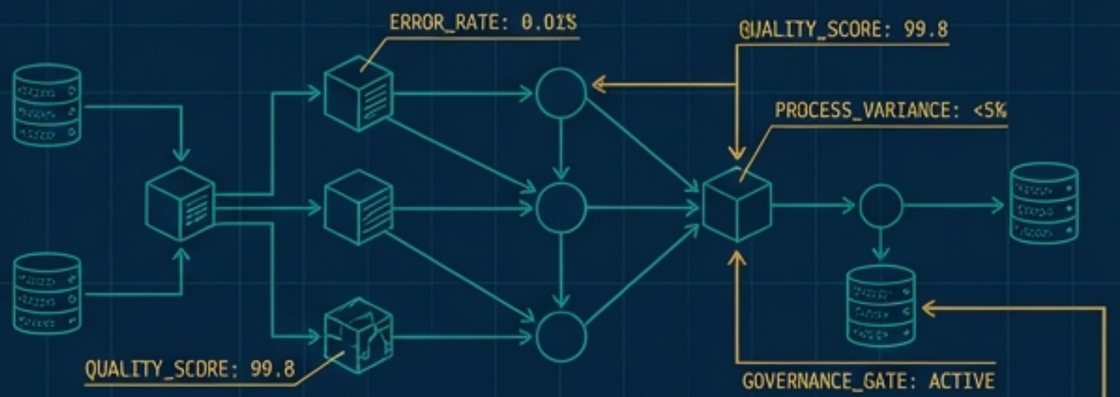
Six Sigma for Autonomous AI

Bringing measurable, governable quality to agent operations.

Corvair | Patent-Pending Unified Governance System

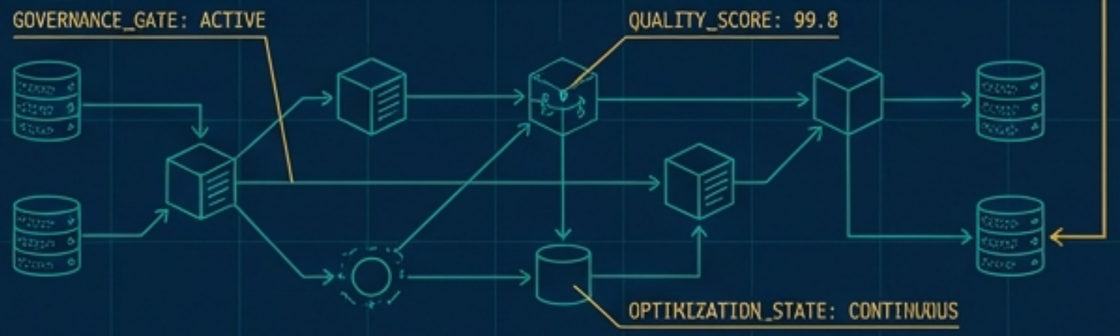
Manufacturing solved the quality problem decades ago with Six Sigma.

AI agent operations face the exact same challenge — waste, variation, and defects — but without the measurement tools.

