



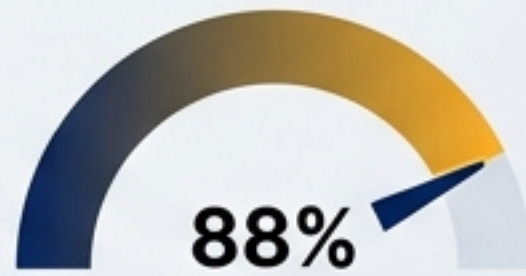
AI Smart Hospital Command Center

Architectural Blueprint &
System Specifications for
Singapore General Hospital

The Core Mandate & Target Personas

Hospital Operations Director

Goal: Resource optimization & demand forecasting.



Fleet Uptime

Core Focus: Fleet status (medical robotics), real-time patient flow bottlenecks, predictive intelligence.

Clinical Department Head

Goal: Diagnostic accuracy & clinical efficiency.



AI Confidence Avg

Core Focus: AI imaging confidence scores, bedside documentation generation, clinical triage speed.

MOH Compliance Auditor

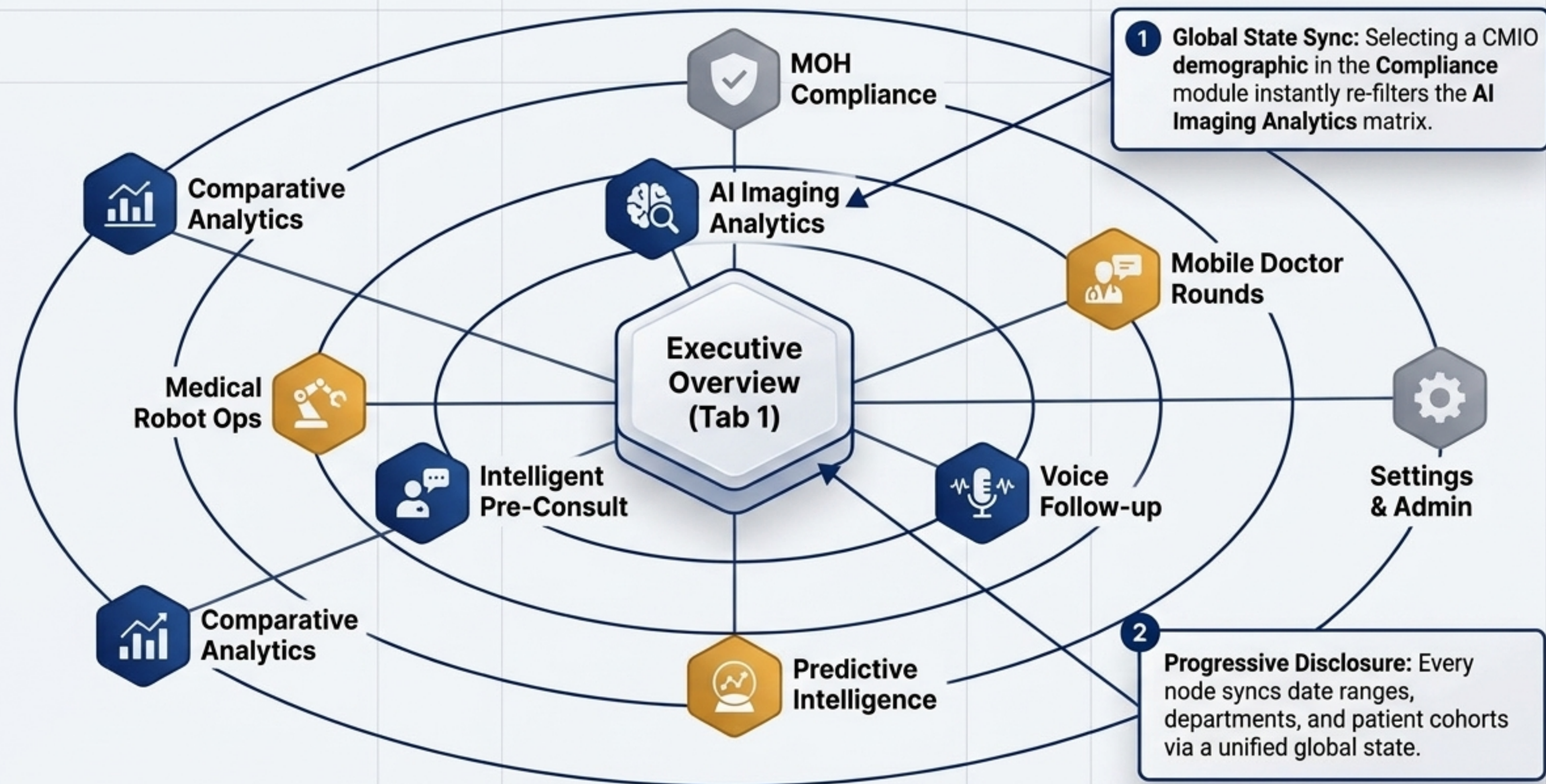
Goal: Regulatory adherence & zero-trust governance.



