

Technical Due Diligence & Risk Advisory

Assessing Balance Sheet Exposure in Technology Portfolios

Code Quality ≠ Asset Quality

Traditional technical due diligence operates under a dangerous assumption: if the code works, the asset is sound. This fundamental misconception has cost institutional investors billions in write-downs. Standard TDD reviews check for bugs, security vulnerabilities, and architectural patterns, but these metrics tell you nothing about whether you're buying a margin-generating machine or a cash incinerator wrapped in elegant code.

The risk is stark and immediate. A pristine codebase with 100% test coverage can still be a balance sheet time bomb if the underlying unit economics are structurally broken. Clean architecture doesn't save you when every incremental user costs more to serve than they generate. Technical excellence without economic viability is just expensive entropy.

This is where traditional due diligence fails catastrophically. It audits the engineering but ignores the financial engineering embedded in every technical decision, the compute costs buried in feature bloat, the scaling assumptions that don't scale, the AI features that destroy gross margins while engineering celebrates shipping them.

❑ The Exposure

Financial liability masquerading as technical innovation is the #1 unpriced risk in technology acquisitions today.

Your technical audit should answer one question: Does this codebase create or destroy shareholder value at scale?

Scope of Assessment: The Red Flags

We audit for the risk factors that traditional TDD systematically ignores, the ones that show up on your balance sheet 18 months post-close when it's too late to renegotiate.

The AI Trap

The Question: Is the company valuing AI features that have negative gross margins?

Every LLM call is a variable cost hit to COGS. If your target has built "AI-powered" features as competitive moats, you need to know: are these features generating revenue faster than they're consuming inference costs? Many companies are subsidizing user engagement with compute spend that will never pencil.

The Forensic Check: We reverse-engineer unit economics per AI feature and stress-test margins under scale assumptions.

The Maintenance Debt

The Question: Is the roadmap 80% maintenance (OpEx) disguised as innovation (CapEx)?

Management will present a forward roadmap as "strategic innovation." But if you decompose committed engineering hours, you often find the majority is technical debt service, patching, refactoring, dependency updates, infrastructure babysitting. That's not R&D. That's the operating cost of a brittle system.

The Forensic Check: We analyze sprint velocity, story types, and commit history to distinguish actual innovation from disguised maintenance.

Key Person Risk

The Question: Is the "secret sauce" institutionalized or does it live in one engineer's head?

If the core algorithmic advantage, the critical data pipeline, or the revenue-generating model depends on one engineer who hasn't documented anything, you don't own an asset. You own a retention risk with a ticking clock. The moment that person walks, your valuation thesis evaporates.

The Forensic Check: We conduct dependency mapping and assess knowledge transfer, documentation maturity, and bus factor across critical systems.

The Deliverable: Investment Risk Memo



You don't need another 80-page technical audit full of architecture diagrams and dependency graphs. You need a decision instrument: **Buy, Pass, or Renegotiate, with the math to back it up.**

The Investment Risk Memo is a concise, board-ready document structured around three questions every investor should ask before wiring capital:

1. **Is this asset's margin profile stable or fragile?**
2. **What's the hidden capital requirement to stabilize this platform post-close?**
3. **What am I actually buying, and at what undisclosed cost?**

Executive Summary

Buy / Pass / Renegotiate

Clear recommendation based on quantified technology risk exposure. No hedging, no consultant-speak. We call the risk and price the discount.

Margin Fragility Analysis

Sensitivity to Scale

How does the technology stack behave under 3x user growth? What breaks first, infrastructure costs, engineering capacity, or gross margin? We stress-test the unit economics under realistic growth scenarios.

The "Fix-It" Budget

Post-Acquisition Capital Requirement

Estimated engineering and infrastructure capital required to stabilize the platform post-close. This is the number management won't tell you, but it's the number that determines your actual purchase price.

What Traditional TDD Misses

Standard technical due diligence is optimized for the wrong outcome. It's designed to confirm that the software works, not to assess whether the software is an economic asset or liability. The gap between these two questions is where billions in investor capital disappear.

Traditional TDD Finds

- Security vulnerabilities
- Code quality metrics
- Architecture patterns
- Test coverage



What You Actually Need

- Financial liability exposure
- Capital stabilization requirement
- Margin fragility at scale
- True valuation adjustment

Traditional TDD Ignores

- Unit economics per feature
- Margin impact of technical debt
- Hidden scaling costs
- Maintenance vs. innovation ratio

The result? You close deals where the technology looked clean but the economics were catastrophic. You inherit a platform that requires \$5M in unbudgeted engineering spend just to keep the lights on. You discover that the "competitive moat" is actually a margin-destroying feature set that can't be shut down without tanking retention.

This isn't hypothetical risk. This is pattern recognition from dozens of post-close train wrecks where the technical audit said "green light" and the balance sheet said something very different 18 months later.

Margin Fragility: The Hidden Valuation Killer

The most dangerous risk in a technology acquisition isn't technical failure, it's margin erosion that doesn't show up until you're at scale. A platform can work perfectly and still destroy enterprise value if the cost structure is fundamentally misaligned with the revenue model.

The Core Question

As user volume increases, do marginal costs grow linearly, sub-linearly, or super-linearly? If compute, storage, or third-party API costs scale faster than revenue, you don't have a software business, you have a services business with negative operating leverage.

