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AI, Productivity and the Markets

The 2026 investment boom explained



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Where the capital is going, what the productivity evidence actually says, and how investors can distinguish durable business economics from an expensive technology narrative.

Purpose of this guide

This whitepaper is a framework for analysing the AI investment cycle. It does not recommend individual securities and deliberately separates sourced facts from illustrative investment frameworks.

EXECUTIVE SUMMARY

AI has moved from experiment to capital cycle

The scale is real. The returns are still being sorted out.

\$581.7B Global corporate AI investment 2025 total; +129.9% year on year	88% Organisations using AI Surveyed organisations in 2025
20.2% OECD firms using AI Up from 8.7% in 2023	945 TWh Data-centre electricity, 2030 IEA base-case projection

Artificial intelligence is now simultaneously a technology diffusion story, an infrastructure build-out, a productivity experiment and a market-valuation debate. Those four layers are related, but they are not interchangeable. Strong demand for chips or data centres does not automatically prove that every AI application will earn attractive returns, and rapid user adoption does not guarantee that the economic value will accrue to the same companies financing the build-out.

The central analytical task for investors is therefore conversion: how efficiently capital spending becomes usable compute, how compute becomes adoption, how adoption becomes productivity or revenue, and how those improvements eventually become free cash flow per share. The weaker any link in that chain, the greater the risk that impressive technology statistics coexist with disappointing investment returns.

- Treat AI as a multi-layer value chain rather than one sector.
- Separate task-level productivity evidence from economy-wide productivity claims.
- Track capital intensity, utilisation and depreciation as carefully as revenue growth.
- Look for second-order beneficiaries in power, networking, cooling, software and industry adoption.
- Demand a valuation framework that still works if AI monetisation arrives more slowly than expected.

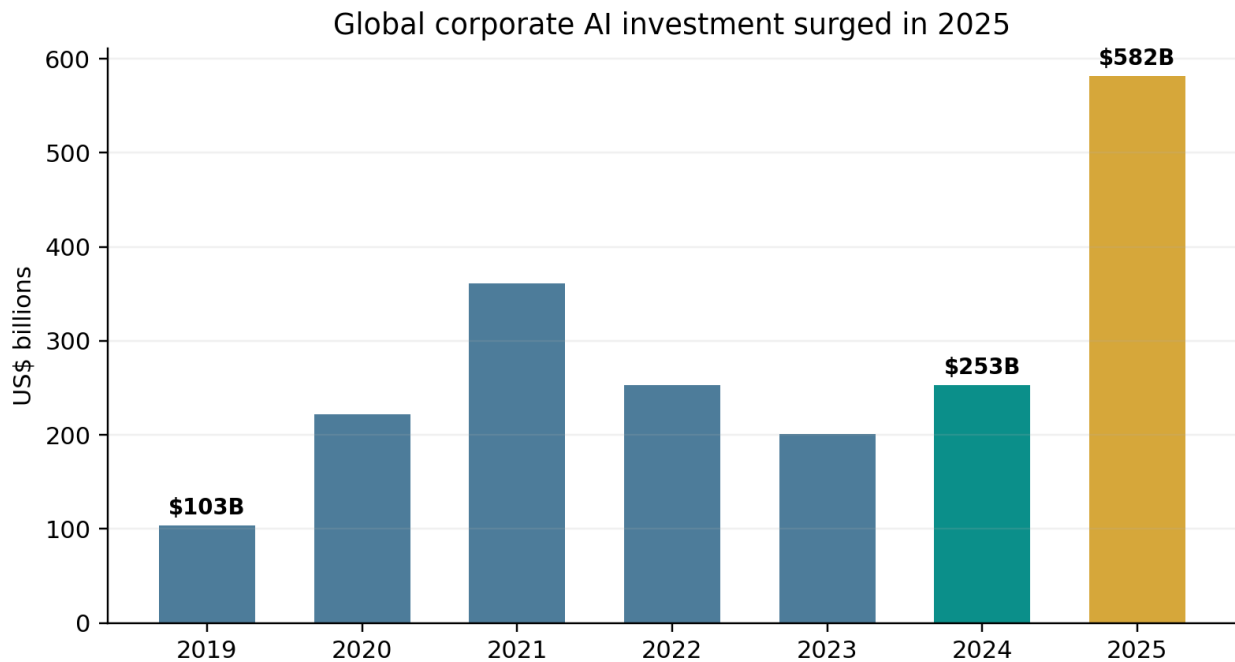
The core idea

The AI boom is measurable. The investment case still depends on who captures the economics after the spending, competition and depreciation are accounted for.

