

Artificial Intelligence: A Structural Growth Investment Thesis

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Executive Summary

Artificial intelligence represents one of the most significant structural investment opportunities since the emergence of cloud computing and the internet. Unlike previous technology cycles, AI is a general-purpose technology with the potential to transform productivity across virtually every sector of the economy, including manufacturing, healthcare, finance, software and industrial automation. The investment opportunity extends beyond AI software itself, encompassing semiconductors, cloud infrastructure, data centers, networking, power infrastructure and enterprise applications.

The long-term investment case is supported by robust market fundamentals. Institutional estimates project the global AI market to exceed \$1 trillion by 2030, while McKinsey estimates that generative AI could ultimately generate between \$2.6 trillion and \$4.4 trillion of annual economic value through productivity improvements, cost reductions and revenue growth. In the near term, however, the greatest financial beneficiaries are likely to remain companies supplying the infrastructure required to support AI deployment, particularly semiconductor designers, foundries, networking providers and cloud platforms.

Despite these favorable long-term fundamentals, investors should remain disciplined. Current market valuations already reflect substantial expectations for future earnings growth, while continued success depends on sustained capital expenditure, successful commercialization, adequate electricity infrastructure and favorable competitive dynamics. Consequently, a selective investment approach focused on high-quality businesses with durable competitive advantages, strong free cash flow and reasonable valuations offers a more attractive risk-adjusted opportunity than broad exposure to the AI sector. Overall, the investment outlook remains constructive but valuation-sensitive, reflecting confidence in AI's long-term economic impact while recognizing that future investment returns will depend on execution and the price paid for growth.

The author believes AI should represent an overweight allocation within growth oriented equity portfolios, although investors should diversify across the AI value chain and avoid excessive concentration. The suggested allocation reflects the current stage of the AI investment cycle. Infrastructure and cloud platforms receive the largest weights (40% and 35% respectively) due to their direct exposure to AI capital expenditure, strong earnings and established cash flow generation. Applications and emerging opportunities (15% & 10%) receive smaller allocations, reflecting their higher uncertainty but significant long term potential. As AI adoption matures and monetization improves, portfolio allocations are expected to gradually shift toward software and AI-enabled applications.

AI Market Opportunity

Artificial intelligence is developing into one of the largest structural growth markets within the global technology sector. Statista estimates that the worldwide market for AI technologies reached approximately \$255 billion in 2025 and could exceed \$1.219 trillion by 2030 (Appendix, Chart 1). This represents an implied compound annual growth rate of approximately 36.74% and would make the market almost 5 times larger within five years. (Statista) An alternative estimate from McKinsey & Company places the 2030 market between \$1.3 – \$1.5 trillion, based on a comparable forecast CAGR of 36.6%. (McKinsey & Company)

The market opportunity extends beyond the direct revenues generated by AI software companies. Growth in AI adoption requires substantial investment across the entire technology value chain, including advanced semiconductors, high-bandwidth memory, semiconductor manufacturing equipment, cloud computing, networking, data centers, cooling systems and electricity infrastructure. Morningstar reported that AMD now estimates the addressable market for AI accelerators which includes GPUs, memory, CPUs and networking could reach \$1.4 trillion by 2030. Although this represents a company estimate rather than an independent forecast, it demonstrates the potential scale of infrastructure demand. (Morningstar)

The wider economic opportunity may be considerably larger than the direct AI market. McKinsey estimates that generative AI could create between \$2.6 trillion and \$4.4 trillion of economic value annually across 63 corporate use cases. Approximately 75% of this potential is concentrated in customer operations, sales and marketing, software engineering, and research and development. McKinsey also estimates that generative AI could add between 0.1 and 0.6 percentage points to annual labor-productivity growth through 2040, depending on adoption rates and whether displaced employee time is redeployed productively. (McKinsey & Company)

IDC provides a broader macroeconomic estimate, forecasting that AI could contribute a cumulative \$22.3 trillion to the global economy through 2030 and account for approximately 3.5% of global GDP in 2030. (IDC) These projections indicate that AI is not merely a new software category, but a general-purpose technology capable of affecting productivity, corporate cost structures, revenue generation and capital investment across most major industries.

Financial Performance and Valuation

For the financial analysis, the companies below are selected due to their importance to the sector. Table 1 exhibits each company's AI value chain exposure while Table 2 focuses on the financial metrics.

