

AI Process Modernization

A human-gated reference architecture for controlled business-process automation

SYNTHETIC ENGINEERING LAB - OWNER-CONFIRMED EXPERIENCE, NO CLIENT CLAIM

The delivery problem

A useful AI engagement is not defined by a model call. It is defined by one business outcome, the states and data needed to reach it, the decisions that may be delegated, and the recovery path when an output is wrong or unavailable.

Automate	Low-impact, reversible preparation with deterministic checks.
Assist	AI prepares a recommendation; a named human approves the boundary crossing.
Keep human	Irreversible, financial, legal, safety or high-impact decisions remain human-owned.
Evidence	Input hash, policy and prompt version, decision, result and review state are retained.
Recovery	Failed or rejected work can be diagnosed and selectively replayed without duplicating side effects.

Reference pipeline

- Map the current process, business keys, owners, exceptions and acceptance outcome.
- Create sanitized representative fixtures and a baseline for the current behavior.
- Classify every step as automate, assist or keep-human before selecting an LLM or orchestration tool.
- Implement one bounded vertical slice behind an explicit approval policy.
- Evaluate correctness, refusal, missing-data and recovery cases; measure cost and latency separately.
- Deliver versioned source, evidence, runbook, rollback and a decision on the next slice.

Control-plane pattern

MK1 Command demonstrates owner-built policy, durable state, signed runner messages, replay protection, human gates and audit. AI Process Modernizer demonstrates the same delivery logic in a small executable TypeScript lab. The lab is intentionally deterministic and stops at review; it does not pretend to be a client deployment.

Example first milestone

Scope	One intake process and one consequential decision boundary.
Inputs	Approved process map plus sanitized examples.
Build	Assisted extraction or classification path with validation and human approval.
Tests	Representative happy path, missing input, ambiguous output, duplicate, timeout and recovery.
Handover	Architecture note, versioned configuration, evaluation report, evidence format and operator runbook.
Excluded	Autonomous external action, production secrets, live customer data and unreviewed bulk rollout.

The exact model and platform remain implementation choices. The durable value is the process contract, control boundary, evidence and recovery design around them.

Evidence boundary

Marvin Kamp has owner-confirmed professional experience modernizing business processes and legacy-system workflows with AI-assisted pipelines. Employer names, source code, prompts, data and internal metrics remain confidential. This document and the linked repositories are purpose-built public work samples, clearly labeled as synthetic engineering labs.

- Public control plane: <https://command.mk1.rocks>
- Executable lab: <https://github.com/mk1-dev0/ai-process-modernizer>
- Workflow review lab: <https://github.com/mk1-dev0/n8n-workflow-guard>
- Technical portfolio: <https://docs.mk1.rocks/en/>

Scope note: factual claims follow the public claim register at docs.mk1.rocks/claims.json.