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Sovereign AI

The Full-Stack Operating System for National & Enterprise AI

Silicon → Runtime → Models → Data & Context → Agents → Outcomes — one sovereign stack, end to end.

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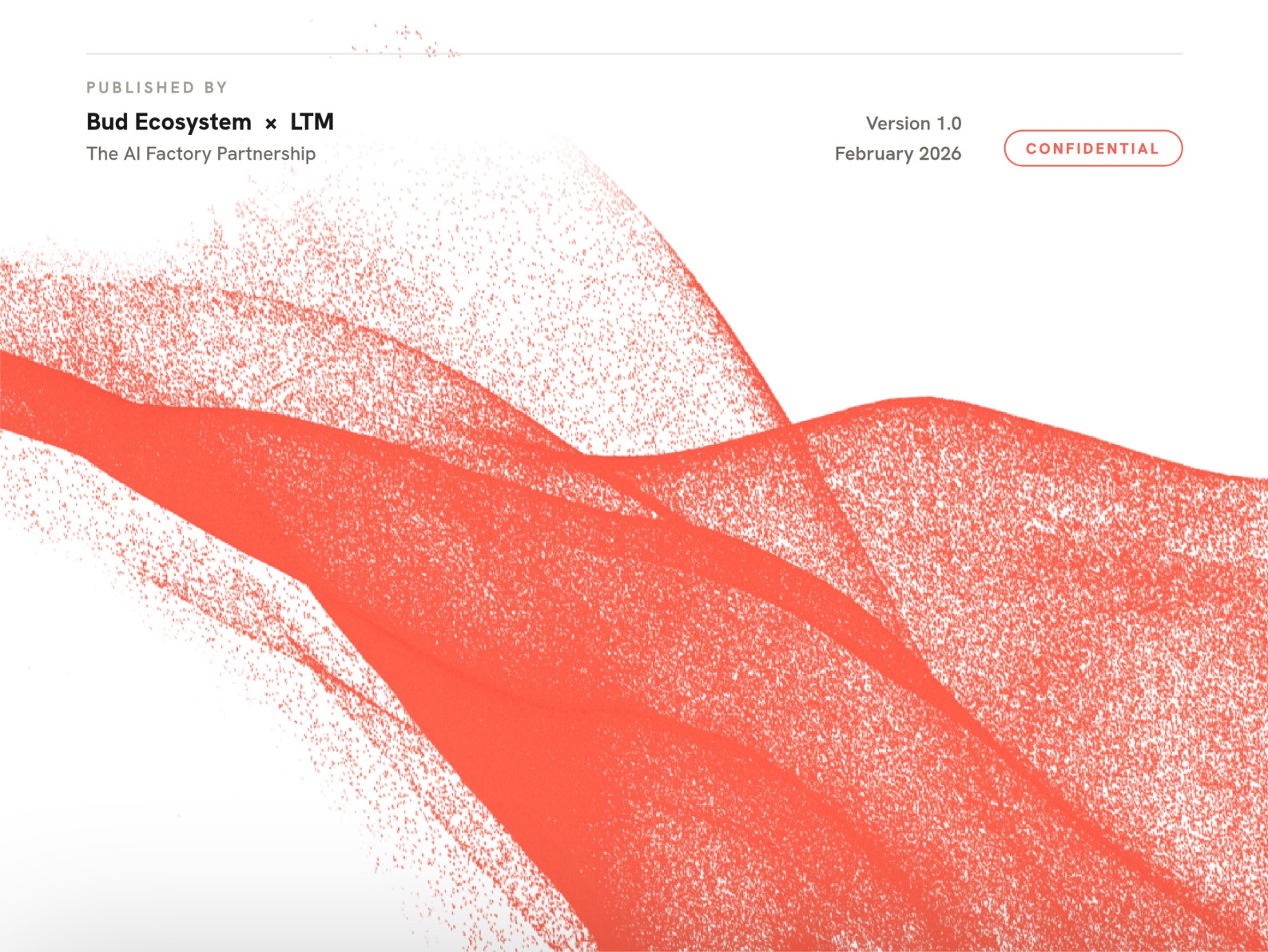
Bud Ecosystem × LTM

