

Credit Suisse Technology, Media and Telecom Conference

Company Participants

- Philipp Schindler, SVP of Global Sales and Operations

Other Participants

- Stephen D. Ju, Director, Cr dit Suisse AG, Research Division

Presentation

Stephen D. Ju {BIO 6658298 <GO>}

All right, I think we're going to go ahead and get started. I'm Stephen Ju with the Credit Suisse Internet Equity Research team. Very pleased to have join us on stage, Philipp Schindler, who's the Chief Business Officer at Google.

Before we get started, we want to read some of the safe harbor statements. So some of the statements that Mr. Schindler will make today may be considered forward-looking. These statements invoke a number of risks and uncertainties that could cause actual results to differ materially. Any forward-looking statements that Mr. Schindler makes are based on assumptions as of today. And Alphabet undertakes no obligation to update them. Please refer to Alphabet's Form 10-K for a discussion of the risk factors that may affect its results.

And before we begin, I want to quickly read off Phil's bio. Some of you may be already familiar with him. But -- so he is the Senior Vice President and Chief Business Officer at Google. As Google's Senior Vice President and Chief Business Officer, Philipp leads the company's global sales and operations. And he oversees the global regional sales activities for Google as well as YouTube and the global technical and consumer support and operations, commercialization, sales and partnership strategy across all Google's ads and commerce products and partnerships for Android, Chrome and hardware.

He was previously in charge of Google's global sales and operations based in Mountain View and Google's business in Northern as well as Central Europe when he was based in London. Prior to joining Google in 2005, Philipp was the Senior Vice President at AOL Germany, where he was running the company's marketing and sales activities and serving as a member of the management board for six years.

Questions And Answers

Q - Stephen D. Ju {BIO 6658298 <GO>}

So that's a pretty extensive CV that you have there. And you've been at Google for a long time. So I guess, you are the key focal point of all of the business activities at Google. So where do you spend most of your time these days?

A - Philipp Schindler {BIO 21014597 <GO>}

Probably on a plane. Joking aside, a couple of -- few different areas. The first one I would mention is I deeply care about our advertiser, customer and partner relationships, because the brutal reality is that Google cannot be successful without our advertising partners and frankly, all of our other partners being successful. And the reason for that is very, very simple. If you look at most of the contractual relationships we actually have in place, they're somehow somewhere based on a CPC, CPV, ROI or rev share model. So by definition, we have a keen interest in all partners and other ecosystems growing. If we cannot successfully -- we need to help successfully transition our SMB partners, small and medium-size business, for example, into the digital world. We want to make sure they succeed in this world. The same goes for large advertisers. The same goes for publishers where most of our DoubleClick business is obviously based on some sort of revenue share model. The same goes for app developers. The same goes for YouTube creators. And so we actually want our customers to succeed. So I spend a very significant amount of time on that. That's the first area. The second area is obviously our service operations. We want to provide very smart, amazing service to all of our partners, customers, advertisers and so on. So that's a very, very big part. The third area I would describe as high-growth markets, markets in APAC, China, India, LatAm markets like Brazil. I spend quite a bit of time there. And the fourth part is probably on leadership because we are doing something pretty unprecedented at a very high scale, high growth. And we need to think about how to put the right leaders in place, how to put the right systems in place, how to put the right organization in place to scale globally. Where do you want to be more global? Where you want to be more local? What type of setup do you need? What organizational structure do you need? Where do you intend -- want to invest? Where you do not want to invest? So those are probably the big 4 areas where to start.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Okay, got it. So you've got partnerships in many different forms. And I think Sundar recently brought up that Google will be a great partner for retail. So let's talk about Google Express. It's not a new product. It's been out there for some time. But you recently added Walmart as well as Target as partners on the system as well. So what changed to catalyze these partnerships?

