

# KaaryaNeeti

*Case Study Competition by Netaji Subhas University of Technology (NSUT), Delhi*

## Aurora



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# INDUSTRY ANALYSIS AND MARKET OVERVIEW

## INDUSTRY ANALYSIS

*On studying the industry and performing a thorough analysis, we find...*



### Alpha Down

Hedge fund alpha shrank 6% → 3.5% (2010–20).



### Volatility Up

Post-COVID vol 2–3x higher; hedge funds beat 60/40 (9.3% vs 5.5%).

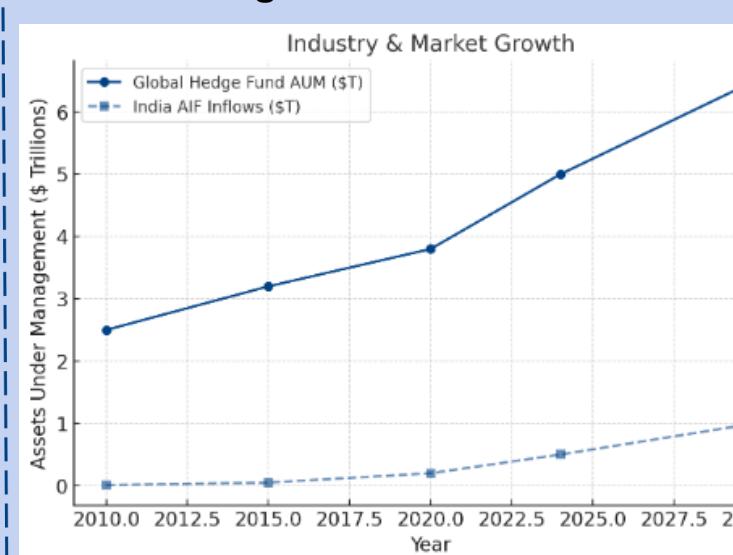


### India Rising

₹25,000 Cr CSR, mostly misused.

**Hedge funds at a crossroads: old models fail, new volatility fuels opportunity.**

### Global Hedge Fund & India AIF Growth



India's AIF market opening doors to global capital

### ACCESS

AI + alt-data + risk controls = institutional grade

Lean fee model  
(1–1.5% + 15%)  
vs  
costly 2/20

### QUALITY

### AFFORDABILITY

### ACCESS-AFFORDABILITY-QUALITY FRAMEWORK

## MARKET OVERVIEW

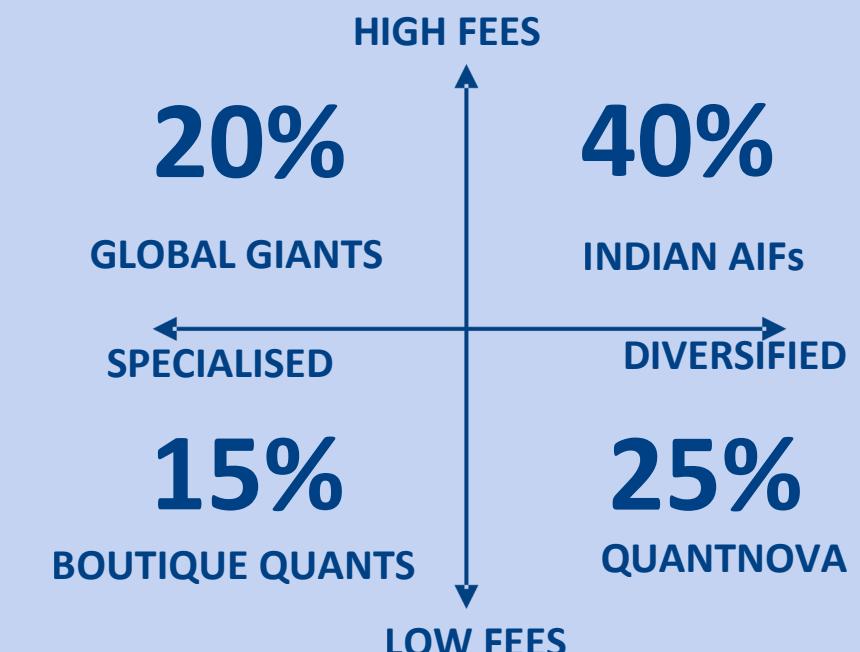
*A \$5T global industry shifting focus to emerging markets like India.*

a) \$5T Global AUM – Hedge funds manage ~\$5 trillion.

b) +9.3% Returns – Outperforming 60/40 post-COVID.

c) India \$100B – AIF inflows by 2030.

### COMPETITORS' MATRIX



## LOOPHOLES FILLED BY QUANTNOVA

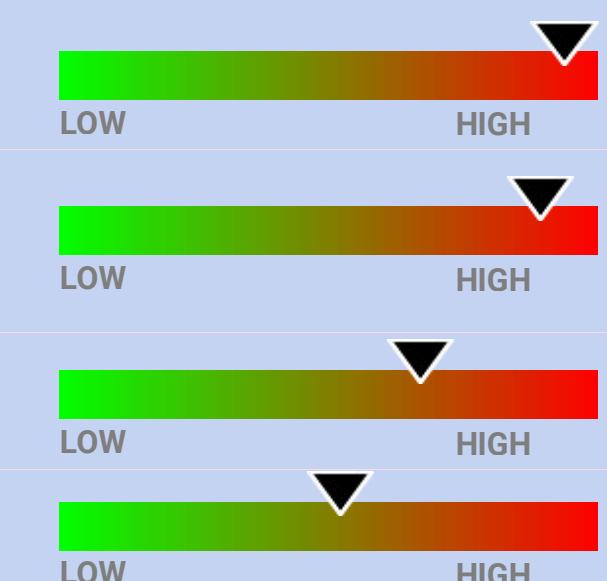
**Alpha Decay Fixed**

**Volatility Harnessed**

**Opaque Funds → Transparent**

**High Fees → Lean Model**

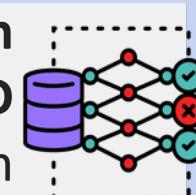
## IMPACT IMRPEACTTED BY QUANTNOVA



# PROBLEM STATEMENT AND POTENTIAL SOLUTIONS

## OVERVIEW

Hedge funds face alpha decay, high fees, and ETF pressure, but post-COVID volatility and India's \$100B AIF boom create opportunity — QuantNova solves this with a lean, AI-driven, multi-strategy, SEBI-compliant model.



## SOLUTIONS

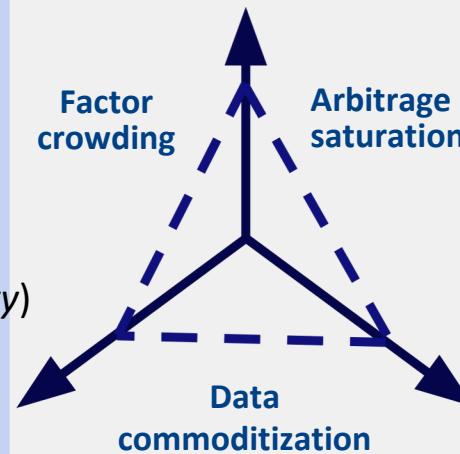
### Diversify to Survive

Factor Fusion → Long-short equity factors (*value, momentum, quality*) combined with alt-data signals for uncorrelated equity alpha.