The AI Factory Partnership

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CONFIDENTIAL



BUD AI OS × LTM AI FACTORY

Sovereign AI

The Full-Stack Operating System for National & Enterprise AI

Silicon → Runtime → Models → Data & Context → Agents → Outcomes · one sovereign stack, end to end

AI has crossed from systems that *answer* to systems that *act* — and regulation, data residency, and geopolitics now make **where and how AI runs** a board-level decision. Sovereign AI is the answer, delivered by two complementary halves. **Bud AI OS** is the entire AI software stack — heterogeneous runtime, model & context intelligence, the agentic stack, and runtime governance. **LTM** brings the rest: advisory & readiness, AI-optimized sovereign infrastructure, AI operations, and the **BlueVerse AI Factory** with Industry AI for domain outcomes. Together they deliver and operate the whole AI supply chain — from silicon to outcomes — **inside your own borders**: risk-free, fully compliant, local, and open.

600+

Hardware SKUs

8

Modalities

~3×

Inference throughput

30–40%

Lower cost

13+

Jurisdictions mapped

100%

Client-hosted

Why sovereign AI, and why now

Regulation is enforceable today

The EU AI Act applies now — fines to €35M or 7% of global turnover for prohibited practices, exceeding GDPR. HIPAA, PCI-DSS, and national AI laws stack on top. Deploying without provable controls is measurable liability.

Data residency has hard edges

Sensitive data — payments, health, citizen records — must stay in-jurisdiction. Managed AI that processes prompts offshore is inadmissible for these workloads. The question is binary.

Lock-in is a strategic risk

Binding to one proprietary model API, one cloud's AI, or one accelerator vendor inherits their pricing, roadmap, and export exposure. Open-weight models and a model-agnostic stack are the antidote.

Agents widen the attack surface

Agents call tools, write data, and decide. Prompt injection and goal-hijack (OWASP LLM01 / ASI-01) become operational threats. Controls must sit at the input, output, and tool boundary — at runtime.

Two problems, one answer

Most AI fails because it is architected as a GPU, a frontier model, and a single cloud — not a system (independent estimates put failed AI investment north of \$547B). And even successful AI is a liability when its supply chain runs through foreign hands. A **full-stack operating system, run in-country, end to end** resolves both at once.

POSITIONING IN ONE SENTENCE

Bud AI OS and LTM together are not a chatbot, a model, or a cloud service — they are the **sovereign AI operating system** that lets any nation or enterprise run the entire AI supply chain, from silicon to outcomes, inside its own borders: securely, faster, risk-free, and open.

01 · THE ARCHITECTURE

One Sovereign Stack — From Silicon to Outcomes

The platform is one infrastructure organized as the LTM-BUD AI Factory's **four execution layers**, wrapped by cross-cutting control planes. A request enters at the top, is governed and orchestrated, draws on enterprise context, and runs on owned silicon — and because every layer is sovereign, **no data, model, or decision ever leaves the boundary**. Every step is logged as evidence.

