

# GLOBAL TECH & INNOVATION

Presented by Ryan Mahon  
Global Technology Portfolio Manager

JULY 2024



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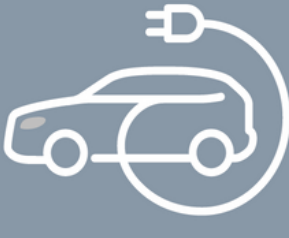




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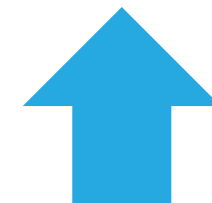
# Disclaimer





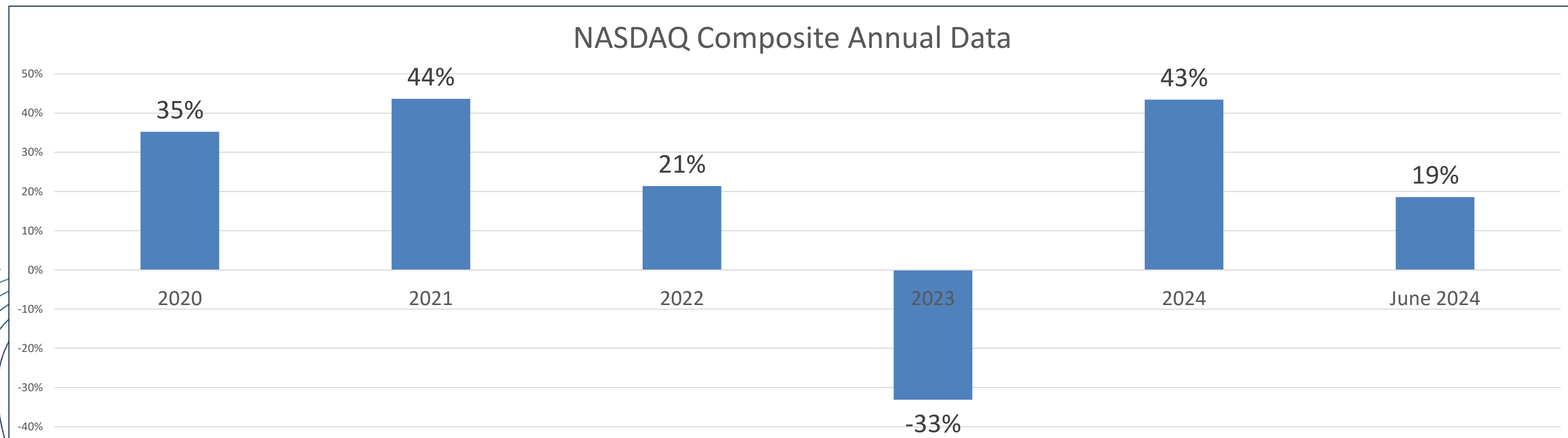
# Our Investment Platform

EQUITIES					OTHER ASSET CLASSES		
AUSTRALIAN		GLOBAL			PROPERTY		PRIVATE DEBT
 AUSTRALIA ALL CAP	 SMALL CAP INCOME	 GLOBAL HIGH CONVICTION	 GLOBAL MOBILITY	 GLOBAL TECH AND INNOVATION	 TAMIM PROPERTY	 LISTED PROPERTY	 TAMIM CREDIT FUND



# The Nasdaq

Tech has Performed Exceptionally Well





# Best Time to Invest?

Over 80 years of share market history tells us that markets go up over long period of times with drawdowns which are generally short and brief in nature.



# PORTFOLIO MANAGER

RYAN MAHON



Ryan Mahon is an investor, technologist, and outdoor enthusiast. Ryan recently founded Aquavis Advisors – an investment advisory firm that acts as the sub-manager for the Tamim Global Mobility Strategy. Prior to that, Ryan ran the Mobility Strategy at Ibox Investors, and worked as a Sector Head (Internet) and Associate Portfolio Manager at Millennium Management and as an Investment Analyst (Global Technology) at Folger Hill Asset Management.

He graduated magna cum laude from Georgetown University, McDonough School of Business, with a BSBA in Finance, Accounting, and Psychology, and is a CFA Charterholder. Born in Cleveland and living in Denver, he loves the outdoors and sports, and is passionate about investing in and applying technology to improve the world and drive sustainability.

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# Discussion Points

1. Global System Backdrop
2. The Confluence Leads To...
3. Which Forces an Acceleration of...
4. Technology: The Age of AI has Begun
5. Technology: Its Early, Its Big, Its Growing
6. ROBOT + LLM = HUMAN-LIKE
7. Energy: The Base Layer
8. Demand Acceleration
9. Money: An Overlooked Pillar of Power
10. Money: the "Store" of Value
11. Why Now?
12. Top Picks for 2024+



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# Simple Outline

## WHO

AQUAVIS + TAMIM

## WHY

The Global Order is Changing, Driving an Acceleration in Targeted Investment

## WHAT

A Product Built to Invest in & Capitalise on the Targeted Investment

## WHEN

**Now**

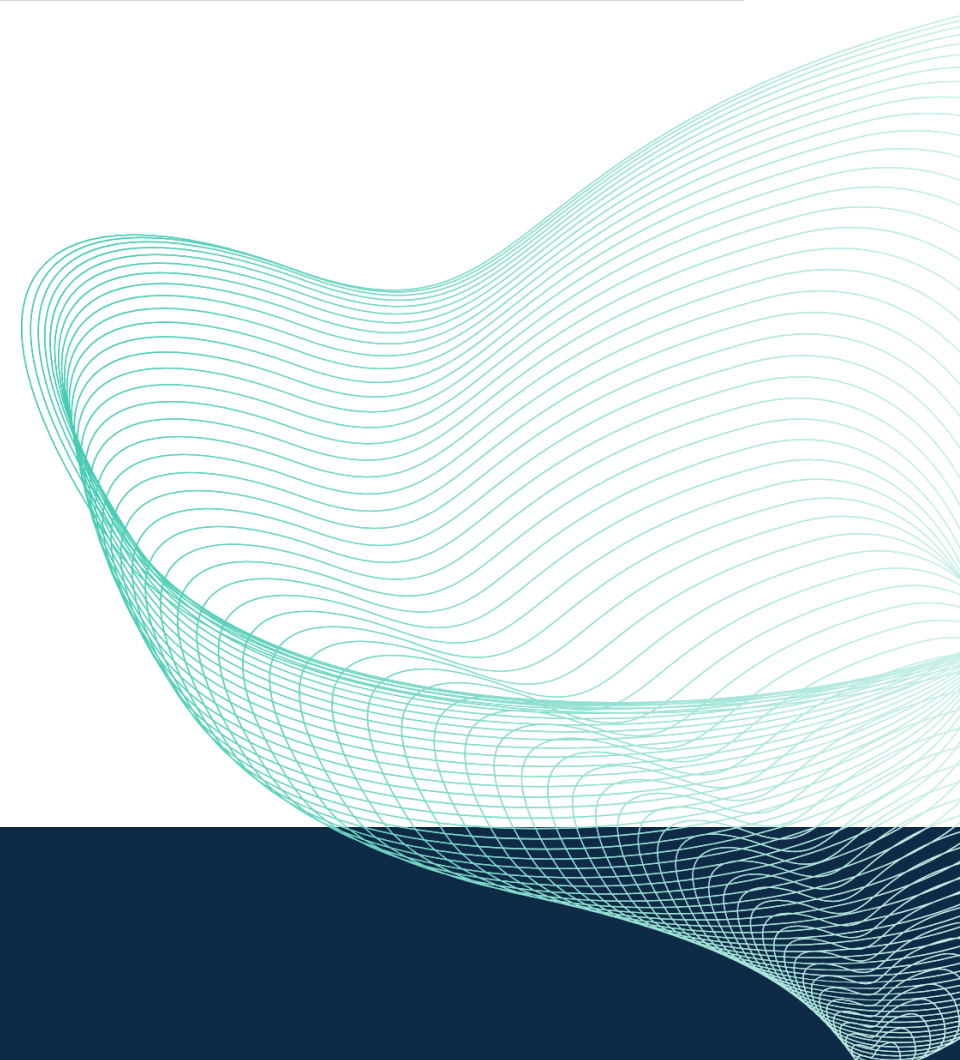
## WHERE

**Here**





# Who We Are



## AQUAVIS + TAMIM

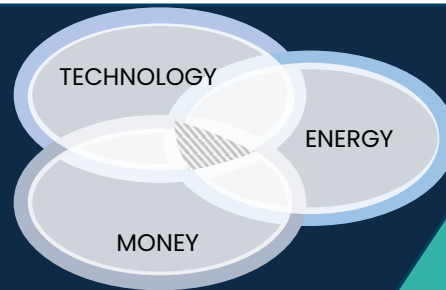
- Deep experience in **Semiconductors/Technology** and **Investing**
- Focused on clear, independent **first principles** thinking
- Driven by complex problem-solving and foundational truth-seeking
- Active observer of **Nature** and other **complex systems**

# Our Investment Process

## INVESTMENT PROCESS FUNNEL

## DESCRIPTION

Pillars of Power



*Targeted Universe*

Global Tech &  
Innovation Fund

Evaluate & Monitor Major Themes & Path

Assess & Construct Universe of Major  
Winners

Analyze & Select Subset Using Framework  
& Tools

# Quotes

“The world is **changing**. We’re at a **significant inflection point in world history**. And our country and the world—the United States of America has always been able to chart the future in times of great change...”

**Joe Biden**

President of the United States  
[National Security Strategy](https://www.whitehouse.gov/wp-content/uploads/2022/10/Biden-Harris-Administrations-National-Security-Strategy-10.2022.pdf) Speech (October 2022)<sup>1</sup>

“Right now there are **changes** – the **likes of which we haven’t seen for 100 years** – and we are the ones driving these changes together.”

**Xi Jinping**

President of the People’s Republic of China  
[Speaking to President Vladimir Putin](https://www.aljazeera.com/news/2023/3/22/xi-tells-putin-of-changes-not-seen-for-100) (March 2023)<sup>2</sup>

<sup>1</sup> <https://www.whitehouse.gov/wp-content/uploads/2022/10/Biden-Harris-Administrations-National-Security-Strategy-10.2022.pdf>

<sup>2</sup> <https://www.aljazeera.com/news/2023/3/22/xi-tells-putin-of-changes-not-seen-for-100>

# Global System Backdrop

## Rising geopolitical tensions and global power struggle

- Peter Zeihan's The End of the World is Just the Beginning <sup>1</sup>
- Unipolar world moving toward multipolar world
- Efficient supply chains moving toward resilient

## Aging demographics and increasing wealth inequality

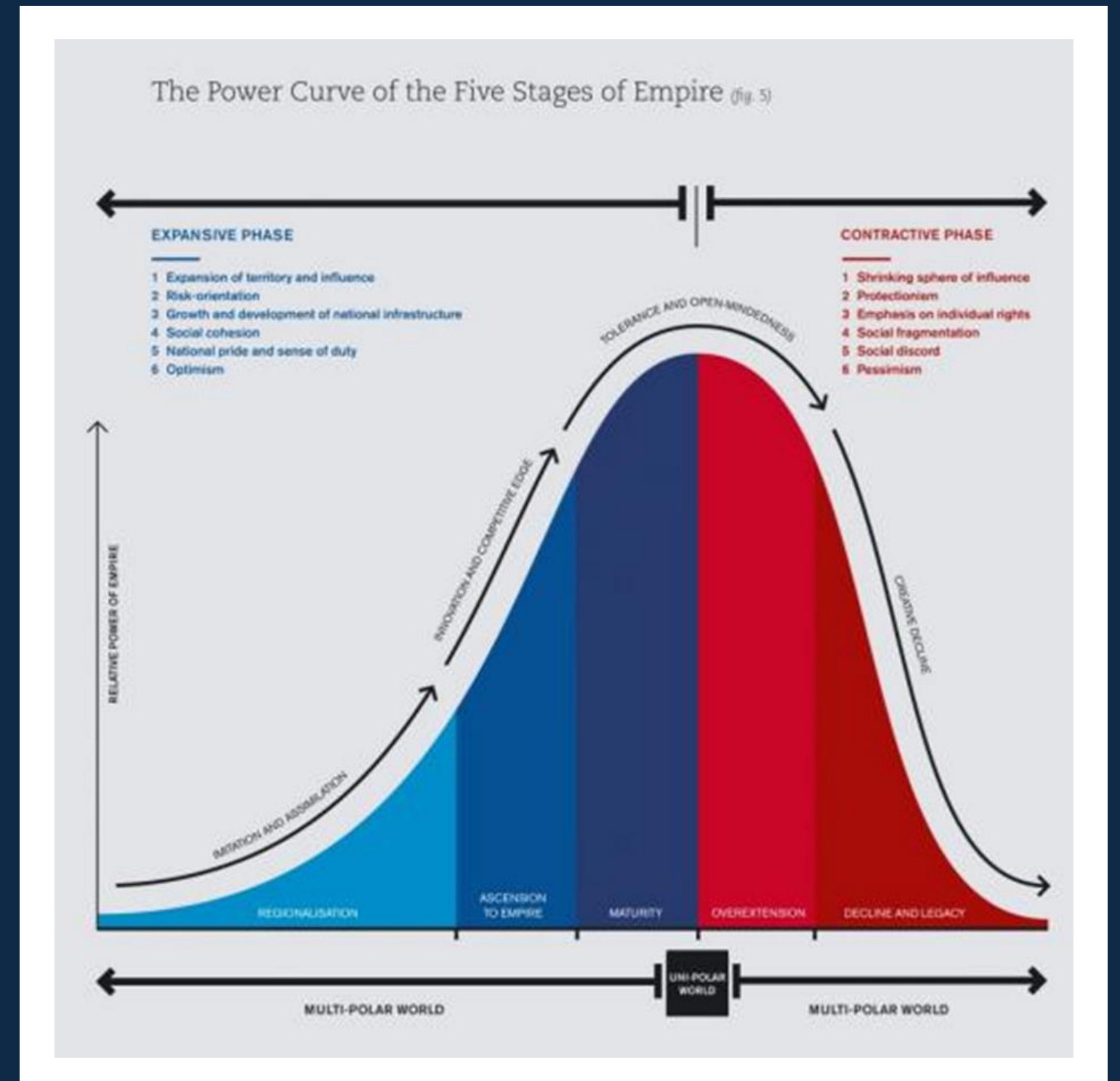
- Neil Howe's The Fourth Turning is Here <sup>2</sup>

