Artificial Intelligence poised to catalyse economic growth for the next decade

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Few buzz words have been as ubiquitous in the context of thematic investments as “Artificial Intelligence” (hereafter AI). However, like many such terms, if one asked 10 different people what AI means, they would likely get close to 10 different definitions. The fact of the matter is that AI is so broad that it is difficult to build a cogent investment thesis without being more specific.

WisdomTree’s definition of Artificial Intelligence

Demis Hassabis, the Founder of DeepMind, said, “Big data, in a way, is the ‘problem’—AI is the answer.” We like this quote because it captures an important trend within society in recent years. It’s very visible in Figure 1.

Figure 1: The largest market capitalisation companies in the S&P 500 have changed dramatically in the last 10 years

Source: Bloomberg. Data as of 18 April 2019 & 17 April 2009 respectively.

Historical performance is not an indication of future performance and any investments may go down in value.

- As of 18 April 2019, companies like Apple, Microsoft, Amazon, Alphabet and Facebook have made a strong push into the top 10 companies by market cap. Microsoft is the only one that was also there 10 years ago. Each of these companies has this level of market cap for a very important reason: data. In different ways, these firms have amassed truly massive stores of customer data that, properly analysed, has enormous economic value.
- As of 17 April 2009, one can see a number of “classic” companies. Except for Microsoft, none of these has made as successful a push into being branded as an innovator in customer data. The comparison between Walmart and Amazon is particularly stark—Walmart is still seen as a very successful business, but Amazon’s success has captured consumer imaginations in a way that Walmart has simply not been able to replicate.

Therefore, when we say AI, we mean the use of computers and software to absorb, process and output data. More precisely, using the result of past experiences, AI can infer relationships and make predictions without being explicitly programmed to control for every possible scenario. Additionally, as AI learns, it can

adapt. It offers the potential for near complete elimination of the need for human involvement in complex processes, opening new doors for automation in virtually all industries.

AI significantly lowers the cost of a first-order input with prediction

In 1971, Intel developed a microprocessor that integrated central processing unit (CPU) function into a single chip, setting a path toward dramatically lowering the cost of arithmetic2. Tim Berners-Lee and his team developed Hyper Text Transfer Protocol (HTTP) during 1989 to 19912, thereby altering the future path of world-wide connectivity on the internet.

As these different innovations were initially made, there wasn't much in the way of fanfare, but each continues to have enormous influence over how we experience life at present. We think AI is a development that will be on par with the invention of the CPU or the foundation of the internet, and that the heart of the value it will add can be summed up in lowering the cost of prediction3.

Many problems can be recast through access to more accurate predictions:

- If retailers know what customers will want to buy and in what amounts, they can dramatically lower the costs of inventory. Additionally, firms could use dynamic pricing to extract something closer to the value of each good or service for the specific customer.
- In health care, forecasts can better tell which diseases might cause issues in different areas, as well as key risks patients need to be most concerned with, based on combining history with current medical test data.
- In agriculture, precision technologies are helping to predict anything from temperature and rainfall to pests and commodity prices with greater accuracy. Predictive technologies can even be used to measure the resilience of soil in the face of changing conditions4.
- One can even think of autonomous driving as a problem of prediction—what would the best human driver do in a given situation? If a machine can learn from millions of hours of observing millions of human drivers, maybe such predictions can be made accurately.

What is the potential value of AI to the global economy?

This is a very difficult question to assess accurately. One signal is apparent in Figure 1, both from the types of companies that have climbed into the top 10 largest by market capitalisation of the S&P 500. These market capitalisations have not attained these heights because these firms simply have massive troves of data—the implicit assumption is that these data will be usable to catalyse future earnings growth.

Additionally there are firms like McKinsey Global Institute, that offer their insights and predictions on such topics based on speaking to wide arrays of firms across many industries. One specific analysis looked at 400 use cases across 19 industries (including aerospace, defence, travel and public sector) and found that AI technology could contribute to the creation of between $3.5 to $5.8 trillion annually5. Machine learning tools can also help to mitigate waste—if one considers the food industry in the US for example, 30-40%

of the food supply spoils before it can be used6. Of course, only a these are only a couple of predictions, but in our experience thus far few argue that AI doesn't represent massive potential for growth.

Uses of AI have already begun

It is exciting that we don't need to sit here and specify AI as merely theoretical—there are real companies beyond the likes of Amazon and Alphabet already profiting from it today. One of the most impactful at present, Robotic Process Automation, operates by taking and scaling repetitive tasks, allowing companies to assign human workers to more impactful work. Companies engaged in this endeavour and generating revenues today include Blue Prism, Nice and Pegasystems. Investors can benefit from expertise at finding opportunities such as these—which is not easy—and they could be poised for future growth for years to come.

1 1971: Microprocessor Integrates CPU Function onto a Single Chip." The Silicon Engine.

2 Evolution of HTTP." MDN web docs.

3 Professor Ajay Agrawal said, in April 2018, "AI can be recast as causing a drop in the cost of first-order input into many activities in business and our lives—prediction.

4 Food & Tech: From Soil to Supper." Refresh. 2018.

5 "Notes from the AI Frontier: Insights from Hundreds of use Cases." McKinsey Global Institute. April 2018.

6 USDA, "FAQ" from Usda.gov, taken from "Food & Tech: From Soil to Supper." Refresh. 2018.

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