Company	AI Value Chain Exposure
NVIDIA	AI accelerators and networking
Broadcom	Custom accelerators, networking and software
TSMC	Advanced semiconductor manufacturing
ASML	Advanced semiconductor equipment
Microsoft	Cloud infrastructure, platforms and applications
Alphabet	Cloud infrastructure, platforms and applications

Table 1: AI Value Chain Exposure

Company	NVIDIA	Broadcom	TSMC	ASML	Microsoft	Alphabet
Revenue Growth	65%	24%	31.60%	15.60%	15%	15%
Profitability Margin	60.40%	67.30%	50.80%	34.60%	45.60%	32%
FCF margin	44.70%	42.10%	26.30%	33.80%	25.40%	18.20%
Capex/Revenue	2.80%	1%	33.40%	5%	22.90%	22.70%
Normalized P/E	35.70%	47	28.60	54.50	23.80	19.10
Price/Sales	20.10	24.7	14.60	16.50	8.90	8.80

Table 2: Financial metrics¹

Nvidia currently demonstrates the strongest combination of growth and operating leverage. Fiscal 2026 revenue increased by 65% to \$215.9 billion, while the company generated a 60.4% operating margin and free cash flow of \$96.6 billion. Its unusually low direct capital intensity reflects its fabless business model: semiconductor manufacturing expenditure is largely borne by foundry and supply-chain partners. Nevertheless, a normalized earnings multiple of approximately 36 times and a price-to-sales ratio above 20 times indicate that the valuation remains dependent on sustained demand, high margins and continued technological leadership. (NVIDIA Newsroom)

Broadcom also exhibits exceptionally strong cash conversion. Fiscal 2025 revenue increased by 24% to \$63.9 billion, adjusted EBITDA reached \$43.0 billion and free cash flow reached \$26.9 billion. AI semiconductor revenue—including custom accelerators and Ethernet networking—has become an increasingly important growth driver. However, Broadcom carries the highest price-to-sales multiple in the selected group, meaning that

¹ Metrics received from each company's website and Multiples from Morningstar on 27-07-2026.

continued AI revenue acceleration and successful integration of its infrastructure-software operations are already embedded in the share price. (investors.broadcom.com)

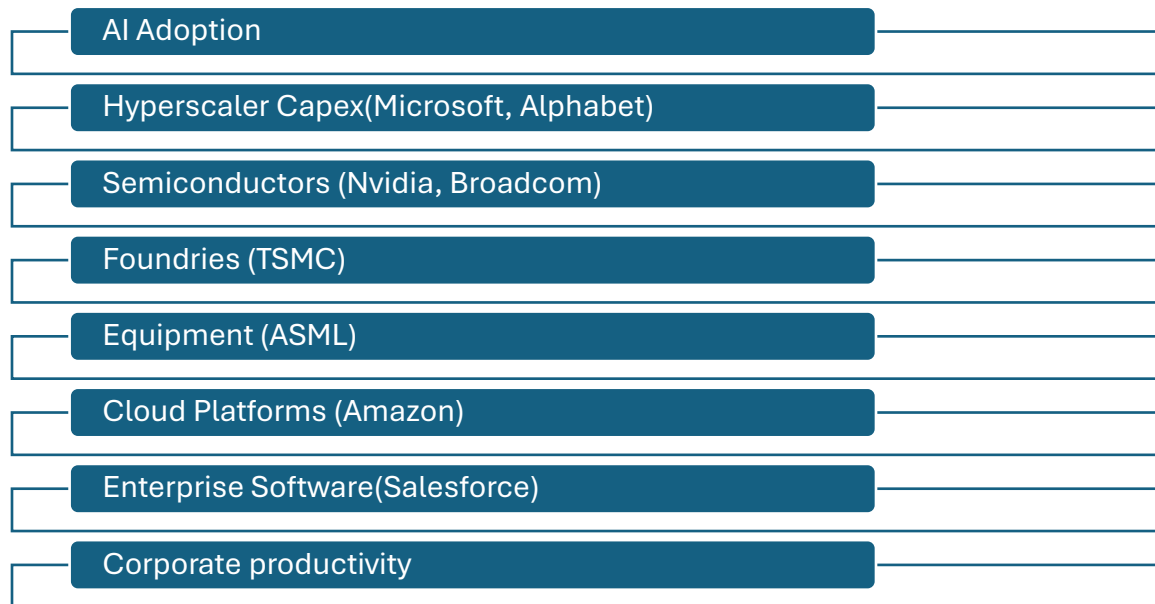
TSMC and ASML provide critical infrastructure exposure with exceptionally strong competitive positions. TSMC generated a 50.8% operating margin in 2025, but invested approximately one-third of revenue in capital expenditure, illustrating the capital-intensive nature of advanced semiconductor manufacturing. ASML was less capital intensive, generating a 34.6% operating margin and a 33.8% free-cash-flow margin. Its valuation of approximately 55 times normalized earnings, however, represents the highest earnings multiple in the group and leaves limited room for execution disappointments or a downturn in semiconductor-equipment demand. (investor.tsmc.com)

