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THE ART OF INVESTING

TSMC

The quiet monopoly behind AI

Curate Momentum Balanced Fund

Made by one company, on one island.

What is TSMC?

A 30-second primer

Taiwan Semiconductor Manufacturing Company

Founded
1987, by Morris Chang, age 56

Business model
Contract factory for chips ('pure-play foundry')

Global chip-making share
~55% of revenue

Leading-edge chips
>90% of the most advanced chips

Founding promise
- Never to compete with its customers

How the business works

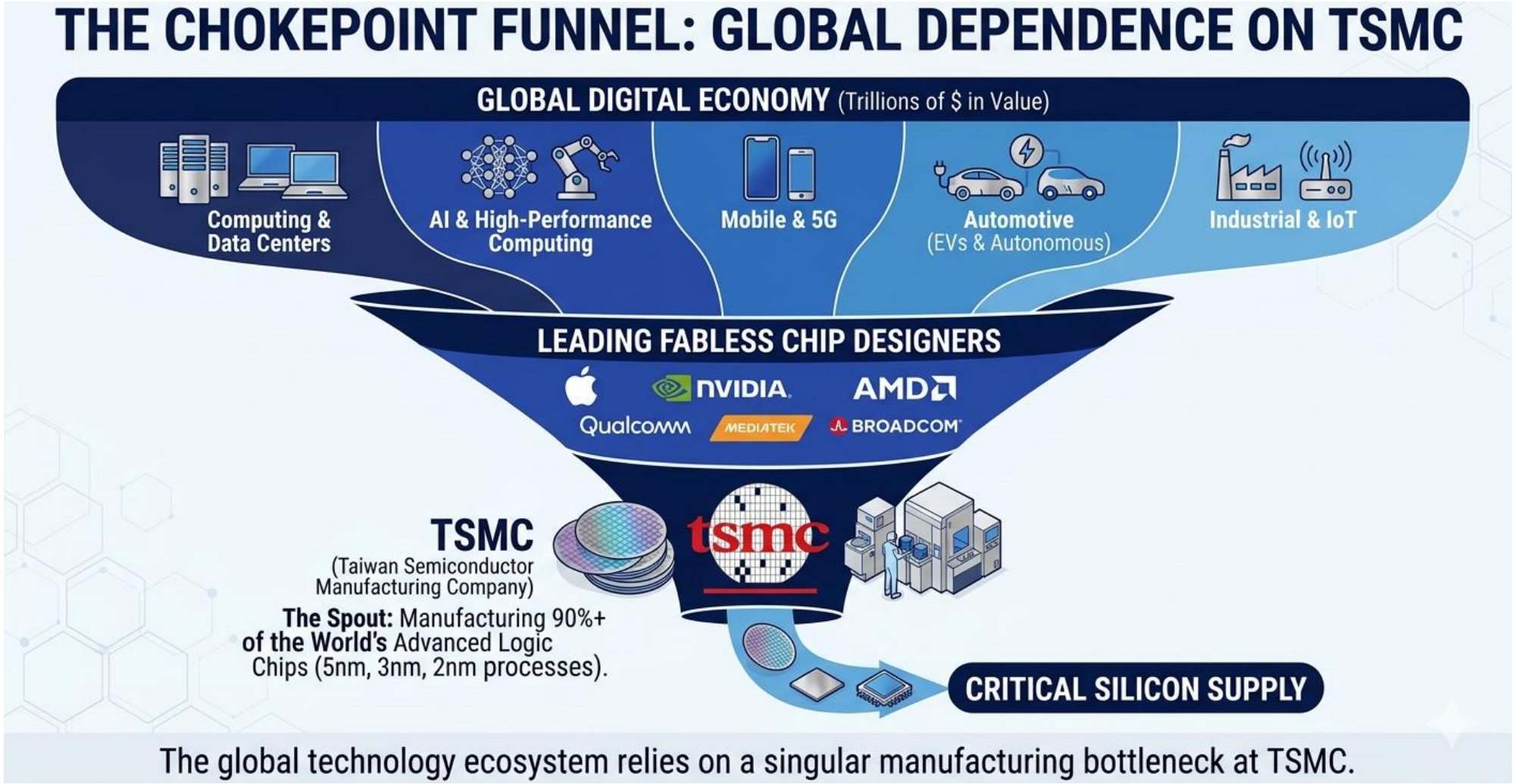
- **Designers**
  Apple, Nvidia, Google, AMD, Qualcomm
- **Manufactures**
  TSMC, Taiwan
- **Delivers**
  Finished chips

