

Unlocking an AI-driven M&A supercycle

Goldman Sachs Exchanges

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Allison Nathan: Generative AI is poised to transform nearly every industry, sector, and job function. So, how are companies and investors preparing for these transformative shifts?

Jung Min: Investors, both public and private, are thinking about how do I invest into the infrastructure that's going to develop and power AI into the future? And I think our clients, both investing and corporate clients, they're really thinking about how if you're a leader in one of those layers, what else do you need to think about in terms

of where you invest for where you might make acquisitions across the different layers in order to position for the future?

Allison Nathan: I'm Allison Nathan and this is Goldman Sachs Exchanges.

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The rapid rise in adoption of generative AI is spurring companies of all sizes to rethink their strategic plans for growth. To help explain how gen AI is reshaping the M&A and dealmaking landscape, I'm sitting down with Investment Banking's Matt Lucas, who's joining me in the studio, and Jung Min, who's joining us remotely from San Francisco. Jung and Matt will also be discussing findings from the just release GS report called "Navigating the AI Era."

Jung, Matt, welcome to the program.

Jung Min: Great to be here.

Matt Lucas: Thank you.

Allison Nathan: So, both of you sit within the technology, media, and telecom or what we call TMT group within our Investment Banking business, which is really where much of the excitement around gen AI is centered. So, to start, Jung, maybe just give us some context around that excitement. And how big of a development this is really.

Jung Min: Sure. So, I think the current excitement is fundamentally different, both in terms of the scale and the scope. But in terms of AI development, it's not actually entirely new. So, as recently as the mid 2010s, for example, we had a wave of companies funded. There were a bunch of semiconductor companies, for example, that were funded to compete with NVIDIA. Many VC firms that had only been investing in software for probably ten - 15 years made their first semiconductor investors in a long time precisely because they were excited about AI.

And I mention that because I think it's useful to contrast that with what's happening now. And that will illuminate what's so different about the excitement today.

The main difference, I think, is this chat interface. Now,

that sounds very simplistic. But what I mean by that is because it's available in this chat interface that everyone can access, I think now everyone can imagine that these AI technologies, and specifically generative AI, can really impact everyone doing anything and for any purpose.

So, the image of what it can be is much, much bigger than before. And that takes it from being a technology thing into a economy-wide or society-wide thing.

Allison Nathan: Just talk to me a little bit more about that because the technology itself, then, hasn't really changed that much? Or how has it evolved versus just the interface to access it?

Jung Min: Well, there has been a fundamental breakthrough. Although, it didn't happen just recently. You know, the transformer technologies started a little while back. But the expression of that and the improvements in that have been significant over the past couple years. And I think with OpenAI releasing ChatGPT on Microsoft Azure and what Microsoft did around that, that is truly improved. And maybe you can say really different.

But I do think it's this interface that's also let it become accessible. And therefore, everyone can imagine the practical application of these new technologies being much better than they have previously imagined.

Matt Lucas: The ingredients that have led to the breakthrough in generative AI, they're iterative in nature. The hyper scale computing has been around for a long time in the Cloud. The availability of large amounts of data from the internet has been around for a long time. And as Jung said, the transformer algorithms have existed in similar form for some time. It does seem that we've had this moment in the last year or so where we had this great leap forward in the capabilities of the algorithms that we can observe, which has been introduced to the public by means of these chatbots.

But the thing is, when we talk with our clients that are producing the technologies, many of them say no one was really expecting this level of success to happen so fast. And so, there is this breakthrough.

And another thing that some clients say is a lot of computing is similar to classical physics. Which is to say, if

we can explain it in tidy ways and with algorithms that are deterministic and so on, in many ways, generative AI is more similar to biology where there's plenty of processes that just work, and we don't really know why. But we can clearly observe that they work.

And so, there's a little bit of a mystery in the way that it's advanced so quickly. And that leads to some of the uncertainty in the way that it's going to play out from here.

Allison Nathan: Well, you say that we have achieved this level of success. How do you define that level of success, ultimately? And are companies really using this? Or is this just a tool that a lot of people are experimenting with that isn't really having tangible benefits for companies at this point?

Matt Lucas: I wouldn't be so categorical as it doesn't have tangible benefits for companies at this point. But it is very clear. I've almost never heard anyone express an opinion other than we are at the extreme beginning of a wave of transformation. And we have not even scratched the surface of the way this is going to transform every industry.

Again, with ChatGPT, this was the fastest application to get to 100 million users. Faster than every social network there's ever been. The penetration of generative AI technology has been extremely rapid. And that's a sign of the fact that a very wide group of people recognize that it's doing something that's very exciting.