1 • CAPITAL CYCLE

The AI investment boom is already historic

Global corporate AI investment reached \$581.69 billion in 2025, more than double 2024.



Global corporate AI investment by year, 2019-2025

Source: Stanford HAI, 2026 AI Index, Chapter 4. Corporate investment includes M&A, minority stakes, private investment and public offerings.

Stanford's 2026 AI Index reports that total global corporate AI investment rose 129.9% in 2025 to \$581.69 billion. Private investment alone reached \$344.66 billion, up 127.5%. The United States accounted for \$285.9 billion of private AI investment, more than 23 times China's \$12.4 billion, although private-market data do not capture all state-directed investment.

That scale changes the market question. In the early phase of a technology cycle, investors ask whether demand exists. In a capital-spending phase, they must also ask whether capacity is being built faster than monetisation, whether bottlenecks raise returns for suppliers, and whether later competition pushes those returns back down.

Do not mix spending categories

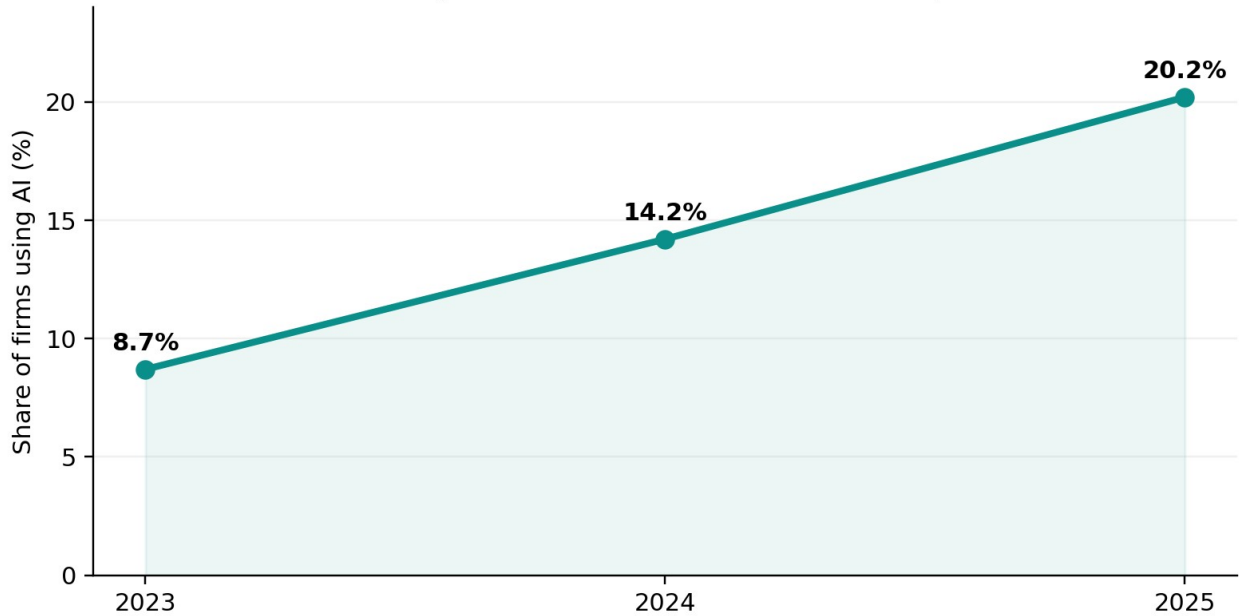
Venture funding, M&A and public offerings are not the same as hyperscaler capital expenditure. They can all signal commitment to AI, but they create different balance-sheet risks and different routes to shareholder value.

2 • ADOPTION

AI is spreading quickly, but adoption is uneven

The diffusion curve is steep enough to matter for both revenue opportunities and competitive risk.

AI use by firms more than doubled in two years



Share of firms reporting AI use across OECD countries with available data

Source: OECD, January 2026. Coverage depends on participating countries and survey definitions.