TSMC does not design chips. It only builds them – on contract, for everyone else

Source: tsmc.com

The scale of what we're actually talking about

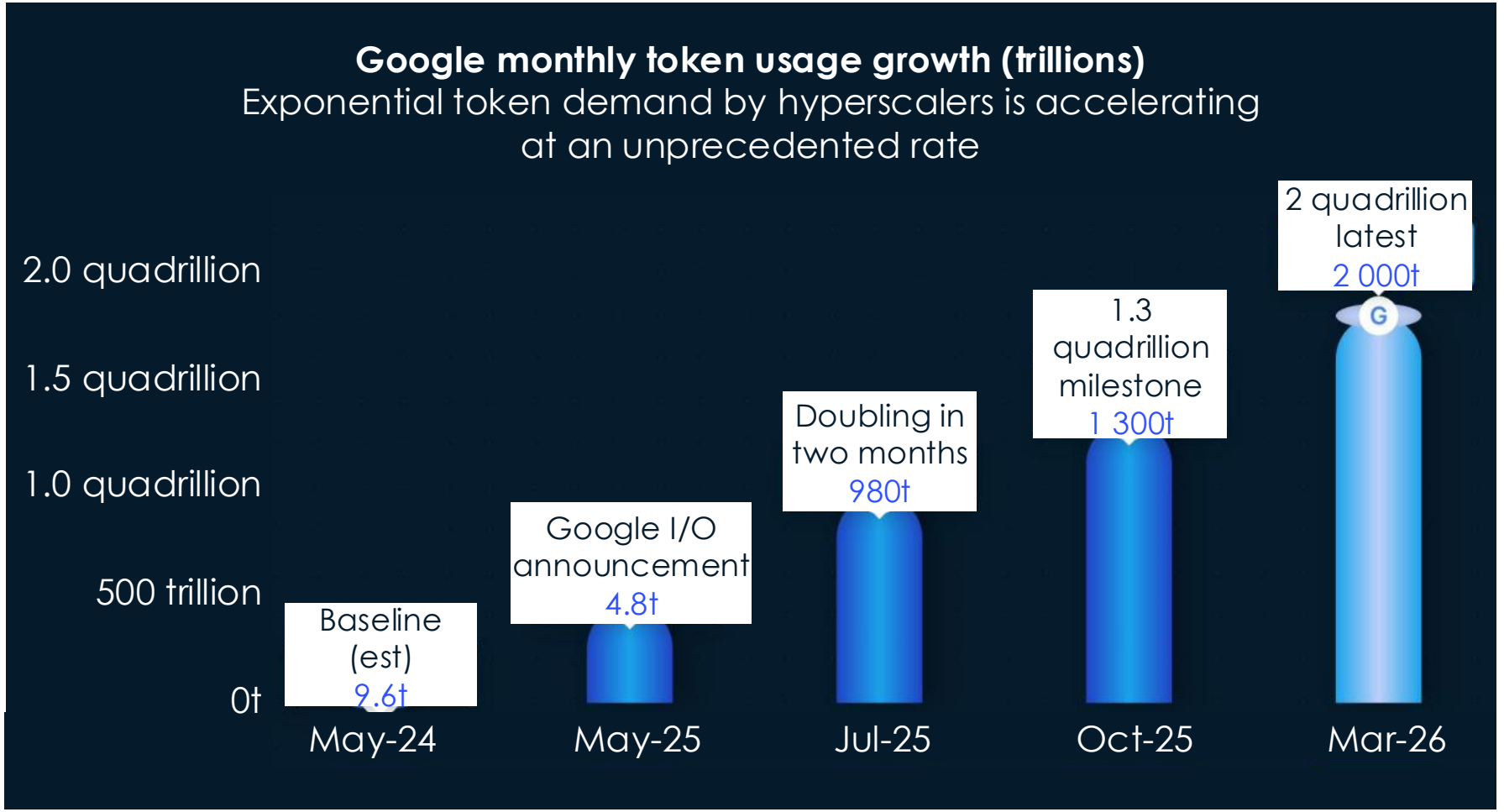
Engineering at the edge of physics



Source: Visio Research

AI adoption is happening

Two lenses, one story



OpenAI

900m+

weekly users +80% yoy

API: 130B → 8.6T / day
65× in 20 months
(Feb '24 → Oct '25)

Q1 2026 +60% in the last six months.

Anthropic

Annualised revenue from $375m a year ago to $30bn in April.

Planned for 10x growth, Q1 is up 80x YoY.

Source: Google earnings calls, Google IO, public disclosures for OpenAI, Anthropic, Visio estimates.

