EPSILON

The Future of Quantitative Financial Education

BUSINESS PLAN

Prepared for the Diamond Challenge 2026

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Contents

1 EXECUTIVE SUMMARY

The Financial Literacy Paradox

Financial markets are increasingly accessible to young investors, yet meaningful financial education has failed to keep pace. Today, most novice investors and students enter the stock market through gamified trading applications or simplistic simulators that reward short-term speculation rather than disciplined decision-making. At the opposite extreme, professional quantitative tools remain prohibitively expensive and technically inaccessible, creating a structural gap between education and real-world financial practice.

Enter EPSILON.

EPSILON is a high-fidelity quantitative trading simulation platform designed to help beginners, students, and early-stage investors develop professional-grade trading skills in a risk-free environment. Rather than teaching users how to "win trades," EPSILON emphasizes *risk management, strategy evaluation, and long-term performance analysis*—principles that define institutional investing but are largely absent from existing educational tools.

At its core, EPSILON provides a locally deployable, open-source simulator that integrates historical market data, algorithmic strategy backtesting, and institutional risk metrics such as maximum drawdown and Sharpe Ratio. Users are able to test strategies, simulate trades, and visualize equity curves without deploying real capital, allowing them to learn through iteration rather than costly trial and error. By prioritizing transparency and reproducibility, EPSILON enables users to understand why a strategy succeeds or fails, not merely whether it is profitable.

Beyond Software: An Educational Ecosystem

EPSILON is designed as the foundation of a broader quantitative financial education ecosystem. The simulator serves as the technical core upon which future educational services, structured curricula, and talent development initiatives can be built. This modular architecture allows EPSILON to evolve alongside its users, from an introductory learning tool to an advanced professional training platform, without locking the project into a single product or market.

Social Impact and Sustainability

From a social impact perspective, EPSILON seeks to counteract the growing gamification of retail investing. By shifting learning away from speculation and toward disciplined analysis, the platform promotes responsible financial behavior and improves long-term financial literacy among young participants. EPSILON follows an *open-core* model to balance accessibility with sustainability, providing the core simulator free of charge while enabling future revenue through institutional licensing and advanced analytical modules.

With a functional prototype already under active development, EPSILON demonstrates both technical feasibility and execution capability. Ultimately, EPSILON aims to democratize access to institutional-quality financial tools and empower the next generation to approach markets with discipline, insight, and responsibility.

2 PROBLEM STATEMENT

2.1 The Crisis: Gamification of Finance

The democratization of finance has come at a steep cost. Popular trading applications have adopted "dark patterns" from the gaming industry—confetti animations, push notifications, and one-click margin leverage—to maximize user engagement rather than user profitability.

- **The 90-90-90 Rule:** Industry statistics suggest that 90% of new retail traders lose 90% of their capital within 90 days.
- **Dopamine Loops:** Current tools trigger dopamine feedback loops similar to gambling, discouraging the disciplined, mathematical approach required for long-term success.
- **Result:** A generation of "investors" who are essentially gambling in a high-frequency environment without a safety net.

2.2 The Gap: "Toys" vs. "Terminals"

There is a massive structural vacuum in the Financial EdTech market. Students and novice quants are forced to choose between two extremes, with nothing in the middle:

Category	Paper Trading Apps	Institutional Terminals
Examples	Investopedia, Webull Paper	Bloomberg, FactSet
Primary Focus	Order Execution (Buy/Sell)	Multi-Asset Analytics
Risk Metrics	None (P&L only)	Comprehensive (VaR, Greeks)
Backtesting	Impossible	Advanced
Cost	Free (Ad-supported)	$24,000 / Year
Verdict	**Too Simple**	**Too Expensive**

Table 1: The Market Void: Why EPSILON is Necessary.

2.3 The Educational Disconnect

Universities produce Finance graduates who can derive the Black-Scholes formula on a whiteboard but struggle to deploy a simple hedging strategy in a live market.

> *"We are teaching students how to design cars in a classroom, but we never let them drive one before putting them on a Formula 1 track."*

Without a **Quantitative Sandbox** like EPSILON, students lack the environment to practice risk management, coding, and strategy iteration without the psychological pressure of losing real money.

