PART 8

DATA / AI MODEL BUSINESS

The Most Capital-Intensive Software Model in History

AI training compute economics and the capitalize-vs-expense GAAP question, inference unit economics and GPU utilization, Model-as-a-Service pricing, ASC 606 for AI API and enterprise licenses, Section 174 amortization impact on cash taxes, R&D credits for AI compute, transfer pricing for cross-border inference, DEMPE analysis, EU AI Act compliance costs, training data privacy and copyright risk, synthetic data accounting, and the complete AI metrics framework.

SECTION 1
THE DATA AND AI MODEL BUSINESS

Data and AI as a Business: The Most Capital-Intensive Software Model

The AI model business is the newest and most capital-intensive software business model in history. It combines the economics of a research institution (massive upfront investment in compute and talent with uncertain and delayed returns), a SaaS platform (recurring revenue from API access and enterprise subscriptions), a data business (proprietary training data as the primary competitive moat), and a utility (inference infrastructure that must be available 24/7 at scale). No prior software business model has required the combination of capital intensity, scientific expertise, data accumulation, and commercial sophistication that building and monetizing a frontier AI model demands.

The CFO of a data and AI business operates in genuinely uncharted territory — not just commercially, but in terms of accounting standards, tax treatment, and regulatory compliance. GAAP has not yet produced a comprehensive standard specifically addressing AI model development costs. The IRS has not issued definitive guidance on how AI training costs are treated under Section 174. Privacy laws are only beginning to grapple with the use of personal data in model training. The CFO who waits for regulatory clarity before building the financial architecture will be perpetually behind.

This part covers the complete financial architecture of the data and AI business: the economics of model training and inference, the pricing models for AI-as-a-service, the accounting treatment of training compute costs, the revenue recognition for AI model licensing and API access, the tax treatment of AI development costs, the transfer pricing implications of cross-border AI inference, and the metrics framework that AI business CFOs must own. Every concept is grounded in current practice, with explicit acknowledgment where standards are unsettled.

1.1 The Three Revenue Models for AI Businesses

AI businesses monetize their models in three primary ways, each with different economics, recognition timing, and cost structures. Understanding which model — or combination of models — the business operates is the starting point for every financial architecture decision.

Revenue Model	Structure	Gross Margin Profile	Key Financial Challenge
Model-as-a-Service (MaaS / API)	Per-inference, per-token, or per-call pricing via API	20%–60% depending on compute efficiency	Compute cost scales with revenue; GM improvement requires model efficiency
Enterprise License / Deployment	Annual license for on-premise or private cloud deployment	60%–80% (software license; low marginal cost)	Long sales cycles; custom deployment costs; revenue recognition complexity
Data Licensing	License to proprietary training data sets	70%–90% (data has near-zero marginal cost)	IP ownership, privacy compliance, and buyer's right-to-model question
Fine-Tuning / Custom Model	Charged to customize base model for enterprise customer	30%–55% (compute + ML engineer time)	Scope definition; performance guarantees; IP ownership of fine-tuned model
Embedded AI (OEM)	AI capability embedded in partner's product for revenue share	Highly variable; depends on partner negotiation	Principal-vs-agent; variable consideration under ASC 606

SECTION 2
TRAINING COMPUTE ECONOMICS

The Economics of Training: Capital Intensity at Unprecedented Scale

Training a frontier AI model requires an amount of compute that was unimaginable in any prior software business. GPT-4 is estimated to have cost $50M to $100M to train. Gemini Ultra and Claude 3 Opus are believed to have required comparable or greater compute investment. The models being trained in 2025 and 2026 are reportedly requiring $500M to $2B in compute per training run. This capital intensity fundamentally changes the financial architecture of the AI business — the question of how these costs are accounted for, over what period they are amortized, and how they are treated for tax purposes has consequences that run into hundreds of millions of dollars.

2.1 Compute Cost Structure

AI training compute costs have two components: the hardware cost (GPU clusters, networking, cooling infrastructure) and the cloud compute cost (renting GPU time from AWS, Google Cloud, Microsoft Azure, CoreWeave, or Lambda Labs). Large AI companies invest in both owned hardware (which they amortize over the hardware's useful life) and cloud compute (which they expense as incurred). The mix between owned and rented compute is one of the most consequential capital structure decisions a frontier AI company makes.