A - Philipp Schindler {BIO 21014597 <GO>}

So we really want to create amazing experiences. We want to create amazing experiences for merchants. We want to create amazing experiences for consumers, frictionless experiences. And we have a platform for that, which is Google Express. We heavily invested in some of the relationships you mentioned on a senior management level. We all take the Walmart example, we all spend a lot of personal time, myself, Shridhar, Sundar, with our -- with the teams at Walmart. We went there.

We visited them. They visited us over many, many years. And we got to a point where we thought we can create a great relationship here. And I think we have actually done that. If you take a look at what we offer, we have now hundreds (if not) thousands of products from Walmart available on Google Express. We have some really interesting new voice-activated new user experiences where you can, for example, reorder things simply via voice command. And you can already see where this can go going forward. There's a lot more interesting things you can do. Obviously, you can think about a simple query to your Google Home, something along the lines of, "Hey Google, I'd like to pick up my shopping basket at my closest Walmart." They have like 4,700 stores. Maybe there's even something interesting from a pricing perspective, if I pick it up myself. You can think about fresh groceries and other pickup situations that you just trigger via voice command. We also have the ability to actually link the accounts together so you can link your Walmart account with your Google Express account, just reorder things that you've reordered before. So there's a whole lot of different scenarios in such a setup that I think can be exactly in this territory of creating a frictionless experience, both for the merchant side as well as for the consumer side.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Right. I mean, the consumer angle is actually fairly interesting. And I don't think consumers are fully aware of the full experience that Google Express could offer. So how has the reaction from the consumer been as you continue to iterate on the product?

A - Philipp Schindler {BIO 21014597 <GO>}

So I think we're very happy so far. And again, as you said, this is already (staged in). There's a lot more to come, a lot more iterations. But it's definitely a very, very interesting world to explore.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Got it. Right. So switching gears a little bit to some of your advertising and ad agency partners. There are some amount of concerns in the market that the ad agencies are being disintermediated. So can you talk about how Google works with the agencies and what your standing is there with your clients on the ad agency world?

A - Philipp Schindler {BIO 21014597 <GO>}

So that's not our plan. We don't want to disintermediate advertising agencies. We're actually working very, very closely with agencies all over the world. It is important to understand that we see ourselves as a supplier of technology. And we would like agencies to actually apply our technology and smartly use our technology. We have teams all over the world actually that work very, very closely with agencies, whether it's the large ones, the well-known ones or whether it's a few very significant amount of smaller agencies as well. We see agencies as trusted advisers to the customers and clients. And in any ideal scenario, we work exactly in those triangle-type of set up with us, with the agency and with a partner. And this covers a very big range of different use cases from them simply using all products, which takes a lot of time and efforts on their end, to very, very complex integration. Just to give you an example,

without mentioning a name, there is a very, very -- one of the largest agencies in the world. We're currently working with one of the largest advertisers in the world, thinking about, for example, a smart Google Cloud Platform deployment where we basically think about demand forecasting models. This is something that customers are very, very interested in. It's creating a very customer-centric platform where we can help them go down the route of dramatically better assessing demand for them. Agency's heavily involved, we are heavily involved, advertising teams are involved, cloud teams are involved. We're pretty good at this kind of stuff. And agencies working closely with us and the customers on this.

Q - Stephen D. Ju {BIO 6658298 <GO>}

That's a very interesting angle because I think investors tend to think in terms of B2C but there's also a consumer to business angle in which you're probably sitting on top with a lot of intent data, which you just described as, I guess, the demand data. And if it's such that, okay, the consumers want the red sweater this season, why don't we go back to the brands and say, "Okay, manufacture more red sweaters instead of blue sweaters," so that could be -- it seems that could be a very useful, I guess, data for your advertising clients to take advantage of. So where do you think we are in terms of reaping that opportunity as far as the larger advertisers are concerned?

