



Tracking Gen AI's Value Proposition

Following the money trail in Generative AI reveals partnerships as the preferred business model, along with dizzying startup valuations and concerns around data security and accuracy.

In the year after San Francisco-based AI company OpenAI launched its ChatGPT chatbot, the contours of the emerging stakes in the Generative AI space have become sharper. Large investment deals, massive startup valuations and mega partnerships are giving shape to business models across the Gen AI value chain.

Most of the investment is in companies building so-called foundation models. These models enable users to build customized models for specific applications, be it in health care, law or education.

A big chunk of those investments will finance the computational and infrastructure costs of training foundation models to work with large volumes of data. The foundation models are trained on broad sets of unstructured data to respond to prompts in natural language and generate text and image outputs. Examples of foundation models are GPT-4 from OpenAI, Gato by Google Deepmind, Bing Chat from Microsoft and Duolingo Max from Duolingo.

With each new version, those training costs rise exponentially. For instance, OpenAI spent \$10 million to train the GPT-3 language model, and \$110 million to train GPT-4, which it released in March 2023.



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Prasanna (Sonny) Tambe

The Wharton School



“[The payback from investments] in Gen AI’s ability to reason could be quite remarkable but it is unpredictable,” noted [Prasanna \(Sonny\) Tambe](#), Professor of Operations, Information and Decisions at the Wharton School. Tambe, who is also faculty co-director of [AI at Wharton](#), was speaking at a conference hosted jointly by Wharton’s Mack Institute for Innovation Management and AI at Wharton in November 2023, titled “[Driving Innovation with Generative AI: Strategies and Execution.](#)”

Eighty percent of data that is churned out is unstructured, or doesn’t have pre-defined formats; examples are web pages, emails, memos and presentations, Tambe noted. He explained that Gen AI can use that unstructured data to generate insights, summaries, and responses that are relevant and understandable to users, including managers. “AI doesn’t simplify the documents into a few factors; rather, it learns to navigate and interpret the complexity of the data to provide useful and contextually relevant outputs.”

Partnerships are the default mode

Partnerships with billions of dollars of skin in the game have become the default structure for Gen AI. Big companies want early access to the innovation of startups, and the latter want the capital and other resources that large companies can bring.

For instance, Gen AI companies are big consumers of cloud services, and naturally they are attracting [huge investments](#) from cloud services providers. Microsoft has invested \$13 billion in ChatGPT maker OpenAI, which patronizes Microsoft’s Azure cloud service. Amazon has committed \$4 billion and Google \$2 billion to Anthropic, an Open AI competitor; it will pay back most of that money by patronizing Amazon



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Kisa Mateene

Google Cloud



Web Services and Google Cloud. “With chip capacity being [constrained], Gen AI for a startup is inextricably linked to a cloud provider,” explained [Kisa Mateene](#), Director, AI and Startups Business at Google Cloud.

Those investments are occurring at ambitious startup valuations. OpenAI, founded in 2015, is looking at a [valuation of \\$90 billion](#) and two-year-old Anthropic is [eying \\$30 billion](#). Some 60% of the new cloud unicorns (companies with billion-dollar valuations) were Gen AI-native, according to an [Accel report](#).

“It feels like a mad rush in terms of the demand we’re getting from early-stage startups which are focused on building foundational models and training their models,” added Mateene.

Elsewhere in the Gen AI ecosystem, companies are seen incubating and mentoring startups which show promise. LIFT Labs at Comcast NBCUniversal is such a vehicle running accelerator programs for startups. “It is the front door to Comcast for startups looking to work with the company ... and tackle innovation challenges,” said [Tito Obaisi](#), Senior Manager, Pipeline and Insights for the Startup Engagement Team at Comcast NBCUniversal LIFT Labs.

A craving for meaning

Generative AI technology traces its origins to the chatbots of the 1960s, but it captured the public imagination only last year after ChatGPT brought the ability to have humanlike conversational dialogues and create content.

Gen AI technology essentially boils oceans of data to produce high-quality text, video and images within minutes. For individuals, Gen AI’s capabilities span the spectrum from writing school essays to clearing MBA tests. For enterprises, it can transform how they design, make and deliver products.

