Air Force Life Cycle Management Center (AFLCMC)

Standard Process

for

Engineering Data Management

Process Owner: AFLCMC/EZSC

Date: 16 August 2018

Version: 4.0

Record of Changes		
Version	Effective Date	Summary
1.0	24 April 2014	Baseline standard process approved by the AFLCMC Standard & Process (S&P) Board on 17 Apr 14.
2.0	19 Nov 2015	Incorporated additional detail into the attached Work Breakdown Structure (WBS) and updated the process flow. Also included additional comments provided by the S&P Board. S&P Board approved 19 Nov 2015.
3.0	16 Feb 2017	Incorporated annual review comments – Mostly administrative comments – S&P Board approved 16 Feb 2017
4.0	16 Aug 2018	Major document changes have been made due to the annual review comments.Approved by S&P Board on 16 AUG 2018

Engineering Data Management Process

1.0 Description.

1.1 This Standard Process for Engineering Data Management describes the high level actions to identify, acquire, collect, organize, review, approve and store engineering data that is required to support a Program's Acquisition Strategy (AS).

1.2 Engineering data includes, but is not limited to, Computer Aided Design (CAD) data, CAD models, model based definition data sets, Gerber data, specifications, drawings, interface control documents, verification plans, and Master Bill of Materials (BOM). Engineering data provides the necessary design, engineering, manufacturing, testing and quality assurance requirements necessary to enable the procurement or manufacture of an interchangeable item that duplicates the physical and performance characteristics of the original item without additional design engineering effort or recourse to the original design activity or any third party. This engineering data needs to reflect the rights in technical data for which the Government is entitled to as well as appropriate Scientific and Technical Information (STINFO) markings IAW DoDI 5230.24.

1.3 This standard process is mandatory for AFLCMC programs acquiring engineering data and doesn't replace or supersede any existing laws, regulations, directives, policies, or instructions for acquiring engineering data. The standard process supersedes all previously followed processes for acquiring engineering data.

2.0 Purpose.

2.1 The purpose of the Engineering Data Management Standard Process is to consistently and effectively acquire and manage engineering data to support decisions throughout a program's life cycle. Implementing this standard process ensures a Program Office long term engineering data requirements comply with the Program's supports using and attaining the requisite engineering data to obtain and maintain Operational Safety, Suitability and Effectiveness (OSS&E) certifications (e.g., Airworthiness and Cyber Security) as well as AS, Intellectual Property Strategy (IPS) and logistics support requirements; and supports competition (reprocurement packages) throughout the life cycle.

2.2 This Standard Process serves as reference for the Program Office, Program Manager (PM), Program Support Manager, Configuration and Data Management (C/DM) and AFLCMC/LZPE's Engineering Data Management Specialist (EDMS) to successfully plan, document, and execute engineering data acquisition and management.

3.0 Potential Entry/Exit Criteria and Inputs/Outputs.

3.1 Entry Criteria. A Program Office's AS requires the acquisition and accountability for engineering data, to include the appropriate rights in technical data.

3.2 Exit Criteria. The Program Office approves and accepts the engineering data after all stakeholders have performed necessary reviews and ensures it has been successfully stored in a Government-approved category 5 Repository (e.g., Joint Engineering Data Management Information and Control System (JEDMICS), Defense Technical Information Center (DTIC), Training System Support Center (TSSC) or a Commercial off the Shelf (COTS) product Lifecycle Management (PLM) solution).

3.3 Process Workflow and Activities.

4.0 Suppliers, Inputs, Process, Outputs, Customers (SIPOC), Table 1.

Suppliers	Inputs	Process	Outputs	Customers
Contractor Using Command	Engineering Data submitted to a Repository	Engineering Data acquired	Engineering Data Loaded into a Repository as needed	AFLCMC, Air Force Sustainment Center (AFSC), Defense Logistics Agency (DLA) and Using Command
Contractor Using Command	Approved Engineering Data submitted to JEDMICS, DTIC or a Commercial off the Shelf (COTS) Product Lifecycle Management (PLM) solution	Engineering Data Accepted and Loaded into JEDMICS, DTIC or a Commercial off the Shelf (COTS) Product Lifecycle Management (PLM) solution	Successful loading of Engineering data complete	AFLCMC, AFSC, DLA and Using Command

Table 1. SIPOC

Suppliers	Inputs	Process	Outputs	Customers
AFLCMC/LZPE	Engineering Data required	Engineering Data produced or modified	Engineering Data approved	AFLCMC, AFSC, DLA and user
AFLCMC/LZPE	Engineering Data submitted to JEDMICS or Teamcenter and DTIC	Engineering Data loaded into JEDMICS or Teamcenter and DTIC as needed	Engineering Data loading completed	AFLCMC, AFSC, DLA and user

Table 2 SIPOC (Organic)

4.1 Tables and Figures

4.1.1 Process Flowchart. The process flowchart, **Figure 1 & 2**, represents the process to standardize and manage the Engineering Data Management process. These activities are further defined in the Work Breakdown Structure (WBS).