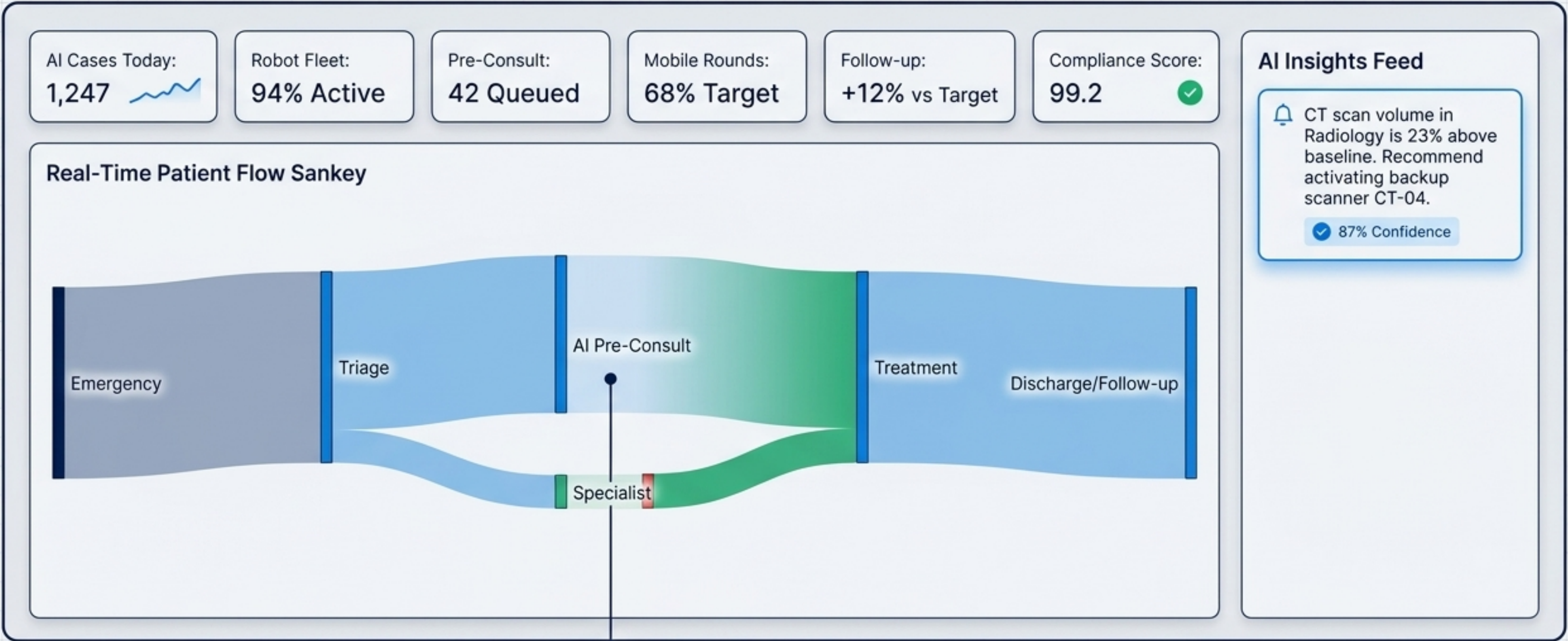
Zero Anomalies

Core Focus: PDPA compliance, AI bias elimination (via CMIO framework), HSA device registration tracking, audit-ready data trails.

