MICRO GENESIS

Case Study

Comprehensive Adoption of IBM ELM:

Accelerating Defense Technology Development for a Premier R&D Establishment

Scalable Traceability with **>80% Less Manual Effort**

Next-Gen Compliance & Real-Time Visibility in One Platform

Client Profile:

A leading national defense electronics laboratory specializing in the design and development of advanced radar systems for ground-based, shipborne, and airborne applications. With core expertise in cutting-edge radar technologies, this ISO 9001:2015-certified organization drives innovation in surveillance, tracking, and weapon control systems while fostering a robust indigenous industry ecosystem for radar subsystems.

Problem Statement

The client faced critical inefficiencies in managing complex, compliance-driven engineering lifecycles:

Manual Traceability & Version Chaos:

- Requirements, test cases, and design documents were managed in disconnected Word files across multiple versions, making traceability nearly impossible.
- No automated audit logging or version tracking existed, risking data integrity.

Fragmented Change & Review Processes:

- IV&V (Independent Verification & Validation) reviews relied on siloed tools, causing delays and a lack of real-time visibility into change status.
- Manual Requirements Traceability Matrix (RTM) generation consumed significant resources.

Compliance Overhead:

- Despite using DO-178C-compliant document formats, manual effort was required to enforce standards, slowing down artifact creation.
- No integrated workflows to ensure end-to-end regulatory adherence.

Our Solution:

Comprehensive IBM Engineering Lifecycle Management (ELM) Adoption

MicroGenesis implemented a unified ALM platform to digitize and automate engineering workflows:

Duration: 7 Months | On-Premise Deployment

Centralized Traceability

Migrated requirements, design documents, and test cases from Word into IBM ELM, establishing bidirectional links for end-to-end traceability.

Automated RTM generation using IBM Engineering Lifecycle Optimization – Publishing.

Streamlined Compliance

Embedded DO-178C standards into reusable module templates, auto-enforcing compliance during artifact creation.

Enabled full audit logging and version history via IBM ELM's native capabilities.

Integrated Workflows

Customized work item types and workflows in IBM Engineering Workflow Management for real-time visibility into IV&V review stages.

Automated the end-to-end IV&V review process using integrated DOORS Next and workflow tools.

Business Impact:

The ALM transformation delivered significant operational and compliance efficiencies:

Area	Impact
Traceability	Automated RTM generation & end-to-end links **reduced manual traceability efforts by >80%.**
Compliance	Embedded DO-178C standards **eliminated manual checks, slashing compliance overhead.**
Process Visibility	Real-time IV&V workflow tracking **accelerated decision-making and eliminated silos.**
Audit Integrity	Automated version history & logging **ensured 100% accountability** for modifications.
Resource Efficiency	Reusable templates **cut document creation time** and **enable seamless scaling.**

Strategic Outcomes:

Ensured compliance with Defence standards.

Established a scalable ALM foundation for all radar programs.

Client expanded investment via renewed service contracts and additional licenses.

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