## Overleveraged Sovereign Governments

- Ray Dalio's Principles for Navigating Big Debt Crises <sup>3</sup>

## Challenges to the current Order and Empire

- David Murrin's Life Cycle of Empires <sup>4</sup>



<sup>1</sup> <https://zeihan.com/end-of-the-world/>

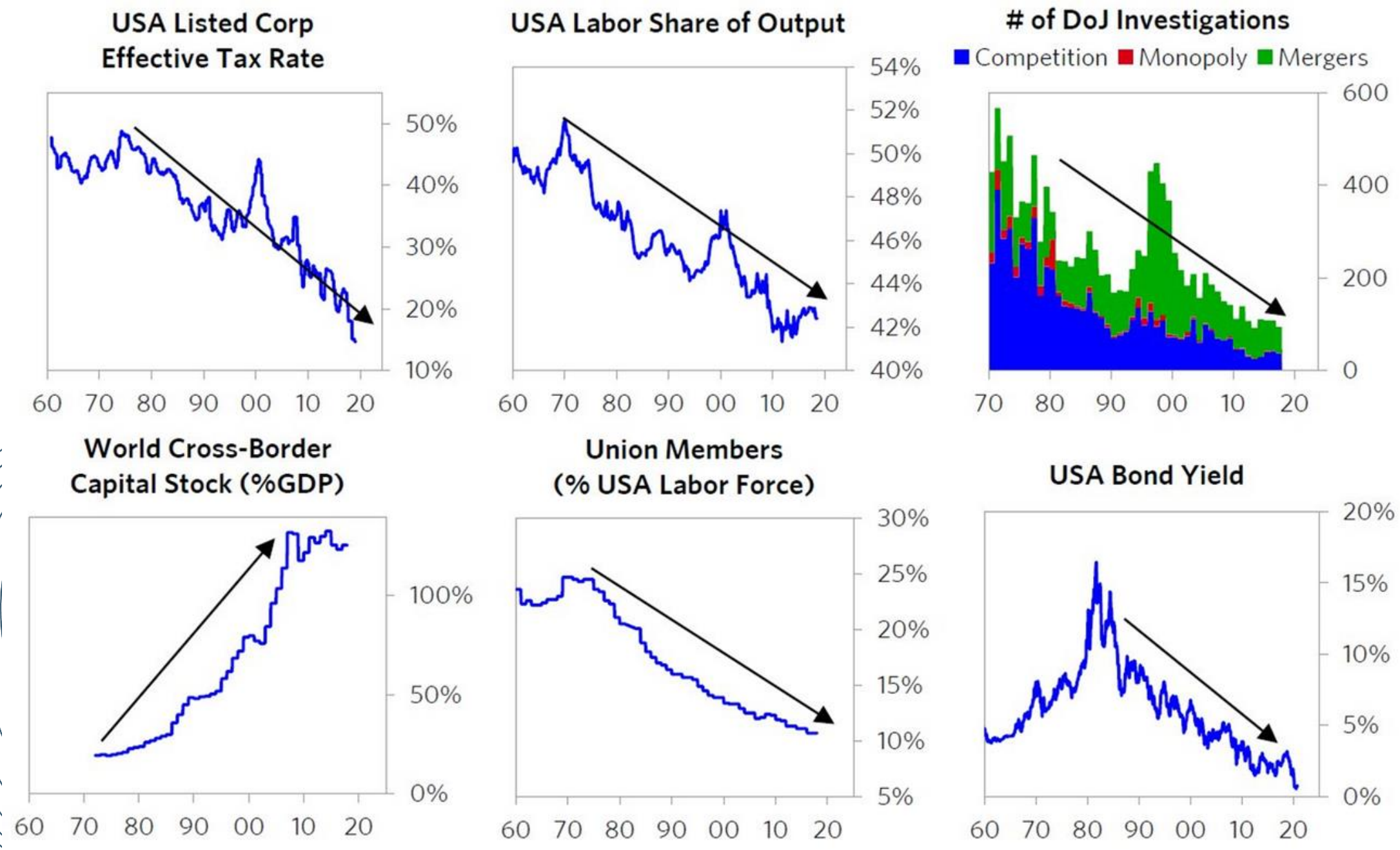
<sup>2</sup> <https://www.amazon.com/Fourth-Turning-Here-Seasons-History/dp/1982173734>

<sup>3</sup> <https://www.bridgewater.com/big-debt-crises/principles-for-navigating-big-debt-crises-by-ray-dalio.pdf>

<sup>4</sup> <https://www.davidmurrin.co.uk/article/5-phase-life-cycle> (chart on right)



# The Confluence Leads To...



## Rising:

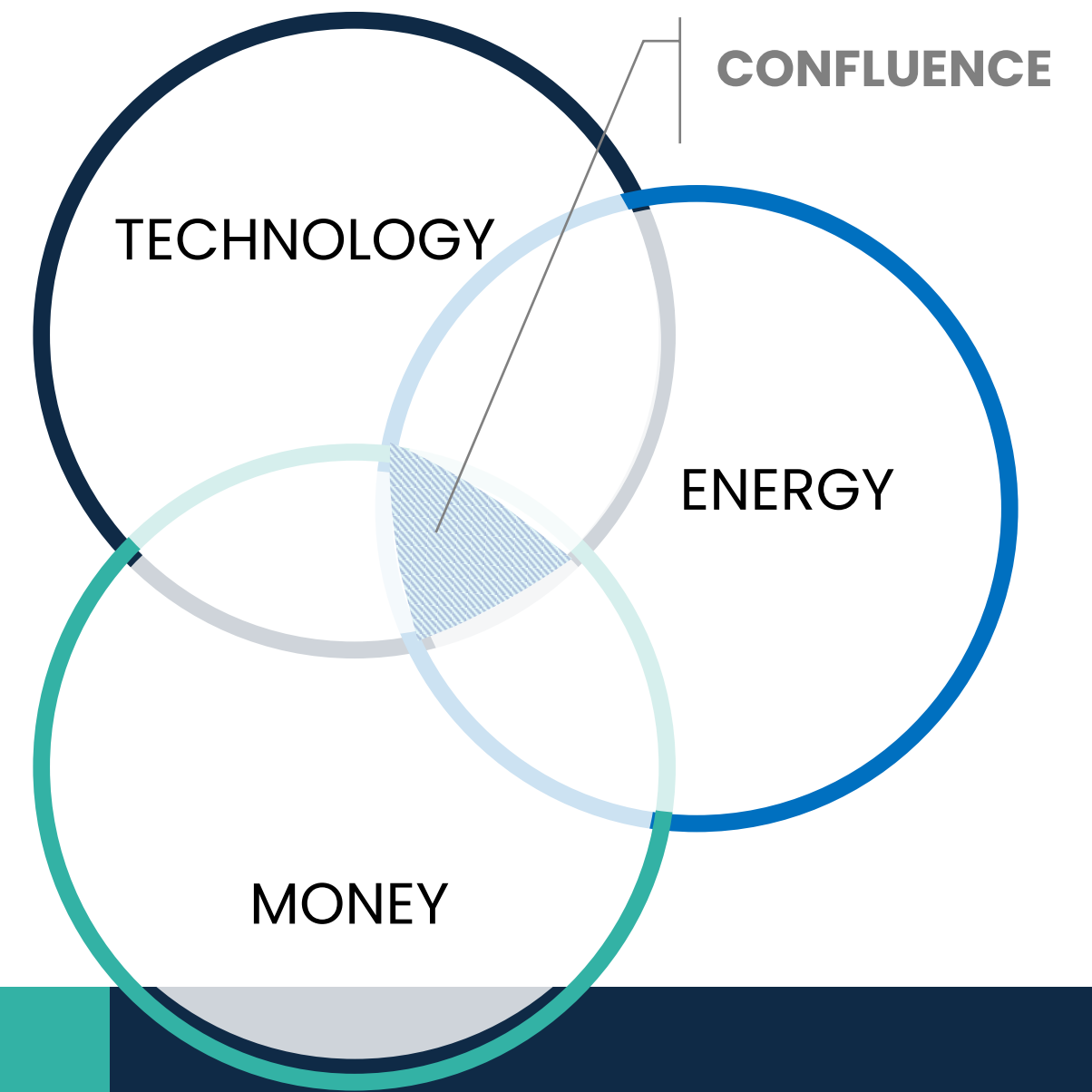
- Labor & Capital Costs
- Energy & Inflation
- Taxes
- Populism
- Conflicts

A Reversal of Many Trends from the Last 40+ Years<sup>1</sup>

# Which Forces an Acceleration of...

These are our three **Pillars of Power** and the core focus areas of the **Global Technology & Innovation Fund**

The pillars are synergistic, self-reinforcing, and collectively construct the **foundations** of geostrategic **Power**



## TECHNOLOGY

Innovation to more efficiently transform Energy & save Time



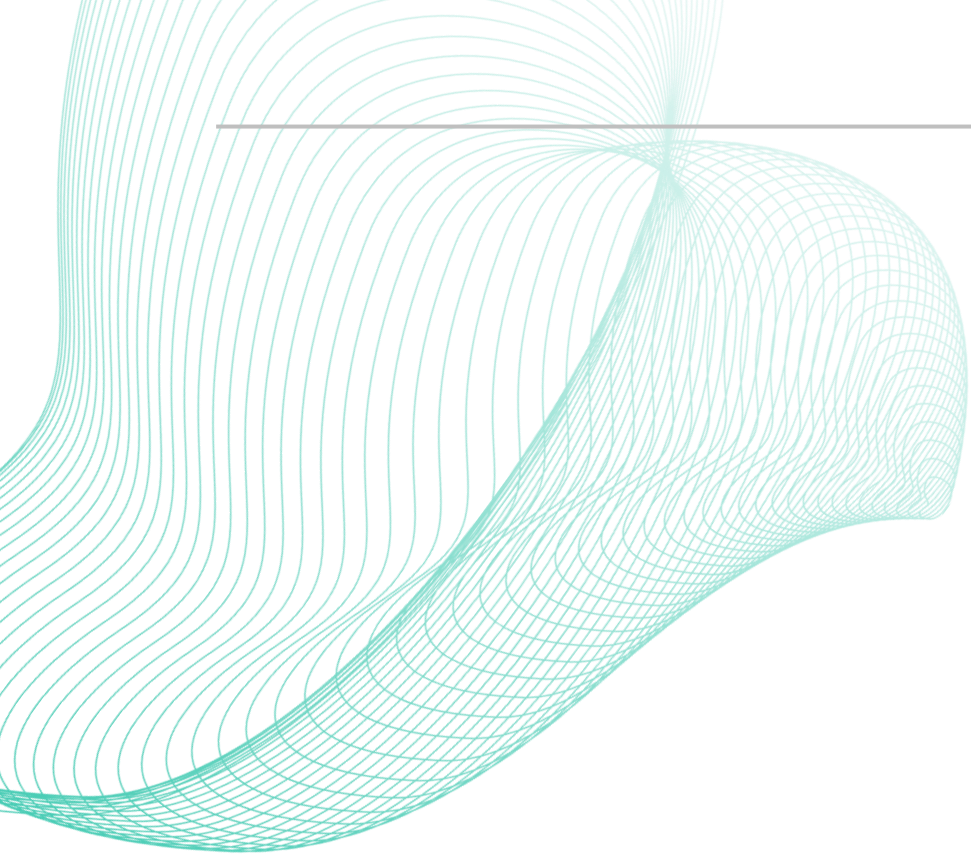
## ENERGY

Base input into any system



## MONEY

Money (or Capital) as stored Energy (Dimensions of Labor/Energy and Time)



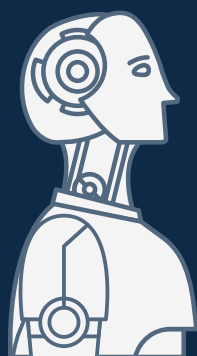
**TECHNOLOGY**

**CONFLUENCE**

ENERGY

MONEY

# TECHNOLOGY



# Quotes

“ While **technology development** has always been a **critical defining force** and while it is well known that **whoever wins the technology war wins the economic, geopolitical, and military wars**, this **has never been truer than now**, and China and the US are the leaders and big adversaries. ”

**Ray Dalio**

Founder of Bridgewater

[100-Year Storm on the Horizon & How the Five Big Forces Are Playing Out \(March 2024\)](https://www.linkedin.com/pulse/china-100-year-storm-horizon-how-five-big-forces-playing-ray-dalio-wysbc)<sup>1</sup>

“ We must complement the innovative power of the private sector with a modern industrial strategy that makes strategic public investments in America’s workforce, and in strategic sectors and supply chains, especially critical and emerging technologies, such as microelectronics, advanced computing, biotechnologies, clean energy technologies, and advanced telecommunications ”

**National Security Council**

[National Security Strategy](https://www.whitehouse.gov/wp-content/uploads/2022/10/Biden-Harris-Administrations-National-Security-Strategy-10.2022.pdf) Report (October 2022)<sup>2</sup>

<sup>1</sup> <https://www.linkedin.com/pulse/china-100-year-storm-horizon-how-five-big-forces-playing-ray-dalio-wysbc>

<sup>2</sup> <https://www.whitehouse.gov/wp-content/uploads/2022/10/Biden-Harris-Administrations-National-Security-Strategy-10.2022.pdf>

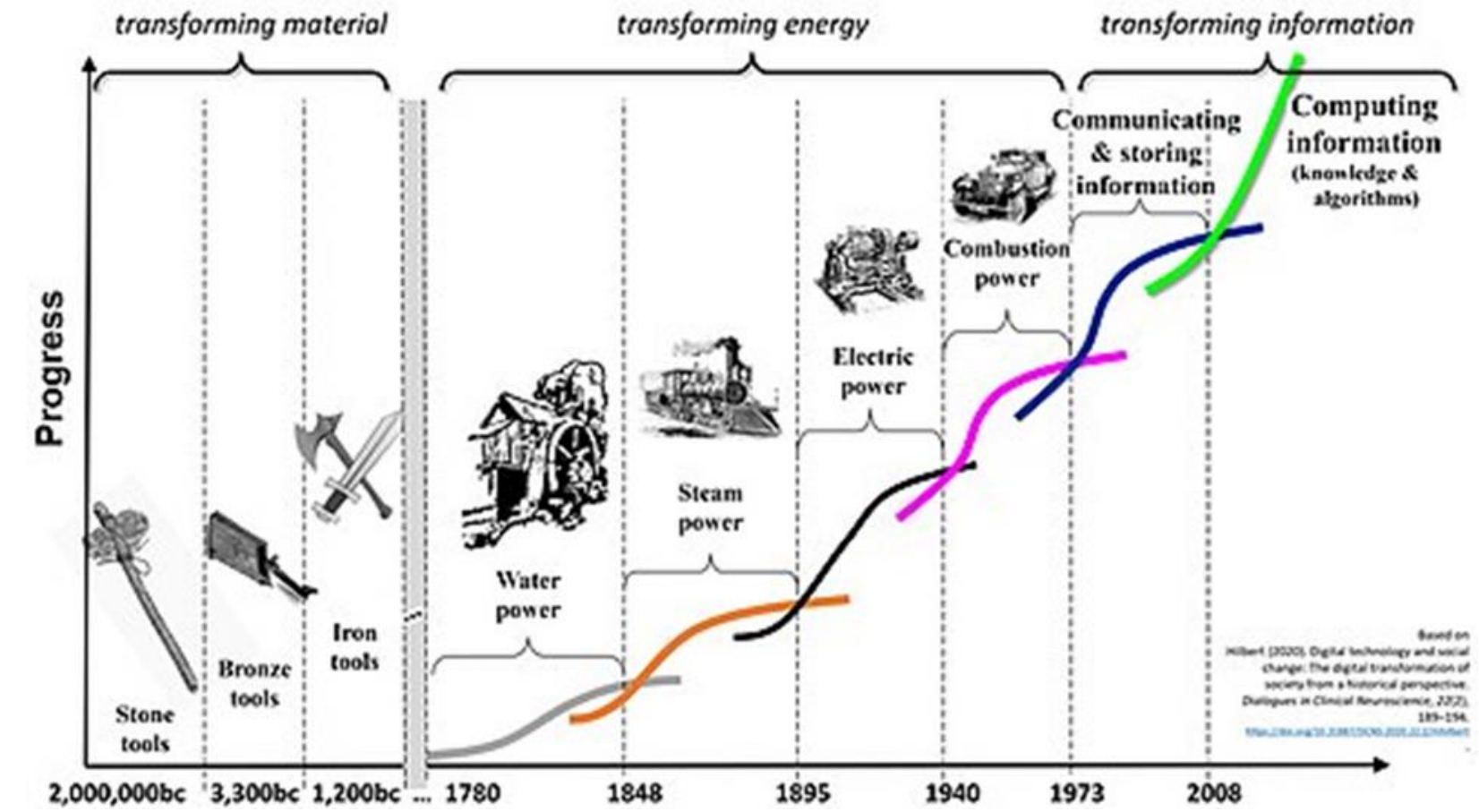


# The Age of AI has Begun

Semiconductors are the foundational enabling Technology.  
Artificial Intelligence is the next Revolution.

