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**Philipp Schindler, Senior Vice President and Chief Business Officer of Google at the Morgan Stanley Technology, Media and Telecom Conference on March 6, 2024**

**Brian Nowak (Morgan Stanley):** Good afternoon, everyone. We're thrilled to have our next afternoon discussion today with Alphabet, and we have Philipp Schindler, the Senior Vice President and Chief Business Officer at Alphabet with us today. Good to see you, Philipp.

**Philipp Schindler, SVP and CBO, Google:** Yeah, thank you for having me here. Appreciate it.

**Brian Nowak (Morgan Stanley):** Thanks for joining us. We were talking backstage. I think the last time you were here was pre-pandemic in 2019.

**Philipp Schindler, SVP and CBO, Google:** Yeah. You remember.

**Brian Nowak (Morgan Stanley):** There's been a lot that's changed in the world. A lot that's changed at Alphabet again. It's good to see you again.

**Philipp Schindler, SVP and CBO, Google:** Yeah, thank you.

**Brian Nowak (Morgan Stanley):** Let's do the disclosures. Those do not change.

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Okay. We've got a lot to talk about. Maybe let's start with 2024 first. A big picture 2024 question about, number one, your and the team's top priorities for 2024, and sort of what you are focused on, driving the teams from a user offering perspective and an advertising offering perspective.

**Philipp Schindler, SVP and CBO, Google:** Yeah. So, first, maybe the easiest way to do it is just roughly to start with a description of my role, because that obviously determines what we

drive here. I run the largest horizontal across Google. I'm taking care of probably four big pillars across the company, except for the Cloud part of the business.

The first big pillar is everything that has to do with our monetization, trying to make sure we're making our customers successful, which obviously includes our Ad Sales teams, our Go to Market teams, so that's pillar number one. A lot of focus on this one, obviously.

The second one is, all of our services, technical services, consumer services, publishers, advertisers, and so on. That's a very important part of our business as well.

The third big pillar is the whole world of partnerships, business development, M&A, everything around this, across the company, cross-functional, very exciting part.

And then the last one is our country operations. Most of the non-engineering teams across the company sits in my world, so that's also a very big part.

My biggest area of focus is obviously making our customers and partners successful, maximizing their growth, which then in turn basically helps us grow and create sustainable financial value. So that's what I wake up thinking about. That's what I go to bed thinking about. That's what I probably dream about. That's 150,000% my focus.

**Brian Nowak (Morgan Stanley):** Got it. Okay.

Well, let's talk about Gemini. Sort of some of the near-term issues that I think are on probably a lot of people's minds in this room. Talk to us about sort of what drove some of the challenges around bias and the unfortunate errors that occurred?

What steps have you put in place to sort of prevent future errors of that size, and how do we think about innovation from here?

**Philipp Schindler, SVP and CBO, Google:** Yeah. Look, you're talking about the bias that some of our models on the image side and on the text side have shown, and we publicly said this is obviously completely unacceptable. And the teams have really been working around the clock to fix this, and we're seeing substantial progress already. We're doing also a very, very deep postmortem to truly understand all the different nuances of this.

Sundar has been very clear in saying that we're driving very, very active changes, and will be driving very active changes from this. It could be structural changes. It could be changes in how we think about product launch guidelines, product launch processes, eval processes, red teaming, and so on and so on. So, a very, very deep analysis going on of this incident.

The reality, though, and that's important to keep in mind, is we know how to launch great products. We know how to build great products. And if you think about the expertise that we have, not only on the product side, but also on the technical infrastructure side, if you think about the expertise that we have on the research side, we have two of the greatest research teams in the world that we a while ago combined into one under Demis's leadership, and they're a full part of our company.

I'm 100% convinced that really the best of AI is yet to come. Very exciting times ahead.