Microsoft and Alphabet offer more diversified AI exposure through cloud computing, proprietary models and enterprise applications. Their revenue growth is lower than that of semiconductor beneficiaries, but both companies possess established customer ecosystems, recurring revenues and large balance sheets. Microsoft produced a 45.6% operating margin and approximately \$71.6 billion in free cash flow during fiscal 2025. Alphabet generated \$73.3 billion of free cash flow, although its free-cash-flow margin was reduced by \$91.4 billion of capital expenditure. (Microsoft)

From a relative-valuation perspective, Microsoft and Alphabet trade at materially lower sales and earnings multiples than the principal semiconductor beneficiaries. This does not automatically make them superior investments, because only part of their revenue is directly attributable to AI. Nevertheless, their diversified earnings bases provide greater downside protection if AI monetization develops more slowly than expected. Conversely, Nvidia, Broadcom, TSMC and ASML provide more direct exposure to AI infrastructure spending, but their valuations make them more sensitive to changes in capital-expenditure expectations, competitive conditions and long-term growth assumptions. (Morningstar)

The principal conclusion is that the AI investment theme is supported by real earnings and cash-flow growth rather than revenue expectations alone. However, the dispersion in valuation is substantial. Portfolio construction should therefore balance direct, high-growth infrastructure exposure with diversified platform companies whose existing businesses can absorb the costs and uncertainty associated with long-term AI investment.

Money flow within the ecosystem



The AI investment ecosystem is characterized by a sequential flow of capital and value creation. Enterprise demand for AI applications first drives capital expenditure by hyperscalers, which invest heavily in data centers, networking infrastructure and computing capacity. This investment directly benefits semiconductor designers such as NVIDIA and Broadcom, manufacturing leaders such as TSMC, and equipment suppliers such as ASML. As AI infrastructure becomes more widely deployed, value creation is expected to gradually shift toward cloud platforms, enterprise software providers and industry-specific AI applications capable of generating recurring revenues and productivity gains. Consequently, while infrastructure companies are currently capturing the majority of AI-related investment spending, the long-term economic value is likely to become more evenly distributed across the broader AI value chain.

This dynamic suggests that the AI investment opportunity should be viewed as an evolving ecosystem rather than a single industry, where leadership is expected to transition over time from infrastructure providers to companies that successfully monetize AI through software, services and industry-specific applications.

Key Risks

The long-term AI investment thesis is supported by rapid adoption, expanding infrastructure demand and significant productivity potential. Nevertheless, the financial markets already

reflect substantial expectations for future growth. The principal investment risk is therefore not that AI fails to become economically important, but that corporate earnings and cash flows do not grow sufficiently quickly to justify current capital expenditure and equity valuations.

Valuation and market concentration

Technology represented approximately 37.5% of the US equity market as of 31 May 2026, even before including AI-exposed companies such as Alphabet, Meta and Amazon that are classified in other sectors. This concentration increases the potential market impact of an earnings disappointment or valuation correction among a relatively small number of AI leaders. (Morningstar)

Excessive capital expenditure and Debt

AI infrastructure requires unprecedented expenditure on processors, servers, networking equipment and data centers. Hyperscalers are on pace to spend \$730 billion on AI infrastructure in 2026 and more than \$1 trillion in 2027. The risk is that depreciation, energy and operating costs rise faster than AI-related revenues, reducing free cash flow and returns on invested capital. In a new research note from Goldman Sachs strategist Amanda Lynam on Wednesday, she estimated that \$489 billion of AI-related debt has been issued this year. That's already above Goldman's estimate of \$322 billion for how much of this debt came to market last year. (Appendix, Chart 2)

Dependence on a small number of customers

A large proportion of near-term AI infrastructure demand originates from hyperscalers and a limited number of model developers. Nvidia disclosed that its two largest direct customers represented 22% and 14% of fiscal 2026 revenue. A reduction, postponement or internalization of spending by a small number of customers could therefore materially affect semiconductor demand.