Arb Engine → Statistical arbitrage & volatility trades (*variance swaps, options overlays*) for mean-reversion and dispersion capture.

### Crowded Alpha

*"If every fund hunts the same signals, where does real alpha come from?"*



## CHALLENGES

### Volatility Reality

*Post-COVID markets don't just swing — they break correlations and regimes overnight.*



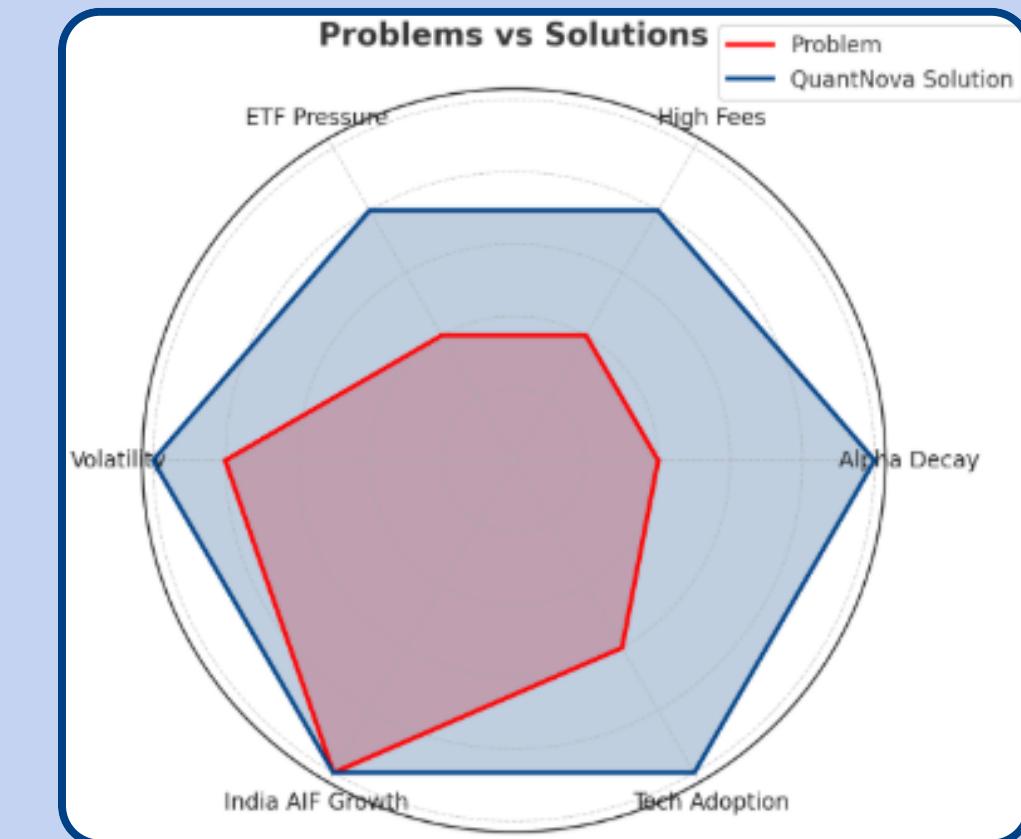
- ✓ Unstable risk models
- ✓ Sudden drawdowns
- ✓ Fragile diversification
- ✓ Model overreaction

### Trust & Barriers



- Investor skepticism → lack of transparency drives hesitation in allocating capital.
- High entry costs → traditional 2/20 models and minimum tickets limit accessibility.
- Regulatory hurdles → SEBI's evolving AIF rules create compliance complexity.

## PROBLEMS VS SOLUTIONS



### Hedge and Pledge

Vol Control → Regime-switching allocation + volatility targeting (*inverse vol scaling, GARCH models*) to stabilize drawdowns.  
Macro Shield → Inflation (*TIPS/commodities*), FX (*dynamic forwards*), and rate hedges (*duration swaps*) for macro-risk defense.

### Trust Made Just

Transparent Ledger → Blockchain-based NAV reporting, custodian audits, and real-time P&L dashboards for immutable investor trust.

Aligned Fees → Lean structure (1–1.5% + 15%) with hurdle rates & clawbacks for fair, performance-driven incentives.

## DEPLOYMENT PLAN IN PHASES

### Phase 1: Build the Brain



- Develop core quant pods (*factors, stat-arb, vol trading, ML signals*).
- Backtest rigorously with *Indian + global data* to validate alpha.

### Phase 2: Risk First, Always



- Implement regime-switching, volatility targeting, and macro-hedge models.
- Set up live risk dashboards, kill-switches, and compliance monitoring.

### Phase 3: Trust by Design



- Register as **SEBI Cat III AIF**; set **lean fee model**.
- Roll out **blockchain-based NAV reporting + transparent investor portal**.

### Phase 4: Scale with Edge



- Launch in **GIFT City** for global capital inflows.
- Expand alt-data pipelines (*satellite, credit-card, sentiment*) to widen **alpha sources**.

# Solutions with Impacts and Statistics

### Solution Impact Strength

QuantNova Solutions

Volatility Targeting

Arb Advantage

Alt-Data Alpha

Factor Fusion

Trust Tech

Lean & Clean Fees

Arjun, a 35-year-old professional investor exploring new opportunities in India's volatile post-COVID markets.

By now, QuantNova expands globally via GIFT City. Arjun's portfolio isn't just growing steadily — it's resilient, diversified, and future-ready, securing his long-term wealth goals.

Arjun comes across QuantNova, a new-age quant hedge fund, and invests his first ticket after seeing transparent SEBI-compliant onboarding.

Within a year, he sees consistent returns with lower drawdowns compared to his mutual funds, thanks to volatility targeting and risk-parity models.

As QuantNova integrates alt-data and AI-driven models, Arjun scales up his allocation, noticing Sharpe ratios outperforming peers and improved fee efficiency.