Table 1. Five successive technological revolutions, 1770s to 2000s

Technological revolution	Popular name for the period	Core country or countries	Big-bang initiating the revolution	Year
FIRST	The 'Industrial Revolution'	Britain	Arkwright's mill opens in Cromford	1771
SECOND	Age of Steam and Railways	Britain (spreading to Continent and USA)	Test of the 'Rocket' steam engine for the Liverpool-Manchester railway	1829
THIRD	Age of Steel, Electricity and Heavy Engineering	USA and Germany forging ahead and overtaking Britain	The Carnegie Bessemer steel plant opens in Pittsburgh, Pennsylvania	1875
FOURTH	Age of Oil, the Automobile and Mass Production	USA (with Germany at first vying for world leadership), later spreading to Europe	First Model-T comes out of the Ford plant in Detroit, Michigan	1908
FIFTH	Age of Information and Telecommunications	USA (spreading to Europe and Asia)	The Intel microprocessor is announced in Santa Clara, California	1971



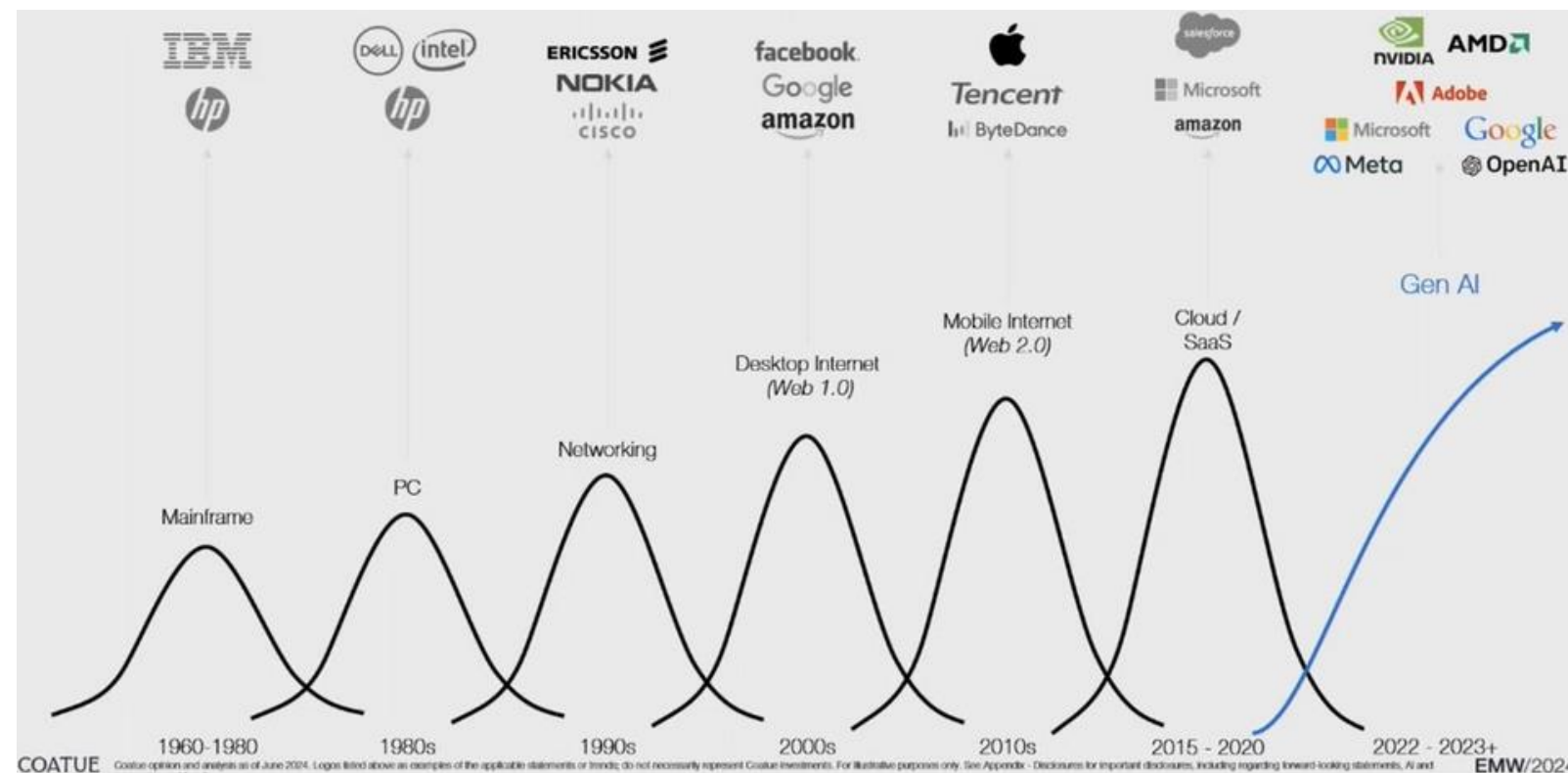
Source: Technological Revolutions and Financial Capital by Carlota Perez. *Left* [https://en.wikipedia.org/wiki/Technological\\_Revolutions\\_and\\_Financial\\_Capital](https://en.wikipedia.org/wiki/Technological_Revolutions_and_Financial_Capital). *Right* [https://en.wikipedia.org/wiki/Kondratiev\\_wave](https://en.wikipedia.org/wiki/Kondratiev_wave)

# Its EARLY

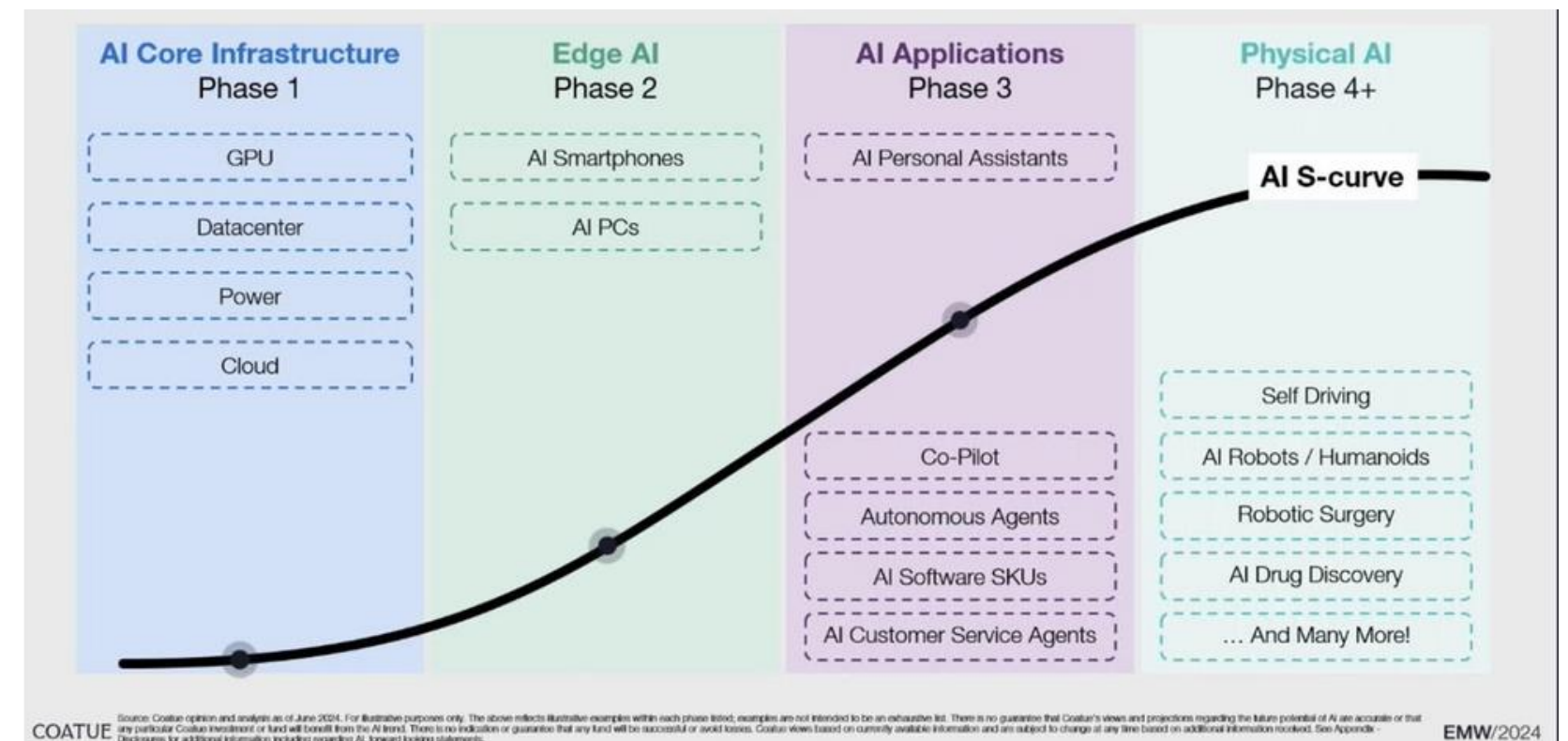
“Over time, AI will be the biggest technological shift we see in our lifetimes. It’s bigger than the shift from desktop computing to mobile, and it may be bigger than the internet itself. It’s a fundamental rewiring of technology and an incredible accelerant of human ingenuity. ”

**Sundar Pichai** (CEO of Google)<sup>1</sup>

## AI is the next major cycle...



## And we are early...



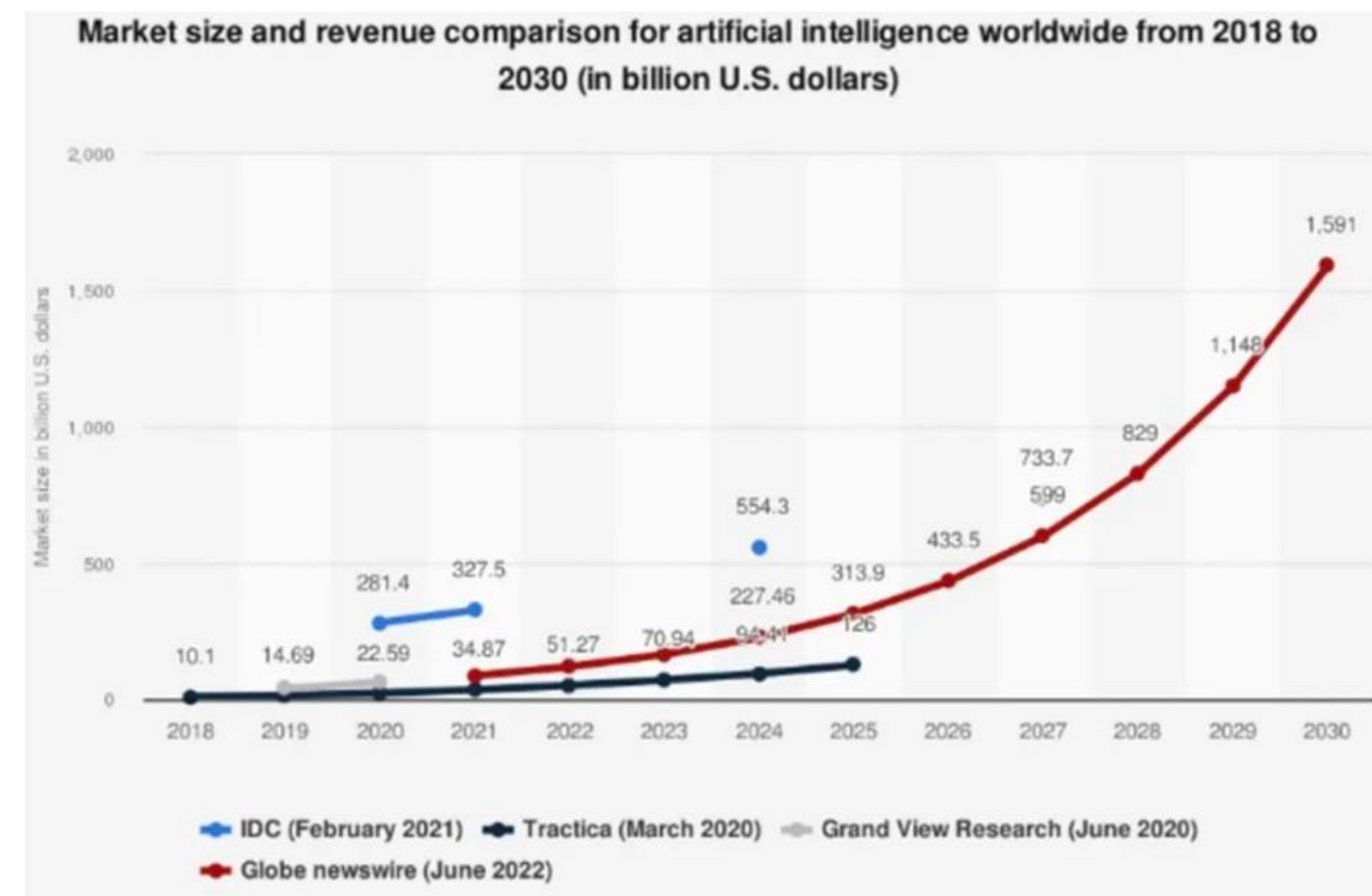
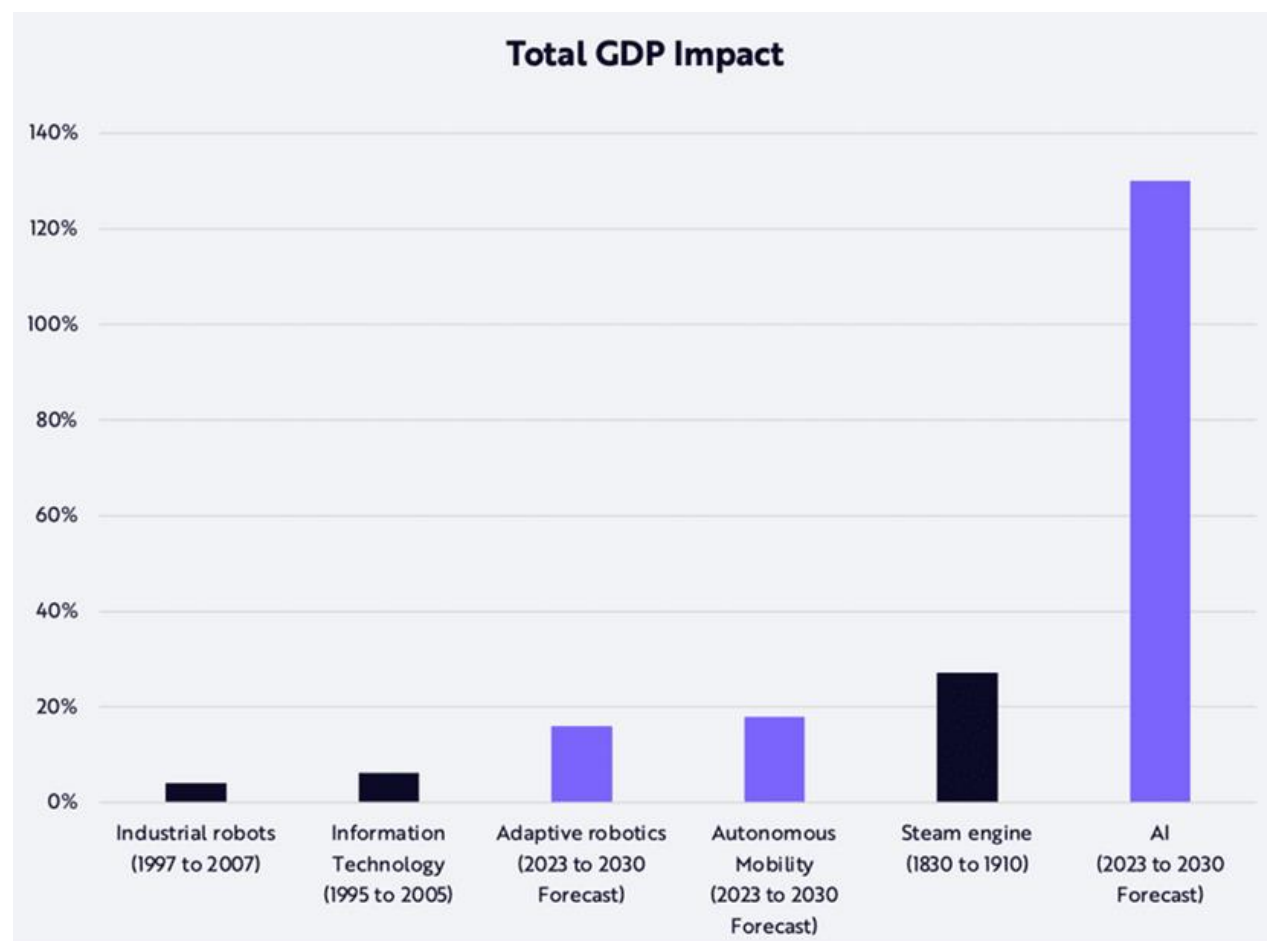
Left & Right <https://www.coatue.com/blog/company-update/coatues-2024-emw-conference>. 1 <https://blog.google/inside-google/message-ceo/google-25th-birthday-sundar-pichai/>



# Its BIG

“ The development of AI is as fundamental as the creation of the microprocessor, the personal computer, the Internet, and the mobile phone. It will change the way people work, learn, travel, get health care, and communicate with each other. ”

