

# Thinking About Artificial Intelligence — Opportunities and Challenges

## KEY TAKEAWAYS:

Artificial intelligence (AI) is anticipated to drive innovation and productivity for years to come.

Advances in AI make it easier for people to leverage technology for automation and analysis.

AI investing is at an early stage, with companies currently focused on building out the needed infrastructure.

As investors, our job is to understand the risks and opportunities for existing companies and find the next leaders and innovators.

We believe that in most cases AI will augment human intelligence, rather than completely replace it.

Advances in Artificial Intelligence (AI) have ushered in a new era of innovation in technology. For investors, AI has become a hard-to-ignore market theme. Given the size and scale of market movements and the breathless coverage in the media, it is no wonder that everyone from the retail investor to sophisticated institutional investors has a point of view. In this paper, we will examine the growth and influence of AI and provide our thoughts on investing in this evolving technology.

## WHAT IS ARTIFICIAL INTELLIGENCE?

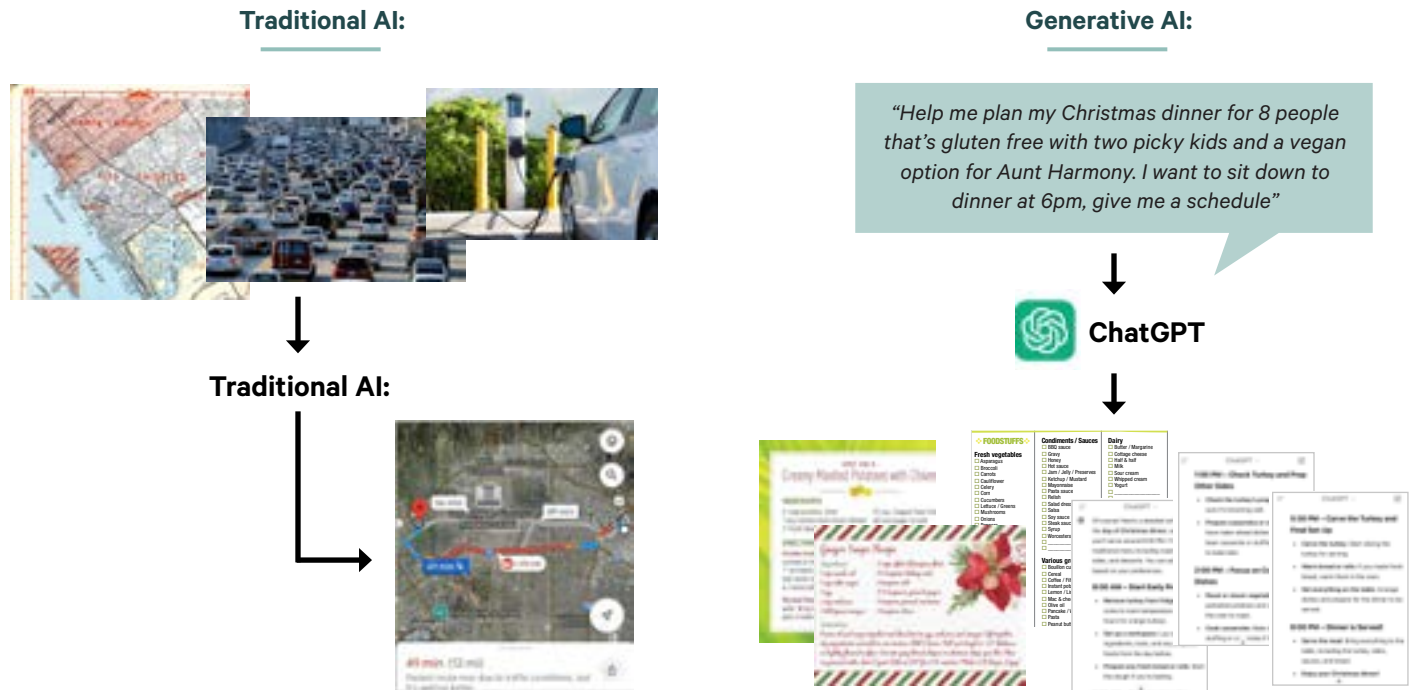
AI is often seen as the most revolutionary technology transition humanity has yet experienced, but for many people AI is still a bit of a mystery. We define traditional AI simply as automation often coupled with machine learning to perform specific tasks. That automation can take many forms. Think of smart phone applications like Google Maps, or language translators, or autonomous cars. The machine is trained to analyze data and offer an optimized solution, like the fastest route home given the traffic of the day. This type of predictive AI has already been shown to be effective in improving efficiency and continues to be widely adopted.

