Goldman Sachs Exchanges

AI Exchanges: How tech giants are navigating the AI landscape

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Allison Nathan: Welcome to Goldman Sachs Exchanges. I'm Allison Nathan and I'm here with George Lee, who is the co-head of the Goldman Sachs Global Institute. Together we're co-hosting a series of episodes exploring the rise of AI and everything it could mean for companies, investors, and economies.

George, good to see you again.

George Lee: Good to see you, Allison.

Allison Nathan: So, George, I'm eager to continue this conversation with you. I think this is our third

conversation.

George Lee: It's our third. The first two have been great. I'm very much looking forward to this one as well.

Allison Nathan: So, George, today we're going to discuss what the rise of AI could mean for US tech giants and how investors are thinking about AI right now. But let me get your view first. Where do you see these tech giants fitting into the AI story right now?

George Lee: Well, I think it's important to note the time and date of our recording here. It's the afternoon of May 2nd. This has been sort of a momentous week. Many of the large technology companies have reported earnings, done earnings conference calls. And three themes emerged to me. One is that these big companies remain very committed to their capital spend, at least through the rest of 2025 to support AI workloads. Second, that they remain largely supply constrained in their ability to meet customer needs. And then third, Andy Jassy, the CEO of Amazon made an interesting comment that really landed with me where someone asked him, "What inning are we in in this whole thing?" And he said, "We are first batter, second

strike of the first inning."

And so, as a commentary on the novelty of this wave, the amount of territory ahead of us, I thought it was both amusing and important.

Allison Nathan: Interesting. All right, Eric, let's turn to you. Here with us to discuss these trends we have Eric Sheridan. Eric is the co-business unit leader of the technology, media, and telecommunications group in Goldman Sachs Research. Welcome Eric.

Eric Sheridan: Great to be here.

Allison Nathan: All right. Eric, your coverage actually spans a lot of prospectives on AI. So, you cover the model builders, the model infrastructure providers, and many companies have just leveraged the technology. And some of the companies, they actually do all three. Right?

Eric Sheridan: Yes.

Allison Nathan: And you've also talked about about a framework of generative AI evolution. I know we've had

conversations about that. You've also had conversations about that with George. So, when you look across that universe, where are we today? And I think the question on a lot of people's minds is who's garnering the most value from their technology today? And so, what should investors therefore be focused on?

Eric Sheridan: Yeah. So, I think generally we've been on a journey that most computing shifts have followed. So, we would argue that we're now in a third computing shift. The first one was web 1.0. That was the adoption of desktop computing. The second was web 2.0. That was mobile computing. We're in the later innings, to stick with the baseball analogy of mobile computing. Most people that can afford a smartphone have one. And there's been this thirst for what's the third wave of computing.

AI. Spatial computing. There are a lot of different elements that could play at it. But at the end of the day, it's basically elements of more machine learning, more AI, and different elements of devices that might merge the real world with the augmented world in a lot of ways with a virtual assistant somewhat at the core of it.

I think we're in the very early innings of this web 3.0 phenomenon. And then when you think about just AI, we framed it as there's an infrastructure layer, there's a platform layer, there's an application layer. There actually has been an infrastructure, platform, and application layer for every computing shift. With this one, the infrastructure layer was building the large language models, training them, and building the foundations for AI. And we're now moving into the platform layer. And eventually - and we're in the very early innings of this - you'll see an application layer and the application will play out in your consumer computing and your enterprise computing. So, there will be ways in which you interact with AI at work from a business perspective. And there's going to be a way you interact with AI in your own personal life from your consumer computing needs, not dissimilar to the way it is now. You have a desktop at work. You have a phone at work. And then you leave the office, and you have a mobile phone and a laptop and a tablet and all these things from a form factor standpoint in your day-to-day life.

We have proven out that the large language models can scale and each iteration of them is a little bit better from a benchmarking standpoint than the one before. We haven't

quite got to AGI which would be the end state of AI in a lot of ways, generative AI. But where we're at right now is we're starting to evolve into deep research, reasoning, the models are starting to think and iterate. And that will actually add more robustness to the application layer over time.

So, if you use any of these consumer apps in your day-to-day life, a Gemini or a ChatGPT, they're very different today than they were even just a year ago.

Allison Nathan: And it's interesting to me because you've talked about these three phases. And to me, when I first hear that I think, these phases will happen over decades. And yet, one thing that keeps coming up on these conversations is how quickly we now are into this second phase. So we say early innings. But I mean, the speed of this has been pretty incredible.

Eric Sheridan: Yeah. I mean, you could argue that people started acquiring Spectrum and building mobile networks and talking about smartphones somewhere in the 2005/2006 era. And around 2012/2013 was when companies like Google and Facebook at the time called themselves mobile first. That took eight or nine years.