**Bill Gates** (Founder of Microsoft)<sup>1</sup>

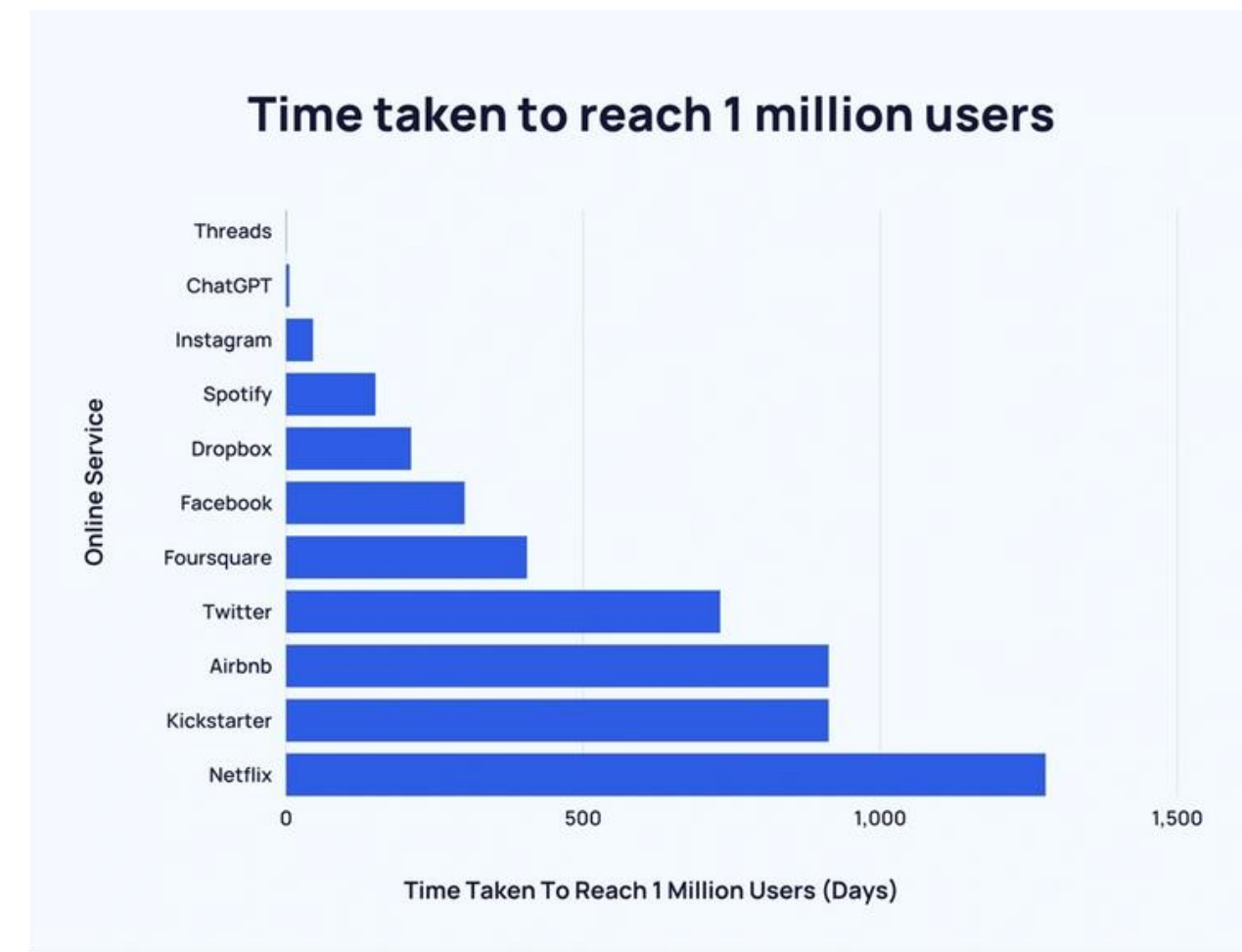
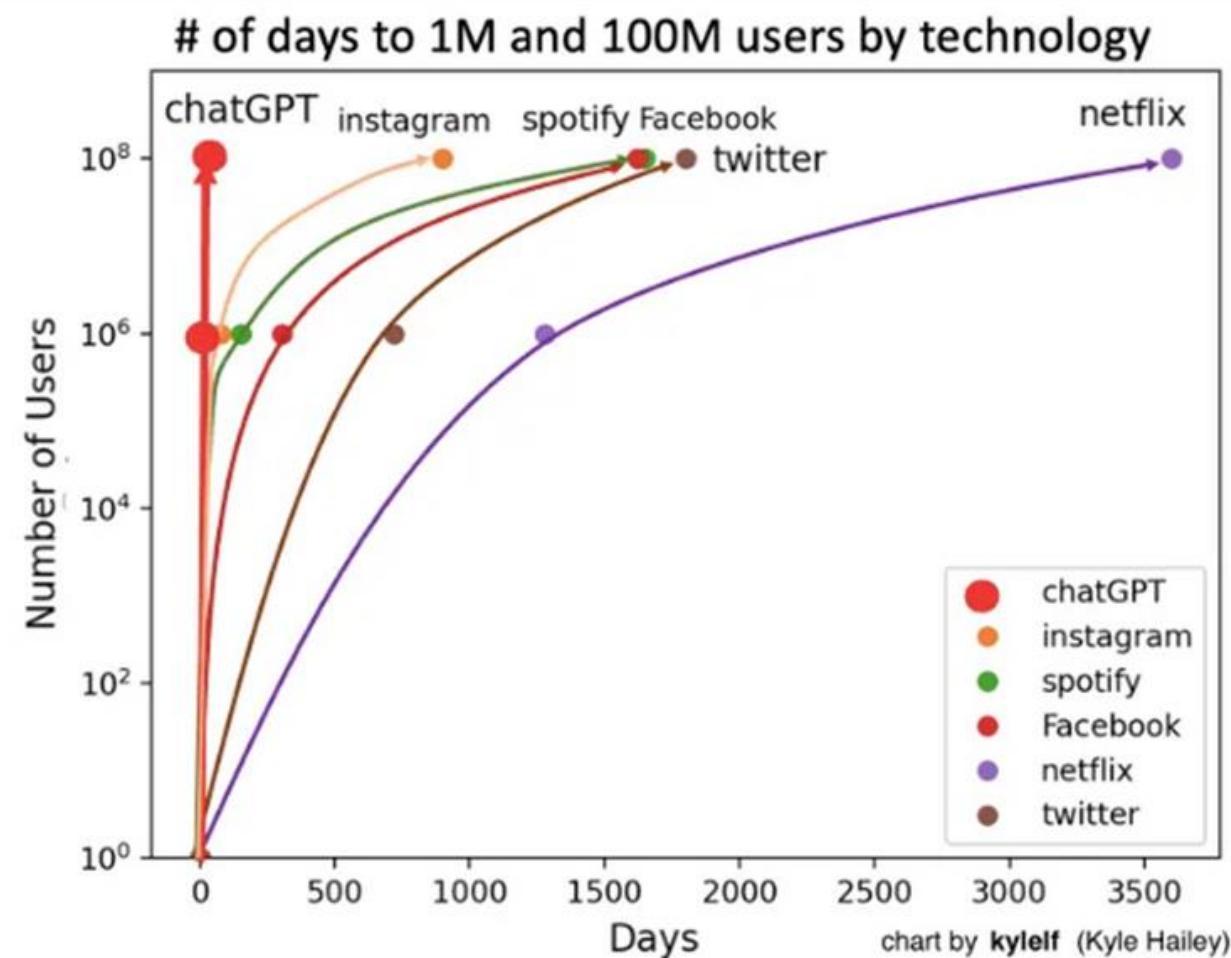


<sup>1</sup> <https://www.gatesnotes.com/The-Age-of-AI-Has-Begun> Left <https://ark-invest.com/big-ideas-2024>. Right <https://www.benparr.com/p/future-of-ai-investing-report>

# Its GROWING

Technological progress is cumulative – current technologies build upon prior technologies and their networks

The result is explosive exponential growth – it took ChatGPT 5 days to reach 1 million users; it took Netflix 3.5 years...





# But What is It?

For the Technology layer for this cycle, we are primarily focused on **Artificial Intelligence (AI)**

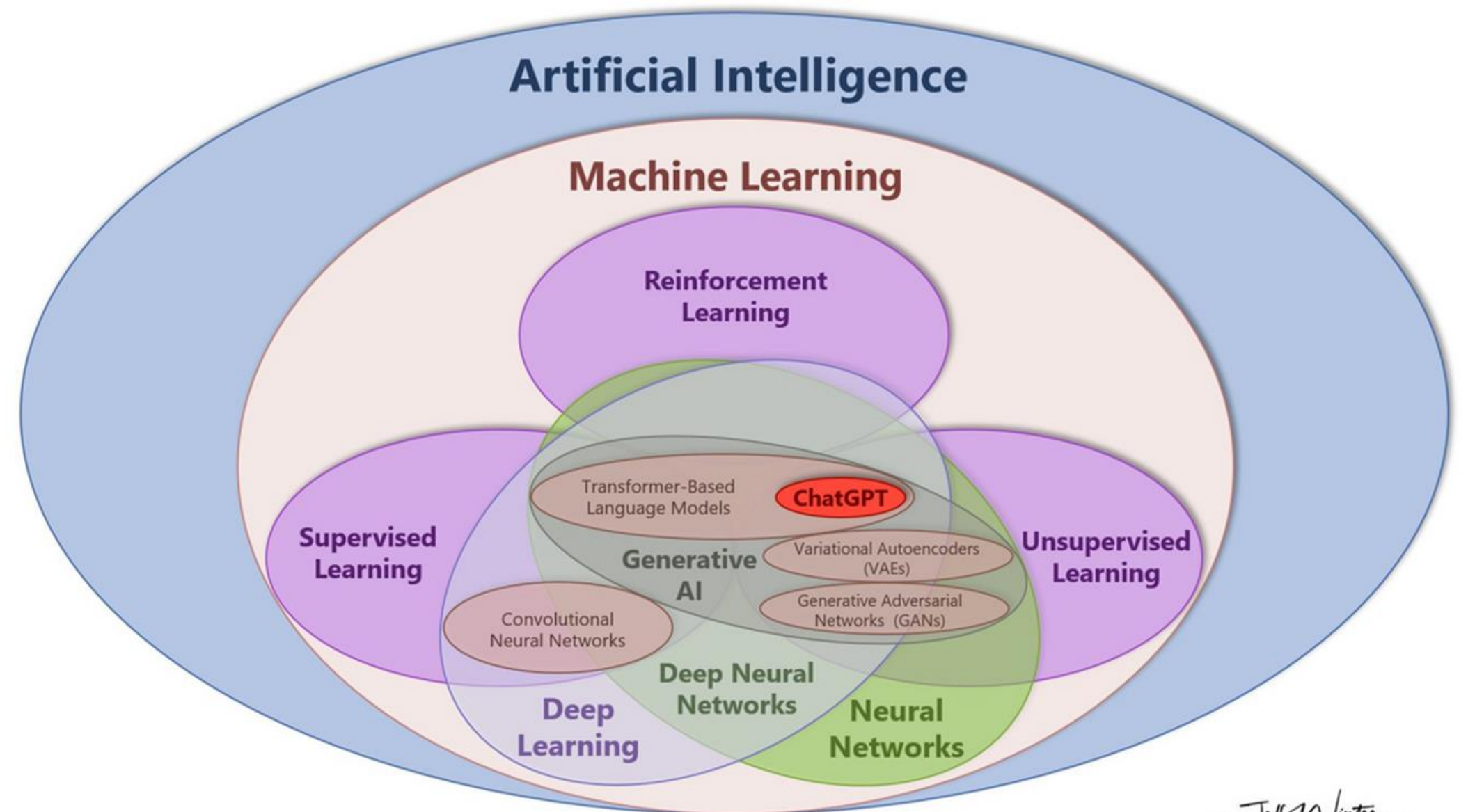
AI is decomposed into **Compute, Data,** and **Algorithms**

**Semiconductors** are the base layer of the **Compute engine** – the 'oil' of Compute

**Data** is the critical input into **Algorithms** – the 'oil' of Algorithms

The Confluence of the three effectively composes AI – which will be the **foundation layer to build on for the next decade+**

AI allows you to more efficiently **transform untapped data (potential energy) into actionable intelligence (value)**, to save you time and energy



Jeff Winter

# And Who is Involved?

Early version of the **AI Tech Stack (right)**

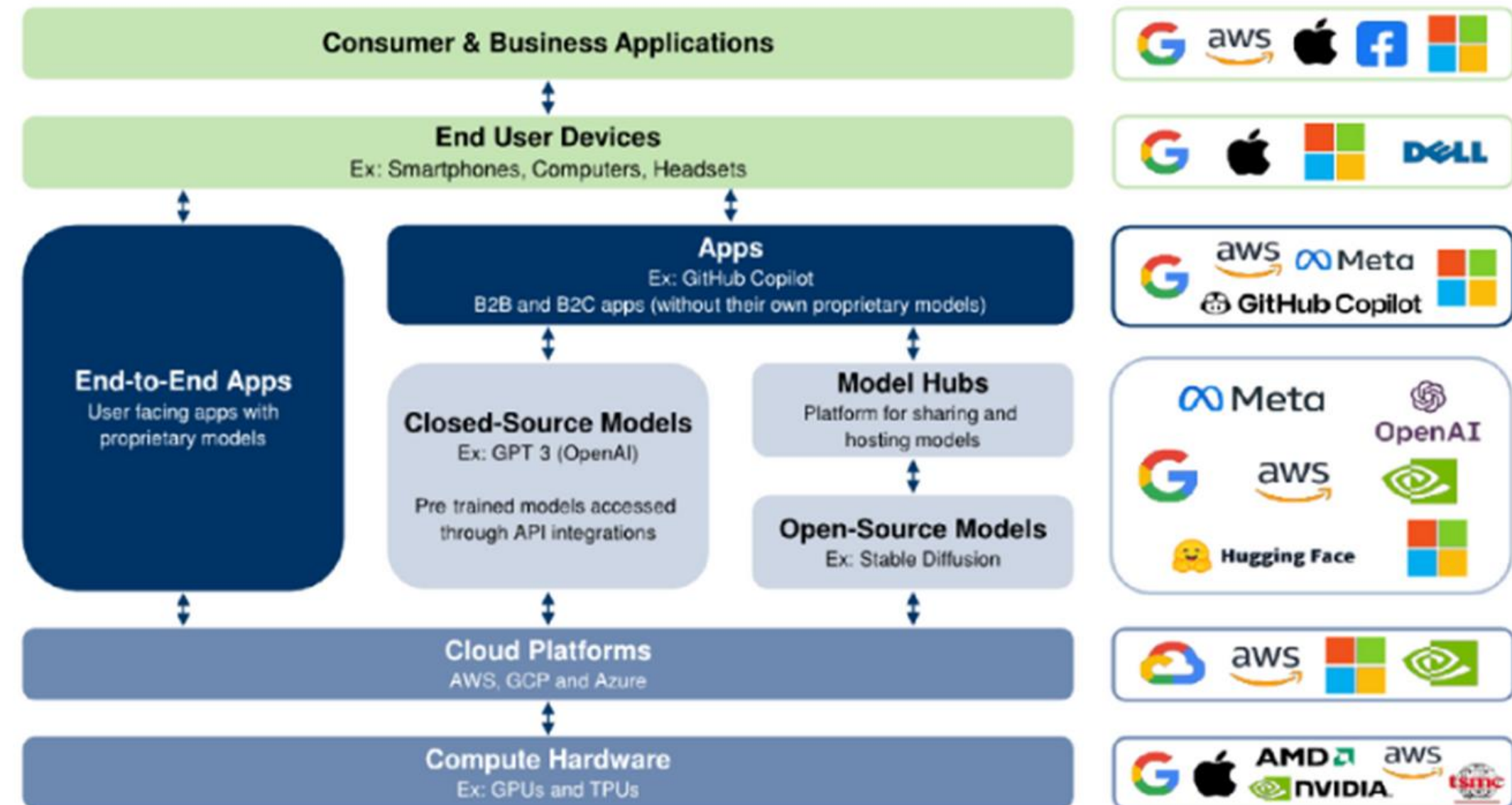
The major initial beneficiaries are the **AI Core Infrastructure** players (**Phase 1** – see slide 18), which are generally **Compute-focused** and are at the **foundation** of the AI Tech Stack

For everything else to work, you need to build out and **rearchitect Data Centers** (base layer) – analogous to laying **railroad tracks or fiberoptic cables**

The next leg of beneficiaries will be focused more on **Phase 2 – Edge AI** – as we begin to move up the Tech Stack and AI (notably Inference) moves to the edge (e.g., smartphones, PCs, robots)

