ENTERPRISE DATA & AI ARCHITECTURE

The Full Stack

4 layers

OUT OF THE STACK — Customers · Employees · Business systems — REAL-WORLD OUTCOMES

LAYER 4 — AI

Front-facing: content and action

- FOUNDATION: Foundation models
- GENERATIVE · REACTIVE: Prompt in → content out
- AGENTIC · CLOSED LOOP: PLAN → ACT → OBSERVE → ADJUST
- CHECKPOINT: Human in the loop

LAYER 3 — Machine Learning

The engine: predicting what's next

- DATA: Training data
- FEATURES: Engineering
- THE ENGINE: Train · retrain
- REGISTRY: Versioning
- SERVING: Inference
- MONITORING: Drift watch

FEEDBACK LOOP — DRIFT RETURNS TO TRAINING

LAYER 2 — Analytics & BI

The rear-view mirror: what happened

- INPUT: Curated data
- SEMANTIC: Shared metrics
- DASHBOARDS: Descriptive
- DIAGNOSTIC: Why it happened
- CONSUMERS: Business users

LAYER 1 — Data

The foundation: trustworthy data

- SOURCES: Source systems
- INGESTION: Integration
- GOVERNANCE GATE: Quality & standards
- PLATFORM: Lake & warehouse
- ACCESS: Discoverability

LINEAGE & TRUST THREAD — TRACEABLE SOURCE TO CONSUMPTION

THE FULL STACK — FROM TRUSTWORTHY DATA TO REAL-WORLD ACTION

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