

A PRACTITIONER'S DIAGNOSTIC FRAMEWORK

# Pilot Purgatory.

1 / 30

Dr. Thomas Gittler · CDTO, maxon international AG · ETH Zürich · Industrial Perspectives on Operations Management

maxon

## Three quick facts, no CV.

- Role — Lead the Digital organization at maxon (sister-unit to IT). Mandate spans data, AI, applications, digital products and transformation programs across the global network.
- Day-to-day — Set strategy, allocate capital, fight for and against vendors, recruit, present to the Verwaltungsrat, argue with engineers about architecture.
- Why I am here — I run the experiments behind the examples and principles you will see next. Some work. Many do not. Today is about how to tell the difference before the money is spent.

---

*Speaker: Thomas — practitioner, not consultant.*

MAXON AT A GLANCE

# Where the war stories come from.

FOUNDED IN SACHSELN

**1961**

60+ years of drive technology

EMPLOYEES WORLDWIDE

**3,150**

9 production sites · 30+ countries

DRIVES PRODUCED PER YEAR

**5M**

CHF 594.7M revenue (2023, Group)

OF REVENUE INVESTED IN R&D, ANNUALLY

**8%**

Family-owned · no IPO

*Precision drives — from Mars rovers to surgical robots, insulin pumps to e-bikes. Nine production sites; aerospace, medical, automotive certified.*

MAXON · BRAND REEL

# Sixty years, in motion.

Drives that flew to Mars, that pumped insulin, that learned to be sensors.

4 / 30

maxon

TODAY'S PLAN

## The next 50 minutes.

**01**

The hype

**02**

The reality — three numbers you should remember

**03**

The structural cause — Builders and Consumers

**04**

The framework — five signals

**05**

A live case — MIND

**06**

What I'm still uncertain about — and a question for you

**Three months ago. A senior engineer walks in with a forty-slide pitch. He had taken a course on a new framework, wanted to build it on a one-off stack we do not run anywhere else, with no clear deliverable beyond “learnings.”**

**He had the drive and the motivation. What he did not have was the enterprise case — a way to turn what he had learned into something that would change how maxon works.**

**We did not fund it. The lecture is about how I made that call — and how you can make it too.**

---

An opening — drive without a case

the engineer was sharp · the pitch was not yet enterprise

## THE HYPE

# Every consulting firm. Every CEO. Every slide.

## And yet...

- “AI will add \$1T+ in manufacturing value by 2030”
- “90% of industrial leaders have an AI strategy”
- “Generative AI: the new operating system for operations”
- “Lighthouse factories are 50% more productive”
- “Every CEO has an AI slide”
- “The fourth industrial revolution is here”

2 %

## OF MANUFACTURERS REPORT AI FULLY EMBEDDED ACROSS OPERATIONS

Two-thirds are still in exploration or targeted-pilot stage. McKinsey  
COO100 Survey, December 2025 — n=101 senior operating  
executives at companies with revenue >\$1B.

~6%

**OF COMPANIES CAPTURE MORE THAN 5% OF  
EBIT — AND SIGNIFICANT VALUE — FROM AI USE**

Yet 79% claim regular AI use in at least one function. McKinsey State  
of AI 2025 — n=1,993 across 105 nations.

THE EXCEPTION — GLOBAL LIGHTHOUSE NETWORK

# At the top of the distribution, the gap is staggering.

OF NEW USE CASES NOW AI-ENABLED

**90 %**

AVERAGE LABOR PRODUCTIVITY GAIN

**40 %**

AVERAGE LEAD TIME REDUCTION

**48 %**

AVERAGE DEFECT REDUCTION

**41 %**

*Plus 28% average energy reduction · 201 sites in the network · latest cohort September 2025.*

Source: WEF / McKinsey Global Lighthouse Network 2025

---

**It is not the model.  
It is how you build around it**

---

**and whether what you build  
produces Builders or  
Consumers.**

FIVE SIGNALS SEPARATE THE 6% FROM THE REST

# Two populations of AI users — and the gap is widening.

## Consumers

- Chat interfaces, sanctioned tools (M365 Copilot, ChatGPT)
- AI as a faster Google
- IT-sanctioned, locked-down environments
- Productivity gain: ~10–20%