3 THE SOLUTION: EPSILON ECOSYSTEM

3.1 A Holistic Approach to Quantitative Education

We propose a paradigm shift from simple "stock picking" to rigorous "strategy engineering." The EPSILON Ecosystem is not merely a software tool; it is a vertically integrated platform composed of three layers: **The Tool (Simulator)**, **The Knowledge (Academy)**, and **The Career (Talent Network)**.

3.2 Pillar I: The Core Simulator (MVP)

The foundation of our ecosystem is the **EPSILON Desktop Client**. Unlike web-based competitors that feel like "games," EPSILON operates as a professional trading workstation. It allows students to experience the full lifecycle of a quantitative researcher—from data ingestion to execution—without financial risk.

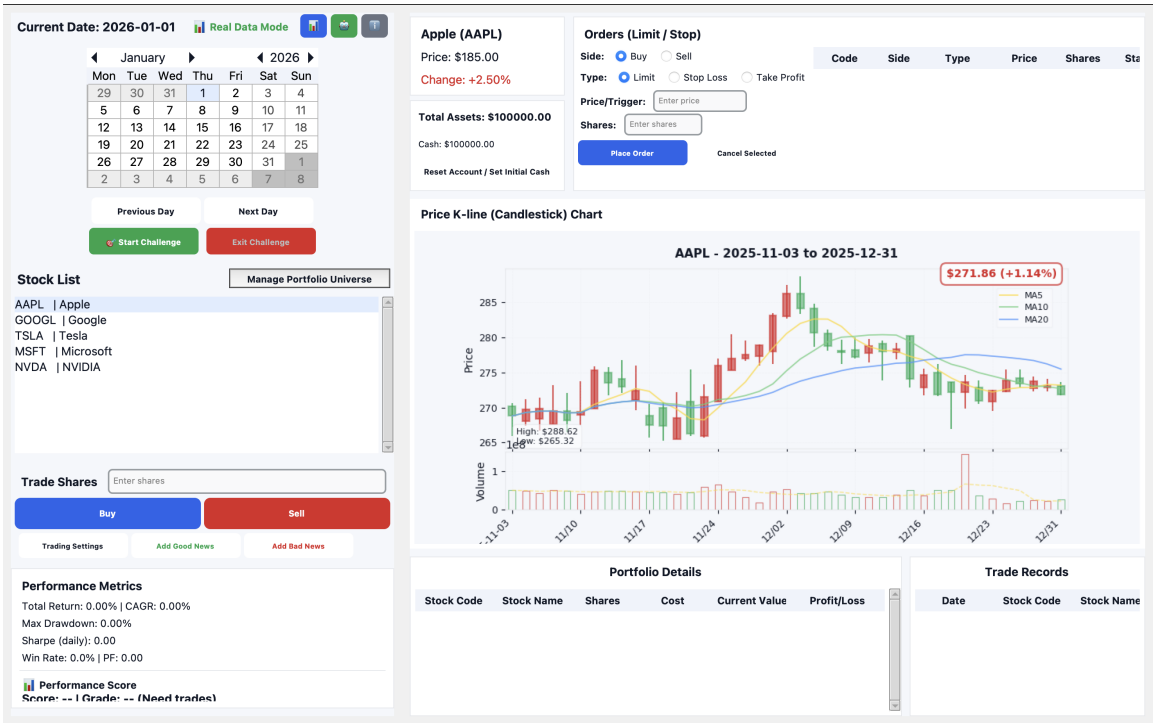

Figure 1: **The EPSILON Interface:** Featuring institutional-grade equity curves, real-time risk metrics (Sharpe/Alpha), and advanced order management panels.

3.2.1 Key Technical Differentiators

- **Dual-Mode Data Architecture:** EPSILON uniquely supports both **Real-Time Mode** (via *Akshare* API for live market data) and **Offline Synthesis Mode**. If internet access is unavailable, the system generates synthetic OHLC (Open-High-Low-Close) data, ensuring that learning can happen anywhere, anytime.
- **Professional Order Execution:** We move beyond simple "Buy/Sell" buttons. EPSILON supports advanced order types including **Limit Orders**, **Stop-Loss Protection**, and **Take-Profit Triggers**. This forces users to plan their exit strategy *before* entering a trade—a critical habit for risk management.

