

Artificial intelligence (AI) is a transformative megatrend that has the potential to influence nearly all aspects of how we live and work globally in the years to come. While it is easy to get excited about AI's potential, we at WisdomTree are focusing more on what AI can provide in terms of solutions today.

Have you recently interacted with a call-center or website that utilizes a chatbot? Maybe your phone unlocks because it can recognize your face or your car is able to sense if something leaps out in front of it and applies the brakes before you do. These are a few real-world examples of areas where AI is already influencing our lives.

Unbeknownst to many is that the concept of AI has been around since the mid-1900s, when much of the groundwork for future research was laid and terminologies first coined. So if these technologies have such a long history, why are they just coming to life today? It comes down to the confluence of three distinct factors:

- 1) High-speed capability to transfer data, be it broadband, 4G or 5G
- 2) The fact that Moore's law<sup>1</sup> has had many years to compound the processing power of semiconductors
- 3) Storing data is so inexpensive that most people barely consider it when taking that next photo or video with their phones

High-speed, low-cost results are crucial for the ubiquity of a given technology. In short, advancements in hardware and software have converged to yield unique synergies to enable these AI solutions.

## What Is AI Today? Software & Semiconductors

While AI is not solely software, nor solely semiconductors, it is true that without software and semiconductors working together cleanly, what we know of today as AI would not be possible.

### *Software*

Software could be described simply as lines of code, but it should be considered as a tool designed to solve a problem. One recent area of focus for AI has been drug discovery. Drug discovery-oriented software is utilizing AI with the explicit goal of helping an expert researcher achieve a solution faster—which may ultimately alleviate suffering or contribute to curing a disease.

- **Natural language processing:** Think back to your college years and how great it would have been to be instantly familiar with nearly all academic research ever written within a particular subject domain. For most humans, this is purely fantasy, but for today's software applications it is possible to recognize and process text, creating a searchable database of all relevant research published on a particular topic. In the example of drug discovery, all prior clinical published research could be processed quickly, and important notations flagged for a human researcher, mitigating the risk of going down paths already trodden.

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<sup>1</sup> Moore's Law refers to Gordon Moore's perception that the number of transistors on a microchip doubles every two years, though the cost of computers is halved.

- **Generative design:** Frequently, the toughest part of a project is getting started. For a drug researcher, there could be billions of different possible molecule arrangements. For a computer, the given rules of chemistry can be programmed into an app or 'learned' by an algorithm, and arrays of solutions can be suggested within the given parameters set by the researcher. Instantly, the problem of the blank screen can be dealt with.

Drug discovery is not yet at a point where the software alone can instantly develop new drugs, but they can be used to augment the efforts of human experts, potentially allowing the research phase to be concluded faster. **Augmenting** the capabilities of strong human skills is a big theme in AI.

### *Semiconductors*

If we learned anything about semiconductors in recent times, it is that not all chips are created equal. Some, frequently called microcontrollers, are not necessarily manufactured as state-of-the-art but vehicles cannot operate without them. Others are so advanced they are manufactured by lasers slicing into pieces of silicon with a level of precision that removes individual atoms.

The key to a rudimentary understanding of semiconductors is understanding their function—data collection, storage, transfer and computation—all necessities for AI. Going a step further to grasp their ultimate placement and purpose offers additional context for their role in the AI ecosystem.

- **At the edge:** Within AI, the term 'edge' means that data is collected at a peripheral location and the AI model can be run right there without the need to send the data anywhere else. These chips are at times constrained by how much they can weigh, how hot they can get, how much power they can consume per unit time, etc. If a chip is in a drone that needs to navigate properly, it doesn't have unlimited capacity for cooling or power consumption, for example.
- **In the cloud:** OpenAI put out its GPT3 language model—a model with 175 billion parameters. Training models of this size require immense monetary and computational resources, most likely within the cloud. These chips can be manufactured with a single thought in mind: maximum performance.

One must recognize that there is no 'good' or 'bad' or 'better' or 'worse'—there is always a function, and the direction of travel looks like more and more highly customized chips fit for individualized purposes—like how Apple started designing its own semiconductors for its products recently, bypassing the services of Intel.

### **The Unique WisdomTree Approach: Our Methodology**

Many investors are already familiar with AI and have many options should they want to include this exposure in their portfolios. At WisdomTree, we aim to provide unique and differentiated options for exposures, in this case, to AI.

In reviewing other passive investment options, WisdomTree concluded two things:

- Pure, rules-based approaches, like screening for number of patents or revenue based on certain business activities, may be too broad to focus on companies more precisely exposed to AI. It is also difficult to rank these criteria; are more AI patents better than less AI patents? Hard to say without knowing more about the company or the competitive advantage offered by a specific patent.
- Approaches that loosely define AI and select the obvious players may be too broad for the needs of many investors, or investors may already own the companies by existing exposure to broad-based benchmarks such as the Nasdaq 100 or the S&P 500 information technology sector.