AI TRAINING COMPUTE COST FRAMEWORK

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Owned GPU Infrastructure:
  Acquisition Cost: $X per GPU (NVIDIA H100: ~$25,000-$40,000 in 2024)
  Useful Life: 3–5 years (rapid technology obsolescence; use conservative end)
  Annual Depreciation: Acquisition Cost / Useful Life
  Total Training Run Cost (owned): GPU-hours used x Depreciation per GPU-hour

Cloud Compute (rented):
  Cost: $2.00–$8.00 per GPU-hour (H100 on major cloud providers)
  Total Training Run Cost (cloud): GPU-hours x $/GPU-hour
  Expensed as incurred: no capitalization of cloud compute costs

Frontier Model Training Run Estimate (2024 scale):
  50,000 GPUs x 90 days x 24 hours = 108,000,000 GPU-hours
  At $3.50/GPU-hour: $378,000,000 per training run
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2.2 Capitalizing vs. Expensing Training Costs: The GAAP Question

The accounting treatment of AI model training costs is the most consequential and most unsettled accounting question in the AI business. Under current US GAAP, the answer depends on whether the training activity qualifies as capitalizable internal-use software development under ASC 350-40, or whether it is research and development that must be expensed under ASC 730 (Research and Development).

ASC 730 requires that research costs — activities undertaken to discover new knowledge with the hope that it will be useful in developing new or improved products or processes — be expensed as incurred. If the training of a new AI model from scratch is considered a research activity (because the outcome is uncertain and the model is being developed for the first time), all training costs must be expensed. If, however, the training is considered the application development phase of software development (because the architecture is established and the training is executing a defined process to produce a known output), a portion of the costs may be capitalizable under ASC 350-40.

Training Activity	ASC 730 or ASC 350-40?	Expense or Capitalize?	Key Criterion
Research into new model architectures	ASC 730 (Research)	Expense as incurred	Outcome uncertain; knowledge-seeking
Training a frontier model (first generation)	Likely ASC 730 (Research)	Expense as incurred	Novel capability; uncertain if it will work as planned
Fine-tuning a base model for specific task	Likely ASC 350-40 (App Dev)	Capitalize if app dev phase criteria met	Known architecture; defined output; lower uncertainty
Retraining existing model with new data	Likely ASC 350-40 (Maintenance)	Expense (maintenance / post-implementation)	Updating existing functionality; no new capabilities
Building RAG infrastructure on base model	ASC 350-40 (App Dev)	Capitalize if new internal software	Internal-use infrastructure; defined output

ACCOUNTING ALERT

The FASB has acknowledged that existing GAAP does not clearly address AI model development costs and has AI on its research agenda. As of 2024, there is no definitive standard or interpretation. Companies are making accounting policy elections that range from fully expensing all training costs (conservative) to capitalizing fine-tuning and RAG development (more aggressive). Before establishing your AI cost accounting policy, obtain a written memorandum from your external auditors documenting their position and the basis for it. The policy you establish will be scrutinized intensively — both by auditors and by investors who want to understand whether reported losses reflect true economic losses or accounting policy choices.

SECTION 3

INFERENCE ECONOMICS AND GROSS MARGIN

Inference Economics: The Cost of Every Answer

If model training is the capital investment that builds the AI asset, inference is the operational cost of monetizing it. Every time a user or API caller asks the model to generate a response — a completion, an image, an embedding, a transcription — the model runs inference: the computational process of generating an output from a given input. Inference consumes GPU time, memory bandwidth, and energy. The cost of

inference per output token, per image, or per API call is the fundamental unit economics driver of the AI-as-a-service business, and reducing it over time is the path to gross margin expansion.

3.1 Inference Cost per Token

For language model APIs (the dominant form of AI-as-a-service as of 2024), the primary pricing unit is the token — roughly 0.75 words or 4 characters. The cost to generate one token of output depends on the model size (larger models cost more per token to run), the hardware utilization rate (idle GPUs still cost money), and the efficiency of the inference serving software (batching, quantization, and caching reduce cost per token). The difference between the price charged per token and the cost to generate that token is the per-token gross margin.

