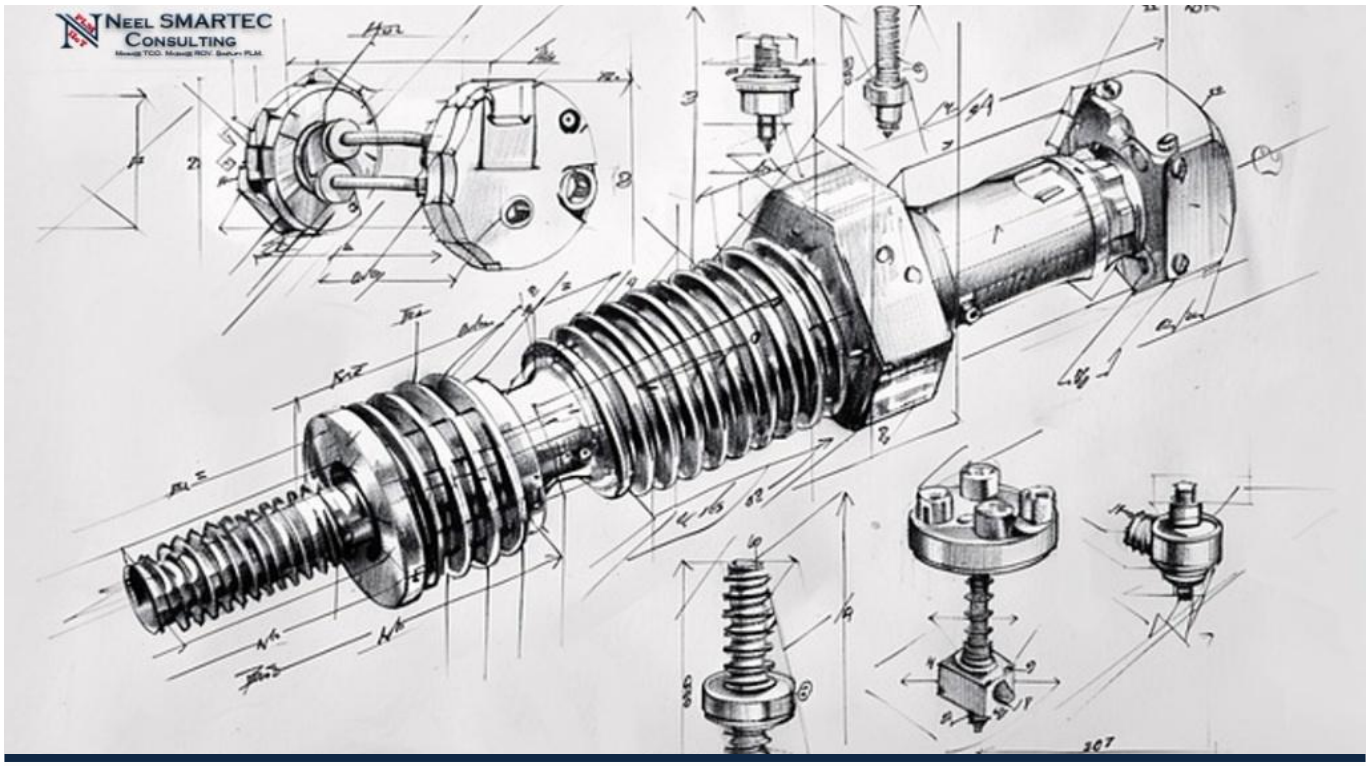

Manufacturing Leadership Series

When PLM Becomes Just a Document Shelf

A LEADERSHIP MINI-GUIDE

PRACTICAL SIGNS YOUR PRODUCT LIFECYCLE PROCESSES ARE STILL DISCONNECTED

By Uthayan Elangovan
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Author of books on PLM, IIoT & Industry 5.0

Five operational signs your PLM investment has stalled at document control — and what connected lifecycle governance actually looks like in a manufacturing organisation.

The Gap Between Expectation and Reality

Most manufacturers invest in PLM expecting connected product development, disciplined BOM management, and traceability from design intent through to production. The business case is well-reasoned. Implementation begins with genuine momentum.

