justin's question about Search going faster than pre-pandemic. I think Philipp, you talked about a couple of areas within Search and retail is at the front of the list and I think you mentioned a few other categories. Travel was always a big category. Do you feel like travel has come back full or is it -- travel is still sort of underperforming for macro reasons versus where it was pre-COVID?

And then Ruth, the -- just on the share repurchases, I think that was a record level in the quarter. How should we think about these share repurchases going forward? To what extent is it opportunistic versus, I don't know, systematic or systemic way you think about returning cash to shareholders as every year your free cash flow rises? Thank you.

**A - Philipp Schindler** {BIO 21014597 <GO>}

Yes. Thank you.

Look, I said earlier that travel was a contributor to our year-on-year ads growth in Q4 and we were encouraged by the performance we saw throughout much of the quarter, but we found that user behavior tends to reflect what's going on in the world. And demand really continues to vary and based on location and type of activity, and this has been more pronounced in light of Omicron.

We've seen changes in travelers' search behavior. As preferences have evolved, searches for outdoor destinations like beaches, parks, and camping have increased while searches for museums, for example, have declined. Overall, I think it's fair to say that travel has generally been sensitive to outbreaks and that there's still unevenness that makes it too soon to say what trends are here to stay and which pre-pandemic habits are coming back.

That said, as people think about where they want to go next, they're coming to us to help them navigate a patchwork of information. In fact, from the end of August to the end of October, searches for travel rules were up over six times globally year-over-year, and we've launched a ton of new features to make it easier for people to understand changing travel restrictions and requirements.

And similarly for travel partners, we've pivoted our product strategy in big ways to help whether it's with flight demand explore and travel insights to help partners predict demand over making it free for hotel and travel companies, and now tour and activity operators to list their booking links. And I'm sure you also saw our big sustainability news in October, new info on CO2 and Google Flights, eco-friendly hotels, new eco-friendly

routes and maps. So, lots of important work is being done here actually to help our users and businesses drive a more sustainable choices and just overall help our travel partners and the industry at large.

**A - Ruth M. Porat** {BIO 2536317 <GO>}

In terms of the share repurchase, as we've talked about on prior calls, we do view the share repurchase program as valuable and are pleased that we were able to increase the authorization to \$50 billion last year. You've seen that we've increased the pace quite a bit over the last several years from \$18 billion back in 2019 to \$50 billion, as I said, for the full year 2021 and are just continuing to execute against it. We do have additional capacity under the existing authorization and just are continuing to execute against it, view it as incremental incrementally valuable.

**Q - Mark Mahaney** {BIO 3027058 <GO>}

Okay. Thank you.

**Operator**

Thank you. And our next question comes from Michael Nathanson from MoffettNathanson. Your line is now open.

**Q - Michael Nathanson** {BIO 2009061 <GO>}

Thanks. I have a couple, Sundar and Philipp. Sundar, I am just interested in the decision you announced last week to move away from federated learning and go to topics. So, if you could talk a bit about the reason or rationale why you're making that change. And when FLoC first announced, it was tattered to be very effective relative to cookies as a signal for advertisers. Where do you think it's going to impact as you go away from cookies to topics on -- ads and budgets?

And then Philipp, I think during the pandemic, one of the big growth spurts has definitely been Connected TV. Can you talk a bit about what YouTube is seen with Connected TV and how important of a driver is that and then as hopefully we get back to normal, what are you doing on product side to make YouTube on CTV even more engaging as time goes on? Thanks.

**A - Philipp Schindler** {BIO 21014597 <GO>}

So, I can take the one for Sundar.

So, the Chrome team has been really focused and working independently on Privacy Sandbox, which you all know is our initiative to build privacy-preserving on device technologies that will power the future of digital advertising, and obviously as a result of free and open web. And just last week, we announced our news Privacy Sandbox proposal called topics. And topics was informed by our own learnings plus the widespread, let me call, the community feedback from our earlier FLoC trials and will now actually replace a FLoC proposal.