INFERENCE UNIT ECONOMICS

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Revenue per 1M Output Tokens: API pricing (e.g., $15.00/1M tokens)
Cost per 1M Output Tokens:    GPU-hours x $/GPU-hour / tokens-per-hour

Example: H100 GPU generates ~1M tokens/hour at full utilization
  GPU cost: $3.50/hour  ->  $3.50 per 1M tokens (at 100% utilization)
  At 50% utilization:   $7.00 per 1M tokens (idle GPU cost still applies)
  Price per 1M tokens:  $15.00
  Gross margin at 100% util: ($15 - $3.50) / $15 = 76.7%
  Gross margin at 50% util:  ($15 - $7.00) / $15 = 53.3%

Key insight: GPU utilization rate is the most important GM driver in inference
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3.2 The Inference Gross Margin Improvement Path

The gross margin improvement path for AI inference businesses follows a predictable trajectory as the technology matures. In the early stages, utilization rates are low (because demand is ramping and infrastructure is over-provisioned for reliability), model sizes are large and unoptimized, and hardware costs are high because of supply constraints. As the business scales, utilization improves, model optimization techniques (quantization, distillation, pruning) reduce compute per token, hardware becomes more efficient, and negotiated cloud discounts reduce the cost per GPU-hour.

Efficiency Lever	Technique	Cost Reduction Potential	Timeline
Model quantization	Reduce weight precision from FP32 to INT8 or INT4	30%–70% cost reduction with minimal quality loss	3–6 months engineering effort

Efficiency Lever	Technique	Cost Reduction Potential	Timeline
Knowledge distillation	Train smaller model to mimic larger model	50%–90% cost reduction vs. frontier model	6–18 months; some quality tradeoff
Inference batching	Process multiple requests simultaneously on same GPU	20%–50% throughput improvement at same cost	1–3 months engineering effort
KV-cache optimization	Cache and reuse intermediate computations	15%–40% cost reduction for repetitive prefixes	2–6 months engineering effort
Speculative decoding	Use small model to draft; large model to verify	20%–50% latency improvement; indirect cost savings	3–6 months engineering effort
Custom silicon (TPUs / in-house)	Purpose-built AI accelerators vs. general GPUs	30%–60% cost reduction at very large scale	12–36 months; only for largest scale

SECTION 4
REVENUE RECOGNITION FOR AI BUSINESSES

Revenue Recognition: ASC 606 Applied to AI

Revenue recognition for AI businesses is complex because AI products frequently bundle multiple performance obligations — model access, training compute, fine-tuning services, data rights, and ongoing model improvement — in ways that do not map neatly onto the performance obligation framework of ASC 606. The CFO must analyze each contract type separately and establish clear recognition policies for each.

4.1 API Access and Model-as-a-Service Recognition

The simplest AI revenue recognition case is pure API access priced on a per-token or per-call basis. This is a usage-based service (as analyzed in Part 3) where revenue is recognized at the point of each inference call. The performance obligation is satisfied when the API returns a response to the caller. The variable consideration framework applies: total revenue for a billing period depends on usage volume, which is uncertain at contract inception. For most API pricing contracts, the variable consideration constraint does not prevent revenue recognition because the company recognizes only the amount of usage actually consumed in each period.

The more complex case arises when API access is bundled with a committed spend or prepaid credit arrangement. A customer who prepays $100,000 for AI API credits creates a deferred revenue liability. As the customer consumes those credits (calling the API), the deferred revenue is recognized. If the credits expire unused, the remaining deferred revenue is recognized as breakage — either proportionally as credits are consumed or when the credits become remote of redemption, using the same breakage framework applied to virtual currency in Part 7.

AI API REVENUE RECOGNITION

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Pure PAYG API:        Revenue = Tokens Generated x Price per Token
                      Recognized: at point of each API call / response

Prepaid Credit Pack:  DR Cash / CR Deferred Revenue (at purchase)
                      DR Deferred Rev / CR Revenue (as credits consumed)
                      Breakage recognized proportionally with consumption

Annual Committed API: Committed minimum recognized ratably (stand-ready)
                      Usage above minimum recognized as consumed

Token Price Tiers:    Apply correct price per token at each tier threshold
                      Variable consideration at inception; recognize as consumed
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4.2 Enterprise License and Deployment Revenue

Enterprise AI licenses — where the company licenses its model for deployment in the customer's own environment (on-premise or private cloud) — require careful analysis of multiple performance obligations. The typical enterprise AI license includes: (1) the right to use the model as it exists at contract inception, (2) post-contract support and bug fixes, (3) model updates and version improvements over the license term, and (4) potentially implementation services.