### SOLUTIONS

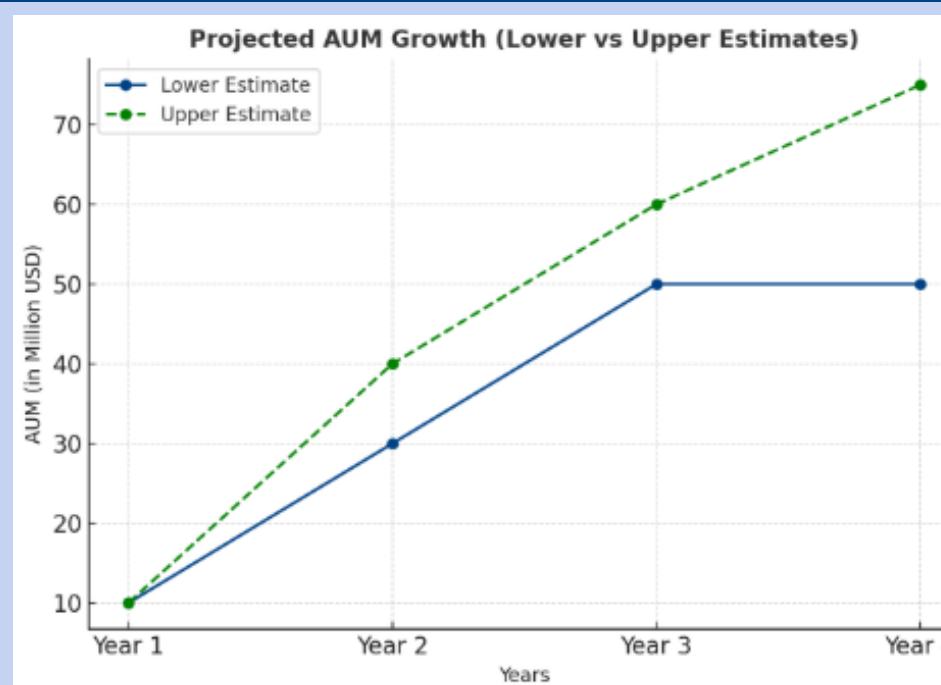
- Factor Fusion**  
Our long-short equity factor models (value, momentum, quality) generate ~3–5% excess annual returns historically in India vs benchmarks. Blending multiple factors reduces drawdowns by diversifying equity risk.
- Lean & Clean Fees**  
Instead of 2/20, QuantNova charges 1–1.5% + 15% performance, with hurdle rates and clawbacks. This lowers investor friction, aligning interests and improving long-term retention.
- Trust Tech**  
Blockchain-based NAV reporting ensures real-time, immutable performance data. Combined with daily transparency and SEBI Cat III compliance, this tackles investor skepticism — a top barrier in India's AIF adoption.
- CSR**  
Alt-Data Alpha
- Alt-Data Alpha**  
Using satellite imagery, consumer spend, and sentiment data uncovers early signals. 78% of hedge funds now use alt-data — our India-focused version gives a unique edge in under-researched markets.
- Volatility Targeting**  
Scaling exposures by inverse volatility cuts maximum drawdowns by ~30% (Research Affiliates). This creates smoother equity curves, boosting Sharpe while ensuring investors ride less risk.
- Arb Advantage**  
Statistical arbitrage and dispersion trading exploit short-term mispricings; in volatile regimes, stat-arb delivered Sharpe ratios of 1.5+ vs 0.6 for buy-and-hold. This adds uncorrelated alpha to the portfolio.

# Implementation Plan

## Projected Impact in 5-6 Market Clusters

| Metric                                  | Lower Estimate | Upper Estimate |
|---|----------------|----------------|
| Assets Under Management (AUM)           | ~\$50M         | \$75M          |
| School-Age Children Impacted            | ~200           | 350            |
| Target Net Annual Returns               | 12%            | 50%            |
| Alpha vs. Benchmark (Nifty 50)          | +3%            | +6%            |
| Cost Reduction via Tech (Blockchain/AI) | ~15%           | 25%            |

## Assessing the Industry's Value Chain



## Foundation & Planning (Months 1-6)

- Build quant infrastructure (data lakes, ML pipelines).
- Obtain SEBI Category III AIF license.
- Secure prime broker, custodian, and compliance partners.
- Recruit core quant & risk teams.

## Expansion & Scaling (Year 2-3)

- Scale AUM to \$50M-\$75M via HNI and institutional onboarding.
- Add alternative data signals (satellite, sentiment, credit-card feeds).
- Expand strategy pods: FX, commodities, derivatives.
- Deploy dynamic hedging & risk-parity across asset classes.

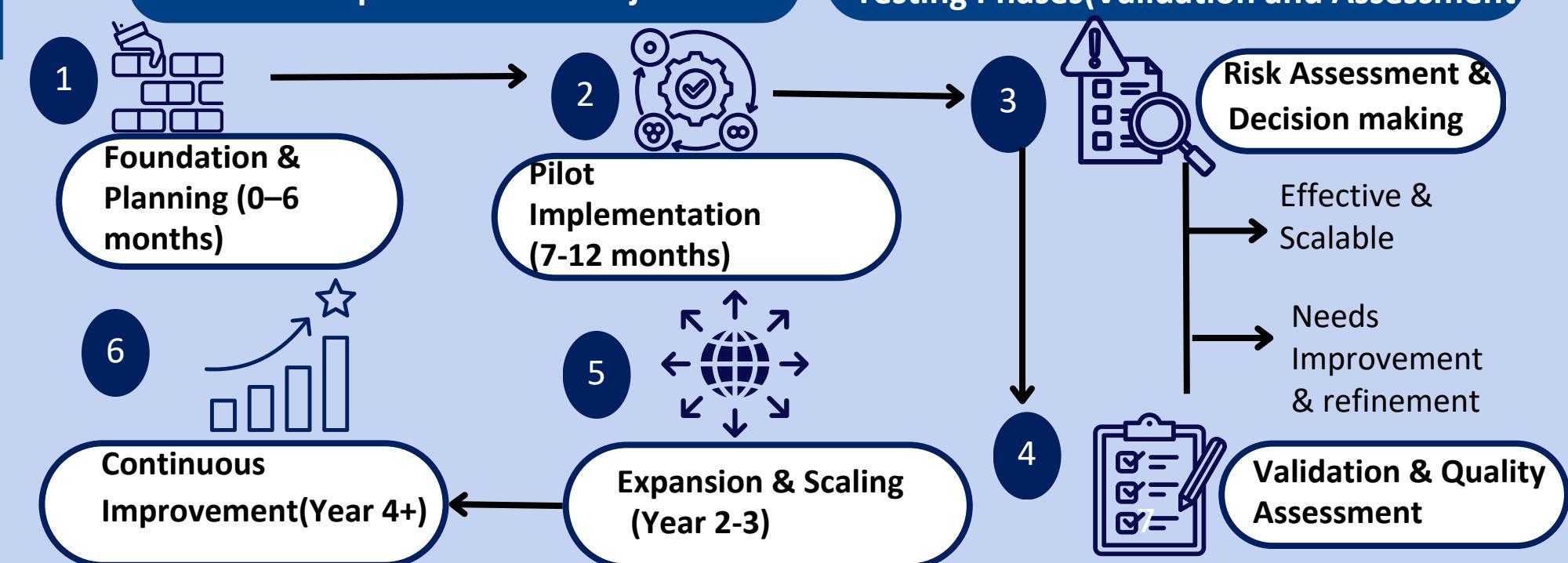
## Pilot Implementation (Months 7-12)

- Launch pilot fund with ~\$10M seed capital.
- Test factor models, stat-arb, and volatility overlays in live but limited scale.
- Validate risk dashboards, NAV blockchain reporting.
- Refine execution algos & investor reporting

## Sustainability & Growth (Year 4 & Beyond)

- Target global investors via GIFT City feeder structures.
- Continuously integrate new AI models and alt-data streams.
- Establish QuantNova as India's first tech-led hedge fund brand.
- Drive consistent Sharpe >1.5 and long-term resilience.