The more recent form of AI, known as generative AI, is less well-developed and requires significantly more data to become an effective tool. Most generative AI models today

are trained on large quantities of data and when given a prompt by the user *generate* new data. Models are making word-by-word predictions using the context from a user's prompt and all the data they were trained on. The promise of generative AI is that with specific inputs, you can receive high quality analysis and content. To be sure, AI will continue to evolve to more closely mimic human learning, comprehension, and problem solving.

The challenge with AI is that for it to continue to improve, it needs more and more data (ideally generated by humans) and more and more computing power to process these predictive calculations. This is why we see large companies spending billions to build out the amount of computing power necessary to process these queries. For reference, a prompt on ChatGPT takes anywhere from seven to ten times the level of computing power as a traditional Google search.

**EXHIBIT 1: TRADITIONAL AI VS. GENERATIVE AI**



Data is obtained from systems believed by KAR to be reliable. This material is not intended to be relied upon as a forecast, research or investment advice, and is not a recommendation, offer, or solicitation to buy or sell any securities or to adopt any investment strategy. KAR does not undertake to update the information presented. KAR makes no warranty as to the accuracy or reliability of the information contained herein. **Past performance is no guarantee of future results.**

**AI INVESTMENT CHALLENGES AND SPENDING FEARS**

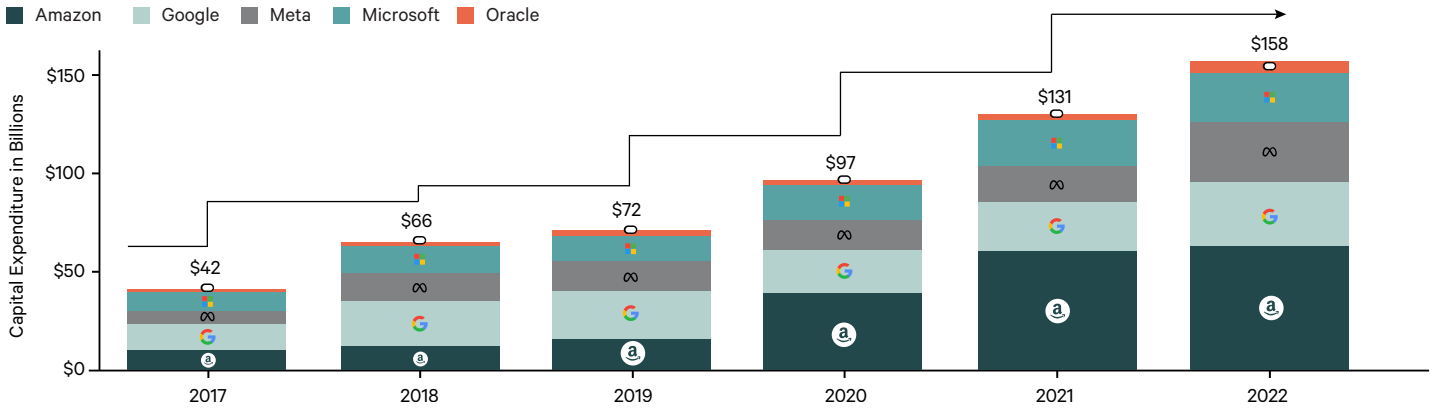
An acronym commonly used to describe the phases of technological transitions is “IPA”, or *Infrastructure, Platform, and Application*. We are currently in the *infrastructure* stage. In our view, this early phase has benefitted larger companies in the data center, hardware, and semiconductor sectors. This is a bit unusual as it is typically smaller disruptive companies that lead technology transitions. But because AI requires such large amounts of computing power and data to train the models as well as engineering talent to design them, only the largest and most-capitalized companies have been able to pursue training the most expensive AI models, what are often referred to as “Foundational Models.” Foundational Models are called this because they seek to provide the foundational intelligence that future AI applications will later be built upon, and presently only large companies can afford to train those Foundational Models that will have the greatest impact on generative AI going forward.