**Brian Nowak (Morgan Stanley):** Okay. Well, your point that you have the muscle to develop products, you have the muscle to launch products. One of the perceptions externally is that to a certain extent, Alphabet is moving too slowly when it comes to GenAI. Number one, I'd love to hear your rebuttal to that. And how should we think about sort of the tradeoffs in how you're thinking about it philosophically between maximizing the consumer utility of a product before really rolling it out to be first or earlier to market?

**Philipp Schindler, SVP and CBO, Google:** Look, we've been the leader in AI for many, many years, and we have made a very conscious decision to not rush the launch of a chatbot. If you look at our size, if you look at our scale, if you look at billions of users that rely on us, that was a very, very conscious decision we made.

You look at how we have increased our innovation rate, or just look at the innovations that we've launched since, let's say, last December. You look at all the different -- the family of Gemini -- really breakthrough multimodal models. You look at how we upgraded Bard, now called Gemini, with our 1.0 Ultra model. A very capable model. You look at what we've done -- and again, this is all in the last few months. You look at our lightweight open source Gemma models we just announced. You look at our Gemini 1.5 Pro model with a breakthrough in the long context window, and I'm not sure how much attention you've all really paid to this, but if you really start working with a long context window of like a million tokens, which is a significant factor X versus anything that has ever been out there, and I think in the labs we've even taken it to 10 million tokens.

It is completely stunning in terms of the video input, the large data input, multiple books, whatever you want to feed in there. It is really a fundamental breakthrough that you're seeing.

But going to your question, in some areas, for example, on the Search side, you look at some of the SGE launches, we're running them more in an experimental state. That's why we launched them as part of Search experiments and not fully out to the world yet, because obviously it touches our core product Search, and that's why we want to make sure really, really sure that we have something that every user finds helpful, is trustworthy, and delivers on this super highest quality level that people actually expect from something like our core product Search.

**Brian Nowak (Morgan Stanley):** Now, the advances with Gemini 1.5 on the context window, the way you're training it, it's significantly larger than what you see with some of the other models. So, I guess the -- and your point on integrating it more into Search, one of the other questions I often get it is about the innovator's dilemma of when will these bigger models be put into Search, and could Search change?

So, how do you think about all these models and applications in these models changing the underlying Search product and Alphabet's need or willingness to sort of disrupt themselves at a faster rate?

**Philipp Schindler, SVP and CBO, Google:** Yeah, look, it's a very good question. We had concerns about Search for a very long time. This is not something -- remember, if you go back, you think about the concerns about mobile apps. You think about the concerns around social search. You think about the concerns around e-commerce sites. Those were all very serious concerns at the time. And I think we've done pretty well since then.

But one of the reasons why we have done well is because we take those concerns actually seriously. Like, we take them seriously. We look at it very, very closely.

The one thing that we have learned over the years is that there is not one single way that people actually are looking for information. That's a very, very important point. There's different use cases. There's very different user behaviors. And if you take a look, for example, at the core Search product, Search is very much about information retrieval. Search is very much about factuality. It's very much about freshness. It's very much about accessing the diversity of the web directly.

And we fundamentally believe that all of this can be dramatically enhanced with new features of AI or Generative AI, and we see some of this already in our current experiments on SGE where we're getting very positive user feedback, as we mentioned before.

You look at another approach, so not the Search approach, but you look at something like a more chat style interface, it seems to be more centered at the moment around use cases such as creation, ideation, coding, and obviously, we can see a world emerging with the technology developing where there's more and different use cases that can be met by those type of interfaces.

But the reality is, that's where we are today, and what's interesting about it is that GenAI overall actually provides a really interesting opportunity for growth, because we can actually expand the type of use cases that we can serve. Obviously, we can serve existing use cases better, but we can also significantly expand the type of use cases.

And we're seeing some of those emerging already. You look at SGE and some of the early feedback on SGE. We know that users find it more helpful, for example, for more complex queries, for longer queries. Think about more comparison type of queries. We see that users find it very helpful for queries that require deeper insights. Sometimes you see those in the education sector.

