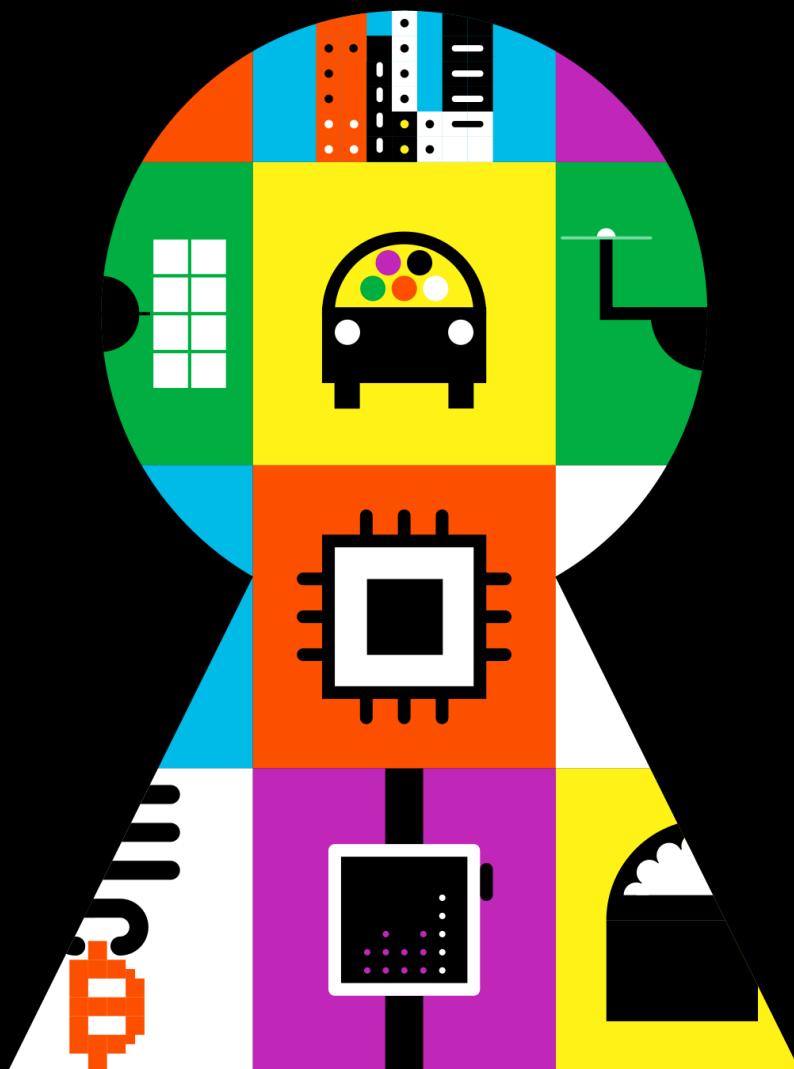


# How to Invest in AI



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The other day I asked Alexa, “What’s artificial intelligence?” The response:

“I found this on Wikipedia: Artificial intelligence (AI) is intelligence — perceiving, synthesizing, and inferring information — demonstrated by machines, as opposed to intelligence displayed by humans or by other animals. Intelligence encompasses the ability to learn and to reason, to generalize, and to infer meaning.”

Of course, Alexa also could have just as easily said, “I am.” But defining AI as a consumer-facing device used to play music and report the weather would be far too limiting, given how entrenched and intertwined AI is with so many parts of our economy.

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# For Investors, There's More than Meets the AI

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Investors make the same mistake by focusing on the consumer-oriented ChatGPT from OpenAI or Microsoft's co-Pilots. This limited view of AI has fueled returns of some of the more well-known AI-connected stocks, and has led to the narrow market leadership we've seen so far this year.

The truth is, AI is so much more than ChatGPT — it's supported and used by advanced technologies, from semiconductors and cloud storage to medical devices and autonomous vehicles. This has significant implications for investors. If you want to pursue the full value of this vast ecosystem, you'll need to take an increasingly broad view of AI.

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## AI Is a Force for Transformation, Not a Sector

Think of AI not as a sector or industry, but as a key catalyst of transformational technological changes that are impacting our society. AI is one of the technological pillars (alongside hyper-connectivity, supercomputing, and biological innovations) that allows economies to create more value with less inputs in order to propel economic growth. In fact, Goldman Sachs recently forecast that the use and application of AI could boost global GDP growth by \$7 trillion (or 7%) by 2030, more than the current output of Germany and the UK combined.<sup>1</sup>

As a productivity tool that fuels innovation, AI also requires advanced inputs. In a recent report, Barclays separated these mutually reinforcing functions and technologies into part of a broader AI "stack" — or an AI value chain with building blocks stacked atop one another.<sup>2</sup>

Figure 1  
**What Does the AI Stack Include?**

|                             |  |
|-----------------------------|--|
| <b>Component</b>            | Semiconductors generating the massive computing power AI needs   |
| <b>Cloud Services</b>       | Cloud service providers offering data storage and computing performance at a massive scale             |
| <b>Researchers and Labs</b> | Research focused on developing the AI large language models upon which end-user applications are built |
| <b>Applications</b>         | Users of AI technology who prefer a function or service  |

With this framework, AI is no longer a sector or industry or product — it's a change agent.

