



AI Era

“It is possible to believe that all of the past is but the beginning of a beginning, and that all is and has been is but the twilight of the dawn. It is possible to believe that all the human mind has ever accomplished is but the dream before the awakening.”

H. G. Wells

Since time immemorial, the exchange of knowledge and innovations have been disruptive to civilisations. These exchanges allow for cultural evolution to become cumulative and for intelligence to become collective. They also foster new industries and advance a civilisation’s wealth.

The most talked about innovation of the past year is Artificial Intelligence. AI has the potential to transform our lives. AI will almost certainly displace some jobs, but it could also empower people with new productivity enhancing tools. It’s already creating personalised tutors that help turn children into accomplished students. It’s developing lifesaving drugs incredibly quickly. AI could also create trillions of dollars in wealth for companies and investors. The world is still in early days of the AI era.

The lesson from other transformational technologies is that it takes time to work out how to utilise them. Business CEOs talk incessantly about generative AI (see chart this page) but it remains at the experimental stage. True believers in the dotcom boom of the late 20th century were not wrong about the transformative power of the internet - but most were early and lost their shirts during the bust.

Investors understandably get excited about new technologies but they often fail to contemplate the potential implementation challenges. Executing at scale and making real profits can be daunting. Achieving the AI breakthroughs that now seem imminent requires both software and hardware. On the hardware side, someone has to design it, build it and then operate it. That last step requires extraordinary amounts of energy to power it (can today’s grid provide it?) and a lot of water to cool the heat thrown off.

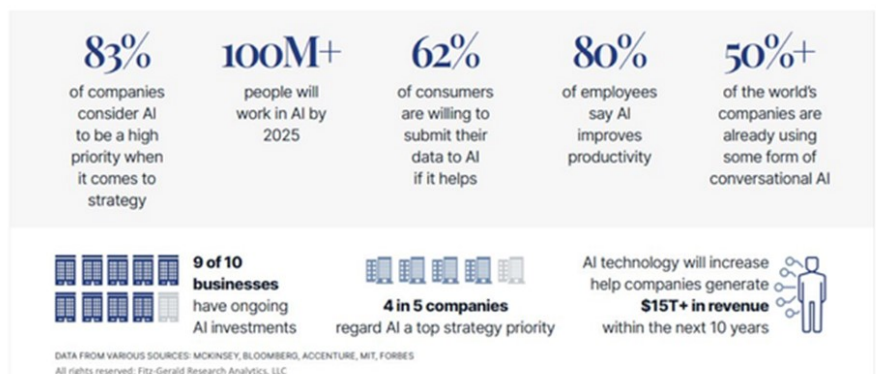
Even if AI is destined to transform society, today’s investors may struggle to pick which companies will prosper.

One of the market leaders, Nvidia Corporation, a maker of chips that are critical for training AI models, has been on an epic market run. Before the launch of OpenAI’s ChatGPT-4, a generative AI that responds to queries in human-like ways, in November 2022 Nvidia’s market capitalisation was about US\$300bn. Today it’s market capitalisation sits at \$2.3trn, \$800bn or so shy of Microsoft’s market cap.

In the three months to the end of January 2024 Nvidia earned revenues of \$17bn while enjoying a profit margin of 76%. The company’s share price has doubled since the turn of the year, but its earnings have grown even faster. The enthusiasm that has lifted Nvidia’s stock price is not built on dotcom-like hype - but on profits. This optimism extends to bullishness about the potential for economy-wide productivity growth.¹

Even if the boom is warranted does not make it prudent to rush out and buy AI stocks. The exuberance about AI extends beyond Nvidia to other members of the “Magnificent Seven” group of tech stocks, such as Microsoft and Alphabet, whose commercial strategies in the AI era are still not clear. These firms are amassing Nvidia’s chips in the belief that their AI businesses will prosper. However, it remains to be seen how they will resolve basic issues with their “large language models”.

LLM is the technology behind ChatGPT and similar AI systems. LLMs read documents then calculates, letter by letter, word by word,



how bits of information usually go together. This requires vast amounts of data and tens of millions of computations.

Generative models are not factual databases. They are mathematical guessing engines. And that's why you can get "hallucinations" because they are trained to take a prompt and predict what words should come next based on the prompt given. Language models create embeddings, which map words with similar semantic contexts or themes. The AI takes that text and converts it into numerical representations called tokens. It then creates a map of what the language means. (*Wikipedia*)

At first glance, when it comes to AI generating creative output, it looks impressive. But as Nasim Taleb, one of the world's top risk managers, puts it: "ChatGPT is a statistical representation of things found on the web, which will increasingly include ITS OWN output (directly and second-hand). You post something picked up from it and it will use it to reinforce its own knowledge. Progressively a self-licking lollipop."²

Predictions and opinions don't count; survival is what matters. Nature has shaped us to strive for progress, meaning and purpose in life, as well as for contribution to the group. Humans will care deeply about one thing over another, perhaps not recognising there are second and third order effects. Thus far, we have always been able to live

with the technologies we have created.

AI does not care about our feelings. It makes and builds on its own decisions in ways we cannot control. If there are no constraints will things get worse or will AI get more creative? 'Super AI' could be a billion times smarter than us, which may very well usher in a Utopia. Or could we become inconsequential to it? Is desire a necessary part of innate intelligence? If so, could Super AI want one thing over another? Would that be the end of humanity?

AI's most significant and immediate impact may come from becoming "physical." There are lots of robots already; but they're mechanical and used for one specific task. In a worrying development, last year a Ukrainian drone company "...claimed it had fielded a fully autonomous weapon, the Saker Scout, which uses AI to make its own decisions about who to kill on the battlefield. Saker officials declared the drone had carried out autonomous attacks on a small scale. Although this has not been independently verified, the technology necessary to create such a weapon certainly exists. It is a small technical step - but a consequential moral, legal, and ethical one - to then produce fully autonomous weapons that are capable of searching out and selecting targets on their own."³

For a more optimistic development, find the link in Sources below for the video (photo this page) of OpenAI's

Speech-to-Speech Reasoning in action.

Figure AI is unlike anything before because it has ChatGPT for a brain. This gives it the ability to learn from what it sees. The robot was not pre-programmed to stack dishes or pick up trash. It learns by observing. For example, the man in the video tells the robot he's hungry. The robot hands him the apple from the table. "Why?" he asks. "It was the only edible item I could provide you from the table" responds the robot.⁴

Figure AI's forthcoming fleet of robots will all share a centralised brain. That means when one robot learns something, they will all know that same thing. And as with AI, this is the worst robots are ever going to be.

Could AI robots help revive manufacturing in the West? They'll certainly do human-like work in factories. Imagine a handful of people overseeing an army of robots running a factory. We could have 100 times or more factories making products for a fraction of today's costs.

Further improvements in AI are sure to come. History suggests the pace of innovation will only accelerate from here and economic progress will raise the living standards of the people of the twenty-first century to unimagined heights.

Could this be the dawn of civilisation's golden era?

Sources:

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3. Paul Scharre, "The Perilous Coming Age of AI Warfare", *Foreign Affairs*, 29 February 2024
4. Stephen McBride, "The next transformational innovation", *The Jolt*, 22 March 2024
5. Chart page one, Keith Fitz-Gerald, *Five with Fitz*, 4 March 2024
6. Photo page two, Figure Status Update - OpenAI Speech-to-Speech Reasoning, <https://www.youtube.com/watch?v=Sq1QZB5baNw>

