Aerospace PLM Safety-Critical Implementation Checklist

Ensuring Comprehensive Lifecycle Management for Aviation Excellence

Phase 1: Foundation & Data Architecture (Weeks 1-4)

- [ ] **Data Model Validation**: Establish single source of truth for all engineering data
- [ ] **Traceability Framework**: Define complete component genealogy from raw materials to end-of-life
- [ ] **Integration Architecture**: Connect PLM with ERP, MES, and maintenance systems
- [ ] **Compliance Mapping**: Ensure AS9100, FAA, EASA regulatory alignment
- [ ] **Security Framework**: Implement ITAR/DFARS compliant data protection

Phase 2: Digital Twin Integration (Weeks 5-8)

- [ ] **Real-time Data Feeds**: Connect PLM to aircraft sensors and maintenance systems
- [ ] **Predictive Analytics**: Implement algorithms for component failure prediction
- [ ] **Performance Modeling**: Create virtual representations of actual aircraft performance
- [ ] **Maintenance Correlation**: Link digital twin insights to maintenance workflows
- [ ] **Fleet-wide Visibility**: Enable instant component analysis across entire fleet

Phase 3: Process Integration (Weeks 9-12)

- [ ] **Change Management**: Establish controlled engineering change processes
- [ ] **Supplier Integration**: Connect tier 1-3 suppliers to PLM ecosystem

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- [ ] **Quality Integration**: Link quality systems with PLM for complete traceability
- [ ] **Maintenance Planning**: Integrate predictive insights into maintenance scheduling
- [ ] **Regulatory Reporting**: Automate compliance documentation and reporting

Phase 4: Operational Excellence (Weeks 13-16)

- [ ] **User Training**: Ensure all stakeholders understand safety-critical workflows
- [ ] **Performance Metrics**: Establish KPIs for safety, quality, and operational efficiency
- [ ] **Continuous Improvement**: Create feedback loops for system optimization
- [ ] **Emergency Response**: Develop rapid response protocols for safety issues
- [ ] **Audit Readiness**: Maintain continuous compliance and audit preparedness

Critical Success Factors

- **Executive Sponsorship**: Ensure C-level commitment to safety-first PLM implementation
- **Cross-functional Teams**: Include engineering, manufacturing, quality, and maintenance stakeholders
- **Phased Approach**: Implement in controlled phases with clear validation gates
- **Training Investment**: Comprehensive training ensures proper system utilization
- **Continuous Monitoring**: Regular system health checks and performance optimization

ROI Expectations

- **25-40% reduction** in time-to-market for engineering changes
- **30-50% improvement** in first-time quality metrics
- **15-25% reduction** in warranty and maintenance costs
- **90%+ improvement** in regulatory compliance audit results
- **Significant reduction** in safety incidents and recalls

Contact GompaTech for your complimentary PLM readiness assessment and customized implementation roadmap.