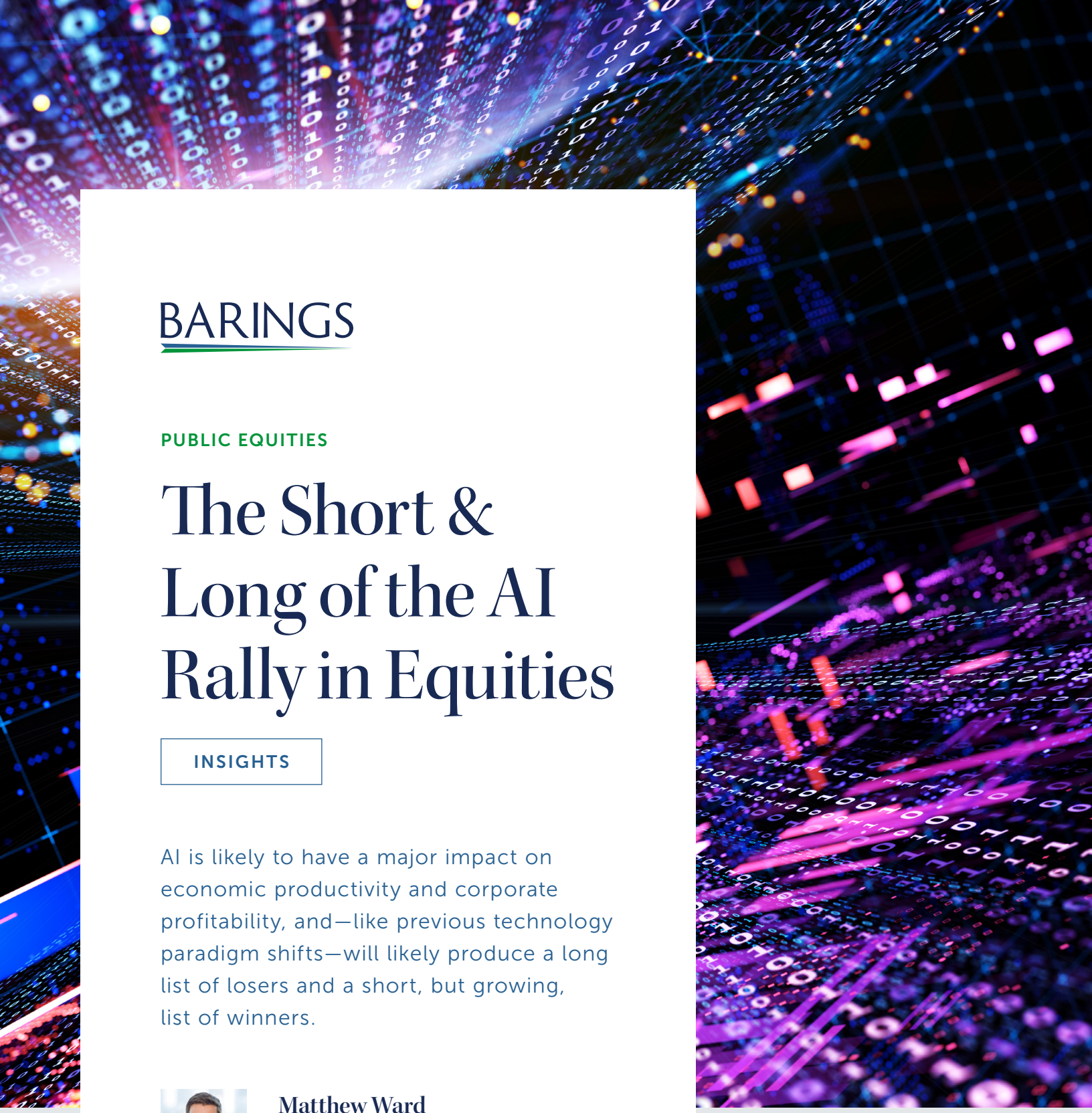

BARINGS

PUBLIC EQUITIES

The Short & Long of the AI Rally in Equities

INSIGHTS

AI is likely to have a major impact on economic productivity and corporate profitability, and—like previous technology paradigm shifts—will likely produce a long list of losers and a short, but growing, list of winners.