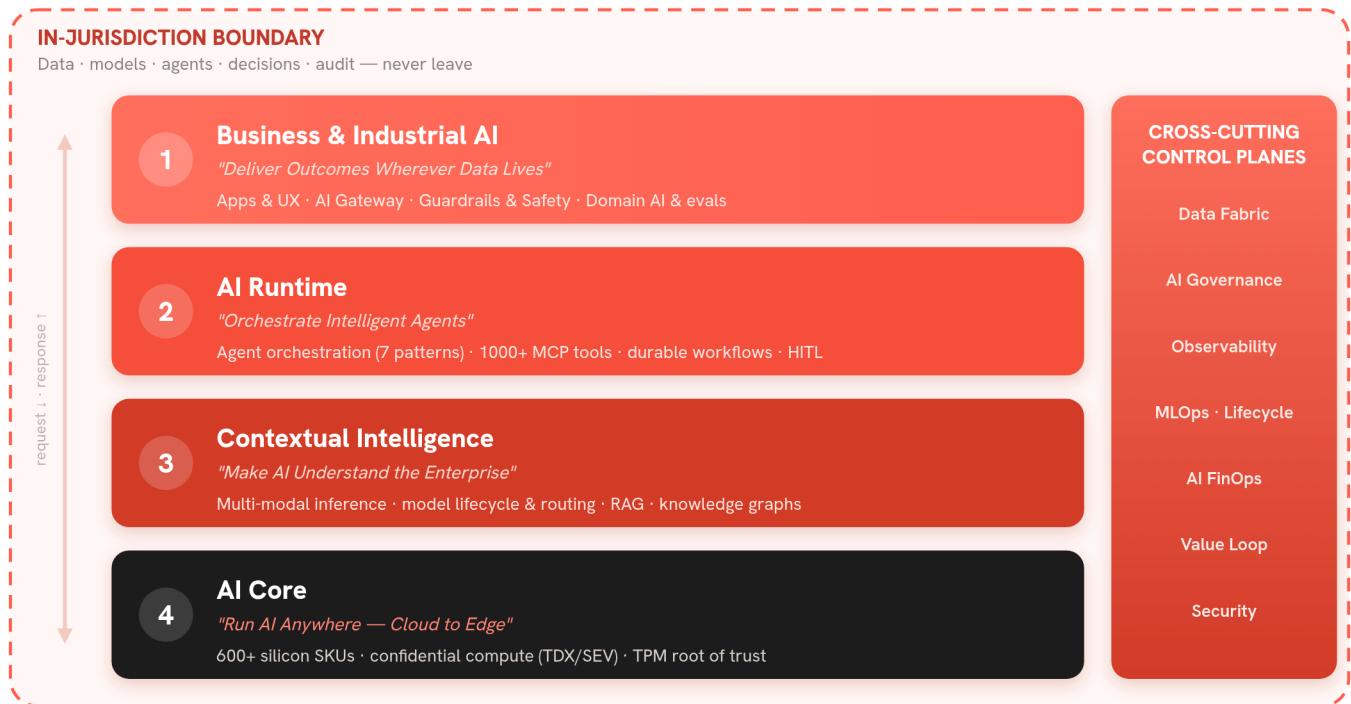
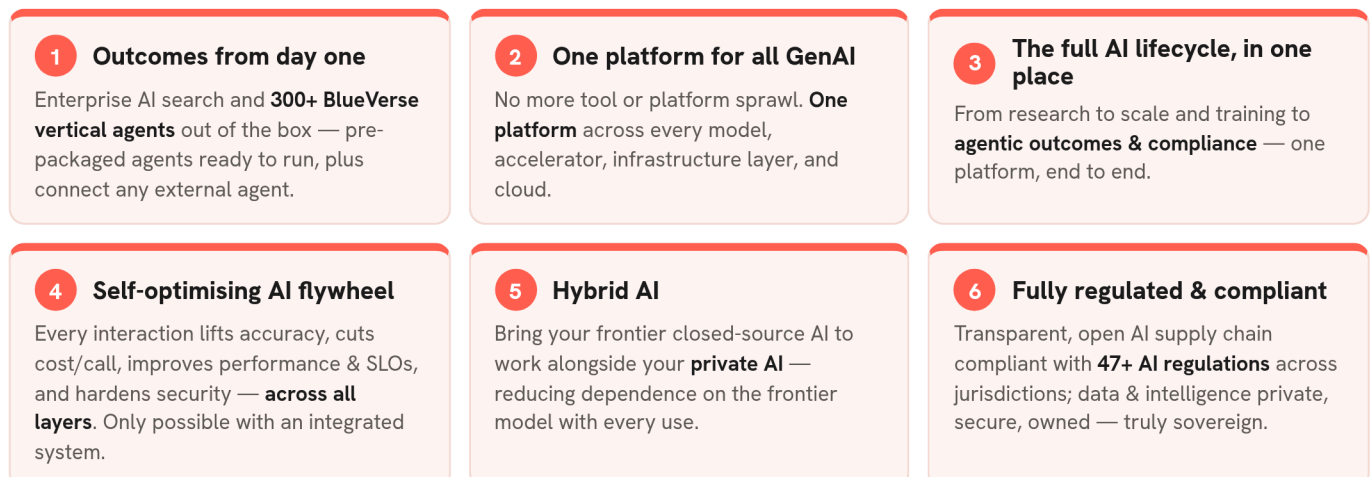


Figure 1 — The LTM-BUD AI Factory: four execution layers and cross-cutting control planes, all operated inside the enterprise's or nation's own boundary.