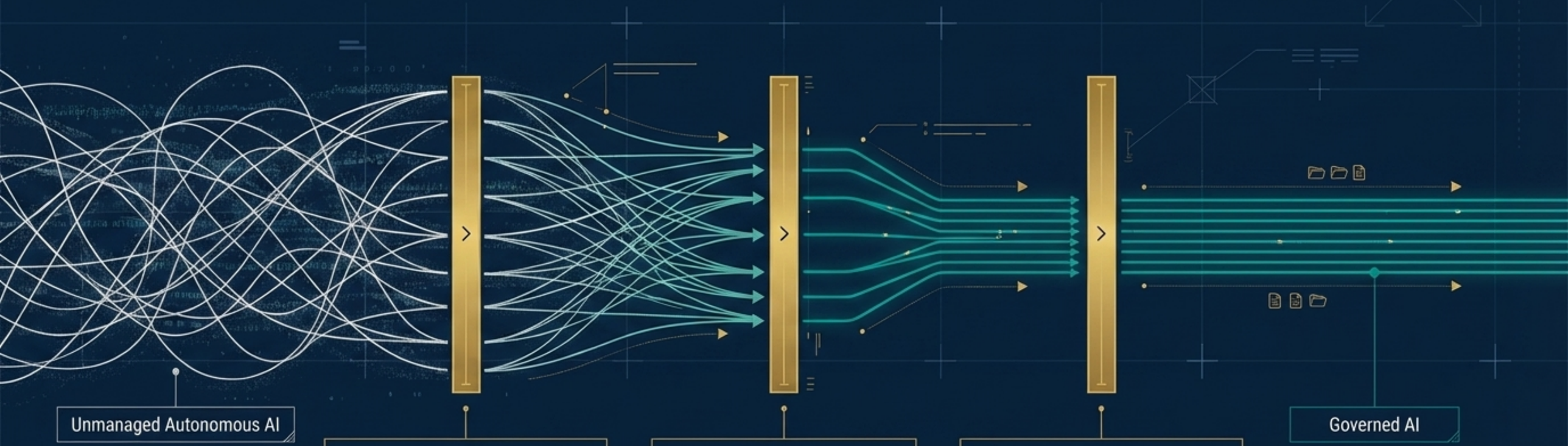


Corvair's patent-pending system brings Six Sigma discipline to autonomous AI.

We make agent process quality measurable, governable, and continuously improvable.



The Three Pillars of Agent Quality



Unmanaged Autonomous AI

Governed AI

Muda (Operational Waste)

Identifying and quantifying excess authority and inefficiency before they manifest as risk.

The DMAIC Engine

The real-time tactical command-and-control cycle (Define, Measure, Analyse, Improve, Control).

Poka-Yoke (Mistake-Proofing)

Deployment gates and proactive simulations intercepting defects left-of-boom.

Cumulative Authority Creates Computable Waste

In lean manufacturing, Muda is any activity that consumes resources but creates no value. In autonomous software, Muda is the dangerous accumulation of unnecessary authority, access, and risk through delegation chains.

Corvair's patent-pending risk quantification engine treats cumulative authority not as a static setting, but as a measurable volume—tracking exact inefficiencies across five distinct categories of operational waste.

The 5 Computable Categories of Agent Waste

Permission Waste	Authority held dynamically or statically but not strictly required for the declared mission.
Capability Waste	High-risk inherent abilities (e.g., shell execution, code generation) that the current mission intent does not require.
Exposure Waste	Data domain and database access far beyond strict operational need.
Transport Waste	Unnecessary network or environment hops that introduce compounded latency and systemic risk.
Defect Waste	Historical error rates and policy violations indicating underlying process fragility.

Operationalizing DMAIC at Millisecond Speed

Six Sigma relies on the DMAIC cycle to eliminate defects. Corvair's patent-pending architecture hardcodes this philosophy into a real-time tactical command-and-control loop that evaluates every single privilege request an agent makes.

System State: REAL-TINE ENFORCEMENT

Define: The Baseline as Commander's Intent

Quality begins with a version-controlled authoritative system of record.

Digital Birth Certificate

IDENTITY BINDINGS

```
[Subject ID]:   AGENT-0B1X-ALPHA
[Role]:         EDGE_PROCESSOR
[Origin Hash]:  0x4B2C8F...3A0E
[Signature]:    VALID_SIGNED_BOOT
```

APPROVED CAPABILITIES

```
[API Access]:   READ_ONLY_SENSOR_DATA
[Function Call]: NONE
[Data Domain]:  LOCAL_CACHE_ONLY
[Execution]:    ISOLATED_CONTAINER
```