People forget, November of 2022, in the beginning of that month, most people on this plant had never heard of ChatGPT. So, we are two and a half years into this cycle, ChatGPT already has over 800 million monthly active users. Gemini is now preloaded on most Samsung phones on the planet. And a lot of this is happening in very quick order.

George Lee: It is extraordinary this time dilation phenomenon of how change seems to be accelerating in this wave versus many of the others that you cited. Let's go back to the capex question that I teased a little bit in my opener. As you saw, the companies basically reiterated their commitment to 2025 capex. But there are real questions about how that will look into 2026 and beyond. How are you thinking about that? What's the duration of this enormous capital investment? And how do you see it playing out?

Eric Sheridan: Yeah. So, we're in the third year of what I'll call the investment cycle from a capital standpoint. You are now at peak capital intensity defined by capex over revenue in these business models. For example, Meta's now

approaching 40 percent capital intensity capex as defined by revenue. We think there's one more year where capital intensity can stay at these levels. But that would bring the growth rate down from growth rates of 40, 50, 60 percent this year more into the mid teens next year.

But it's an interesting point, George, we've been on quite a journey just this year. In January, we thought 2026 capex would grow mid teens and most investors were like that's way too low. Then DeepSeek happened, four, six weeks later, and all of a sudden, those numbers were way too high. And then DeepSeek recedes into the background, and some of these AI applications start to build and scale and all of the sudden they're too low again.

So, we've already been through three market iterations of AI in this year alone, only with respects to one year forward capex. With respect to this year as you pointed out, we think the companies are relatively settled in what they're going to spend. These spend levels were a result of detailed business planning processes that occurred from October to January. We think they're very unlikely to change because of the macro environment because they're being aimed at multi-year themes.

Next year, this is the way we'd characterize it. Mid teens type growth. But beyond that, you start to get into the scaling of applications. You need the proof points for investors to be on board with these levels of spend continuing.

Allison Nathan: Let me just follow up on a quick point you made though, because obviously, the macro environment has been quite volatile. And tariffs, I've got to ask you about tariffs, Eric, because it's on everyone's minds. Is that not having an impact? You just said, no, it's not impacting these capital spending plans at this point.

Eric Sheridan: So, I break this into two pieces. And I think Meta this week was a really interesting earnings report. They raised their capex and lowered their opex guidance. And the messaging coming out of the company was we continue to find ways to find efficiencies inside the organization. But we are not at a point where we want to sacrifice long duration investments, mostly articulated through capex, just because the macro environment could look a certain way for three, six, or nine months. I'm not trying to be dismissive of the macro environment, but it's

interesting. The last time we had a full, really recessionary environment in the US was the great financial crisis, '07/'08/'09. Most of these companies that existed at the time regret pulling back on long duration investments during those times if you ask those CEOs and CFOs. So, I think the macro will end up with more volatility on operating expenses. That's head count. That's marketing spend. That's very, very long duration projects. But I think given the sheer number of players investing both offensively and defensively at AI, I think this spend will get protected for a little longer than the macro environment might influence it.

George Lee: There's one other thing I might jump in on there because your raising Meta, I think, is super instructive. One of the reasons why they suggested that they were raising their capex guidance did relate to tariffs because they actually said, look, there are going to be some embedded costs in acquiring the material necessary to build these data center footprints. So, that's one way in which tariffs are first order getting drawn into these capex estimates.

Eric Sheridan: It's just the cost of goods sold this year.

George Lee: Totally.

Eric Sheridan: Right? At the end of the day there are parts and widgets that are in the capital expenditure budget that are coming from other places of the world that have to be shipped here that would be subject to tariffs. Even if you don't change the rate of spend or the capacity you need, the input costs can go up as a result of tariffs. So, that was an interesting nuance this earnings period.

George Lee: I think one other thing I reflected on in this earnings cycle was did the degree to which some of the model providers and infrastructure providers are benefiting endogenously in their businesses? And so, Meta talked about the ability of the AI that they're building, not only to benefit customers, but to benefit their own targeting, their own engagement. I think we're seeing the same thing from Google. Maybe talk a little bit about that effect.

Eric Sheridan: Yeah. I think it's an interesting way to capture it. And Mark Zuckerberg led off the Meta call laying out the five pillars of where they want to go as a company. It was a really interesting articulation of where he wants to

go against the themes of AI and spatial computing.