The right to use the model at inception may be recognized at the point of delivery (point-in-time) if the customer can benefit from the model without the developer's ongoing involvement. However, if the developer commits to providing ongoing model improvements, security updates, or infrastructure support that are integral to the value of the license, the performance obligation may be a standing obligation satisfied over time, requiring ratable recognition. The ASC 606 analysis of whether the license is a right-to-use (point-in-time) or a right-to-access (over time) is the most consequential recognition judgment for enterprise AI licensing.

ACCOUNTING ALERT

The treatment of AI model improvements and version updates as part of an enterprise license is an area of significant accounting judgment with no definitive GAAP guidance as of 2024. If the customer receives model improvements as part of the license (i.e., the model they access in month 12 is materially better than the model delivered in month 1), this continuous improvement is likely a performance obligation satisfied over time — requiring ratable recognition of the entire license fee. If the improvements are provided but the customer has no contractual right to receive them, the analysis shifts. Document your position with specific reference to the license terms before recognizing any revenue.

4.3 Data Licensing Revenue

Data licensing — selling access to proprietary training data sets to AI developers who use the data to train their own models — has become a significant and rapidly growing revenue stream for companies that have accumulated unique, high-quality data. The revenue recognition for data licensing depends on the nature of the license granted: a perpetual license to use the data (recognized at the point of delivery, when the data set is transferred to the licensee) or a subscription license to access the data on an ongoing basis (recognized ratably over the subscription period).

The most complex data licensing arrangements involve restrictions on use — licenses that allow the data to be used only for training a specific model, prohibit the licensee from sublicensing the data or the model trained on it, or require deletion of the data after use. These restrictions affect the nature of the license and may affect recognition timing. Additionally, if the licensor retains a right to audit the licensee's data usage, this audit right may indicate that the performance obligation is not fully satisfied at delivery — the licensor has an ongoing obligation to monitor compliance.

SECTION 5

TAX ISSUES FOR DATA AND AI BUSINESSES

Tax Architecture: AI's Unprecedented Tax Complexity

The data and AI business faces a tax landscape that is, in many areas, genuinely unsettled. The IRS has not issued comprehensive guidance on AI model training costs under Section 174, the OECD has not yet addressed how AI-generated value should be allocated for transfer pricing purposes, and privacy law

regulators are only beginning to address the tax implications of commercial data use. The CFO must make tax policy decisions in an environment of regulatory uncertainty and document those decisions carefully against a future where the rules may be clarified retroactively.

5.1 Section 174 and AI Training Costs

As described in Part 2 for SaaS businesses, the 2017 Tax Cuts and Jobs Act changed the treatment of research and experimental expenditures under Section 174 effective for tax years beginning after December 31, 2021. For AI businesses, the implications of Section 174 are more severe than for most SaaS companies because training costs are massive. If the IRS classifies AI model training costs as Section 174 research and experimental expenditures — which seems likely given that training involves discovering new information through scientific and technological methods — those costs must be amortized over 5 years (domestic) or 15 years (foreign) rather than deducted in the year incurred.

For a company that spends $500M on a training run, Section 174 treatment means only $50M is deductible in year 1 (on a mid-year convention), with the remaining $450M amortized over the following 4.5 years. This can create enormous current-year taxable income even when the company is burning cash at a prodigious rate on an economic basis. The CFO must model the Section 174 impact on cash taxes and working capital, and evaluate whether the company needs to make estimated tax payments that would not otherwise be required given its overall cash burn.