DELEGATION BOUNDARIES

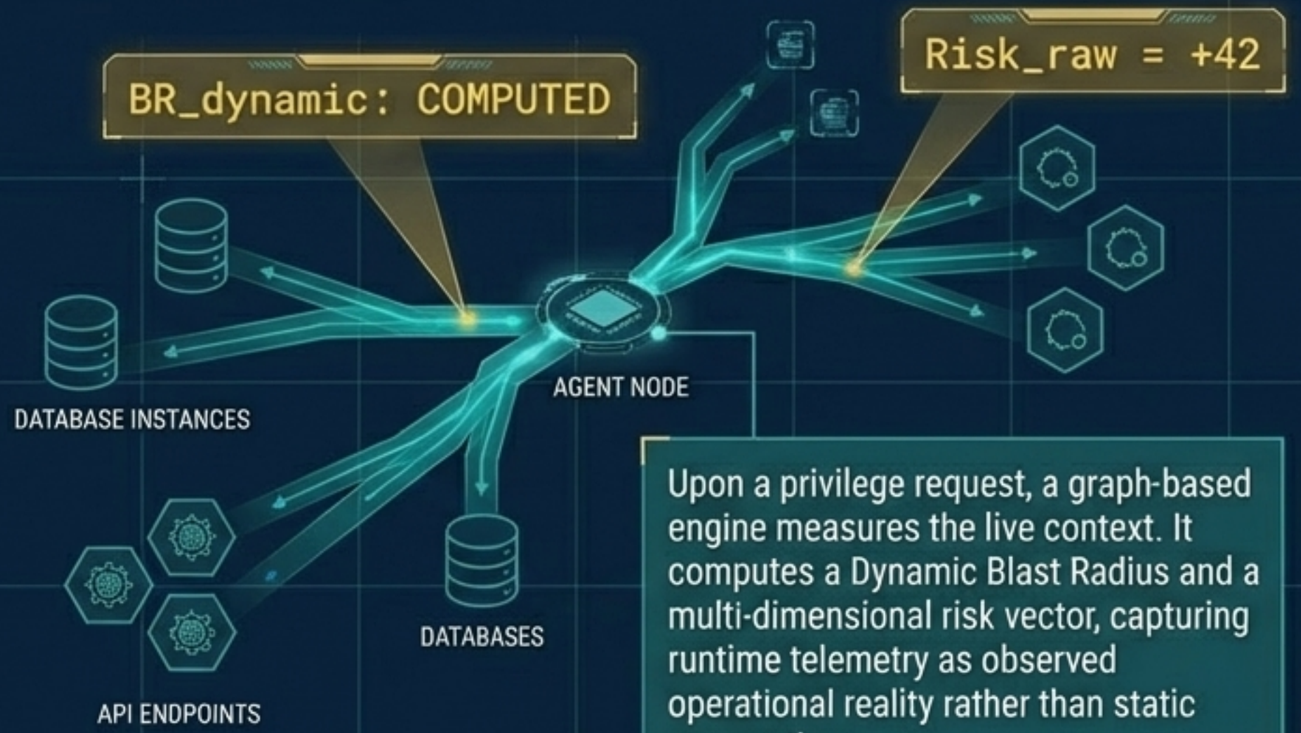
```
[Max Hops]:     0
[Peer Access]:  BLOCKED
[Admin Scope]:  NONE
[Exfiltration]: DISALLOWED
```

The **Agent Registry** stores the signed baseline profile.

This establishes the Commander's Intent—defining exact identity bindings, approved capabilities, data domains, and delegation boundaries prior to any deployment.