But ChatGPT, in and of itself, is, I don't want to say, toy-like, but the applications are not super clear. We are talking with clients who are working to apply generative AI within their businesses and to generate business value for themselves. I would say there's very little of that happening today because it takes a while for enterprises to adopt these kinds of technologies. It takes a while for them to figure out whether they should.

Most fundamentally, the use cases from generative AI that are going to drive the most value, we can't even conceive what they are yet. We're just learning what these algorithms can do. Again, we've had this explosion and this leap forward in seeing the creative capabilities of computers. But we don't know what that means in terms of industrial applications yet.

Killer application for, let's say, the next decade is going to be bringing together enterprise data sets, which is to say data that companies have available, with the intelligence capabilities of generative AI. That's going to take a long time to do to bring that data online in a way that's accessible to AI algorithms. And get companies figuring out the ways that they'll be able to derive value from that union. But that's going to take years.

And companies are definitely investing in it. There are very few companies that have moved from proof of concept into real production and spending real money on AI. And so, for that reason, it all feels very, very nascent. It's something that's going to take many years to play out.

Allison Nathan: And Jung, just picking up on that, I mean, for that reason, a lot of the activity seems to be centered in how are we powering this new technology. Talk to us a little about the activity you're seeing around everything that's required in terms of infrastructure across sectors and companies to make this AI future a reality.

Jung Min: That's right. I think you're absolutely spot on to focus on the infrastructure. And I think the reason for

that is because we're talking about such fundamental advances in technology. I think over the past ten years or so, we've gone through this period where a lot of people or a lot of us focused on one layer of technology. We were looking at software or we were looking at systems or we were looking at semiconductors.

But we were viewing them as very much horizontal things that work together. But really the advances were happening at a distinct layer.

And now, we're seeing that, actually, in order to have made these advances so far, and in order to make the advances that many of our clients are working on in the tech industry, you have to, again, look at things holistically. You have to know how software is affected by the semiconductors, vice versa, and so on.

You know, I think it was about ten years ago that Andreessen said that software is eating the world. And he was exactly right. It's gone into every aspect of our lives. But it turns out if you want software to run the world or if you want a lot of the world to run on software, you need a ton of investment in infrastructure. So, you need the

investment in our power systems, the energy that we have. You need the investments into data centers. So, the AWS, Azure, etcetera, infrastructure. And importantly, you need big advances and investment in semiconductors.

So, suddenly, NVIDIA is the most important company oftentimes when we talk to our software clients. They're very, very focused on what NVIDIA's doing. And then, importantly, what NVIDIA's competitors are doing in order to advance the compute infrastructure that's going to power AI. So, I think that's something that's very new and different in terms of the activity. And I think that means that in terms of investment, investors, both public and private, are thinking about how do I invest into the infrastructure that's going to develop and power AI into the future? And I think our clients, both investing and corporate clients, they're really thinking about how if you're a leader in one of those layers, so if you're a leader in semiconductors or software, what else do you need to think about in terms of where you invest or where you might make acquisitions across the different layers in order to position for the future?

Allison Nathan: And are we seeing acquisitions playing a

big role here? What are you observing in terms of investments versus acquisitions and the activity on the M&A side?

Matt Lucas: The number one important ingredient you have to have for companies to do M&A is confidence. And I think that explains a lot of what we're seeing around AI in terms of M&A right now. For the most part, most companies, it's so uncertain what the meaning of AI is going to be for their industry that there's not a lot of M&A to do yet. You don't really know exactly what you would be buying or why or how it's going to fit in. And so, we're not seeing it.

There are absolutely a few pockets where we're seeing specific kinds of activity. So, one pocket I would say is particular kinds of use cases and domains that clearly translate well already to the generative AI tools that are available where generative AI presents a clear and present disruptive threat to businesses.

So, examples would be law, legal research. There've been a few relatively small, but notable M&A transactions around tools that enable you to review case law and create legal

arguments using generative AI. The reason for that, the reason that's a domain where this has taken off is, I think, because it's very text based and the interface of ChatGPT lends itself very well to legal research.

Another area that we're seeing that's similar is the area of customer support and chatbots. You know, we were all accustomed to chatting with whatever company online is a customer when we need support. I think in some number of years, let's call it five, it will extremely rarely be a human on the other end of that kind of an interaction, again, because the ChatGPT type interface lends itself very well to that kind of an interaction.

And so, companies that are familiar with the dynamics in those particular kinds of industries, they can have the confidence to look at a tool that is working well with generative AI and say, "That's a potential M&A target for us." So, that's one category where we are seeing a near-term activity.

