

# BNB Chain AI Trading MVP

## Whitepaper

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## Abstract

BNB Chain AI Trading MVP is an agentic system that turns on-chain signals into safe, explainable trade intent. It combines semantic search over blockchain data, risk-aware advice generation, and policy-gated execution planning. The system is designed for transparency, auditability, and rapid iteration on BNB Chain.

## Problem

On-chain markets move quickly, but most traders and teams rely on fragmented tooling: data dashboards, signal bots, and manual execution scripts. These tools are rarely connected to a consistent risk policy or an auditable decision trail. The result is poor transparency, low trust, and limited automation at scale.

## Solution

BNB Chain AI Trading MVP delivers an end-to-end pipeline built around three specialized agents and an orchestration layer:

- Data Agent for ingesting and embedding on-chain signals
- Advisor Agent for generating risk-aware recommendations
- Execution Agent for deterministic, safety-checked execution planning
- MCP Orchestrator for policy enforcement and decision logging

## System Architecture

- API: FastAPI endpoints for ingestion, search, insights, advice, execution, and scoring
- Orchestrator: MCP-style routing with explicit policy gates
- Storage: Postgres + pgvector for events, embeddings, and decision logs
- On-chain integration: optional RPC execution on BNB Chain

## Core Components

### Data Agent

- Ingests on-chain events (BscScan or Bitquery)
- Extracts metadata and tags
- Creates embeddings for semantic search

### Advisor Agent

- Accepts risk profile and objective
- Returns recommendation, allocation mix, confidence, and rationale

- Supports personalization from user trades and holdings

## **Execution Agent**

- Generates a deterministic execution plan
- Enforces gas, slippage, and position size constraints
- Runs in dry-run mode by default

## **MCP Orchestrator**

- Routes requests by intent
- Applies policy gates
- Stores decision logs for auditability

## **Workflow**

1. Ingest on-chain data
2. Generate insights and semantic search results
3. Produce a risk-aware recommendation
4. Build a policy-compliant execution plan
5. Score readiness across data, advisor, and execution

## **Security and Policy Controls**

- Policy modes: read\_only, paper\_trade, execute\_enabled
- Asset and action allowlists
- Max gas, max position size, and slippage bounds
- Decision logging for traceability

## **On-Chain Deployment**

The DecisionLog contract is deployed and verified on BSC mainnet:

- Contract: <https://bscscan.com/address/0x74B9CFd32552630B0bfEF0976Fc1d8198f830242>
- Source: `chain/contracts/DecisionLog.sol`

## **Evaluation and Metrics**

A built-in scorecard measures readiness across:

- Data ingestion and query performance
- Recommendation quality and confidence
- Execution safety and policy compliance

## **Market and Use Cases**

- Wallets and frontends that need explainable trade intent
- Traders seeking risk-aware decision support
- Protocols and funds requiring audited automation flows

## **Roadmap**

See `docs/roadmap-6-month.md` for detailed milestones and delivery plan.

## **Open Source**

Repository: <https://github.com/hongbo-wei/bnb-chain-ai-trading-mvp>

## **Disclaimer**

This project is for research and demonstration only and does not provide financial advice.