KEY OUTCOMES What the sovereign stack delivers

02 · THE SOFTWARE OPERATING SYSTEM

Bud AI OS — The Engine of the Stack

Bud provides the **entire AI software stack** — a coherent family of platforms sharing one identity, policy, and audit fabric, **client-hosted and sovereign by default**. The agentic runtime is part of **Bud AI Foundry**; **Bud Agent** is a universal orchestrator agent available to every user.

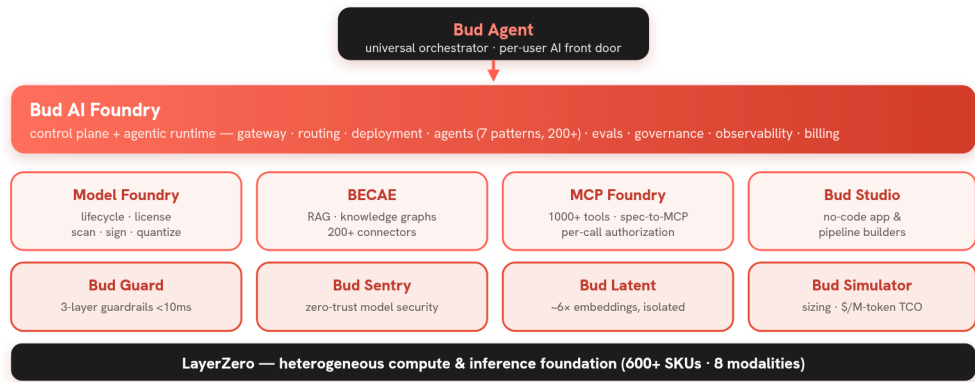


Figure 2 — Bud AI OS: a per-user orchestrator (Bud Agent) over the Bud AI Foundry control plane and agentic runtime, the engine platforms, on the LayerZero compute foundation.

Platform	Role & signature capabilities
Bud AI Foundry	Unified control plane <i>and</i> agentic runtime — inference gateway, semantic routing, deployment, sizing, the agent runtime (7 patterns, 200+ agents, A2A/MCP/AG-UI), evaluation, governance, observability, billing.
LayerZero	Foundational layer — abstracts 600+ silicon types into one multi-modal inference and compute substrate; ~3x throughput, 8 modalities, PD-disaggregation, BYO-engine.
Model Foundry	Model lifecycle & governance — multi-source onboarding, automated license analysis (10+ types), dual security scanning, signing, quantization.
MCP Foundry · BECAE · Bud Studio	Tool plane (1000+ MCP tools, per-call auth); enterprise context engine (hybrid retrieval, knowledge graphs, 200+ connectors); no-code app & pipeline studio.
Bud Agent	Universal orchestrator agent — a per-user AI that plans across models, tools, retrieval, and sub-agents, governed by the same identity, policy, and audit.
Bud Guard & Bud Sentry	3-layer CPU-native guardrails (26+ guards <10ms); zero-trust model security — weight firejailing, supply-chain scanning, inference-time monitoring.

ONE PLATFORM · UNIVERSAL COVERAGE		silicon → models → modalities → lifecycle					
Lifecycle END TO END	Training Inference Scaling Gateway Middlewares Evals Guardrails						
	Security Governance Observability Consumption tools						
Modalities 8 SUPPORTED	Text Image Audio Documents Actions Embeddings						
Models CLOSED + OPEN	CLOSED OpenAI Anthropic ElevenLabs OPEN Kimi DeepSeek LLaMa						
	Whisper + any open-weight						
Silicon 600+ SKUS	NVIDIA Intel AMD Qualcomm Arm Huawei CPU GPU HPU						
	TPU NPU						

One software OS abstracts every layer — heterogeneous silicon, closed & open models, all modalities, and the full lifecycle from training to security — behind one identity, policy, and audit fabric.