Phases 3 and 4 will be focused on **AI Applications** – both digital and physical – ranging from **AI Agents** that complete tasks (i.e., book trips, answer emails) to **self-driving cars** and **robot assistants**

Ultimately, **innovation** and **ingenuity** mean the sky is the limit... we underestimate change over the long run



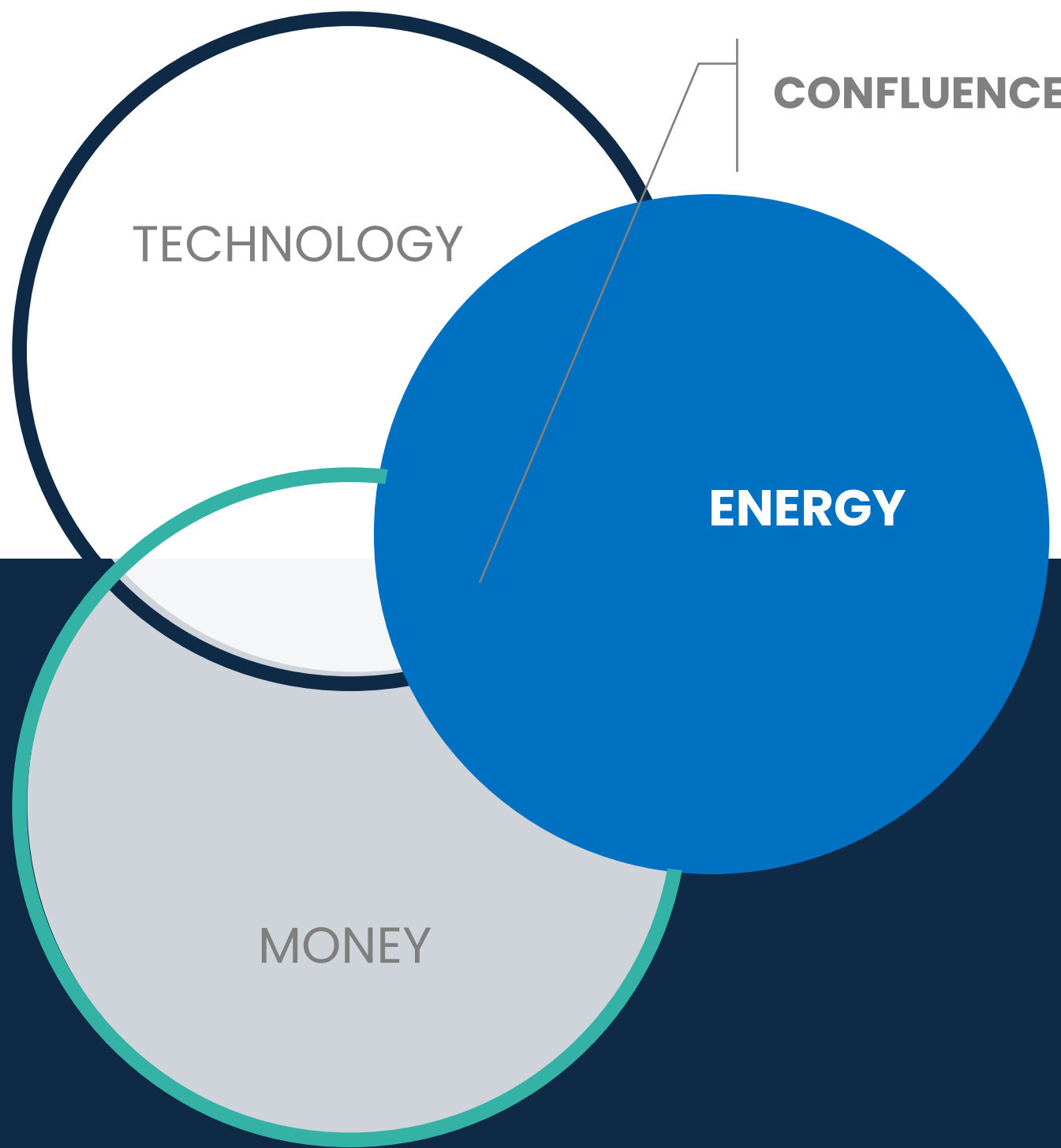
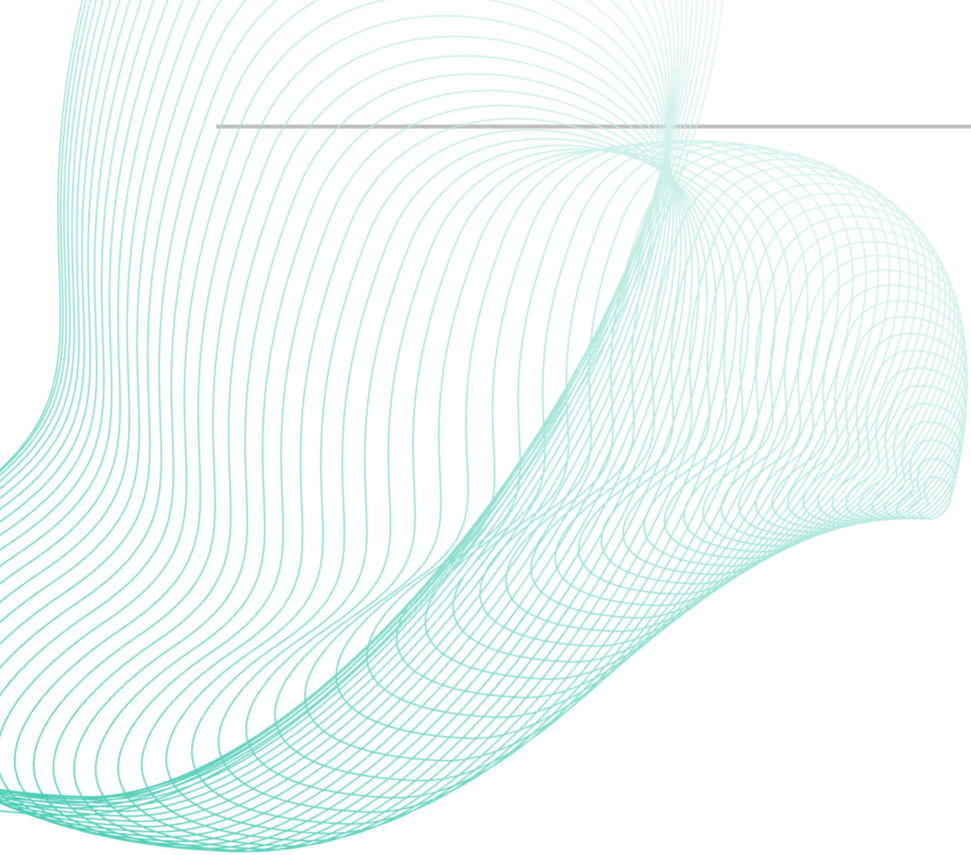


**FIGURE 01 + OPENAI  
SPEECH-TO-SPEECH REASONING**



**ROBOT + LLM = HUMAN-LIKE**





# ENERGY



**Energy** is a **critical input into any system** – the base layer for both **Technology** and **Money**

Overall consumption of Energy is a one-way trend higher since the first Industrial Revolution

Eventually, Technology makes Energy **cheaper/more efficient** – but investment is typically required upfront to Power the Technological Revolutions, hence commodity capex boom/bust cycles

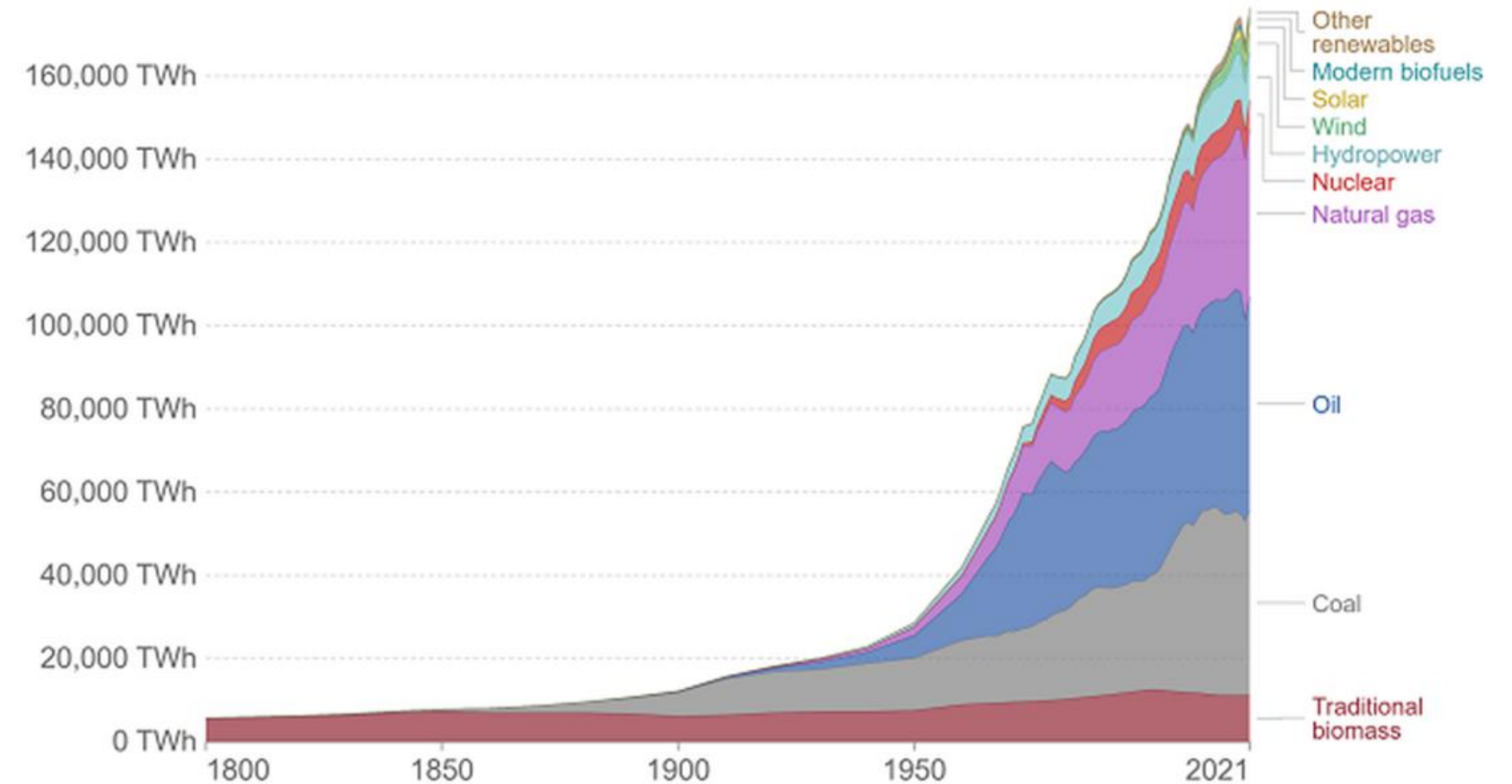
The most **powerful** Nations are energy independent, have access to the lowest cost energy resources, and have abundant supply of these energy resources

Similar to Technological leadership, **Energy is a National Security priority**

## Global primary energy consumption by source

Our World in Data

Primary energy is calculated based on the 'substitution method' which takes account of the inefficiencies in fossil fuel production by converting non-fossil energy into the energy inputs required if they had the same conversion losses as fossil fuels.



Source: Our World in Data based on Vaclav Smil (2017) and BP Statistical Review of World Energy

OurWorldInData.org/energy • CC BY

Right <https://www.lyndalen.com/energy-problems/>

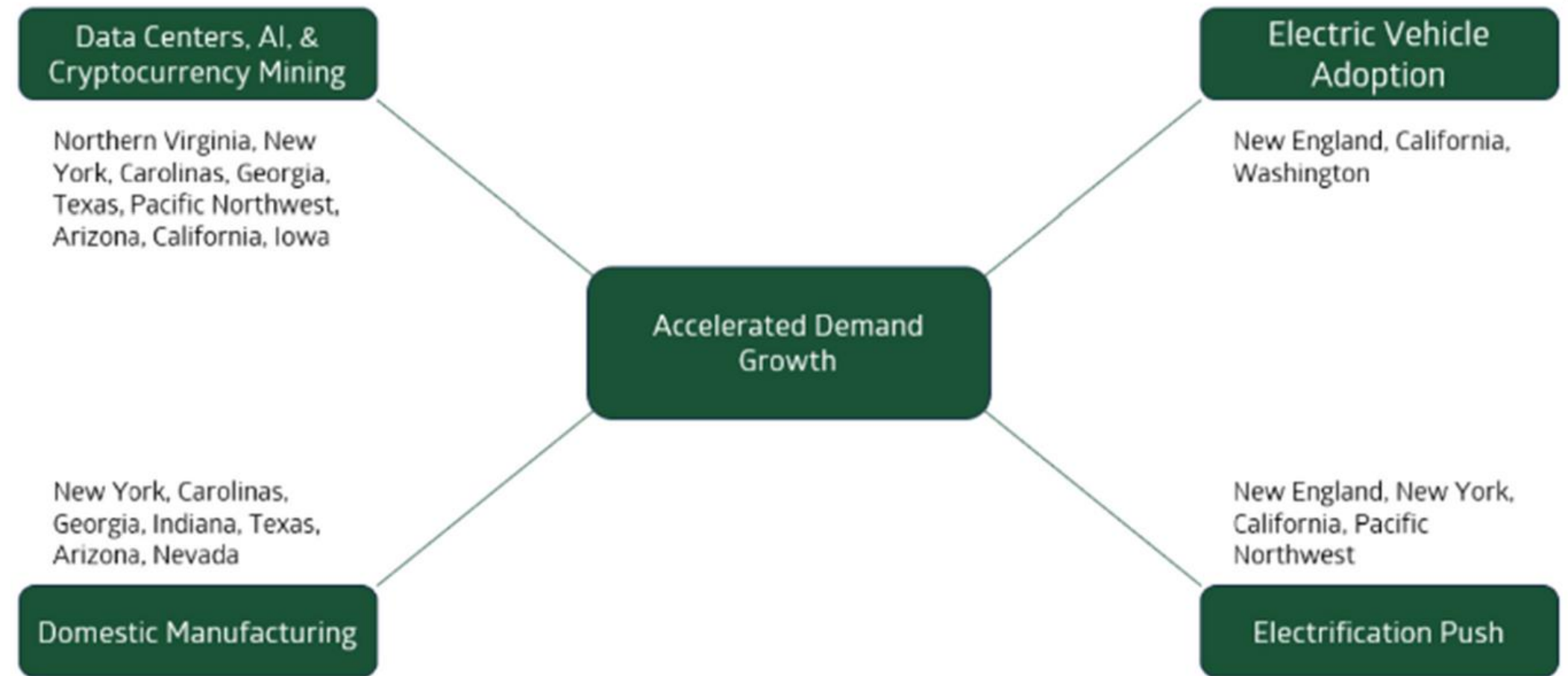
# Energy: The Base Layer

After 20+ years of cheap labor and cheap energy, trends are reversing

AI is a massive secular theme that will not only require a **revamping of data centers**, but also will require a **massive increase in baseload energy** and **electricity transmission** to power it