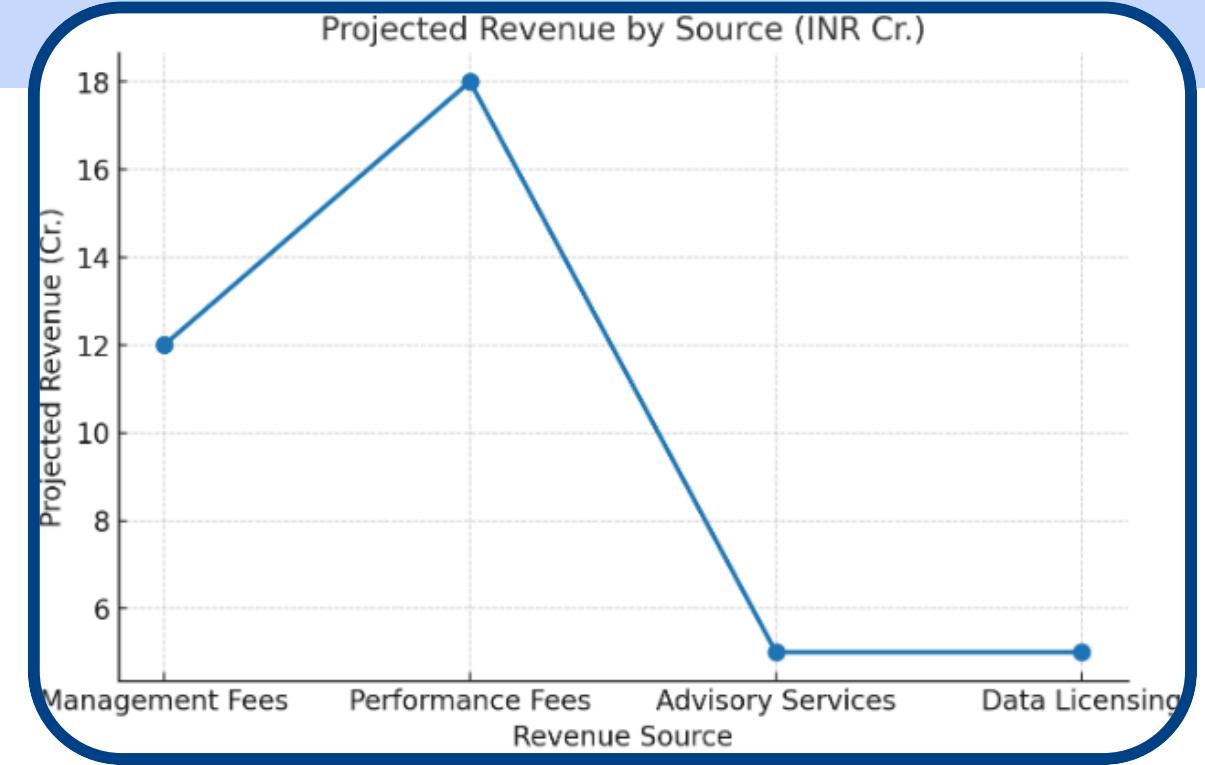
## Different phases of our Project



# BUDGETING AND FINANCING

| Expense Item   | Unit Cost (INR)      | Quantity  | Total Cost (INR) | Expense Item  | Unit Cost (INR)  | Quantity | Total Cost (INR) | Expense Item  | Unit Cost (INR)      | Quantity | Total Cost (INR) |
|--|----------------------|-----------|------------------|---|------------------|----------|------------------|---|----------------------|----------|------------------|
|  <b>Technology &amp; Infrastructure</b> |                      |           |                  |  Data Scientists (AI/ML) | 20,00,000 / year | 4        | 80,00,000        |  <b>Marketing &amp; Investor Relations</b> |                      |          |                  |
| Cloud Computing (AWS/GCP)  | 2,00,000 / month     | 12 Months | 24,00,000        |   |                  |          |                  | Investor Roadshows (India + Global)   | 8,00,000 per event   | 6        | 48,00,000        |
| Data Feeds (Market + Alt)  | 5,00,000 / year      | 1         | 5,00,000         |   |                  |          |                  | Digital Marketing (Content + PR)  | 5,00,000 / year      | 1        | 5,00,000         |
| Blockchain Reporting Setup   | 10,00,000 (one-time) | 1         | 10,00,000        |   |                  |          |                  | Investor Reporting Platform (Dashboard)   | 7,00,000 (one-time)  | 1        | 7,00,000         |
| Compliance Software (AML/KYC)  | 3,00,000 / year      | 1         | 3,00,000         |   |                  |          |                  | Client Education Workshops  | 2,00,000 per event   | 4        | 8,00,000         |
| Contingency (5%)   | -                    | -         | 2,10,000         |   |                  |          |                  | Total Marketing   | 68,00,000 (~68 Lakh) |          |                  |
| Total (Tech)   | 44,10,000 (~44 Lakh) |           |                  |   |                  |          |                  |  <b>Regulatory &amp; Compliance</b>      |                      |          |                  |
|  <b>Talent &amp; Operations</b>       |                      |           |                  |  Total (Talent)        | 10,00,000 / year | 3        | 30,00,000        | SEBI AIF Registration Fee   | 10,00,000 (one-time) | 1        | 10,00,000        |
| Quant Researchers  | 25,00,000 / year     | 5         | 1,25,00,000      |   |                  |          |                  | Total (Compliance)  | 33,00,000 (~33 Lakh) |          |                  |