OECD data show that 20.2% of firms reported using AI in 2025, up from 14.2% in 2024 and 8.7% in 2023. The gap by company size remains large: 52.0% of large firms reported AI use in 2025 compared with 17.4% of small firms. ICT adoption was highest at 57.3%, followed by professional and scientific services at 36.8%.

A separate organisational survey summarised by Stanford HAI found AI use at 88% of surveyed organisations in 2025, while generative AI was used in at least one business function at 70%. The different percentages reflect different survey populations and definitions; they should be read as evidence of direction and breadth, not as one universal adoption rate.

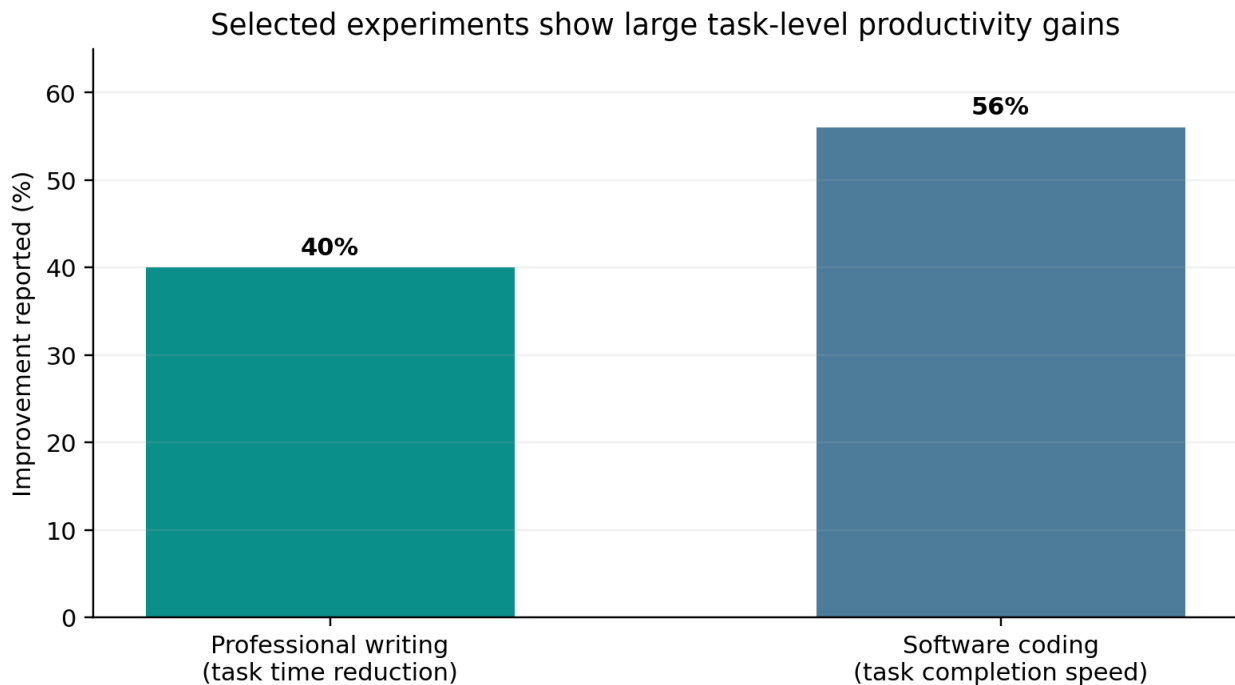
Investment implication

The next phase is less about whether firms can access AI and more about whether they can integrate it into data, workflows, controls and customer propositions. Integration quality is likely to create larger differences between companies than access to the same foundation models.

3 • PRODUCTIVITY

The strongest evidence is task-level, not yet economy-wide

Experiments show meaningful gains, but real businesses must absorb those gains into workflows.



Selected productivity results reviewed by the OECD

Source: OECD Artificial Intelligence Papers No. 39 (2025). Results come from different experiments and are not directly comparable or economy-wide forecasts.

The OECD's review of experimental evidence finds that generative AI can materially improve performance on well-specified tasks. One professional-writing experiment reduced average completion time by about 40% while raising assessed quality by 18%. A controlled software-development trial found developers using GitHub Copilot completed a task about 56% faster. Across customer support, software development and consulting studies, the OECD notes average productivity gains ranging from roughly 5% to more than 25%.