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# AI ETFs Lack Consistency, Supporting Broader View

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The question investors should be asking is, “Which companies are likely to benefit from this change agent?” Just as there isn’t a single definition of AI, in an “AI stack” world, there is likely no “pure AI” company.

After all, cloud computing firms do more than cater to AI uses cases. The same is true for semiconductors, which have a wide array of applications. And, even if Microsoft becomes synonymous with generative AI given its planned Office copilot feature,<sup>3</sup> the company will still be so much more than an AI firm as a result of its diversified operations.

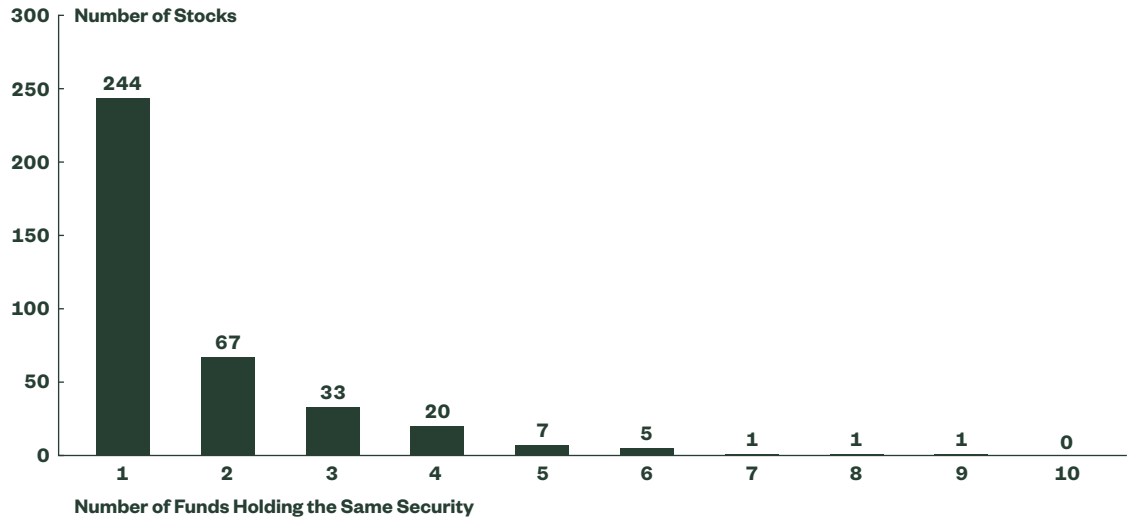
The lack of agreement on what constitutes a pure AI company shows up in the holdings of ETFs that target AI — there is little to no overlap between them. Our research into thematic ETFs categorizes exposures based on 13 different thematic classifications focused on innovative technologies. Robotics & AI is one of those areas of innovation (figure 2).

Figure 2  
**Thematic Classifications  
Focused on Innovative  
Technologies**

| <b>Thematic ETFs</b>         |                         |
|------------------------------|-------------------------|
| Advanced Health Care         | New Consumer            |
| Broad Innovation             | Robotics & AI           |
| Enhanced Connectivity        | Smart Cities            |
| Enterprise Collaboration     | Smart Transportation    |
| FinTech                      | Space Exploration       |
| Future Tech & Communications | Sustainable Environment |
| Future Security              |                         |

Of the 17 funds in our Robotics & AI segment, ten are focused on just AI. And across those funds, there is little overlap in holdings. Surprisingly, out of the 650 unique securities held across the ten funds, not a single stock is held by every one of the ten funds. Only one security (Nvidia) is held in nine of the ten funds. And, only seven of the same stocks are held by five funds and five of the same stocks held across six funds, as shown in figure 3.

Figure 3  
**Hardly Any AI Funds  
 Hold the Same Stocks**



Source: SPDR Americas Research as of June 27, 2023 based on Bloomberg Finance L.P. data. Characteristics are as of the date indicated and are subject to change.

Lastly, out of the 90 unique pairings of fund holdings comparisons, only six pairs show more than a 50% overlap between the two funds analyzed.<sup>4</sup> The lack of consistency across these 10 AI funds illustrates how fluid the definition of an “AI” firm is, and also how expansive AI’s reach is, touching many parts of our society.