# REVENUE MODEL

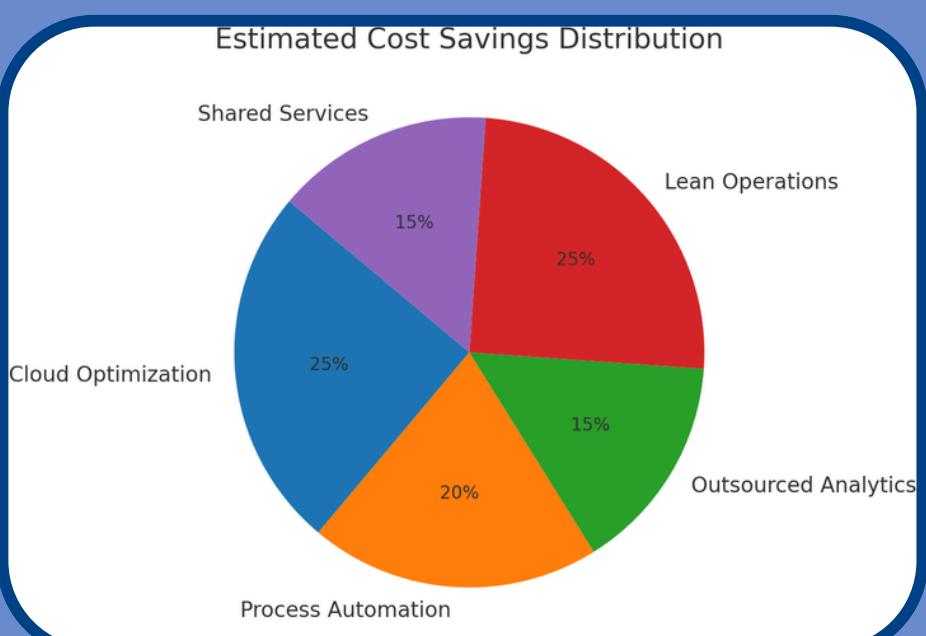


## Projected Revenue

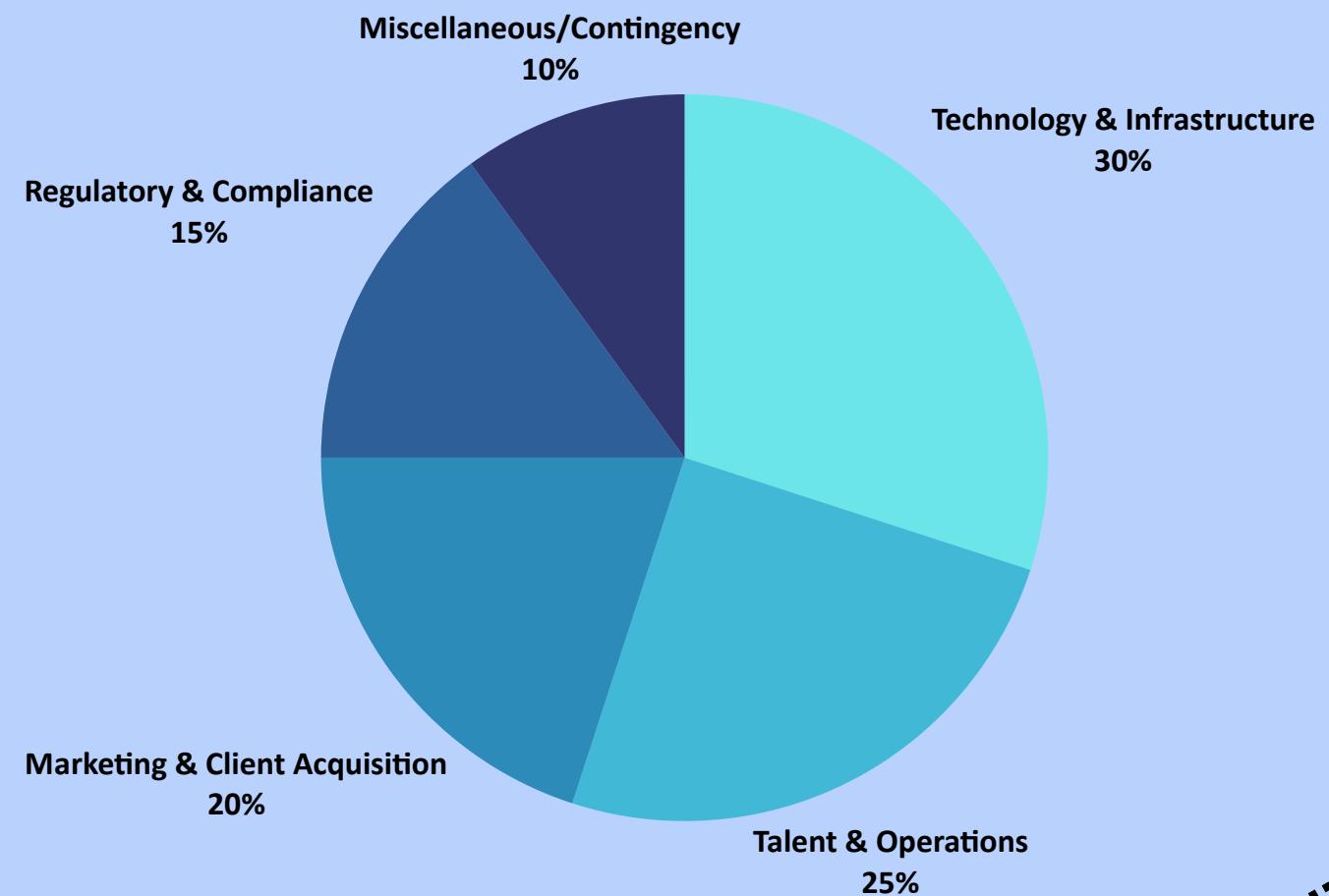
| Revenue Source              | Projected Revenue (INR) | % Contribution |
|-----------------------------|-------------------------|----------------|
| Management Fees             | ₹12 Cr.                 | 30%            |
| Performance Fees            | ₹18 Cr.                 | 45%            |
| Advisory Services           | ₹5 Cr.                  | 12%            |
| Data Licensing              | ₹5 Cr.                  | 13%            |
| <b>Total Annual Revenue</b> | <b>₹40 Cr.</b>          | <b>100%</b>    |

## Cost Reduction Strategies

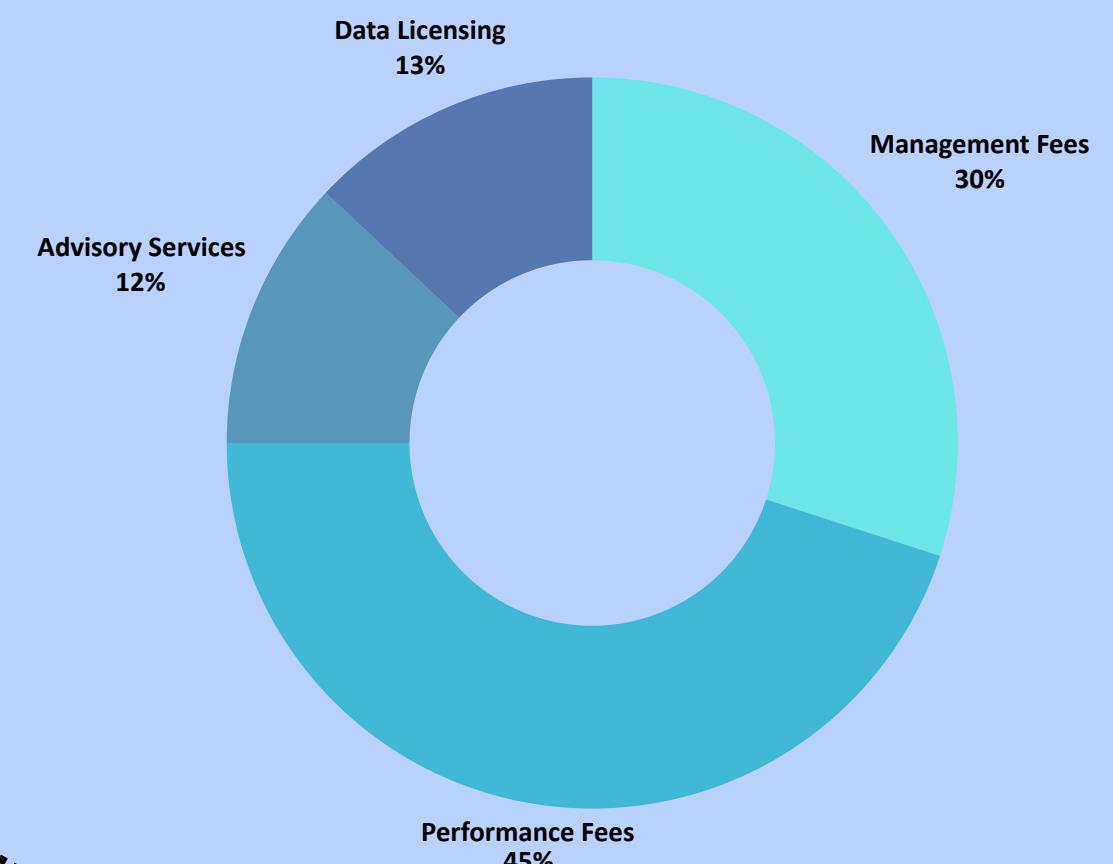
- Cloud Optimization** – Shift to scalable cloud infrastructure instead of heavy on-premise servers, paying only for usage and reducing fixed infra costs significantly.
- Process Automation** – Automate repetitive workflows like compliance checks, reporting, and client onboarding to save time, reduce manual errors, and cut HR costs.
- Outsourced Analytics** – Use third-party AI/ML platforms for data crunching and predictive insights, lowering the need for building expensive in-house data science teams.
- Lean Operations** – Operate with a small, high-skilled core team while outsourcing non-core functions (*HR, payroll, admin*), keeping the organization flexible and cost-efficient.
- Shared Services** – Leverage the GIFT City ecosystem for shared legal, audit, and operational support, reducing overheads while still ensuring top-quality services.