The important caveat is workflow fit. AI can harm performance when it is used beyond its capabilities, when users fail to verify outputs, or when firms add review and governance layers that offset the time saved. Economy-wide productivity will also depend on organisational redesign, skills, complementary capital and the speed at which lagging firms adopt the technology.

A useful distinction

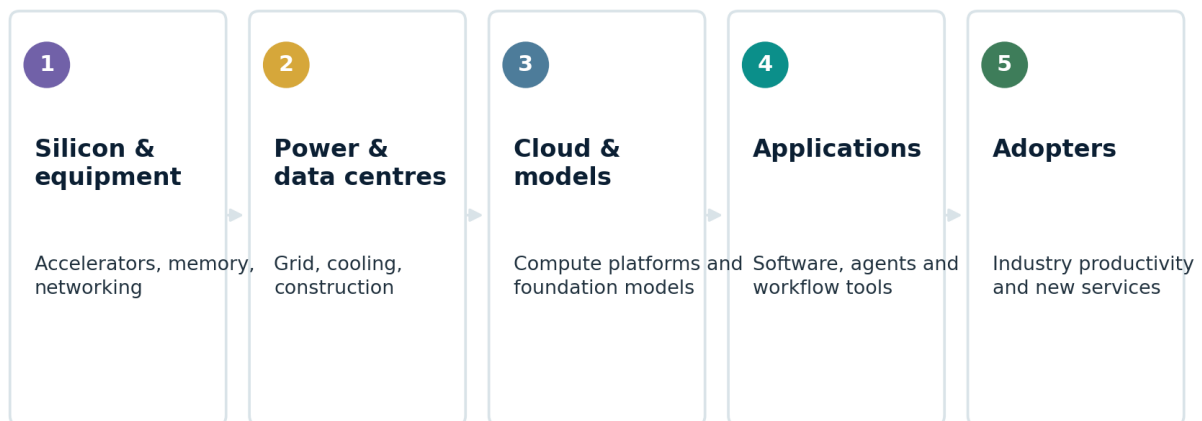
"The model made a task faster" is evidence of technical productivity. "The company produced more free cash flow per employee" is evidence of captured economic productivity. Investors should look for the second.

4 • VALUE CHAIN

AI is a stack of businesses with different economics

The same demand shock can create scarcity rents in one layer and margin pressure in another.

The AI investment cycle is a chain, not a single trade



Five layers of the AI investment cycle

The infrastructure layers are capital intensive and benefit when compute is scarce. Semiconductor designers, manufacturing equipment, advanced packaging, memory, networking, power equipment, cooling systems and data-centre construction can all experience demand before end users have proven a return on investment. That timing advantage can also attract competing supply and trigger later overcapacity.

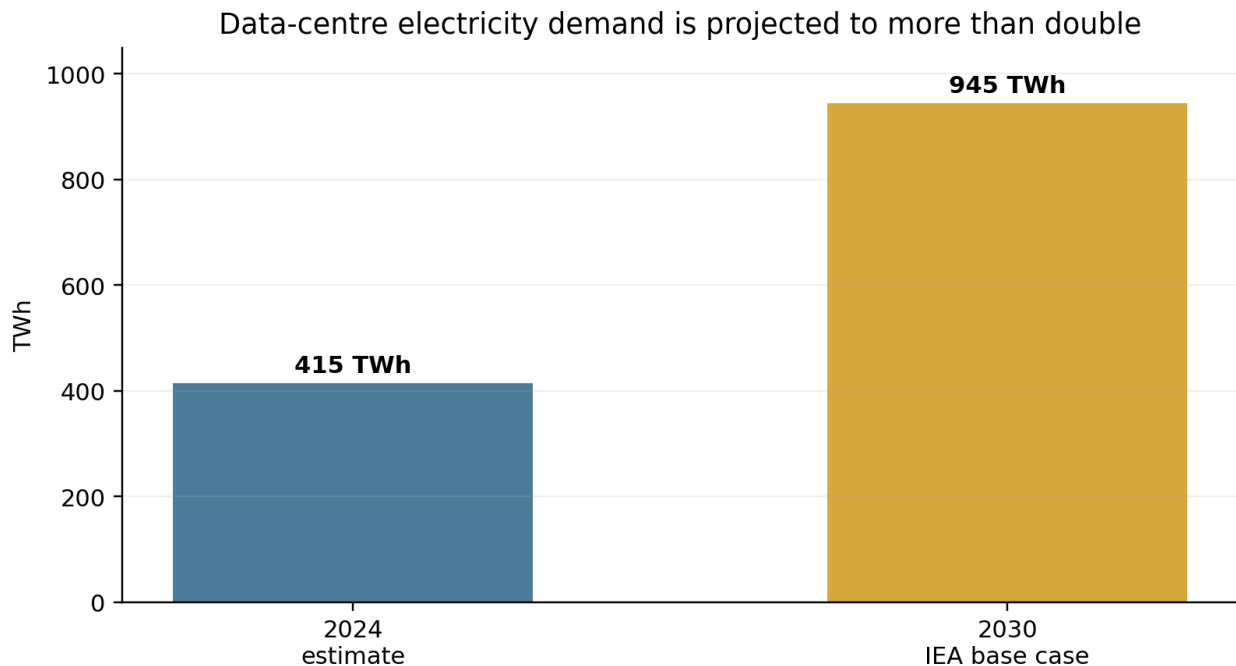
Higher layers of the stack may need less physical capital but face different risks: model commoditisation, switching costs, data rights, distribution, customer acquisition and rapid product substitution. Adopters outside technology may ultimately capture a large share of the productivity value if they use common tools to lower costs or improve service without having to fund the frontier infrastructure themselves.