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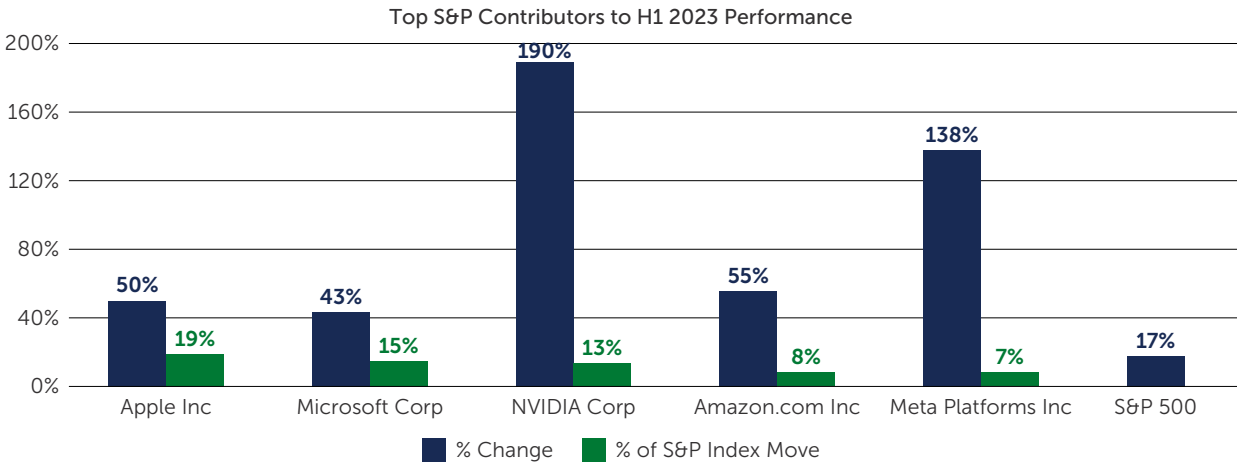
So far this year, nearly two-thirds of the gains in the Standard & Poor's 500 Index has been driven by the performance of five giant technology companies **(Figure 1)**—in large part due to the surge in demand for all things relating to Artificial Intelligence (AI) and ChatGPT. The burning question is: can this tech-led rally can be justified by the fundamental performance of these companies?

Figure 1: Tech Companies Drive Market Rally

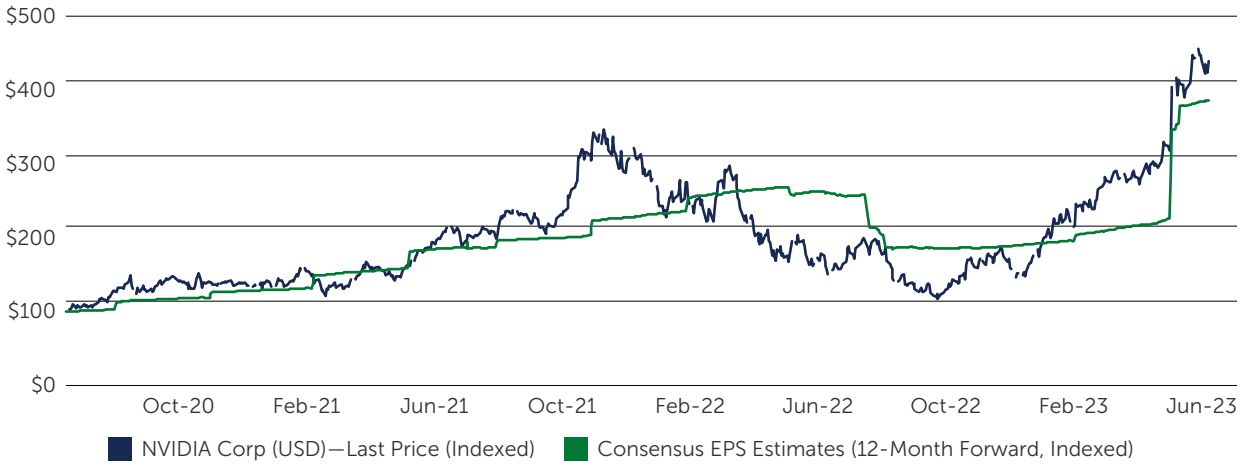


Source: Bloomberg. As of June 30, 2023.