- **Institutional Risk Metrics:** The dashboard does not just show profit. It calculates real-time **Sharpe Ratio**, **Max Drawdown**, **CAGR**, and **Profit Factor**. Users learn that a high return with excessive volatility is a *bad* strategy.
- **Privacy-First "Black Box" Architecture:** EPSILON runs locally on the user's machine. Unlike cloud platforms that harvest user data, we protect the user's "Alpha" (intellectual property). This appeals to advanced student developers who want to keep their algorithms private.

3.3 Pillar II: EPSILON Academy (Curriculum)

Software alone cannot teach. The Academy transforms the simulator from a tool into a teacher. We provide a structured "Learn-by-Doing" curriculum integrated directly into the software ecosystem:

- **Level 1 (Novice):** The Psychology of Risk (Understanding Drawdown Stop-Loss).
- **Level 2 (Intermediate):** Technical Analysis Signal Processing (MA, RSI).
- **Level 3 (Advanced):** Intro to Python for Finance (Algorithmic Backtesting).

3.4 Pillar III: The Talent Network (Future Roadmap)

This is our strategic "Moonshot." By analyzing user performance data (with explicit permission), EPSILON builds a **Quant Ranking System**.

> *"We don't just find students who got lucky; we identify students who manage risk consistently."*

We aim to become a recruitment pipeline, connecting top-tier performers—those with high Sharpe Ratios and disciplined coding habits—directly with hedge funds and proprietary trading firms.

3.5 Technical Specifications

EPSILON is built on a modern, scalable technology stack designed for performance and extensibility.

Component	Technology Implementation
Core Engine	**Python 3.12**: High-performance calculation engine optimized for vectorization.
User Interface	**CustomTkinter**: Modern, High-DPI optimized UI framework offering a dark-mode financial aesthetic.
Data Feed	**Akshare Integration**: Enterprise-grade open data interface for real-time stock quotes.
R&D Pipeline	**AI-Assisted Analysis**: (In Development) Integration with LLMs to provide automated strategy diagnostics and code optimization suggestions.

Table 2: EPSILON Technical Architecture Overview

4 MARKET ANALYSIS

4.1 Market Overview: The EdTech Renaissance

The global landscape for financial education is undergoing a seismic shift. We are witnessing a transition from *Content Consumption* (reading books/watching videos) to *Active Simulation* (learning by doing).

According to *HolonIQ* and *Grand View Research*, the global EdTech market is projected to reach **$404 billion by 2025**. Within this, the "Financial Literacy" segment is one of the fastest-growing verticals, driven by a post-pandemic surge in retail investor participation. However, the market is currently saturated with entry-level content, leaving a massive vacuum for **advanced, vocational training tools**—precisely where EPSILON operates.

4.2 Market Sizing (TAM/SAM/SOM Analysis)

We utilize a bottom-up approach to quantify our market potential, focusing on the intersection of education and financial technology.

Figure 2: **Market Sizing Model:** EPSILON targets a specialized niche (SOM) before expanding to the broader academic market (SAM).

4.2.1 Detailed Breakdown

- **Total Addressable Market (TAM):** The $8.4B global personal finance education market. This includes all spending on trading courses, seminars, and financial literacy apps.
- **Serviceable Available Market (SAM):** Our "sweet spot" consists of approximately 20 million students majoring in Finance, Economics, or Computer Science in major markets (China, USA, UK), plus the growing segment of "pro-tail" (professional retail) traders who demand better tools.

- **Serviceable Obtainable Market (SOM):** In Phase 1, we are laser-focused on the **1,500+ Student Investment Clubs** (like our own *Approcher* club). These micro-communities are the perfect beachhead: they have high engagement, low acquisition costs, and a desperate need for group-collaborative tools.

4.3 Target User Persona: "The Quant Aspirant"

To design EPSILON effectively, we have profiled our core user archetype. This ensures our features align perfectly with user needs.