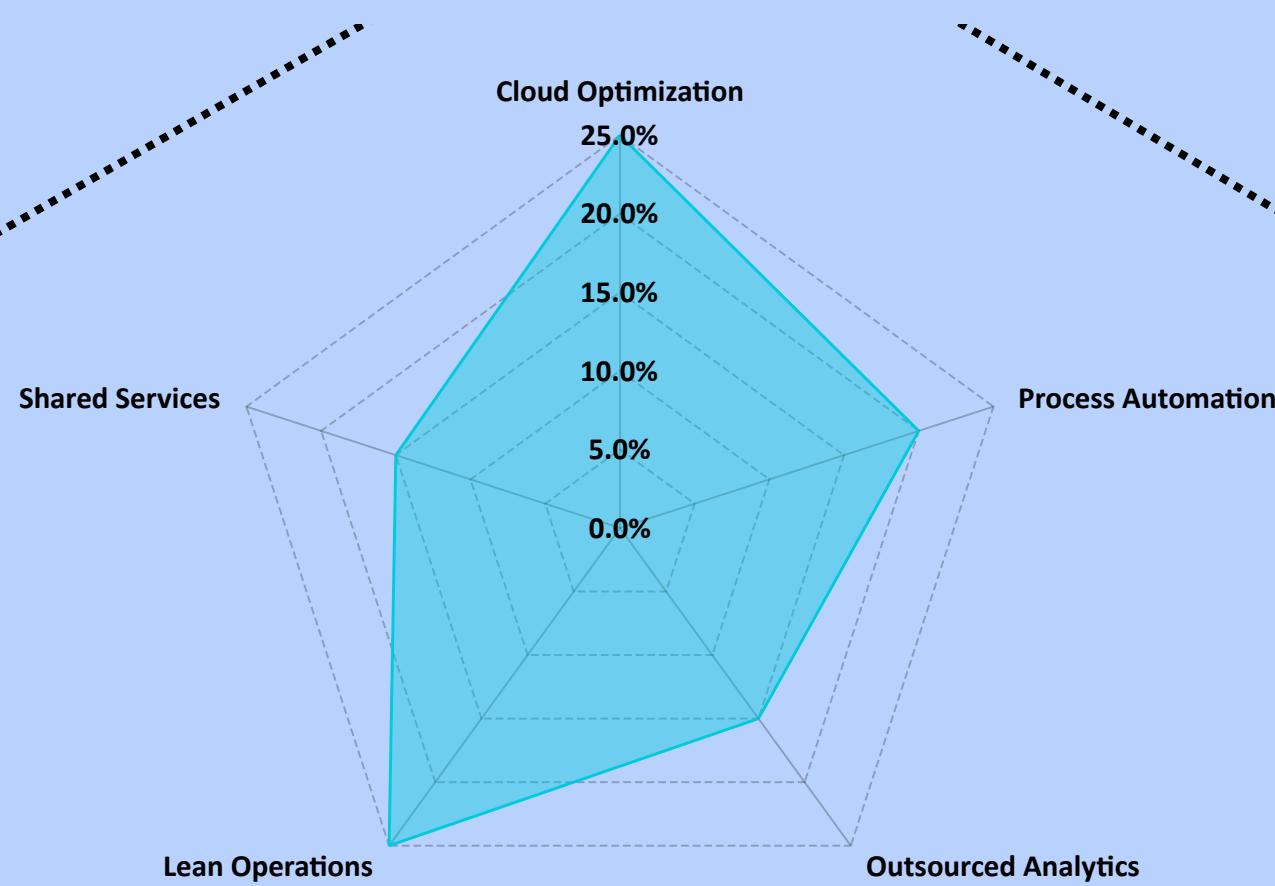
## Budget allocation(₹4.46 Cr.)