SECTION 174 IMPACT ON AI TRAINING COSTS

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Training Run Cost:                    $500,000,000
Year 1 Deduction (mid-year convention): $50,000,000  (10% in year 1)
Remaining Balance Amortized:          $450,000,000  over 4.5 years
Annual Amortization (years 2-5):      $100,000,000/year

Section 174 Taxable Income Addition in Year 1:
  Without S.174: Full deduction of $500M
  With S.174:    Only $50M deduction -> $450M more taxable income in year 1
  Additional Tax at 21% rate:   $450M x 21% = $94,500,000 additional tax

Cash Tax Impact: Even a loss-making AI company may owe $94M+ in cash taxes
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5.2 R&D; Tax Credits for AI Development

Despite the Section 174 amortization burden, AI companies are significant beneficiaries of the Section 41 R&D; Tax Credit — potentially one of the largest beneficiaries of any industry. The credit applies to qualified research expenditures including wages of researchers and engineers working on AI model development, cloud compute costs used in qualifying research (including training runs that meet the four-part test), and supplies used in research. For an AI company spending $100M on research-qualifying engineering wages and compute, the annual R&D; credit could be $10M to $15M.

The interaction between Section 174 (which increases taxable income by disallowing full deduction of R&D; costs) and Section 41 (which provides a credit for those same costs) creates a complex optimization problem. The CFO should work with R&D; credit specialists to maximize the credit claim and ensure that the credit study documentation is audit-ready — the IRS scrutinizes R&D; credit claims in AI businesses closely, particularly the qualification of compute costs as qualified supplies versus capital expenditures.

5.3 Transfer Pricing for Cross-Border AI Inference

Transfer pricing for AI businesses has unique characteristics that distinguish it from traditional software transfer pricing. When a US-based AI company trains a model in the US and then serves inference to customers in Europe through European infrastructure entities, the value chain is complex: the IP owner (US) developed the model, but the European entity holds customer relationships, maintains infrastructure, and may fine-tune the model for European compliance requirements. How is the revenue from European inference allocated between the US IP owner and the European operating entity?

The DEMPE analysis for AI companies focuses primarily on which entity performed the development of the model (where the training compute was run and the engineering team that designed the architecture was located) and which entity exploits the model commercially (where customer relationships and sales functions are). The key transfer pricing instrument is typically a cost-sharing agreement (CSA) — an arrangement where the foreign entities participate in the costs of model development in exchange for the right to exploit the model in their territories without paying royalties. CSAs must meet specific IRS requirements under Treas. Reg. 1.482-7 and must reflect arm's-length buy-in payments for entering existing IP.

TAX ALERT

The OECD is actively developing guidance on how AI-generated value should be allocated for Pillar One and transfer pricing purposes. The fundamental question — who 'earns' the value created when an AI model generates a response — challenges traditional transfer pricing concepts that assume human activity is the source of value. A company whose AI generates $1B in revenue from European customers but has minimal human staff in Europe may find its entire European revenue allocation challenged under both Pillar One and traditional transfer pricing rules. Engage transfer pricing specialists with AI sector expertise well before international revenue becomes material.

SECTION 6
PRIVACY, DATA GOVERNANCE, AND COMPLIANCE COSTS

Privacy and Data Governance: The Cost of Legal AI

The use of data in AI model training — particularly data that includes or was derived from personal information about real individuals — is one of the most legally and reputationally sensitive areas of AI business operations. GDPR, CCPA, and their global equivalents impose strict requirements on the collection, storage, processing, and use of personal data. The emerging AI-specific regulatory frameworks — the EU AI Act, the Colorado AI Act, and various state-level AI regulations in the US — add additional requirements for high-risk AI applications. The CFO must treat privacy and data governance compliance costs as a first-class item in the operating budget, not as an afterthought.

6.1 Training Data Compliance Costs

The legal risk in AI training data arises from three sources: (1) personal data included in training corpora without adequate consent or legal basis under GDPR or CCPA; (2) copyrighted content included in training data without license or fair use protection; and (3) data obtained through scraping or other methods that may violate the source website's terms of service or applicable computer fraud laws. Each of these risks has a different legal and financial profile, and the CFO should ensure that each has been assessed and that appropriate reserves have been established.