If AI were commoditising, prices would fall

H100 GPU rental (launched in 2022), one-year contract, $/hr/GPU

+40%

in five months

Every top-tier AI chip in the world – booked to September 2026

AWS p6-b200 spot price

$14/hr/GPU

in the spot market today

Source: SemiAnalysis

Datacentre power is the cleanest adoption proxy

No sign of dark GPUs

2022

460 TWh

Global datacentre electricity consumption.

AI was ~5% of the load.

ChatGPT had just been released.

2026 →

>750 TWh

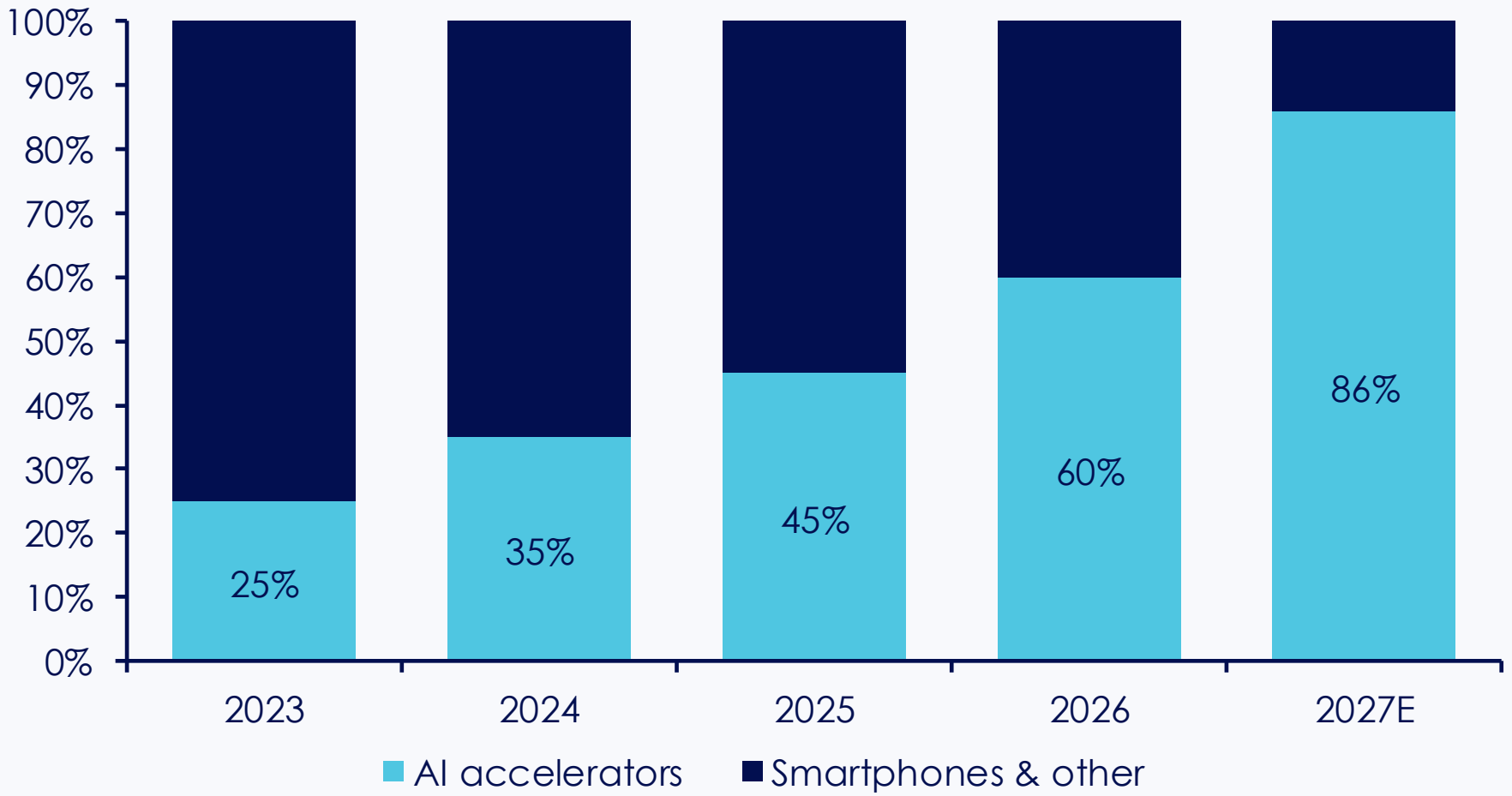
+60% the 2022 level in just four years.