System Architecture: The Ecosystem Orbit



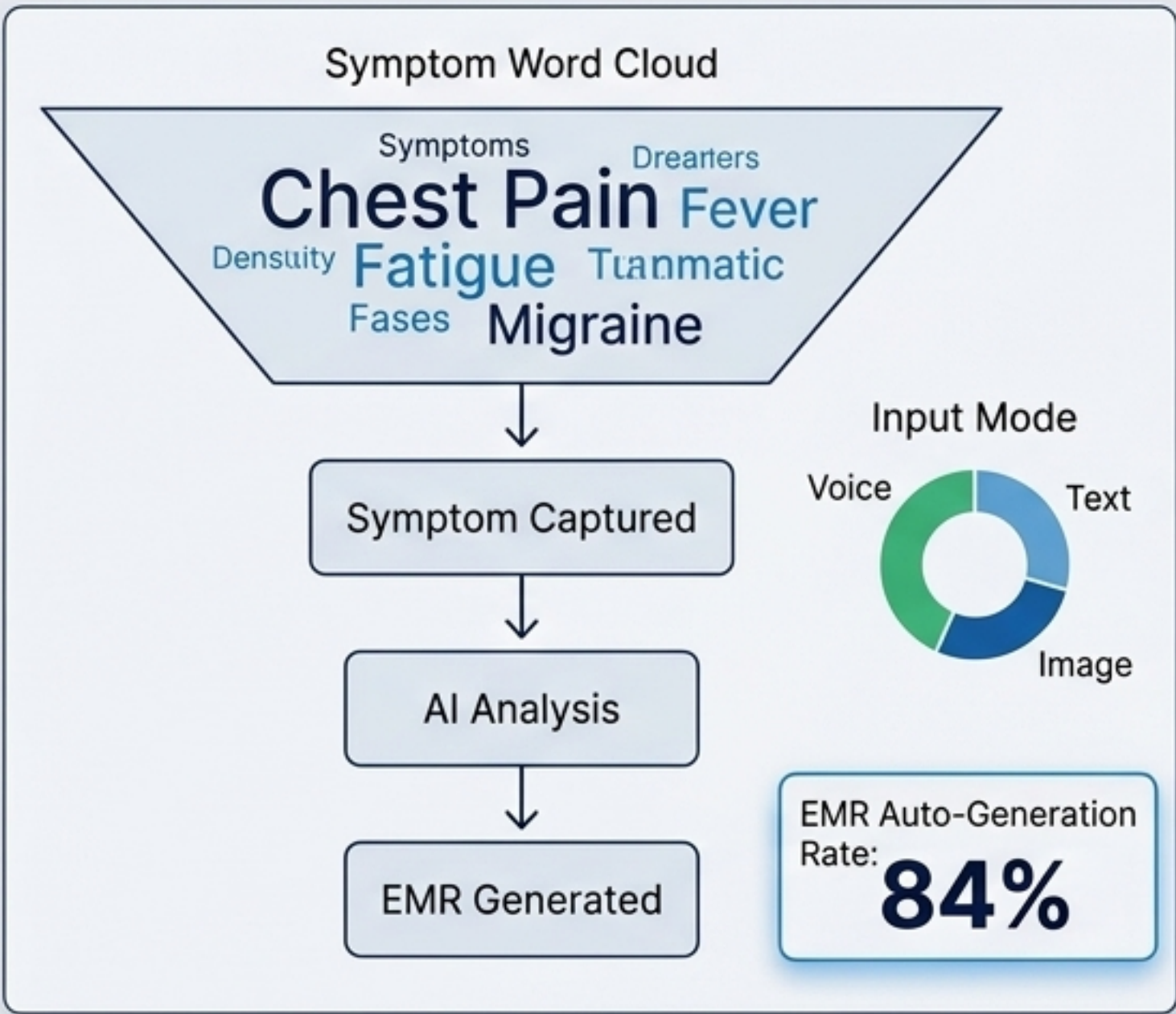
L0 Nucleus: The Executive Overview



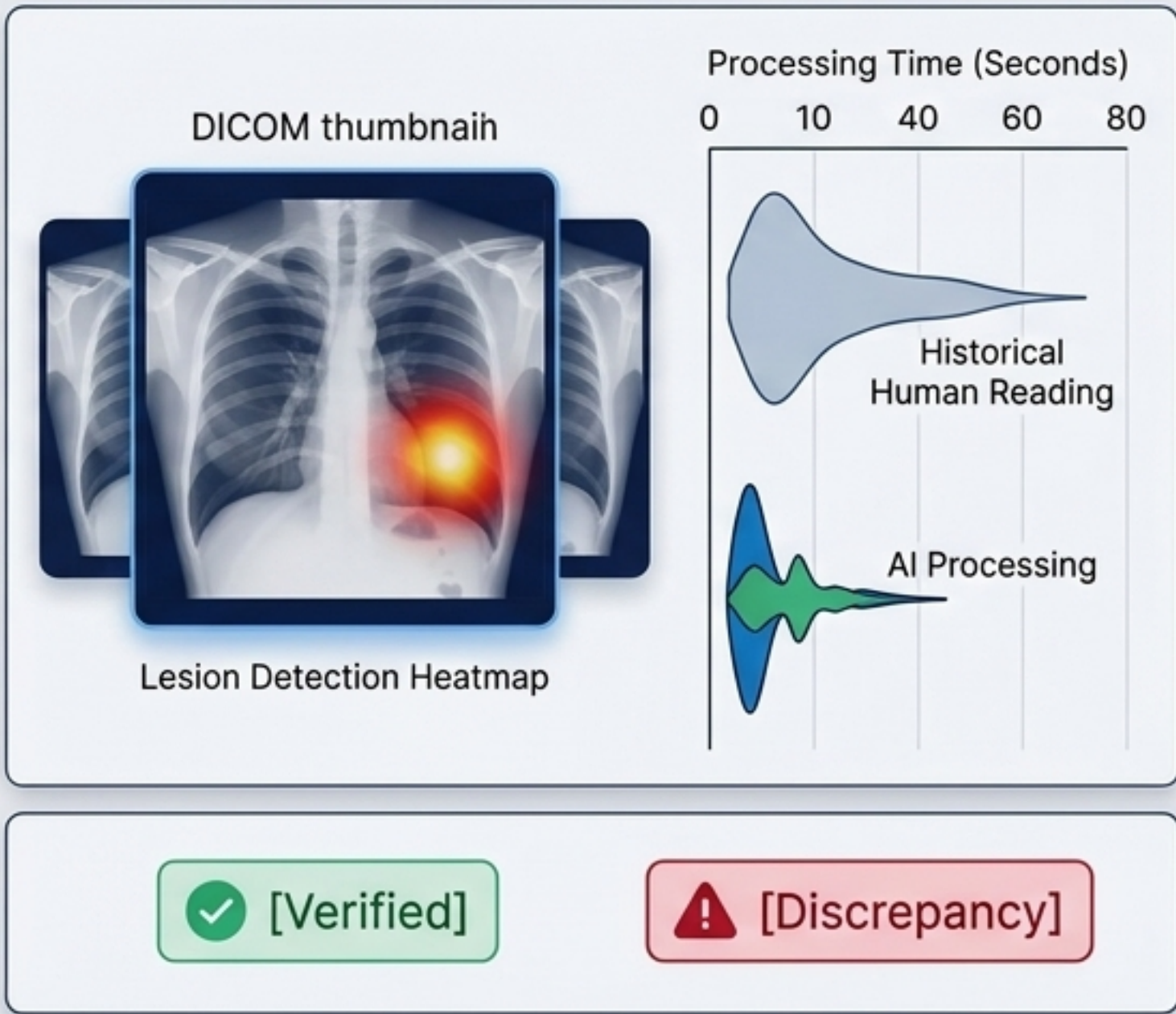
→ Node clicks dynamically filter all downstream charts.