A - Philipp Schindler {BIO 21014597 <GO>}

So the #1 thing to keep in mind, you have to do all this in a privacy-friendly way. You can't (make) any type of data. But there is definitely interesting paths that we're taking. We have product out there like you know, the Google Trends product. And you can obviously do this at a larger scale. And you can do this especially well with, frankly, the cloud and infrastructure that we have, products like (the query) are fantastic for this type of large-scale data mining, some of the machine learning technology is really good for that. And yes, indeed, we have some data, again, if used correctly in a privacy-friendly way, yes.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Okay. Understood. So you've been vocal about the mobile revolution. And I think we're now on the cusp of voice as well as Assistant-driven, I guess, revolution in that regard. So I think when consumer behavior changes like this, there's also always the question of what you're going to be doing in the background to monetize this new behavior over the longer term. So like what are the longer-term opportunities for monetization with Assistant?

A - Philipp Schindler {BIO 21014597 <GO>}

Well look, as I indicated before, I mean, for us, it's all about creating great consumer experiences. And we are in the, I'd say, comfortable position that our -- we had to invest and develop technology along the lines of natural language processing, computer vision, understanding consumers and their contacts, all based on machine learning and deep learning approaches that we needed for a lot of our existing core products. And I think it is the natural evolution that we think about more assistive-type of experiences going forward. Similar as the transition we've seen from desktop to mobile, I think it is pretty obvious that we will see a next evolution that makes it a

lot easier to actually interact with computing-type of interfaces. And that's a very interesting revolution. We're obviously thinking about monetization models there. There's a whole lot of different approaches that you can take, action-type of approaches, other approaches. But I think it's really important to remember that we have seen the evolution from desktop; the 10 blue links; to the mobile device that's, say, mostly with a smaller set, 4. By the way, really interesting, the need for consumers to get higher quality on the results goes up significantly the smaller your surface area. So from desktop to mobile already, we can see that the consumers are asking for a significantly higher quality in their results. Then obviously, you can picture going to a world where it's much more of an assistive-type of interaction. And the key thing to keep in mind is. And going back specifically to your monetization question, is that voice in does not always need to mean voice out. And there's a whole lot of different use cases. So I personally feel that voice in, visual out will be a very, very interesting use case going forward. I ask something, I might not want a voice answer back. But I might want a projected answer back either on my mobile device, or I'm aware that there's my television screen somewhere in the room or some other screen or projector close to you. That's a use case you can imagine. You can imagine a lot of really interesting assistive use cases that are actually not only voice in. But think about the natural evolution from text in today. You can take it to voice in. You can take it to image in. You can theoretically take it to video in or some sort of stream analysis going in like the Google Lens product that we have -- we've just announced where you can just literally, via Google Assistant, hold up your camera, tap on something and vision recognition will help you identify the object. So there's a whole lot of different input methods. And there's a whole lot of different output methods that you can picture in such a future assistive-type of environment. And different combination will work differently for each use case.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Yes. It seems like it's been almost five years ago, I think, when I think Larry first articulated the concept of search and assist. And you might not need to specifically put in a query and the need -- I mean, the query count, such as you disclosed it, probably becomes increasingly meaningless over time. But I guess, what I guess what you're saying is, if you want to cut right through it, I think there is a perception that voice-driven queries can be harmful to your search franchise. I mean, I'm of the mindset to think that if you're making it easier for the consumers and this take down of friction of what they're trying to achieve, they will do more of it, right? So would you agree that from an absolute query comp perspective, it could be expansionary or the number of, I guess, assistive assists or the answer that you provide could be expansionary over time?

A - Philipp Schindler {BIO 21014597 <GO>}

I mean, look at your own user experience and you kind of mentioned it, right? You're moving from a desktop with a, let's say, limited use case environment to a mobile device that already has a significantly enhanced ability to do things, you always have it with you. And now you're moving on to -- which will, of course, in many cases, involve the mobile device. And now you're moving on to a much more assistive, more natural language processing-based interaction. I mean, look just at some of the numbers. We already have I think 20% of our queries on the app, on the Android app in the United States, already voice-based. So you move towards this more

