

Valora AI – Clean Architecture Diagram & Product Requirements Document (PRD)

1. Clean Architecture Overview (Logical Diagram)

DATA SOURCES	INGESTION & ORCHESTRATION	DATA WAREHOUSE (Bronze/Silver/Gold)	→	KPI ENGINE
			↓	
			AI/ML LAYER (Forecast + Risk + Actions + What-If)	
			↓	
			INSIGHTS API LAYER	
			↓	
			UI + ALERT ENGINE + NOTIFICATIONS	

2. Product Requirements Document (Component-by-Component)

2.1 Core APIs

- GET /kpis?date=YYYY-MM-DD – Returns daily KPI snapshot
- GET /insights – Returns driver explanations + trends
- GET /risks?severity=... – Returns risk queue
- POST /whatif – Returns projected KPI trajectory for selected action
- POST /actions/commit – Logs owner-approved action
- GET /actions/history – Returns historical actions + realized impact

2.2 Core Data Tables

- fact_sales_line_item (transaction-level sales)
- fact_inventory_movement (usage, waste, receipts)
- fact_vendor_invoice (cost & price trends)
- fact_labor_shift (hours & wages)
- fact_actions_taken (closed-loop tracking)
- dim_item, dim_sku, dim_recipe_bom, dim_calendar, dim_store

2.3 AI Model Endpoints

- /model/forecast – Demand & cost forecasting
- /model/anomaly – Risk & anomaly scoring
- /model/recommend – Action ranking & ROI scoring
- /model/whatif – Scenario simulation engine
- /model/explain – Driver attribution & narrative

2.4 Alert Severity Formula

Severity Score = f(Estimated Impact \$, Model Confidence, Persistence, Business Criticality, Reversibility) Critical: High \$ impact + high confidence + operational risk Warn: Moderate impact + persistent trend Watch: Early drift Info: Low urgency / monitoring signal

2.5 UI Screens

- Dashboard: Today's Health (KPIs + deltas)

- Risk Center: Severity-based alert queue
- Recommended Actions Panel (ranked by ROI)
- What-If Studio (interactive simulation preview)
- Action Tracker (expected vs realized impact)
- Executive Daily Summary (auto narrative)

3. MVP Definition of Done

Every morning, Valora AI refreshes KPIs, identifies top risks with dollar impact, recommends ranked actions, allows one-click what-if preview, and sends severity-based notifications. All outputs are auditable and traceable.