Clinical Intelligence: Triage & Diagnostics

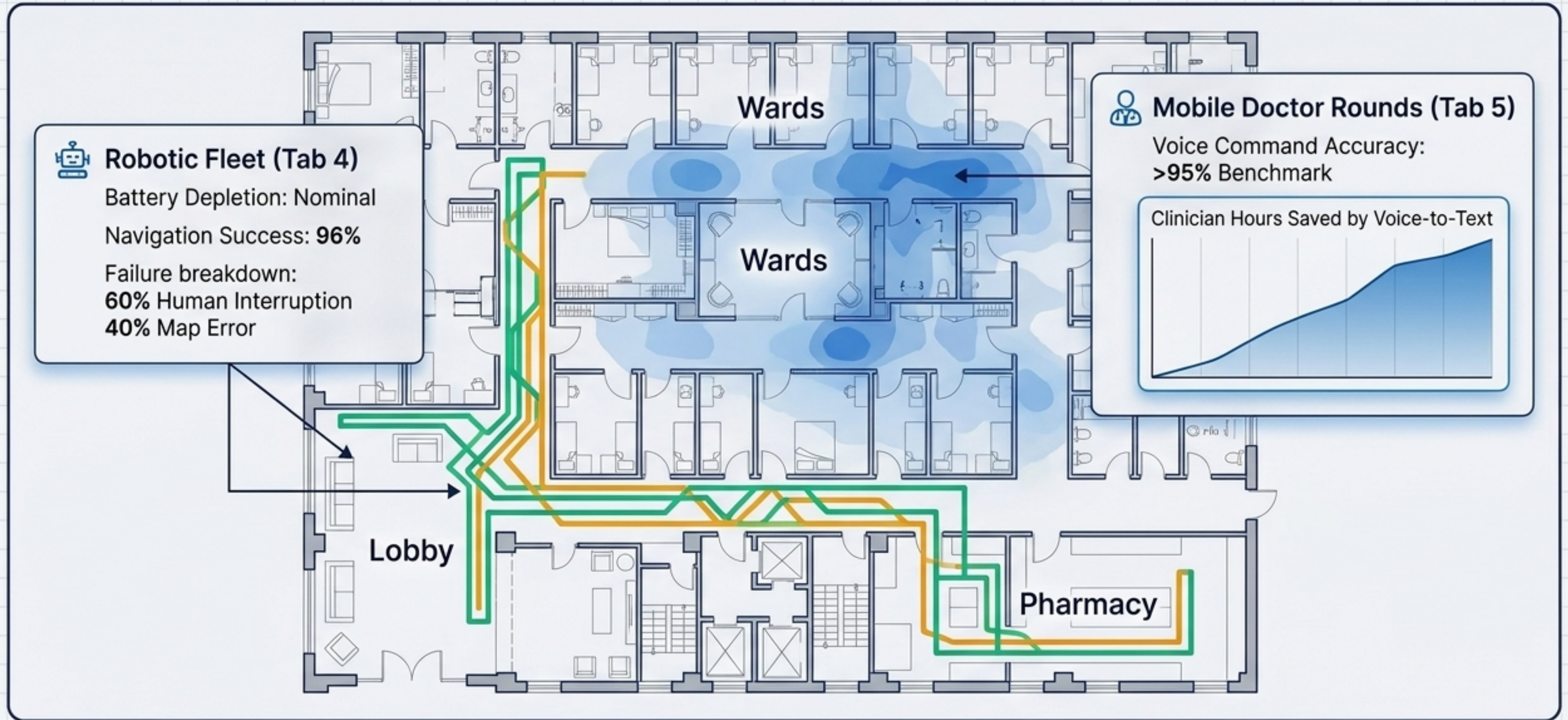
Tab 3: Intelligent Intake



Tab 2: AI Imaging Analytics

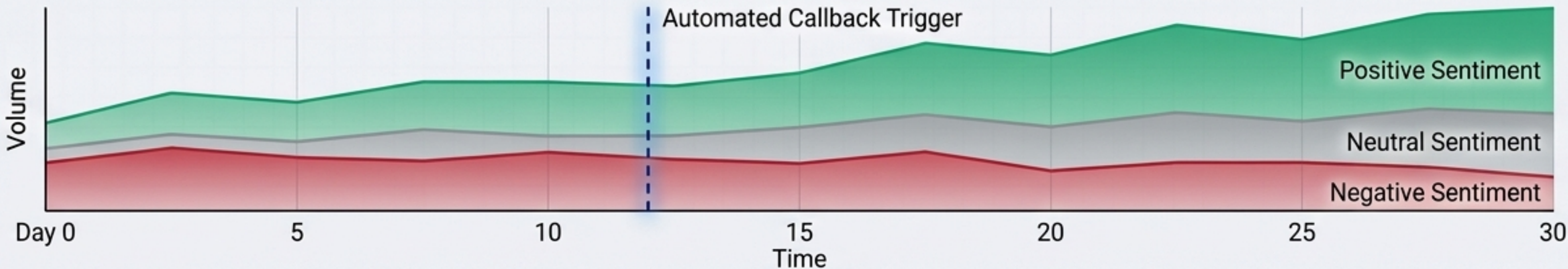


Operational Optimization: Kinetic Assets



Patient Engagement: Autonomous Voice Follow-up

Sentiment & Progression Timeline



Geographic Distribution



Callback Priority Queue

	Patient ID	Urgency Score	Key Trigger 
1	S****492K	98/100	Audio Sentiment  + "Pain"
2	S****118M	92/100	Audio Sentiment + "Medication"

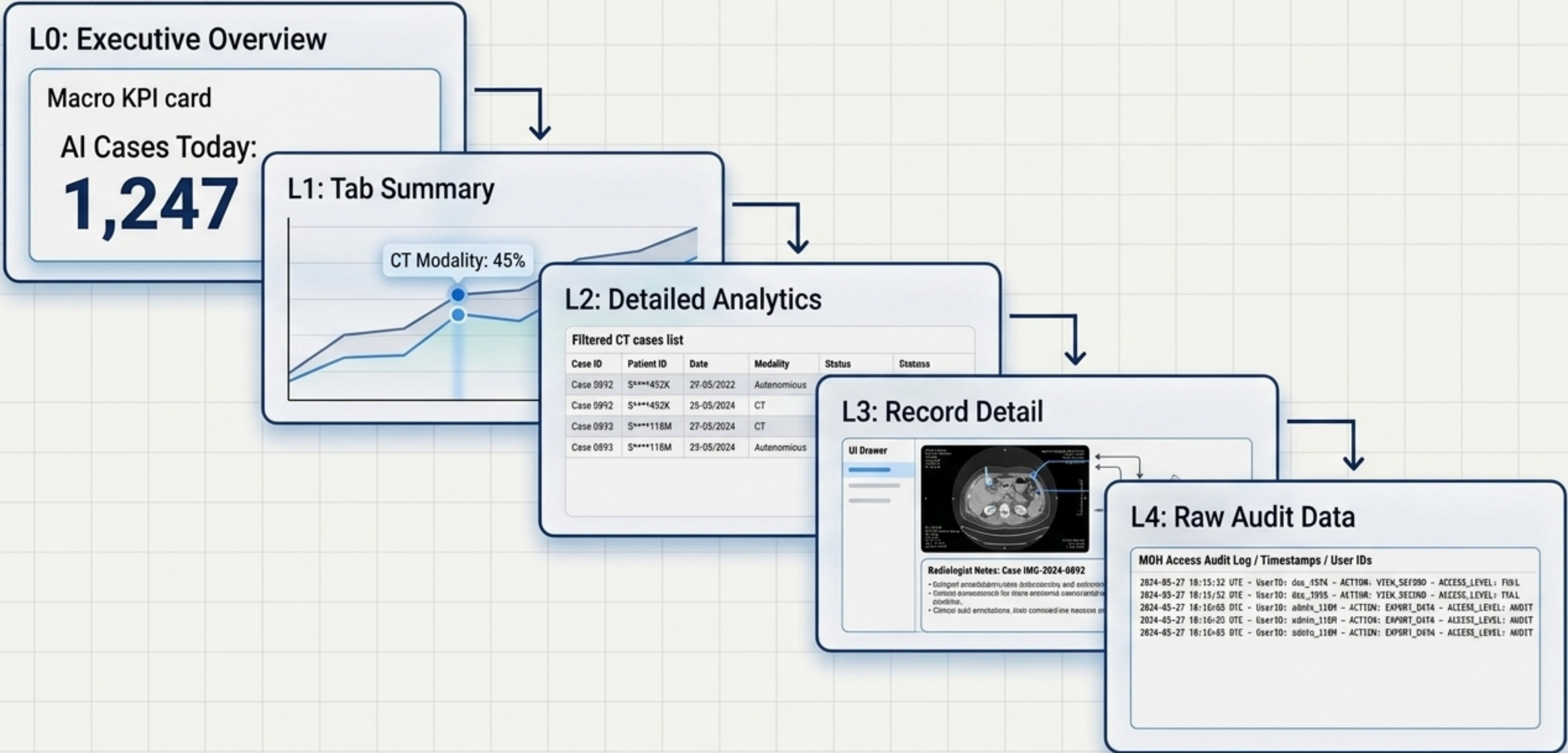
System parses raw audio sentiment and clinical keywords to autonomously generate human callback queues.