natural interaction. What's your assumption? Will you use it more? Will it easier be -- for you to use it more? Will that increase the number of times you use it? So I would say the net effect is likely to be expansionary.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Yes, I think invariably, if you're making it easier for people to do things, they will engage more with the platform. So switching gears slightly to the search business and online advertising sort of in terms of an addressable market. Do you think search, as well as online advertising, is expansionary for the advertising market? Or is it cannibalistic? Because -- like our bias is to think that, to some degree. And you mentioned SMBs before, like some of these are advertisers that would otherwise have never found a route to advertise on the traditional media platforms before. But now there's an outlet, whether it's on Google, Facebook or any other platforms, for them to be advertising and generating clients. So would you agree? Would you disagree? I mean, would the notion that the amount of dollars that Google can capture over time in the ad sector is capped?

A - Philipp Schindler {BIO 21014597 <GO>}

Look, we talked about advertising market. People usually refer to advertising markets as the existing -- in the industry, we call it the above-the-line advertising markets, right? Which is -- and that's usually the numbers you see, which is something along the lines of television or radio or print or out-of-homes is usually factored into this. I look at it in a much broader perspective. There's a very significant market that is usually referred to as below-the-line, which includes a lot of other things, everything from direct marketing to events to trade fairs to (what's or not a) very significant market. There is the whole world of e-commerce. 90% of commerce is still offline. I think that's an interesting opportunity. In general, I would say, we are actually more in the business of connecting businesses to consumers. That's how we think about it. And as long as we can do this by generating a positive ROI for the businesses, I think we're fine. I don't look at it in the sense of the traditional above-the-line advertising market definition.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Yes. So this is theoretically where Google Express kind of fits in. You're looking for a way to directly connect the brands with the consumer?

A - Philipp Schindler {BIO 21014597 <GO>}

Yes. I mean, we've done this basically forever, right? I mean, look at our well-known SMB business, right? Look at many other things that we're doing, right? This is the world we operate in. I don't think it actually fits the traditional advertising market definitions in that sense.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Yes. Sticking with search a little bit. There is a perception out there that when you increased the ad load on search a couple of years ago from 2 links, through sponsored links on mobile, to 3, I mean, that was theoretically mutually exclusive with

the consumer experience. I mean, does the perception square with the data on (each of these) that you're seeing right now?

A - Philipp Schindler {BIO 21014597 <GO>}

Actually, I would say the opposite is true. I mean, we deeply care, as I mentioned before, about the user experience. And we do an incredible number of tests and experiments and analyze it very, very deeply. And we can tell from all the analysis we've done in the run-up to this that actually the consumer experience on a mobile device looks quite differently from a desktop device, simply because you have the ability to scroll and you have the ability to swipe. So we were actually able to do this and preserving, at the same time, an excellent consumer experience. Keep in mind that for most of the queries, we actually don't even show ads. And for commercial queries, consumers actually deeply care about ads if they are relevant. Relevant ads are very, very helpful information for consumers. And we were actually able to show this and prove this in our experience. So we are very, very confident that we maintain, as always, a consumer experience on the absolute highest level actually.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Okay. You mentioned many, many different experiments that's going on in the background, both for the consumer and probably for the advertiser as well. So the obvious sort of implied question and the follow-up to that is, I mean, is there -- I mean, some would say that there's probably really not much you can now -- not much else you can do to optimize search. But it sounds like you would definitely disagree with that notion as well. I mean, there's still a lot to do from a consumer and advertiser standpoint.

A - Philipp Schindler {BIO 21014597 <GO>}

So I think, actually, Ruth said it nicely. Ruth, our CFO, said it nicely in the last earnings call. We are very excited still about the opportunity. There is a massive secular trend, which is the shift to mobile. We are -- we have a very high innovation environment. We have incredible product managers, engineers. We run on the ads and commerce site hundreds of hundreds of experiments every single quarter, which lead to probably over 100 improvements in our systems every single quarter. We are obviously using the world of machine learning very, very actively, which opens up really interesting opportunities as well to optimize our system and optimize the performance for our advertisers and for our partners. So I'm very optimistic -- I'm -- about the opportunity.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Okay. Thinking about opportunities. And I mean, you've said you spend a lot of your time on the plane and you think about the APAC and the emerging markets quite a bit. So talk about what your business looks like in the emerging markets, especially the APAC region. I mean, it seems like -- that those markets are less further along, obviously. So there's probably more of an opportunity for Google to do more interesting things there versus the already developed markets.