Measure: Dynamic Risk Scoring on Every Action

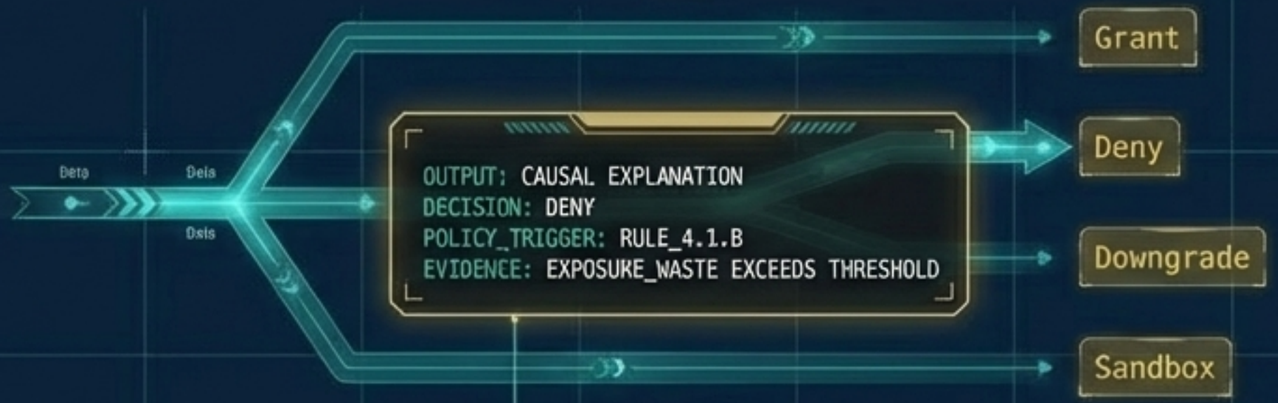
You cannot govern what you cannot measure in context.



Upon a privilege request, a graph-based engine measures the live context. It computes a Dynamic Blast Radius and a multi-dimensional risk vector, capturing runtime telemetry as observed operational reality rather than static assumptions.

Analyse: Policy Evaluation with Causal Explanation

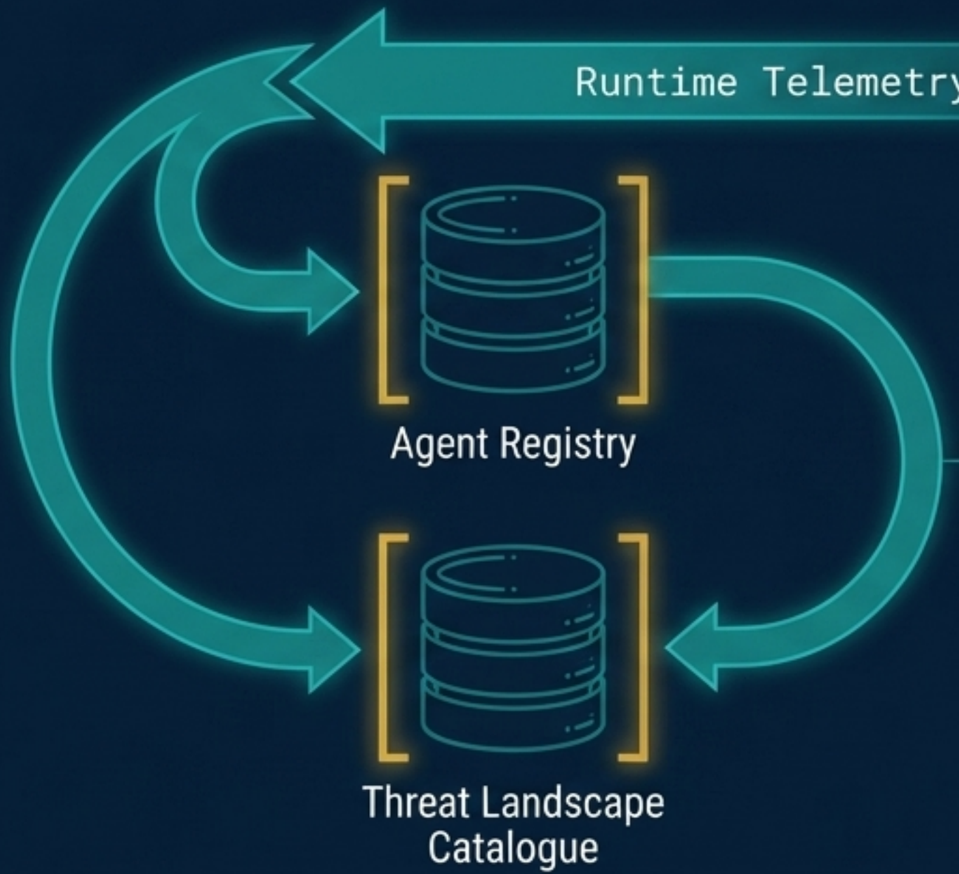
Decisions must be deterministic, transparent, and bound to verifiable evidence.