AI is now 35% to 40% of the load.

Source: IEA, Electricity 2024 — Analysis and Forecast to 2026 (Jan 2024). IEA forecast range: 650–1,050 TWh by 2026 (base–high case). Mid-case shown.

One foundry – every major AI chip in the world

AI's share of TSMC's most advanced chip output



Every name you know

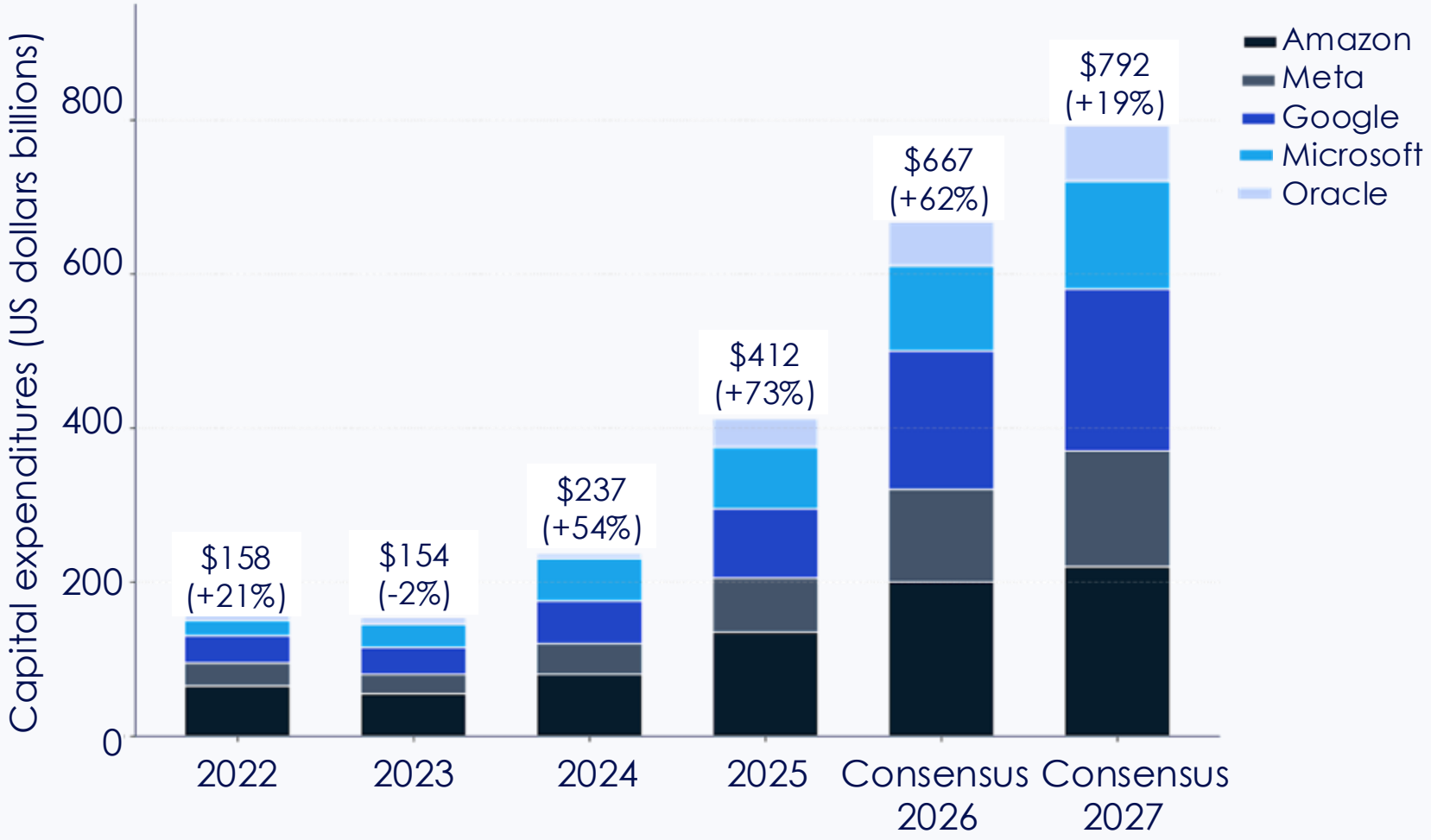
Every AI silicon maker is on the same process, at the same foundry, in the same queue:

- Nvidia Rubin
- AMD MI400
- Google TPU v7 / v8
- Amazon Trainium 3
- Meta MTIA
- Apple A- and M-series

Source: SemiAnalysis figures for 2026 and 202. 2023 baseline is a Visio Capital estimate based on TSMC node-mix disclosures and customer product roadmaps

Hyperscalers capex validates the thesis

The five largest hyperscalers combined capex growth



3.3×

in three years

$154B (2023) → $667B+ (2026E)

Google alone revised 2026 capex up ~$30 to 40b in six months.

They would spend MORE if TSMC and the memory suppliers could ship it.

Sources: Amazon, Microsoft, Google, Oracle, Meta Public Disclosure and Earning Calls

Each generation of chips unlocks a new scale of AI

Each 10× of training compute = one more rung up the education ladder

Era	Leading model	Chips in training	What the model can do
2022	GPT-4	**~25,000**	**High-school graduate:** Passes standardised exams
2024	Claude 4/GPT-5	**~100,000**	**University graduate:** Passes the bar, writes software
2026	Current frontier	**~250,000**	**PhD student:** Multi-hour research, debugs codebases
2027E	Rubin Ultra era	**~1,000,000**	**Senior professional?** Automates expert knowledge work

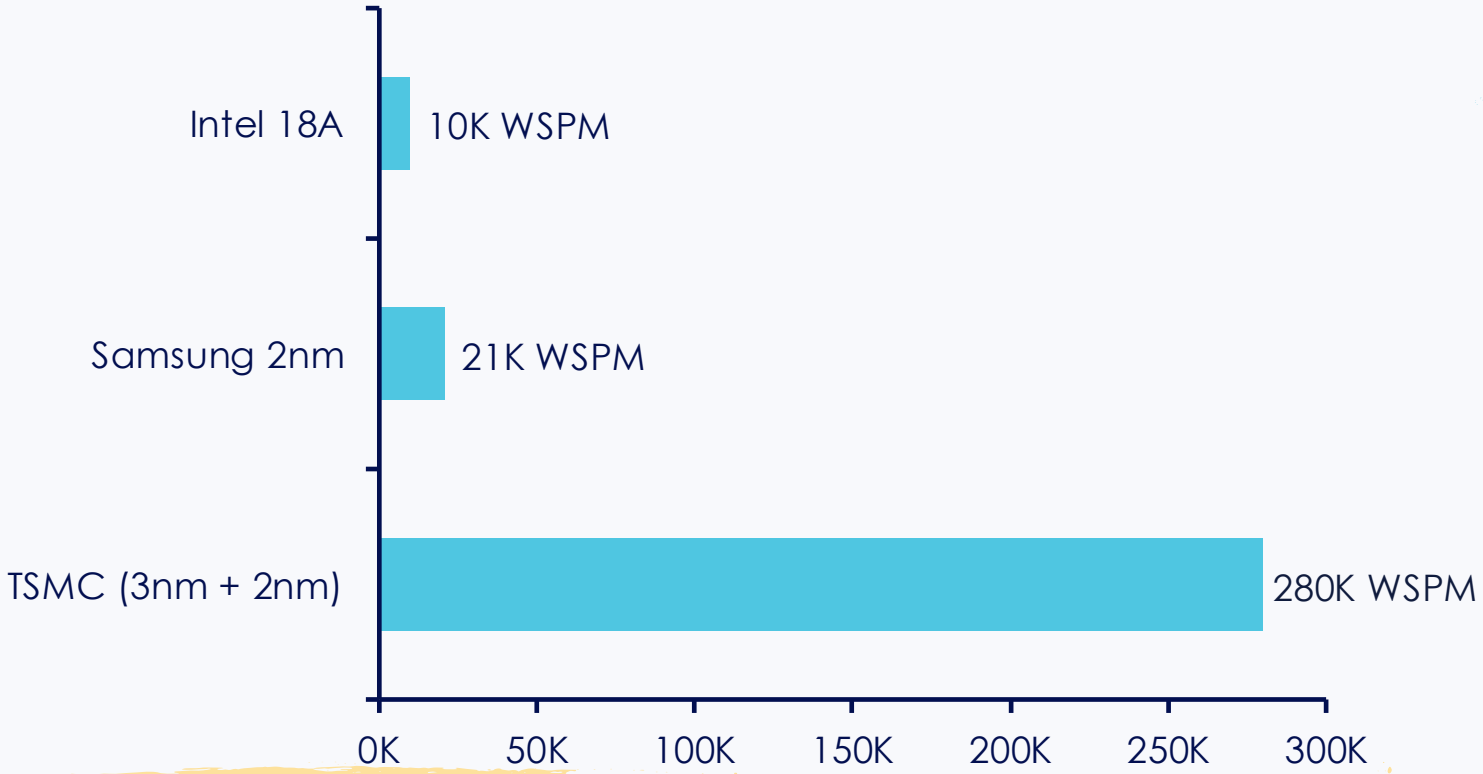
This is an empirical regularity – not a forecast.
Every 10× of training compute has climbed one rung up the education ladder.

Source: Visio Research

Why Samsung can't land the big customers

It's not the technology – it's the yield

Leading-edge output, end-2026



TSMC runs ~10× its nearest competitors combined at leading edge

3nm yield (% of chips that work)

TSMC	Samsung
~90%	~50%

(stuck for three years)

Why it matters financially

- Customers pay for the full wafer, defective chips included
- At Samsung yields, each working chip costs ~2× what TSMC charges