- Infrastructure: scarcity, capacity additions and depreciation matter.
- Platforms: utilisation, pricing and ecosystem lock-in matter.
- Applications: distribution, workflow ownership and switching costs matter.
- Adopters: measurable cost savings, revenue uplift and speed-to-market matter.

5 • INFRASTRUCTURE

Compute is becoming an energy and grid story

The physical layer places AI inside construction, power and industrial-capacity cycles.



Global data-centre electricity consumption: 2024 versus IEA 2030 base case

Source: International Energy Agency, Energy and AI. The 2030 figure is a scenario projection, not a certainty.

The IEA estimates data centres consumed about 415 TWh of electricity in 2024, around 1.5% of global electricity demand. Its base case projects roughly 945 TWh by 2030, with data-centre electricity use growing around 15% per year between 2024 and 2030. Accelerated servers, mainly driven by AI adoption, are projected to see electricity consumption grow around 30% annually.

The same IEA analysis estimates global investment in data centres reached roughly half a trillion dollars in 2024, nearly double the level in 2022. This connects the AI theme to power generation, transmission, transformers, grid interconnections, cooling, land and permitting. In local markets, those constraints can matter more than global electricity shares suggest.

Second-order effect

When a technology boom becomes physically constrained, value can migrate toward whatever is scarce: power, network capacity, advanced packaging, specialist equipment, skilled construction labour or suitable sites. Scarcity can be temporary, so investors still need to distinguish bottleneck pricing from durable competitive advantage.

6 • MARKET TRANSMISSION

Capital spending is not the same thing as shareholder return

Every link from infrastructure to earnings creates a potential leakage point.

Capital spending becomes shareholder value only after several conversion steps



How AI spending must convert into investment returns

The market often prices the early links in the chain first: orders, capex guidance, backlog and capacity expansion. The later links are harder. More compute must be used productively; applications must create willingness to pay or cost savings; competition must not give all the gains back to customers; and the resulting cash flow must justify the valuation paid by shareholders.

This is why two companies can both be “AI winners” operationally but produce very different investment outcomes. A supplier may enjoy explosive demand but face falling unit economics as capacity catches up. An adopter may report little AI revenue yet quietly improve margins. A platform may grow usage while carrying high depreciation and power costs that delay free-cash-flow conversion.

What the market can get wrong

A large addressable market is not the same as a large profit pool. The decisive variables are market structure, capital intensity, pricing power and how much value customers retain.

7 • COMPANY ECONOMICS

Five numbers can reveal whether AI is improving a business

Look beyond announcements and count the financial consequences.

Measure	Question to ask	Why it matters
Capital expenditure	How much incremental AI infrastructure is being funded?	Shows cash commitment and future depreciation burden.
Depreciation & useful lives	Are asset lives rising or falling as hardware cycles accelerate?	Accounting assumptions can materially affect reported margins.
Utilisation	Is expensive capacity being filled with paying workloads?	Low utilisation weakens returns even when demand is growing.
Revenue / price	Can AI support new revenue, higher prices or lower churn?	Converts technical usage into monetisation.
Free cash flow	Do productivity or revenue gains exceed capex and operating costs?	Ultimately determines economic value available to shareholders.