Data Risk Type	Financial Exposure	Mitigation Cost	Reserve Guidance
Personal data without GDPR legal basis	Up to 4% of global annual turnover per violation	$500K–$3M annual compliance infrastructure	Reserve if DPA investigation is probable
Copyright infringement in training data	Statutory damages $750–$150,000 per work infringed	$2M–$10M+ licensing or litigation costs	Reserve based on counsel assessment of exposure
Terms-of-service violations (web scraping)	Injunctive relief; potential CFAA liability	$500K–$5M per major case for litigation defense	Reserve if cease-and-desist received

Data Risk Type	Financial Exposure	Mitigation Cost	Reserve Guidance
Right-of-publicity violations	State law damages; injunctions on use	$500K–$2M per major case	Reserve if identifiable individuals in training data
EU AI Act non-compliance (high-risk AI)	Up to 3% of global turnover	$1M–$5M annual compliance for high-risk systems	Reserve for identified non-compliant deployments

6.2 Synthetic Data: The Compliance Solution and Its Accounting

Synthetic data — artificially generated data that mimics the statistical properties of real data without containing actual personal information — has emerged as a key solution to the training data compliance problem. By training models on or augmenting training corpora with synthetic data, AI companies can reduce their reliance on personal data and avoid the consent and privacy law requirements that apply to real personal data. The accounting for synthetic data generation costs follows the general ASC 730 framework: if the synthetic data generation is part of a research activity to discover whether AI training on synthetic data is effective, the costs are expensed. If synthetic data generation is a routine operational activity to support ongoing model development, the costs may be treated as part of the application development phase of the model being trained.

Synthetic data also has value as an asset that can be licensed. A company that has invested $5M in building a high-quality synthetic data generation pipeline and has produced $50M worth of synthetic training data (measured by the cost of equivalent real-data acquisition) has created an intangible asset — but one that cannot be recognized on the balance sheet under current GAAP because it is internally generated. The relief-from-royalty method can be used to estimate the fair value of synthetic data for internal management purposes and for M&A; due diligence purposes, even though GAAP does not permit balance sheet recognition.

SECTION 7
BUILDING THE AI BUSINESS FINANCIAL MODEL

The AI Business Financial Model: Navigating Uncertainty

The AI business financial model is unlike any other in this series because its economics are changing faster than any business model in history. The cost of inference per token has fallen by more than 90% between 2022 and 2024 as model efficiency improved and competition intensified. API pricing has declined correspondingly. Gross margins have swung from negative to positive to negative again for different companies at different scales. The CFO who builds the model with fixed assumptions will be wrong within two quarters. The CFO who builds the model with explicit uncertainty ranges, scenario trees, and sensitivity tables will be right more often — and more importantly, will understand why they are wrong.

7.1 The AI Business P&L; Architecture

P&L; Line	Components	Typical % of Revenue
Revenue	API (PAYG + committed) + Enterprise licenses + Data licensing	100%
Compute COGS (Inference)	GPU cost per token x tokens generated in period	20%–60% depending on utilization and model efficiency
Compute COGS (Training amortization)	Training run cost amortized if capitalized	5%–20% if training is capitalized; 0% if expensed
People COGS	ML engineers, infra engineers for inference operations	10%–20%
Other COGS	Networking, storage, CDN, monitoring	3%–8%
Gross Profit	Revenue minus all COGS	20%–60% depending on efficiency stage
Research & Development	Model training, architecture research, ML research headcount	40%–150% (enormous at pre-revenue stage)
Sales & Marketing	Enterprise sales, developer relations, growth marketing	15%–40%
General & Administrative	Finance, legal (IP + privacy), HR, executive	10%–20%
EBITDA / Operating Loss	Nearly all AI companies at scale are still loss-making	(100%)–20%

7.2 The Path to Gross Margin: Inference Efficiency as Strategy

For the AI-as-a-service business, gross margin improvement is the defining financial challenge of the next five years. The path from 20% to 60% gross margin requires simultaneous progress on three fronts: model

efficiency (reducing the compute per token through quantization, distillation, and architectural improvements), infrastructure efficiency (improving GPU utilization rates from 40-50% to 70-85%), and pricing power (maintaining or increasing revenue per token even as the raw compute cost falls).

GROSS MARGIN SENSITIVITY ANALYSIS

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Base Case: $15.00/1M tokens revenue, $7.00/1M tokens compute cost, 50% util.
  Gross Margin = ($15.00 - $7.00) / $15.00 = 53.3%

Upside: Util improves to 75%, model efficiency -30% compute cost
  Compute cost: $7.00 x 0.70 x (50%/75%) = $3.27/1M tokens
  Gross Margin = ($15.00 - $3.27) / $15.00 = 78.2%

Downside: Pricing falls 40% (competition), util stays at 50%
  Revenue: $9.00/1M tokens  |  Compute: $7.00/1M tokens
  Gross Margin = ($9.00 - $7.00) / $9.00 = 22.2%

Key insight: Pricing power and compute efficiency must improve together
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SECTION 8

COMPLETE AI BUSINESS METRICS FRAMEWORK

The Data and AI Business Metrics Framework

The AI business requires a metrics framework that spans technical performance (model quality and efficiency), commercial traction (customer acquisition and retention), and financial health (revenue, margin, and capital efficiency). The following framework covers every metric the AI business CFO must track and present, organized by category.