So, really interesting developments. And also, keep in mind, we have gone through our fair share of platform shifts before, and we actually know how to manage them, I think.

**Brian Nowak (Morgan Stanley):** All right. And to your point, when you and I were catching up backstage about how near-term narratives on Wall Street can drive share prices and drive multiples and things like this. But I think one of the challenges that we have externally is we don't really have great data of what's going on with user behavior in Search. There are third party data that we have that it doesn't look like there's any real change in query or change in share of Search, but third party data can be bad.

So, let me ask you, when you sort of analyze the internal data around Search behavior, Search queries, user behavior, have you seen any significant changes in user behavior, negative impacts on the metrics that you watch internally over the last year?

**Philipp Schindler, SVP and CBO, Google:** So, let's be very clear. We're seeing positive Search query growth in all of our major markets, and this has been consistent over the last 12 months. Let's say, going back all the way to the end of February of this year, actually, rolling back 12 months.

What's also really interesting to see, and you might have heard this metric before, that roughly 15% of all queries we see every day are new. We've never seen them before. And it's actually not that easy to get freshness right. And it's probably a testament to all the investment into Search and the infrastructure and the incredible talent that we have there, that we're actually delivering quite impressive results here. So those are all important points.

Keep in mind, Search is so much more than just ten blue links or simply a chatbot. If you look at all the innovation that has gone into Search, just in the recent years, you look at -- let's start with maybe the BERT innovation in 2019, the BERT model. Then followed by the MUM models, I think that was in 2021 roughly going back.

And then you look at how we have really improved the way people can interact with Search in a much more multimodal way. Even pretty recently, you look at something like Lens, which has billions of searches a month at the moment. Really quite impressive, I feel.

You look at the ability to actually now question Lens. We introduced this with Multisearch where you can actually go and take a picture, and then you can ask a question about the picture, and GenAI will give you a very, very good answer back to this.

You look at what we have introduced with, let's say, Circle to Search. I'm not sure if you're on Android or you've used this already, where you can basically on any app, any picture, whatever you look at, you can just take your finger and circle it, and then you search for it, and then you can also invoke the Multisearch and ask questions about it with very high quality answers.

So there's a lot of really exciting things happening there. And we'll just continue to take Search as a product to the next level with all those new technologies that we have at our hands now.

**Brian Nowak (Morgan Stanley):** That's exciting. I guess it's still in Labs. That SGE is still in Labs. And so, when you look at what you're seeing internally, what are the KPI constraints you're monitoring to determine when to roll out broader? Is it a technological constraint? Is it an accuracy constraint? What are sort of what you monitor to determine now a product is ready to go out to two billion people?

**Philipp Schindler, SVP and CBO, Google:** Yeah. The bar for Search is very, very high, and we think that Labs is actually an incredible testing ground for some of the new features and functionalities that we're working on. I think we talked about it in our Q4 call on the SGE side. We're seeing very, very positive momentum here. We get positive user feedback. We have -- I think we have it live now in roughly 120+ markets, seven different languages. We see rapid uptake in new markets where we launch it. We see a lot of traction in the young user group. So, a lot of positive developments here.

The next step will be we will be scaling Labs even more, because again, we believe this is a really good testing environment to find out what users are truly finding helpful, what they appreciate, what type of queries, what type of use cases are really relevant. And then obviously, you can foresee a future where we'll take this into a broader Search rollout, so stay tuned on this one.

**Brian Nowak (Morgan Stanley):** Got it. Okay. So feel good about engagement, and we'll stay tuned on the further rollout.

Another consistent concern and I think debate is about the long-term monetization of Search in the new world. You know, I think your point on ten blue links versus two answers or one answer, there is this perception from a lot of people that Search isn't likely to monetize as high on a per query or per user basis four years from now, say, than it has the last ten years.

How do you think about the puts and takes on Search monetization the next five years? Does it

sort of change the user experience and more SGE?