A disciplined AI analysis starts with the cash-flow statement and fixed-asset notes, not the product launch. Capital intensity can rise before revenue, and depreciation can rise after capex has already peaked. That lag can make near-term earnings look better than cash economics during a build-out and worse later if utilisation disappoints.

For non-technology companies, the opposite may occur. They can consume AI as a service with limited upfront capex. In those cases, the most useful evidence may be revenue per employee, service levels, error rates, cycle times, customer acquisition costs or headcount growth relative to output.

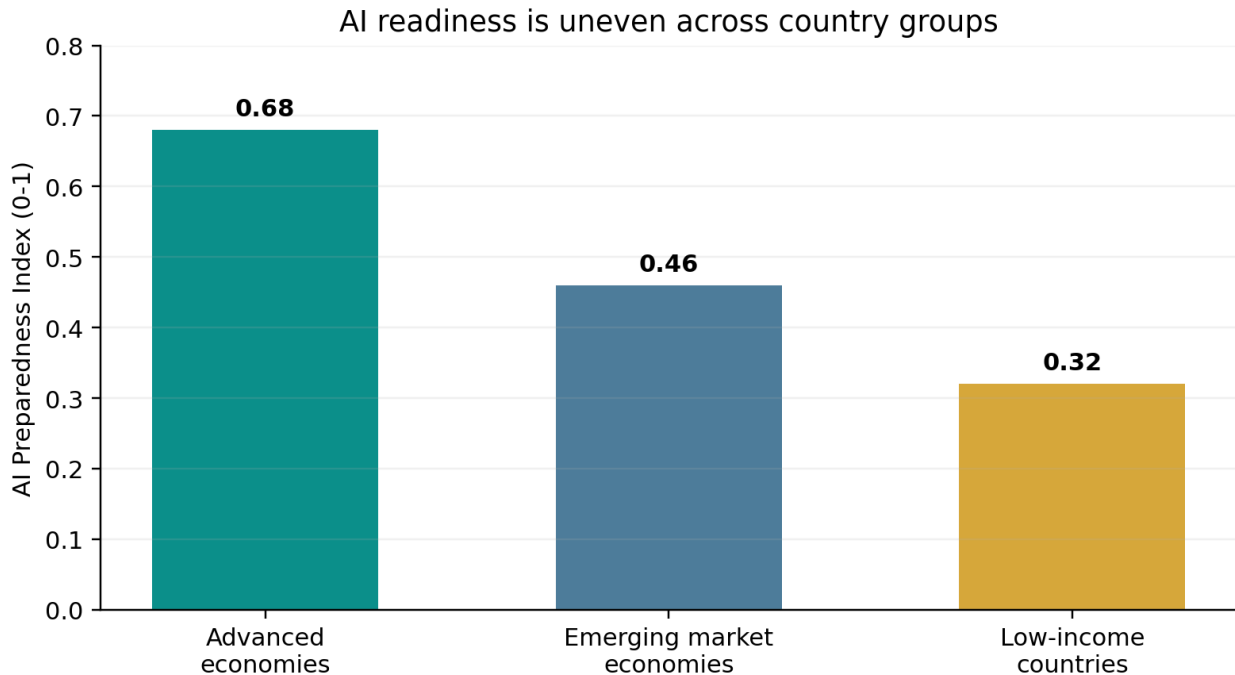
Red flag

When management describes AI benefits only in qualitative terms while AI-related spending is visible in cash flow, the burden of proof should rise.

8 • LABOUR AND GEOGRAPHY

Productivity gains will not arrive evenly

Preparedness, skills and sector mix shape who captures the upside.



IMF AI Preparedness Index by broad economy group

Source: IMF AI Preparedness Index. Latest dataset shown by IMF DataMapper; index combines digital infrastructure, human capital, innovation and legal frameworks.

The IMF's AI Preparedness Index illustrates the gap: advanced economies score 0.68 on average, compared with 0.46 for emerging-market economies and 0.32 for low-income countries. A 2025 IMF working paper argues that AI-driven growth effects could be more than twice as large in advanced economies as in low-income countries, reflecting differences in exposure, preparedness and access to data and technology.