8.1 Model and Infrastructure Metrics

Metric	Formula / Definition	Benchmark / Target
GPU Utilization Rate	Actual GPU-hours generating revenue / Total GPU-hours available	>70% target; <50% signals over-provisioning

Metric	Formula / Definition	Benchmark / Target
Compute Cost per 1M Tokens	Total inference compute cost / (Output tokens / 1M)	Must decline QoQ; track vs. pricing per 1M tokens
Inference Latency (P99)	99th percentile response time for inference requests	Varies by use case; <2 sec for interactive; <500ms for real-time
Model Quality Benchmark Score	Performance on standardized eval sets (MMLU, HumanEval, etc.)	Track vs. competitive models; must improve with each version
Training Run Cost (most recent)	Total compute cost of most recent training run	Track trend; must decline as efficiency improves
Cost per Training FLOP	Training compute cost / Total FLOPs in training run	Must decline as hardware and software efficiency improves

8.2 Commercial and Revenue Metrics

Metric	Formula / Definition	Benchmark / Target
API Revenue (PAYG + Committed)	Total API revenue in period by pricing model	Track MoM growth; committed % rising = better predictability
Enterprise License ARR	Annualized value of active enterprise licenses	Track alongside API ARR for revenue mix insight
Tokens Generated (Output)	Total output tokens billed in period	Primary volume metric; track growth vs. revenue growth
Revenue per 1M Output Tokens	API Revenue / (Output Tokens / 1M)	Monitor for pricing pressure; must not decline faster than cost
Customer Count (Paid API)	Active paying API customers in period	Track cohorts; enterprise vs. developer split
API NRR	Expansion + New - Contraction - Churn / Beginning ARR	>120% target; measures existing customer expansion
Enterprise Win Rate	Closed enterprise deals / Total enterprise opportunities	Track by vertical and deal size; benchmark sales efficiency
Data Licensing Revenue	Revenue from proprietary data set licensing	High-margin; track as % of total; rising = data asset leveraged

8.3 Financial Health Metrics

Metric	Formula / Definition	Benchmark / Target
Gross Margin (Inference)	Inference Gross Profit / Inference Revenue	>50% target; track improvement QoQ
Gross Margin (Enterprise)	License Gross Profit / License Revenue	>65% target; software-like margin
Blended Gross Margin	Total Gross Profit / Total Revenue	Track weighted average; rising = mix shift to higher-margin products
Compute Spend as % of Revenue	Total compute (training + inference) / Revenue	Must decline over time; >80% is unsustainable
Training Spend as % of Revenue	Training compute cost / Revenue	Declining as revenue scales vs. training amortization
Cash Burn Multiple	Net Cash Burned / Net New ARR	<2.0x acceptable early stage; <1.5x healthy at scale
Months of Runway	Cash + Committed Funding / Monthly Net Burn	>24 months critical; <12 months urgent capital need
Revenue per GPU-Hour	Total Revenue / Total GPU-Hours consumed	Rising trend = monetization efficiency improving
ARR per Research Engineer	Total ARR / ML Research + Engineering headcount	Internal benchmark; rising = leverage on R&D; investment

SECTION 9
AI BUSINESS CFO OPERATING CHECKLIST

The Data and AI Business CFO Checklist

The following checklist covers the minimum set of capabilities the CFO of a data and AI business must maintain. The volume of unsettled accounting and regulatory questions makes documentation and auditor engagement more important here than in any other model in this series.

Accounting and Revenue Recognition

- AI training cost accounting policy documented and auditor-approved: specific determination of whether each training activity is ASC 730 (expense) or ASC 350-40 (capitalize); written memorandum from

external auditors required.

• Inference compute cost tracked at the token level by model version; GPU utilization rate calculated weekly; variance from plan explained and actioned within two weeks of period close.