What was really interesting, the first four of those five pillars were all aimed at internal productivity efficiency gains, making their products better, and then bringing their products from an adoption curve standpoint to clients in a faster, more efficient manner. And the last one was the Meta Goggles, which the Glasses get a lot of press coverage, and they get a lot of exposure. But at the end of the day, while that is a chunky part of operating losses in the business today against a ten-year theme, the vast majority of this AI was aimed at those first four pillars. And the CFO at Meta was very adamant we need more capacity for those first four pillars today because people are adopting our products at a higher rate.

One example of this, and it's true for Alphabet as well, the automation of advertising. Allison and I have talked about this in the past. This is a real-world example where AI is creating ads, placing ads, measuring ads, taking all the data from that transaction, processing it, and repeating that process billions of times. And advertising is becoming more efficient. Return on ad spend is going up. And then there are more dollars to spend to earn return targets in

the broader economy. That's a distinct example that they pointed to.

George Lee: Fascinating. So, sort of a related topic, you mentioned Alphabet, one of the most fiercely debated questions in this transition is the future of search. And many people posit the chatbots will cannibalize search volumes. Now Google and Alphabet's results seem to defy that thus far. How do you think that's going to play out? Will new ad units emerge that are suitable for chatbots? Will network effects emerge in that world, the things that have driven the extraordinary growth of advertising, search advertising at Alphabet? What's your take on that one?

Eric Sheridan: So, this is one of the most hotly debated topics. Generally, I would say what I'm always amazed by is when investors say, "Well, search from November 2022 is losing share the day ChatGPT started as if there isn't 20 years of search." I have a slide that I show investors of what I call the eras of search will die. Right? Amazon was going to kill Google. Mobile apps were going to kill Google. Your iPhone was going to kill Google. At one point, AltaVista was going to kill Google, if there's anyone as old as me that's listening or watching this.

So, at the end of the day, there are a lot of iterations of what will happen with search. And search itself is almost treated by investors as if it's been an inorganic product. 20 years ago, you would do a search and there'd be ten blue links. Now you do a search, there's a map. There's graphical representations. There's a shopping carousel. Search has changed. Search will continue to change.

In the last six months alone, Alphabet has introduced AI overviews, AI mode. Gemini has an interface on desktop and has a standalone app. And by the way, the number one thing when we track data that has happened since ChatGPT emerged is human beings are querying computers at a higher rate than they ever have. The pie of us asking computers questions has exploded. That's all that's really happened. The monetization of those commercial queries still resides predominantly with Google. We don't see any change in that today.

But I can't be naïve about this. I have to be mindful of where it could go going forward. But today, we have seen very little impact on commercial search queries.

Allison Nathan: And one point you often make, Eric, that I think is important is this is about consumer behavior, right? I mean, it's very hard to change behavior. People dismiss it. But, you know, people are used to searching. And they will continue to use it. I mean, that is something that you've often said.

Eric Sheridan: Look at every change in computing behavior. Most people upgrade their phone every three, four, five years. Yet, the leading bloggers on technology trends have a new phone in their picking every two months. The vast majority of billions of people on this planet don't have a new phone every couple of months. They're not trying every laptop that's sold at market. Most habits take decade plus to play out, as opposed to playing out in any six- or 12-month increment.

Allison Nathan: So, let's talk about investors right now in terms of sentiment. We have obviously gone through a few waves of this. There was nothing but AI craze at one point not too long ago. Then there was a lot of skepticism, as we've been talking about, in terms of the amount of capex. Is it too much? Will these companies be able to extract value and returns from that capex? And now given all this

volatility, it's really unclear where they are. What are you observing in terms of investor sentiment today?

Eric Sheridan: Yeah. I almost think of this as pre-tariff and post-tariff narrative in the market. And the tariff narrative is a bit above my qualifications. So, I'll put a pin in that for a second.

Towards the end of last year, I think investors were starting to get it right. The infrastructure layer had somewhat peaked in terms of rate of change from an investment cycle. And I think investors were generally moving from the arms dealers and how you deploy dollars to build against each other towards what have you built and how is it going to scale?

The initial pivot was towards the hyper scalers. I cover AWS inside of Amazon and Google Cloud instead Alphabet. My colleague and partner in crime, Kash Rangan, covers Microsoft which has Azure. Those three businesses got a lot of attention from investors and a lot of incremental focus on the rate of revenue growth and the rate of potential per reacceleration of revenue growth.

For example, in this last week or week and a half alone, Google Cloud grew 28 percent. AWS grew 17. Microsoft Azure grew well into the 30s. Those are the type of growth rates that attract a lot of investor attention because there's a direct correlative pay out. I spent a dollar of capex. And Goldman Sachs as a client wants to experiment with AI. And they pay their cloud provider for more workloads. That is now playing out in real time.