Competition and commoditization

AI model capabilities are converging rapidly. Stanford's 2026 AI Index reported that US and Chinese models repeatedly exchanged leading positions and that the performance gap between the leading model and its closest international competitors had narrowed considerably by March 2026. Greater model availability and stronger open-model competition may reduce pricing power at the model layer, shifting value towards infrastructure, distribution, proprietary data and customer integration. (Stanford HAI)

Energy and infrastructure constraints

The International Energy Agency expects global data-center electricity consumption to increase from approximately 415 TWh in 2024 to around 945 TWh by 2030. Data centers can be completed within two to three years, while grid and power-generation infrastructure often require longer planning and construction periods. Power availability, grid connections and cooling requirements could therefore delay AI capacity additions. (IEA)

Regulatory and geopolitical risk

The EU's general-purpose AI rules became applicable in August 2025, while additional transparency obligations are scheduled to apply from August 2026. These rules introduce requirements concerning transparency, copyright, risk management and AI-generated content. Separately, semiconductor export controls and the concentration of advanced chip production in Asia create geopolitical and supply-chain risks for infrastructure providers. (Digital Strategy)

Monetization and Return on Investment

The long-term success of artificial intelligence ultimately depends on whether companies can generate returns on investment that exceed the unprecedented capital committed to AI infrastructure. While hyperscalers and enterprises continue to increase spending on data centers, semiconductors and foundation models, the commercial monetization of AI remains in its early stages. Investors should therefore monitor whether AI-related revenue, productivity gains and customer adoption grow faster than depreciation, operating costs and capital expenditure. If companies fail to translate AI investment into sustainable earnings growth and acceptable returns on invested capital, current valuation premiums may prove difficult to justify.

Scenario Analysis

The following scenarios are an analytical framework rather than precise forecasts. (Appendix, Chart 3)

Optimistic Scenario

Enterprise adoption accelerates, AI applications generate measurable productivity gains and hyperscaler infrastructure remains highly utilized. Power and semiconductor supply expand without major disruption. AI revenues grow faster than depreciation and operating costs. Margins remain elevated, free cash flow expands and current valuation premiums remain supportable. Semiconductor, networking, data-center and power-equipment

providers continue to outperform. Platform companies benefit from both cloud consumption and application monetization.

Moderate Scenario

AI adoption continues strongly but monetization develops unevenly. Infrastructure spending remains elevated, while competition reduces model and inference prices. Revenue and earnings continue to grow, but operating leverage is partially offset by depreciation, energy costs and continued research expenditure. Valuation multiples gradually normalize. Returns become more dependent on company selection. Profitable infrastructure leaders and diversified platforms outperform speculative application companies without established cash flows.

Conservative Scenario

Enterprise returns on AI investment disappoint, infrastructure utilization remains below expectations and hyperscalers slow capital expenditure. Regulation, export restrictions or power constraints create additional delays. Revenue estimates are reduced, margins contract and returns on invested capital deteriorate. Semiconductor inventories rise and valuation multiples compress. The largest downside is concentrated in highly valued semiconductor, equipment and pure-play AI companies. Diversified platforms may provide greater resilience, although their free cash flow would also be affected by high infrastructure depreciation.

Indicators to Monitor

Investors should focus on the relationship between capital expenditure and incremental AI revenue, rather than capital expenditure alone. The most important indicators are hyperscaler cloud growth, AI revenue disclosure, data-center utilization, semiconductor order backlogs, gross margins, free-cash-flow margins and returns on invested capital. Particular attention should be given to whether hyperscalers can increase AI-related revenue faster than depreciation and infrastructure operating expenses. Continued expenditure is financially sustainable when it creates recurring cloud consumption, software revenue and customer retention. It becomes more problematic when capacity is constructed ahead of demand or when competitive price reductions prevent providers from earning an adequate return.