• API revenue recognized at point of inference delivery for PAYG; prepaid credit deferred revenue maintained with breakage model applied proportionally.

• Enterprise license revenue recognition analysis completed for each contract: right-to-use vs. right-to-access determination; ongoing improvement obligation assessed; recognition timing documented.

• Data licensing revenue recognition policy documented by license type (perpetual vs. subscription); audit rights and usage restriction provisions assessed for impact on recognition timing.

• Synthetic data generation costs classified: research phase (expense) vs. operational data generation (apply ASC 350-40 analysis) vs. data-as-a-product (track separately as inventory equivalent).

Tax and Global Compliance

• Section 174 analysis completed for all qualifying AI development expenditures; cash tax impact modeled quarterly; estimated tax payment schedule reflects Section 174 mandatory amortization.

• Section 41 R&D; tax credit study commissioned annually; compute costs assessed for qualification as qualified supplies; credit study defensible to IRS examination.

• Transfer pricing documentation current for all cross-border AI inference arrangements; DEMPE analysis completed; cost-sharing agreement (if applicable) meets IRS Treas. Reg. 1.482-7 requirements.

• Pillar Two impact assessed; GloBE rules modeled for all jurisdictions; QDMTT obligations identified in low-tax jurisdictions where AI infrastructure is operated.

• International AI-specific regulations tracked: EU AI Act compliance assessed for high-risk AI system classifications; state AI laws (Colorado, others) monitored for applicability.

Privacy and Data Governance

• Training data provenance documented: source, consent mechanism (if personal data), license terms (if copyrighted), scraping terms-of-service assessment; legal review completed before each training run.

• GDPR legal basis for processing personal data in training (legitimate interest assessment or consent documentation) reviewed with EU counsel; DPA engagement protocol established.

• Copyright exposure assessment completed with IP counsel; content licensed from rights holders where feasible; fair use analysis documented for training data that is not licensed.

• Privacy compliance reserve established if any GDPR investigation is probable; quantified based on counsel assessment; reviewed at every quarter-end close.

• EU AI Act risk classification completed for all deployed AI systems; high-risk systems registered in EU database; technical documentation and conformity assessment completed.

Infrastructure and Capital Management

• GPU procurement strategy documented: owned vs. cloud vs. co-location mix; decision framework for each option with cost-benefit analysis at current and projected scale.

• Cloud provider committed use discount (CUD) contracts optimized: utilization of committed capacity monitored monthly; over-commitment or under-commitment flagged for renegotiation.

• Training run budget approval process established: any training run exceeding $5M requires CFO and CEO sign-off with business case including revenue model for resulting model.

• Capital runway model updated monthly: cash burn at current run rate vs. projected revenue ramp; fundraising trigger identified and monitored (e.g., 18 months runway threshold).

Closing Perspective: The AI CFO in Uncharted Territory

The data and AI business is operating at the frontier of technology, commerce, and regulation simultaneously — and the CFO is at the center of all three. The accounting standards are unsettled. The tax rules are ambiguous. The regulatory framework is being written in real time. And the business itself is changing so fast that any financial model built today will require significant revision within six months.

In this environment, the CFO's most important contribution is not producing a perfect financial model — it is producing a financial framework that can be updated quickly as conditions change, that makes the key economic drivers visible and measurable, and that communicates uncertainty honestly to investors and the board. The AI business that pretends its gross margin trajectory is certain, that its training costs are clearly capitalizable, and that its tax position is unambiguous is the AI business that will face a restatement, a regulatory action, or an investor credibility crisis within two years.

The CFO who says clearly: here is what we know, here is what we do not know, here is how we are managing the uncertainty, and here is how we will update you as the picture clarifies — that CFO builds the trust that allows the business to attract capital, retain talent, and navigate the inevitable surprises that come with operating at the frontier of anything.

With Part 8 complete, Section I of this series — Digital and Platform Models — concludes. **Part 9** begins Section II: Commerce and Physical Goods, with an examination of Direct-to-Consumer (DTC) eCommerce — contribution margin stacks, blended CAC in the post-iOS14 world, return rate modeling, 3PL cost structures, and the financial architecture of building a consumer brand on the internet.

End of Part 8: Data / AI Model Business | Financial Architecture of Different Business Models

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