> **"Civilisation advances by extending the number of operations we can perform without thinking about them".**
>
> *Alfred North Whitehead, Mathematician and philosopher (Source: Atomic Habits)*

Last month's newsletter featured hardware, the 'forgotten son'. Hardware was far from forgotten this month!

Nvidia's market value increased by US$184 billion overnight after its last quarter financial announcements on May 24, 2023 LINK. This made Nvidia one of the largest companies in the world, only a few points off the exclusive $1 trillion club.

Why?

"***The AI market is over a trillion dollars***", declared Jensen Huang, CEO Nvidia LINK

As explained last month, software (including AI) is useless without hardware. Nvidia hardware is specifically designed to run AI, in particular, Generative Pre-Trained Transformers (GPT), at scale.

Two key words that are literally going to change our lives:

- "***Generative***": the ability for AI to learn, then generate new information by itself. New pictures, software, text, books, movies, designs, buildings, vehicles, music, art etc., without being programmed.
- "***Transformer***": the ability for AI to understand and transform information in many modalities. For example, to transform text-to-software, text-to-proteins, 2D-to-3D, text-to-music, drawing-to-plan etc. ("*Write Japanese music based on these pictures from my recent trip*").

Given the massive impact of AI in the last few months and the global effect it has already had, how will organisations reshape themselves? We discuss the new role of "Chief AI Officer" as well as the growing importance of mathematics.

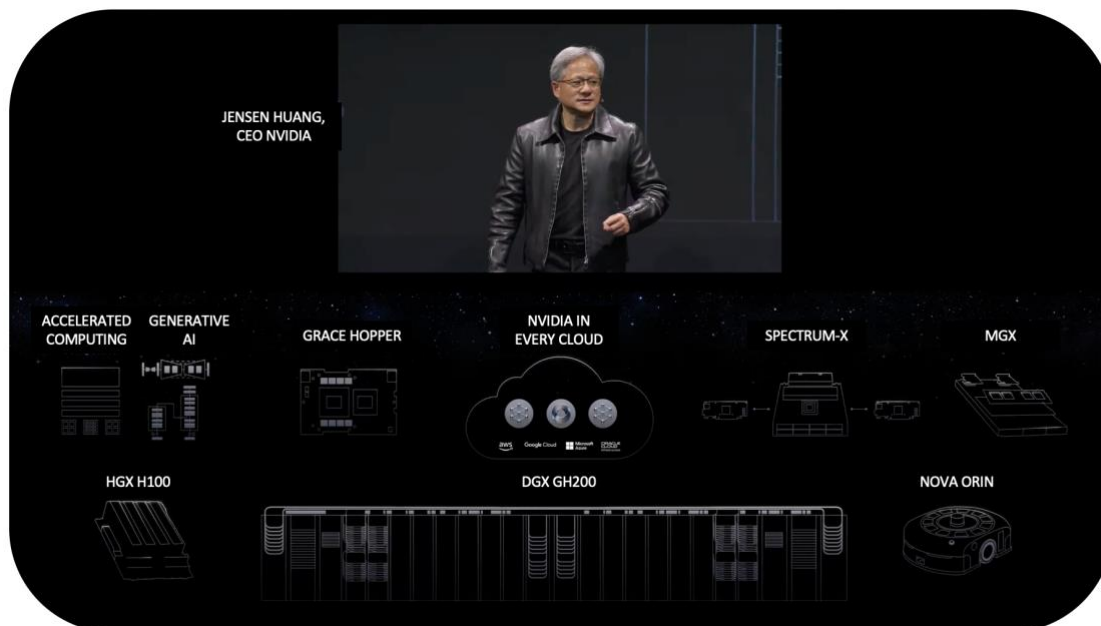*Previous Newsletters, including this one, are available on our site in pdf* HERE

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# Nvidia 'pops' on AI
LINK

*"AI is the 'next big thing' and it is 'going to change the world'"*



*New Product Announcements, GPT Taiwan, 29th May 2023*

Here are the new products announced at GPT in Taiwan in May:

- *Nvidia Hopper GPU architecture*: This new architecture is designed for AI and DC workloads. It is based on the TSMC 4nm process node and features up to 400 billion transistors. The Hopper GPU can deliver up to 20x performance improvement over the previous generation for AI workloads.
- *Nvidia DGX SuperPOD*: This is a new supercomputer that is based on the Hopper GPU architecture. It can deliver up to 100 exaflops of performance, making it one of the most powerful supercomputers in the world.
- *Nvidia DRIVE Orin system-on-a-chip (SoC):* This new SoC is designed for self-driving cars. It features up to 256 TOPS of performance and 24GB of HBM2e memory. The DRIVE Orin SoC is designed to help automakers develop safe and reliable self-driving cars.
- *Nvidia Omniverse Enterprise*: This is a new software platform that is designed for collaboration and simulation. It allows users to create, share, and collaborate on 3D projects in real time. Omniverse Enterprise is designed for use in architecture, engineering, manufacturing, and other industries.
- *Spectrum 4 Switch*: A new type of Ethernet switch designed to accelerate AI workloads. It can deliver up to 51.2 terabits per second bandwidth and designed to improve performance of AI applications such as adaptive routing and congestion control.