4.2.2 Work Breakdown Structure. The WBS, **Table 2 & 3**, provides additional detail for the flowchart activity boxes. The Microsoft Excel version of the WBS is in **Attachment 1.**

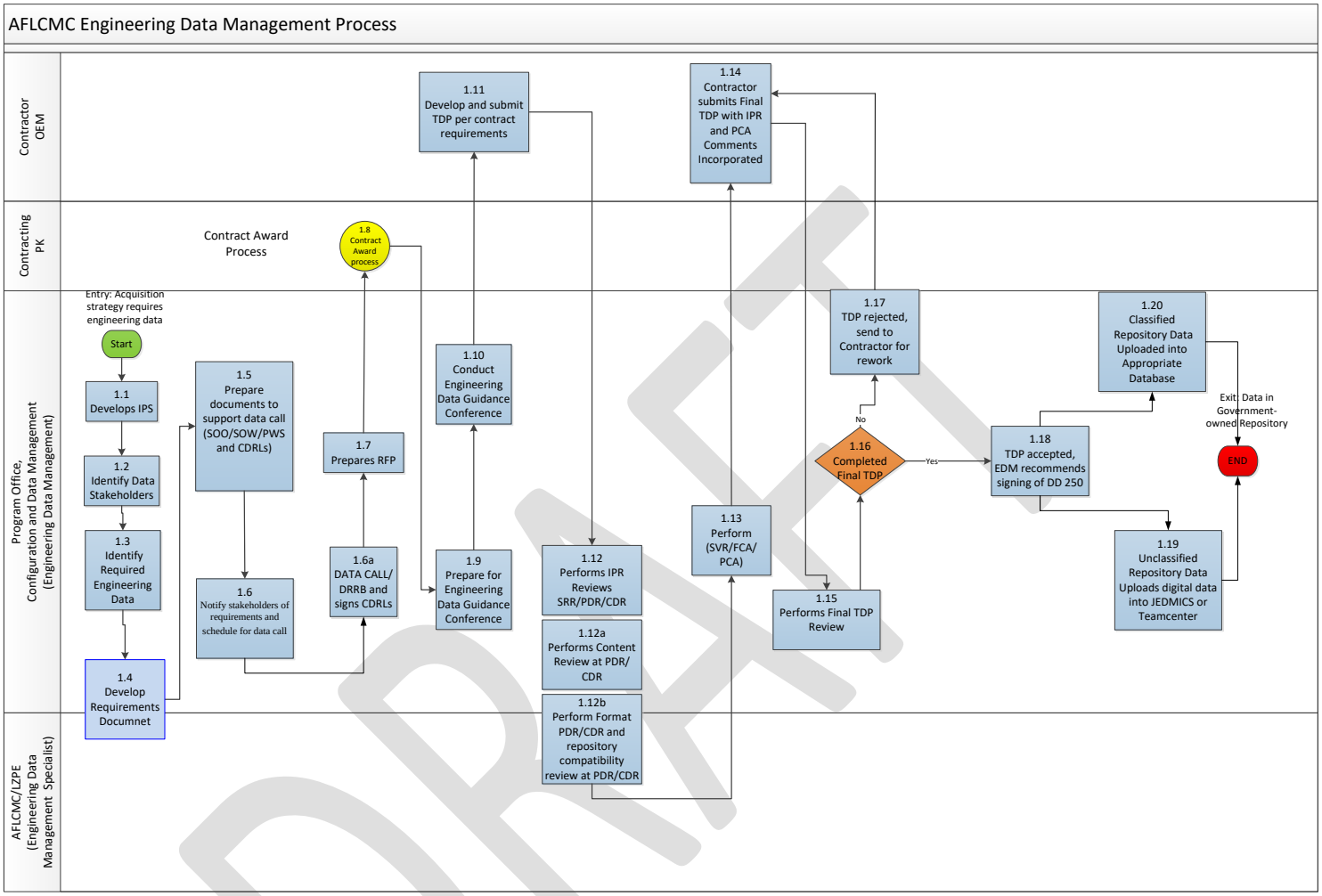

Figure 1 Process Flowchart – AFLCMC Engineering Data Management Process

Lvl	WBS	Activity	Description	OPR	Days
1	1.0	Engineering Data Acquisition			
	Start	Acquisition Strategy	The Program Management Plan for program execution across the entire program's life cycle. It is a comprehensive, integrated plan that identifies the acquisition approach, and describes the business, technical, and support strategies that the PM plans to employ to manage program risks and meet program objectives.	Program Office	30
2	1.1	Develop IPS	Develop IPS to identify and manage the full spectrum of IPS and related issues (e.g., technical data and computer software deliverables, patented technologies, and appropriate license rights) from the inception of a program and throughout its life cycle. The Engineering Data Manager (EDM) will typically work with the PM and other functional support.	Program Office	30
	1.2	Identify Data Stakeholders	PM is ultimately responsible for pulling it all together, subject to approval by the Milestone Decision Authority, but this must be a team effort. The development and continuous updating of an effective and robust IPS will require active participation of subject matter experts from a wide variety of disciplines, including engineering, logistics, contracting, cost and accounting, legal, and user.	Program Office	30
2	1.3	Identify Required Engineering Data	The Program Office identifies that engineering data is needed. This need can be for a new requirement, a follow-on requirement, or a modification to an existing requirement. The PM shall invite his/her functional support staff (stakeholders) to be part of the Integrated Product Team (IPT) to address the need for engineering data: C/DM, Engineering Data Management Specialist (EDMS), Engineering, Test and Evaluation, Logistics, Financial Manager (FM), Contracting Officer, user, and Legal Counsel (as needed) should be part of this team. During this meeting, the participants will identify the needed data and data rights required to support the program throughout its lifecycle.	Program Office CM or Designated Official, Functionals	30
2	1.4	Develop Requirements Document	The PM, with inputs from C/DM, EDMS and functionals will start the development of the Performance Work Statement (PWS), Statement of Objectives (SOO) or a Statement of Work (SOW) and draft Contract Data Requirements List (CDRLs) for engineering data. DOD 5010.12-M and Defense Federal Acquisition Regulations (DFARS) require that all technical data delivered under a Department of Defense (DoD) contract must be provided via a DD Form 1423, CDRL. The CDRL provides a contractual method to direct the contractor to prepare and deliver data that meets specific approval and acceptance criteria. With the exception of data specifically required by DFARS, all data-generating or record-keeping data requirements shall be listed on the CDRL. These draft contractual documents will be reviewed by the User and other functional members prior to being released. The PM and C/DM will consolidate the contract CDRL packages and review them for correct format and the current Data Item Descriptions (DIDs) selected. The completed CDRL package will then be turned over to the Contracting Officer for formal processing.	PM CM or Designated Official Functionals	14
2	1.5	Prepare documents to support data call (i.e. SOO/SOW/ PWS/CDRLS)	The PM, C/DM, EDMS and Contracting Officer will review the requested data and will ensure the engineering data is in compliance with program requirements, Request For Proposal (RFP) instructions, as well as the contract requirements.	PM, Contracting Officer, C/DM, EDMS	15

Table 2 WBS (1 of 4)