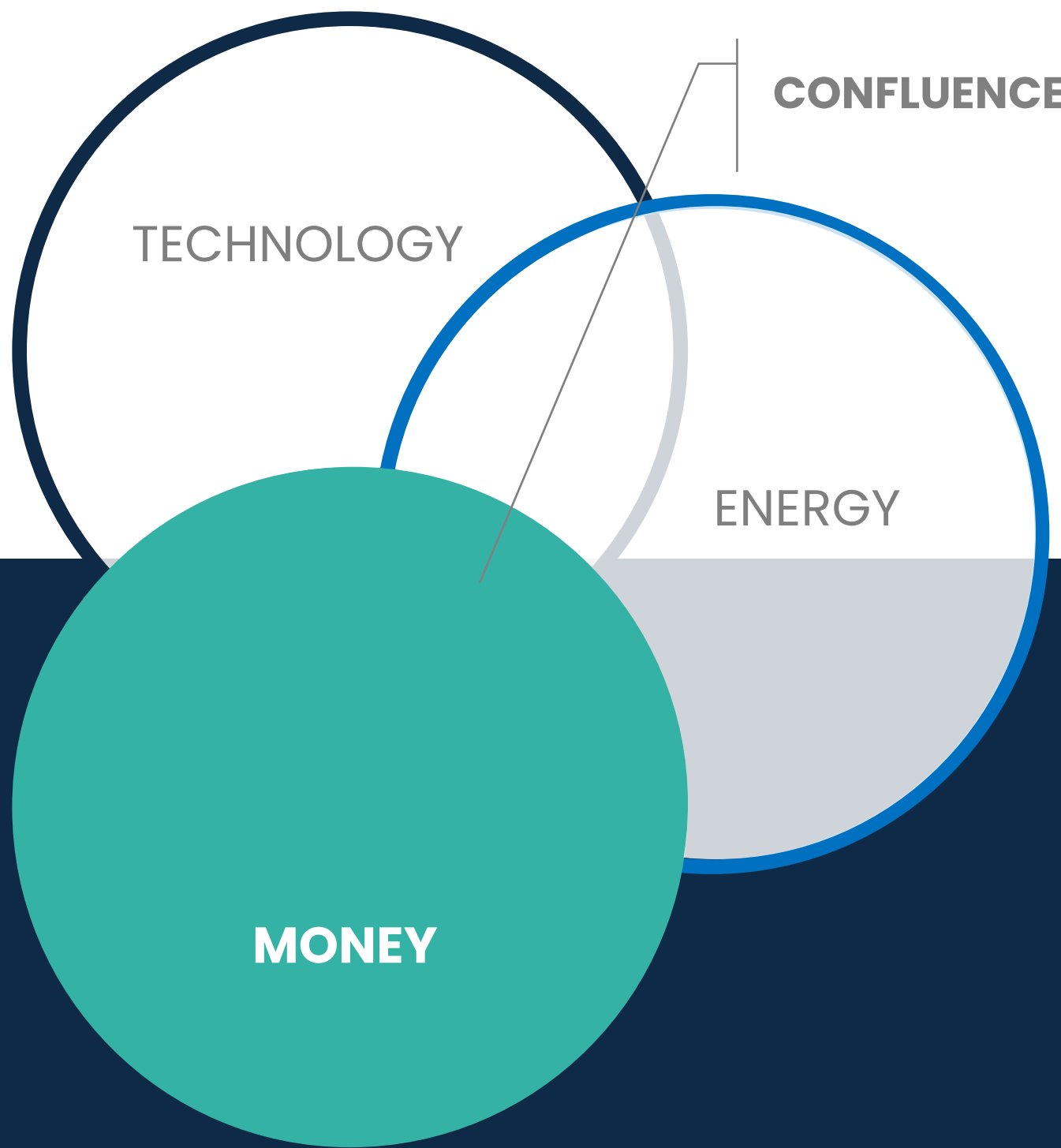
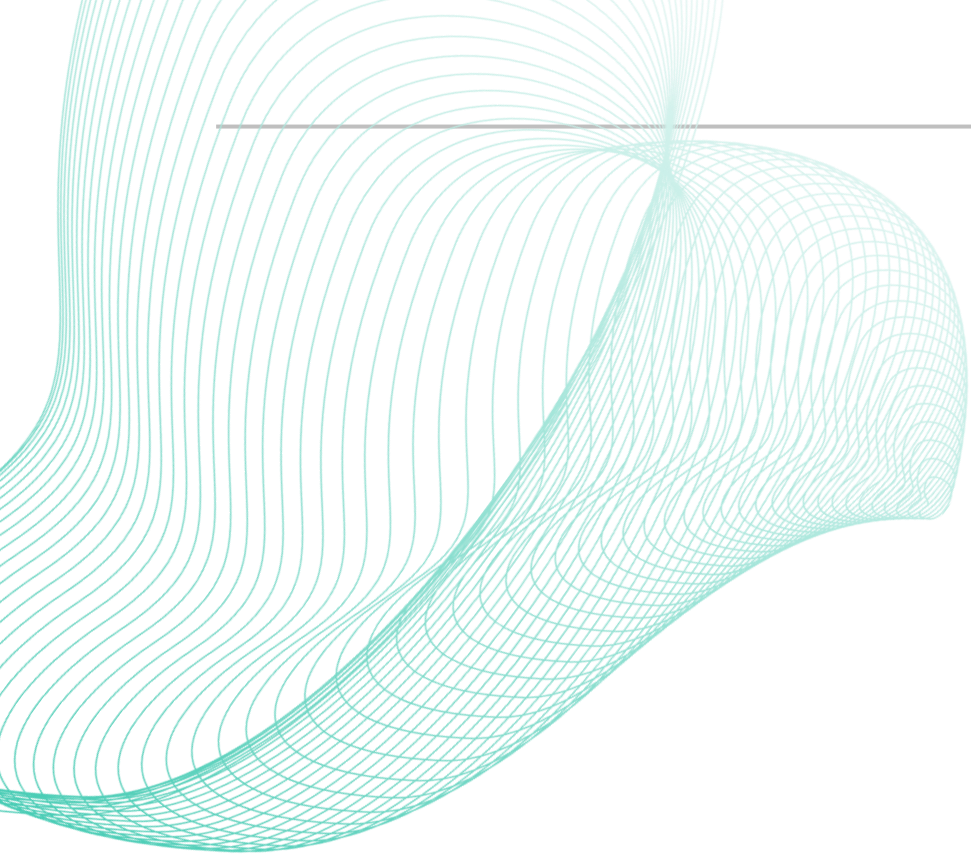
Add on top of that supply **chain reshoring**, **electrification of the grid**, **EV adoption**, and **rising global conflicts** – and you have quite the Confluence of **drivers for Energy** over the next decade+

We look to invest across the chain – from power/electricity transmission infrastructure, to baseload energy, to emerging energy sources and storage



Right TD Cowen – Data Centers, Generative AI & Power Constraints: The Path Forward <https://tdcowen.bluematrix.com/docs/pdf/65190358-9d85-473b-86e5-27a588556e33.pdf>

# Demand Acceleration



**MONEY**



# Money: An Overlooked Pillar of Power

**Money** is an often-overlooked **pillar of Power** – few ever assess the water in which they are swimming

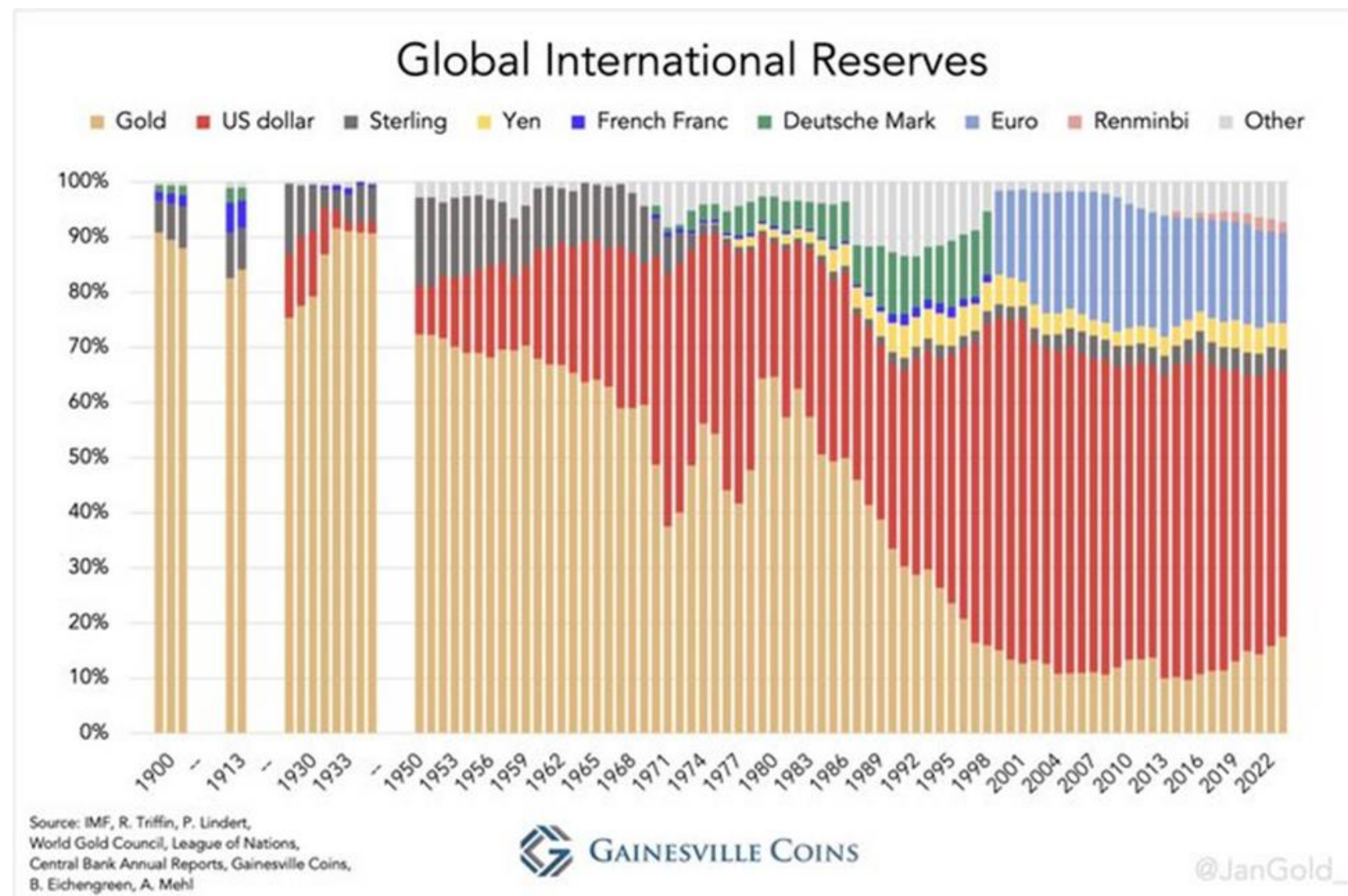
The US is in a uniquely **powerful position** with the **US Dollar** as the **global reserve currency** – the foundation of the current interconnected global system

But the **hegemony** is currently being **challenged by the East**

To defend the challenge, large sums of **Money** must be spent

Given the current fiscal situation of most major sovereign governments worldwide (i.e., high debt to GDP), and the required **Money** to be spent on the spheres (namely **Technology** and **Energy**), **monetary debasement** appears **inevitable**

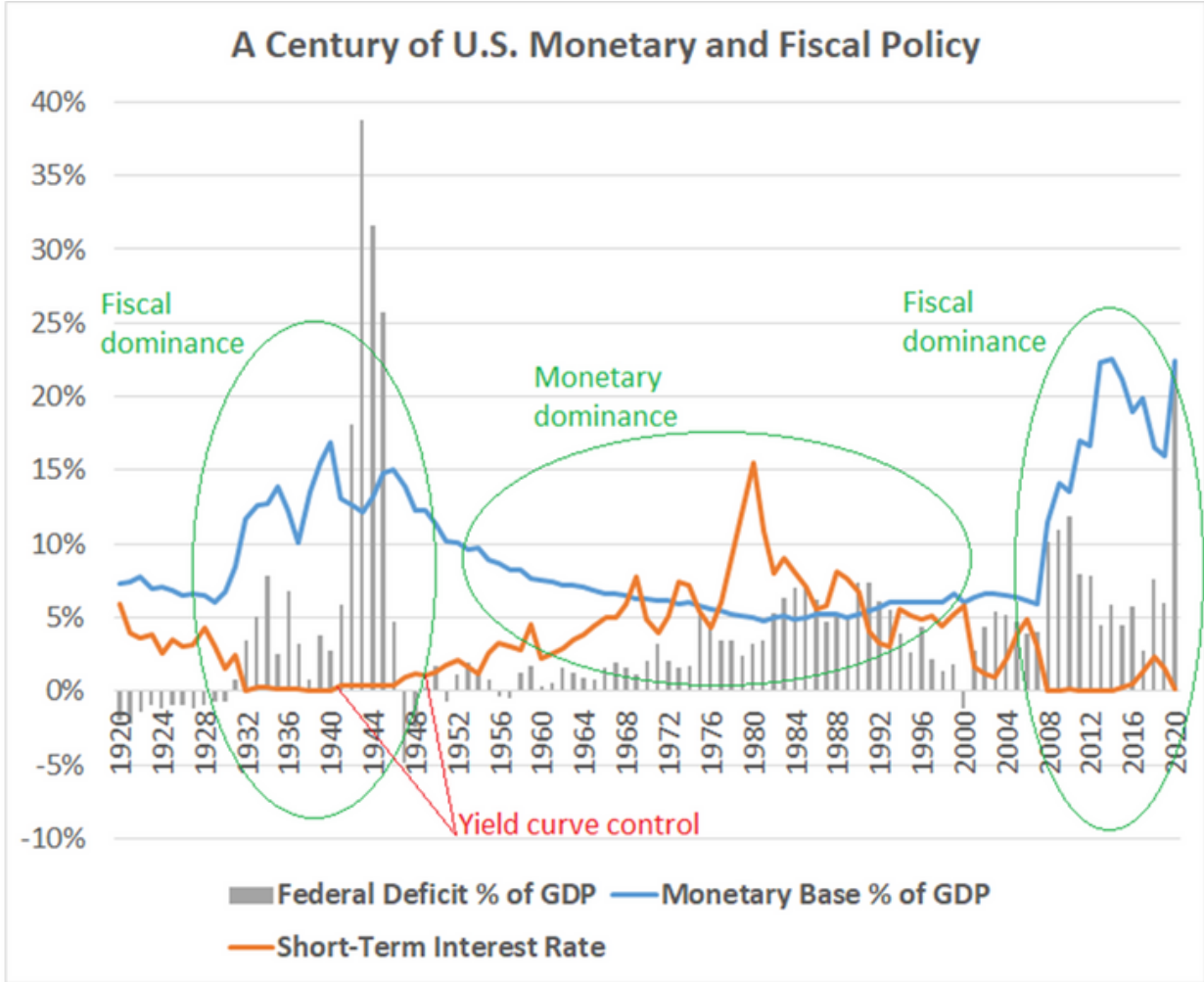
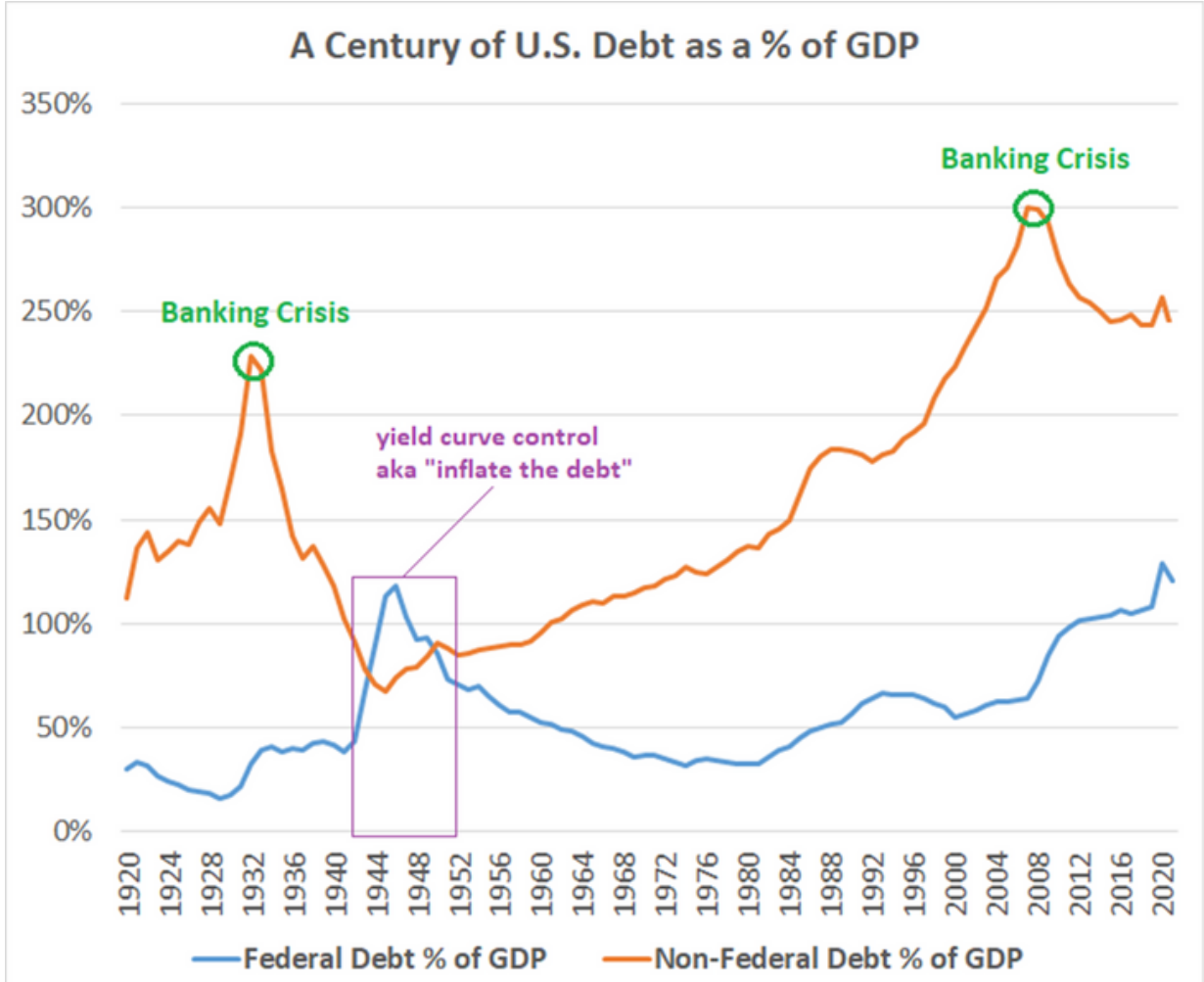
This likely persists until we get a Productivity miracle driven by **Technology or Energy**, or some form of resolution on the new global order...