A - Philipp Schindler {BIO 21014597 <GO>}

Yes. It's interesting that you're asking because I literally just came back from APAC, spent time in China and Tokyo. And so we're very excited about APAC and emerging markets, including LatAm markets and in general. We have invested there for a very long time, I mean, for over 10 years. If I remember correctly, I think Tokyo was the second office we opened outside of the U.S. So the first outside of the U.S., to be precise. So very excited about it. We have a few very interesting developments there. If you think, for example, about India, we just announced a product called Tez, which is a payments and commerce-type of platform product. And we're seeing nice numbers there. We have over 7 million users, I think 30 million transactions just since we launched. So (clearly) interesting development there. We have -- we see real interesting growth rate there as well. And this goes for the more mature markets in the region like APAC, like Japan for example, it goes more for -- it goes for the emerging markets we have, whether it's the Philippines or Vietnam. We have really interesting growth on the advertiser side. I think the number of advertisers -- the growth rate on the advertiser side is somewhere in the 25% range. So really, really nice development. And we'll continue to invest. I'm a big fan of APAC and emerging markets in general. That's why I said in the beginning, I actually spend a lot of time there.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Yes, I mean, you talked -- I mean, the sort of a recurring theme is, I guess, connecting the brands directly with the consumer. And I think in the APAC markets, especially some of the developing markets, there is less of an infrastructure that's already built out there. So there's probably an increased level of opportunity for you to -- as you provide, I mean, a great set of products to the consumer and get their engagement, there is an increased opportunity, vis-À-vis products like Tez, to capture, I guess, incremental sort of market share in those markets. So I mean, is that -- do you believe that over the longer term, like Google's franchise in the emerging markets and APAC could be as large as what it is already in the developed markets?

A - Philipp Schindler {BIO 21014597 <GO>}

Look, without making an assessment about the size of this. But there's no doubt, it's a really interesting opportunity. I mean, look at the innovation going on in this region, right? Look at where Japan has been on the mobile development side, leading the world. Look at a lot of the other areas there. Look at the energy level. Look at the entrepreneurship. Look at how SMBs already interact with us. Look at all the different partners we have. Look at the importance of the app developer ecosystem coming from that side of the world, right? I mean, APAC is absolutely on fire. And we have incredible teams there. We had -- when I came from there, we had our big business conference with all of our business leadership there. We have thousands of people in the region. We all came together. And I mean, you have to see it to believe it. It's just an incredible region, incredible energy level. And I think we'll continue to do very well there.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Okay, got it. Let's switch it back to the developed markets. And I guess, can you talk about the changes you made in response to the ruling from the EC and the impact that would have to your business? It's an open-ended question but...

A - Philipp Schindler {BIO 21014597 <GO>}

Yes. So we're obviously working closely with EC to try and find a remedy to the situation. I think we found a solution here. And the solution basically says that we have to put our own shopping services on equal terms with the -- what we call CSS, comparison shopping services. And yes, I think we have a solution here. It's important, I think, to remember that we define ourselves as an open platform in that sector and that we are really trying to connect retail partners to consumers. And we will continue to do this. And the case was brought forward by the comparison shopping services, not by the retail partners who are actually very happy working with us in that environment. So I think we have found a solution here.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Okay, understood. I mean, for me personally, I don't know if you need to really answer this question. But for me personally, I think having another intermediary in there that sits in between the advertisers and the consumer, it just makes no sense to me. But you don't have to answer that question.

