TSMC: Strategic Analysis of an Indispensable Leader

A Strategic Analysis of Market Dominance, Geopolitical Risk, and Future Growth Vectors

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Strategic Roadmap: From Sustaining Dominance to Navigating Headwinds and Securing Future Growth

I The Genesis of Dominance

Analyzing the foundational strategies and market execution that forged an unassailable market position. | **Slides 3-6**

II The Fortress Under Siege

Assessing current competitive pressures and geopolitical headwinds that threaten established leadership. | **Slides 7-10**

III Securing the Future

Outlining actionable strategies to capitalize on emerging megatrends and de-risk global operations for long-term value creation. | **Slides 11-14**

TSMC's >90% Monopoly in Advanced Chips Creates Unprecedented Leverage, but Geopolitical & Competitive Threats Mandate a ~$100B Global Pivot

Unrivaled Market Dominance

Controls **58%** of the global foundry market and a staggering **>90%** of advanced nodes (<7nm), creating a de facto monopoly that powers industry leaders like Apple and Nvidia.

Intensifying Dual Threats

Faces a pincer movement from resurgent competitors (Samsung, Intel) backed by national industrial policies, and extreme geopolitical risk from its heavy concentration in Taiwan, a key US-China flashpoint.

Proactive ~$100B Global Pivot

Actively mitigating risks via a **~$100B** global expansion (USA, Japan, Germany) while capturing the next growth wave from AI/HPC, projected to drive **>20% CAGR** in advanced node demand through 2028.

Source: Company Filings, Industry Reports, Internal Analysis (as of Q3 2025)

TSMC's Pure-Play Model Separated Design from Manufacturing, Unleashing a >$4T Fabless Ecosystem and Securing Decades of Leadership

BEFORE 1987: The IDM Era

Integrated Device Manufacturer Model

IDM (e.g., Intel)

- Chip Design
- Manufacturing (Fab)

- **High Barrier to Entry:** Vertically integrated model required massive capital.
- **Innovation Bottleneck:** Design cycles tied to slower, internal fab development.

The Foundry Revolution

AFTER 1987: The Foundry Era

Horizontal Fabless-Foundry Ecosystem

Fabless Innovators

Pure-Play Foundry

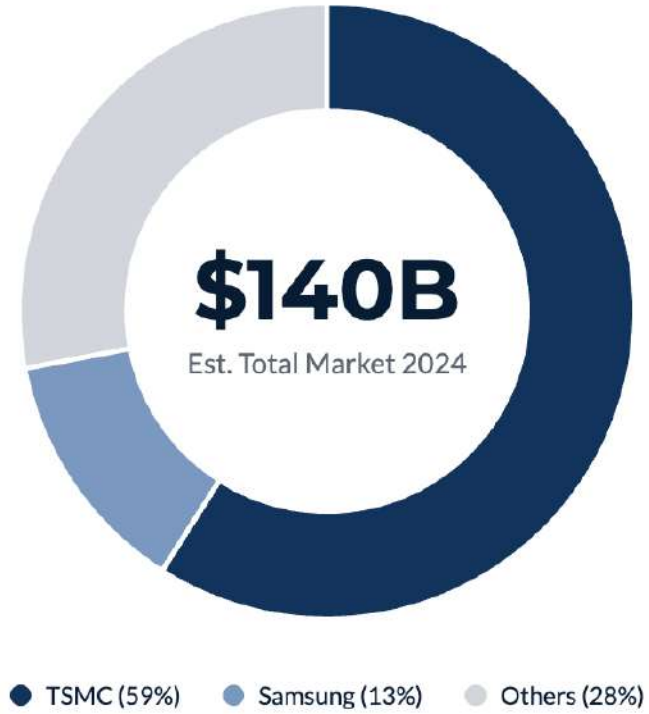
- **Democratized Innovation:** Unleashed hundreds of specialized design leaders.
- **Symbiotic Flywheel:** Created a **>$4 Trillion** ecosystem value.
- **Structural Advantage:** TSMC doesn't compete with clients, fostering deep trust.

> *Our strategy is, we don't compete with our customers. It's a very simple strategy, but it's the correct one and the one we have followed for decades.*
>
> **- Morris Chang, Founder of TSMC**

Source: TSMC Filings, Gartner, Bloomberg, Internal Analysis (2025)

TSMC's 59% Market Share and 92% Advanced Node Monopoly Create an Unassailable Competitive Moat

Global Foundry Market Share by Revenue, Q2 2024



92%

Monopoly on Advanced Nodes

Near-total control of <7nm nodes, critical for AI & HPC, enabling significant pricing power.