PROFILE: Alex, The Future Analyst

• **Demographics:** 20 years old, Junior Finance/CS Major.
• **The Goal:** Wants to land an internship at a top quant firm (e.g., Jane Street, Citadel) or a hedge fund.
• **The Frustration:**

- *"Paper trading on Webull feels like a video game; it doesn't teach me how to manage risk."*
- *"I want to test a Mean Reversion strategy, but I don't know how to set up the data pipeline in Python from scratch."*

• **The Need:** A "Sandbox" where he can write simple Python code, see the equity curve immediately, and get a "Sharpe Ratio" score to put on his resume.

4.4 Validation: The "Approcher" Pilot Data

We believe in evidence-based entrepreneurship. Before writing a single line of code for the commercial version, we validated the concept within our own community, the *Approcher* Student Club.

Pilot Survey Results (N=50):

- **Demand for Backtesting: 82%** of members stated they "don't trust" their manual trading strategies and want an automated way to test them on historical data.
- **Willingness to Pay:** When asked if they would pay a small monthly fee for institutional-grade data feeds, **45%** indicated positive interest, validating our future "Freemium" revenue model.
- **Feature Gap:** The #1 requested feature was *"Automated Risk Scoring"*—users want the software to tell them if their strategy is too risky, serving as a virtual mentor.

This data confirms that EPSILON is not a solution looking for a problem, but a direct response to an urgent, unmet need in the student community.

5 COMPETITIVE LANDSCAPE

5.1 Defining the Battlefield

The current market offerings are polarized. On one end, we have "gamified" apps that are accessible but educationally shallow. On the other end, we have institutional terminals that are powerful but inaccessible to the average student.

EPSILON creates a new category. We combine the accessibility of a consumer app with the analytical depth of a professional terminal.

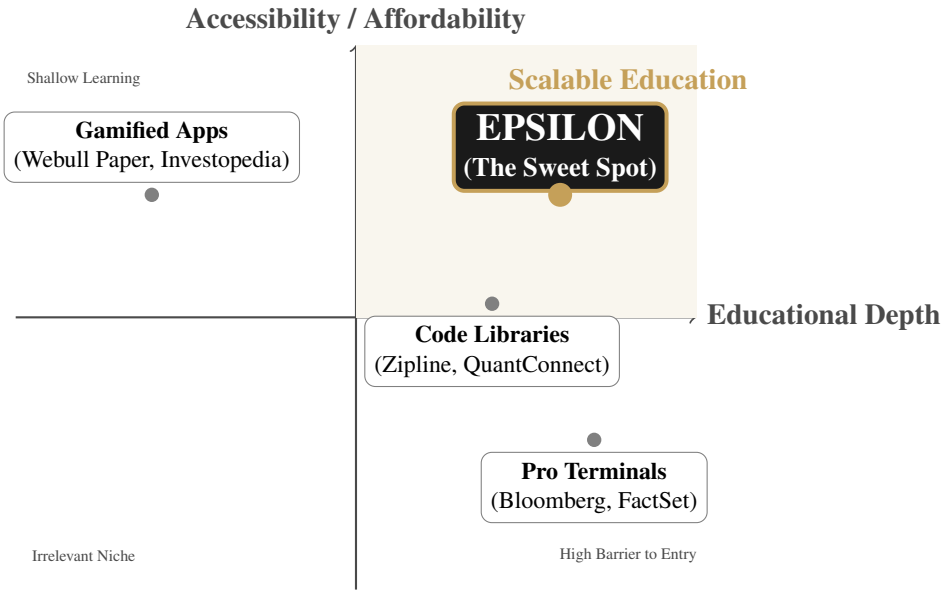

Figure 3: **The Competitive Matrix:** EPSILON is the only solution that offers institutional depth with consumer-grade accessibility.

5.2 Competitor Breakdown

1. **Gamified Simulators (e.g., Investopedia Simulator):**
   - *Pros:* Free, easy to use.
   - *Cons:* Teaches "picking stocks" rather than "building strategies." No risk metrics (Sharpe/Alpha). Encourages short-term speculation.
2. **Institutional Terminals (e.g., Bloomberg):**
   - *Pros:* The industry standard for data.
   - *Cons:* Cost prohibitive ($24k/year). Extremely steep learning curve. Overkill for a sophomore finance student.
3. **Code-First Frameworks (e.g., QuantConnect):**
   - *Pros:* Powerful backtesting.
   - *Cons:* Requires advanced Python skills *before* starting. No GUI (Graphical User Interface) for visual learners.