03 · THE DELIVERY

The LTM AI Factory — Advisory to Industry AI

If Bud AI OS is the engine, the **LTM AI Factory** is what builds, deploys, and industrializes it in-country. LTM's offering spans **five pillars** — from advisory through sovereign infrastructure to industry-specific AI — delivered as a motion from **Foundation to Scale to Value**, and proven by enterprise impact at production scale.

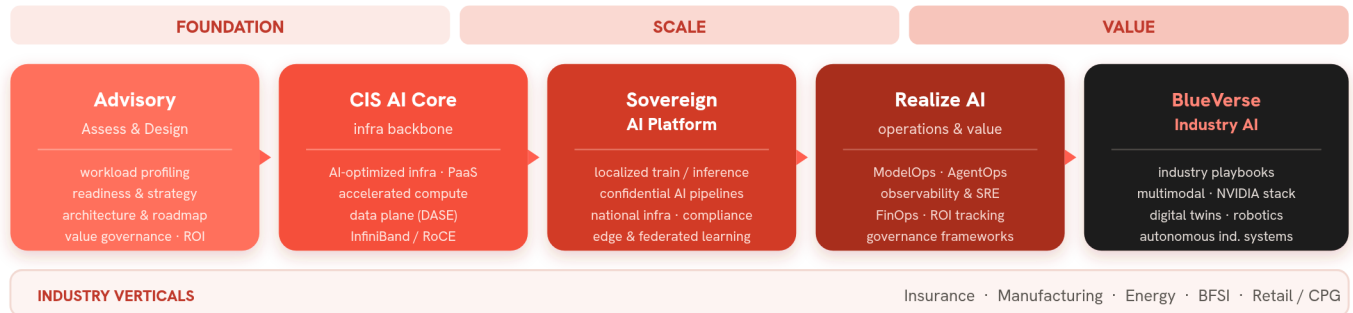


Figure 3 — The LTM AI Factory: five offering pillars across the Foundation → Scale → Value motion, driving domain outcomes in regulated, asset-heavy industries.

LTM pillar	What LTM delivers
Advisory — Assess & Design	AI workload profiling; foundational readiness & strategy; architecture design & roadmap; value governance & ROI — the entry point that de-risks the program before build.
CIS AI Core	The AI-ready infrastructure backbone: AI-optimized infrastructure (private/edge/public), AI PaaS (model serving & GPU orchestration), accelerated compute (HPC + GPU, 30-40% cost optimization), data-plane modernization (Unified DASE), InfiniBand/RoCE networking, and DC modernization — the substrate Bud AI OS runs on.
Sovereign AI Platform	Localized model training & inference; confidential AI & secure pipelines; model governance & lifecycle control; national AI infra & compliance; Edge AI & Federated Learning — distributed training without moving data, disconnected operation, multi-region sovereignty preserved.
Realize AI	Operations & value realization: AI lifecycle (ModelOps, AgentOps); observability & SRE (self-healing, zero-touch); AI FinOps & ROI tracking; governance & compliance frameworks — Right Action™, TRACER, ASPIRE2ADAPT.
BlueVerse AI Factory / Industry AI	Industry-specific AI platforms driving domain value: AI-native business ops, industry playbooks, NVIDIA-stack integration, multimodal AI; autonomous industrial systems, digital-twin deployment, hybrid federated AI, robotics & autonomy.

Enterprise impact

Production AI at scale	30-40% Cost optimization	3x Faster pilot-to-enterprise	Sovereign & compliant by design	Domain value realization
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04 · THE COMBINED OFFERING

The Combined Offering — One Sovereign AI Factory

With the engine (Bud AI OS) and the factory (LTM) each established, the two combine — by construction — into one **Sovereign AI Factory**. The division stays clean: **Bud AI OS is the engine; LTM makes it run**. Below, the layers of Bud's software map directly onto LTM's delivery pillars, forming a single in-country operating model.