While the infrastructure layer of AI is being built out, enterprise companies are setting aside capital to invest in the new technology. The challenge is we still do not have a unified *Platform* (e.g. Microsoft Windows) or many *Applications* (e.g. Microsoft Word). Companies are still experimenting with how to apply AI. We believe it could take time to see use cases that will justify the tremendous spending we are seeing today.

Investors and companies are waiting for the emergence of the “killer application” that could lead to new businesses that would generate material revenue. While we understand the promise of AI is to make us more productive or efficient, how that technology is monetized at scale remains uncertain. The technology is certainly exciting, but we believe that we are still a long way from viability, particularly for enterprise applications. In our view, we see three truly viable enterprise use cases for generative AI today: chat bots, summarization, and automation. While these have the potential to provide cost savings for businesses adopting them, we have not yet seen the true potential of generative AI’s impact on enterprises. We would characterize the current phase of AI as synonymous with 1996 for the Internet—there are some interesting applications, but we are likely still in the very early innings. This uncertainty is what can make directed investments in AI a bit challenging.

For the current dollar amount spent on Generative AI investments to square financially, most enterprises will need to see ways to drive incremental demand and not just cut costs.

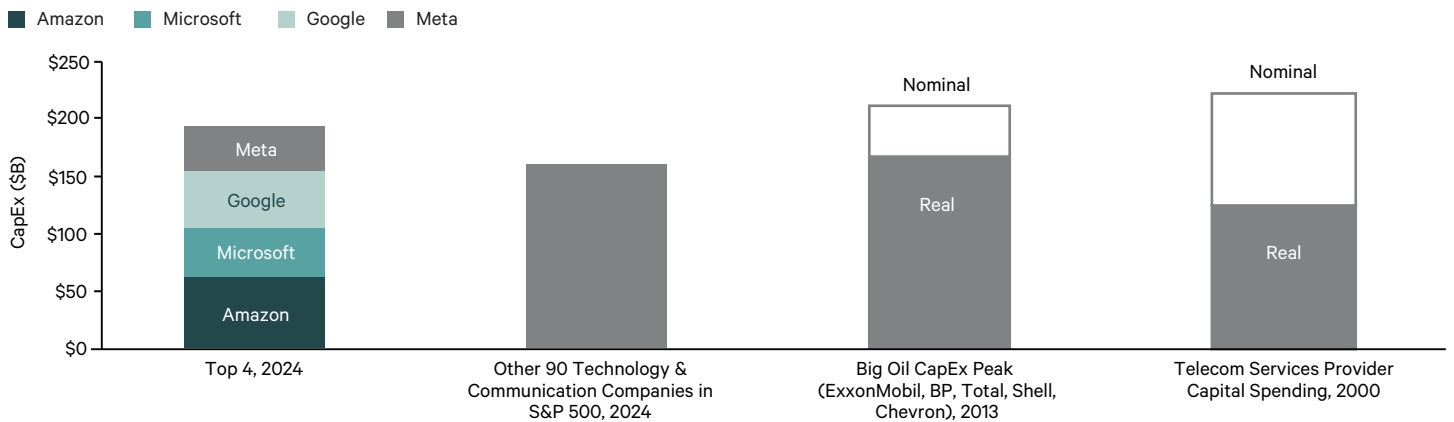
**EXHIBIT 2: CLOUD GIANTS AVERAGE 30% ANNUAL INVESTMENT GROWTH**



Source: Newmark’s 2023 U.S. Data Center Market Report, January 2024. Data is obtained from systems believed by KAR to be reliable. This material is not intended to be relied upon as a forecast, research or investment advice, and is not a recommendation, offer, or solicitation to buy or sell any securities or to adopt any investment strategy. KAR does not undertake to update the information presented. KAR makes no warranty as to the accuracy or reliability of the information contained herein. **Past performance is no guarantee of future results.**

At this early stage, it is hard to know which company’s model will be the most impactful. To provide an idea of the type of spending occurring in the AI space, *The Wall Street Journal*<sup>1</sup> reported that recent earnings reports for Microsoft, Amazon, Meta Platforms and Google’s parent, Alphabet, reported combined capital spending of \$58.5 billion just for the June 2024 quarter—up 64% year over year. All four companies projected AI infrastructure spending as the main driver. We have seen early investor concern that these investments are being made without revenue models to justify the spend. Generative AI has promise both for improved human-machine-interactions as well as more intelligent automation, but we believe it could take time for market-proven use cases to emerge.