**Philipp Schindler, SVP and CBO, Google:** Look, usually when you have a UX change of that magnitude, you create actually additional advertising opportunities. Just think about -- you remember desktop to mobile transition where we had a very similar -- not perfectly similar, but quite similar situation.

I'd say the good news here is we have basically started to experiment with the simplest of all integrations. We're basically running ads above or below the SGE experience. That's a very simple baseline. And from what we've seen from those experiments is that already users are finding these useful.

So I think that's actually a very good starting point, if you think about this. And now imagine the opportunity you have, if you actually take this to the next level. Imagine now where you take -- maybe even GenAI-based ads directly in a very native integration into your GenAI answers. So, I can absolutely see a world where we create significant consumer and advertiser value here over time, and maybe ads at one point become, let's call them more maybe commercial experiences along those lines.

And by the way, even if your answer -- I know that's often a concern -- is a very precise, very good single answer, there's always room for user choice. There's always room for an additional offering. So actually, in an interesting way, it gives the baseline that we have, and the numbers we're seeing already, I'm actually quite excited where we can take this.

**Brian Nowak (Morgan Stanley):** It seems like to your point on the user experience, utility and the choice go up, you could actually see conversion go up, and ultimately, you have more and more transactions going across the platform and the ad dollars follow. That could be a way. That's one way. Maybe that's a way to think about advertising.

So I know you've talked about on the public calls sort of using AI and Generative AI across the Ads business, across subscriptions, even across on YouTube and Cloud. So maybe, let's sort of step back and look at the core Ads business as it is now. Give us some examples where you've seen the most positive impact to business from machine learning and maybe early Generative AI to the Ads business now and what it's done to ads spend per advertiser or advertiser growth.

**Philipp Schindler, SVP and CBO, Google:** Yeah. Look, we have used AI in our core ads systems I think for probably roughly a decade now. You might remember app campaigns, Smart Bidding were probably the first use cases of this.

We talked in our last call -- in the Q4 call, we talked about the momentum we're seeing on

PMax, the momentum we're seeing on Demand Gen. Also, an interesting metric, roughly, or a little bit over 80% of all of our advertisers are using at least one AI-powered Search solution, which tells you there's a lot of acceptance for those type of solutions. But it also tells you there's still a lot of opportunity left here.

And now we're actually using the Gemini models, and we introduced them in PMax, so you can see the advancement on the, let's say, keyword targeting side already. You can see what we can do to text and further asset creation. Really interesting. You can see how we improve the conversational experiments, for example, or experience, to be precise, for Google Ads. On the YouTube side, you see how we're improving video solutions. You can see how we're improving measurement solutions.

So a lot of really, really interesting applications in the current ads environment already of the AI technology. Again, we've been using this for a long time.

**Brian Nowak (Morgan Stanley):** On the creative front, both from an advertiser perspective, so, you know, enabling advertisers to make many different types of ads, or even video ads, where are you in that now, and sort of how do we think about those products becoming a bigger part of the PMax suite of tools?

**Philipp Schindler, SVP and CBO, Google:** Yeah. If I look at the future of where we're taking some of our advertising models here, I look at it across the whole advertising value chain, right? And you have obviously the bidding side, which we can significantly improve. We have the targeting and measurements side, and especially in a more privacy-sensitive world, I think AI is actually going to be the solution to some of those challenges in this world.

And then, obviously, we have the big part that you just mentioned, which is the creative optimization. And I'm actually quite excited. I'm actually very excited about this one, because if you look at the capabilities of the models, and where the next generation of multimodal and image generation models and video generation models is going, and then you imagine the world where you connect those models and you train those models on true performance data, think about a world where you train them on conversion data, or LTVs at one point, whatever you want to pick, you can truly see a creative revolution coming our way that is quite fascinating.

I actually also think we will see more physical world use cases that we can take care of better with Generative AI and different AI type solutions. We see this already today, where we have, for example, apparel try-on simulation, where we have makeup simulations, where you can take furniture and decor and project it into your house, so there's a lot of interesting areas. So, yeah, I'm quite excited about that part.



