Data Model for Decision Support

Version 1.1

1. Logical Data Model

This model exists to support a go/no-go capital deployment decision under standardized execution rules.

1. **Model Scope & Assumptions**

- **Strategic Purpose:** This data model exists to support a binary **Go/No-Go capital deployment decision** under standardized execution rules. It is designed to expose systematic risk violations that might be concealed by aggregate profitability.
- **Grain Assumption (Time):** The model currently utilizes a **Calendar Day (00:00–23:59)** grain for "Daily Performance." This is accepted as a standard proxy for "Trading Session" in a 24/7 synthetic market. *Note: If intraday volatility regimes shift significantly, this may be refactored to a volatility-based "Session Grain" in future iterations.*
- **Risk Calculation Assumption:** "Risk Percent" in Fact_Trades uses OpenBalance as a proxy for AccountEquity. It assumes a standard Contract Size/Tick Value is applied consistently across the Step Index asset class.
- **Drawdown Definition:** DailyDrawdown in Fact_Daily_Account is defined as the **Peak-to-Trough** decline observed within the 24-hour window, not just the close-to-close variance.

2. **Fact_Trades (The "Raw" Truth)**

- **Grain:** One row per individual trade.
- **Purpose:** Calculates Risk % and Duration Drift.
- **Columns (Headers):**
    - TradeID (The MT5 Ticket Number)
    - Symbol (e.g., "Step Index 200")
    - OpenTime (DateTime)
    - CloseTime (DateTime)
    - DurationSeconds (Formula: CloseTime - OpenTime)
    - LotSize
    - OpenBalance (Used as Proxy for Equity at Entry)
    - NetProfit (Swap + Commission + Profit)
    - RiskPercent (Formula: [StopLossDistance * Lot] / OpenBalance)

3. **Fact_Daily_Account (The "Manager" View)**

- **Grain:** One row per calendar day (00:00 to 23:59).
- **Purpose:** Tracks your 15% Drawdown Limit and 3/5 Consistency Rule.

- **Columns (Headers):**
    - Date (e.g., 2025-01-07)
    - StartBalance (Balance at 00:00)
    - EndBalance (Balance at 23:59)
    - DailyNetProfit
    - DailyDrawdown (The lowest point reached that day vs. StartBalance)
    - IsPositiveDay (TRUE/FALSE - for the "Reliability" KPI)

4. **Fact_Symbol_Performance (The "Optimizer" View)**

- **Grain:** One row per Symbol per Day.
- **Purpose:** Tells you *which* Step Index is carrying the load.
- **Columns (Headers):**
    - Date
    - Symbol
    - DailyTradeCount
    - DailySymbolProfit

5. KPI-to-Table Mapping

This table validates that every KPI defined in Module 2 has a specific home in the Module 3 data model.

Module 2 KPI	Source Table	Justification for Grain Choice
KPI 1: Single-Trade Risk Exposure	**Fact_Trades**	**Why Trade Grain?** Risk is calculated at the moment of entry for a *single* position. Aggregating this to a daily level would hide dangerous trades that exceeded the 3% limit but were masked by other safe trades.
KPI 2: Session Drawdown (Max)	**Fact_Daily_Account**	**Why Daily Grain?** The decision criterion is a 15% limit on the *aggregate* account. This table captures the "High Water Mark" and "Low Water Mark" of the entire day, which is exactly what the KPI measures.
KPI 3: Reliability Rate (Daily)	**Fact_Daily_Account**	**Why Daily Grain?** To calculate "4.5 out of 7 days," we need a binary "Win/Loss" flag per day. This table provides the clean IsPositiveDay boolean needed for that simple count.
KPI 4: Recovery Factor	**Fact_Daily_Account** *(Aggregated)*	**Why Daily Grain?** Recovery Factor is a long-term metric (Total Profit / Max Historical Drawdown). We derive this by

		summing DailyNetProfit and finding the MIN(DailyDrawdown) from this table over the full history.
KPI 5: Trade Duration Drift	**Fact_Trades**	**Why Trade Grain?** To detect "drift," we need to see the outliers. If we averaged duration at a daily level, one "stuck" trade of 12 hours would be diluted by ten quick scalps. Trade-level grain exposes the specific outliers.
Attribution (Step Index Selection)	**Fact_Symbol_Performance**	**Why Symbol Grain?** This is the specific table needed to answer the "Which Step Index should I fire?" question. It isolates profit and drawdown per instrument.

Note on Implied Dimensions: While this model focuses on Fact tables for immediate decision support, it strictly adheres to a Star Schema logic by assuming the existence of:

- **Dim_Symbol:** To store instrument metadata (Tick Value, Contract Size) and support the "Step Index only" filter.
- **Dim_Date:** To support calendar-based rollups (Day of Week analysis).

Note on Extensibility: This model is designed for scalability. Future iterations can support multiple strategies, or parameter sets by introducing an **ExecutionConfigID** dimension, allowing for side-by-side comparison of different EA versions without altering the core Fact structure.

6. Design Justification

Standard MT5 reports are transactional and prone to aggregation bias. This model normalizes data into three specific grains to prevent analytical errors:

- **`Fact_Trades`** isolates behavioral risks (Duration Drift, Position Sizing) that are invisible in daily summaries.
- **`Fact_Symbol_Performance`** enforces attribution, preventing a single over-performing instrument from masking the failure of others.
- **`Fact_Daily_Account`** acts as a governance layer for the 15% drawdown limit.

Failure Mode Prevention: Crucially, this structure prevents capital allocation decisions from being influenced by isolated profitable days that conceal systematic risk violations. It ensures that a "profitable" strategy is rejected if it achieves that profit through unacceptable volatility or hold times.