## Builders

- Agentic tools, code execution, APIs, custom workflows
- AI as a programmable capability
- Often not engineers — finance, marketing, domain experts who got access to real tools
- Productivity gain: 10× — 100×

---

*Enterprise IT policy is systematically producing Consumers — at exactly the moment competitive advantage moves to Builders. · Cf. P. Finette · M. Alderson · Feb 2026.*

## THE FRAMEWORK

# Five signals — instruments for resolving the bifurcation.

01

KPI gravity — does AI have its own metrics in operating reviews?

02

Workflow rewired, not retrofitted — is AI deeply integrated into a redesigned process?

03

Capital seriousness — pilot money, or transformation money?

04

Reusable, not bespoke — built to redeploy, or artisanal?

05

The data foundation — IT/OT investment made, or skipped?

# KPI gravity

“Does AI show up in the operating review?”

- Companies with AI-specific KPIs hit their AI targets close to two-thirds of the time. Companies without rarely do. (Manufacturing Leadership Council 2025)
- Most companies cannot tell you what their AI projects are supposed to deliver, by when, measured how.
- If a project has no KPI, it has no future.

---

*The most boring signal. The most predictive one.*

# AI literacy as a governance instrument.

## What we did

- EU AI Act Article 4 requires every company using AI to demonstrate workforce literacy.
- Most companies will treat this as a compliance task — a slide deck and a quiz.
- We treated it as the entry point to the broader AI KPI stack: literacy targets by role, tied to performance reviews, reported quarterly.

## What we learned

- Literacy KPIs were the wedge that made other AI KPIs legible to the rest of the company.
- Conversation moved from ‘what is this magic?’ to ‘what are we trying to deliver?’
- And: a separate pilot we ran without success criteria — a generative-design experiment for a custom drive — wasted nine months before we killed it.

---

*The point was not the literacy. The point was teaching the organization that AI work has measurable*

# Workflow rewired, not retrofitted

“Is AI deeply integrated into a redesigned process — or bolted onto the old one?”

- AI high performers are nearly 3× more likely to redesign workflows end-to-end. (Industry survey data, 2025)
- The practitioner's metric: where does process innovation come from? Internal Builders — your own domain experts using AI as a native tool — or external Consumers of vendor playbooks?
- Bolt-on AI is someone else's design. Builder-led transformation is yours to keep.

---

*The single biggest distinguisher in the data — and the one most companies skip.*

# The order desk problem.

## Bolt-on path

- Vendor pitches an AI assistant for the order desk.
- AI types faster. Process unchanged.
- Design owned by vendor.

## Builder path

- Internal team — people who understand how customers buy — redesigned the entire flow.
- Customer intent at source · CPQ derives configuration · IFS receives structured order · AI routes only the exceptions to humans.
- Design owned by us. Vendors used for execution only.

---

*The vendors had a faster typewriter. We had a process redesign. Only one of those is ours to keep.*

## Capital seriousness

“How much of the digital budget actually goes to AI work?”

- AI high performers spend more than 20% of their digital budgets on AI.
- They are 5× more likely than the rest to make a bet at that scale. (McKinsey State of AI 2025)
- If the strategy slide and the budget aren't the same document, the strategy isn't real.

---

*Pilot money funds pilots. Transformation money funds transformation.*

# Builder infrastructure vs. Consumer infrastructure.

## Cheap path

- 10,000 M365 Copilot seats. Cheap per user. IT loves it.
- Consumer-class deployment for the whole company.
- Slightly faster email · slightly faster meeting summaries.
- Floor of the productivity range.

## Expensive path

- Enterprise-grade access to frontier models from frontier providers, with governance and audit trails.
- Our people can run code, connect to internal data, build new tools — not just prompt a chat window.
- Real CapEx · real architecture work.
- The infrastructure Builders actually need.