The **Policy Decision Point** evaluates measur risk against version-controlled thresholds. Every decision is issued with a strict **Causal Explanation**, recording the exact path, graph snapshot, and policy rule versions that triggered the outcome.

Improve: The Continuous Feedback Loop

Governance must evolve adaptively with the threat surface.



Runtime telemetry drives design-time improvement.

Bidirectional reconciliation feeds live data back to refine the Agent Registry and continuously tune the Threat Landscape Catalogue, programmatically compressing the agent's Operational Waste over time.

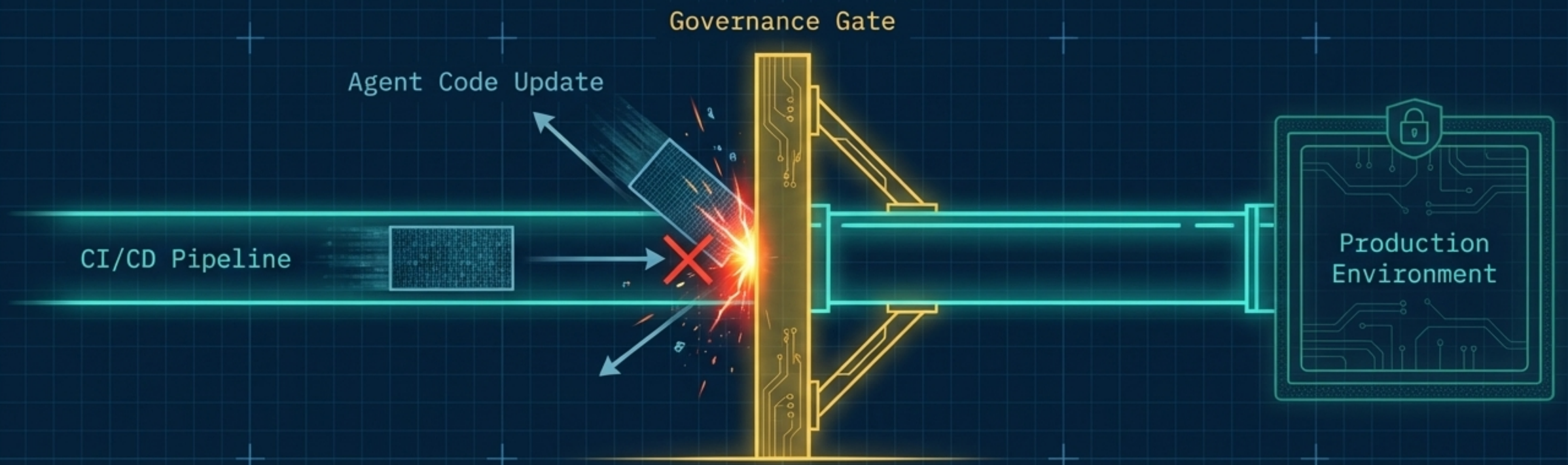
Control: Inline Enforcement & Revocation

Enforcing Zero Standing Privilege through precise, time-bounded orchestration.

```
TTL: 00:05:00
STATE: REVOCATION_PENDING
```

The **Provisioning Orchestrator** mints minimal, ephemeral credentials strictly consistent with the Registry baseline. These credentials are deterministically revoked on action completion, timeout, or dynamic risk escalation.

