

USE CASE

AI-driven BOM explosion management for complex manufacturing

Target

Enable engineering, manufacturing, procurement, IT, and cybersecurity teams to govern multi-level Bill of Materials (BOMs) across mechanical, electrical, and software domains. Ensure full traceability, version control, and compliance throughout the product lifecycle from design through sustainment.

Challenge

Modern products span hardware and software systems, but BOM data is fragmented across PLM, ERP, ALM, and supplier platforms. Without cross-domain visibility, revisions create version conflicts, compliance gaps, and production risk.

- ⚠ Misalignment between engineering, manufacturing, and software teams causes configuration drift.
- ⚠ Manual change tracking across parts, suppliers, firmware, and software builds increases error rates.
- ⚠ Limited traceability between physical and digital assets weakens audit and cybersecurity validation.
- ⚠ Supplier or component changes can impact downstream assemblies without early visibility.
- ⚠ Multi-level BOM structures are difficult to reconcile during audits or product updates.

Solution

With SeekrFlow™, organizations implement AI-driven BOM governance that expands and reconciles multi-level product structures across mechanical, electrical, and software domains.

The solution connects PLM, ERP, ALM, and supplier systems into a unified data model that tracks revisions, maps dependencies, and surfaces configuration conflicts or downstream impacts.

Teams operate from a single, trusted source of truth while maintaining human oversight.

EXAMPLES

- Explode and reconcile multi-level BOMs across PLM, ERP, and software repositories.
- Detect mismatched hardware revisions and associated firmware or software builds.
- Flag supply chain risks tied to supplier or part changes.
- Track configuration changes across design, production, and sustainment phases.
- Map cybersecurity requirements to physical components and embedded systems.

Impact

- ☑ Establish a single governed source of truth across product domains.
- ☑ Reduce configuration errors and production delays.
- ☑ Improve BOM accuracy and reduce configuration errors.
- ☑ Increase supply chain risk visibility before delivery impact.