These new products from Nvidia represent a significant step forward in the company's efforts to accelerate the pace of innovation in AI, data centres, self-driving cars, and other areas.
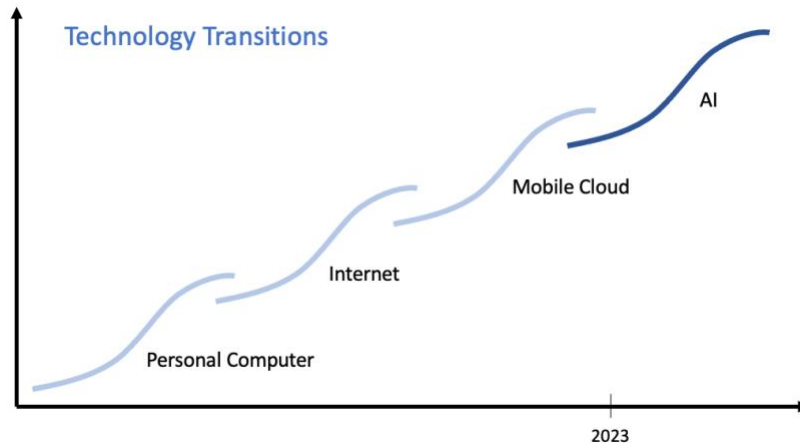
# Chief AI Officer (CAO) replaces CIO and CTO

It's already clear that the organisations that will lead in the next decade will do so with lots of help from AI. The inflection point that ChatGPT created, was to put AI in the hands of billions of people – anyone and everyone today has access to powerful AI capabilities, typically free. Microsoft Bing and Google Bard provide powerful

options and there are already hundreds (thousands?) of others either in market or waiting in the wings.

Companies like Nvidia, Microsoft, Meta and Google are innovating and making massive investments in the infrastructure required to power these tools. There is already an abundance today.

With so much choice, investment and innovation, it will be increasingly challenging for organisations to determine which AI tools and technology they will need and for what purpose. Additionally, the ethical and regulatory requirements of AI are in their infancy and are expected to become complex and challenging.



*Who will lead organisations into AI, the next major technology transition?*

How will organisations face the next major technology transition of our time (see above)? Will the roles of CIO and CTO become the new "Chief AI Officer" (CAO)?

We expect CAOs to emerge soon, responsible for determining the information and technology that will enable and transform their organisation to lead in the next decade.

## Maths

**Forty-nine** is a perfect square: 7 x 7 = 49.
In fact, both its digits, 4 and 9, are square, as is their product: 4 x 9 = 36.

Also:

      7 x 7 = 49
      67 x 67 = 4489
      667 x 667 = 444,889
      6667 x 6667 = 44,448,889

Can you see the pattern?

> Quiz question: What's $666,667^2$?
>
> *(Answer: 444,444,888,889)*

**Is Maths important?** In a recent report, the US Bureau of Labor Statistics projects that the job market for Mathematicians and Statisticians will grow by a whopping 33% in the next decade, and calculates that Mathematicians already earn almost three times the US average salary. LINK

Why? AI is a large part of the answer, undeniably creating demand that is only expected to continue.

## Book: Atomic Habits, James Clear

*Tiny changes, remarkable results,* LINK

***"Eventually, I began to realize that my results had very little to do with the goals I set and nearly everything***

*to do with the systems I followed".*

When Olympic sprinters line up at the 100m start line, they each have the same goal – to win. Sales teams have quotas and targets, but their competitors have similar goals. What makes winners different?

Clear believes that 'it doesn't matter how successful or unsuccessful you are right now. What matters is whether your habits are putting you on the path toward success. You should be far more concerned with your current trajectory than with your current results".

Using the analogy of atoms, which are the building blocks of molecules, Clear refers to atomic 'habits' as the building blocks of remarkable results. Atomic habits are not just any old habits, however small. They are little habits that are part of a larger system.

The purpose of setting goals is to win the game. The purpose of building systems is to continue playing the game. True long-term thinking is goal-less thinking. It's not about any single accomplishment. It is about the cycle of endless refinement and continuous improvement. Ultimately, it is your commitment to the process that will determine your progress.

James Clear shares a handful of simple life hacks (Habit Stacking, the Two Minute Rule, the Goldilocks Zone), and delves into cutting-edge psychology and neuroscience to explain why they matter.

People think that when you want to change your life, you need to think big. But James Clear has discovered another way. He knows that real change comes from the compound effect of hundreds of small decisions - doing two push-ups a day, waking up five minutes early, or holding a single short phone call.

With a little effort, you can use the principles of Atomic Habits to make significant improvements in your life and career.

*"The most practical way to change who you are is to change what you do".*

Stay connected.

*Kevin*