Comparison Matrix: AI Modality Normalization

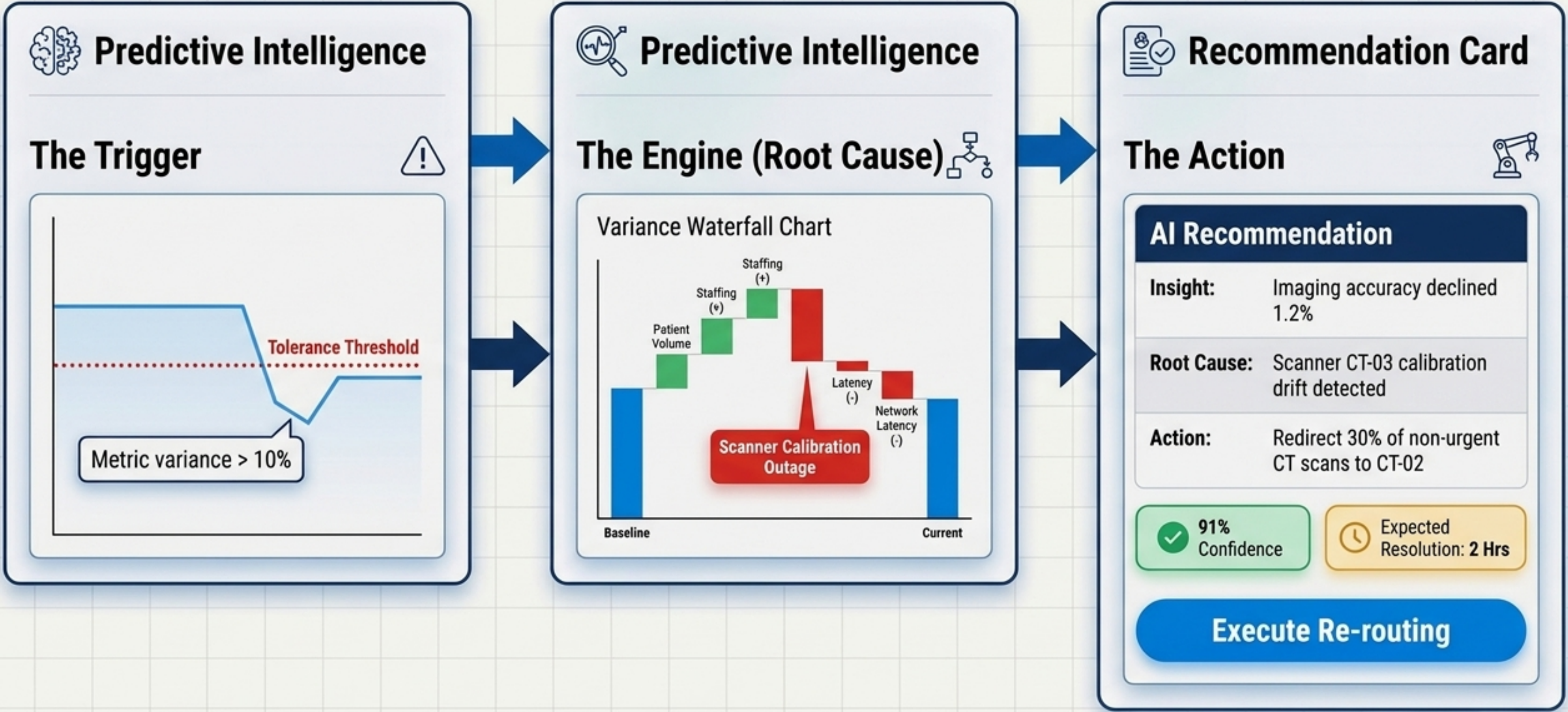
Modality	Input Data Type	Core AI Function	Human-in-the-Loop SLA	Primary Optimization KPI
Imaging AI	DICOM Scans	Anomaly Detection	<2 hrs review time	Processing time saved
Pre-Consult Triage	Text / Voice / Image	Predictive Routing	Manual override capable	EMR auto-gen rate
Robotic Fleet	Live Spatial & Lidar	Path Optimization	Remote tele-op takeover	Navigation success rate
Mobile Rounds	Ambient Clinical Audio	NLP Structuring	Doctor review at bedside	Clinician hours saved
Voice Follow-up	Patient Audio Calls	Sentiment Analysis	Priority callback queue	Response completion %

Synthesis: Despite disparate data structures, all 5 modalities map back to a unified time-saving and accuracy metric within the Tab 7 Comparative Analytics engine.