**Brian Nowak (Morgan Stanley):** I read a lot about how we think the value of data and large unique corpuses of data is going to be higher than ever because of Generative AI. Just one of our house views.

You guys have a lot of data. And I guess my question is, so we take Gemini 1.5, which has a much bigger context window, to your point, than we've seen before. You can put all the YouTube information in there and all the data you have in there. How do you think about using those two pieces together to actually enable creators and people to create even more content for YouTube, drive more engagement on YouTube, more engagement? How far along are you on that journey?

**Philipp Schindler, SVP and CBO, Google:** Look, the Generative AI opportunity on YouTube is a significant one, no doubt about it. Keep in mind, just looking a little bit back at history, we have used AI in YouTube for a very long time. The recommendation engine that's built on it, lots of our Trust & Safety efforts to protect users is based on this. So, yes, I'm excited about it because there's the advertising component, which is a big part. I think I covered this in terms of where creativity can go.

The most important thing to understand about YouTube is that YouTube is really centered around the creator, and we're trying everything to make the creator successful.

If you look at some of the products we've already launched, you look at Dream Screen, where with GenAI, you can change the background of the screen. You look at Dream Track, that helps you on the music creation side. We have some products that help you actually find your target audience better, that help you with insight generation. If you're a creator, they will actually give you inspiration. We have new conversational interfaces for users. But, of course, what I just said about the world of ads, and about creativity in ads, again, you look at the development and the cutting edge of video models and where the future of video models will go, and you imagine a world where you give creators access to those types of capabilities. I think it's a good place and a good moment in time to be a YouTube creator.

**Brian Nowak (Morgan Stanley):** These video models have been interesting, because this is an area that I think has progressed faster than we thought over the course of the last 12 months. One of the other large language model developers recently put out a pretty interesting text-to-video product. I'm sure you're aware of it.

But I guess, if we all get excited about new video that can be created for advertisers and for creators, what is sort of the -- what's the constraint that sort of holds back how quickly that becomes able to be pushed across hundreds of millions of creators or advertisers?

**Philipp Schindler, SVP and CBO, Google:** Well, you need to make sure, first of all, that you

have those models working on a certain precision level. You need to make sure you have the Trust & Safety elements under control. You need to make sure that they're easy to use for creators. You need to make sure you can serve them in the way that is obviously efficient, and I think those are some of the constraints. But I can see those as solvable.

**Brian Nowak (Morgan Stanley):** Great, for solving them.

All right. So then let's talk about other ways you use AI and GenAI maybe on GCP and Google Cloud. You've really -- for years, the Cloud business has been talking about how they're ahead in GenAI. Have a lot of competitors, at least that's what a lot of our checks tell us, at least from our perspective.

How is that resonating now with new and existing GCP customers, and how do you think about the GenAI tools continuing to expand for Cloud to maybe grow faster than you would have 12 months ago even?

**Philipp Schindler, SVP and CBO, Google:** Look, the Cloud opportunity is a very exciting opportunity. Part of my job is to talk to CEOs all the time. It's one of the best parts of my job, frankly. And it is fascinating. There's not a single CEO, a senior CXO leader that you talk to that is not interested in the AI transformation. So this is a very significant opportunity.

And on the Cloud side, I think we have found a very good path of how we can monetize this and how we can look at this. We have basically three big areas that's probably worthwhile calling out. On one side, you have the whole infrastructure side where we supply highly AI optimized infrastructure, based on GPUs and our beloved TPUs, obviously number one.

We have the whole platform layer, we call it Vertex AI, where we offer first party models and third party models and open source models, and where we offer solution and development tools so everybody can develop their own AI applications, so a really exciting area as well.

And then we have the application part of our Cloud business, which is basically -- probably best described as split into two. On one hand, you have the Gemini and Workspace opportunity here. And just think about what we can do with Gmail and Docs and Calendar integration in a very smart and sophisticated way. So, that's a good area to watch.