5.3 Our Unfair Advantage (The Moat)

Why can't they copy us?

- **The "Open Core" Community:** By making our core engine open source, we leverage the collective intelligence of student developers globally. Proprietary competitors cannot match our speed of iteration.
- **The Ecosystem Lock-in:** Once a university adopts EPSILON Academy (our curriculum), the switching cost becomes high. We don't just sell software; we provide the syllabus, the grading system, and the career pipeline.
- **Privacy Architecture:** We are the only platform that allows "Offline Simulation." This is critical for aspiring quants who want to protect their proprietary trading algorithms from being harvested by cloud providers.

6 BUSINESS MODEL

6.1 Design Philosophy: Sustainability Before Monetization

EPSILON is not designed as a short-term profit-seeking application. Instead, our business model prioritizes **long-term sustainability, trust, and educational alignment**.

In financial education, credibility is the product. Any monetization strategy that compromises learning integrity or user trust ultimately destroys value. Therefore, EPSILON adopts a deliberately conservative commercialization path—one that grows organically with its user base and institutional adoption.

6.2 The Open-Core Model

EPSILON follows an **Open-Core** business model, a strategy successfully employed by companies such as GitLab and MongoDB.

- **Community Edition (Free & Open Source):** The core simulator—including local deployment, historical backtesting, and essential risk metrics—is provided free of charge. This maximizes accessibility, encourages peer-driven learning, and enables widespread adoption within student communities.
- **Premium Extensions (Paid):** Advanced features are modular and optional, ensuring that users only pay when their needs mature.

This structure allows EPSILON to scale impact without forcing early monetization, preserving alignment with educational institutions and non-profit learning environments.

6.3 Primary Revenue Streams

EPSILON's monetization strategy is diversified across **individual users** and **institutions**, reducing dependency on any single customer segment.

6.3.1 B2C: Advanced Individual Users

For highly motivated learners and aspiring quantitative analysts, EPSILON may offer optional premium features:

- Cloud-based backtesting acceleration
- Expanded historical and alternative datasets
- Advanced strategy diagnostics and risk attribution tools

These services follow a *Freemium* subscription model, ensuring that the educational core remains accessible while advanced users subsidize platform development.

6.3.2 B2B: Academic Institutions

Educational institutions represent EPSILON's most stable long-term revenue source.

Universities and high schools increasingly seek:

- Cost-effective alternatives to Bloomberg terminals
- Practical tools to complement theoretical finance curricula
- Transparent systems for evaluating student performance

EPSILON offers institutional licenses that include:

- Classroom management dashboards
- Standardized assignment templates
- Risk-adjusted performance analytics for grading

This positions EPSILON not as a software vendor, but as a **curriculum infrastructure provider**.

6.4 Future Monetization: Talent & Career Pathways

As the platform matures, EPSILON unlocks a unique long-term opportunity: **data-backed talent identification**.

Unlike resumes or interviews, simulated trading performance reveals:

- Risk discipline under volatility
- Strategy consistency over time
- Quantitative reasoning ability

With explicit user consent, anonymized performance benchmarks can support:

- Internship matching programs
- Employer-sponsored competitions
- Career placement partnerships with financial firms

This pathway transforms EPSILON from an educational tool into a **talent development platform**, while maintaining ethical data governance standards.

6.5 Cost Structure and Scalability

EPSILON's infrastructure is intentionally lightweight.

- Core engine operates locally, minimizing server costs
- Open-source contributions reduce internal development burden
- Institutional deployments scale linearly with minimal marginal cost

As a result, EPSILON can achieve operational sustainability with relatively modest institutional adoption, making the model both resilient and scalable.

6.6 Why This Model Works

EPSILON's business model succeeds because it aligns incentives:

- Students gain access without financial pressure
- Institutions receive measurable educational value
- The platform grows alongside user maturity

Rather than monetizing attention or speculation, EPSILON monetizes **mastery, discipline, and long-term skill development**.