Therefore, we sought to create a more flexible and comprehensive approach to the AI investment process, focused on an appropriate mix of quantitative and qualitative research. The Index selection process focuses on the specific functionality that each constituent is contributing to the development and deployment of AI, in an effort to provide precise access to this megatrend. The WisdomTree Artificial Intelligence & Innovation Index (WAI) seeks to identify companies that are involved in targeted AI subthemes within each of the following categories:

- **Software**
- **Semiconductors**
- **AI Other Hardware**
- **Innovation**

The constituents identified are then ranked and weighted to determine the final allocation within the Index, and it is rebalanced semi-annually.

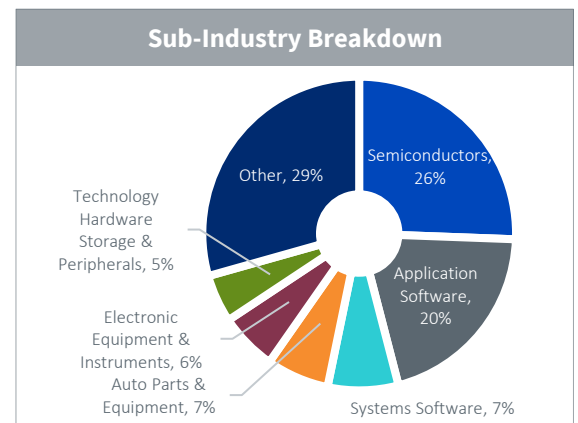
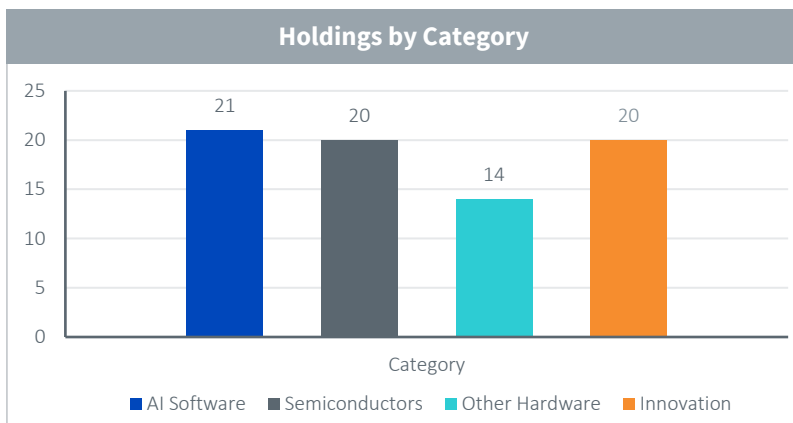
AI Software	Semiconductors	Other Hardware
<ul style="list-style-type: none"> <li>• Natural Language Processing &amp; Machine Translation</li> <li>• Voice Recognition &amp; Audio Processing</li> <li>• Chatbots &amp; Virtual Assistants</li> <li>• Computer Vision &amp; Image Recognition</li> <li>• Knowledge Graphs &amp; Intelligent Search</li> <li>• Machine Learning &amp; Data Science</li> <li>• Robotics Process Automation</li> </ul>	<ul style="list-style-type: none"> <li>• Memory Devices</li> <li>• Compute Devices</li> <li>• Sensors</li> <li>• Edge Computing</li> <li>• Semiconductor Manufacturing Software &amp; Equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Autonomous Vehicles</li> <li>• Robotics</li> <li>• Industrial Automation</li> <li>• Drones</li> </ul>
Innovation		
<p>Any disruptive application of the technologies above in an existing domain. Examples include the application of natural language processing and image recognition in insurance for handling claims, data science for drug discovery, and media or merchandisers offering customized product recommendations using proprietary data and algorithms.</p>		

Source: WisdomTree. Targeted AI subthemes within each category as of Index inception 11/09/2021.

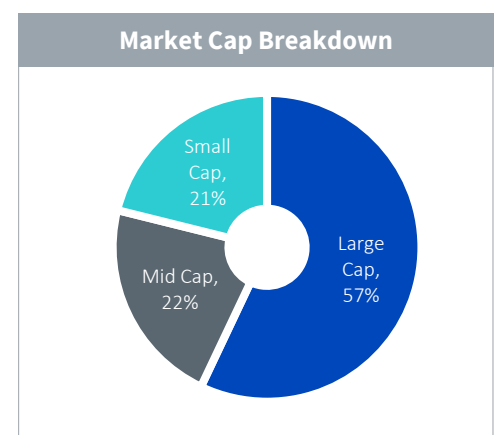
**Index Characteristics**

The top holdings, geographic revenue sources, category and sub-industry classifications, market capitalization, and aggregate growth and valuation statistics can be found below.