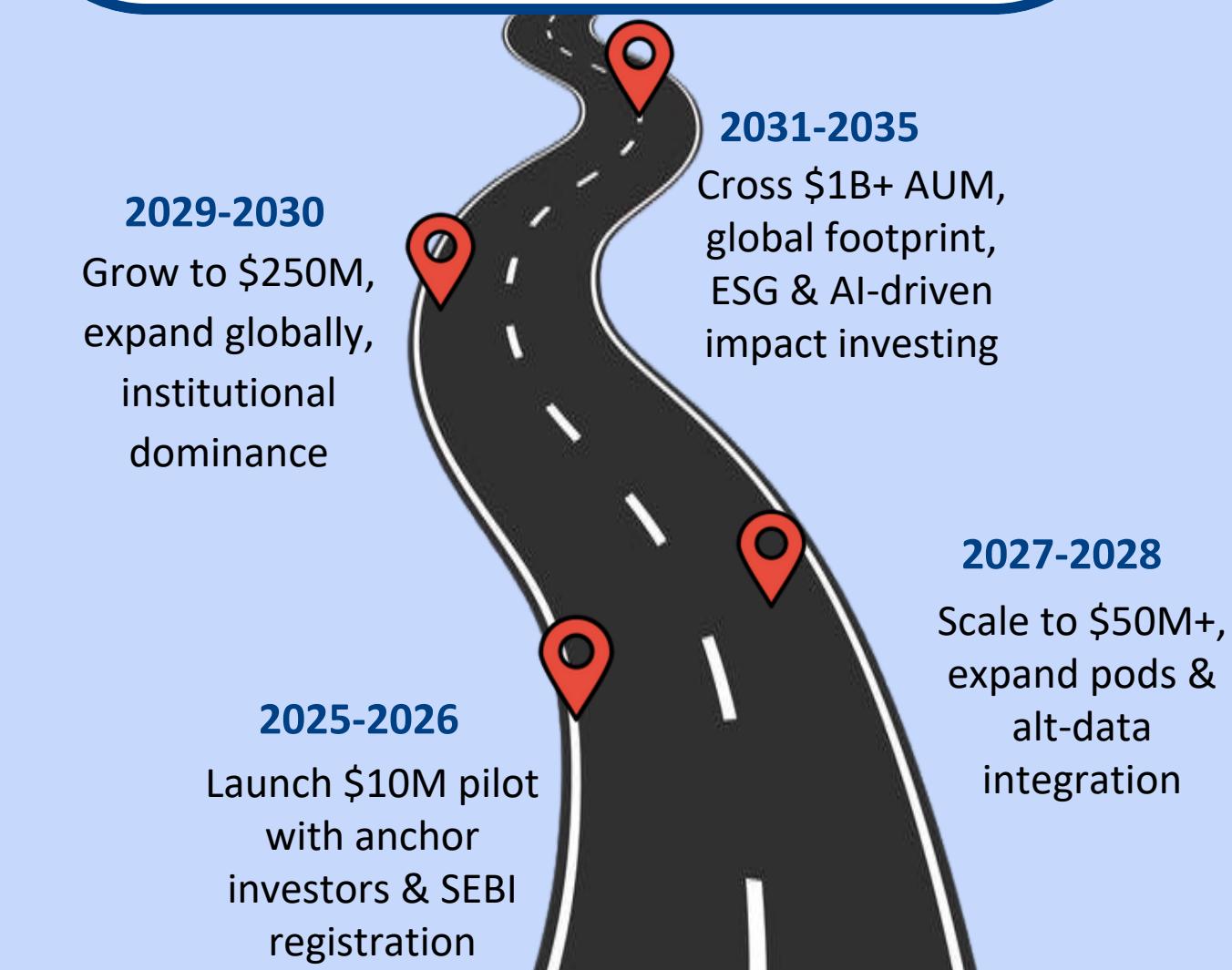
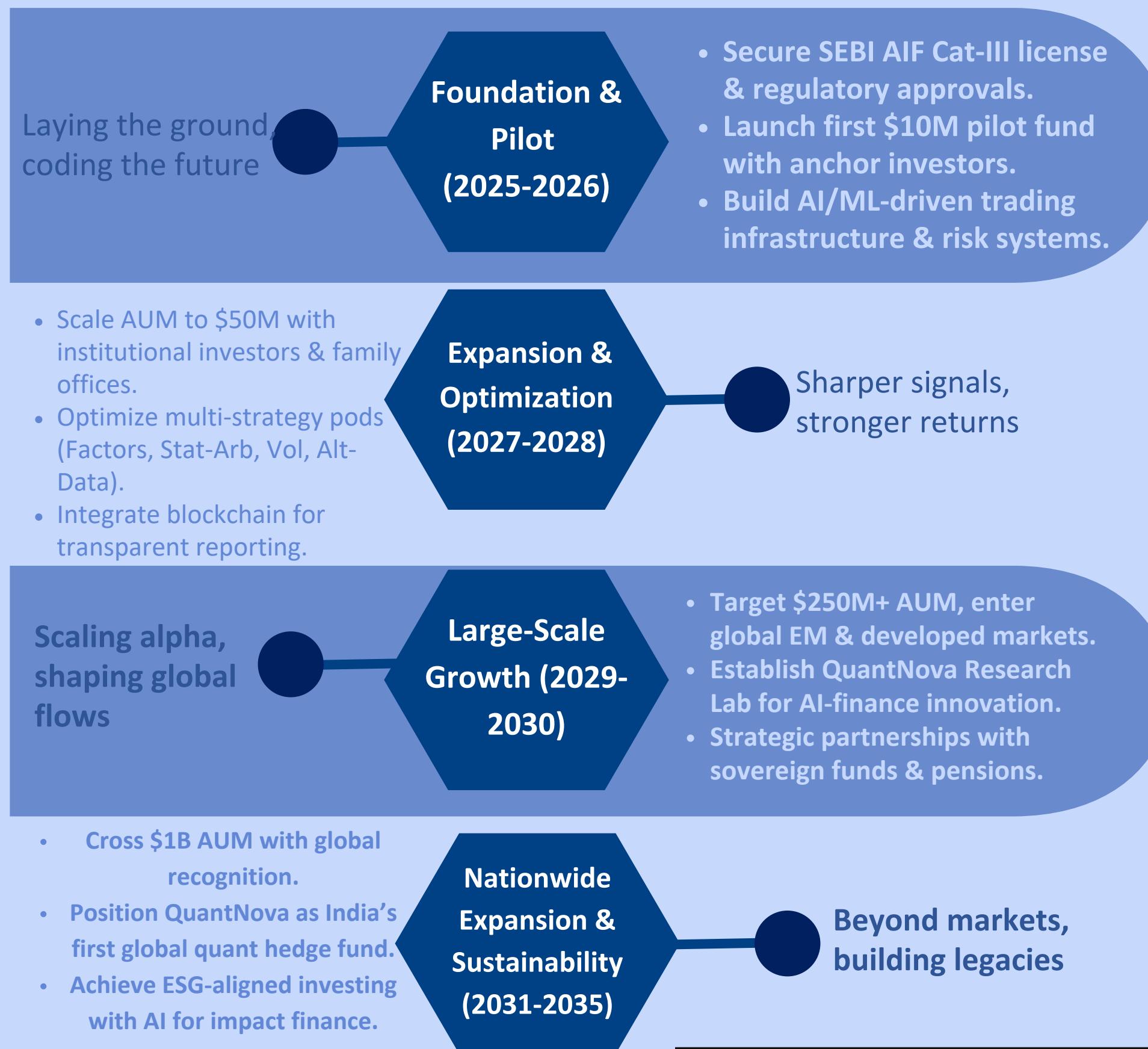
## Revenue Model (40 Cr.)



## Cost Reduction



# Future of QuantNova

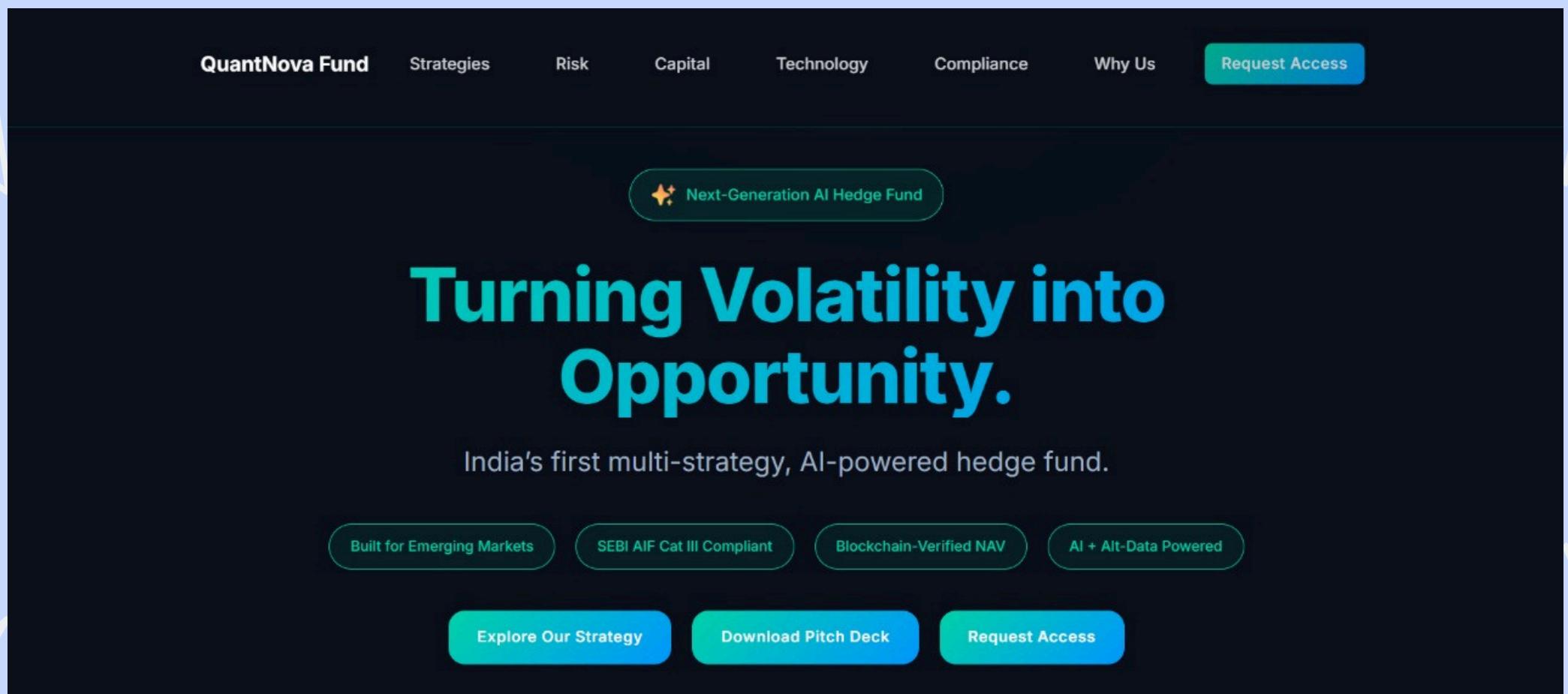


# Glance of QuantNova

## QuantumNova: Turning Volatility into Opportunity

### NODEJS/EXPRESS

Handles APIs, routes, authentication, and server logic.