---

*You cannot ask your people to behave like Builders if you have only bought them Consumer infrastructure.*

# Reusable, not bespoke

“Is each AI project an asset or an artifact?”

- 25% of manufacturers explicitly say they cannot make their AI applications reusable across their network. (McKinsey COO100, Dec 2025)
- Continental built one AI logistics hub for their entire network — the inverse pattern from the Lighthouse data.
- Builders write tools they expect to use again. Consumers buy tools they expect someone else to maintain.

---

*Pilot purgatory's symptom: every site reinvents the wheel.*

## The Salesforce pivot.

- We were running a custom headless Commerce Cloud build. It worked. It was also expensive to maintain, hard to extend, and fundamentally one team's craft.
- We pivoted — mid-flight, painfully — to a native LWR / LWC reference architecture.
- Less custom · more reusable · faster to extend · slower in the short term.
- The team that built the original was understandably unhappy.

---

*Reusability is sometimes the unsexy choice you make on purpose. Sometimes the right reusability decision is admitting the previous decision was wrong.*

# “Does the IT/OT data infrastructure actually support the AI use cases?”

OF COOS CITE IT/OT DATA LIMITATIONS AS THE AI SCALING BLOCKER

**46%**

POINT TO OUTDATED INFRASTRUCTURE

**19%**

POINT TO DATA QUALITY

**18%**

*Most AI failures look like model failures. They are usually data failures.*

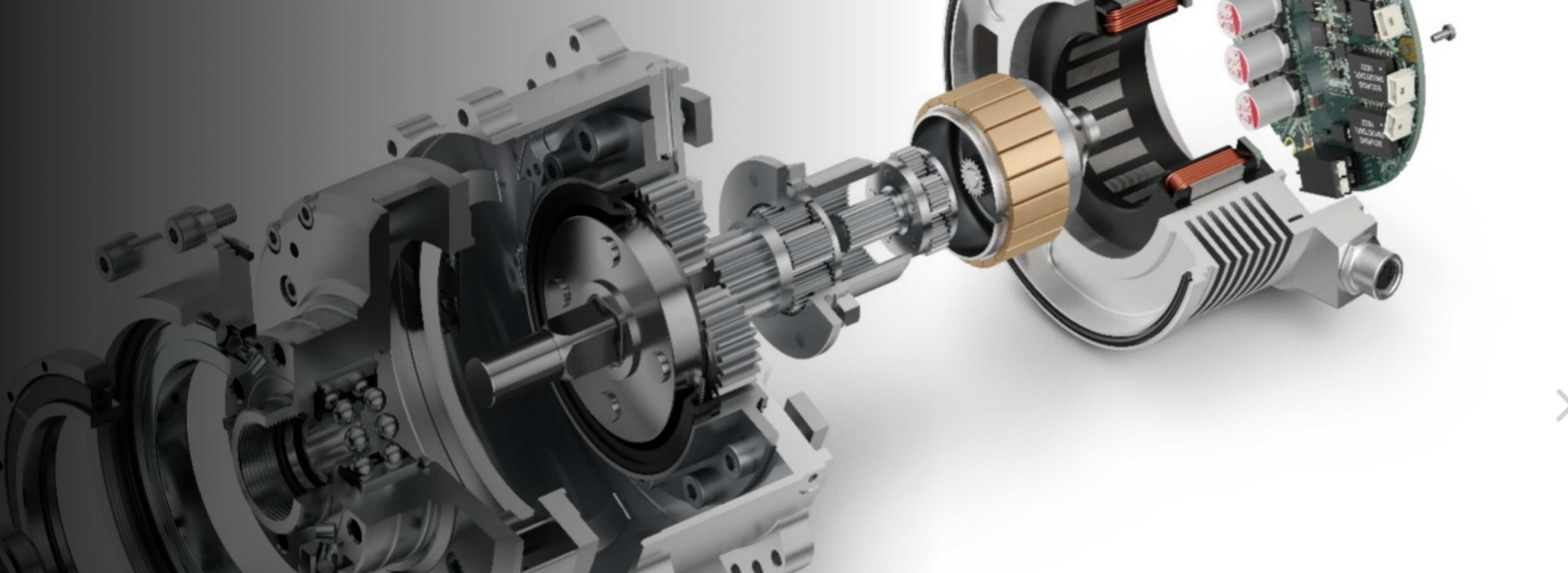
Source: McKinsey COO100 Survey, December 2025

