The Impact of Artificial Intelligence on the Creation of Medicines

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By Don Tracy, Associate Editor

Najat Khan, chief R&D officer, chief commercial officer, Recursion, and Fred Hassan, director, Warburg Pincus, discuss how artificial intelligence can help reduce healthcare costs at the 20th Annual Young & Partners Pharmaceutical Executive Summit held at the Yale Club of New York.

At this year's Young & Partners Pharmaceutical Executive Summit, Fred Hassan, director, Warburg Pincus, sat down with Najat Khan, chief R&D officer, chief commercial officer, Recursion, to discuss ways that artificial intelligence is impacting medicine creation.

Hassan began by explaining how artificial intelligence (AI) is similar to electricity, with many industries having the potential to grow as a result of it, mentioning that Google CEO Sundar Pichai believes that within five years, it will grow into mainstream status. Hassan asked Khan if she felt the same way.

"I think so, but let's unpack that a little bit," stated Khan. "A lot of people talk about writing a prompt and keeping it summarized, and that's the easy part. The next thing is, can it generate new ideas? That's much harder. Sometimes it hallucinates, and sometimes it doesn't but it's getting much better at a pace that's quite astonishing. I remember last year when somebody asked me this question, I thought that electricity was like an analyst. You have year one, and now it's already a senior analyst, it's learning quite fast. If you think about that in the healthcare space, there's so many questions that we talked about from getting to it in digital format; and can we predict and design better molecules in terms of pharmacies given that our rate failure rate is around 90% in getting a drug to the market? There are applications of AI across the entire spectrum, and that's why I think it is like electricity."

Switching gears, Hassan brought up how the biopharma industry could be a great area for AI, explaining that despite the complexity around it, the uptake has been very fast in other sectors. He asked Khan if there was a mindset challenge among scientists in biopharma or commercial people regarding adoption of AI, commenting that financial services have moved rapidly, while biopharma has yet to do the same.

"A huge part of it is the mindset, but pharma companies in general have high margins," said Khan. "Whenever an industry has high margins, what's the reason for change? That's the truth of it. Second, there's a lack of understanding when it comes to using it. I think everybody knows what the pain points are. But then how do you deploy it? Sometimes, it means that your job changes That's threatening, right? I've seen that firsthand, and this has happened over many generations. There's two ways to respond. Either you evolve or you get evolved. You don't have to be a coder to actually understand AI. It's just like another science or another technical topic. But it's more important to understand how to use it, what not to do, what to do. given the complexity of the pharma industry, the regulations that are there, the limited understanding of biology today, there's just a fear of both personally being threatened."

Finishing off the discussion, Hassan explained how the cost of healthcare in the US is becoming unsustainable. Additionally, he stated that while the industry was extremely innovative, there are massive barriers to innovation being adopted. With that statement, he asked how AI could support reducing healthcare costs.

"Let's start with therapeutics. It costs a lot of money because there's a massive failure rate," said Khan. "If you look at some of the biotech companies, half of the population there is computer scientists, and half are scientists. Recursion has 15 medicinal chemists and a pipeline that has 20 programs. You're doing so much computationally, so essentially, you're failing using your computer, but you're not failing by going to the CRO running an experiment, coming back, and doing the experiment again. You're also starting with a better hypothesis of what's driving the disease. You're not starting with mouse data and then having to translate it to humans. That's where a lot of failure happens. You're going through it much faster at 18 months instead of three or four years, and that's savings."