How Mature Are Your Engineering Data Practices?

Defense Engineering Data Self-Assessment

Introduction

This self-assessment helps defense engineering organizations evaluate their current data governance maturity across the critical areas highlighted in our recent eGuide: security protocols, version control, data accessibility, and institutional knowledge preservation.

Assessment Purpose

- Benchmark your current engineering data management practices
- Identify specific areas requiring improvement
- Prioritize initiatives for maximum impact
- Build business case for data governance investments

Time Required: 15-20 minutes

Best Completed By: Engineering managers, program managers, or IT directors with oversight of engineering data systems

How To Use This Assessment

Scoring Instructions:
- Rate each statement from 1-5 based on how accurately it describes your organization
- Be honest in your assessment
- Consider your organization's overall practices, not best-case scenarios

Rating Scale:
- 5 = Strongly Agree - This describes our organization very well
- 4 = Mostly Agree - This describes us in most situations
- 3 = Somewhat Agree - This describes us in some situations
- 2 = Mostly Disagree - This rarely describes our organization
- 1 = Strongly Disagree - This does not describe our organization at all

Section 1:
Data
Security &
Compliance

1.1 Security Protocol Integration

Our engineering data management systems are fully integrated with our organization's security protocols and compliance requirements.

Rating: ___/5

Consider: Do your engineering tools work seamlessly within your security constraints, or do engineers create workarounds?

1.2 Audit Trail Completeness

We maintain complete, auditable records of all engineering data access, modifications, and transfers across security domains.

Rating: ___/5

Consider: Can you quickly produce a complete history of who accessed which files when, including cross-domain transfers?

1.3 Access Control Effectiveness

Our role-based access controls ensure that engineering personnel can access the data they need while maintaining appropriate security restrictions.

Rating: ___/5

Consider: Do engineers have appropriate access without excessive barriers, and are unauthorized access attempts prevented?

1.4 Compliance Readiness

We can demonstrate compliance with relevant standards (CMMC, NIST 800-171, ITAR) specifically for engineering data workflows without extensive preparation.

Rating: ___/5

Consider: How much effort does it take to prepare for compliance audits related to engineering data?

1.5 Cross-Domain Capability

We have effective, approved methods for engineering data collaboration across different security domains when required.

Rating: ___/5

Consider: Can your teams collaborate on projects that span multiple security classifications without resorting to manual workarounds?

Section 1 Total: ___/25

Section 2: Version Control & Data Integrity

2.1 Version Control System
Our engineering teams use a centralized version control system that prevents conflicts and maintains clear design history.

Rating: ___/5

Consider: Do you have issues with multiple "correct" versions of the same design, or confusion about which version to use?

2.2 Change Management Process
We have systematic processes for managing engineering changes, including approval workflows and impact analysis.

Rating: ___/5

Consider: Are design changes tracked, approved, and communicated effectively across all affected teams?

2.3 Design History Preservation
We maintain complete records of design decisions, including rationale for changes and approvals by authorized personnel.

Rating: ___/5

Consider: Can you recreate the decision-making process for any design change made in the past year?

2.4 Integration Consistency

Changes to individual components are automatically reflected across integrated assemblies and related documentation.

Rating: ___/5

Consider: When one team changes a component, do all affected teams automatically receive updates?

2.5 Backup and Recovery

We have reliable backup systems and tested recovery procedures for all critical engineering data.

Rating: ___/5

Consider: How confident are you in your ability to recover from engineering data loss or corruption?

Section 2 Total: ___/25

Section 3: Data Accessibility & Workflow Efficiency

3.1 Data Discovery

Engineers can quickly locate and access current versions of the engineering data they need to perform their work.

Rating: ___/5

Consider: How much time do your engineers spend searching for files versus doing actual engineering work?

3.2 Cross-Functional Collaboration

Engineering teams across different disciplines (mechanical, electrical, systems) can effectively share data and collaborate on integrated designs.