Labour effects are also likely to be uneven within countries. Stanford's 2026 AI Index notes early signs of pressure in entry-level pipelines in some highly exposed occupations, while aggregate job losses have not yet appeared at the same scale. For investors, the issue is not simply "jobs lost versus jobs created" but how quickly firms can redesign roles, retrain workers and turn time savings into higher-value output.

A better labour lens

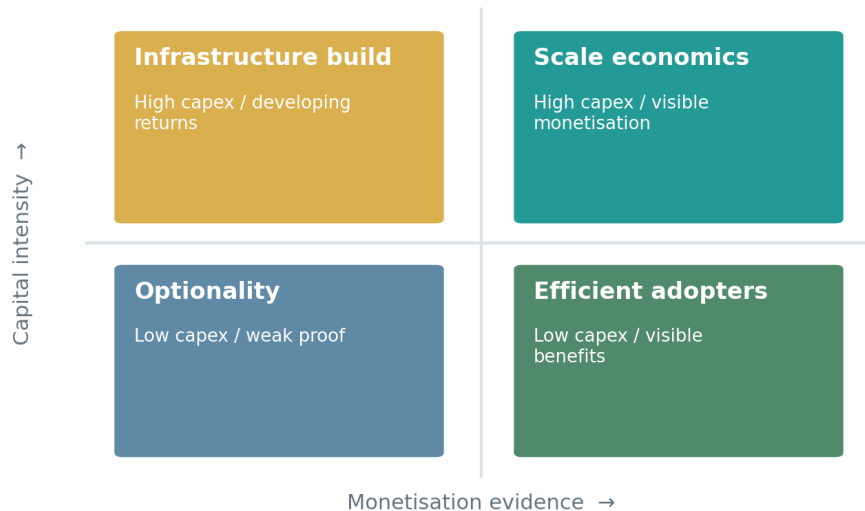
Ask which tasks are automated, which are augmented, and where human judgement becomes more valuable. Company-level outcomes depend on task design, not just occupational labels.

9 • VALUATION

Narrative must eventually meet capital discipline

The most attractive technology can still be a poor investment at the wrong price.

A practical way to separate AI narrative from business economics



A simple capital-intensity / monetisation framework

AI valuation is difficult because revenue opportunities, cost savings and competitive threats are moving simultaneously. A useful first step is to locate a company on two dimensions: how much capital it must commit to participate and how much evidence exists that customers or internal workflows are producing economic returns.

High-capex businesses with strong monetisation can still create attractive returns, but they require sustained utilisation and pricing power. Low-capex adopters can be economically attractive if AI improves margins without inviting new competitors. The weakest category is often high expectations with little visible monetisation, because even good operational news may already be embedded in the valuation.

- Build a base case that assumes slower monetisation than management's most optimistic narrative.
- Model depreciation and ongoing maintenance capex, not only first-wave spending.
- Check whether customer value is rising faster than supplier pricing.
- Compare expected free-cash-flow growth with the valuation multiple already paid.

10 • PORTFOLIO LENS

The AI theme is broader than mega-cap technology

Diversification can capture the economic diffusion without making one forecast do all the work.

Exposure route	Potential driver	Principal risk
Semiconductors & equipment	Compute demand, scarcity, technology leadership	Cyclicality, export rules, capacity response, customer concentration
Data centres & power	Capacity build-out, grid scarcity, long-term contracts	Permitting, financing costs, power constraints, overbuilding
Cloud & platforms	Scale, distribution, enterprise workloads	Capex intensity, price competition, model commoditisation
Software & applications	Workflow ownership, switching costs, new features	Low barriers to entry, rapid product substitution
Industrial / service adopters	Productivity, automation, improved customer economics	Benefits may be competed away or hard to measure
Broad market exposure	Second-order diffusion across sectors	AI leaders may already dominate index weights

A diversified investor does not need to identify one permanent AI winner. The economic effects can spread across suppliers, infrastructure, software and end users over different time horizons. This matters because the companies that receive the first revenue from a capital boom are not always the ones that retain the largest profit pool after competition and capacity expansion.

Concentration check

If an index or portfolio already has large weights in hyperscalers and semiconductor leaders, adding a thematic AI fund may increase concentration more than the fund label suggests. Review underlying holdings before assuming you have added diversification.