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I urge you all to read last week's blog for the details, but basically the topics API will allow advertisers to show relevant ads to people based on their interests inferred from the websites they visit all in a more private way for users. And from an advertiser perspective, which is a big part of your question, it's obviously way too early to share more, because we're just opening this up to the world. We expect to make it available for testing by the end of Q1, but we're really focused on designing for both parties from an advertiser and a privacy point of view and are committed to making sure goals are met on both sides.

On the second one, the Connected TV opportunity, streaming in the living room has exploded. We've seen it firsthand. Connected TV is our fastest growing screen and we think there's a ton of runway ahead. Brands are getting the best of all worlds, the precision of digital with the scale of linear and a lot more relevance. They can personalize ads at scale and use video ad sequencing to tell powerful stories. And we've recently added action to the mix. Video action campaigns were upgraded in October to automatically include CTV inventory, which means user get a more helpful viewing experience and brands get to drive for more online sales and/or leads.

And just think about it like the traditional TV screen, "dead screen" that viewers have essentially stared at for decades, is now starting to come alive with the ability to drive conversions and it's pretty cool. Measurement is also obviously a key component to success here and we want to make sure that advertisers can fully measure their YouTube, CTV, video investments across YouTube and YouTube TV for an accurate view of true incremental reach and frequency and so on. And the U.S. advertisers actually can do this now via Comscore and Nielsen. So, all-in-all, we are excited by the opportunities ahead with Connected TV. I think we're just getting started.

**Q - Michael Nathanson** {BIO 2009061 <GO>}

Thank you.

**Operator**

Thank you. And our next question comes from Brent Thill from Jefferies. Your line is now open.

**Q - Brent Thill** {BIO 1556691 <GO>}

Ruth, it sounds like there was a good Q4 ad flush, the concept have expanded, if you got it. And I'm just curious about seasonality this year, and if you expect the year to be more back end loaded or do you feel like it's a little more balanced as we go through this year.

**A - Ruth M. Porat** {BIO 2536317 <GO>}

So, overall, we did see strength as we're going through the year, as I indicated. There was a broad-based advertiser strength. There was strong consumer online activity. And those were really the primary drivers. I think, the one place that comments might be more relevant is really an understanding the year-on-year within YouTube relative to last year, where there was strength. This year relative to -- there was real strength this year. But what we saw last year was more in line with, I think, your question, which was after a weak beginning of the year, a very strong fourth quarter last year. We were lapping that very

strong quarter last year. And so that explains some of the year-on-year growth comparisons, but overall the key driver was the backdrop of broad-based advertiser support and spending.

**Q - Brent Thill** {BIO 1556691 <GO>}

Thanks.

**Operator**

Thank you. And our next question comes from Dan Salmon from BMO Capital Markets. Your line is now open.

**Q - Daniel Salmon** {BIO 16010491 <GO>}

Great. Good afternoon, everyone. I have two questions for Sundar. First of all, you mentioned that investment in artificial intelligence has helped the ad business significantly. What are the two to three ways that you think AI has helped your advertisers and thus your ad revenue growth the most?

And then second, we've seen a variety of new bills introduced in the U.S. Congress recently that seemed to take in squarely at large technology companies, like Alphabet. What do you think that these bills have right and what do you think that they have wrong? Thank you.

**A - Sundar Pichai** {BIO 15004624 <GO>}

So, two things. On the -- on AI in advertising, after answering the second part, pass it to Philipp to give more details. But definitely again, the overarching thing is the same AI advancements, we want to make it simpler for advertisers to run campaigns and there's a lot that goes behind it to drive that simplicity and Philip can give a bit more details there.

On your question about congressional antitrust bills, as a company we have always been constructive in how we have approached and we are open to sensible updated regulations, it's important that technology is beneficial to society and so, for example, there are many areas, where there is widespread agreement, we call for privacy regulations, particularly at the federal level, updating protections for children, and so on.