Lvl	WBS	Activity	Description	OPR	Days
2	1.6	Notify stakeholders of requirements and schedule for data call	At the direction of the PM, the C/DM or other responsible official will initiate a data call for data requirements to be obtained from a contractor. The data call should be issued at least six months before the release of the RFP or sealed bid. This effort can take many forms, such as being issued in writing or conducting an actual meeting. The data call must reach the entire Program's function staff that supports the program (e.g., Engineering, Logistics, Configuration Management, Test and Evaluation, Quality Assurance (QA), Safety, Human Engineering, Training, Intelligence, Contracting and Comptroller).	C/DM or Designated Official	5
2	1.6a	Data Call/DRRB	After a data call process has been conducted, the PM will convene and the C/DM will chair the Data Requirement Review Board (DRRB). The C/DM, EDMS, and Contracting Officer will review the requested data and will ensure the engineering data is in compliance with program requirements, and the RFP instructions as well as the contract requirements.	PM, C/DM, EDMS and Contracting Officer	5
2	1.7	Prepare RFP	PM along with other functional support team members, will prepare RFP.	PM C/DM Functionals	5
1	1.8	Contract Award Process	The Contracting Officer is responsible for ensuring that the requested engineering data deliverables are properly identified and incorporated in the solicitation and resulting contract award. This shall include mapping in RFPs to show how the solicitation, PWS or SOW, CDRLs, and DIDs relate to each other. The mapping in the RFP and the final award shall also list what data will be delivered, what format it will be in, what data rights (license) the Government will obtain, and which restrictive markings will be allowed on the data.	Contracting (PK)	5
2	1.9	Prepare for Engineering Data Guidance Conference	The Data Guidance Conference is held 60-90 days after contact award and may be held in conjunction with Post Award Conference. The conference is a joint Government-Contractor review of the Government's contractual requirements to ensure that the Contractor understands their contractual obligations (i.e., format, deliverables, and data rights), resolve differences, and to review the Contractor's approach to satisfying the Government's contractual requirements.	Contracting (PK)	5
	1.10	Conduct Engineering Data Guidance Conference	The conference is an opportunity to resolve differences of interpretation and provide alignment of the contractor's current Technical Data Package (TDP) preparation systems with the Government's TDP requirements. Finally, the conference allows the Government the opportunity to ensure that the contractor understands that all technical data presented to the Government for acceptance shall be accurate, clear, complete, current, correctly marked per STINFO and Data Rights requirements, and adequate for intended purposes.	Program Office (Functional Team)	3
2	1.11	Develop and Submit TDP per Contract Requirements	Contractor will develop and submit the engineering data via a TDP in accordance with the contract requirements.	Contractor Original Equipment Manufacturer (OEM)	
2	1.12	Perform IPR Reviews SRR/PDR/CDR	In-Process Reviews (IPRs) also provide opportunities to verify the adequacy of the design activities, practices, and procedures, including QA practices for data that will prevent deficient (missing dimensions, tolerances, notes, and interface requirements), incomplete (missing reference documents, mandatory processes, etc.), and nonconforming (not in accordance with contractual requirements) data. Discovery of discrepancies during this review will facilitate and expedite the final review and final acceptance of the engineering data. IPRs can be accomplished in conjunction with System Requirements Review (SRR), Preliminary Design Review (PDR) and Critical Design Review (CDR).	Program office C/DM EDMS	5-30

Table 2 WBS (2 of 4)

Lvl	WBS	Activity	Description	OPR	Days
2	1.12a	Perform Content Review PDR/CDR	The C/DM and Engineers will review the engineering data during the PDR and CDR reviews for technical content. The content information will support the design concept being briefed by the contractor during the PDR and CDR reviews.	C/DM and Engineers	10
2	1.12b	Perform Format PDR/CDR Repository compatibility review	C/DM will have the Contractor submit samples of their digital engineering data or 3D Models to the Government-owned Repository (JEDMICS) or a Commercial off the Shelf (COTS) Product Lifecycle Management (PLM) solution, for capability testing. Early testing will allow the Government-owned Repository personnel to work out problem areas early in the development process. The capability testing will continue throughout the development process until all of the engineering data have been successfully loaded and stored within the Government-owned Repository.	C/DM and EDMS	10
2	1.13	Perform SVR/FCA/PCA	A System Verification Review (SVR) is conducted to verify the actual performance of the system meets the requirements stated in the system specification. Functional Configuration Audit (FCA) is conducted to verify that the actual performance of the CI/CSCI meets the requirements stated in its performance specification. FCA and SVR can be conducted concurrently, however it is preferable to have all Action Items from SVR completed prior to FCA. Physical Configuration Audit (PCA) is the formal examination of the "as-built" configuration of a configuration item against its technical documentation to establish or verify the Configuration Item's Product Baseline.	C/DM Engineering	5
2	1.14	Contractor submits Final TDP with IPR and PCA comments incorporated	Contractor's TDP is a technical description of an item meeting requirements for supporting an acquisition strategy, production, engineering, and logistics support. The description defines the required design configuration and procedures to ensure adequacy of item performance. It consists of all applicable technical data such as drawings, associated lists, specifications, standards, performance requirements, QA provisions, and packaging details. During the IPRs, the government will make comments to TDP and the contractor will update the TDP packages.	Contractor	3
2	1.15	Performs Final TDP Review	The final TDP submitted to the government will be reviewed by the C/DM and EDMS for contract compliance, technical content errors and correct data markings. The final TDP is reviewed for contract compliance.	C/DM and EDMS	14
	1.16 No	Completed Final TDP (No): Go To 1.17	The Completed final TDP package is delivered to the Program office to be reviewed for contract compliance. If the TDP is found to be unacceptable and does not meet the contract requirement it will be returned to the Contractor for correction. The final TDP will then be resubmitted for review (1.14).	PM C/DM, EDMS	14
	1.16 Yes	Completed Final TDP (Yes); Go To 1.18	The Completed Final TDP package will be delivered to the Program Office to be reviewed for contract compliance. If the TDP is found to be complete and meets the contract requirements it is accepted and the Program's Office C/DM Engineering Data Manager (EDM) will recommend that the DD Form 250 to be signed off.	PM C/DM, EDMS	14
2	1.17	TDP rejected, send to Contractor for rework	Contractor submits copies of all new and revised engineering data for Government review. The C/DM and EDMS will verify that all previously noted discrepancies, as well as all discrepancies revealed during the contract performance, have been corrected. If the data is found acceptable, the C/DM will notify the Contractor in writing. If discrepancies still exist, the C/DM will notify the PM and Contracting Officer for resolution.	Contractor OEM	15