# The PLM / PDM / CPQ stack transformation.

- The product master data spine — PLM, PDM, CPQ — is where industrial AI lives or dies. Most expensive, slowest, least visible to fix.
- Cheap path: patch each system, layer AI on top, accumulate complexity.
- Expensive path: rebuild the spine — engineering and manufacturing definitions kept in sync, product variant configuration as the single source of truth, customer-specific modifications captured as data.
- We chose the expensive path. The cheap path produces five more years of patch debt with AI rotting on a fragile foundation.
- DPP and AAS regulation are accelerating this — what was strategic is now also mandated.

---

*Every AI use case I actually care about depends on this spine being right.*



MIND · LIVE CASE

# The motor is already a sensor.

Use the data already flowing through the drive to predict its own failures —  
no extra hardware.

## The five signals as five specific decisions.

- KPI gravity — every customer deployment ships with a measurable diagnostic-accuracy SLA.
- Workflow rewired — customer field-service flows redesigned around predictive alerts, not a dashboard bolted on.
- Capital seriousness — multi-year R&D commitment with a patent strategy attached, not a pilot budget.
- Reusable — one foundation model for motion data, refined and tuned per customer.
- Data foundation — drive telemetry pipeline rebuilt before the model that mattered was trained.

---

*Several of these we got wrong first and re-did.*

# Honest version. The slide that earns trust.

## What worked

- The foundation-model bet paid — one trained model for motion data, tuned per customer.
- Semi-supervised learning got us further than we expected.
- Field-service flow redesign drove customer adoption (Signal 2 paid).

## What's still hard

- Customer adoption needs their data infrastructure to be ready — usually it isn't.
- The EU patent is an asset, not a moat.
- We underestimated change management on the customer side by ~2×.
- We initially shipped without telemetry-pipeline maturity — cost us six months.

---

*Signal 5 was the one we shortcutted. And the one we paid for.*

# One central AI capability — or one per business unit?

*Two ways to organise AI inside an industrial group: pool it centrally, or push it close to each business unit. Neither is obviously right.*

## Pool it (central)

- Reusable — what works in one BU lifts the others
- Governable — single model risk, single contract surface
- Capital-efficient — buy frontier capability once
- Drift — central platforms tend to govern toward Consumer-grade tools

## Push it close (federated)

- Speed — no platform queue, ship at the BU's tempo
- Context — the people closest to the use case design it
- Ownership — the BU owns outcomes, top to bottom
- Where Builders emerge — federated is the natural habitat

## WHAT I'M STILL FIGURING OUT

# As agentic systems mature, where do humans actually add value?

Automation made humans faster at existing tasks. Agentic AI threatens to make humans peripheral to many tasks entirely. The question is no longer rhetorical.

- Governance and accountability for outcomes
- Exception handling under genuine ambiguity
- Judgment when the data is silent

---

*We do not know yet. Anyone who tells you they do is selling.*

---

**If you were the investor,  
what would you actually  
fund?**

**Which companies are  
producing Builders?  
Which are scaling  
Consumers?**

USE THE FIVE SIGNALS TO TELL.

# Questions.

---

Sources: McKinsey COO100 Survey (Dec 2025) · McKinsey State of AI 2025 (Nov 2025) · WEF/McKinsey Global Lighthouse Network 2025 · Manufacturing Leadership Council 2025 · P. Finette, “The Bifurcation of Intelligence” (Feb 2026) · M. Alderson, “Two Kinds of AI Users Are Emerging” (Feb 2026)

---

Dr. Thomas Gittler · CDTO, maxon international AG · [thomas.gittler@maxongroup.com](mailto:thomas.gittler@maxongroup.com)

[linkedin.com/in/thomasgittler](https://www.linkedin.com/in/thomasgittler)