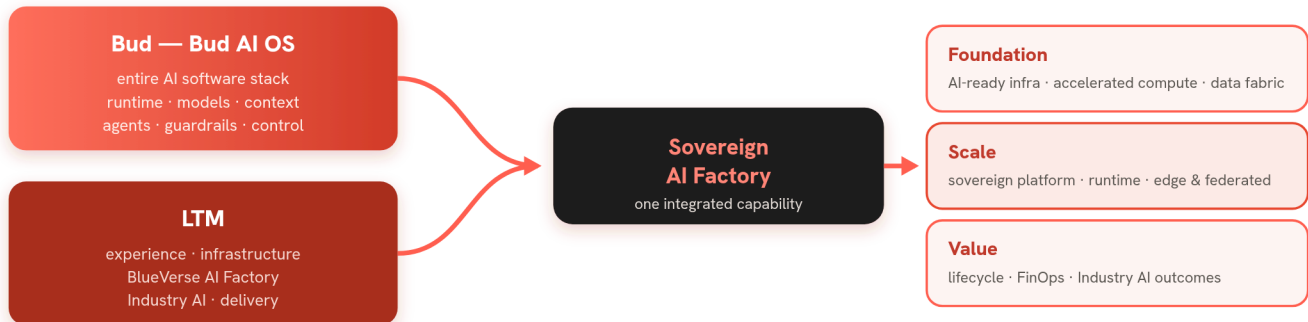


Figure 4 — Complementary by construction: Bud AI OS (engine) and LTM combine into one Sovereign AI Factory, delivered foundation → scale → value.

How the combined offering aligns — layer by layer

Combined stack layer	Bud AI OS · the engine	LTM AI Factory · the delivery
Infrastructure & silicon	LayerZero — heterogeneous compute & inference abstraction (600+ SKUs)	CIS AI Core — AI-optimized infra, accelerated compute, DASE data plane, InfiniBand/RoCE
Models, data & agents	Bud AI Foundry, Model Foundry, MCP Foundry, BECAE, Bud Agent, Bud Guard/Sentry	Sovereign AI Platform — localized & confidential deployment, edge & federated learning
Operations & governance	Observability, FinOps & hash-chained audit primitives across every layer	Realize AI — ModelOps/AgentOps, SRE, FinOps, governance frameworks
Outcomes	Bud Studio apps; RAG-, Agent- & Model-as-a-Service	BlueVerse AI Factory / Industry AI — playbooks, digital twins, autonomy
Strategy & delivery	Model-agnostic, open, sovereign-by-default architecture	Advisory — readiness, architecture & ROI; in-country delivery & change management

These combine into **cross-cutting control planes** — Data Fabric · AI Governance · Observability & SRE · FinOps & Value Loop — operating across every layer, so the platform behaves as one governed, observable, cost-optimal system rather than a stack of parts.

Industrialized, not improvised

The control planes are what turn a stack of capabilities into a production capability — observable, affordable, governed, continuously improving — so AI runs at scale, in-country, with evidence behind every decision. Governance frameworks: **Right Action™** · **TRACER** · **ASPIRE2ADAPT**.

Who becomes AI-ready

Enterprises

Production-scale, compliant AI on owned or in-country infrastructure — free of model and cloud lock-in.

Public sector

Citizen services, document & case intelligence, decision support — citizen data kept in-country and auditable.

Local clouds

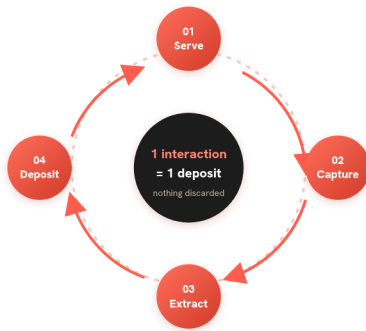
A turnkey sovereign AI platform to offer AI-as-a-service nationally — competing with hyperscalers on residency & trust.