A - Philipp Schindler {BIO 21014597 <GO>}

Yes, I don't want to comment on that one. We always look at it from a consumer experience, right? So we are trying to create great consumer experiences for them, especially on, as I said before, smaller-screen devices. Remember, the smaller your screen, or maybe even as a voice answer at one point, right, the higher the quality, the higher the expectation level from the consumer in terms of quality is. So we -- that's what we're really focused on. Whoever can provide that the best, we're trying to basically supply that as an answer.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Yes, understood. Let's bring it home. In the U.S., I mean, there's sort of another sort of regulatory fear. And that's the threat of regular -- regulation with -- Google was summoned to Washington, along with Facebook and Twitter to answer for, I guess, election meddling as well as fake news issues. So what is the solution that you think Google would like to present as this seems like a particularly difficult problem that you have to wrestle with?

A - Philipp Schindler {BIO 21014597 <GO>}

So those are quite distinct things, right? We have the advertising side on one hand that you mentioned. You used the word election meddling. And then there's the fake news world. I think it's really important to realize that we've had policies in place for a very, very long time that don't allow ads that are either deceitful or misinformed. And we have actively enforced those policies also for a very, very long time. I think in 2016, we have taken roughly 1.7 billion ads out of our -- out of the system. 1.7 billion. That's a pretty significant number. And on the political ad side, we have been even stricter. We have only offered very, very limited targeting options, a very clear vetting process on our end. And we will obviously continue to work with authorities and everyone necessary to basically avoid any potential type of election meddling, as you mentioned. And be even better at it going forward, that's number one. On the

fake news side, remember, I mean, we want to provide quality access and quality information to our users. That's who we are. And we have to deal with content forms and spam filter, spam attacks on e-mail and (what's or not) for a very, very long time and have quite a bit of experience in dealing with those things. So there has definitely been a few issues on Google as well. I'm not trying to deny this. But we've taken a lot of actions. And I think pretty swift actions. So we've changed and adjusted our search algorithm. As we announced a while ago, we have offered better flagging on products such as suggest, for example, or some of the featured snippets. We have introduced things like Fact Check Tag, for example, on Google Search and Google News results where we're working with outside organizations to basically fact-check some of our information. So I think we have -- we have invested quite heavily. And we will continue to invest quite heavily in providing nonspammy, relevant, quality information, because that's who we are as a company. That's who we want to be.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Yes. So I presume that in order to get this kickstarted, I guess, the flagging of fake news and other story items that might not necessarily be true, is there some opportunity to gain an efficiency over time? Because presumably in the beginning, you probably have to have human spotters for some of the fake news items. And presumably, they will train, I guess, machine learning and AI over some time frame so they can gain some amount of efficiency and spot those more quickly. So is that something that still requires some amount of human supervision? Or over the longer term, would you be able to see some amount of efficiency on spotting that type of content?

A - Philipp Schindler {BIO 21014597 <GO>}

So without mentioning -- without going specifically to the fake news piece. But in general, the way this always works is -- always is maybe a bit exaggerated. But the way this usually works is we obviously try to use machine learning algorithms. And the better they get, the better we get at this. And that's why I mentioned, we have been in this -- in the business of identifying spammy-type of approaches for a very, very long time. And I think the latest generation of machine learning really helps there. But it is obviously helpful in many of those cases. It's basically a circular approach. You use basically humans to better understand some of the things that are going on. And then you use the input from the human radars to train your machine learning algorithms. As your machine learning algorithms go become better, it goes to the humans again. And it becomes circular. So of course, we expect a scale effect over time coming from the quality improvements and the machine learning algorithms there.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Got it. Switching topics again. Let's talk about ad blocking. I mean, this technology has the potential to harm your business. It seems a little bit odd to see you proactively proposing if you just add on the Chrome browser. So seems like a conflict of interest. So how do you navigate, I guess, what it is effectively a (inaudible)