11 • SCENARIOS

Four plausible paths for 2026-2030

Scenario analysis is more useful than pretending one AI forecast is certain.

Scenario	What happens	Likely beneficiaries	Pressure points
Productivity boom	Adoption broadens; measurable output per worker rises; monetisation catches capex	Efficient adopters, platforms with scale, infrastructure with sustained utilisation	Labour transitions, regulation, valuation excess
Infrastructure bottleneck	Demand stays strong but power, chips or construction constrain deployment	Scarce infrastructure, equipment, grid and energy suppliers	Project delays, cost inflation, lower end-user ROI
Commoditisation	Models and compute become cheaper quickly; application competition intensifies	End users, distributors, firms with proprietary data/workflows	Frontier-model margins, undifferentiated software
Monetisation disappointment	Usage grows but willingness to pay and cost savings lag expectations	Cash-generative incumbents with limited AI capex	High-duration AI valuations, overbuilt capacity, weak utilisation

These scenarios can occur sequentially rather than exclusively. A bottleneck phase can support infrastructure profits before commoditisation lowers prices; an early monetisation disappointment can be followed by productivity gains after workflows are redesigned. Portfolio resilience improves when the investment thesis does not depend on one timing assumption.

Scenario discipline

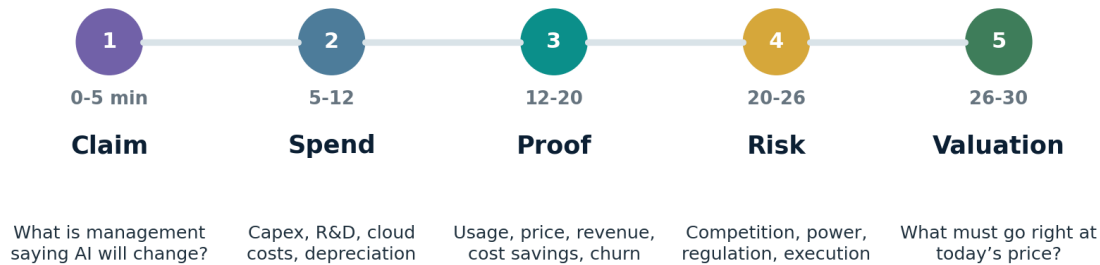
For every AI holding, write down which scenario the valuation appears to assume. Then ask what evidence would prove that assumption wrong.

12 • INVESTOR CHECKLIST

A 30-minute AI economics review

Use this before treating an AI announcement as an investment thesis.

A 30-minute AI economics review for any public company



Five steps for reviewing AI economics in a public company

- ☐ What specific customer or internal problem is AI solving?
- ☐ What new spending is required to deliver the claimed benefit?
- ☐ Which metric should improve if the claim is real - revenue, margin, cycle time, churn or output per employee?
- ☐ Who else can offer the same capability, and how quickly?
- ☐ Does the company own proprietary data, distribution or workflow advantage?
- ☐ What happens to depreciation, cloud costs and power consumption?
- ☐ Is management quantifying benefits or only describing activity?
- ☐ What does the current valuation already assume about growth and margins?

Bottom line

AI can be both transformative and overcapitalised in specific places at the same time. The durable investment edge is not deciding whether AI matters; it is tracing where economic value is created, competed away and ultimately retained.

SOURCES & METHODOLOGY

Primary and institutional sources used in this edition

Data checked against publicly available material on 3 September 2026.

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2026 AI Index Report, Economy chapter. Investment, organisational adoption, country investment and labour-market indicators.
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AI Preparedness Index and The Global Impact of AI: Mind the Gap (Working Paper 2025/076). Preparedness and cross-country growth implications.

<https://www.imf.org/external/datamapper/datasets/AIPI>

Methodology note: Market-framework graphics in this report are original explanatory illustrations. They are not forecasts, portfolio weights or historical backtests. Productivity figures come from different experimental settings and should not be added together or treated as economy-wide estimates. Investment and adoption statistics use the definitions of the cited source and may not be directly comparable across datasets.

Editorial standard

Where possible, this edition prioritises institutional and primary research sources, states when figures are projections or survey results, and avoids presenting a technology trend as an automatic security-level recommendation.

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