

# PPROI: The New Physics of Industrial ROI

Manufacturing has digitized machines and workflows, but not capital efficiency.

PPROI introduces a new economic intelligence layer based on the Capital Employed Integral (CE).

It eliminates the financial blind spot in manufacturing.

# The Financial Blind Spot

ERP/BI systems treat capital as a static stock recorded at accounting intervals.

In real production, capital behaves as a dynamic flow tied up for varying durations across operations.

This mismatch distorts profitability, inflates WIP, and drives sub-optimal decisions.

# Capital Employed Integral (CE)

CE: capital consumption defined as the definite integral of capital exposure over time:

$$CE = \int C(t) dt \rightarrow \text{economic unit Money} \times \text{Time.}$$

Enterprise-level ROI is the weighted average of process-level ROIs, weighted by each process's CE.

Micro-phase modelling ensures a causal, non-arbitrary computation (from real process exposure, not accounting proxies).

# Breaking the SQL Barrier

Quantitative contrast: 350+ minutes (SQL) → seconds (HPC CE Engine)

SQL architecture validated CE logic at TRL 6. Full recomputation across manufacturing trees currently requires 350+ minutes per cycle.

HPC CE Engine: Industrial usability requires deterministic, bounded recomputation in seconds. This is the deep-tech barrier that defines the next phase of PPROI development.

# Deep-Tech Architecture

Physical-Operational Layer: production events, micro-phases, machine states.

HPC CE Engine: deterministic, bounded recomputation, cache-local partitioning, symbolic state graph.

ROI Intelligence + Enterprise Decision Support: validated recommendations, ERP integration, dashboards.

# Validated in Real Production

Productivity uplift of approximately 30% in linked operations.

800k+ time standards validated at scale.

70k operations modelled and computed.

4k parts across the production BOM.

Dynamic bottleneck shifts across machines and production equipment — evidence of real-world causal capital intelligence under industrial conditions.

Applied in three industrial settings: **automotive** (current customer), textile manufacturing, and electronics production.

# Market & Positioning

**Not replacing ERPs** — making them capital-intelligent. Based on Horizon 2020 go-to-market analysis and validation through the Keys to Japan programme, we have not identified any established EU, US or Asian vendor embedding time-integrated capital computation at micro-phase resolution into ERP-connected execution.

Initial SOM: 8k–10k ERP-ready manufacturing sites in the EU. ROI Intelligence + Enterprise Decision Support operates as an intelligence layer on top of existing ERP infrastructure — no rip-and-replace required. PPROI connects products, processes, resources, costs and capital employed into one management logic.

# Commercial Readiness

Revenue logic is already validated. Scale depends on completing the HPC CE Engine.

## ROI Intelligence + Enterprise Decision Support

- ROI-based quoting already prevents ROI-negative contracts.
- Better pricing decisions by linking price not only to cost, but also to capital employed and target ROI.
- Lean and inventory decisions can be evaluated through their direct effect on ROI and capital productivity.

## Annual SaaS Pricing Tiers

**€60k / €120k / €240k+** — structured for enterprise manufacturing clients.

## Full Market Readiness

Depends on HPC CE Engine integration and deterministic, bounded recomputation.

# Team & Delivery

Structured to deliver HPC engineering and industrial scale-up (EU → Japan).

## Core Team

Vlastislav Mika – CEO, Operations & Scale-up

Marcel Matějka – COO, Delivery & Methodology

Branislav Ballay – CTO, Technical & Architecture

## Advisors

Prof. Milan Matějka - Scientific Authority (CE methodology)

Prof. Vladimír Pucik - Global Strategy

# The Ask & Strategic Roadmap

## Commercial Validation (Corporate PoCs):

- Seeking 2–3 commercial Proof of Concept (PoC) deployments with Tier-1 automotive/manufacturing OEMs (via Plug and Play ecosystem).
- Goal: Demonstrate immediate working-capital reduction and real-time capital efficiency using our HPC CE Engine directly in enterprise execution layers.

## Funding Ask:

- Raising Pre-Seed / Seed round (€1M) to co-fund our transition from SQL architecture to the proprietary C# in-memory HPC core.
- Note: We are simultaneously leveraging EU institutional support (EIC framework) to de-risk the core deep-tech R&D, opening an attractive, de-risked cap table for strategic VCs.