Within organizations, it is the ultimate Man Friday: “You have the opportunity to use Gen AI to provide employees with the ultimate sidekick, intern, lab assistant, or brainstorming partner,” said [Scott Snyder](#), Chief Digital Officer at EVERSANA, a provider of commercialization services to the life sciences industry; he is also a Senior Fellow at the Mack Institute.

How Gen AI is different from other innovations

The biggest difference between Gen AI and earlier tech innovation waves is that “past paradigm shifts saw innovation come mainly from startups,” said [Crissy Behrens](#), Principal at Insight Partners, a global venture capital and private equity firm focused on the software sector with more than \$80 billion assets under management. Insight Partners’ investments include Jasper, a fast-growing startup based in Austin, TX, that provides AI tools for enterprise marketing. “But [with Gen AI], we’re seeing innovation also from enterprises and incumbents.”

Mateene first realized Gen AI is different from prior tech waves when he tried to sign up startups to partner with Google. “Attracting Gen AI startups to adopt one Cloud provider over another has become a very competitive market,” he said.

Another distinction from prior tech innovations is the projected size of the Gen AI market. Mateene said Gen AI is set to become as big as the cloud market. He noted that the cloud market is worth \$400 billion and growing at 15% per year, and it is expected to get to \$1.5 trillion by 2030. Gen AI too is expected to get to \$1.5 trillion by 2030 from \$100 million today, he added. “It’s going to be as big as Cloud. This didn’t even exist in most people’s imagination a year ago,” he said. (Bloomberg Intelligence [forecast](#) that the Gen AI market will be worth \$1.3 trillion by 2032; see infographic further down in this report.)

Gen AI companies are also evolving more rapidly than those in earlier tech innovation waves. “Gen AI startups have the ability to offer high-quality new capabilities that would be of value to enterprises, and at a much younger age than is normal,” said Obaisi. Two companies in the LIFT Labs program were under a year old, yet they had raised over \$100 million each, and counted many Fortune 500 companies



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Insight Partners

among their clients. “Maybe in an earlier wave of technology a company would have taken three, four or five years to achieve that kind of momentum in the marketplace.” On the other hand, that high octane rush will not last, and “it will tail off” at some point, he added.

How Gen AI companies build value streams

In choosing investment targets, Behrens is less attracted to the revenue size of a startup than to “the momentum” it has. “Usually that means the company has some early signs of market pull, which could be expressed as quarter-over-quarter revenue growth, an increasing number of customers, and strong retention,” she explained.

Momentum is high in the Gen AI foundation model space, and it will continue to see newer offerings. “I’m keeping an eye on startups that are helping enterprises make the most of open source models,” said Behrens.

Obaisi placed AI startups in two broad categories: those delivering AI-powered services; and those leveraging AI to help enterprises build their own AI capabilities. LIFT Labs is focused on a specific segment in the first category – those delivering AI-powered services by structuring unstructured data. An estimated 80% of data in enterprises is unstructured.


Obaisi cited two such companies that were part of the LIFT Labs accelerator. One is Coactive, a company backed by Netscape founder and investor Marc Andreessen, which brings the rigor and structure of a spreadsheet to visual data like images and video. Another is Monterey AI, which extracts insights from unstructured data like app store reviews and survey responses. “That just feels like a massive opportunity,” Obaisi said.



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Tito Obaisi

LIFT Labs, Comcast NBCUniversal



IN A LEAGUE OF ITS OWN

How Gen AI is different from other tech innovation waves

- \$100 billion today, \$1.5 trillion by 2030
- Innovators all: startups, incumbents, enterprises
- Startups partnering with Big Tech
- Ability to decipher unstructured data
- Startups attracting billion-dollar investments
- Tech companies hosting incubators, accelerators

Obaisi's second category of AI companies comprises companies that provide tools for AI-powered MLOps (machine learning operations). For instance, some of those companies offer services that benefit enterprise MLOps teams by making workflows more efficient and cost effective, thereby freeing up resources for those teams to do higher value work. One such firm within LIFT Labs is Clean Lab, which helps reduce the time to prepare data for machine learning from months to hours. Another firm Obaisi pointed to is Odyssey, which helps lower the cost of training and inference by more than half.

Mateene said productivity enhancers will probably be the first big use case in Gen AI. The next level of use cases will open up after enterprises begin using Gen AI applications and see them as secure and safe, he noted.