And then a second one is obviously the Gemini and GCP integration where we're providing smart assistance to basically whoever you are. If you're a data analyst, if you're a developer, if you're a security professional, you will get the best smart assistants that you can imagine, based on our AI technology via our Google Cloud business. So, I think that's a pretty holistic description of where we see the opportunities here, and yeah, I'm excited about it.

**Brian Nowak (Morgan Stanley):** And of those three areas, I know this is not a two-year cycle, this is a ten-year cycle, 15, 20-year cycle, maybe talk to us -- when the Cloud team does have discussions with enterprises about GenAI, how would you describe '24 adoption, and what is sort of gaining some early traction, versus more being pushed to 2025 in terms of a GenAI investment?

**Philipp Schindler, SVP and CBO, Google:** Are you saying in terms of the three different areas I just described?

**Brian Nowak (Morgan Stanley):** For enterprises who are using Google Cloud, where are you seeing the most traction on the GenAI side, as opposed to sort of more pushing to 2025 for enterprises using the tools?

**Philipp Schindler, SVP and CBO, Google:** Look, you have to say we see significant traction across all of those three areas at the moment. When I engage -- look, CEOs and customers are really starting with a thought of -- how can I fundamentally transform my business? That is the key question. It's not so much they're saying, I want this part of AI, or I want this part of AI. They really start with a solution-centric approach.

I have the following three business challenges that I want to have solved. Please, Google team, can you help me solve those business challenges. And then we, with our understanding of technology, pair with them with their understanding of their own business, and then we try to develop the solutions together, and they can cut across all the different areas. They sometimes cut across our advertising solutions as well. We're very closely working together on the Go to Market side between my world, the GBO world, the business organization on the Google side, and Thomas Kurian's work on the Cloud side. We have a very, very close, very collaborative partnership here.

But the discussions are really covering it from a solution -- help me transform my business -- type perspective.

**Brian Nowak (Morgan Stanley):** Let me ask you a couple more about YouTube. First on the Ads, and sort of the Connected TV side. I think it's interesting, in recent calls, you've talked about real momentum on Shorts, and even Shorts being consumed on the big screen in Connected TV.

Can you give us an update on what you're seeing on incremental time spent when it comes to Shorts? And where are you on the journey of monetizing Shorts at a similar rate to the other YouTube surfaces?

**Philipp Schindler, SVP and CBO, Google:** So, we mentioned before, we're happy with the

progress we're seeing on the Shorts watch time side. We're also actually happy with the progress we're seeing on the Shorts monetization side. And keep in mind maybe going back to the overall usage we have, two billion logged in users monthly at the moment on the Shorts side. I think, if I recall correctly, we have 70 billion daily views. So pretty significant, very significant metric, actually.

So, yeah, that's where we are on the Shorts side at this moment in time.

**Brian Nowak (Morgan Stanley):** Okay. Let's talk Subscriptions. You gave us some new color on subscription revenue. The 4Q call, \$15 billion of subscription revenue in 2023. Pretty big component of that is related to YouTube. As you sort of think about next drivers of subscription revenue, what types of incremental utility or consumer offering do you see that could drive even more subscription adoption across the two billion users?

**Philipp Schindler, SVP and CBO, Google:** Yeah. Look, we're in a good place because with our Google One subscription offerings, and we've announced that we have over 100 million users on this, we have the infrastructure, we have the understanding of how to run a subscription model at scale outside of what you mentioned the YouTube Premium and Music Subscription side.

So, very interesting offering that we just launched is Gemini Advanced. \$19.99 a month. Highly recommend you all subscribe to it. I think you will -- after less than one hour of usage, you will have the productivity already pay for it that you will gain from it. Very compelling offer. And the user feedback we're receiving on this one is positive. From what we can see so far, we're actually very confident about the outlook on this side.