Investment Conclusion

Artificial intelligence represents one of the most compelling long-term structural investment opportunities of the coming decade. As a general-purpose technology, AI has the potential

to transform productivity across virtually every sector of the global economy, creating value not only for technology companies but also for businesses that successfully integrate AI into their operations. Unlike short-term technology cycles, AI is likely to remain a persistent driver of innovation, capital investment and corporate earnings growth for many years.

Nevertheless, the opportunity should be approached selectively rather than through indiscriminate exposure to companies associated with AI. The strongest investment candidates are businesses that combine structural AI demand with durable competitive advantages, established profitability, positive free cash flow and sufficient balance-sheet capacity to finance continued innovation. As the industry matures, the sources of value creation are also expected to evolve from today’s infrastructure leaders supplying semiconductors, networking and data-center equipment toward software platforms and AI-enabled applications capable of monetizing the technology at scale.

Investment Stance

The author believes AI should represent an overweight allocation within growth oriented equity portfolios, although investors should diversify across the AI value chain and avoid excessive concentration. From a portfolio construction perspective, a balanced allocation across the AI value chain is likely to provide superior risk-adjusted returns compared with concentrating exclusively on a small number of high-growth companies. Infrastructure providers offer the strongest near-term exposure to AI investment, while diversified cloud platforms and software companies provide greater resilience if monetization or enterprise adoption progresses more gradually than expected. The overall investment outlook therefore remains constructive but valuation-sensitive. Artificial intelligence is expected to generate substantial long-term economic value, but equity returns will ultimately depend on which companies capture that value, the capital required to achieve it and the valuation investors pay today. Investors who focus on business quality, cash-flow generation and disciplined portfolio diversification are likely to be best positioned to benefit from the next phase of AI-driven growth.

Suggested Portfolio Positioning

Value Chain	Allocation
Infrastructure	40%
Cloud Platforms	35%
Applications	15%
Emerging AI Opportunities (Cybersecurity, Robotics)	10%

Table 3: Suggested Portfolio Positioning

The suggested allocation reflects the current stage of the AI investment cycle. Infrastructure and cloud platforms receive the largest weights because they currently offer the strongest revenue visibility, established cash flows and the most direct exposure to AI capital expenditure. Applications and emerging opportunities receive smaller allocations because monetization remains less proven, competitive barriers are still developing and company-specific risk is higher. These weights are illustrative rather than optimized and should gradually shift toward applications as enterprise adoption and recurring AI revenues become more established.