The to be continued piece or the to be determined piece is the consumer AI application piece. There are about six applications competing to be the app on your phone, Allison, that will be your AI assistant. ChatGPT has got an early lead in that field. Google Gemini is trying to play catch up. But even this week alone, Meta announced a standalone Meta AI app. Alexa is an app that Amazon is going to push as a consumer pivot. And then there are some private companies like Claude and Perplexity on the branded side as well. So, there's a heated competition to be AI assistant on the consumer side. But the workloads and the enterprise dynamic is where investor focus has heavily skewed.

Now, I would argue the broader AI narrative has been

disrupted by the tariff talk in the market. So, even on a night where Amazon reported yesterday, and I've been on the phone with investors most day on Amazon, probably less than 20 percent of my conversations have been about AWS because most people are trying to figure out how the largest e-commerce company in the world is going to navigate through the tariff landscape. So, the narrative moved away from AI rather than the AI narrative continued to shift.

Allison Nathan: Absolutely. I mean, we're all finding tariffs dominating all of our conversations.

George Lee: Absolutely. So, Eric, you and I are both veterans of this game in some ways. What can we learn from prior cycles? And you've talked even just in short duration how volatile investor sentiment is around this. What's different? What's the same this time around? I'm struck that while there's all this attention and heat and investor focus, public companies by and large trade at reasonable multiples. How does this compare to prior cycles you and I have lived through?

Eric Sheridan: I would say there's two distinct

differences that are notable to me. Number one, Alphabet one-year forward trades below a market multiple. Meta one-year forward roughly trades on top of the market multiple. You typically don't see the technology companies at the forefront of a technology shift trading at or below one-year forward market multiples. Not that there aren't names that trade well above it, but that is a very big difference.

If we went back to 2000, there weren't even multiples. Like, everything was trading as a multiple of revenue or a multiple of market opportunity. It was a very different world.

Also, the other dynamic is typically most technology shifts, the incumbents lose, and a new set of players arise. And the more interesting dynamic here is the sheer scale of capital on the balance sheets of the incumbents allows them to invest the way we're talking about. I mean, just to give some quick numbers, Alphabet is going to spend $75 billion on capex this year. Meta is probably going to spend approaching $70 billion. And Amazon's going to spend somewhere between $100 and $110 billion of capex. You know, collectively, that's over, you know, $250 billion of

capex.

We could probably count on a very short piece of paper how many companies have a $250 billion market cap globally, let alone can spend $250 billion of capital against a growth initiative. So, you have the biggest companies almost living in fear of being disrupted and deploying capital to play as much offense as they're playing defense. Where if you go back to the first makers of smartphones or mobile phones, they ended up getting disrupted by smartphone manufacturers that came up and sort of overran them by being more innovative. Those two things are very different than prior cycles.

What's not different - and I say this with all due respect to all the clients I love talking to every day - investors are impatient. If these things take more than an earnings cycle or if there's a slight hiccup or there's a slight disruption, then, you know, narratives can lose momentum very, very quickly.

The number of investors that are saying "no matter what happens over the next three or four quarters, I'm going to look through all of this over the next five years" is probably

the smallest it's ever been.

Allison Nathan: So, if you look at those differences and that similarity, what is your main takeaway here for investors?

Eric Sheridan: I think we're at the cusp of the application layer being proven out. And then we're going to have to figure out who the winners and losers are on the application side. I think we know who has the scale of capital to deploy foundational models and move from training to inference. I think we know mostly what platforms will be built on top of those foundational models. What remains uncertain is what applications will play out.

And frankly, not to hearken back to web 2.0, and I say this a lot with investors, it was perfectly acceptable to stand on a New York City street corner and raise your hand and hail a taxi until Uber came along. It was perfectly fine to stay in a hotel until Airbnb came along. Sometime the application layer is where the most outsized return and the most unique differentiation of change of behavior actually takes place.

Allison Nathan: Fascinating. Eric, thank you so much for joining us.

Eric Sheridan: Thank you for having me.

George Lee: Great discussion as always. Allison, I just have to say, I'm struck by what a thoughtful and grounded observer Eric is around this stuff. So, it's great to have you here, have you at the firm, and have this discussion with you. And I also think it's also just a fascinating reflection of the amount of conviction being exhibited by these large companies, that quantum of capital that Eric talked about. And yet the variation around investor sentiment, around our own natural skepticism about the rate of change, the import of this shift, just a fascinating kind of contrast of views. And I look forward to many more episodes with you as we sort of watch this all play out over time.

Allison Nathan: Me too. Well, George, it's been great as always talking to you.

George Lee: Thank you. Great to be here.

Allison Nathan: This episode of Goldman Sachs

Exchanges was recorded on Friday, May 2nd. I'm Allison Nathan. Thanks for listening.

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