**Brian Nowak (Morgan Stanley):** Okay. The other part of the discussion over the course of the last year or so has been around the Opex base and pretty consistent commentary from you and the management team about durably reengineering the Opex base. There's been some areas where you've had some headcount costs -- reductions. I know we've talked about the engineering team being more efficient because of assisted coding.

Can you just give us some more tangible examples of things that have changed at Alphabet from a budgeting and an asset allocation perspective to sort of durably reengineer this Opex base and expand margins?

**Philipp Schindler, SVP and CBO, Google:** Yeah. Look, Sundar and Ruth have said multiple times publicly, we're very actively and durably reengineering our cost base. We try to become more efficient. We try to increase our velocity significantly. And I can tell, from working in that management team, this is a very, very high priority.

I think the area that I'm probably the most competent talking about is what we do in my world, in this area, and I can tell you we have had a very, very rigorous planning process every single year for many, many years. We look at it usually in three different buckets. We call it invest, optimize, and deprioritize. Super, super strict, super clear on the -- and maybe I start with the investment bucket.

The investment bucket, we're obviously in a world where we want to eat our own dogfood, so we're very passionate, and we have been for many years about using AI in order to optimize our own business.

I remember, I think in 2016, I had my first discussions with Demis from DeepMind about how we can use AI DeepMind models to optimize our portfolio management on the Sales and Go to Market side. So that's one of the areas. We're now using AI literally across the whole value chain, even within my world. We're using it for sales coaching. Obviously, we're investing there. That's why I put it in the invest bucket. The usage of AI, we use more AI now on every type of customer service interaction, we use it to analyze where we can -- how much attention and how much service level we want to provide to what type of customer. A really big part.

We're using it -- realtime translation. Very big area. Think about the global nature of our business and how much we had to spend there in the past, and now with the new AI investment too, so it's a very exciting world.

And there's obviously the areas where we optimize and where we deprioritize. We have very sophisticated statistical models to deeply understand -- where is the best use of the Sales person or Go to Market person, for example, in the overall context, where it maximizes our ROI from a portfolio perspective. So, we're using those models to analyze our portfolios. We figured out in the last round, and we've done this, as I said, many years before, that it's actually more efficient to shift some of our customers that are currently being taken care of by large sales teams, by the large customer account teams, to the more global, more scaled sales teams. This has led to the layoff of hundreds of people in my world. There was some publicity about it.

But that's what we have to do to provide a more efficient and better overall customer experience from an overall portfolio perspective. We're very actively as well thinking about organizational structures to make them clean. So we're cutting out I-V formations. We're constantly looking at span of control. We're constantly trying to cut layers of management. We're very clear about performance management in our world.

On the services side, we have started using AI probably in 2016-17. Already in 2017, we restructured all of our services team to be ready for the AI revolution that we're seeing now, to actually be more efficient and faster and better in our Go to Market. So, yeah, there's a lot

we're doing, and we're really running a very tight ship.

**Brian Nowak (Morgan Stanley):** Great. The last one I have for you is actually about your point on your Ad salesforce efficiency. It sounds like there's a lot of work streams in place to improve efficiency over time. How does PMax and sort of a lot of these AI automated tools potentially act as even a further driver of higher structural salesforce productivity in, call it, five years? Is there a reason why that wouldn't happen?

**Philipp Schindler, SVP and CBO, Google:** Look, PMax, as I said before, is a fantastic solution to deliver ROI for our customers, and if you're hinting at the fact whether some of those technologies could allow or give us the opportunity to further make adjustments to the structure of the salesforce, yes, of course. I mean, we always have to factor in where is technology today, what can be automated, and where can we take the existing folks and move them up in the value chain, and have them work on higher productivity, higher value creating problems.

So, yes, of course. We always have to monitor this and we actually do. We're really customer value creation and efficiency focused at the same time here, in a very, very active way.

**Brian Nowak (Morgan Stanley):** Well, we are anxious to see it all come through. Philipp, thank you so much for the time.

**Philipp Schindler, SVP and CBO, Google:** Thank you.