How AI has evolved over half a decade

By Jacques Munnik, Investment Writer

Artificial Intelligence (AI) is everywhere, changing how we live; and here to stay. At Sanlam Investments UK, we believe it is a good thing. Stephen King, renowned economist, author, and HSBC's Senior Economic Adviser, at the first of Sanlam's Invested for the Future virtual events in February 2022, touched on the rise of AI as part of a changing globalisation theme. King said that over the past few decades, the world had seen capital in search of cheap labour. He added that in the next twenty to thirty years, however, we would see a reverse, i.e., money replacing cheap labour because it can now achieve results much quicker and efficiently – through robotics and AI.

AI evolution

As we celebrate the fifth anniversary of the Sanlam Global Artificial Intelligence Fund (*the Fund*), we reflect on a select few of the most significant examples of how AI has evolved over half a decade. In 2016 the Sanlam Investment Management team were incubating the Fund. By 2017, research had reached a point where AI had become relevant for a far more considerable proportion of people and corporations worldwide. Valuations were looking attractive, and the moment had come to go to launch. But there was much more to it than merely pricing fundamentals. Lead fund manager Chris Ford recognised that, on the back of the significant achievements in the AI space, which had occurred in the middle of the 2010s, 2015s and 2016s, AI was achieving previously unthinkable things. At the forefront of such achievements within the tech space was a platform called AlphaGo, developed by DeepMind Technologies.

Deep learning by deep minds

As one of the twin pillars of Google's AI, DeepMind achieved the impossible in 2015 and completely blew apart what they previously perceived as limitations in the deep learning space in the form of the ancient Chinese game 'Go'. With a staggering ten to the power of 170 possibilities in board configurations, the game is allegedly a googol (1 followed by one hundred zeros) times more complex than Chess. Whilst it had been years since a computer first beat a professional chess player (1997), given the complexity of Go no one could envisage this for the game for some time. However in 2015 DeepMind's AlphaGo became the first computer program to defeat a professional human player in the game of Go.

Human writing

Another noteworthy highlight and one of the most extraordinary forward leaps in AI has occurred in the natural language processing space. Open AI, a San Francisco-based artificial intelligence research laboratory, is among the leading participants in this field. They developed a platform called GPT 3 (Generative Pre-trained Transformer 3), a language model that uses deep learning to produce human-like text. In 2018, three years after AlphaGo defeated the world champion in the Go game, Open AI launched its first version of GPT, which employed 150 million parameters. By May 2020, it had reached 175 billion parameters. Fast-forward to the present time, the world's largest transformer-based language model, Megatron Turing, boasts 530 billion parameters – three times more than GPT-3. The quality of the text delivered by these AI programmes is so high that it can be challenging to determine whether a human wrote it. These are but a select couple of examples of creative moments which has brought the market to a place of ever-increasing confidence that AI will keep advancing as a positive multiplier for human ingenuity.

The fourth agricultural revolution

AI has progressively contributed to the world's ever-increasing need to address global ecological and economic issues among farmers as the race for solutions to conserve resources, protect the environment and increase profitability continues. As the market leader and largest manufacturer of agriculture, John Deere has come a long way over the past five years, making the previous five years of agricultural advancement before the launch of the Sanlam AI Fund in 2017 "almost irrelevant", according to a very recent interview with Chris Ford (manager of the AI fund). The company has continued to build on intelligent industrial strategies by converting its farm equipment to

"mobile sensor suites" capable of computing. In addition, they equipped fully autonomous tractors with "See and Spray" AI technology that uses advanced camera technology to identify different plants and weeds and apply the required dose or treatment.

It's clear that AI has come a long way, even in the past 5 years. The pace of change and improvement has been dramatic. So where else are improvements being made?

Where next for AI? Other key sector allocations

Looking forward Ford reported that he would continue to seek beneficiaries of AI, not only within the technology and industrial sectors but also in the energy, defence, and healthcare space:

<u>Energy</u>
Briefly, oil companies use AI analysis on seismic data, e.g., to better their understanding of acreage usage in exploration activity. They then apply AI to build digital twins to help inform on the undertaking of recovery to design wells.

<u>Defence</u>
In the defence sector, Ford added that spending and investment remain paramount, especially given the war in Ukraine and the ongoing need for sensing technology and real-time situation reporting. The Fund currently holds L3Harris, an American technology company and defence contractor.

<u>Healthcare</u>
The Healthcare industry continues to see advances in areas like medical imaging, drug manufacturing and remote GPs. AI is advancing in preventive care assessment to increase human longevity. It is assembling data, following trends, constructing simulation models, and even assisting in developing treatment plans. Quoting AI expert and CEO of Nanotronics, Matthew Putman, "The way I look at contemporary AI systems, it is taking into account what move is being made next. This is AlphaGo for drug discovery. A virus will mutate in different ways, and now a response to that can be developed in new ways."

On a forward-looking basis, Chris Ford has stressed that irrespective of market disruptions this year, there are no operational problems in the companies invested. Instead, Ford says the AI theme they will be expressing remains persistent and as relevant as it has been during the last five years.

Learn more about **Sanlam Global Artificial Intelligence Fund**

Fund Risks
The Fund may invest in shares of companies listed on stock exchanges in the United Kingdom, and outside the United Kingdom, exchange rate fluctuations may cause the value of investments to go down as well as up. Investing in companies based in emerging markets may involve additional risks due to greater political, economic, regulatory risks, among other factors. The Fund may invest in derivatives for the purposes of efficient portfolio management and hedging.