A - Philipp Schindler {BIO 21014597 <GO>}

That's a good question. So I think there is no doubt that apps can be amazing consumer experiences. But there's also no doubt that some of the ads out there are probably not of the highest quality. And that actually hurts the overall web ecosystem, because the web ecosystem, to a very large extent, in order to supply attractive and, in many cases, free content relies on great consumer experiences from an ads perspective as well. So we've done very, very -- working with the Coalition for Better Ads. I should say that Coalition for Better Ads is actually in the lead. And we work closely with them on first understanding what our bad ad experiences. And this is fully based on consumer research, based on a lot of consumer research and identified that there's certain type of ads that are specifically bad, like full interstitials or ads automatically playing with -- like instantly interrupting with sound on or flashy ads. Those type of experiences where users are very, very negative against, 100% research-based. And now take a look at our consumer products, which is Chrome in this case. Chrome has, for a long time, tried to provide an incredible web browsing experience and has offered things like pop-up blockers for a very, very long time. So bringing those things together, you can actually see that it makes sense. And we've announced that somewhere early in 2018, we're thinking about actually taking the Better Ads Standard, which was developed by the coalition, to an integration into Google Chrome. If this gives for an overall healthier, better consumer experience, I personally think everybody will benefit from that.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Okay. And how are the conversations with the publishers? Because I mean, presumably, most of them are probably playing within the guardrails but there are probably some that might not be playing in within the guardrails and some where their revenue was bound to be affected as well?

A - Philipp Schindler {BIO 21014597 <GO>}

So long term, it doesn't make sense for publishers to offer really bad advertising experiences because you will have 2 effects: number one is either your ad blocker rate goes up or your time spent on site will go down, right? And both of those are, over time, not sustainable for a publisher. Then that's why I think -- that's why I talked about the ecosystem and the fact that's actually good for the overall ecosystem, high-quality ads are the way forward.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Okay, understood. We have an open-ended question. But you talked about the different ways that machine learning is affecting the ad product, I guess, both to the ad agencies. And you mentioned SMBs earlier as well. I mean, there's been a bunch of new products to help them deploy money online as well. I mean, for advertisers, that might not be as sophisticated. I think automated bidding was a product. And I think within YouTube, there's, I think, creative tool that allows you to have multiple creatives so you can target more effectively. So can you talk about all the different ways that you're trying to take? Because using machine learning to take friction out for the advertiser...

A - Philipp Schindler {BIO 21014597 <GO>}

Yes. I mean, yes, we're really using machine learning everywhere now and on the advertising side and again, in many, many places. I mean, you can go through a lot of different areas, take a look at the whole world of audiences and targeting a product like Universal App Campaigns, where you see a -- which has very, very successful. The core of the whole product and identifying new audiences is based on machine learning algorithms. You take a look at the creative world, you briefly mentioned it. I think we just announced a couple of months ago a product called Director Mix for YouTube that helps you basically auto-create video creatives. There's a whole bunch -- a bunch of different variations. I mean, that would be impossible in a non-machine learning-based world at the scale and at the quality, by the way, in which we can offer this now. Go down the whole world of bidding. You mentioned smart bidding, improvement of bidding algorithms. The right bit at the right time exactly in the millisecond where it makes sense. Our smart bidding products are extremely successful. And we can see advertisers, whether small advertisers or large advertisers, at a significant rate actually moving towards those, all based on very sophisticated machine learning in the background. Take a look at the whole world of measurement, for example, some of our latest attribution products are giving you a much more holistic view of attribution versus just the traditional last click attribution path. All very, very much machine learning-based. So we literally deploy machine learning across our advertising systems at the moment, always with the intent to actually create a better ROI for our advertisers, our partners, our SMBs and so on. And we're actually very happy with some of the results there.

Q - Stephen D. Ju {BIO 6658298 <GO>}

Great. All right. So I think with that, we are out of time. And thanks very much, Phil, for joining us.

A - Philipp Schindler {BIO 21014597 <GO>}

Thank you. Thank you. So much. Thank you, to all of you. Thank you.

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