Table 2 WBS (3 of 4)

2	1.19	Unclassified Repository Data Uploads digital data into JEDMICS or COTS	Engineering data that is determined to be unclassified may be input into JEDMICS or a COTS PLM solution.	Contractor, EDMS	5
2	1.20	Classified Data Repository	Currently Government-owned Repositories such as JEDMICS are not cleared for classified data. Therefore, the Program Office must develop a plan on how it will maintain the Program's classified engineering data. The PM will develop a process to maintain classified data internally or may choose to contract with the Prime Contractor to store and maintain the classified data. The Program Office will ensure that procedures will be developed for accessing, storing and retrieving classified data by the functional staff and user. The Program Office will ensure that all security procedures will be developed and followed. The C/DM will ensure that adequate processes are in place. C/DM will develop a self-inspection program to ensure compliance. The results of these self-inspections will be sent to the organization security office with a copy sent to AFLCMC/EZSC for review. At any time a security violation has occurred, the organization Security Office and AFLCMC/EZSC will be notified.	C/DM, EDM PM	15
2	Exit	Exit	Acquisition of engineering data process is completed and C/DM data accountability is assured by the PM. Data in Government owned Repository	C/DM PM	1

Table 2 WBS (4 of 4)

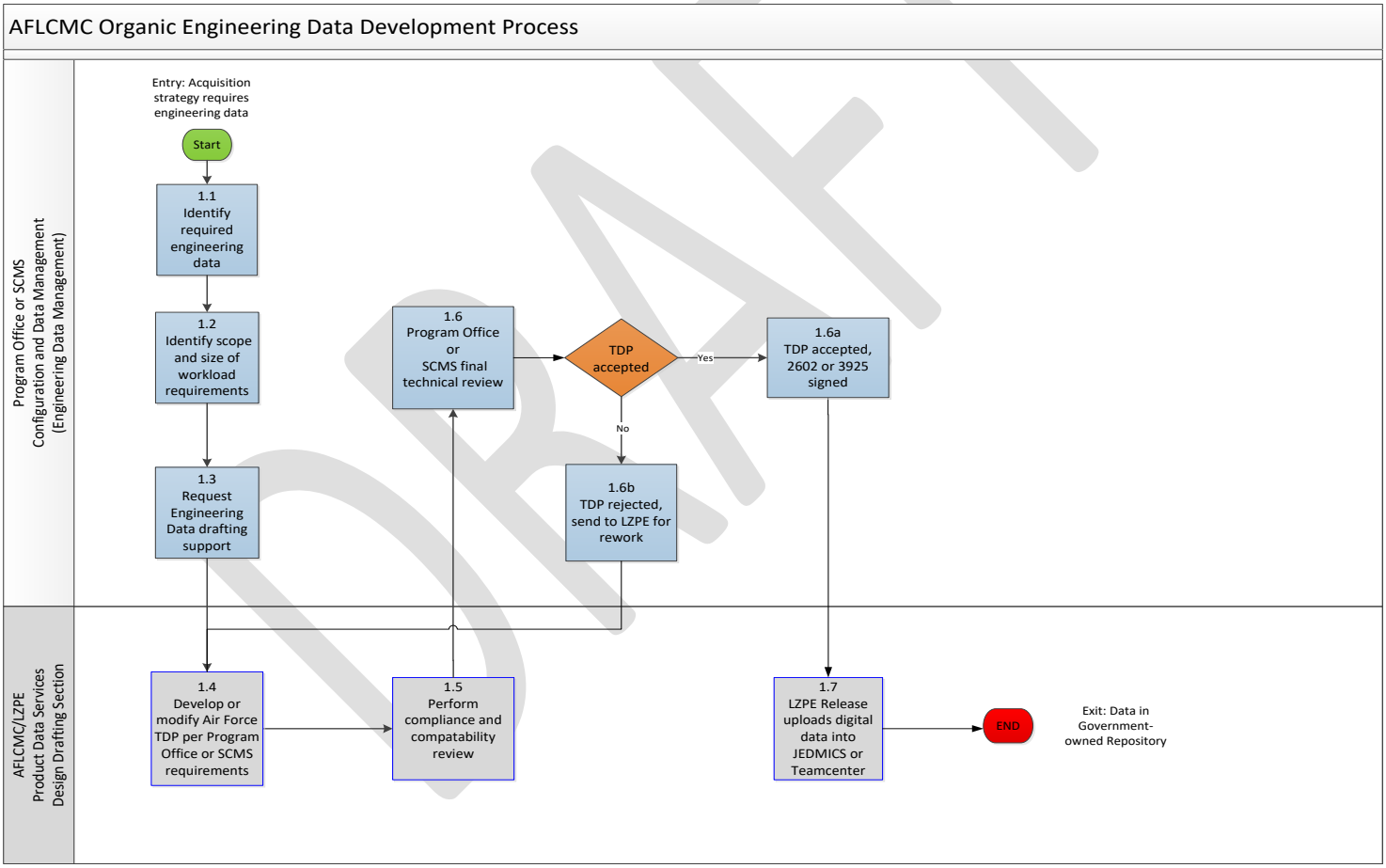

Figure 2 Process Flowchart – AFLCMC Engineering Data Management Organic Process

Lvl	WBS	Activity	Description	OPR	Days

1	1.0	Organic Engineering Data development			
2	1.1	Identify required engineering data	The Program Office or SCMS identifies that engineering data is needed. This need can be for a new requirement, a follow-on requirement, or a modification to an existing requirement. The PM shall invite his/her functional support staff (stakeholders) to be part of the Integrated Process Team (IPT) to address the need for engineering data: Configuration and Data Management (C/DM), Engineering Data Management Specialist (EDMS), Engineering, Logistics, Financial Manager (FM), Contracting Officer, User, and Legal Counsel (as needed) should be part of this team.	Program Office/SCMS	5
2	1.2	Identify scope and size of the workload requirements	The Program Office or SCMS identifies the scope of the requirements to determine if LZPE has sufficient resources to accomplish the request within the timeframe required.	Program Office/SCMS	5