Why Scale Matters in AI

ChatGPT's breakthrough success of Generative AI services has had a disproportionate impact on the largest tech companies. Topping the list of companies affected is nVidia, which supplies the graphics processing chips, and servers networking equipment that was used to train ChatGPT and most of the other competing models. The boost in forecast earnings per share (EPS) from the sales of nVidia's AI systems explains most of the company's share price appreciation following their second-quarter earnings report in May **(Figure 2)**.

Figure 2: NVIDIA Shares Driven by Earnings Expectations



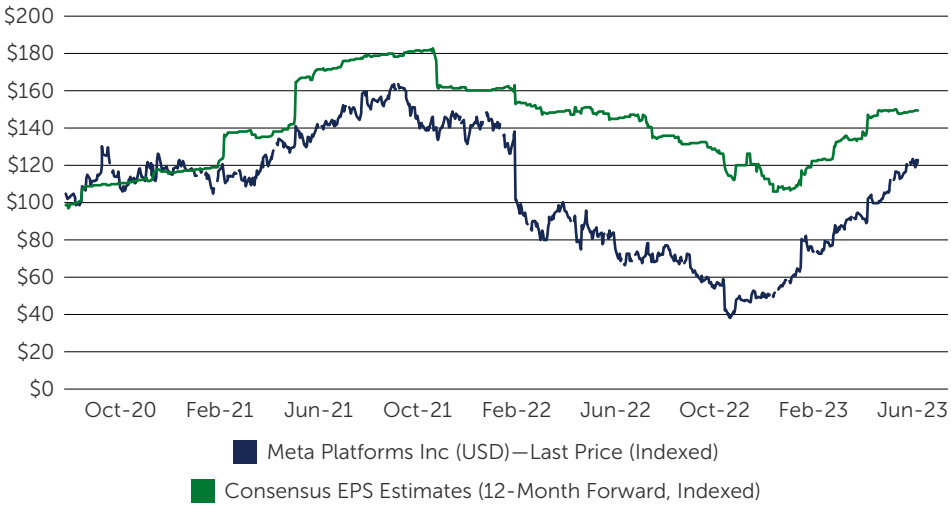
Source: Bloomberg. As of June 30, 2023.

The buyers of most of nVidia's systems are the very same companies driving this year's equity market performance, largely because the upfront costs of the systems and associated IT infrastructure needed to train AI's large language models are so high that only large cloud service providers—Amazon, Microsoft, Google and Oracle—and hyperscale internet companies such as Meta and Apple can afford them.

Cloud providers are well aware of this competitive advantage, having originally succeeded by leveraging their superior scale and unit economics to induce a growing share of software developers to build Cloud-native applications. This was followed soon after by the migration to the Cloud of traditional on-premise IT spending. The market for training and deploying AI models already appears to be following this familiar path, with the OpenAI-Microsoft partnership being the most obvious example in the Generative AI arena. Microsoft has invested over $11 billion into OpenAI to help fund access to the Azure Cloud for training and deploying AI models.[1] Over time, we expect to see more software vendors integrating AI tools into their Cloud-native applications, then large enterprises renting Cloud capacity to make running AI workloads more economic.

Looking beyond the Cloud companies to hyperscale internet companies, we see Meta in particular leaning heavily on AI investments. The digital advertising industry was thrown into survival mode following Apple's move to block the tracking of user clicks on Apple devices. Meta's recent successes in using AI to rebuild the return-on-advertising-spend for their advertiser customers is reflected in the significant improvement in their earnings' forecasts this year and in the gradual recovery in the multiple paid for those earnings.

Figure 3: Meta Using AI to Recover Market Leadership



Source: Bloomberg. As of July 10, 2023.

1. Source: Microsoft. As of February 7, 2023.

The Broadening Out

The next phase of the AI story, which we believe will play out over a number of years, will involve the proliferation of other types of AI tools made useful by Generative AI. ChatGPT illustrated that anyone can instruct an AI application to draw a picture in the style of a master painter, summarize findings from medical journals, suggest code for building software applications, and much, much more. The addressable market for such applications has exploded to anyone with a connected device. That is the rationale for the grandiose forecasts of trillions of dollars of value-creation to come.[2] For investors in technology companies, the question is what is the mechanism for this proliferation of AI?