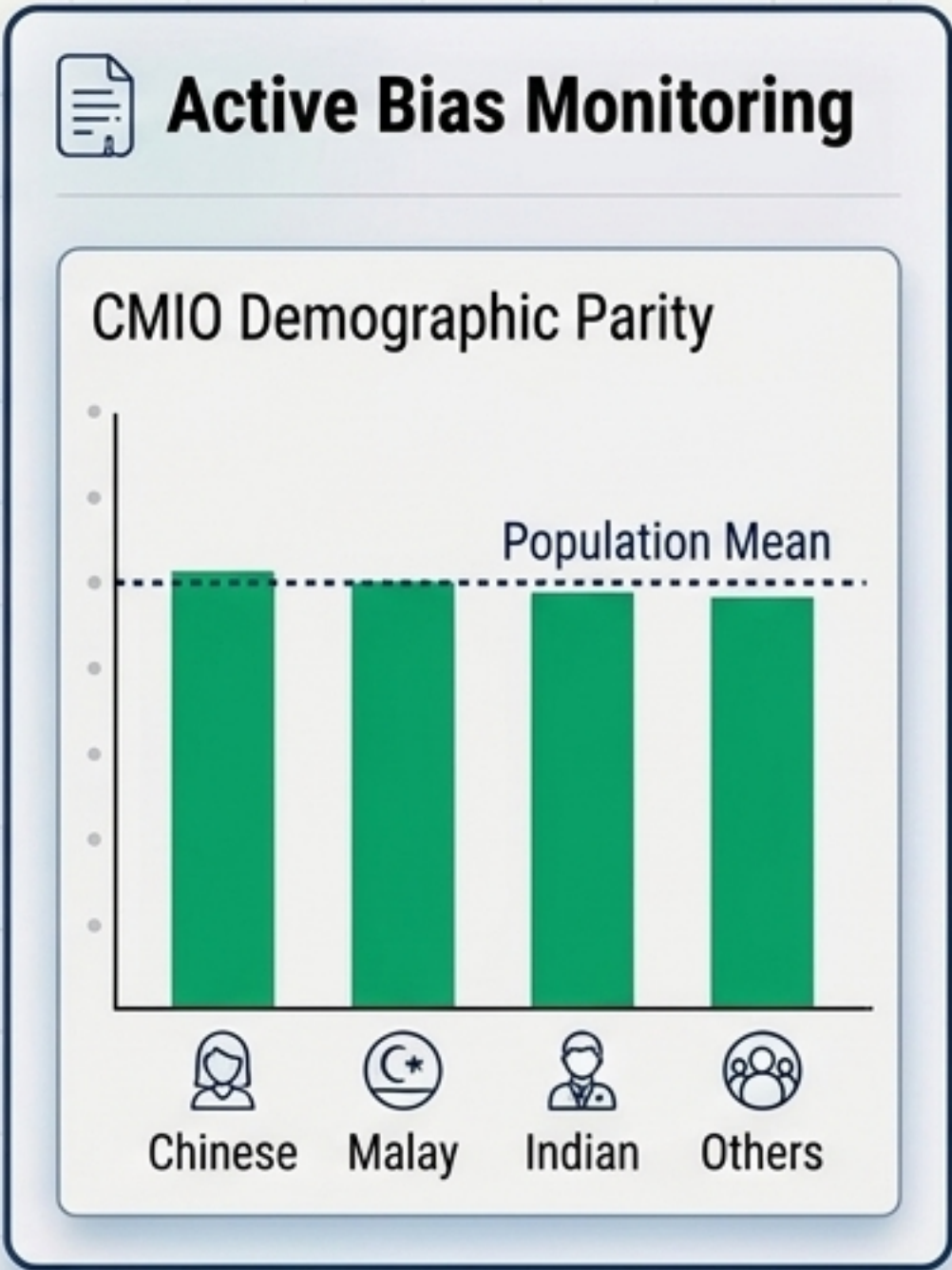
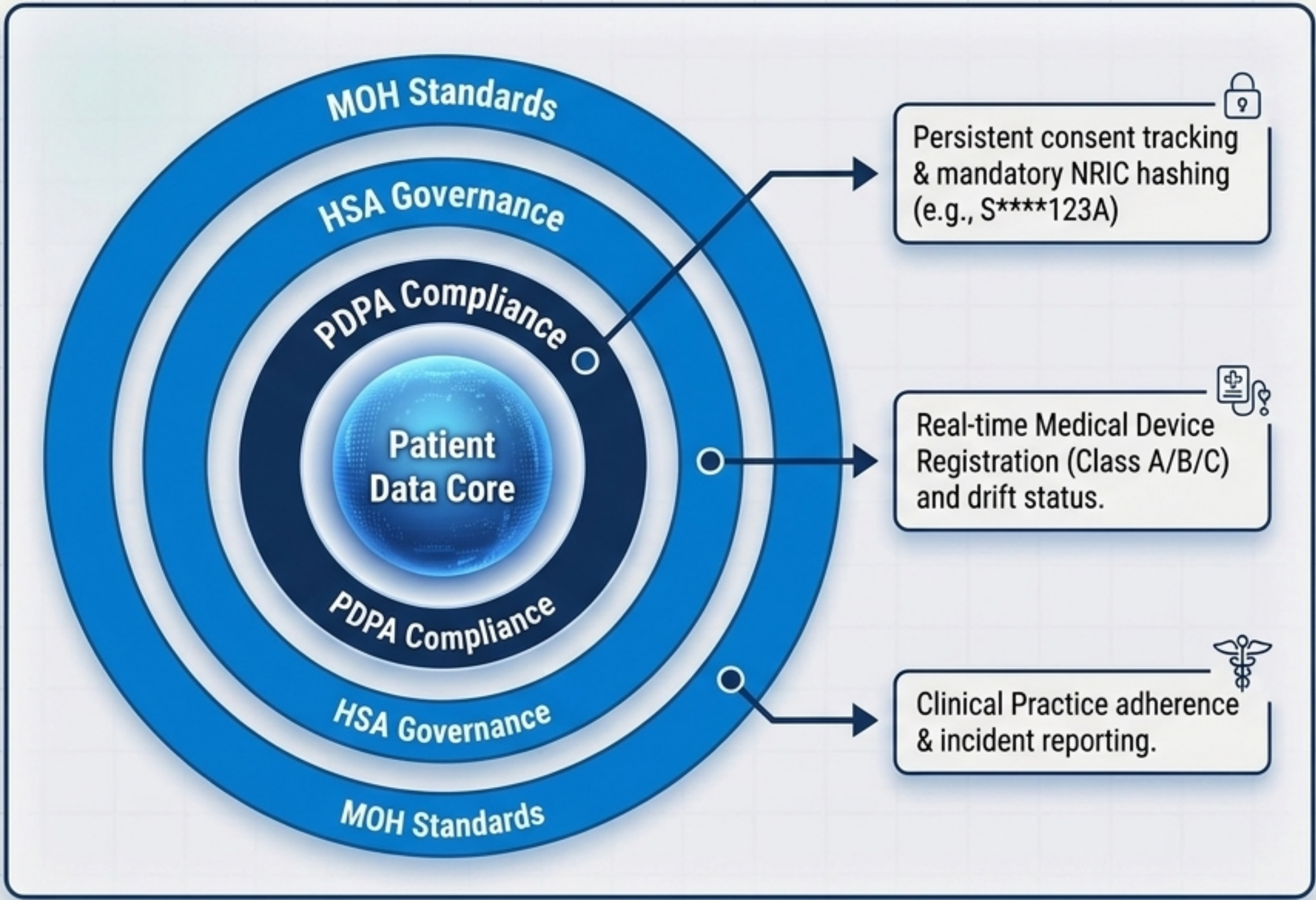
UX Architecture: Progressive Disclosure Funnel