46pp

Lead Over Nearest Competitor

A 46 percentage point gap over Samsung (13%) solidifies TSMC's undisputed market leadership.

4x

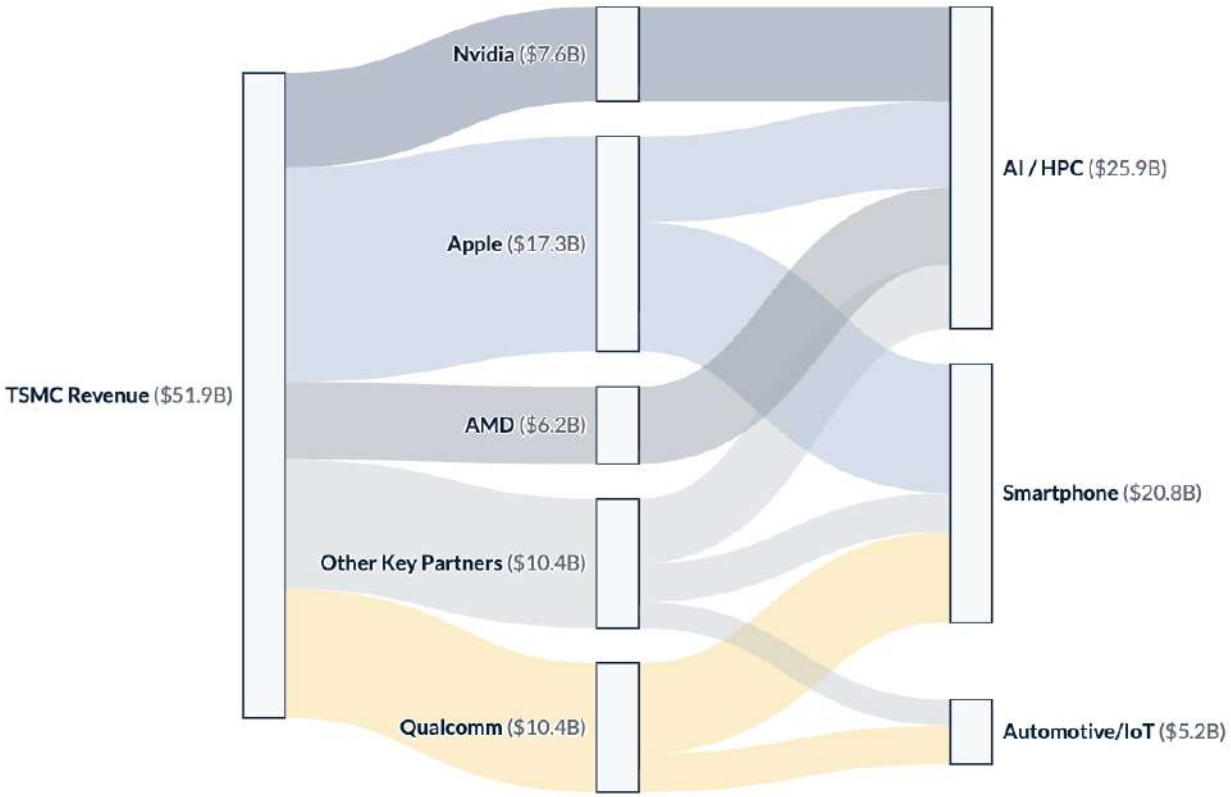
Revenue Scale Advantage

2023 revenue ($69.3B) is over 4x Samsung Foundry's, funding an insurmountable CAPEX budget.

Source: Gartner, Counterpoint Research, Company Filings, Internal Analysis

TSMC is the Indispensable Engine for Tech Giants, with >70% of its $69.3B Revenue Driven by Leaders in AI and Smartphone Markets

VALUE FLOW FROM TSMC TO GLOBAL END-MARKETS, 2023 REVENUE ($B)



Apple's Silicon Heart

As the largest customer (25%, ~$17.3B), Apple's entire high-value product line—from iPhone's A-series to Mac's M-series chips—is exclusively dependent on TSMC's most advanced nodes.

