Case B1 & B5
AI-Driven Causal Insights
for Engineering & Program Management

The Problem – The "Hidden Margin Killer"

Why Our Projects Lose Margin?

Why Ouer Projects out of Timing?

Why our Customer Frustrated?

Why we are all frustrated ?

The "Hidden 80%" activities
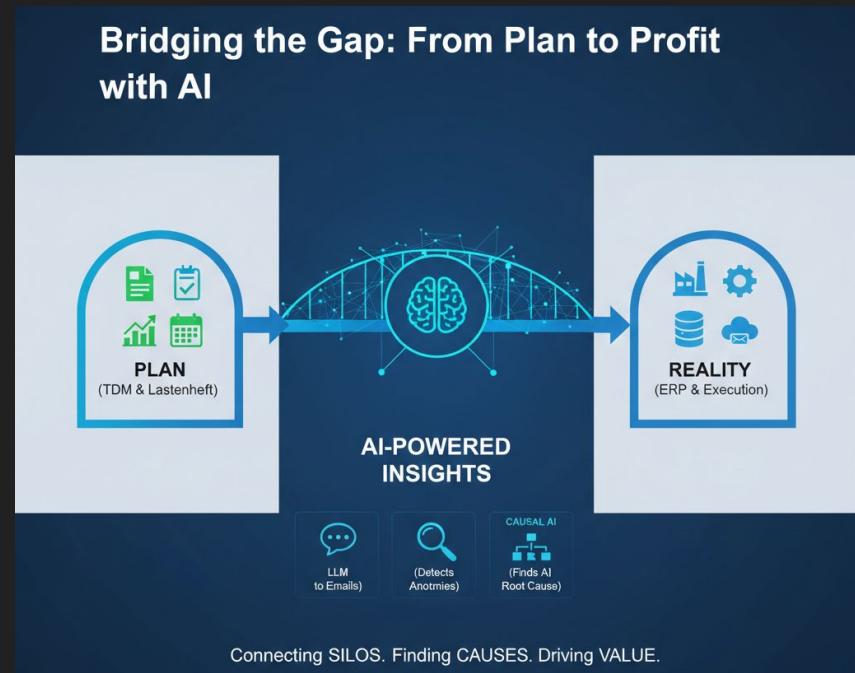
The Solution – Bridging the Gap with AI
How ML & LLMs Reveal the Truth

How ML & LLMs Reveal the Truth: Creating Transparency about the Real Situation.

Why ML & LLMs are critical here:

1. **NLP & LLMs (The Listener):** Most "Scope Creep" starts in emails or meetings. An LLM acts as a 24/7 assistant that reads these unstructured texts and flags hidden requirements before they become expensive.

2. **Anomaly Detection (The Detective):** Machine Learning (ML) monitors the ERP system. If an engineer creates a new part that wasn't in the original **TDM (Plan)**, the ML flags it immediately as a "Pattern Deviation."

3. **Causal AI (The Judge):** This is the most important part. Standard AI only finds correlations. Our **Causal ML** proves *causality*. It tells you: 'The 10% delay is not because the team is slow, but because of the 30% sick leave rate last month.'


Bridging the Gap: From Plan to Profit with AI

PLAN (TDM & Lastenheft)

AI-POWERED INSIGHTS

REALITY (ERP & Execution)

LLM to Emails

(Detects Anotmies)

CAUSAL AI (Finds AI Root Cause)

Connecting SILOS. Finding CAUSES. Driving VALUE.
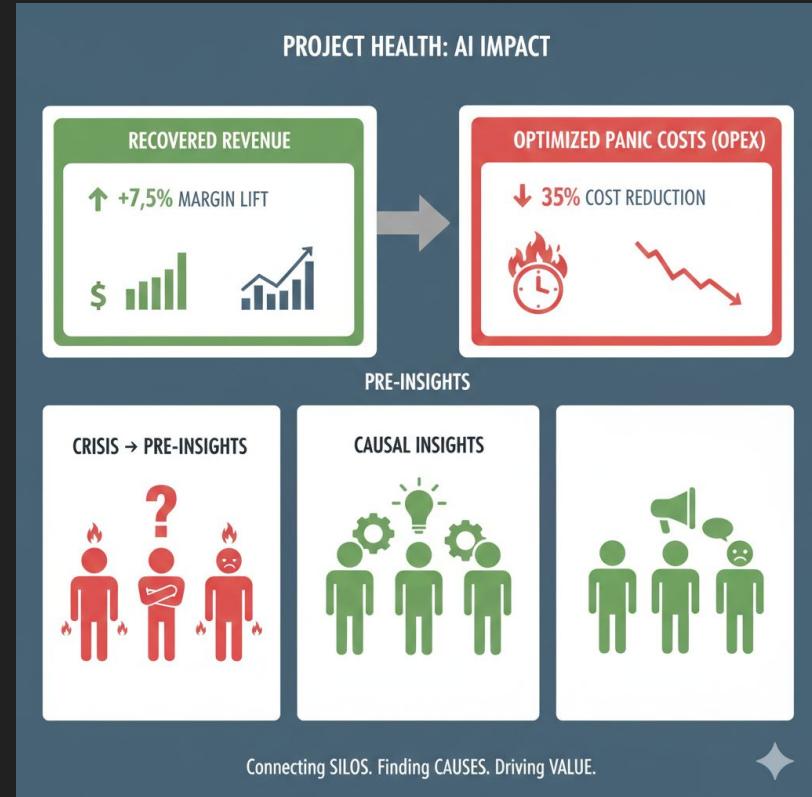
The Business Value – Strategic Impact
Securing Margins and On-Time Delivery (OTD)

Strategic Impact: Protecting the Margin

- **Bill for Every Change**
  - Find "Scope Creep" and turn it into **Revenue**.
  - Stop doing unpaid extra work.

- **Kill "Panic Costs"**
  - Reduce **OPEX** by avoiding emergency flights and express shipping.
  - Stop "firefighting" through early warnings.

- **Lead with Facts**
  - Protect **EBIT** with clear data, not gut feelings.
  - Total transparency on the **"Real Situation."**

Conclusion – The Technology Value
We use AI to turn "Operational Noise" into "Actionable Intelligence."

How the Technology works for us:

- **LLM (Large Language Model):** Think of this as **"The Listener."** It understands "human talk" like emails, meeting notes, and project specs. It turns unstructured chaos into clear data, so we don't miss any hidden customer promises.

- **ML (Anomaly Detection):** This is our **"Digital Detective."** It monitors the ERP and CAD systems 24/7. It finds "weird" patterns—like extra work or new parts—that no human would have the time to find manually.

- **Causal AI:** This is **"The Judge."** It explains the **Actual Reason** for a problem. It stops the "blame game" between departments by proving exactly why a project is over budget (for example: distinguishing between "unpaid customer wishes" and "high sick leave").

By using these tools, we protect our profit margins. We identify work that needs to be billed to the customer, we reduce expensive "emergency" "Panic Costs" (OPEX), and we lead our teams based on **facts**, not gut feelings.

"AI makes invisible work visible, and visible work is manageable and billable."