05 · THE SOVEREIGN AI FLYWHEEL

Every Interaction Reduces Foreign Frontier Dependence

Traditional software **depreciates** with use — more scale, more cost, more drift. Enterprise agentic AI, architected correctly, is the first software category where **usage is an asset, not a cost**. Every interaction is a **deposit**: the trace, the outcome, and the pattern are captured and distilled into durable capital that makes the next interaction cheaper, faster, and smarter. In a hybrid sovereign deployment the foreign frontier model is only a **teacher** — each deposit distills its signal into your private models, so the share of work it must do **bends down with every interaction**. Intelligence is repatriated inside the boundary.

THE MECHANISM · ONE LOOP, EVERY INTERACTION



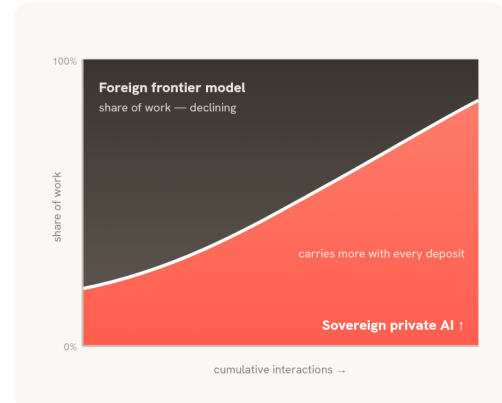
01 Serve — respond to the query, the user-visible output.

03 Extract — distill the reusable essence of the interaction.

02 Capture — instrument the trace, label the outcome.

04 Deposit — credit one of four capital pools; next call draws a warmer path.

THE SOVEREIGN PAYOFF · DEPENDENCE ↓



The teacher signal compresses into a private student that serves the same query at a fraction of the cost — every interaction shifts load **from foreign frontier to sovereign private AI**, inside your own boundary.

WHAT ACCUMULATES · FOUR CAPITAL POOLS, ONE DEPOSIT MECHANISM

Model ↓ \$/token

Distilled weights, preference-optimised policies, routing models. The foreign teacher compresses into a private student that serves the same query for a fraction of the cost.

SI DELIVERABLE
Quarterly tuning cycle · quality-uplift SLA

Infra ↓ ms p95

KV-cache radix trees, prefix caches, disaggregated prefill / decode, pod routing on workload locality. The substrate itself learns the traffic shape.

SI DELIVERABLE
p95 latency targets · \$/outcome cuts

Policy ↑ success

Prompts, routes, memory, tool-use trajectories, guardrails — the decision surfaces the system runs on. Every resolution and incident hardens them forward.

SI DELIVERABLE
Compliance retainer · eval-pack releases

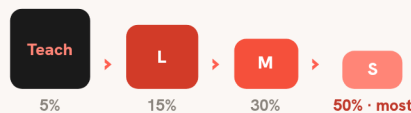
Primitive ↓ time-to-agent

Skills, MCP tools, A2A capabilities, guardrails. Every agent built contributes reusable pieces — use-case #7 starts at 70%, not 0%.

SI DELIVERABLE
Fixed-fee use-cases · shorter cycles

A cascade of smaller models

Routing × distillation at every step sends most calls to the smallest capable model.



↓ infra footprint

↑ performance

WRIGHT'S LAW, FINALLY APPLIED TO SOFTWARE

In 1936 Theodore Wright found manufacturing cost falls ~15% with every doubling of cumulative output — solar, semiconductors, batteries all followed. Software never did: more users meant more servers, support, and tech debt. Enterprise agentic AI is the **first category to deliver Wright-Law returns** — $\text{cost}(N) \approx c \cdot N^{\log_2(1-r)}$, $r \approx 15\text{--}30\%$ — and in a sovereign deployment, each doubling also cuts the **foreign frontier's share of the work**.

06 · SOVEREIGN BY DESIGN

In-Country, Risk-Free, Compliant

Data residency alone is not sovereignty. True AI sovereignty means owning the **entire supply chain** — silicon, runtime, models, data, agents, outcomes — operated in-jurisdiction. Because the stack runs **client-hosted by default**, a nation can hold every link at once, across any deployment topology.