Customers lost as a result

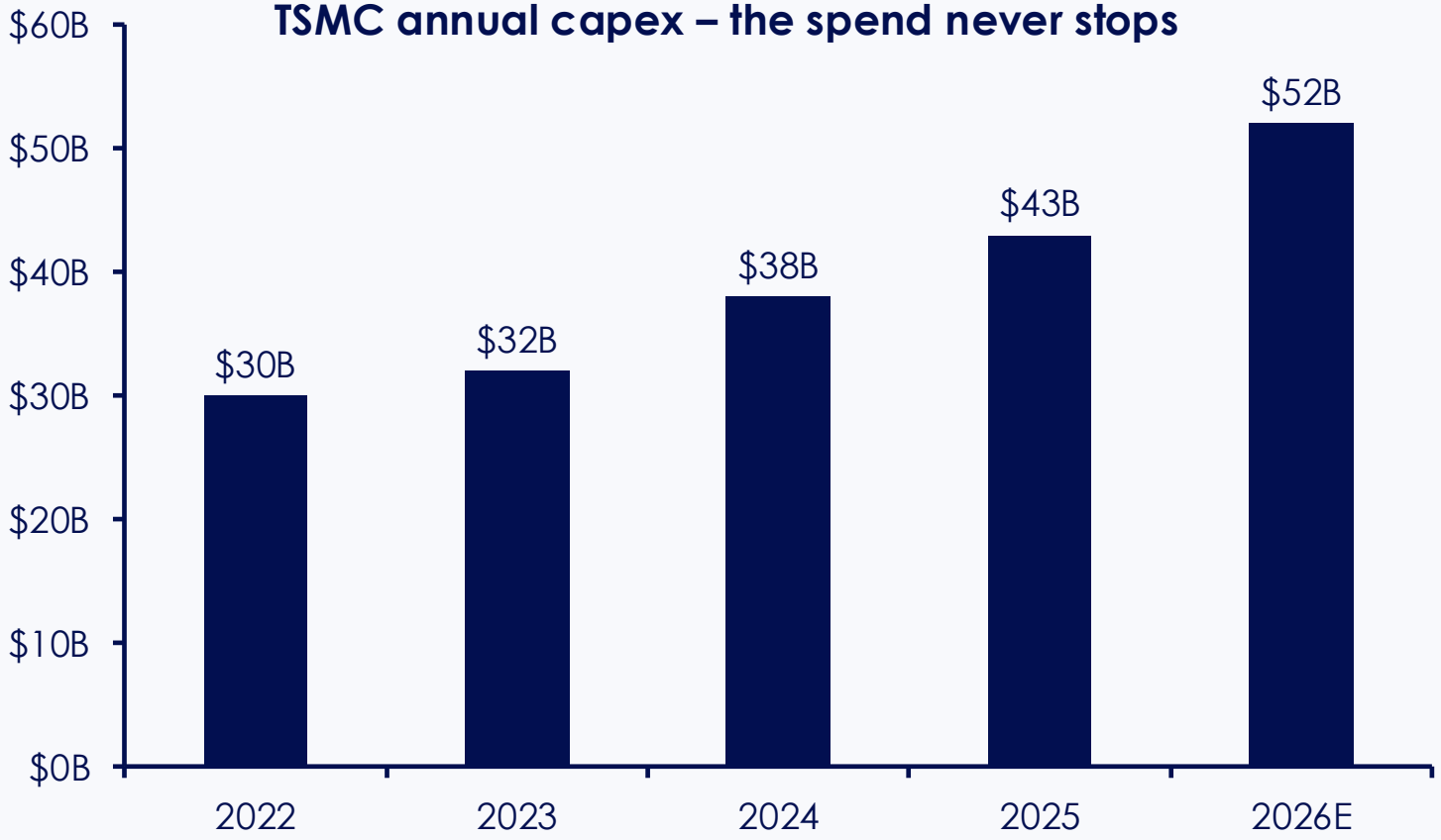
- **Qualcomm** (flagship moved after 8 Gen 1 disaster)
- **Google Tensor** (locked in at TSMC through Pixel 14)
- **Nvidia Rubin** (never seriously considered Samsung)

Source: TSMC capacity - UBS Research. Node-level WSPM (Samsung 21k / Intel 10k by end-2026) are trade-press projections (Street Stocker, DigiTimes) Yield figures - Digitimes.

Catching up requires a perpetual investment treadmill

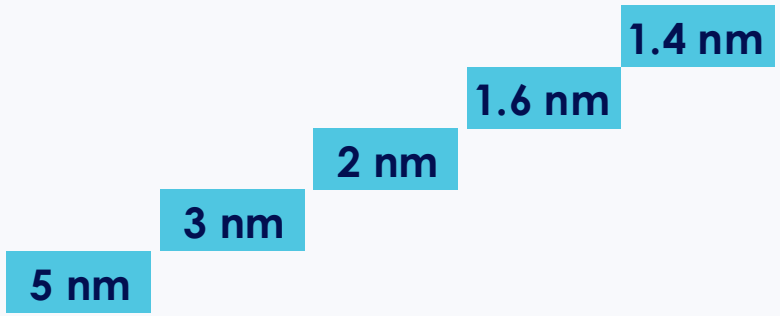
You don't spend $30 billion once – you spend it every year, forever

TSMC annual capex – the spend never stops



Every dollar of this year's capex funds R&D for nodes that ship in three to five years

You cannot skip generations



Each step depends on the one before it

Intel's 10nm delay (2016 to 2019)
→ lost data-centre CPU lead to AMD
→ *still catching up today*

Source: TSMC filing

The math says one winner

Two laws that force the industry to converge

Moore's law (demand side)

Compute per chip doubles every ~2 years

→ Demand grows exponentially. Unit cost falls with scale. The player with the most volume wins.