Rating: ___/5

Consider: How well do your mechanical, electrical, and systems teams coordinate their design activities?

3.3 Remote Access Capability

Authorized personnel can securely access engineering data from appropriate remote locations when business needs require it.

Rating: ___/5

Consider: Can your teams maintain productivity when working from different locations within security constraints?

3.4 Performance and Reliability

Our engineering data management systems provide consistent, reliable performance that supports rather than hinders engineering productivity.

Rating: ___/5

Consider: Do system performance issues or downtime regularly impact engineering work?

Section 3 Total: ___/20

Section 4:
Data Accessibility & Workflow Efficiency

4.1 Knowledge Capture

We systematically capture and preserve engineering knowledge, including design intent and decision rationale.

Rating: ___/5

Consider: When key personnel leave, how much engineering knowledge is lost?

4.2 Documentation Standards

We maintain consistent, comprehensive documentation standards across all engineering projects and disciplines.

Rating: ___/5

Consider: Can someone unfamiliar with a project quickly understand the design approach and key decisions from the documentation?

4.3 Succession Planning
We have processes to ensure engineering knowledge transfer when personnel change roles or leave the organization.

Rating: ___/5

Consider: How prepared are you when a key engineer retires or transfers to another position?

4.4 Historical Data Access
We can efficiently access and utilize engineering data from completed projects to support new development efforts.

Rating: ___/5

Consider: How easily can your teams learn from and build upon previous engineering work?

Section 4 Total: ___/20

Section 5: Strategic Alignment & Continuous Improvement

5.1 Strategic Integration

Our engineering data management approach aligns with and supports our organization's overall digital engineering transformation goals.

Rating: ___/5

Consider: Is your data management strategy integrated with broader organizational technology initiatives?

5.2 Continuous Improvement

We regularly evaluate and improve our engineering data management processes based on user feedback and changing requirements.

Rating: ___/5

Consider: Do you have systematic processes for identifying and addressing data management inefficiencies?

Section 5 Total: ___/10

Assessment Results and Interpretation

Total Score: ___/100

Maturity Level Interpretation:

70+ Points: Advanced Maturity You're doing really well - better than most defense organizations we work with. Your data governance practices are solid across the board. At this point, it's about leveraging advanced capabilities and continuing to optimize what you've built.

Key Actions: Focus on advanced platform integration, explore cutting-edge capabilities, and consider strategic partnerships for ongoing optimization.

Schedule Advanced Configuration Planning

50-69 Points: Developing Maturity You've got good foundations with some clear opportunities to make things work better. You're in a great position to make targeted improvements that will deliver significant value.

Key Actions: Address the weak spots identified in your assessment, focus on system enhancements, and implement targeted productivity improvements.

Schedule Enhancement Planning

Below 50 Points: Foundation Building You're facing some significant engineering data management challenges that are probably impacting both productivity and compliance. Time to focus on getting the basics right.

Key Actions: Focus on foundational improvements first, address critical security gaps immediately, and establish systematic data management processes.

Schedule Implementation Planning

Recommended Next Steps

Immediate Actions (Next 30 Days)
- Share Results: Discuss assessment results with key stakeholders
- Prioritize Gaps: Identify the 2-3 highest priority areas for improvement
- Risk Assessment: Evaluate any critical security or compliance gaps requiring immediate attention

Short-Term Planning (Next 90 Days)
- Detailed Analysis: Conduct deeper analysis of priority improvement areas
- Resource Planning: Determine budget and personnel requirements for improvements
- Vendor Evaluation: If external solutions are needed, begin evaluation process

Long-Term Strategy (6-12 Months)

- Implementation Planning: Develop detailed roadmap for priority improvements
- Change Management: Plan for organizational change management and training
- Success Metrics: Establish measurements for tracking improvement progress

For assistance interpreting your assessment results or developing improvement strategies specific to your organization's needs, **contact Design & Process** for a consultation focused on your priority areas.

Assessment Date: _____
Completed By: _____
Title/Role: _____
Organization: _____