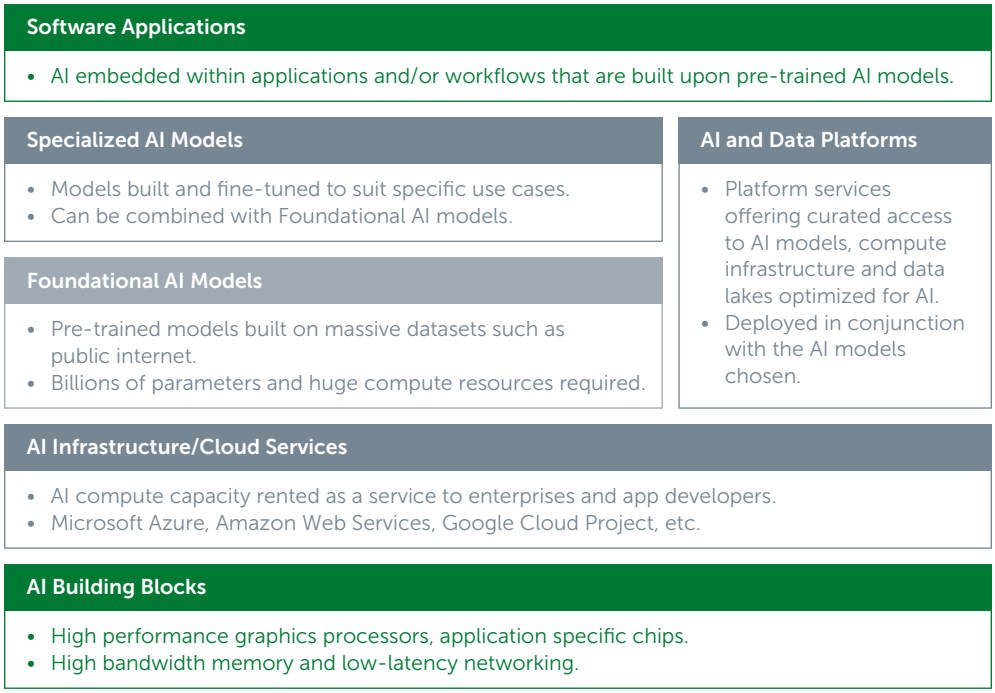
"The next phase of the AI story, which we believe will play out over a number of years, will involve the proliferation of other types of AI tools made useful by Generative AI."

As described above, internet companies are embedding AI into their operations, but also into their customer-facing services. Meta's launch of Threads leverages the scale of their existing Instagram customer base and embeds AI algorithms to surface the content that users will most likely engage with. The value of these AI investments to Meta will be measured in the level of user engagement and subsequent spending by advertisers to show ads to Threads users. However this works out, the reports that Threads reached 100 million users in less than a week[3] is frankly astonishing (especially to Elon Musk/Twitter) and underscores the point that scale is crucial in the propagation of AI-based services.

Enterprise consumption of AI most likely will grow by leveraging the low-cost infrastructure offered by Cloud companies—the route taken by Software-as-a-Service (SaaS) companies. Microsoft was the first to tread this path in a significant way with the integration of OpenAI's models into Microsoft365 products.[4] Their subsequent announcement of a $30 per user per month fee for adding AI copilot functionality into the Microsoft365 license surprised the market in terms of how large the fee was, but also provided the first concrete indication of how large the AI market for enterprise software could be. The efforts by the rest of the software industry to integrate AI tools into business applications is underway with early announcements from Salesforce.com and ServiceNow, to name just two major SaaS vendors.

2. Source: McKinsey report: The economic potential of generative AI: The next productivity frontier. As of June 14, 2023.
3. Source: Meta Platform. As of July 10, 2023.
4. Source: Microsoft. As of March 2023.