The screenshot shows the homepage of the QuantNova Fund website. At the top, there is a navigation bar with links to 'QuantNova Fund', 'Strategies', 'Risk', 'Capital', 'Technology', 'Compliance', 'Why Us', and a 'Request Access' button. Below the navigation bar, a banner features the text 'Next-Generation AI Hedge Fund' and the main headline 'Turning Volatility into Opportunity.' in large, bold, blue letters. A subtext below the headline reads 'India's first multi-strategy, AI-powered hedge fund.' At the bottom of the screenshot, there are four circular badges with text: 'Built for Emerging Markets', 'SEBI AIF Cat III Compliant', 'Blockchain-Verified NAV', and 'AI + Alt-Data Powered'. Below these badges are three buttons: 'Explore Our Strategy', 'Download Pitch Deck', and 'Request Access'.

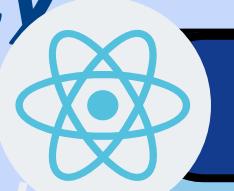
### MONGODB

Stores user data, content, and app-related information.



### REACT JS INTERFACE

Building an interactive, and dynamic interface.



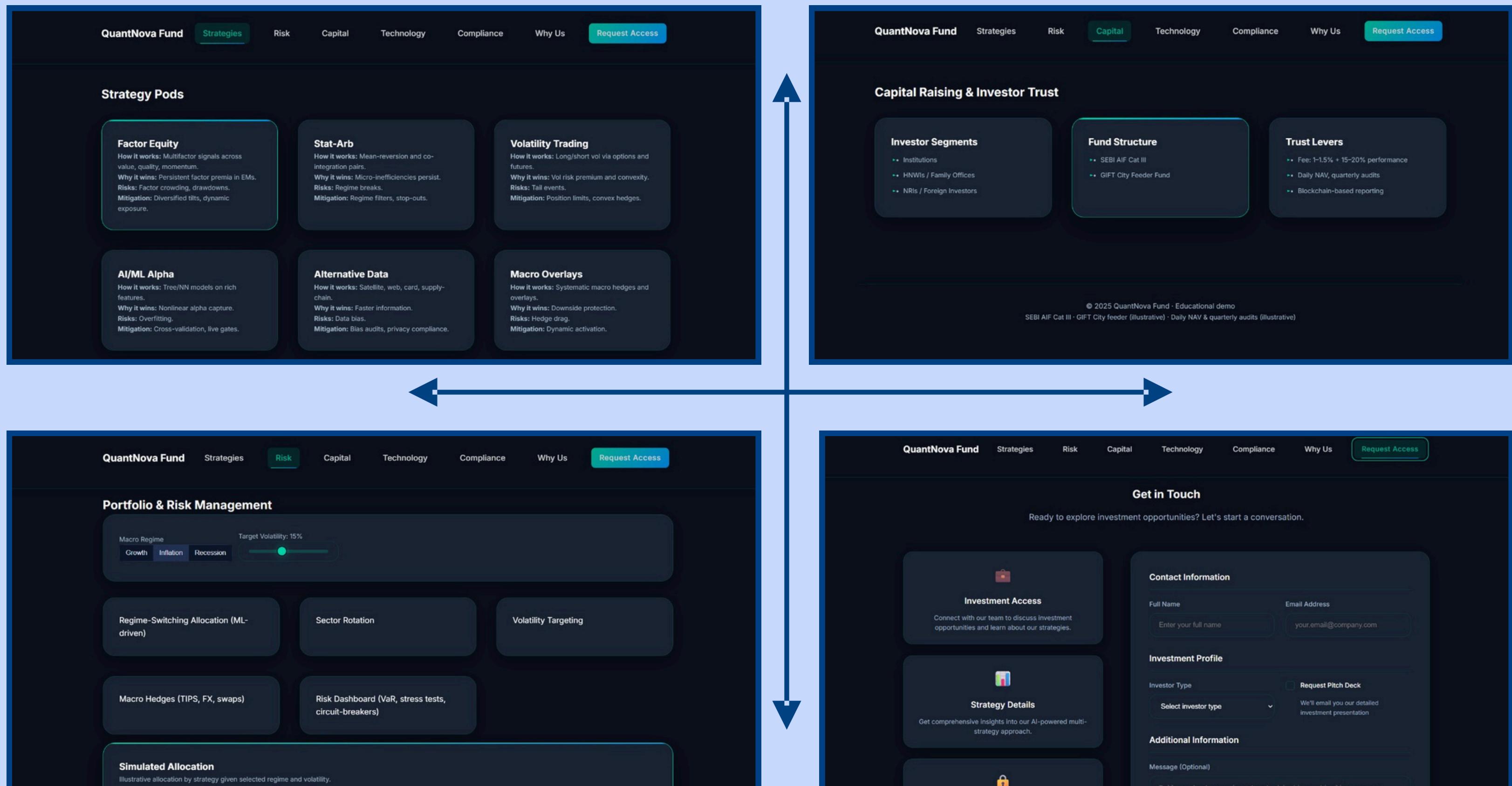
### TAILWIND CSS DESIGNING

- Base web technologies
- Accessible, clean, and responsive design.



[Visit QuantNova's website](#)  
[Link to QuantNova's GitHub](#)

# SUPPORTING IMAGES



# *How You Can Support?*

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- ✓ **Investors and LPs:** Back our growth by funding innovative financial strategies.
- ✓ **Tech & Fintech Firms:** Partner to enhance AI, blockchain, and data-driven capabilities.
- ✓ **Advisors & Mentors:** Provide expertise in compliance, risk management, and scaling.
- ✓ **Research Institutions:** Collaborate on data insights, and talent development.
- ✓ **Policy Makers:** Support through enabling frameworks for cross-border investments.



**Get Involved Today!**

Contact Us at: [quant\\_nova@xyz](mailto:quant_nova@xyz)

# THANK YOU!

## APPENDIX: REFERENCES

The sources we referred to:

### Industry Reports & Data

- [India Skills Report 2025 – Wheebox, AICTE & CII](#)
- [NASSCOM Startup Ecosystem Report 2024](#)
- [Hedge Fund Industry Size & Share Analysis](#)

### Schemes & Policies

- [National Education Policy \(NEP\) 2020 – Focus on Experiential Learning & Internships](#)
- [Skill India Mission – Ministry of Skill Development & Entrepreneurship](#)
- [Startup India Initiative – DPIIT](#)

### Investment & Hedge Fund Insights

- [Preqin Alternative Assets Report 2024 – Hedge Fund Trends in Emerging Markets](#)
- [Bain & Company India PE/VC Report 2024 – Startup & Early-Stage Funding](#)
- [“Hedge Funds’ Role in Emerging Startup Ecosystems”](#)
- [Global Hedge Fund Research \(2024\) – Investments in Education & Future of Work](#)

### CSR & Corporate Connect

- [CSR Spending Trends – Economic Survey 2024](#)
- [CSR Report 2024 – NSE Listed Companies](#)