Fueling the AI Revolution

Nvidia's AI dominance (e.g., H100 GPU) is directly gated by TSMC's capacity for advanced process and CoWoS packaging, making TSMC the critical enabler of the >$1T AI infrastructure market.

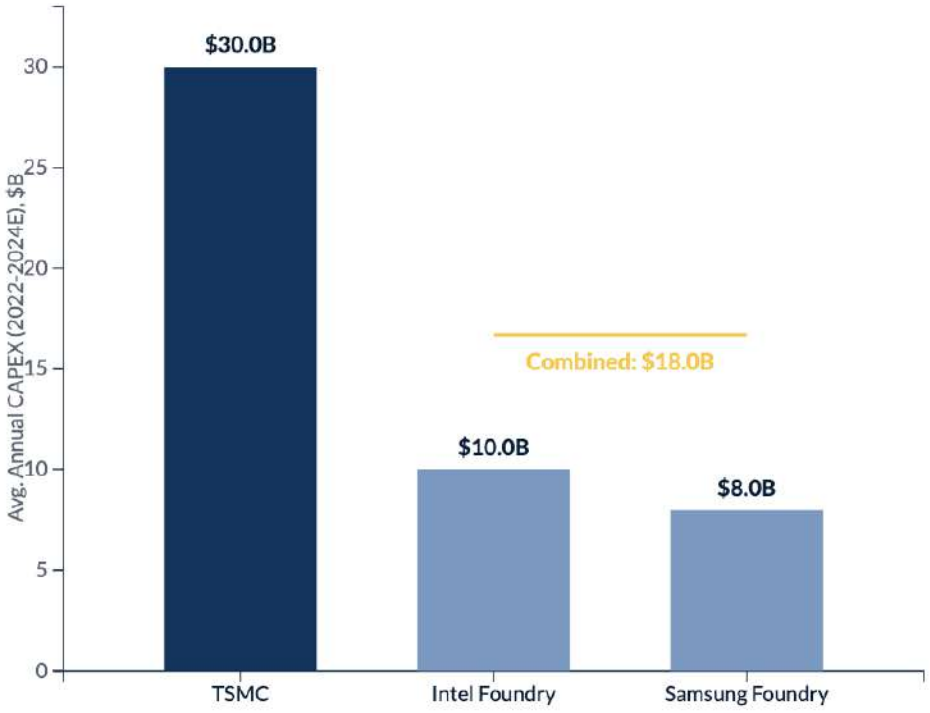
Concentration & Stickiness

Extreme technical co-dependency with top partners (~75% of revenue) and multi-year design cycles create an exceptionally sticky customer base and significant barriers to entry for competitors.

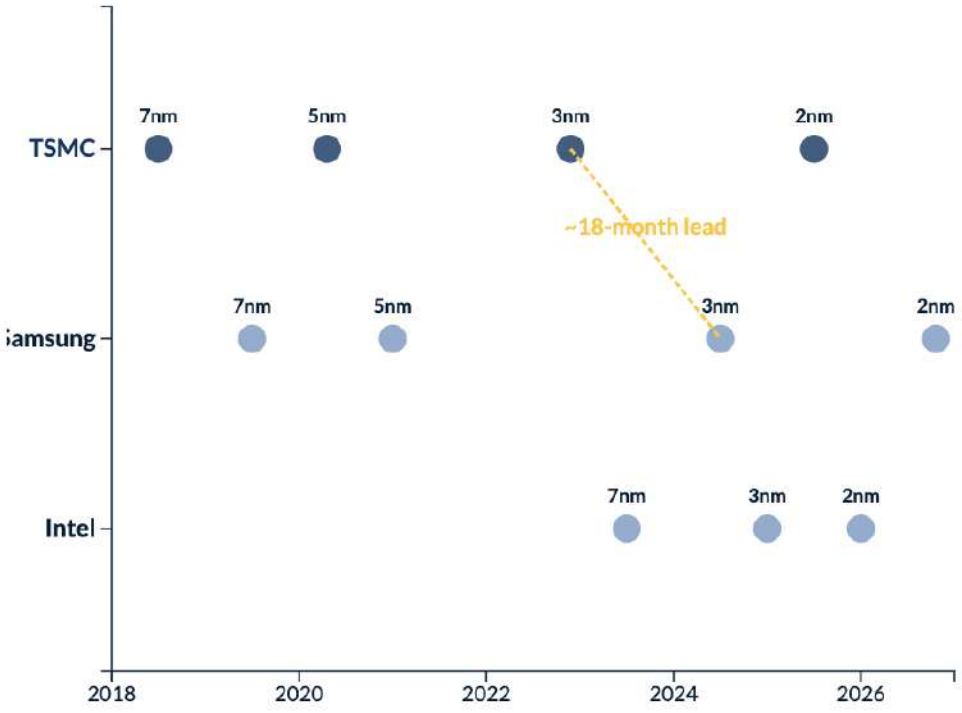
Source: Company Filings, Gartner, Counterpoint Research, Internal Analysis (2023 Data)