Yet twelve to eighteen months after go-live, a recognisable pattern emerges. Teams are still working from Excel. Shared drives remain the default collaboration layer. Engineering changes are still coordinated through email threads. The PLM platform — technically operational — has become, in practice, a controlled document vault.

> **“ERP already manages most of our operational activities. So why is PLM here?”**
>
> Common operational question raised after document-centric PLM adoption.

The issue is rarely the software. Most enterprise PLM platforms are capable of considerably more than organisations use them for. The issue is almost always implementation scope — which processes were included in the initial deployment, and which were left to continue operating as before.

This guide identifies five observable signs that PLM has not yet become a connected lifecycle backbone. For each, it describes the downstream operational consequence. It then offers a practical comparison between storage-centric and process-centric PLM — and a self-assessment checklist leaders can use internally.

WHO THIS GUIDE IS FOR

Manufacturing SMEs and mid-market engineering organisations navigating PLM maturity. Engineering heads, NPD/NPI leads, operations directors, and transformation teams who sense a gap between what PLM was meant to deliver and what it delivers today.

Five Signs Your PLM Has Become a Document Shelf

01 Sales BOM Lives in a Separate Excel

The Sales BOM continues as a standalone reference spreadsheet maintained outside PLM. When engineering begins development, there is no system-driven progression into an Engineering BOM.

> **IMPACT** → Disconnected product definition from the outset. Version inconsistencies between commercial and engineering representations.

02 Engineering Starts Independently From Upstream Structures

Engineering begins without controlled linkage to upstream commercial or configuration definitions. Each team builds its own product structure interpretation, creating duplicated effort and reliance on tribal knowledge.

> **IMPACT** → Delayed cross-functional alignment. Multiple versions exist in parallel. Onboarding engineers relies on institutional memory rather than a system.

03 EBOM Exists Only at Equipment Level

Engineering BOMs are maintained in PLM only at high assembly or equipment level. System-level structures, subassemblies, and manufacturing-relevant BOM views are recreated manually in Excel or local servers.

> **IMPACT** → Fragmented BOM that ceases to function as a digital backbone. Engineering changes do not propagate. Traceability breaks down progressively.

04 Excel and Local Servers Continue Filling Operational Gaps

Excel sheets and local servers continue filling operational gaps where lifecycle workflows remain disconnected. These become entrenched over time, creating a parallel operating layer teams prefer.

> **IMPACT** → Data ownership becomes unclear. Revision trust erodes. Collaboration remains person-dependent rather than process-driven.

05 ERP Has Become the Final BOM Authority

ERP becomes the operational BOM authority because production teams require stable executable structures. ERP has absorbed the coordination role PLM was intended to fulfil.

> **IMPACT** → PLM becomes secondary in daily operations. ERP carries a lifecycle governance burden it was not designed to handle — and does so imperfectly.

Why This Happens — and Why ERP Cannot Compensate

The Implementation Scope Problem

The root cause of document-centric PLM is almost always implementation scope, not technology failure. Most PLM implementations begin with entirely justified priorities: CAD integration, controlled document management, revision storage, and file access control. What typically does not get included is the broader process architecture.

THE CORE DISTINCTION

Organisations implementing PLM for **document control** digitise their files. Organisations implementing PLM for **lifecycle governance** transform how product information flows across engineering, operations, quality, and commercial functions.

Product Lifecycle Continuity Model

ERP IS DESIGNED FOR

Procurement, inventory, production execution, planning, financial transactions, and material requirements. ERP manages stable operational data and drives execution reliably at scale.

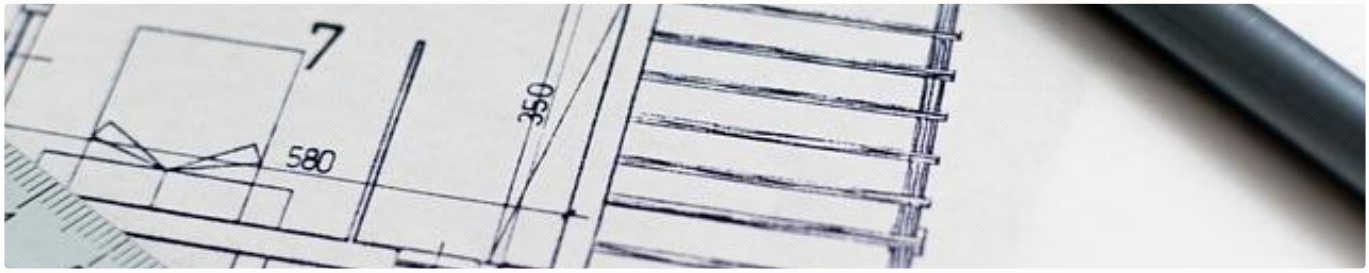
ERP IS NOT DESIGNED FOR

Evolving engineering structures, lifecycle maturity tracking, engineering collaboration, change traceability, NPD/NPI orchestration, or product definition continuity across development stages.