	1.3	Request Engineering Data drafting support	Customer submits a Drafting Service Request, AFMCI Form 199 to LZP for racking and stacking based on priority requirements. LZPE determines if the scope of the workload can be accomplished by the current (limited) LZPE technicians within the timeframe requested.	Program Office/SCMS	5
2	1.4	Develop or modify Air Force TDP per Program Office or SCMS requirements	Air Force CAGE Technical Data Packages (TDP). Models and viewable data are developed or modified under direction and guidance of the Engineering Support Activity (ESA) engineer. JEDMICS/Teamcenter Metadata is built as part of TDP development. For new data, an AFMC 2602 digital signature document is developed to capture approval signatures. For modified data, an Engineering Order AFMCI Form 2602 is created to describe all changes and capture required approval signatures.	LZPE Product Data Services	TBD by scope and size
2	1.5	Perform compliance and compatibility review	TDP is routed/promoted to the LZPE checker for compliance with Air Force policy and for compatibility with existing repository data. Air Force policy includes proper configuration control and compliance with American Society of Mechanical Engineers (ASME).	LZPE Product Data Services	5
2	1.6	Program Office/SCMS technical review	TDP is routed/promoted to the program office or SCMS for technical review and approvals. AFMCI Form 2602 Digital Signature Form or AFMCI 3925 Engineering Order is routed/promoted for required signatures.	Program Office/SCMS	5
2	1.7	Repository Release	Upon approval TDP is routed/promoted to LZPE release personnel. TDP data elements are uploaded into JEDMICS/Teamcenter.		5

Table 2 Organic WBS

5.0 Measurement.

5.1 Process Results. Efficiency and effectiveness of this Standard Process will be measured via metrics and reported to the Configuration and Data Management Branch (AFLCMC/EZSC) annually to show the engineering data availability. The ultimate goal of acquiring engineering data is to ensure the Program technical baseline is documented, documents are properly marked, and meeting the Government's contractual requirements. To ensure the engineering data meets the above requirements, the engineering data must be made available for review during the Program's technical reviews (e.g., SRR, PDR, CDR and PCA). Failure to review the engineering data will likely lead to technical content discrepancies, multiple configuration issues and incorrect markings (i.e., Data Rights and Technical Distribution Statements).