TSMC Secures a 12-18 Month Node Lead via Dominant CAPEX, Outspending Key Rivals by >1.5x

Massive CAPEX Creates an Insurmountable Financial Moat



Consistent Node Progression Translates to Market Leadership



Source: Company Filings (TSMC, Intel, Samsung), Gartner, Internal Analysis (2024)

Despite >$20B in rival subsidies, TSMC's execution superiority secured ~90% of 3nm orders, widening its trust-based competitive moat

COMPETITOR	PROCESS LEADERSHIP & ROADMAP	YIELD & EXECUTION	CUSTOMER TRUST	EST. 2025 CAPEX	EST. GOV'T SUPPORT
TSMC	3nm (2023) — 2nm (2025)	●	●	~$32 B	~$5 B
Samsung Foundry	3nm (Struggling) — 2nm (2026+)	◐	◐	~$35 B	~$10 B+
Intel Foundry	Intel 3 (Lagging) — 18A (Target 2025)	○	○	~$28 B	~$12 B+

Execution Trumps Price & Politics

TSMC's capture of ~90% of new 3nm tape-outs in 2023, despite rivals' lower pricing and geopolitical backing, confirms that customers prioritize its proven high-yield execution and predictable delivery schedule above all else.

Competitors Face a "Trust Deficit"

Samsung's historical yield issues and Intel's nascent foundry culture create a significant trust gap. Key clients like Qualcomm and Nvidia shifting orders back to TSMC underscore that rebuilding this trust is a multi-year, high-risk endeavor.

High-Stakes Financial Gauntlet

While government subsidies provide a tailwind, rivals must still match TSMC's ~$32B annual CAPEX. This creates a capital-intensive race where Intel & Samsung bear immense execution risk with no guarantee of closing the performance gap.

Source: Company Filings; Gartner; Counterpoint Research; Internal Analysis

Geopolitical Chokepoint: Taiwan's 92% Monopoly on Advanced Chips Poses a >$1T Systemic Risk Amid US-China Rivalry

Unprecedented Resource Concentration

Advanced semiconductor manufacturing (92% in Taiwan) is more geographically concentrated than OPEC's peak oil control (~60% in 1973), creating a single point of failure for the global digital economy.

Epicenter of US-China Tech War

Taiwan's 'Silicon Shield' is a dual-edged sword, serving as both a deterrent and a primary target. The US CHIPS Act and China's self-sufficiency drive intensify pressure on this critical chokepoint.

Systemic Economic Vulnerability

Any supply disruption, from a naval blockade to direct conflict, is estimated to trigger a global economic shock exceeding **$1 Trillion**, dwarfing the impact of recent supply chain crises.

Source: BCG Analysis; SIA; Company Reports; Internal Estimates

Taiwan's Finite Resources Create Mounting Operational Risks, with Power Demand Set to Consume 12.5% of Island's Total by 2025

Resource Constraints

Intensive Water Demand

A single advanced fab consumes as much water as a small city, straining supply in a drought-prone region and increasing competition for water rights.

Strained Power Grid

Semiconductor industry power consumption is projected to grow from 5% to **12.5%** of Taiwan's total by 2025, risking grid instability.

Acute Talent Scarcity

Rapid expansion has created a deficit of **~40,000** highly skilled engineers, driving up labor costs and complicating staffing for new facilities.

Leads To

Business Impact & Consequences

Increased Operational Costs (OPEX)

Rising utility prices and a fierce war for talent are driving resource-related operating expenses up significantly.

+8-12%
YoY Est. Cost Increase

Heightened Production Risk

A single power outage or water shortage incident can halt production, resulting in catastrophic financial losses.

