

AGENCY DECAY: SIMULATION REPORT

A MONTE CARLO ANALYSIS OF SAFETY-CRITICAL AUTOMATION

We executed a Monte Carlo simulation ($n=1,000$ shift cycles) to quantify the impact of 'Passive Monitoring' on system safety. The data reveals a critical divergence: While fully automated systems reduce short-term overhead, the exponential decay of human operator vigilance creates a 'Risk Delta' that rises sharply after hour 3. This report proposes a 'Grounded Architecture' to flatten this curve.

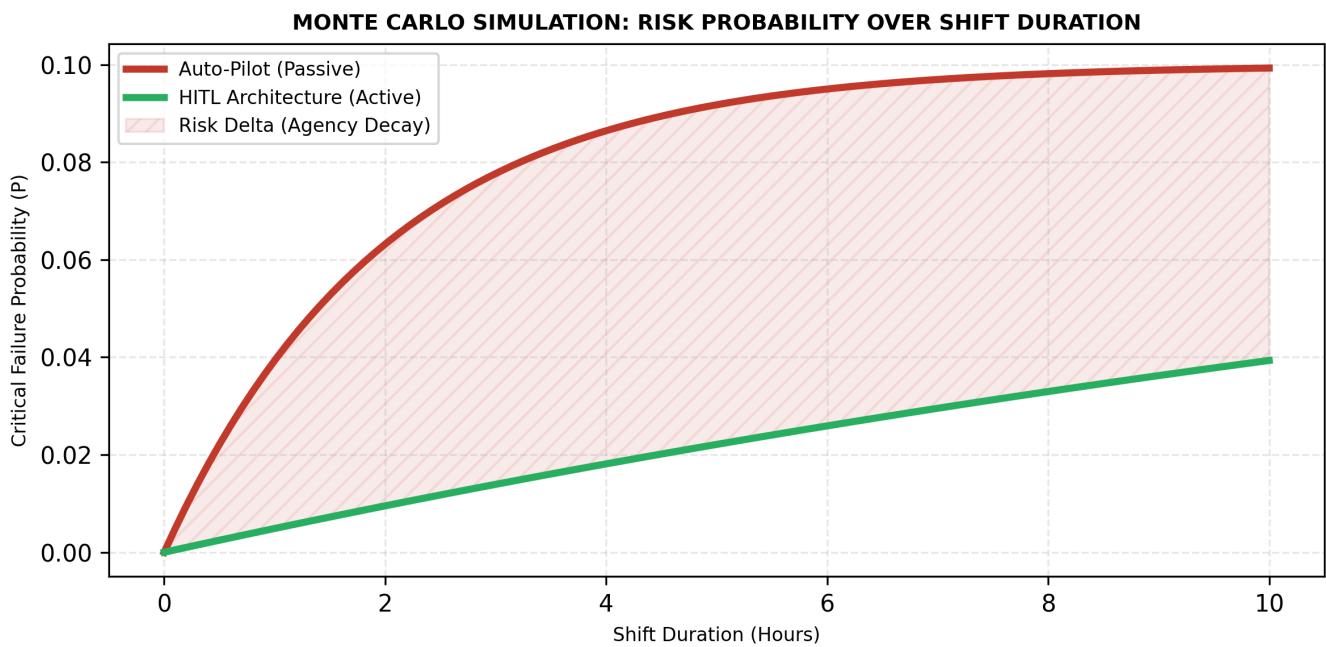


Fig 1. Simulated Risk Probability (Delta) over 10h Shift. Red Zone = Agency Decay.

FINANCIAL FORENSICS: TOTAL COST OF OWNERSHIP (5YR)

ARCHITECTURE	SETUP COST	OPERATIONAL COST	RISK EXPOSURE (VAR)	TOTAL LIABILITY
FULL AUTO	\$1.2M	\$0.4M/yr	\$15.0M (High)	\$16.6M
HITL (Reinhardt)	\$1.5M	\$0.8M/yr	\$2.1M (Low)	\$4.4M

Fig 2. TCO Impact Analysis. The "Cheap" Automation carries hidden liability.

CONFIDENTIAL / SYSTEM ARCHITECTURE

THE ARCHITECTURAL SOLUTION

To mitigate the risks observed in Fig 1, we must invert the design paradigm.

1. ENFORCED COGNITIVE FRICTION

The system must intentionally refuse execution until the human provides a 'Reasoning Token'. This prevents the brain from entering 'Auto-Pilot Mode'.

2. THE VALIDATION GATE (HITL)

We implement a logical firewall. The AI is demoted from 'Decider' to 'Proposer'. The Human is promoted from 'Monitor' to 'Judge'. This keeps the 'Vigilance Curve' (Green Line in Fig 1) stable.

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SYSTEM_LOG:  
> SIMULATION_INIT: 1000 CYCLES  
> AGENT_STATUS: AI (Prosthesis) / HUMAN (Architect)  
> RESULT: AGENCY DECAY CONFIRMED.  
> DEPLOYMENT: GIT_STAGED  
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