5.2 Process Evaluation.

5.2.1 The Program Office's C/DM personnel along with the assistance from the Product Data Services Division (AFLCMC/LZP) Engineering Data Management Branch (AFLCMC/LZPE) will review and monitor the development of the engineering data during the program's technical reviews for contract and exit criteria compliance. This information will be input by the Program Office's C/DM into the AFLCMC Process Metric Dashboard site annually. The AFLCMC Process Metric Dashboard site is located at https://cs4.eis.afmc.af.mil/sites/1534/APD/app_dashboard/Dashboard.aspx.

5.2.2 AFLCMC/EZSC collects the data via the APD. Table 3 below provides details on this SP metric.

	Metric Attribute	AFLCMC EMD Standard Process
Administrative Info	APD Ref No	T-07
	Process Name	Configuration Management – Engineering Data Management
	Process Lead	Billy Merrell, AFLCMC/EZSC
	Metric POC	Billy Merrell, AFLCMC/EZSC
	Date Completed	26 February 2018
S	Metric Name / Description	1. Drawing Availability for Major Reviews
	Calculation	Number of available drawings/Number of new and revised drawings proposed by contractor = % available
	Business Rules	Only actions with Technical Data Packages (TPDs) on contract are included in the metric.
M	Data Source	SharePoint – each organization is required to input their respective changes
A	Process Owner	Robert Craven, AFLCMC/EZSC
	Decision Maker	Robert Craven, AFLCMC/EZSC
	Review Forum / Governance Body	Standards and Processes Board, AFLCMC
	Target	Overall: 10%; 75%; 100%
	Thresholds (R/Y/G)	1st IPR Green: 10-25% Red: Less than 10% 2nd IPR Green: 75-90% Red: Less than 75% 3rd Final IPR Green: 100% Red: Less than 100%
	Baseline Performance	Start of project to first milestone (receipt of acceptable change package)
R	Enterprise Impact / Process Purpose	Process captures percentage of drawings reviewed and number of discrepancies found during the IPRs. This metric reflects whether or not the drawings were accepted into the Government database.
	LCMC Obj	N/A
T	Baseline Date	26 February 2018
	Review Frequency	Annually
	Update Frequency	Annually

Table 3 SMART Metric

6.0 Roles and Responsibilities.

6.1 C/DM Branch (AFLCMC/EZSC) (Process Owner).

6.1.1 Acts as AFLCM Office of Primary Responsibility (OPR) for the EDM Process.

6.1.2 Provides engineering data training, consultation, support, and develops evaluation recommendations to Program Offices as requested.

6.1.3 Collects self-assessment information from the Program Office's C/DM and EDMS to determine compliance with this Process Standard.

6.1.4 Coordinates, advises, and provides training for engineering data issues. Initial training for this engineering data process will be accomplished by utilizing focus weeks, town hall meetings, and training requests from Program Offices.

6.2 Director of Engineering, ensures the Systems Engineering (SE) process supports using and attaining the requisite engineering data to obtain and maintain OSS&E certifications (e.g., Airworthiness and Cyber Security).

6.3 Chief Engineer.

6.3.1 Ensures the C/DM coordinates program-specific engineering data requirements and works with the EDMS.

6.3.2 Ensures the requisite technical information is contracted, in order to design for and verify performance, and to obtain and maintain OSS&E certifications.

6.3.3 Ensures engineering data is coordinated and approved in accordance with the Program's contract requirements.

6.4 Program Manager.

6.4.1 Ensures the acquisition of engineering data through contractual vehicles, so that engineering data needed for research and development, acquisition, logistics support and sustainment is available for use by authorized users throughout the life of the weapon system.

6.4.2 Ensures data rights assertion lists are clear and precise, monitors data markings on deliverables to ensure they are in accordance with the contract, ensures deliverables are sufficient to support future phases of acquisition or future competition, and secures funds to acquire engineering data up front.

6.4.3 In accordance with the Contracting Officer and Legal Counsel, ensures the IPS is established and maintained throughout the Program life cycle. The IPS will address the Program's data rights requirements.

6.4.4 Ensures classified (Top Secret, Secret and Confidential) engineering data is properly stored utilizing a data management system within an Integrated Digital

Environment (IDE) that allows the program to store, access, maintain, manipulate, and exchange classified digital data.

6.4.5 Responsible for coordinating and acquiring engineering data support from the Configuration Management organization for each acquisition and modification program.

6.4.6 Ensures engineering data is acquired to support activities such as OSS&E, Quality Assurance, Integrity Programs, Sustaining Engineering, Reliability and Maintainability Management, Airworthiness, Cyber Security and Configuration Management.

6.4.7 Ensures unclassified engineering data is loaded into a Government-owned Repository (e.g., JEDMICS, or a COTS PLM solution) and is maintained and updated throughout the Program life cycle; especially for use in the Program's modification efforts and reprocurement packages.