On some of the current proposals, they quite don't address those issues. There are areas, where we are genuinely concerned that they could break a wide range of popular services we offer to our users, all the work we do to make them -- make our product safe, private, secure, et cetera, and in some cases can hurt American competitiveness by disadvantaging solely U.S. companies. So, broadly, when we think about building many features, do we have to think on each feature, we shipped 3,000 features in Search alone every year. How do we make sure that complies with all the regulation? Where do we proactively need approvals and so on? So, those all can have unintended consequences. We're very worried about the impact on small business and local retailers as well as their customers as well.

Having said that, we are committed to approaching it constructively. We always want to engage and do things in a way that's beneficial for society. And we have urged Congress to take time to consider the unintended consequences, and I think we will remain focused on building great products for our users.

**A - Philipp Schindler** {BIO 21014597 <GO>}

So, back to the first question you ask on AI and the impact on our ads products, we cover - Performance Max, we talked about it, we talked about Insights page. In Search, I would say, we see an emergence of a real, let's call it, better together story fueled by machine learning and automation. Advertisers are leaning more into automation using responsive search ads to create and select the best performing creatives, matching with more relevant search queries, using broad match keywords, setting optimized bids with auction time signals via Smart Bidding. So, those are a few examples.

We're using more AI to help advertisers measure their results and bid intelligently with data-driven attribution, for example, which uses very advanced ML to more accurately understand how each marketing touch point actually contributed to a conversion, obviously, while respecting user privacies. Broad match keywords are big part of this. We have responsive ads on display and discovery. They use text image and video assets from advertisers and predict the best combination of assets to show in any size or format on Google Properties or the Display Network. Yes. So, I think AI and ML will only get better and so will our tools and we're helping advertisers lean into automation and identify new opportunities as a central part really of the recovery and growth strategies.

**Q - Daniel Salmon** {BIO 16010491 <GO>}

That is more than two to three. So, thank you, Philipp, for that; and thank you, Sundar, for your comments as well.

**Operator**

Thank you. And our final question comes from the line of Stephen Ju from Credit Suisse. Your line is now open.

**Q - Stephen Ju** {BIO 6658298 <GO>}

Okay. Thank you so much. I'll stick to one. So, zooming out a little bit on the big picture, Sundar, I think it was almost four years ago when Google released a blog post about the next billion users and how developing products for India and other emerging markets will hopefully inform what you should be doing everywhere else. So, I think you have previously talked about Tez being a pretty notable example there. So, can you talk about whether we should continue to be looking overseas to think about what direction you might take across your various products and services? Thanks.

**A - Sundar Pichai** {BIO 15004624 <GO>}

Thanks, Steve, and great question. And I think that trend is going to continue. You mentioned obviously payments and definitely it's informed our payment strategy globally. In general, we are trying to think deeper about these newer markets both -- it really lines up with our mission of building a more equitable Internet for everyone.

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Couple of the things we've done recently if you -- a year ago, we announced a \$10 billion Google for India Digitization Fund, and a -- it's a reflection of our confidence in the future of India, its digital economy, our desire to build products there, which we think will help us globally. And last year in October 2021, we announced a plan to invest \$1 billion in Africa. Again, with the goal of supporting entrepreneurs, helping businesses with their digital transformation and beginning to build products in Africa for African users, which I think will help us take learnings outside.

I already see it. When I look at YouTube in India, some of the commerce ideas we talked about earlier, you may see us first ride in India first, because we can get quicker feedback, very dynamic youthful population. And so, we'll do it there and then roll it out globally. So, we are constantly looking for opportunities like that.

**Q - Stephen Ju** {BIO 6658298 <GO>}

Thank you.

**Operator**

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

**A - Jim Friedland** {BIO 22252778 <GO>}

Thanks, everyone, for joining us today. We look forward to speaking with you again on our first quarter 2022 call. Thank you and have a good evening.

**Operator**

Thank you. This concludes today's conference call. Thank you for participating. And you may now disconnect.

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