Poka-Yoke: The CI/CD Governance Gate



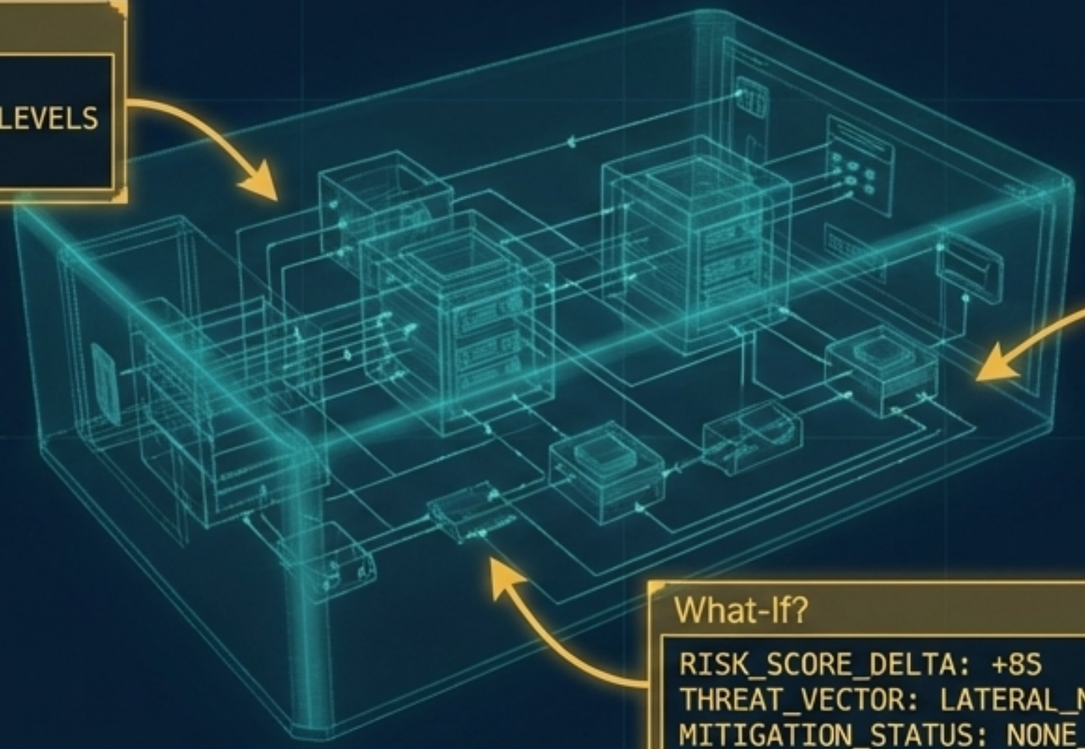
In manufacturing, a poka-yoke is any mechanism that physically prevents a mistake from being made. Corvair builds this structural barrier directly into the deployment pipeline.

Acting as a control-type error-prevention mechanism, the CI/CD governance gate intercepts deployments, compares them against the signed baseline, and physically blocks non-conformant agents from ever reaching production environments.

Warning-Type Poka-Yoke: Predictive Impact

What-If?

```
SIM_BLAST_RADIUS: +14%
MAX_PRIVILEGE_ESCALATION: 4 LEVELS
IMPACT_SCOPE: WIDE
```



What-If?

```
POLICY_OUTCOME: DENY_PROJECTED
VIOLATION_TYPE: DATA_EXFILTRATION
RULE_REF: ISO27001_A.12.1
```

What-If?

```
RISK_SCORE_DELTA: +85
THREAT_VECTOR: LATERAL_MOVEMENT
MITIGATION_STATUS: NONE_INFERRED
```

Before committing code, engineering teams must understand the emergent authority their agents will inherit. The Proactive Risk Simulation Engine allows developers to perform deep what-if analysis. It constructs a hypothetical future state, recalculating risk metrics and predicting policy outcomes before a single line of new code is deployed.

The Mathematics of Agent Quality

Agent Trust Score

$$[\,1000 \times (1 - \text{Risk}_{raw})\,]$$

The dynamic scale inverting multi-dimensional risk into an actionable, 0-1000 trust metric.