According to Behrens, the big question for startups is: “How do you build durable differentiation when many innovators already have a large distribution of customers?” Differentiation is critical because many Gen AI companies have overlapping offerings, Mateene said. For instance, after OpenAI released its chatbot, “everybody who was thinking about building a chatbot maker realized that they needed to pivot,” he added. “Startups have to be nimble and flexible. They must have that Ph.D. vision of a particular idea, but also have the flexibility to pivot away when it looks like somebody will come and eat their lunch in that space.”

Mateene has a ringside view of how differentiation plays out in Gen AI. Google Cloud’s Model Garden is a curated collection of many foundation models, which cater to varying user needs.

“In the early days, there will probably be many proprietary models. But I don’t know where we will end up. The demand for large language models could [grow] for more than two or three years, and then probably settle down to have niche uses,” Mateene said. “We’re in the first inning [of Gen AI], or rather, we’re just walking into the stadium. Nothing has started; nothing is happening as of yet, so it’s hard to predict [how this space will evolve].”

“If there are 20 companies today [in a Gen AI segment], not all of them will win,” Mateene predicted. “However those tools will proliferate and enable small companies with limited resources to punch above their weight.”



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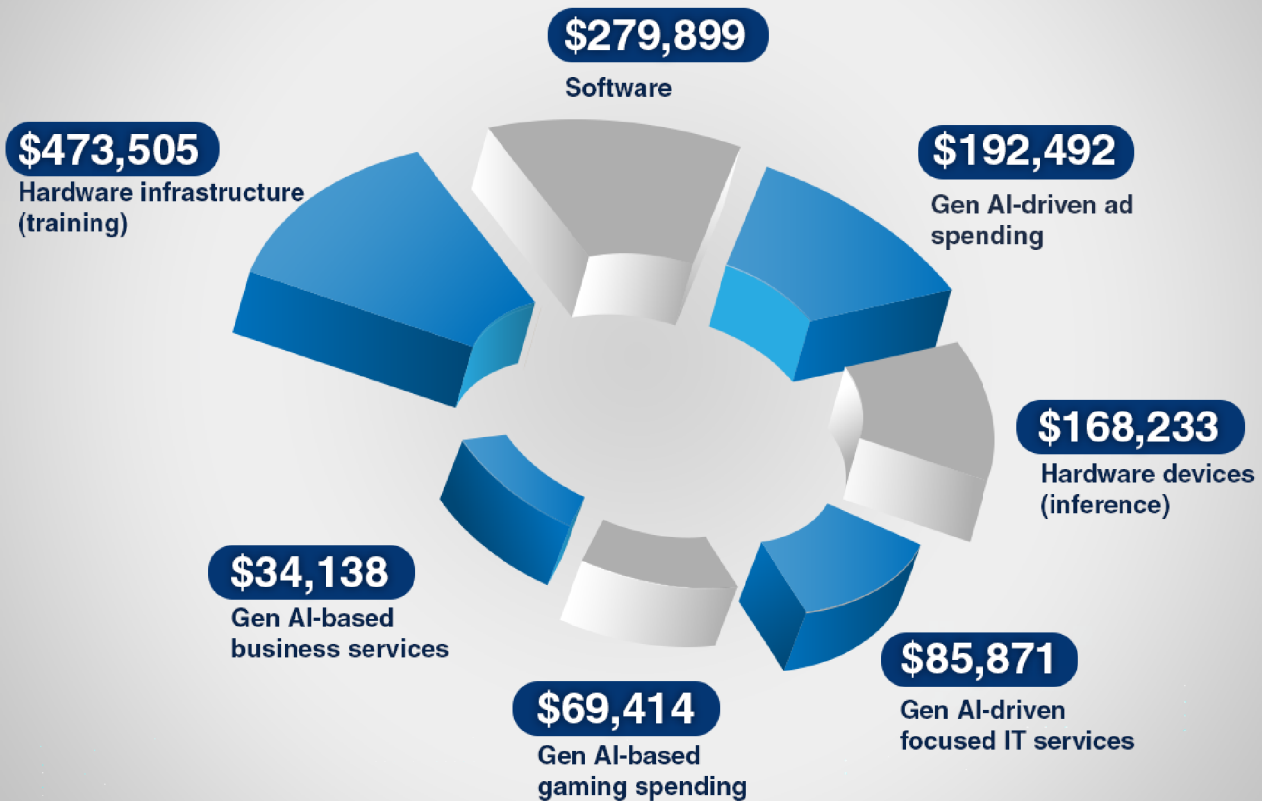
Kisa Mateene