The second area where we are seeing activity is the companies that are closest to the core of the phenomenon, the technology enabling companies. Some of which Jung is

describing. These companies see they have the best view of how this area is going to evolve and it's truly fundamental to their business. Companies like NVIDIA or Microsoft or Amazon, or any number of other infrastructure technology companies. And in many cases, they are familiar with the targets that are doing the most exciting things around the technology. And so, they're able to make acquisitions and plug them in. One example of this is a company Databricks that bought a company called Mosaic. It's a very, very prominent example. There have been others.

But most of the M&A, in the same way that most of the effective generative AI that takes place across the entire economy is going to happen years down the road as enterprises become more comfortable using the technology, most of the M&A that's going to happen on account of AI is going to happen well down the road, years down the road.

There are a few things that have to happen to unlock what I think is going to be a super cycle of AI M&A. AI M&A is going to depend on having an AI company. The target company in an M&A transaction has to be an AI company. And it's probably going to have to be that these AI companies have real revenue. And for AI companies to have

real revenue, enterprises are going to have to be spending real money on AI. And that's just not really happening yet. Enterprises are still figuring that out.

A corollary of that is the regulatory environment, the comfort that enterprises need to be able to really pivot their operations and rely more on AI as part of their day to day operations in order to spend real money on it and invest in it, I think, the legal and regulatory frameworks around AI will have to mature and settle a little bit before enterprises feel that kind of confidence.

Jung Min: One thing we have seen is in the relatively small number of deals that have happened, public investors, even sometimes with the acquirer is not a technology company. So, for example, there's a large information services company, I'll call it, that did an acquisition of an AI technology company. And the buyer's stock price rose more than the price that they paid for the target company. Their investors were basically saying, "I like it that you're being proactive. And I like it that you're looking into the future and taking action to be well positioned for the future."

Allison Nathan: So, companies are just being rewarded for the hype?

Jung Min: Exactly. And I think investors are also saying, looking, we'd rather you act earlier, rather than wait to get disrupted by emerging companies or other companies in tech.

Matt Lucas: Yeah. That word hype, we've got to be very careful with that word, hype. There's no question that generative AI has, I think, basically already gone through something of a hype cycle on the back of ChatGPT. There was maybe a three-month period in the wake of the release of ChatGPT where it seemed like investors' perception of what any individual company was doing with respect to generative AI was driving stock prices in a wild kind of way. And I think that was just a function of investors recognized the potential, the importance of generative AI, but didn't really know how to analyze specifically what it would mean for a particular business and its prospects. And so, we would just get these massive reactions.

There were some M&A transactions announced very early on in this period that got a positive hype reaction to

generative AI. But I think we're kind of past that now. Investors are being more thoughtful about what is the meaning of a transaction.

But the fundamental point is absolutely there. Investors, again, recognize the importance of generative AI. They realize it's going to be important to all industries. They want companies they invest in to be thinking about AI and making investments that are going to drive their success over the long-term. And so, if M&A is the right tool to do that and investors understand why the investment makes sense for a business, they're absolutely supporting it.

Allison Nathan: And so, isn't that a motivation for companies then? Do you expect to see more M&A activity off the back of this then?

Matt Lucas: Absolutely. Look, I think there are a few things that are going to unlock a number of AI transactions over, let's say, the next decade. The first thing is enterprises have to start spending real money on AI for there to be AI companies. That's not really happening today. We're having proofs of concept. We're having explorations. But for the most part, most of the large

potential customers of AI are still figuring out how they're going to play it. And most of the AI companies are really pretty nascent.

The second thing is I think that enterprises are very nervous about adopting AI for some specific reasons in the same way that enterprises were nervous about adopting public Cloud technologies ten or so years ago. They're worried about committing to platforms that they'll get locked into and vendors that they'll get locked into. They're worried that the legal and regulatory frameworks are going to change, and they'll have to undo investments that they've made.

A lot of those concerns over time get figured out and settle down. And that's going to encourage enterprises to invest more in AI companies and, ultimately, make AI companies more eligible M&A targets.

Allison Nathan: And so, we've talked about how much of the investment activity now is focused on the infrastructure side. We're seeing some M&A activity as well as we approach this space more broadly. Jung, how do you see the investment landscape evolving over time? Again,

infrastructure is a focus now. What comes next?

Jung Min: Yeah. I think for the earlier stage investor, so private company investors, VCs, one of the issues that we've been talking to them about is exactly your question. So, I want to invest in the company that's going to create something great in terms of a front-end application or maybe even a consumer service. When can I do that? What are the right companies? What are the right end markets that those companies should be targeting?

I think to be a little bit blunt; it may be too early for the consumer stuff. Based on what we see, investors are probably going to have to wait longer in order to find those opportunities. Maybe that activity in terms of products and services actually ends up being concentrated amongst the larger companies, at least for now.

On the front-end applications, I think there is a layer in the middle between software companies that enable other companies to build AI-based products and services and the true front end application companies that have some promise. And we see lots of investors focusing on those companies.