Appendix

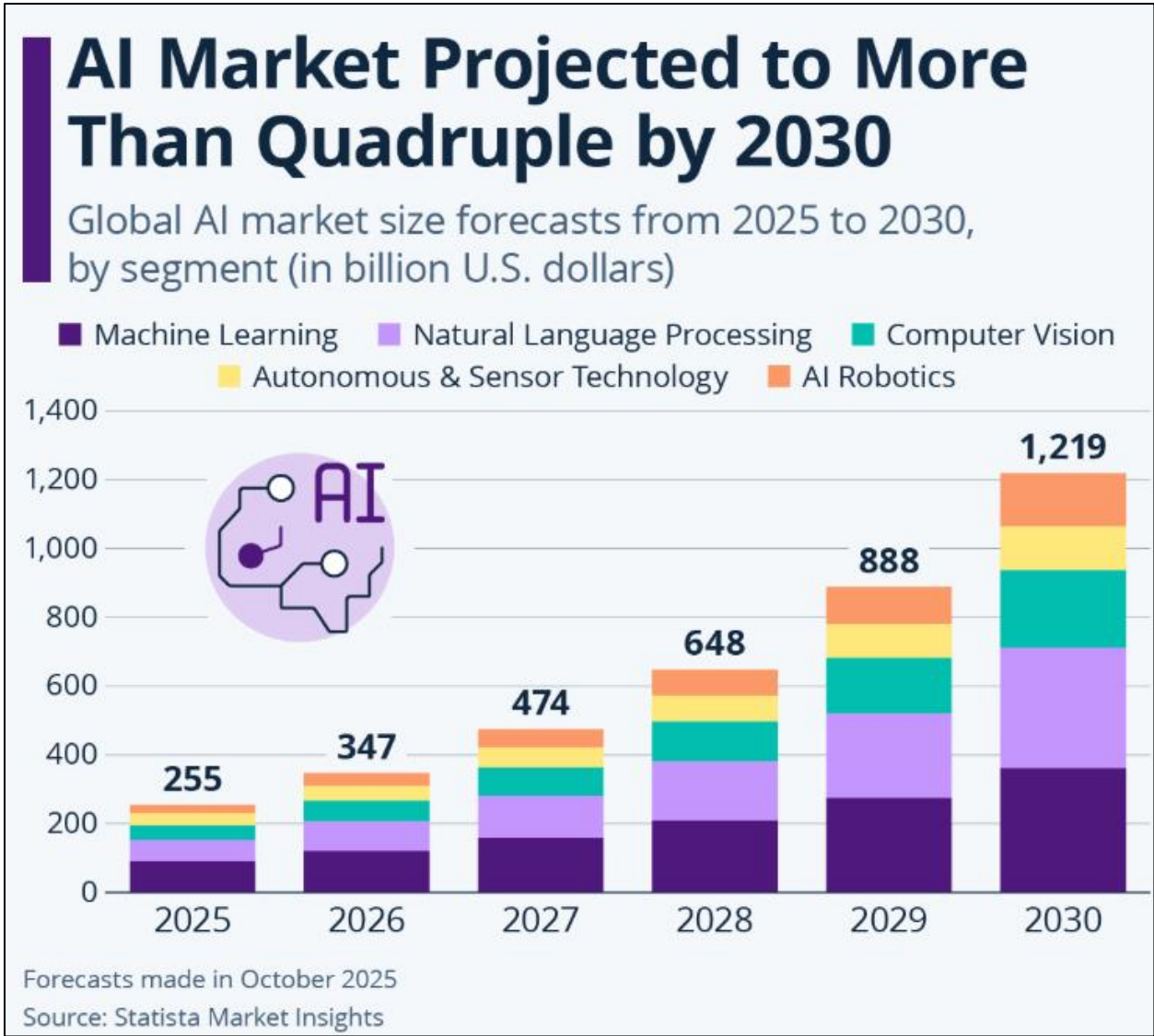


Chart 1: AI Global Market Size projections (Statista)