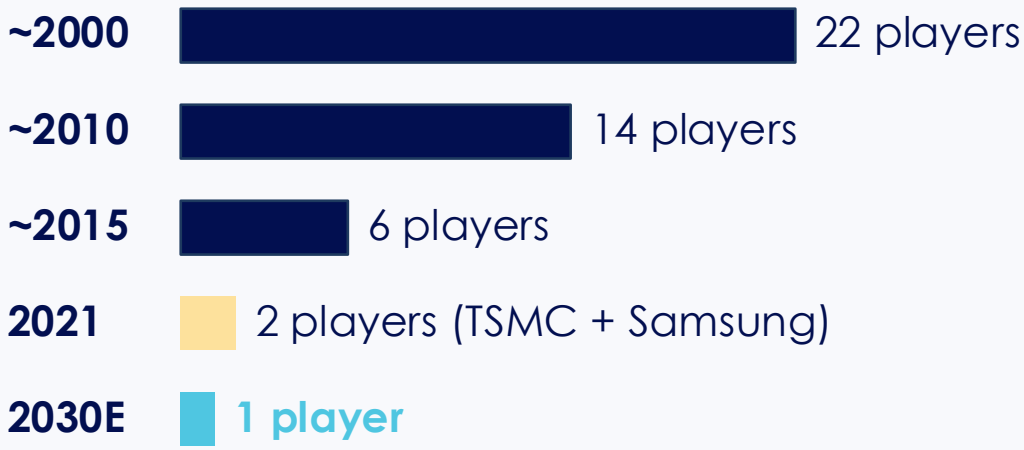
Rock's law (supply side)

Cost of a leading-edge fab doubles every ~4 years

→ Today $30B. Next node $60B+. Only the largest balance sheet can keep paying to play.

Players at the leading edge

How many companies could manufacture the most advanced chips, by year:



The math forces convergence.
TSMC is the endpoint.

TSMC is the bottleneck – but not the only one

The AI supply chain is only as strong as its weakest link

TSMC silicon
Leading-edge logic chips

Memory (HBM)
SK Hynix, Samsung, Micron – also scarce

ASML lithography equipment
Dutch monopoly. Makes the machines that make the chips

Advanced packaging
How multiple chips stack into one – TSMC does most of this

Power, cooling, networking
The supporting cast – in excess for the first time

If any of these break, TSMC's output can't reach a customer. Today, TSMC is still the binding constraint.

The risks

Three things worth taking seriously

1 Risk

Taiwan

Unhedgeable geopolitical risk

No plausible replacement for TSMC outside Taiwan for five-plus years. Military action in the Taiwan Strait is catastrophic for TSMC **and every Western tech company.**

2 Risk

Customer concentration

Apple + Nvidia ≈ 35% of revenue

If either successfully bifurcates flagship production to Samsung or Intel, it would hurt. We don't currently see it happening.

3 Risk

The next transistor generation

Moat could narrow in early 2030s

The next transistor architecture (CFET) arrives in the early 2030s. If a competitor gets there first, TSMC's lead narrows. TSMC is the only foundry publicly committed.

Source: TSMC filing

What you pay for the monopoly

Market cap $1.9tr · Gross margin 60% · Net cash – self-funds $50B+ capex

Metric	TSMC
Fwd P/E (2027E)	19.3×
ROIC **ROE**	26% 35%
Five-year revenue CAGR	23%
Two-year growth (consensus)	25%

Valuation

- Cash generative
- Strong growth
- Pricing competitively
- Conservatively run
- Reinvesting at good returns

Source: Visio research

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Thank you

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