**EXHIBIT 3: AMAZON, MICROSOFT, GOOGLE AND META CAPEX IS EXPECTED TO EXCEED THE TOTAL CAPEX OF THE OTHER 90 TECHNOLOGY & COMMUNICATION COMPANIES WITHIN THE S&P 500® INDEX THIS YEAR**



Source: Bloomberg and Bernstein Analysis, May 2024. Data is obtained from systems believed by KAR to be reliable. This material is not intended to be relied upon as a forecast, research or investment advice, and is not a recommendation, offer, or solicitation to buy or sell any securities or to adopt any investment strategy. KAR does not undertake to update the information presented. KAR makes no warranty as to the accuracy or reliability of the information contained herein. **Past performance is no guarantee of future results.**

<sup>1</sup>NVIDIA Can’t Escape Shadow of AI Spending Fears. *The Wall Street Journal*, August 30, 2024.

## KAR LOOKS TO DISTINGUISH OPPORTUNITY FROM PURE HYPERBOLE

What we have seen from the AI market is that it is easy to get caught up in the hype and the fear of missing out (“FOMO”). We like to say we have “OMO” or that it is “OK to miss out.” Our investment team believes the risk in trying to predict the leaders in AI is not currently justified by potential for meaningful returns. Instead, we believe investment opportunities exist in budding AI *beneficiaries*, who do not have the same all-or-nothing risk attached to them. From our perspective, these beneficiaries include both companies in the AI supply chain who stand to benefit regardless of which platforms become leaders as well as companies who stand to benefit from applying new AI technologies to improve their business growth or profitability.

As investors, we do not rush in and out of stocks to match secular growth trends. These changes are inherently difficult to predict and in our experience the companies at the center of the change are not the ultimate beneficiaries of their substantial investment. Take for example aviation, where globally, many companies benefited from the adoption of air travel, whereas the airlines and airplane manufacturers took decades to recoup their initial investment.

Rather than trying to anticipate uncertain technology transitions, we continue to focus on the long-term quality and sustainability of a company’s earnings. We are careful in distinguishing between what is knowable and what is unknowable at present moment. We are willing to be patient in understanding how a technology transition will impact fundamentals for a business as well as its financial results. Since we tend to own more concentrated portfolios, we want to have high conviction in the companies we own.

As a result, KAR does not structure its portfolios around any technology shift as a mandate. Rather, when we see a large technology transition, we begin by looking across our portfolios to determine which of our businesses could be at risk of disruption. This is mission one for our entire investment team.