>$100M
Loss Per Incident

Constrained Future Growth

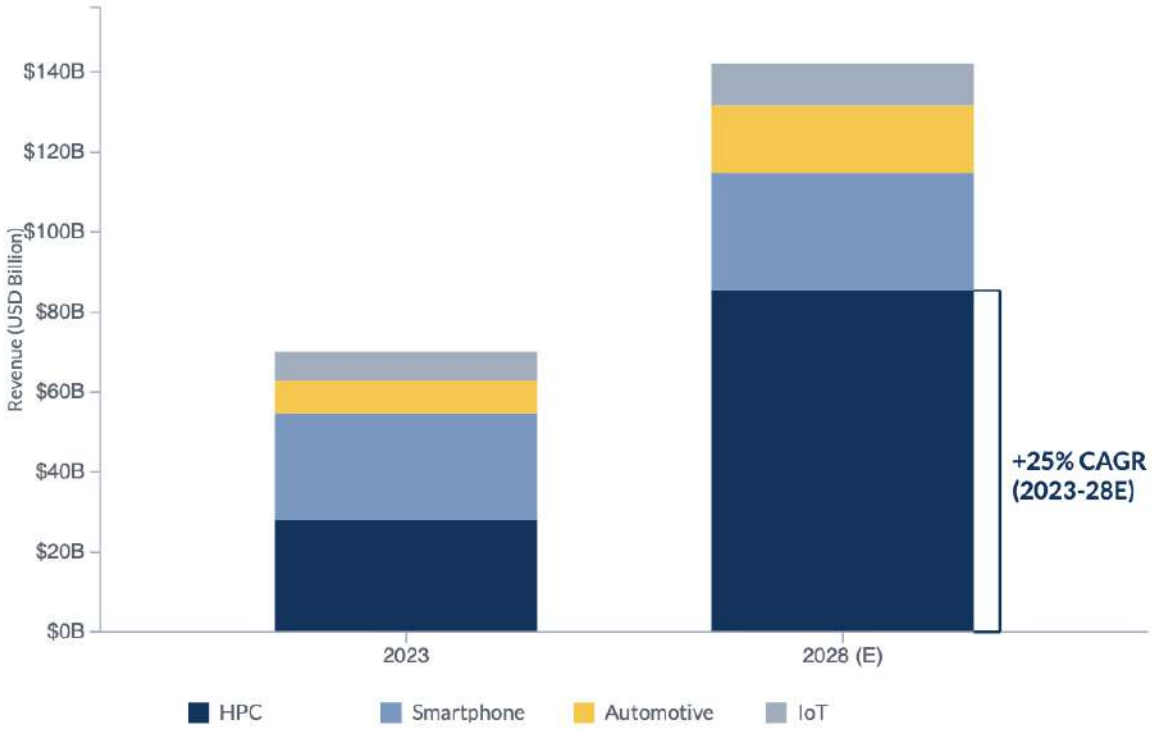
Resource uncertainty adds significant complexity and potential delays to future fab site selection and expansion timelines in Taiwan.

Expansion Delays

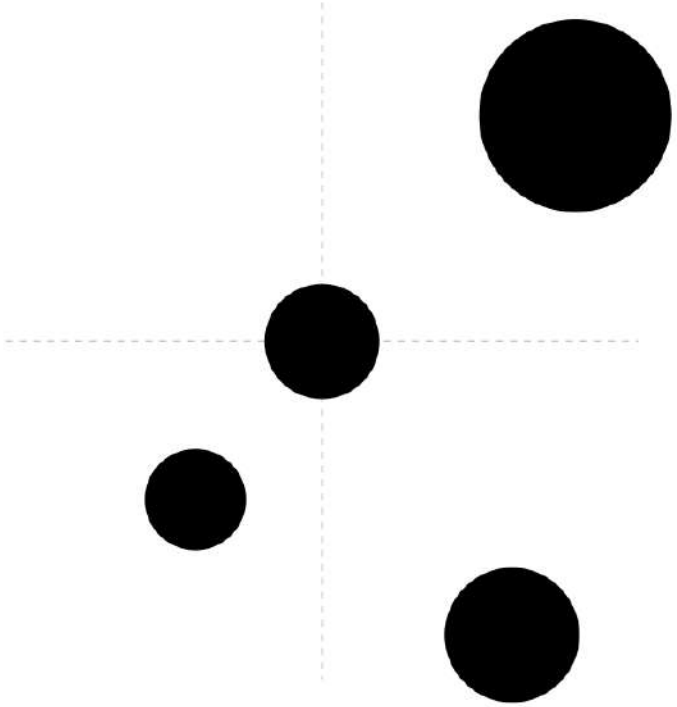
Source: Industry Reports; Power Company Filings; Internal Analysis