Figure 4: Building the AI Stack



Meta announced the release of their Llama 2 AI model on July 18, making it widely available on Azure and other cloud platforms and crucially with a commercial open-source license allowing free access to the model. The Llama 2 release is explicitly embracing the idea of open-source innovation. In commercial terms, this commoditizes the model itself by making it free to access. The value-add will likely accrue to the innovators that build new services using Llama 2, and to the cloud services companies (and their semiconductor supply chains) that provide the infrastructure to train and distribute the models.

Source: Barings' observations. As of July 20, 2023.

As you move up the "AI stack" and identify use cases and applications unique to business functions (e.g., marketing) or vertical industries (e.g., health care), the datasets will tend to get smaller and the models easier and cheaper to train. The implication of this is that the model itself is not where the economic value lies. The critical point of friction, and therefore where money is likely to be made, is in the delivery of AI use cases to enterprise customers. We would contend that today it is the data used to train the models, combined with the ability to embed the AI output into the user's workflow, that is the competitive differentiator. McKinsey's 2023 report on the likely economic impact of Generative AI noted that "Current generative AI and other technologies have the potential to automate work activities that absorb 60 to 70% of employees' time".[5] Incumbent Cloud application software companies with established customer relationships, industry-specific capabilities in place and customer data already stored on their Clouds, just waiting to be exposed to more capable AI models, appear to be well placed to take advantage of AI. That potential probably explains the year-to-date stock market performance of the tech industry's largest players.

The power of incumbency would point investors toward existing SaaS franchises, including those already mentioned: Microsoft, Salesforce.com and ServiceNow, as well as the long list of Cloud software vendors. This would include companies selling data-heavy services ranging from cyber security to infrastructure monitoring to content creation for websites.

The Long Term

Arguing that incumbent tech companies will thrive during the early stages of a new technology paradigm—in this case, AI—may be controversial to some. The underlying view is that at least in its current form, Generative AI is proving to be a sustaining innovation that further enhances offerings from leading incumbents, be it internet search, cloud infrastructure or writing better computer code.

5. Source: McKinsey. As of June 14, 2023.

To become truly disruptive, in the way that SaaS was to traditional on-premises software companies, Generative AI will need to open up opportunities to serve customers that were not previously well served by current technologies. For this to happen we would expect to see more AI-native companies emerge to address new workflows enabled by AI, concurrently with AI-optimized datasets delivered by way of AI-optimized computing infrastructure that is distributed much closer to the end user. The early winners in the AI paradigm will have to invest heavily in R&D to stay ahead of the competition that we would expect to emerge over time.

The AI race will be a long one. The short-term capacity constraints affecting the manufacture of the powerful AI processors needed to train the models, as well as a shortage of AI engineering talent to develop those models, is slowing the build-out of AI infrastructure. Even as these bottlenecks are worked through, the enterprises looking to deploy the AI tools in their business process still must work out how best to do so.

Accenture, the leading digital IT services consultancy, which already announced a $3 billion investment in AI and a doubling of its data and AI workforce to 80,000 employees, admitted on their June 2023 earnings call that they had achieved only $100 million of sales on 100 Generative AI projects.[6] This low level of spend indicates to us that most businesses are still trying to figure out how best to utilize AI.

Key Takeaway

Generative AI probably will take longer than expected to permeate through the economy simply due to the time and investment needed to build affordable AI services. Nevertheless, some level of AI adoption eventually will become table stakes for all industries and we fully expect more AI-native businesses to emerge over time and disrupt incumbent players that fail to adopt AI. To fulfill the multi-trillion dollar forecasts of economic value add that could be realized by widespread deployment of these AI tools, more AI-capable computing capacity will have to be built out closer to the end user, along with AI-optimized datasets.

In the context of an equity market that has rebounded sharply and an interest rate cycle that appears to be well on its way to peaking, investors are starting to reward companies with sustainably strong growth outlooks over a multi-year period in the face of rising risks of an economic recession. Since AI is likely to have a major impact on economic productivity and corporate profitability, and—like previous technology paradigm shifts—will likely produce a long list of losers and a short, but growing, list of winners, it is a phenomenon worth watching. In our view, paying very close attention to AI innovations and to the mechanisms for propagating them throughout the economy will be critical to profitably investing in the growth of AI.

6. Source: Accenture. As of June 2023.

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**As of June 30, 2023*

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