Predictive Intelligence: Trigger to Action

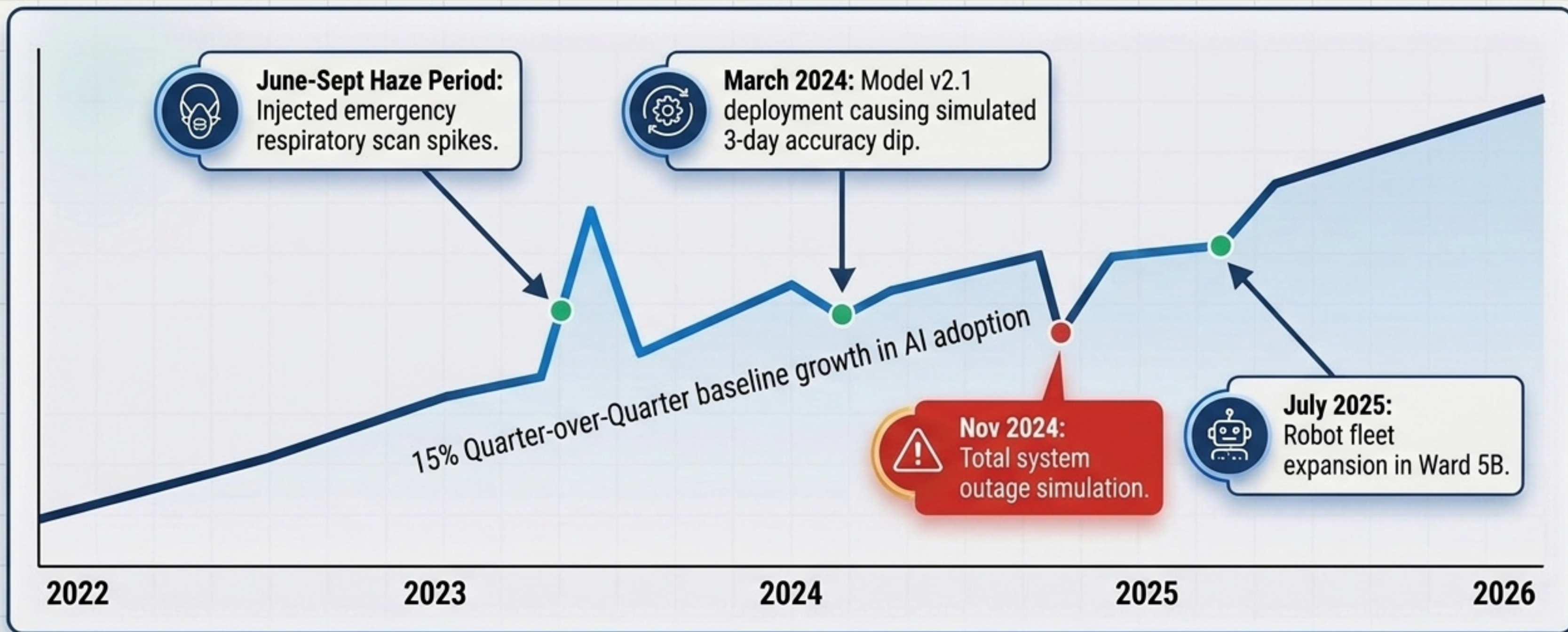


Data Governance: The Regulatory Moat



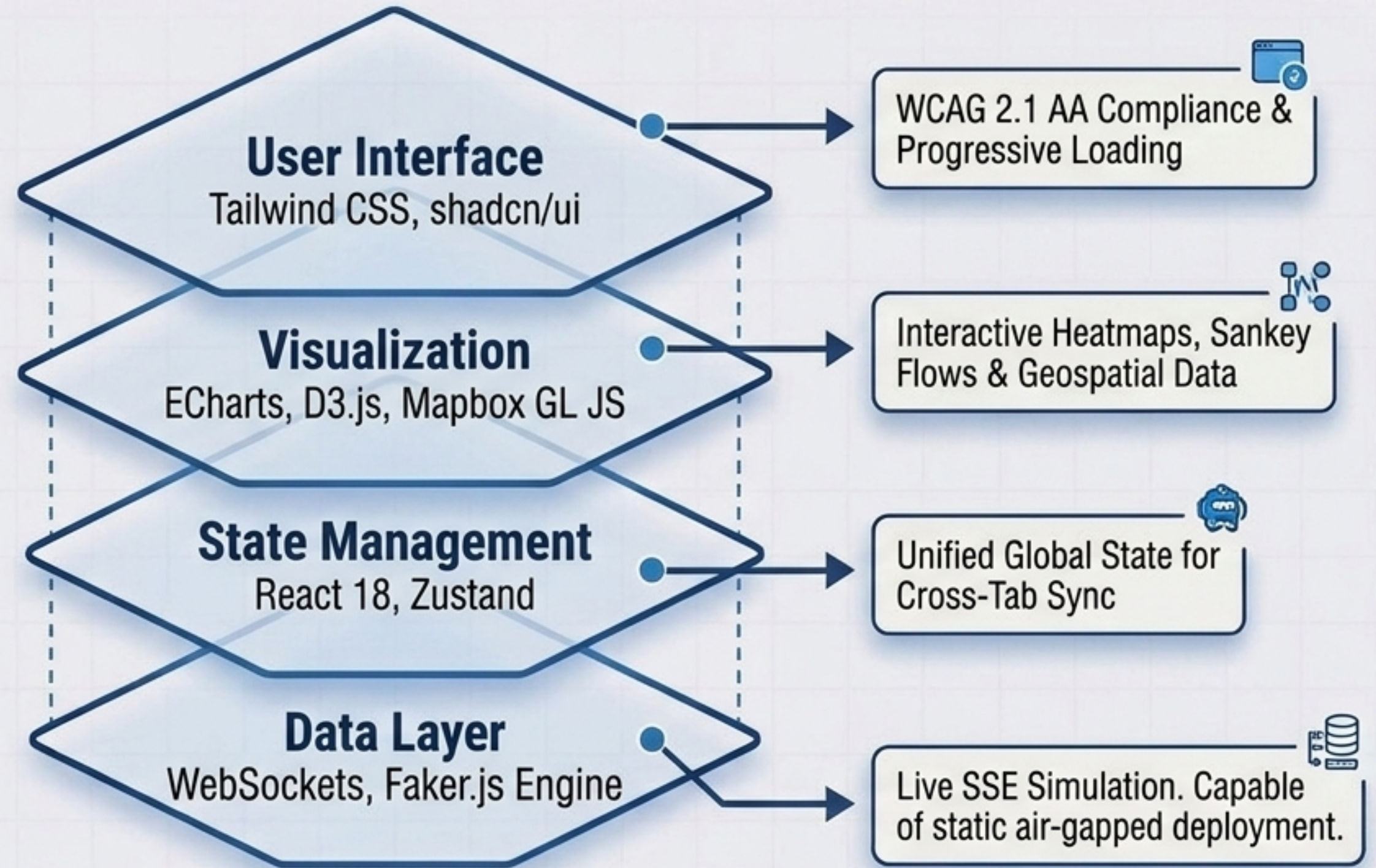
↓ Export MOH-Compliant Audit PDF

Data Realism: The Synthetic Testing Engine

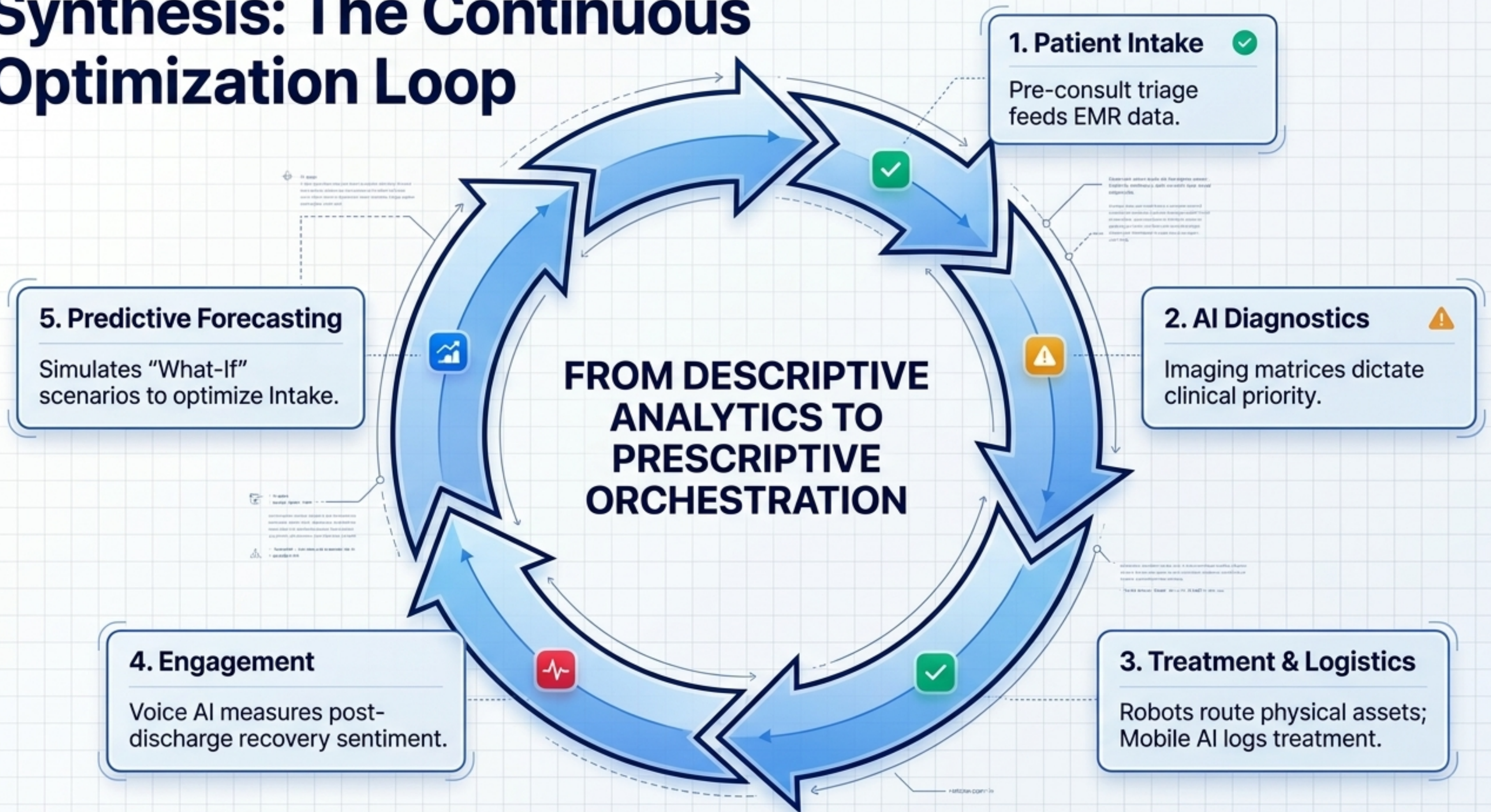


System architecture validated against a rigorous rules engine generating 5 years of statistically accurate, CMIO-weighted synthetic distributions prior to live deployment.

Architecture Blueprint: The Technical Stack



Synthesis: The Continuous Optimization Loop



Deployment Readiness & Final Deliverables

Execution Checklist

- [Deployed]** Complete, runnable React application covering all 10 functional modules.
- [Generated]** 2022–2026 Synthetic Dataset output (JSON/CSV with strict realistic distributions).
- [Documented]** Comprehensive component architecture mapping and Data Dictionary.
- [Configured]** Demo Mode locked to June 2026 with pre-loaded insights and variance triggers.

Build Status

> vite build

✓ 284 modules transformed.

dist/index.html	1.24 kB
dist/assets/index-b4f2c9.js	482.11 kB

✓ optimized production build sequence complete.

✓ Ready for SingHealth/NUHS cluster integration.