The main thing, Matt alluded to it as well, the early investors don't want to invest only in hype, as we were just talking about. They do want to see business models that have proof and have traction from real customers, meaning customers are willing to pay for those products and services.

If I, for a second, go back to that topic of hype and what's happening in the public markets, one thing about NVIDIA, for example, is that lots of the public and the press, I think, in particular, focused on the increase in stock price. And said, "Wow, that's amazing. Maybe that's overhyped."

What's not as commonly understood is the estimates, and then eventually the actual results of NVIDIA went up even more than the stock price. So, that its multiple came down. So, that's, I think, a dynamic that investors are looking for, at least to some degree, of let's see the effects of AI show up at a company's results. At least let me see customers signing on to buy these products and services before I invest into these companies that are trying to ride this AI wave.

Allison Nathan: Well, it's been almost a year since

ChatGPT came out and then it really was first quarter when the excitement about NVIDIA really caught on. So, we're, like, let's say six months out from that. Have we seen further follow on that has continued to sustain that excitement in terms of actual performance?

Jung Min: Certainly, if you look at the performance that we hear about companies as well, there are companies that have significant revenue. And by significant, we mean tens, hundreds, even approaching or passing a billion dollars in revenue. And for that to have happened so quickly, it does show that amongst enterprises, there is at least a great desire to explore what can be done.

Some of it may work. Some of it may not. I think Matt earlier made a very good point about we need to see the massive enterprise customers adopting and paying for these technologies.

Matt Lucas: Another way of looking at the, whatever you want to call, the six-month aftershock or are we still in the zone of excitement around this, the ChatGPT announcement was absolutely the turning moment for this technology in terms of the public's understanding of it.

I think from a banking perspective, equally notable was Microsoft's massive investment in OpenAI, which basically completely related to the ChatGPT and all the usage that it was going to drive and the fact that OpenAI probably needs someone to fund all the excitement that they were about to power.

And you know, it's pretty notable that transaction happened probably six to 12 months ago. And now there are other similar transactions that are happening. So, the first specific example, Amazon recently invested \$4 billion, roughly speaking, in a company Anthropic, which is a very similar kind of company to OpenAI. And you can speculate about whether there are other companies that are going to make similar kinds of investments in similar foundation model companies. And so, clearly there's something there. It's taken some time to see it manifesting in other M&A events. But I think we'll continue to see more of that as well.

Allison Nathan: So, you just published this report, "Navigating the AI Era." What motivated that?

Matt Lucas: All different kinds of clients have been interested in talking about generative AI. Different kinds of clients are interested in talking about it in different kinds of ways.

There are the companies that are at the core of the phenomenon. They are clearly very technologically sophisticated. We talk with them about the kinds of themes that Jung was describing with integration of different stack layers and very, very technological topics. There are also extremely technologically unsophisticated companies that are interested in this topic. They are more interested in how is this going to affect the economy? What's going to happen to the workforce? What's going to happen to GDP? How many years is it going to take to play out these kinds of questions?

And we tried to be comprehensive in the way we describe and think about these phenomena. And so, the report is an attempt to address a very broad audience with a very broad way of thinking about this phenomenon, while also touching on the technological elements to it that are more part and parcel of our TMT practice. So, we'll kind of zoom in and zoom out, but ultimately deliver these relatively

broad conclusions on the meaning of AI that people are going to be able to understand no matter which industry they're in.

Jung Min: Maybe to add one point to that, I think because all of our clients across all industries are at least thinking about this topic, then as Matt alluded to, we're in the fortunate position to be in dialogue with many of them. So, we have some sense of how they're thinking about it.

If you look at the paper, you'll see that based on an internal survey, we'll call it a survey of informed opinions at the firm, we were able to get some sense of how much AI could impact the various industry verticals. So, healthcare, financial services, industrial, so on and so on. So, there's some quantification that we did there. But suffice it to say we think it's going to be a very big impact based on what we've heard from our client dialogues.

Matt Lucas: And depending on your point of view, this is either self evident or very interesting that all of the industries when we conduct the survey, every single industry believes that generative AI is going to be a positive development for their industry. There's not going to be an

industry that goes away or gets replaced or suffers because of this.

Now, what happens within individual industries and individual companies, that's a more nuanced story and we'll see how that plays out over the next decade. But the point is, there's going to be a whole lot of efficiency, productivity, profit unlocked on account of this technology across all industries, all sectors, and we're excited to see that.

Allison Nathan: It sounds like we're going to have a lot more to talk about in the next 12 months, 24 months, and beyond. So, thanks so much for joining us, Matt and Jung.

Matt Lucas: Great to be here.

Jung Min: Thank you.

QUESTION:

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