

## INSTITUTIONAL GAP ANALYSIS REPORT

### WHAT IS WORKING WELL

- Multi-horizon decision engine
- Scoring based strategy logic
- Clear trade / watch / no-trade verdicts
- Valuation + trend blending
- Structured execution logic

### WHAT NEEDS IMPROVEMENT

#### PLATFORM

- Login, subscription, settings
- Payment integration
- Trial system

#### MARKET CONTEXT

- Index & sector dashboards
- Top movers with strategy overlay

#### PORTFOLIO & RISK

- Portfolio tracker
- Correlation, VaR, drawdowns
- Stress testing

#### STRATEGY ENGINE

- Confidence scoring
- Backtesting
- Regime detection

#### EXECUTION & GUARDRAILS

- Position sizing
- Risk limits
- Audit logs

#### UI/UX

- Modular widgets
- Saved layouts
- Themes

#### DATA

- Live feeds
- Historical store
- Caching

#### SECURITY

- MFA
- RBAC
- Encryption

This roadmap transforms your engine into an institutional decision platform.

## DECISION OS – INSTITUTIONAL ROADMAP

### PHASE 1 – MVP FOUNDATION

- Authentication (JWT, roles)
- Subscriptions (Stripe, trials)
- Home dashboard (top movers, sectors, indices)

### PHASE 2 – PRO ANALYTICS

- Portfolio tracker
- Risk analytics (VaR, drawdowns)
- Strategy backtesting
- Alerts system

### PHASE 3 – INSTITUTIONAL

- Execution guardrails
- Options analytics
- Sentiment & news intelligence

## FOLDER STRUCTURE

/core

/data

/home

/stocks

/portfolio

/options

/sentiment

/alerts

/risk

/billing

/auth

/settings

## API STACK

FMP – fundamentals, ratios, technicals

Finnhub – options, news, sentiment

MarketStack – real-time prices

## DECISION OS – DATABASE SCHEMA

### USERS

id (pk)

email

password\_hash

role

created\_at

### SUBSCRIPTIONS

id

user\_id (fk)

plan

status

trial\_end

stripe\_customer\_id

### PORTFOLIOS

id

user\_id

name

created\_at

### HOLDINGS

id

portfolio\_id

symbol

quantity

avg\_price

### PRICES

id

symbol

timeframe

open

high

low

close

volume

timestamp

## SIGNALS

id

symbol

horizon

score

verdict

confidence

generated\_at

## ALERTS

id

user\_id

symbol

rule\_type

threshold

active

## RISK\_EVENTS

id

user\_id

symbol

rule\_triggered

severity

timestamp

## STRATEGY INTELLIGENCE ENGINE

### UNIVERSAL STRATEGY MODEL

A strategy is a decision graph mapping market state to actions.

### STRATEGY OBJECT

- market regime
- asset class
- scenario profile
- entry rules
- position structure
- exit rules
- risk rules
- adjustment rules
- capital rules
- confidence model

### MARKET STATE VECTOR

trend, volatility, sentiment, liquidity, valuation

### STRATEGY GENERATION FLOW

Market State -> Match Rules -> Build Structure -> Assign Risk -> Score

### EDGE SCORE FORMULA

$\text{TrendFit} \cdot 0.25 + \text{VolatilityFit} \cdot 0.20 + \text{SentimentFit} \cdot 0.15 + \text{LiquidityFit} \cdot 0.15 + \text{RiskReward} \cdot 0.15 + \text{HistoricalEdge} \cdot 0.10$

### SCENARIO TREE

Triggers mapped to responses (stop, hedge, exit)

### SELF-LEARNING MEMORY

Tracks win rate, returns, drawdowns by regime

### OUTCOME

Dynamic, adaptive strategy playbooks per stock & horizon.

## STRATEGY MATCHING PSEUDOCODE

Input: symbol, horizon

Fetch market\_state

Fetch strategy\_library

candidates = []

for strategy in strategy\_library:

if strategy.horizon != horizon: continue

if market\_state.regime not in strategy.market\_regime: continue

score = (

strategy.trend\_fit(market\_state.trend)\*0.25 +

strategy.volatility\_fit(market\_state.volatility)\*0.20 +

strategy.sentiment\_fit(market\_state.sentiment)\*0.15 +

strategy.liquidity\_fit(market\_state.liquidity)\*0.15 +

strategy.risk\_reward\*0.15 +

strategy.historical\_edge\*0.10

)

if score > MIN\_EDGE:

candidates.append({strategy, score})

Sort candidates by score desc

Return top 5 strategies

## MARKET STATE CLASSIFICATION SYSTEM

### TREND

- Strong Up
- Weak Up
- Range
- Weak Down
- Strong Down

### VOLATILITY

- Low
- Medium
- High

### SENTIMENT

- Bullish
- Neutral
- Bearish

### LIQUIDITY

- Thin
- Normal
- Heavy

### VALUATION

- Undervalued
- Fair
- Overvalued

### REGIME

- Bull Market
- Bear Market
- Risk-On
- Risk-Off



Each state is derived from indicators:

RSI, MACD, ATR, IV, Volume, News Sentiment, Valuation Ratios.