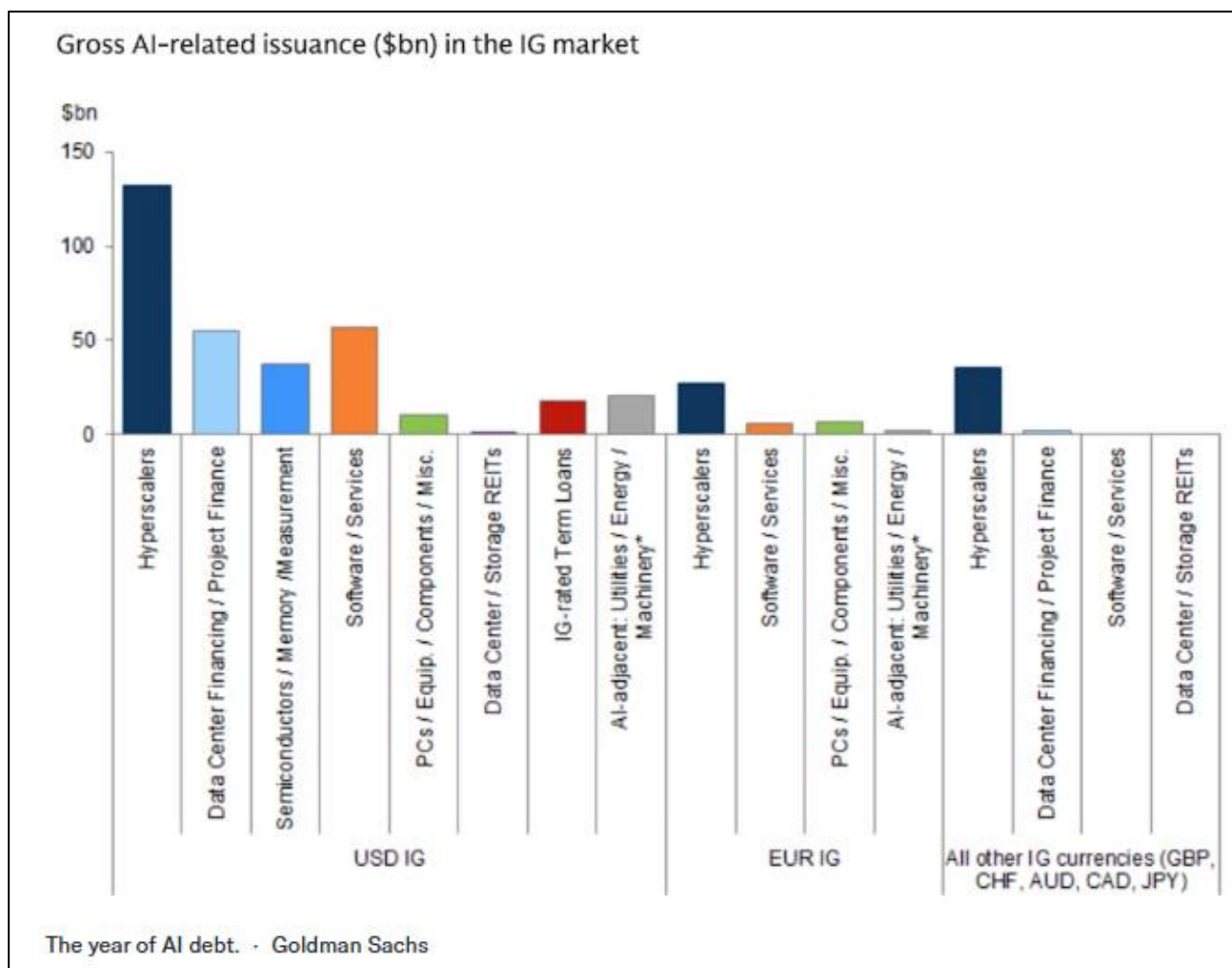


Chart 2: AI Related Debt(Goldman Sachs)

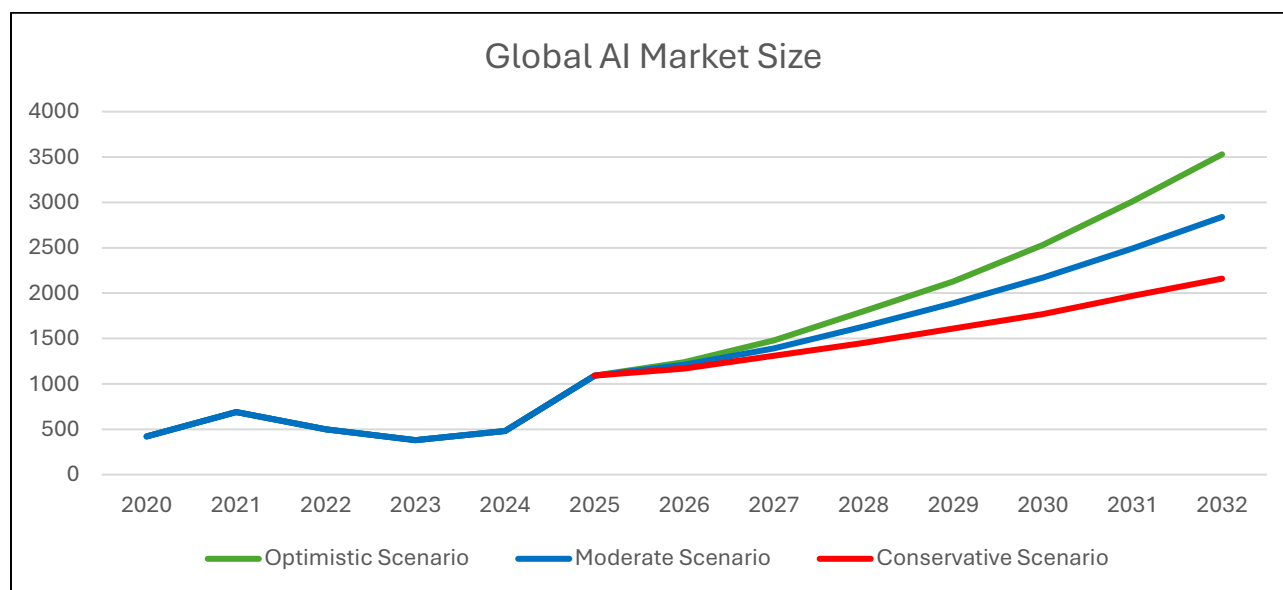


Chart 3: Global AI Market Size (Statista)