AI/HPC to Become TSMC's Dominant Revenue Driver, Projected to Exceed 60% of Total Revenue by 2028 with a >25% CAGR

Revenue Mix Transformation Driven by HPC Growth, 2023 vs. 2028E



Platform Positioning by Growth and Complexity



Source: Company Filings, Gartner, Internal Analysis

Executing a ~$100B pivot to global manufacturing, de-risking from Taiwan by embedding fabs within key US, EU, and Japanese customer hubs

Source: Company Announcements, Press Releases, Internal Analysis (as of Q3 2025)

Superior ~55% Margins and ~$650B Scale Create a Virtuous Financial Cycle, Funding Leadership While Rewarding Shareholders

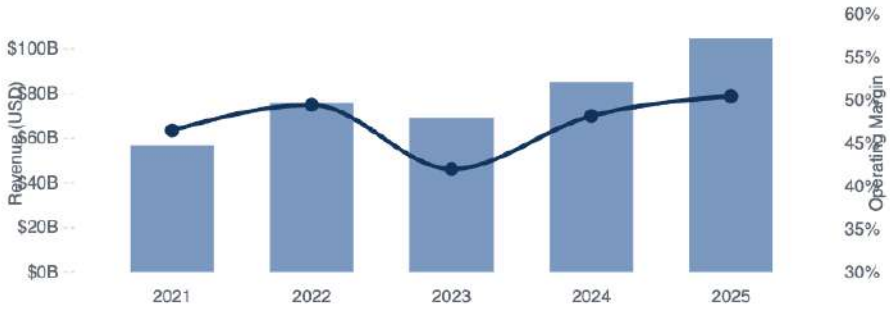
Market Capitalization

$650B

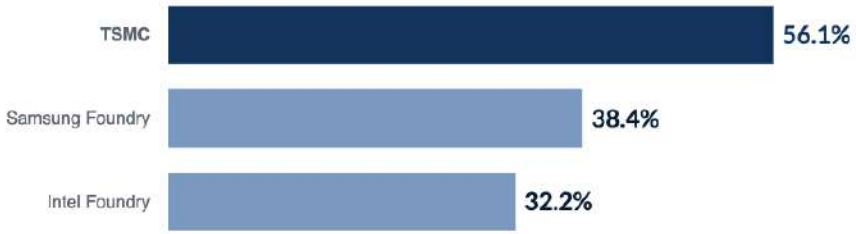
Top 10 Most Valuable Company Globally

Unparalleled access to capital markets at favorable rates, underpinning strategic flexibility.

Revenue Growth Remains Strong While High-Margin Operations Are Sustained



Gross Margin Significantly Outperforms Foundry Competitors



FY2024 Estimated Foundry Segment Gross Margin (%)

Consistent and Growing Shareholder Returns

Dividend per Share (NT$)

13.50

CAGR +9% (2021-25E)

Payout Ratio

~48%

Stable & Sustainable

Balances aggressive investment cycle with shareholder-friendly policies, supporting premium valuation.

Source: Company Filings, Bloomberg, Goldman Sachs Global Investment Research

Leadership Continuity and a 50,000+ Engineering Corps Create a Formidable R&D Moat, Securing a ~2-Year Process Technology Lead

