

## Insight: From chips to cloud: Advances and opportunities in AI

**Adrian Lu, Investment Analyst, provides insights into the developments and opportunities in Artificial Intelligence (AI). The frontrunners in this space and the challenges and future growth of this sector.**

**In a series of Magellan Minutes, we discussed ChatGPT and the rapid advance in that technology. What's occurred since then in relation to ChatGPT and artificial intelligence?**

There've been a lot of developments and we certainly feel that every day as we try to keep abreast. It's a bit like drinking from a fire hose sometimes, but the rate of development has actually been accelerating. If you look at the scientific community, there's been a tremendous amount of progress and discovery in many areas, like improving large language model efficiency, improving the ability of models to perform reasoning-based tasks, or their ability to handle content outside of text. This includes things like audio and visual data, multilingualism, the list really goes on.

If you look also towards the hardware enablers, the semiconductor industry has been evolving and innovating at a very rapid clip. We've already seen new generation of chips designed to perform AI computing from companies like Nvidia and Alphabet, and there's also a global shortage at the moment in these AI chips, most notably the Graphics Processing Units (GPUs), which are needed to run these massive AI models.

This all speaks to just how much demand there is for companies to invest in what could be a potentially large opportunity. Turning to the software side of things, there's also been a lot of innovation velocity happening in software and cloud, and there are a lot of companies to name here, but in particular, Microsoft with OpenAI, and Alphabet, both of whom are releasing and developing new products. It feels like there's something new coming out every single day. They are both neck and neck in terms of this race for AI leadership.

**Digging deeper into Microsoft and Alphabet, you previously discussed Alphabet and how there'd been some concerns around falling behind in the AI space. You commented that you thought this criticism was not**

**warranted. Where are Alphabet at today in relation to AI, and what developments have they pushed through?**


Previously I mentioned, despite what you might call early slipups on the marketing and communications side of things, Alphabet was and is, for that matter, still very much at the forefront of AI research and development. Alphabet employ some of the best deep learning scientists in the world. They have a massive consumer and enterprise platform on which to deploy their AI, and they develop their own AI chips, which is a massive, very difficult endeavor and a very expensive one, but they can do it because they've got the scale and the experience to make it work.

Now, you're right, there had been a lot of vocal concerns that Microsoft, with Bing search engine and ChatGPT, that they would start to erode Google's very dominant and very profitable search business. However, through the initial excitement, what we've seen in the month since, is that Google's search share is basically unchanged.

We can make a couple of observations from that. On one hand, it's evidence of just how difficult it is to disrupt Google search, but on the other, it may also be a function of us still not quite yet figuring out the right way to insert conversational AI into search, that will be figured out in due course. It may be Google that does that figuring out, but I wouldn't rule out Bing either in this race. If you look beyond that, Alphabet hasn't stood still either. They've continued to advance the cutting edge with new models like Gemini. They've released a new generation of their own AI chips, and they've significantly expanded the amount of AI services on their Google Cloud platform, which has actually now become the preferred, or potentially, the most popular cloud destination for new AI startups. They're very well positioned.

**On Microsoft, are there implications for them and what they're trying to do with AI?**

For Microsoft, I wouldn't rule out their opportunity for search market share, but unlike Google, it's really not core to our investment thesis for Microsoft. What matters a lot more for Microsoft is their opportunity in enterprise software and cloud. On that front, we've been really impressed with just how quickly the company has been moving to market to capture some of this opportunity. We have seen the launch of Microsoft 365 Copilot,



it's on limited release and there's a wait list with a lot of interest to try the product. Microsoft 365 Copilot is an AI assistant built on the same underlying technology as ChatGPT and augmented with Microsoft's own AI, to provide a very useful productivity tool for its users.

It's quite impressive what Microsoft 365 Copilot is able to do from just a simple text prompt, like creating an entire marketing deck, following up on a sales lead, summarising a meeting, or generating data visualisations, there's just so much it can do. It's going to be quite interesting to see how people will end up using this product. Microsoft announced pricing for Copilot at US\$30 per seat. It remains to be seen just how much the uptake will be however, to give a sense of the potential opportunity at a modest assumption that there is a 3% uptake in its user base, that could lift Microsoft's commercial 365 revenue by 10%. It's a great example of Microsoft's ability to capture and monetise new innovations. Microsoft has continued to innovate and infuse AI into its broader products, like Alphabet, it's also expanded the AI services on its own Azure Cloud platform, which is now starting to actually be a contributor to its overall growth. We're pretty excited about the opportunity here for Microsoft.

## What are your overall observations on the AI opportunity?

At this point, we're still relatively early in the opportunity. Things are moving so quickly that it's difficult to predict just how this uptake will progress and over what timeframe this is going to occur. We feel comfortable that our portfolio is positioned to capture on this AI opportunity across a range of scenarios through our cloud leaders like Microsoft, Amazon, and Google, through our enterprise software beneficiaries like SAP and Intuit, and, of course, the hardware enablers, namely ASML. The rate of progress is certainly not slowing down, and there will be a lot more developments to discuss in the future.

By Adrian Lu, Investment Analyst

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