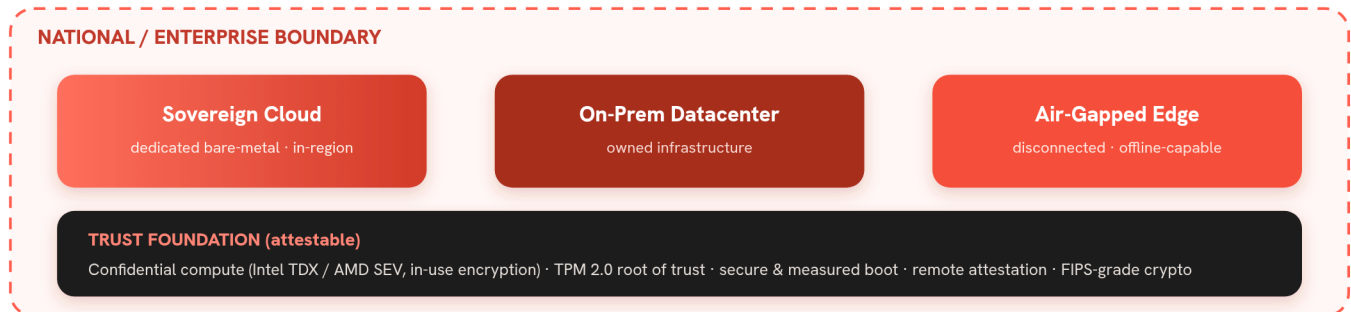


Figure 5 — One stack, any sovereign topology — sovereign cloud, on-prem, or air-gapped edge — on a hardware-attestable trust foundation.

The four exposures, de-risked

Geopolitical

600+ SKUs across vendors + open-weight models hosted locally remove single points of foreign leverage.

Data

Local inference keeps every token in-country; residency becomes a property of topology, not a promise.

Scalability

Full-stack OS + FinOps industrializes AI at 30–40% lower cost and 3× faster pilot-to-enterprise.

Talent

One operated platform concentrates national talent; low-code + self-healing ops let non-experts deliver.

Runtime governance — AgentMesh

Eight regulation-mapped policy packs inspect every input, output, and tool call — then **deny, redact, or route to a human**, recording each decision as an OpenTelemetry audit span.

- ▶ 3 enforcement points · 3 verdicts · 2 conflict strategies · record-only SHADOW rollout
- ▶ 15 enforcement rules · 11 PII jurisdictions · 7 EU AI Act articles
- ▶ Safety · data protection · prompt-injection defense · fairness · regulated-advice · transparency

Defence in depth · fail-closed

Bud Guard's 3-layer guardrails (CPU-native L1 <10ms) plus Bud Sentry's zero-trust model security. If guards are down, requests are **blocked, not leaked**.

- ▶ 26+ guards · 200+ secret rules · 40+ PII types · active hallucination detection
- ▶ Weight firejailing · supply-chain scanning · inference-time monitoring
- ▶ SHA-256 hash-chained, tamper-evident decision audit

Framework	Satisfied by
EU AI Act	AgentMesh packs mapped to 7 articles; human-gate verdicts; automated risk classification; OTEL audit spans.
GDPR / DPDP · HIPAA · PCI-DSS	Local inference; PII/PHI/payment redaction; per-tenant encryption; confidential-compute inference; erasure support.
NIST AI RMF · SOC2 · national frameworks	Evaluation suites; drift monitoring; fairness tests before promotion; hash-chained audit; auto-generated disclosures.

THE BOTTOM LINE

Most AI fails because it is architected as a model, a GPU, and a single cloud — not a system. And even successful AI is a liability when its supply chain runs through foreign hands. The answer to both is one thing: a **full-stack sovereign AI operating system, run in-country, end to end**. Bud AI OS and LTM are that system — silicon to outcomes, foundation to value — for every enterprise, public-sector organization, and local cloud. A nation's AI, held in its own hands.

Bud Ecosystem × LTM — The AI Factory Partnership

Sovereign AI · Risk-Free · Fully Compliant · Local · Open | Let's make your AI sovereign.