Stage-Gated Commitment for Irreversible Actions

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What Stage-Gated Commitment Specifies

When the reversibility classifier identifies a contemplated action as having a commitment point, stage-gated mode decomposes the action into a sequence of stages. Stage one is a reversible setup; stage two is a partial commitment with intermediate verification; stage three is the irreversible commit under elevated admissibility.

Each stage is itself a credentialed observation with its own admissibility evaluation. Between stages, the platform re-evaluates the operating context and may abort the sequence if conditions change. The progression through stages is structurally distinct from a continuous control output.

Why Stage-Gating Maps to Real Operating Decisions

Real procedural decisions in autonomous systems are stage-structured. Aircraft landing decomposes into descent, flare, and touchdown — each with its own decision moment. Surgical procedures decompose into induction, dissection, resection, and closure. Defense engagement decomposes into target classification, weapon arming, and engagement commit. The procedural structure is architectural, not coincidental.

Stage-gated commitment fits this structure. The architecture treats each stage as a separable decision with its own admissibility evaluation rather than collapsing the entire procedure into a single binary commit.

How Stage Boundaries Operate

Stage boundaries are governance-credentialed. The credentialing authority publishes the stage decomposition for each procedural type; the architecture admits the decomposition; the operating system applies it to relevant procedures.

Between stages, the system can: continue to the next stage (current admissibility admits progression), defer to a longer evaluation window (admissibility uncertain), abort the sequence (admissibility fails), or escalate to operator review (procedural authority requires it). Each transition is recorded in lineage.

What This Enables for Procedurally-Bounded Autonomy

Surgical autonomy gains procedurally-bounded execution. The system performs anastomosis closure autonomously with stage-gating; performs vessel ligation under explicit stage-by-stage ratification; performs novel maneuvers in advisory stages where the surgeon retains full control.

Defense autonomy gains structural decomposition for engagement decisions. Target classification under one admissibility envelope; weapon arming under another; engagement commit under the highest admissibility requirements. The architecture supports the structurally-distinct decisions that LAWS governance increasingly demands.