Threat Landscape Impact

$$[\,\text{IRV} \times \text{PIV}\,]$$

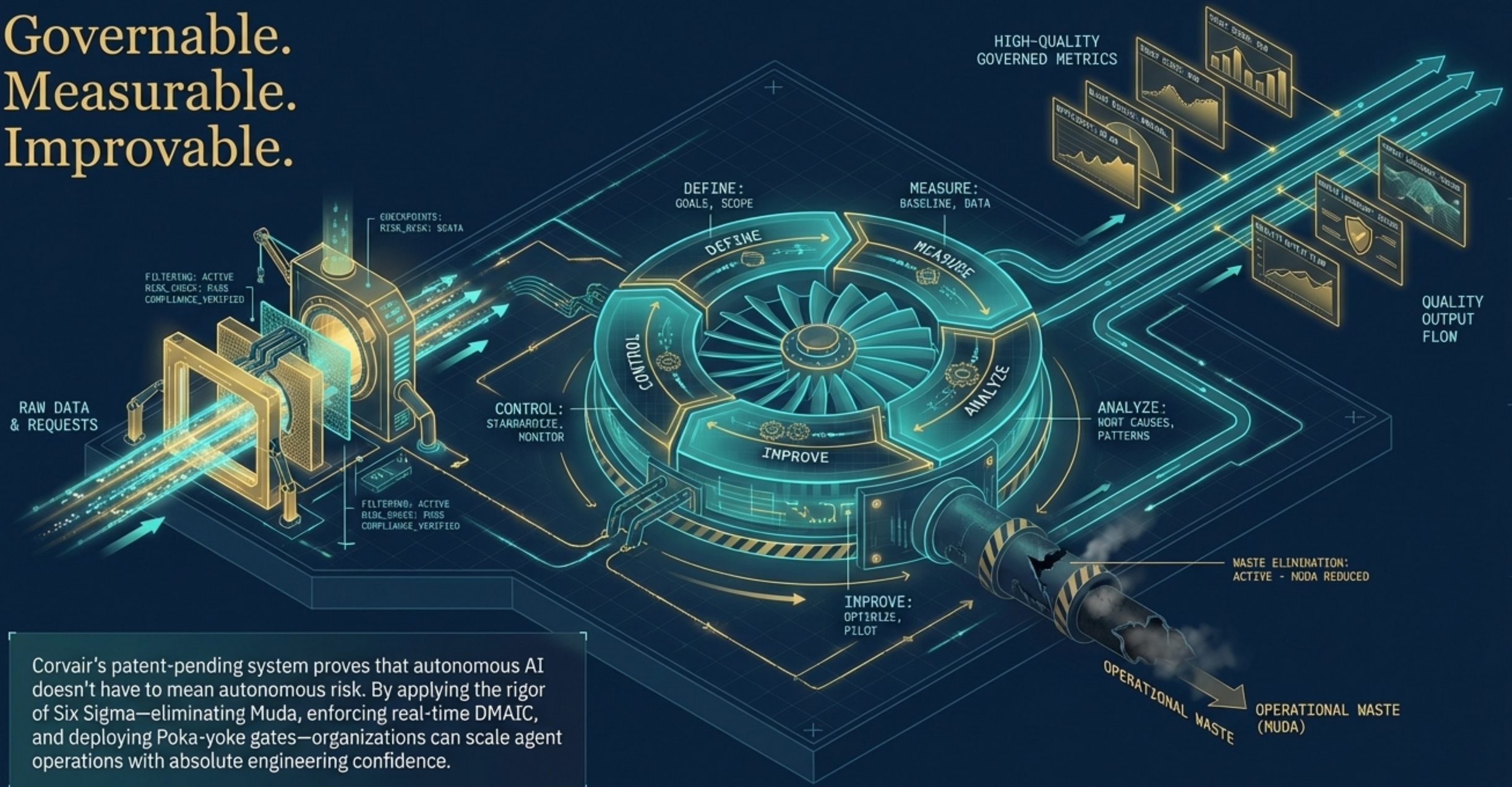
Inherent Risk Value multiplied by Potential Impact Value, assigned to every resource traversed.

Blast Radius

$$\begin{bmatrix} \text{BR}_{inherent} \\ \text{BR}_{static} \\ \text{BR}_{dynamic} \end{bmatrix}$$

Context-sensitive measurements of total potential systemic impact across the agent's lifecycle.

Governable. Measurable. Improvable.



Corvair's patent-pending system proves that autonomous AI doesn't have to mean autonomous risk. By applying the rigor of Six Sigma—eliminating Muda, enforcing real-time DMAIC, and deploying Poka-yoke gates—organizations can scale agent operations with absolute engineering confidence.