US Debt to GDP is now over 100%...

...but deficit spending appears unlikely to stop



Left & Right <https://www.lyndalen.com/does-the-national-debt-matter/>; <https://www.lyndalen.com/fiscal-and-monetary-policy/>

# Money: the "Store" of Value



# Pillars of Power – a Natural Balance

Money, Energy, and Technology are all **intricately interconnected**

The combination of the three is a naturally 'balanced' portfolio

We are in a period of relative **disruption** and **disorder**; with **change** comes **massive opportunity**

Just as **Winter** inevitably turns to **Spring, order** consistently follows **disorder** in the waves of time

The **greatest opportunities tend to present themselves during these turning points** and system shifts

Those who have **studied history** and are **prepared** are **best positioned to capitalise**

Growth mindset helps drive **non-zero-sum outcomes**



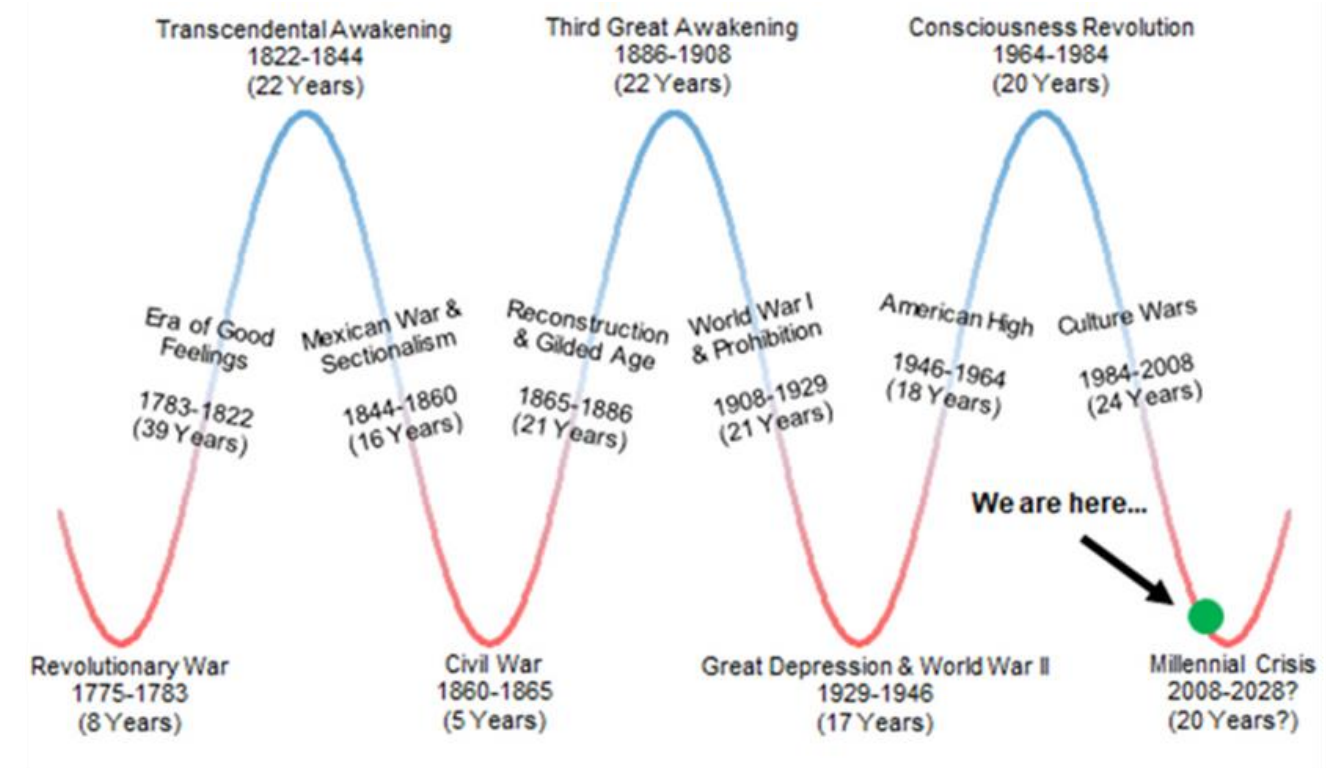


# Why Now

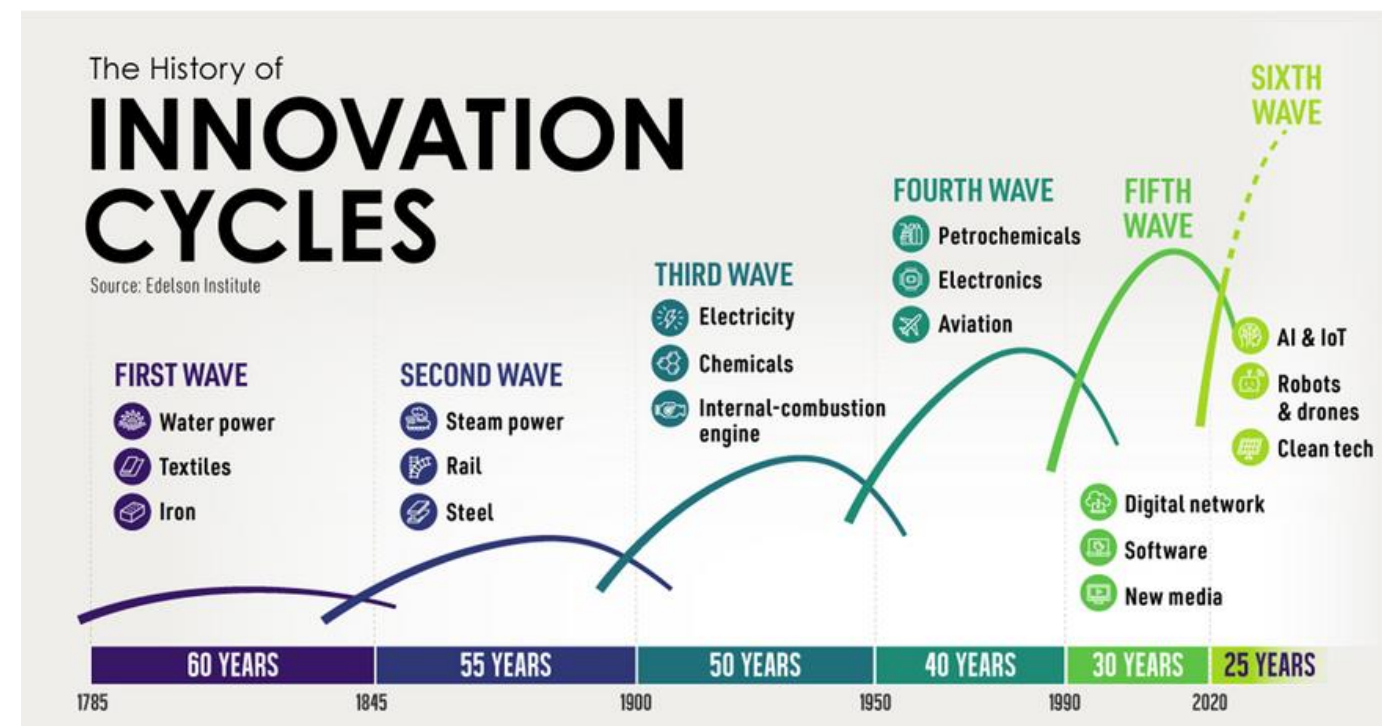
## We are at an Inflection Point in History

- Confluence of Cycles
- Challenges to current Order
- Accelerated target Investments
- Product Built to Capitalise

## Demographic & Geopolitical Waves...



## ...tied into Technological & Innovation Waves



# Why Now

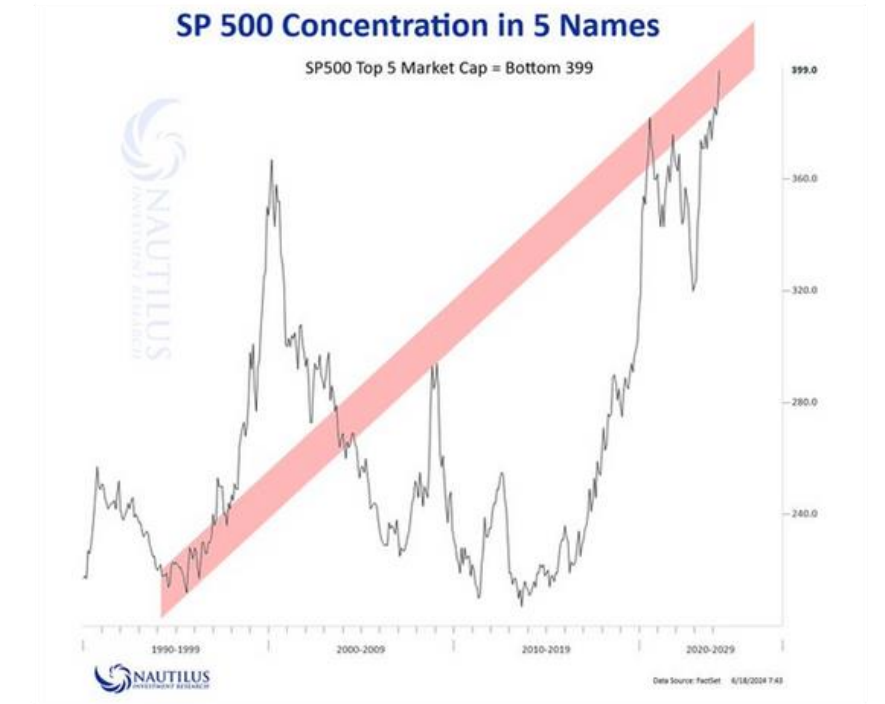
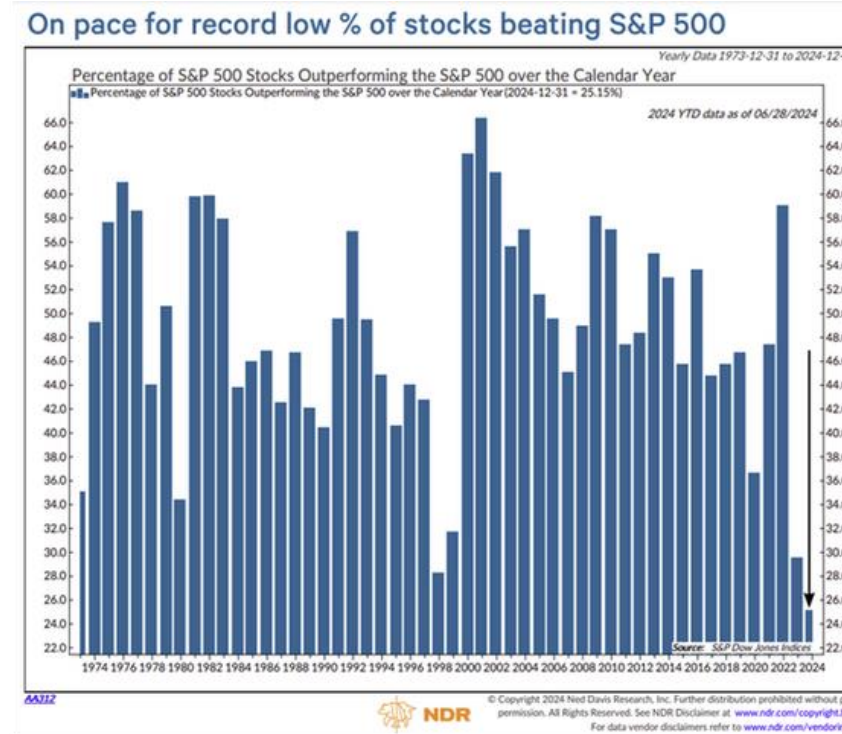
## We are at an Inflection Point in Markets

- Significant EW Underperformance
- Extreme Concentration
- Low Correlations
- Opportunities in SMID Cap



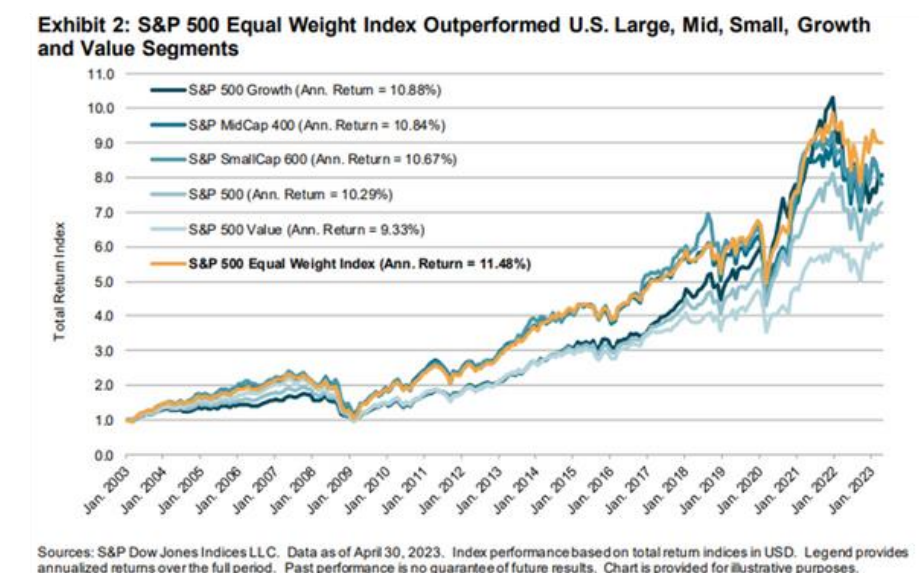
% of Stocks Outperforming near all-time low...

...while concentration in top near all-time high



Market-cap vs. equal-weight correlation near all-time low...