From that point, we can ascertain opportunities, strengths, and weaknesses to seek out the leaders and innovators that could benefit from this shift. But we need to have confidence that a disruptive company can maintain its leadership through an entire economic cycle. Rather than trying to predict the outlook of any given technology, our focus is always centered on identifying a small number of companies that we consider to be high-quality businesses that possess competitive protections. We believe we are better served focusing on companies that can adapt not just to technology transitions, but also constantly changing economic conditions to drive performance over the long-term. However, this does not mean that our companies are devoid of AI opportunities.

## WE BELIEVE KAR COMPANIES HAVE UNIQUE DATA ASSETS TO LEVERAGE AI

Despite this uncertainty regarding generative AI’s applications, timeline, and the viability of returns, we do have confidence that proprietary data will be a differentiated competitive advantage as organizations seek to train generative AI models while keeping their business intelligence protected and secure. Companies that own unique proprietary data that cannot be replicated or accessed by competitors will retain that differentiation regardless of how the AI technology landscape ultimately plays out. With this framework, we actively seek to identify *ex-ante* sustainable advantages such as these in AI beneficiaries. This is like our “pre-AI” view that proprietary data can be a powerful and sustainable competitive advantage.

Examples of this include a company that uses AI software to optimize how its refinery customers process raw materials. By analyzing both historical data and making future commodity pricing forecasts, the software can help customers decide how much of each type of product to make to maximize its profit potential. Another company uses AI to review large amounts of historical claims data it has aggregated to help customers to optimize their own pricing. These are just a few examples of companies that have historically built a competitive moat around their proprietary data and leverage that data further using new “generated” content to improve customer outcomes.

These examples also highlight one area of sustainable advantage we believe exists in the face of uncertainty related to the rapid development of AI: companies that own unique proprietary data that cannot be replicated or accessed by competitors have the potential to retain that differentiation regardless of how the AI landscape plays out. This point reinforces why we seek to actively identify ex-ante sustainable advantages such as those in AI beneficiaries.

## THE BOTTOM LINE

The launch of ChatGPT in November 2022 was the dawn of a new era for technology. While we believe the promise of the technology is substantial, we are of the mind that some healthy prudence is warranted. It is our view that broad-based adoption of AI will take time as the industry addresses challenges with hallucinations and high costs, which we believe will improve over time. We also believe some of our existing holdings will be beneficiaries of AI both in terms of efficiencies gained or new business opportunities. We will continue to actively monitor how AI changes the competitive landscape as well as the opportunities it presents for new investments. That said, we do not have a mandate to invest in AI technology specifically. Our primary focus is researching and seeking out the highest-quality businesses that can adapt in any type of market to generate meaningful returns through an entire cycle. This has been our approach since 1984 and has produced high conviction portfolios through several technology transitions in the past.

*This information is being provided by Kayne Anderson Rudnick Investment Management, LLC ("KAR") as an illustration and should only be used for informational purposes only. This report is based on the assumptions and analysis made and believed to be reasonable by KAR at the time of publication. However, no assurance can be given that KAR's opinions or expectations will be correct. Information in this article is not intended by KAR to be interpreted as investment advice, a recommendation or solicitation to purchase any securities mentioned, or a recommendation of a particular course of action and has not been updated since the date listed on the article. KAR does not undertake to update the information presented. KAR makes no warranty as to the accuracy or reliability of the information contained herein. The companies mentioned in this article were chosen based upon objective, non-performance-based criteria and are current holdings of certain KAR strategies as well as third-party managers utilized by KAR. The companies were chosen to exemplify the impact of AI on the Information Technology sector as well as the broader market. We typically select companies that operate in large, vast industries, but have overwhelming market share for their particular niches. It should not be assumed that securities discussed in the future will be profitable. Holdings are subject to change. Individual investors' holdings may differ slightly. The S&P 500® Index is a free-float market capitalization-weighted index of 500 of the largest U.S. companies. The index is calculated on a total return basis with dividends reinvested. The index is unmanaged, its returns do not reflect any fees, expenses, or sales charges, and is not available for direct investment. Data is assumed to be reliable. **Past performance is no guarantee of future results.***