THE HIDDEN COORDINATION COST

This cost surfaces as manual coordination hours, BOM reconciliation meetings, change propagation delays, and engineering rework caused by misalignment between engineering and manufacturing.

Storage-Centric vs. Process-Centric PLM



Storage-Centric PLM	Dimension	Process-Centric PLM
CAD file repository and revision archive	Primary Role	Connected product lifecycle backbone
Engineering team only; other functions excluded	User Scope	Cross-functional: engineering, quality, sourcing, operations
Static document control with manual handoffs	Process Mode	Controlled workflow-driven orchestration
BOM at high level; manual progression to MBOM	BOM Continuity	Governed EBOM-to-MBOM transformation
Email, meetings, and Excel drive coordination	Collaboration	Workflow-driven visibility with structured approvals
ECO managed informally; propagation is manual	Change Mgmt	Traceable engineering change with impact visibility

WHAT MATURE PLM SHOULD ENABLE

✓ Controlled progression from Sales BOM to EBOM and MBOM

✓ Traceable engineering change with downstream impact visibility

✓ Cross-functional NPD/NPI collaboration on a shared data foundation

✓ Product structure continuity across all lifecycle stages

Where Does Your Organisation Stand?

- ☐ **BOM CONTINUITY:** Our Sales BOM is maintained in Excel or a disconnected system, with no system-driven handoff into engineering structures.
- ☐ **ENGINEERING PROCESS:** Engineering starts product development independently, without a controlled link to upstream commercial or configuration definitions.
- ☐ **BOM DEPTH:** Our EBOM in PLM exists only at top assembly level. System-level and subassembly structures are manually maintained elsewhere.
- ☐ **PARALLEL SYSTEMS:** Teams routinely use Excel, shared drives, or local folders to coordinate product information that should be governed by PLM.
- ☐ **SYSTEM OF RECORD:** ERP is where most teams go for BOM data. PLM is rarely referenced during day-to-day engineering or operations activity.
- ☐ **CHANGE MANAGEMENT:** Engineering change management is coordinated through email and meetings. PLM is not the primary channel for ECO initiation and approval.

The Goal Is Not More Software

The goal is creating connected lifecycle continuity across engineering, manufacturing, operations, and product governance. Many organizations discover operational fragmentation only after product complexity, customization, and cross-functional dependencies begin increasing.

If these patterns feel familiar, the next step may not be replacing systems — but reassessing how lifecycle processes are governed across engineering and operations.

REQUEST A PRODUCT DATA & PLM MATURITY DISCUSSION

- BOM continuity assessment & engineering-to-manufacturing process alignment
- PLM adoption maturity review & product data governance evaluation

ABOUT THE AUTHOR

Uthayan Elangovan

Uthayan Elangovan is a PLM Strategy & Digital Transformation Advisor with over 20 years of experience across PLM, Industry 4.0, IIoT, BOM governance, and manufacturing transformation initiatives. Through Neel SMARTEC Consulting, he helps manufacturing organizations improve lifecycle governance, engineering collaboration, product data continuity, and operational readiness through practical and implementation-grounded approaches. His experience spans automotive, industrial equipment, electronics, medical, and engineering manufacturing environments.

CORE ADVISORY COMPETENCIES & REVIEWS

- BOM continuity assessment across sales, engineering, and manufacturing views
- Engineering-to-manufacturing process and governance alignment
- PLM adoption maturity reviews and licensed baseline recovery
- Product data governance validation and configuration audits

Looking to operationalize PLM and Digital Thread initiatives within your organization?

Connect with Neel SMARTEC Consulting for practical, implementation-focused transformation support.

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