Top 10 Companies	Primary Category	Sub Themes	Weight
Grid Dynamics Holdings, Inc.	AI Software	Enterprise AI & ML	2.11%
SK hynix, Inc.	Semiconductors	Optimized AI Memory Chips	1.99%
Marvell Technology, Inc.	Semiconductors	Autonomous Vehicle and 5G Networking Chips	1.98%
Nanya Technology Corp.	Semiconductors	Optimized AI Memory Chips	1.91%
PKSHA Technology, Inc.	AI Software	Enterprise AI & ML	1.90%
QUALCOMM, Inc.	Semiconductors	Broad Semiconductors & Autonomous Vehicle Chips	1.90%
ON Semiconductor Corp.	Semiconductors	Autonomous Vehicle Sensing	1.84%
PROS Holdings, Inc.	AI Software	AI Enhanced E-commerce & Pricing	1.83%
Teradyne, Inc.	Semiconductors	Industrial Automation and Robotics	1.83%
DENSO Corp.	Other Hardware	Autonomous Driving	1.81%



	Growth & Valuation			
	WAI	MSCI World IT	500G	Nasdaq 100
Price-to-Earnings (ex neg)	38.96	36.43	31.92	34.30
Forward Price-to-Earnings (ex neg)	33.47	30.14	28.14	28.62
Price-to-Sales	4.55	7.03	6.19	5.80
Est. Long Term Growth	15.44	17.42	18.53	19.13
Wgt. Avg. Est. Long Term Growth	20.06	17.69	18.63	19.23
Wgt. Avg. 1Y Sales Growth	82.5%	27.6%	49.4%	62.5%
Median 1yr Sales Growth	30.6%	17.9%	17.9%	21.4%
Wgt. Avg. 3Y Sales Growth	26.6%	14.5%	17.6%	19.3%
Median 3yr Sales Growth	12.7%	8.4%	9.2%	11.6%



Source: WisdomTree. Top holdings, categories, sub-industries and market caps, as of 12/31/21. Valuation & Growth statistics, as of 12/31/21. 500G= S&P 500 Growth Index.

Large caps are companies with market capitalizations above \$10 billion. Mid-caps are companies with market capitalizations between \$2 billion and \$10 billion. Small caps are companies with market capitalizations equal or less than \$2 billion.

You cannot invest directly in an index. Weightings are subject to change. References to specific securities and their issuers are for illustrative purposes only and are not intended to be, and should not be interpreted as, recommendations to purchase or sell such securities.

### The WisdomTree Artificial Intelligence and Innovation Fund (WTAI)

To offer investors access to key areas of innovation in AI, WisdomTree created WTAI, which seeks to track the price and yield performance, before fees and expenses, of the WisdomTree Artificial Intelligence & Innovation Index. With diversified\* exposure to what we believe to be the fastest growing and most exciting opportunities in the AI value chain, WTAI can be an option within a portfolio's growth allocation.

Quick Facts	
Ticker	WTAI
Exchange	Cboe
Expense Ratio	0.45%
Structure	Open-end ETF
Exposure	Companies involved in targeted AI functions
Rebalancing	Semi-annually
Number of Holdings	75

**For more information on WTAI, contact your WisdomTree representative or visit [WisdomTree.com](https://www.wisdomtree.com).**

\*The Fund is considered to be non-diversified, which means that it may invest more of its assets in the securities of a single issuer or a smaller number of issuers than if it were a diversified fund. Diversified in this context refers to the fund investing in multiple AI themes.

**Glossary** Price-to-Earnings: Share price divided by earnings per share. Lower numbers indicate an ability to access greater amounts of earnings per dollar invested. Forward Price-to-Earnings: Ratio of current price per share to estimated earnings per share over the course of the next year. Price-to-Sales: share price divided by per share revenue. Est. Long-Term Growth: consensus 3–5-year earnings growth forecasts. Wgt. Avg. Est. Long Term Growth: weighted average 3–5-year consensus earnings growth forecasts. Median 1Y Sales Growth: median year-over-year trailing-twelve-month sales growth. Wgt. Avg. 1Y Sales Growth: weighted average year-over-year trailing-twelve-month sales growth. Nasdaq 100 Index: Includes 100 of the largest domestic and international non-financial companies listed on The Nasdaq Stock Market based on market capitalization. The Index reflects companies across major industry groups including computer hardware and software, telecommunications, retail/wholesale trade and biotechnology. It does not contain securities of financial companies, including investment companies. MSCI World Information Technology Index: designed to capture the large and mid-cap segments across 23 Developed Markets countries. S&P 500 Growth Index: represents the fastest-growing companies in the S&P 500.

**Investors should carefully consider the investment objectives, risks, charges and expenses of the Fund before investing. To obtain a prospectus containing this and other important information, please call 866.909.9473 or visit [WisdomTree.com](https://www.wisdomtree.com). Read the prospectus carefully before you invest.**

The Fund invests in companies primarily involved in the investment themes of artificial intelligence (AI) and innovation. Companies engaged in AI typically face intense competition and potentially rapid product obsolescence. These companies are also heavily dependent on intellectual property rights and may be adversely affected by loss or impairment of those rights. Additionally, AI companies typically invest significant amounts of spending on research and development, and there is no guarantee that the products or services produced by these companies will be successful. Companies that are capitalizing on innovation and developing technologies to displace older technologies or create new markets may not be successful. The Fund invests in the securities included in, or representative of, its Index regardless of their investment merit, and the Fund does not attempt to outperform its Index or take defensive positions in declining markets. The composition of the Index is governed by an Index Committee, and the Index may not perform as intended. Please read the Fund's prospectus for specific details regarding the Fund's risk profile.

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