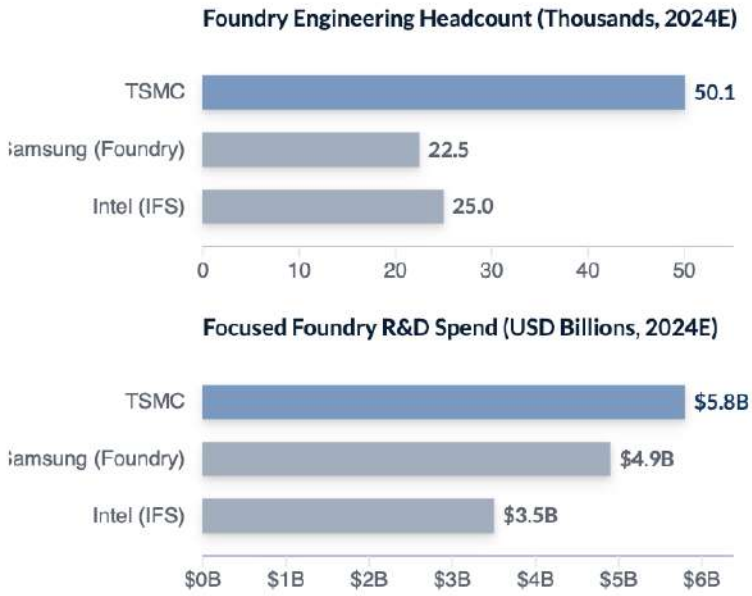
1. Visionary Foundation

> "Our strategy is to be everybody's foundry... What we are selling is not capacity, what we are selling is trust."
>
> — Dr. Morris Chang, Founder

Customer Trust & Focus

Establishes the core DNA that underpins all strategic and operational decisions.

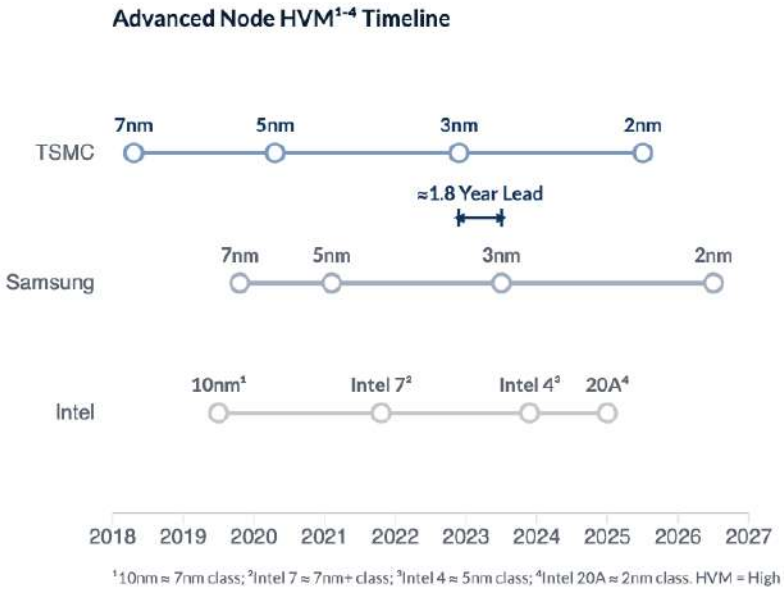
2. Unmatched Execution Engine



2x Engineering Scale

Dual-leadership deploys a 50,000+ engineering force—double its nearest foundry peers—and ~$5.8B in focused R&D (2024E).

3. Sustained Technology Lead



Consistent ~2-Year Advantage

Investment translates into a durable lead in high-volume production of advanced nodes, locking in key customers.

Source: Company Annual Reports (2024), SEMI, Gartner, Internal Analysis (Nov 2025)

Conclusion: TSMC's Strategic Imperative Must Shift from Pure Technology Leadership to Mastering Geopolitical and Operational Resilience

1. Solidify Structural Dominance

Maintain Technology & Financial Moat

Accelerate 2nm & 1.4nm R&D to capture >70% market share in first 2 years of HVM. Increase CoWoS capacity by 150% by 2027 to dominate AI packaging.

→ Expected Impact: **Secure next-decade leadership & sustain >53% gross margins.**

Timeframe

Immediate R&D focus; capacity expansion through 2027.

2. De-Risk via Global Diversification

Master Geopolitical & Operational Resilience

Execute on-time, on-budget ramp-up of Arizona & Japan fabs. Develop a global operating model to reduce single-region revenue concentration from ~90% to <75% by 2030.

→ Expected Impact: **Mitigate geopolitical risk, enhance supply chain security for key clients.**

Timeframe

Multi-year transition (2025-2030).

3. Capture Next-Gen Growth

Capitalize on AI & HPC Tailwinds

Forge deeper co-design partnerships with AI leaders (Nvidia, Apple, etc.). Explore new value-capture models like "Packaging-as-a-Service".

→ Expected Impact: **Drive 15-20% revenue CAGR through 2030, fueled by the AI revolution.**

Timeframe

Initiate in Q1 2026; ongoing.

Source: Internal Analysis; Public Filings; Industry Reports