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**Bottom Line for  
 Investors: Targeting  
 AI Purity Seems  
 Impossible**

But more importantly, investors who pursue AI purity do so at the expense of a potentially more beneficial approach: Owning the full stack of building blocks that underpin the broader technological change being driven by AI.

# Seek Broader AI Exposure

AI is the throughline to which many transformational innovations can be traced back. And it will increasingly be so, as it continues to reshape the way we work, play, travel, communicate, and learn.

## Why KOMP

The **SPDR® S&P Kensho New Economies Composite ETF (KOMP)** seeks to track an index focused on 25 areas of innovation, many of which are supporters or users of AI technology. In fact, the index itself is built using AI; natural language processing algorithms scan company regulatory filings to find innovative firms for index inclusion. This broader exposure focused on a wider array of transformational technologies may be a more optimal solution for investors seeking exposure to the impact of AI across the entire AI stack.

Figure 4

### Some Areas of Innovation KOMP Offers Exposure to — and Their Relationship in AI

| Kensho Innovation                                 | Focus   | Part of the Stack | AI Example  |
|---|---|-------------------|---|
| <b>Virtual Reality</b>                            | Focused on head mounted displays, VR/AR platforms and products                              | Applications      | Can be used to provide motion tracking data, allowing the virtual reality or augmented reality experience to seamlessly blend with the user's perspective   |
| <b>Wearables</b>                                  | Focused on wearable and implantable technologies for consumer, military, and medical uses   | Applications      | Machine learning algorithms and datasets can be extended to understand how you are walking, sitting, moving or interacting with others, that can give clues about your mood, physical reaction, energy level and even context   |
| <b>Robotics and Autonomous Vehicles</b>           | Focused on robotic commercial applications and autonomous vehicles and related connectivity | Applications      | Self-driving cars use artificial intelligence to make real-time decisions based on the data they gather from their sensors.   |
| <b>Smart Buildings, Factories, Grids, Borders</b> | Focused on intelligent infrastructure systems   | Applications      | AI-powered smart home devices can interact and communicate with each other, allowing them to learn human habits   |
| <b>Digital Communities</b>                        | Focused on digital platforms and gaming applications  | Cloud/Research    | AI tools help enhance features of social media platforms and lead social media activities at scale across a number of use cases, including text and visual content creation, social media monitoring, ad management, influencer research, brand awareness campaigns and more. |
| <b>Enterprise Collaboration</b>                   | Focused on cloud communication platforms  | Cloud/Research    | Owners and operators of the storage for the large data sets needed to run and store the information supporting AI solutions   |

Source: SPDR Americas Research as of June 26, 2023.

In addition to these examples, you'll find exposure to firms innovating within genetic engineering, digital health, and nanotechnology. Combined with KOMP's fourth-largest GICS industry allocation to semiconductors,<sup>5</sup> the broad focus on transformational technological change enables the ETF to deliver full exposure to the AI Stack ecosystem.

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# Avoiding AI FOMO When the Headlines Hit

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Mentions of AI during the earnings calls of S&P 500 companies hit a record high in Q1 2023, totaling 110. The previous record of 78 was set the quarter prior. This new record far eclipses the five-year average of 57 and 10-year average of 34.<sup>6</sup>

AI is exciting, there's no doubt. For many investors, it's a headline-making, FOMO-inducing trend. While the buzz about AI is real and hard to ignore, the truth is that its identifiable economic impact remains a futuristic forecast for now.

Economists and consultants continue to debate AI growth rates, even as AI continues to evolve. In the meantime, the range of outcomes for how AI might fuel productivity gains and profits for companies, either as users or supporters of the technology, only gets wider.

Pinpointing pure AI exposures, as desirable as that may sound, looks to be a hopeless task. Instead, I'd encourage you think about AI in broader terms. Consider casting a wider AI net by focusing on the entire AI stack as opposed to individual applications or pure AI exposures.

Taking a more holistic view of the impact AI is likely to have on our economy in the years and decades ahead may help investors more fully capture the true potential of this technology as a transformational driver of growth across an incredibly broad range of sectors and industries.



**Consider**  
**KOMP**



**Learn about**  
**Thematic ETFs**

## Endnotes

- 1 "Generative AI Could Raise Global GDP by 7%," Goldman Sachs, April 2023.
- 2 "Artificial Intelligence: Real but pricey opportunity," Barclays Equity Research, June 22, 2023.
- 3 "When Does Windows Copilot Launch? Here's Everything You Need to Know," USA Today, May 24, 2023.
- 4 SPDR Americas Research as of June 27, 2023, based on Bloomberg Finance, L.P. data.
- 5 Bloomberg Finance, L.P. as of June 27, 2023, based on the holdings of KOMP.
- 6 FactSet, as of June 27, 2023.

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\* Pensions & Investments Research Center, as of December 31, 2022.

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