Google Cloud



THE GEN AI MARKET OPPORTUNITY

Generative AI Projected Revenue by 2032: \$1.3 trillion



Sources: Bloomberg Intelligence, IDC, eMarketer, Statista

One big challenge is in identifying Gen AI startups and innovators that “are making a difference,” Obaisi said. For instance, LIFT Labs receives applications from “hundreds of companies,” he added. “Everybody has ‘dot AI’ on their website [address]. Everybody is an AI specialist on LinkedIn. So, it’s all about figuring out who the actual value creators are.” According to him, a big indicator of promising startups is the presence of founder teams possessing strong academic backgrounds in the relevant domain, perhaps with sparks of innovation in their doctoral theses.

How to decide on buy vs build

“Every enterprise should have a small, dedicated pool of resources to tinker with [Gen AI] technology,” said Behrens. “I’ve been blown away by what our portfolio companies have been able to create. From there, you can decide how to partner with companies to optimize systems, especially in developer tooling and infrastructure.” But that approach may not work for the application layer, Behrens continued, citing marketing support tools that some Gen AI companies offer. “It’s crazy for a marketing team at an enterprise to use their resources to try to build that application in-house.”

Options are plentiful for companies looking to buy instead of building their Gen AI capabilities in-house. For instance, companies could buy Gen AI tools that will help their internal teams and processes work faster, and thereby free up in-house machine learning resources to focus on achieving differentiation, Behrens said.

Companies with in-house ML teams must determine which parts of the AI tech stack they want to own or to outsource from vendors, he said. They could make their choice after determining how core each AI application is to their business and addressing their requirements around cost, security and accuracy, he added.

Established companies that work with startups in order to tap into their innovation expertise must have clarity on guidelines and frameworks. They also must have the leadership skills to determine what they can and cannot do on their own. It is important to “keep it light-touch and allow bottom-up energy innovation from technical leaders within the company to bubble up,” Obaisi said. He noted that compared to earlier tech innovation cycles, the Gen AI wave is seeing many startups being run by “first-time entrepreneurs who are machine-learning Ph.Ds.”

Challenges Gen AI companies face

The shortage of chips with its downstream impact can be crippling. “One challenge we’re facing as an industry is a global shortage of GPUs and TPUs (graphics processing units and tensile processing units),” Mateene said “ Most of those chips

come from one or two buildings in Taiwan, which also make other chipsets. Hopefully that will work itself out of the system in 2024.”

A heightened focus on data protection is another challenge, especially because technology empowers fraudsters also to become more sophisticated. “It’s not just the good actors that have access to AI. The bad actors also have access to it,” Behrens said. She related instances of fraudsters mimicking the voices of a corporation’s employees to pass two-factor authentication tests and gain access to confidential material. “It’s terrifying that they can get that level of sophistication,” she added. But like all challenges, that setting also brings innovation opportunities for cybersecurity companies, she noted.

“In the beginning, when we went to pitch our Gen AI capabilities, the focus was more on the art of the possible. It has now completely changed to a focus on security,” Mateene said.

LIFT Labs’ most recent program in the fall included a company called DynamoFL, which focuses on crafting training models that use sensitive data without the risk of generating PII (personally identifiable information) outputs or leaking such information.

A shortage of machine learning talent is another major concern. Obaisi pointed to estimates that “less than 10,000 people in the world are capable of building the next generation of AI.”

Gen AI companies will also have to contend with an “adoption curve” among enterprise users, Obaisi said. Those users would have to identify the AI tooling capabilities that address specific workflows in their business units. “The ability to speak directly to specific workflows, team by team, and relate tales of productivity gains will be a big factor in diffusing those capabilities throughout enterprises,” he added.



William and Phyllis
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Some users can shorten that adoption curve. “The time-to-value in Gen AI is so quick that end-user education isn’t a big hurdle in most of the use cases,” Behrens said. Some Gen AI offerings are focused on making it easy for users who don’t know what to ask or how to pose queries, she noted. “Once people start using it, they quickly get excited.”

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