IpX Establishes Control & Traceability Realized in a Military Purchased Product Process

A Leading Technical Operations Provider

This case study showcases how IpX leveraged its Configuration Management (CM2) principles and rigorous methodology to define and stabilize the mission-critical Purchasing Process for a leading military manufacturer. The engagement focused on establishing a controlled foundation for managing engineering definitions and supplier interactions, de-risking future technology modernization.

The Challenge

The client manages complex engineering, manufacturing, and technical data essential to its core business operations. Its processes involve deep integration with external suppliers for procured components, materials, and services.

The client faced an urgent need to define a robust, compliant, and efficient purchasing process. The existing framework suffered from fragmentation across systems and functions, leading to significant business risks:

(1) Data Non-Conformance:
Lack of a single, controlled source for product definitions and drawings, leading to potential discrepancies between engineering intent and supplier-provided products.

(2) Release Errors:
Inconsistent processes for managing technical data and engineering changes, increasing the likelihood of releasing incorrect data to the supply chain.

(3) Lack of Traceability:
Difficulty tracking data provenance and managing exceptions (deviations/waivers) across the lifecycle, undermining compliance and product integrity.

The Solution

We were engaged to use our proprietary CM2 methodology to harmonize, document, and stabilize the purchasing process. Our approach focused on a systems-agnostic, best-practice definition ensuring the "how we work" was compliant and optimized before any technology configuration began. This strategic step stabilized the operational foundation, providing the validated blueprint for future PDM/PLM system readiness.

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THE CM2 FRAMEWORK: THE ENGINE OF TRANSFORMATION

Deep Dive: Process Scope and Key Deliverables

The project centered on mapping and documenting the end-to-end Purchasing Process, encompassing activities from initial demand identification and Request for Proposal (RFP) creation through to product receipt, inspection, and final acceptance/stocking.

Key Deliverables: Invaluable Client Assets

We provided the client with actionable, standardized assets designed for immediate executive alignment and eventual digital enablement:

Executive-level Presentation:

- A high-level process vision that achieved consensus across Engineering, Quality, Logistics, and Procurement functions, outlining the future state and business benefits.

Detailed Formal Procedure Document:

- A standardized, comprehensive document defining all roles, responsibilities, process steps, and required data artifacts for managing purchased products.

Client-Validated Requirements Management Catalog:

- The critical asset for digital transformation. This catalog translated process needs and CM2 best practices into clear, quantifiable, and technical mandates for PDM/PLM systems.

CM2 Principles in Action: Requirements & Traceability

The Requirements Management Catalog was the most significant output, translating complex operational needs into clear, system-implementable requirements, demonstrating a powerful move toward process maturity.

The Problem Space: Concrete Requirements Examples

The catalog addressed critical, high-risk process inconsistencies:

- Enforcing Document and Drawing Relationships: The requirement was defined as: "a clear, visible relationship between an item and its drawing." This enforces correct association in the PDM system, making it easy to verify correct data linkage and avoid release errors due to manual mistake.
- Standardizing Suffixing: IpX established the need for a consistent suffixing approach for development documents (-01 administrative suffix) that doesn't cause downstream issues. This eliminated a long-standing source of confusion and potential non-conformances by ensuring purchasing definitions aligned systematically with drawing part numbers.
- Formalizing Deviation Management: The process demanded establishing a formal, compliant deviation process for temporary workarounds on client-owned drawings, ensuring checks and balances were in place to manage temporary non-conformance compliantly.

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THE CM2 FRAMEWORK: THE ENGINE OF TRANSFORMATION

The Value of Traceability (The "So That")

A core CM2 principle is the demand for "unbreakable traceability". This was applied to the deviation process:

The Requirement:
Clear traceability between the temporary deviations and the corresponding permanent engineering changes.

The Value (The "So That"):
...so that we can track whether temporary deviations result in permanent definition changes.

This requirement ensures every temporary workaround or deviation is formally linked in the PDM system to a mandatory, permanent engineering change. This process control secures product integrity by guaranteeing that every temporary fix results in the required, enduring update to the product definition, thereby eliminating technical debt and reducing compliance risk.

Measurable Value and Future System Readiness

Operational Clarity

The outcome delivered immediate, measurable value by removing process ambiguity. Key functions, including Engineering, Quality, Inventory/Logistics, and Procurement, now operate from a single source of truth, utilizing a documented procedure that defines precise steps, roles, and data definitions for the purchasing process. This reduces cycle time and minimizes costly transactional errors.

System Agnostic Readiness

The documented process and the detailed Requirements Catalog now serve as the validated blueprint for the client's future PDM/PLM system selection, configuration, or integration efforts.

By defining the process first and capturing requirements independent of any specific tool we fundamentally de-risked the client's significant technology investment. This ensures that the eventual tool implementation will strictly follow the established, best-practice process, rather than forcing the process to conform to the tool's limitations.

The Result

We transformed complex operational challenges into clear, executable, and compliant process assets designed for digital enablement. For the client, this engagement delivered more than a documented process—it established a controlled, CM2-aligned foundation that safeguards long-term product integrity, ensures regulatory compliance, and creates lasting value for ongoing digital transformation. What was once a siloed, manual process is now a streamlined framework for data integrity. With this clarity, the client is positioned to leverage a modern PLM tool, enabling digitization, traceability, and a resilient foundation for an efficient and effective supply chain.