7 GO-TO-MARKET STRATEGY

7.1 Guiding Principle: Community Before Customers

EPSILON is designed to grow through **communities, not advertisements**. Our go-to-market strategy prioritizes trust, peer learning, and organic adoption over traditional paid user acquisition.

As a student-founded initiative, EPSILON leverages environments where credibility is earned through usefulness rather than marketing spend.

7.2 Phase I: Student Investment Clubs (Pilot Launch)

The initial deployment of EPSILON focuses on high school and university investment clubs, beginning with *Team Approcher*'s own student organization.

Investment clubs represent an ideal early-adopter segment:

- Members are highly motivated and self-selected
- Learning occurs in collaborative, discussion-based settings
- Clubs actively seek practical tools beyond textbook knowledge

Within these clubs, EPSILON is introduced as:

- A shared simulation environment for weekly strategy challenges

- A platform for risk-adjusted performance comparison
- A structured alternative to informal paper trading

This phase emphasizes feedback collection, feature refinement, and educational validation rather than revenue generation.

7.3 Phase II: Open-Source Community Expansion

Following initial validation, EPSILON expands through the global open-source ecosystem.

By hosting the core engine on GitHub, EPSILON enables:

- Contributions from student developers worldwide
- Transparent development and peer review
- Natural discovery through academic and technical communities

Unlike commercial platforms that rely on marketing funnels, EPSILON grows through **developer advocacy**. Users become contributors, contributors become ambassadors, and ambassadors become instructors within their own institutions.

7.4 Phase III: Academic Partnerships

Once established within student communities, EPSILON transitions into formal academic environments.

Target partners include:

- University finance departments
- Quantitative trading courses
- Economics and applied mathematics programs

EPSILON is positioned as:

- A hands-on laboratory complementing theoretical coursework
- A cost-effective alternative to proprietary terminals
- A standardized platform for evaluating applied financial skills

This phase represents the shift from grassroots adoption to institutional endorsement.

7.5 Distribution Advantages as Students

EPSILON benefits from a structural advantage that traditional startups lack: **authentic proximity to the target user**.

As students ourselves, we:

- Share the same learning frustrations as our users
- Operate within the same academic networks
- Test features in real educational settings with immediate feedback

This dramatically reduces customer acquisition costs and accelerates iteration cycles.

7.6 Metrics for Success

Rather than vanity metrics, EPSILON tracks indicators aligned with educational impact:

- Active weekly users within clubs
- Strategy completion and backtesting frequency
- Improvement in risk-adjusted performance over time

These metrics ensure growth reflects genuine learning outcomes, not superficial engagement.

7.7 Why This Strategy Scales

EPSILON's go-to-market strategy scales because it compounds:

- Each new club becomes a self-sustaining micro-community
- Each contributor strengthens the platform for all users
- Each academic partnership reinforces institutional credibility

Growth is driven not by incentives or promotions, but by **utility and trust**.

8 FINANCIAL PROJECTIONS

8.1 Financial Philosophy

EPSILON's financial projections are intentionally conservative. As an education-first platform, our primary objective is sustainability rather than aggressive short-term revenue maximization.

All projections are based on realistic adoption rates within student organizations and academic institutions, without assuming viral growth or speculative market behavior.

8.2 Key Assumptions

The following assumptions guide our projections:

- Initial adoption driven primarily by student investment clubs
- Institutional licensing as the primary revenue driver
- Minimal infrastructure costs due to local-first architecture
- No paid marketing expenditures in early stages

8.3 Projected Revenue Streams

EPSILON generates revenue through two primary channels:

- **Institutional Licenses:** Annual licenses for academic use
- **Optional Individual Premium Features:** Advanced analytics for highly engaged users

Category	Year 1	Year 2	Year 3
Institutional Licenses	$5,000	$20,000	$50,000
Individual Premium Users	$1,200	$6,000	$15,000
Total Revenue	**$6,200**	**$26,000**	**$65,000**
Infrastructure & Hosting	$800	$2,500	$6,000
Data & API Costs	$1,200	$4,000	$10,000
Misc. Operational Costs	$500	$1,500	$3,000
Total Costs	**$2,500**	**$8,000**	**$19,000**
Net Surplus	**$3,700**	**$18,000**	**$46,000**

Table 3: Conservative Three-Year Financial Projection

8.4 Three-Year Financial Projection

8.5 Break-Even Analysis

Due to EPSILON's low fixed-cost structure, the platform reaches operational break-even with:

- Approximately **10–15 institutional licenses**, or
- Fewer than **300 premium individual users**

This low break-even threshold significantly reduces financial risk and ensures resilience during early-stage growth.