...equal-weight tends to outperform over time



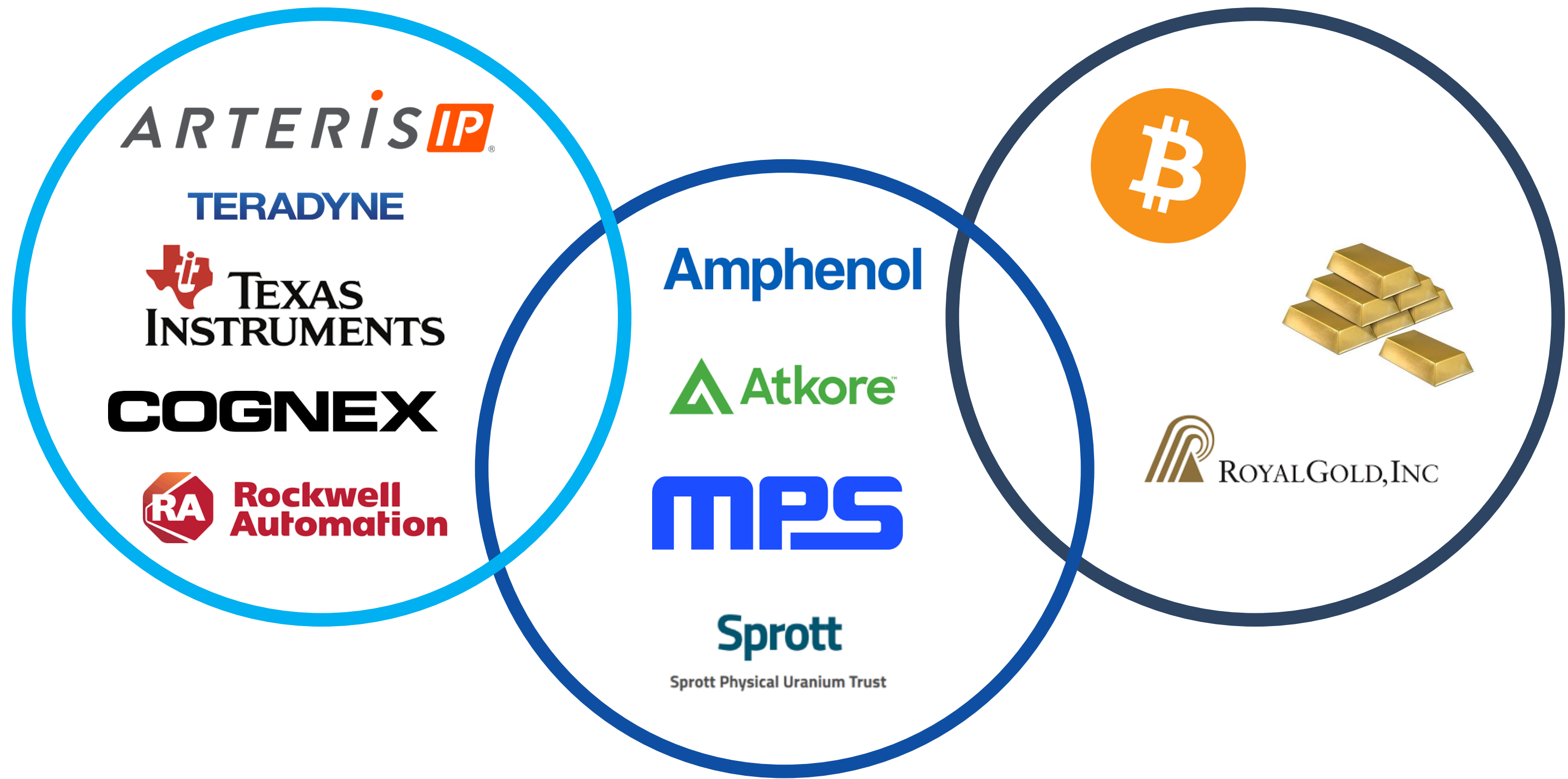
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Top Right Nautilus; <https://x.com/nautiluscap/status/1803017874719584579?s=46>

Bottom Left Tier1 Alpha; <https://x.com/t1alpha/status/1800601950930813171>

Bottom Right S&P; <https://www.spglobal.com/spdji/en/documents/research/research-more-equal-than-others-20-years-of-the-sp-500-equal-weight-index.pdf>





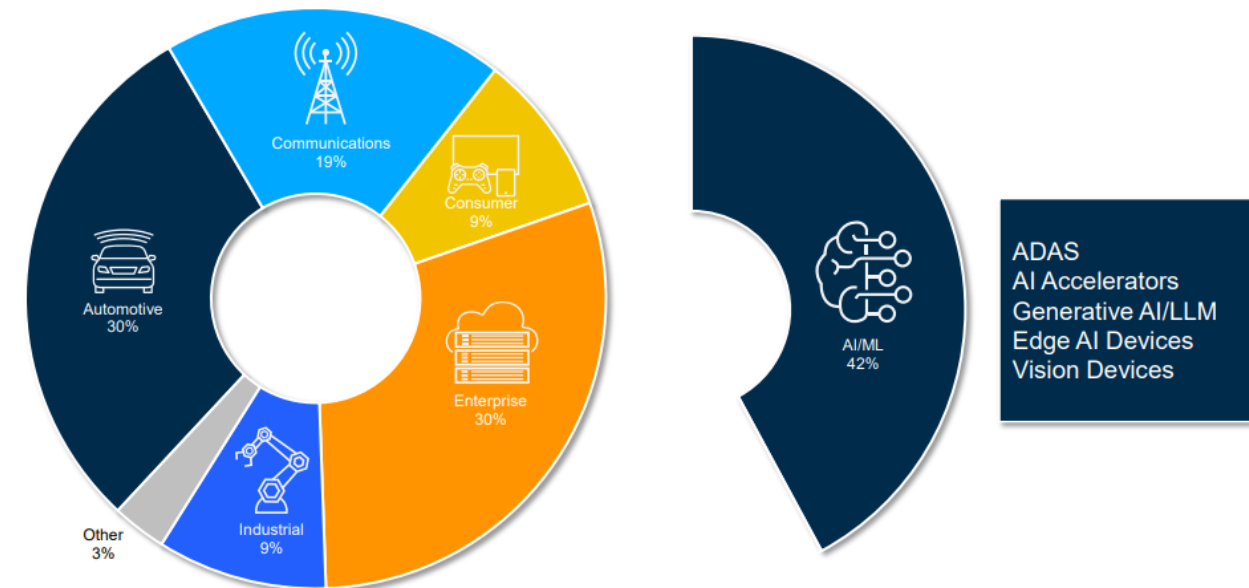
# Top Picks For 2024+

# Arteris, Inc.

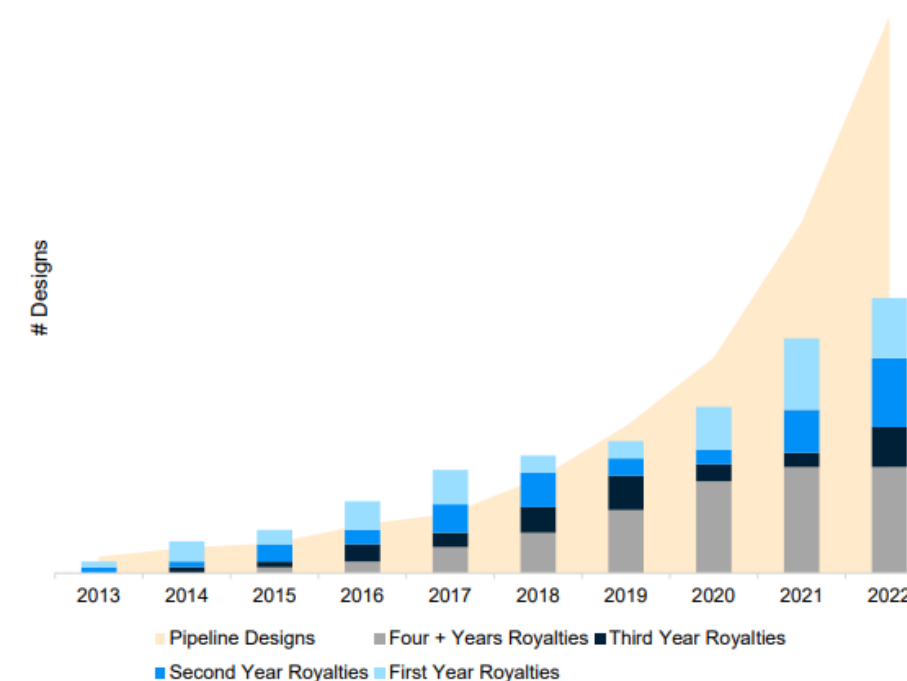
## Company Snapshot:

- Market Cap: ~\$345M (7/23/2024)
- Semiconductor IP royalty company, focused on network-on-chip interconnect
- ~90% Gross Margins
- Significant growth opportunities around AI/ML
- ARM Holdings a comparable

ARTERIS IP



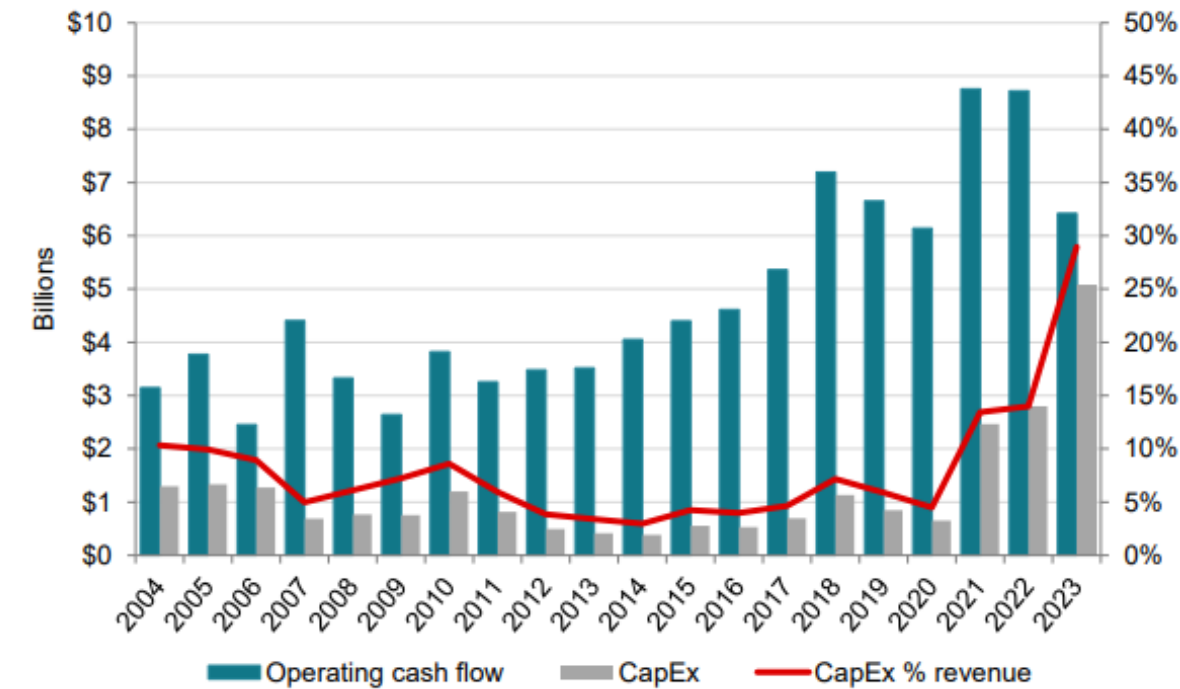
Royalty Pipeline



# Texas Instruments

## Company Snapshot:

- Market Cap: ~\$182B (7/23/2024)
- Analog Semiconductor company
- Critical domestic US vertically integrated manufacturer
- Significant growth opportunities around reshoring, electrification, automation and AI
- Beneficiary of CHIPS+ Act funding, helping accelerate shift to 300mm – Gross Margin expansion story



### Illustration of the GPM impact from 300mm

		Built on 200mm wafer	Built on 300mm wafer
Sales price of example part		\$1.00	\$1.00
Cost of goods:	Chip cost	\$0.20	\$0.12
	Assembly, test, other	\$0.20	\$0.20
Total		\$0.40	\$0.32
Gross margin %		60%	68%



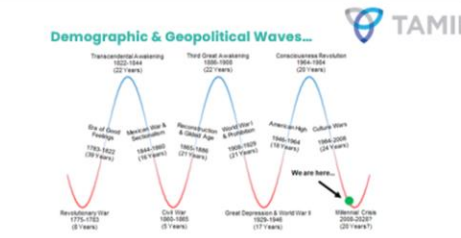
# Takeaways – We believe:

## Inflection Point in History

### Why Now

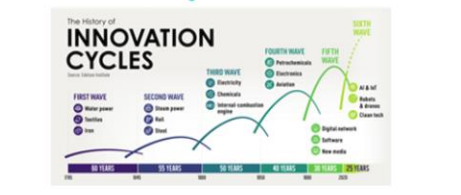
**We are at an Inflection Point in History**

- Confluence of Cycles
- Challenges to current Order
- Accelerated target investments
- Product Built to Capitalise



**Demographic & Geopolitical Waves...**

...Tied into Technological & Innovation Waves



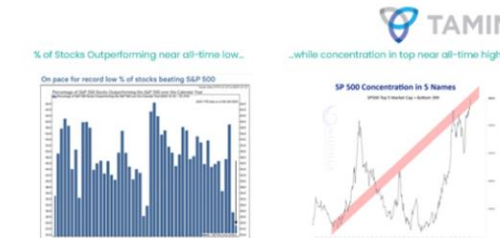
**History of INNOVATION CYCLES**

## Inflection Point in Markets

### Why Now


**We are at an Inflection Point in Markets**

- Significant EW Underperformance
- Extreme Concentration
- Low Correlations
- Opportunities in SMID Cap



**% of Stocks Outperforming near all-time low...**

**SP 500 Concentration in 5 Names**



**Market-cap vs. equal-weight correlation near all-time low...**

**Equal-weight tends to outperform over time**

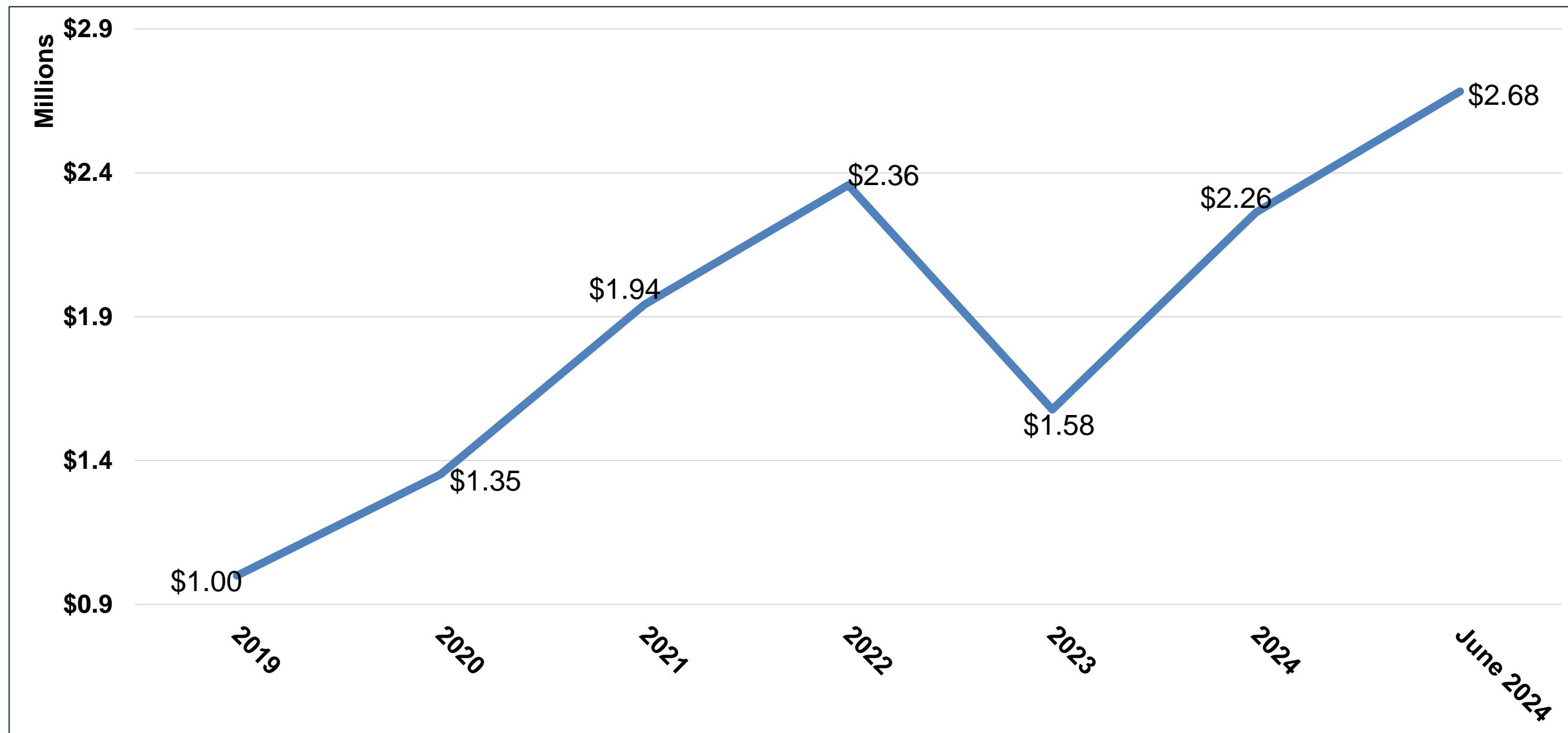
## Opportunity to Capitalise



### Top Picks For 2024+



# Growth of a \$1 million invested into the NASDAQ Index





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