This matters because **valuation multiples assume margin expansion at scale**. If your technology stack has inverted unit economics, you paid a SaaS multiple for a consulting margin profile.

What We Analyze

- Infrastructure cost curves vs. user growth trajectories
- Third-party API dependency and volume-based pricing exposure
- Database query efficiency under 10x scale scenarios
- Feature-level COGS attribution and margin contribution
- Engineering capacity requirements to maintain current velocity

"The platform scaled beautifully, from 65% gross margins to 32% gross margins in 18 months. Technically flawless. Financially catastrophic."

Post-mortem from a \$120M growth equity investment

The Fix-It Budget: Pricing the Real Acquisition Cost

Management's purchase price is fiction. The real acquisition cost includes the undisclosed capital required to stabilize the platform post-close. This is the number that determines whether your IRR assumptions survive contact with reality.

\$2.4M

18

34%

Average Stabilization Cost

Median post-acquisition engineering spend required to address technical debt in deals we've audited

Months to Stability

Typical timeline from close to operational stability when inheriting high-debt platforms

Deal Value at Risk

Percentage of purchase price exposed to unpriced technical remediation in poorly audited acquisitions

We reverse-engineer the true stabilization budget by analyzing technical debt severity, infrastructure brittleness, and knowledge transfer risk. This isn't speculative, it's based on story point estimation, sprint velocity analysis, and dependency mapping. We tell you what it will cost to fix what management claims "just needs a little cleanup."

What Goes Into the Fix-It Budget

- Technical Debt Remediation:** Re-architecture, test coverage, documentation
- Infrastructure Modernization:** Migration off brittle or expensive legacy systems
- Knowledge Transfer:** Redundancy building for key person dependencies
- Security & Compliance:** Gaps that create liability or block enterprise sales
- Operational Resilience:** Monitoring, incident response, disaster recovery



This is the number that never appears in the seller's data room. It's also the number that determines whether your acquisition creates or destroys value. We put it in writing, with engineering-hour estimates and capital requirements, so you can adjust your bid or walk away with conviction.

Speed & Execution: Built for Deal Velocity

Investment timelines don't wait for month-long technical audits. We operate at the speed of capital deployment, forensic rigor without deal-killing delays.



Data Room Review

Repository access, architecture documentation, infrastructure cost history, and roadmap decomposition

CTO Interview

Structured technical session focused on margin drivers, scaling assumptions, and key person dependencies



Code Sampling

Targeted analysis of critical paths, cost-intensive features, and technical debt concentration

Risk Memo

Board-ready deliverable with Buy/Pass/Renegotiate recommendation and financial impact quantification

Typical Timeline: 5-7 Business Days

From data room access to final risk memo delivery. Accelerated timelines available for competitive bid situations where speed determines outcome.

We don't slow down deals, we prevent bad ones. The assessment runs in parallel with legal and financial due diligence, delivering decision-critical insight before LOI expiration or exclusivity windows close.

Independent Bias

I do not care if the deal closes.

I care if the risk is priced in. No success fees, no referral relationships with management, no incentive to green-light a deal that should be walked.

Why This Matters Now

The current market environment has created a perfect storm of unpriced technical risk. Companies built during the zero-rate era optimized for growth at any cost, including costs that only show up at scale. As capital discipline returns, the technology platforms built for "growth over margins" are becoming margin-destroying liabilities.



The AI Gold Rush

Every company claims "AI-powered" features. Few have modeled the inference costs at scale. LLM expenses that look trivial at 1,000 users become existential at 100,000 users. If your target's differentiation is built on subsidized compute, you're buying a margin compression thesis.



Infrastructure Cost Inflation

Cloud pricing is no longer deflationary. AWS/GCP/Azure have shifted to margin extraction mode. Platforms built on assumptions of declining unit costs are now facing the opposite, and management hasn't updated their margin forecasts.



Talent Market Dislocation

The engineering talent that built these platforms is increasingly unavailable or unaffordable. Key person dependencies that were manageable in 2021 are now existential risks in 2025. Knowledge transfer isn't happening because there's no one to transfer knowledge to.

This isn't about finding bugs. This is about preventing the catastrophic realization. 18 months post-close, that you bought a platform whose cost structure is fundamentally incompatible with profitable operation.

Traditional technical due diligence was built for a different era. It audits for code quality in a world where the real risk is economic quality. We audit for what actually destroys investor capital: margin fragility, hidden capital requirements, and unit economics that don't work.

Initiate Assessment

If you're evaluating a technology acquisition and need forensic clarity on balance sheet risk exposure, or if you're concerned that traditional technical due diligence isn't answering the questions that actually matter to investors, let's talk.



Direct Line to Principal

No sales team. No qualification process. No multi-week engagement scoping. If you have a live deal and need risk assessment at deal velocity, reach out directly.

What You'll Get:

- Immediate response on feasibility and timeline
- Transparent fixed-fee pricing (no hourly creep)
- Board-ready Risk Memo in 5-7 business days
- Independent, investor-aligned perspective

For PE Firms & Institutional Investors

Auditing technology risk before you wire capital, not after you inherit the liability

For Board Members & Advisors

Independent technical risk assessment when management's narrative doesn't match the data room

For Investment Committees

Decision-grade intelligence on whether the technology asset justifies the valuation, or represents undisclosed balance sheet exposure

The question isn't whether you can afford this diligence. The question is whether you can afford to skip it.

[Contact Principal](#)