8.6 Capital Requirements

EPSILON does not require significant upfront capital investment.

Initial development is supported through:

- Student-led engineering and design
- Open-source community contributions
- Existing academic infrastructure

Any future funding would be allocated toward curriculum expansion, data licensing, and academic partnerships rather than user acquisition spending.

8.7 Financial Risk Considerations

Potential financial risks include:

- Rising data licensing costs
- Slower-than-expected institutional adoption

These risks are mitigated through modular pricing, scalable infrastructure, and the ability to operate sustainably at small scale.

8.8 Summary

EPSILON's financial model prioritizes longevity, flexibility, and mission alignment. Even under conservative assumptions, the platform demonstrates a clear path toward financial sustainability without compromising educational integrity.

9 TEAM & ADVISORS

9.1 Organizational Structure

EPSILON LABS is structured to balance technical excellence with commercial execution. Our team possesses a diverse skill set, covering the "Golden Quadrant" of FinTech: Technology, Strategy, Communication, and Economics.

CORE LEADERSHIP	
Chief Executive Officer (CEO) *Dresden* **Strategic Vision & Applied Mathematics** Leads EPSILON's ecosystem strategy as central architect, defining core mathematical logic. Leverages applied mathematics expertise to design proprietary risk models and backtesting algorithms. Orchestrates synergy across product, growth and finance, bridging complex theory with commercial execution.	**Chief Technology Officer (CTO)** *Justin Hu* **Architecture & Risk.** Lead architect of the -based simulation engine. Oversees proprietary risk algorithms and data security infrastructure.
Chief Marketing Officer (CMO) *Wolf Yang* **Brand & Communication.** Leverages strong public speaking and business acumen to drive global brand strategy. Manages partnerships and communicates EPSILON's value to the market.	**Chief Financial Officer (CFO)** *Leo Di* **Economics & Modeling.** Responsible for financial forecasting, pricing strategy, and economic analysis. Ensures the sustainability of the "Open-Core" business model.

9.2 Advisory Board (Proposed)

To bridge the gap between academia and industry, EPSILON is forming an advisory board comprising:

- **Academic Advisor:** [Optional: Name], providing guidance on curriculum integration.
- **Industry Mentor:** [Optional: Name], offering insights into institutional risk management standards.

9.3 Why We Are the Right Team

"We are building the tool we wished we had."

As leaders of the *Approcher* Student Club, we possess a unique **"Founder-Market Fit."**

- We live in the dorms with our users.
- We study in the same classrooms.
- We face the same market frustrations.

This proximity allows for rapid iteration cycles that established corporate competitors cannot match. We are not just observing the market; we are the market.

10 CONCLUSION

10.1 Beyond the Simulation

We stand at a critical inflection point in the history of retail finance. The barriers to *entry* have never been lower, yet the barriers to *mastery* remain dangerously high. While technology has democratized access to the markets, it has not yet democratized the *discipline* required to survive in them.

EPSILON was born from a simple yet powerful conviction: **Financial literacy is not a luxury product; it is a fundamental survival skill for the modern economy.**

10.2 The EPSILON Commitment

Our mission goes beyond building a better simulator. We are building a safeguard for the next generation of investors.

By providing students with institutional-grade tools, rigorous risk metrics, and a privacy-first environment, we are shifting the educational paradigm from "gamified speculation" to "principled engineering." We are not just teaching code; we are teaching consequences. We are not just simulating trades; we are simulating responsibility.

10.3 A Vision

From our roots in the *Approcher* Student Club to the global open-source community, EPSILON represents the future of quantitative education. It is a future where "Alpha" is earned through research, not luck. It is a future where every student, regardless of background, has the tools to approach the market with the same sophistication as a Wall Street veteran.

We invite you to join us in this mission.

"We don't just predict the future;
we engineer the tools to navigate it."

— TEAM APPROCHER