6.5 Configuration/Data Management.

6.5.1 The Program Office's C/DM office will perform the duties of EDM.

6.5.2 Assists PM with Plans for the acquisition of engineering data and coordinates with other Program office functionals to determine engineering data requirements based on the Program's technical requirements and Acquisition Strategy

6.5.3 In coordination with the PM and Contracting Officer, manages the engineering data acquisition process through final inspection and acceptance.

6.5.4 Evaluates all contracts, system configuration, and system performance changes (e.g., Engineering Change Proposals (ECP)) for engineering data requirements and risk/impact including those associated with rights in data management, validation, adjudication and negotiation activities.

6.5.5 Ensures the Program Office's IPS includes data rights, conforming data rights markings for data using the codes listed in Data Item Description (DID) DI-MGMT-81453B and the DFARS, applied in accordance with the contractual requirements.

6.5.6 Ensures appropriate STINFO, Distribution, Export Control, and Destruction Notice markings are applied correctly.

6.5.7 Consults with the Contracting Officer on acquisition of commercial products.

6.5.8 Provides technical guidance to the Program Office concerning data rights, DoD policy, procedures on procurement of engineering data. In coordination with the PM ensure only essential data is procured during acquisitions.

6.5.9 Coordinates and chairs the Data Call to identify data requirements and establishes operating instructions for DRRB which will be convened by the PM and chaired by CM.

6.5.10 Assist Logistics with ensuring Item Unique Identifier (IUID) and configuration identification requirements (e.g., nameplate) are established and adequately defined within the engineering data packages.

6.5.11 Assists in fact finding for engineering data. Monitors delivery of Contractor prepared data by establishing procedures for receipt, inspection, acceptance, and access prior to and after contract award.

6.5.12 Ensures data is collected and archived within an Engineering Data Activity Records File (EDARF). See **Attachment 2** for an example of an EDARF Table of Contents.

6.6 Chief of Logistics.

6.6.1 Ensures that the Program Office's Technical Order Management Agency (TOMA) assists the C/DM Office with identifying engineering data requirements for the development of the Program's Technical Orders (TO). It is the responsibility of Logistics to develop and provide a tailored Technical Manual Contract Requirement (TMCR).

6.6.2 When requested by the Program Office's C/DM office, supports the Contractor's Engineering Data Guidance Conference and all IPRs to ensure the engineering data is being developed in accordance with the contract requirements and data rights assertions.

6.7 Chief Developmental Tester/Test Manager.

6.7.1 Ensures that the Program Office's Integrated Test Team assists the C/DM Office with identify engineering data requirements for needed T&E data collection data sharing/management, operation of unique test equipment, provisioning of product support, and required test reports.

6.7.2 When requested by the Program Office's C/DM office, support the Contractor's Engineering Data Guidance Conference and all IPRs to ensure the engineering data is being developed in accordance with the contract requirements and data rights assertions.

6.8 Engineering Data Management Specialist.

6.8.1 EDMS responsibilities are performed by the Engineering Data Management Branch (AFLCMC/LZPE) personnel located at Hill, Robins, and Tinker, Air Force Bases (AFBs). The EDMS roles and responsibilities are similar to those of the Program Office's EDM (Para 6.5), except that the EDMS performs system compatibility checks and inputs the engineering data into the Government –owned Repository (e.g., JEDMICS, or a Commercial off the Shelf (COTS) product Lifecycle Management (PLM) solution).

6.8.2 When requested by Program Office C/DM office, support the Engineering Data Guidance Conference and all In-Process Reviews (IPR) to ensure the engineering data is being developed in accordance with the contract requirements and data rights assertions.

6.8.3 May need to assists the Program Office with classified (Top Secret, Secret and Confidential) engineering data to ensure proper security controls and markings are enforced.

6.8.4 Ensures the contractor-generated digital file (engineering drawings or 3D Models) is loaded into a Government-owned Repository (e.g. JEDMICS or a Commercial off the Shelf (COTS) product Lifecycle Management (PLM) solution) in a format compatible with the *Product Data Specification* (Air Force Drawing No. 9579776) (Cage Code 98752) requirements. The compatibility review will be accomplished by the Product Data Services Division (AFLCMC/LZPE) located at Hill, Robins, and Tinker AFBs.

6.8.5 Work with Program Engineers, Drafting Department, and Program Office for processing of Engineering Orders (EOs); signs AFMC Form 2602, Engineering Document Release Record; maintains historical records of past Product Support Business Case Analysis (BCA); and establishes and maintains an EDARF.

6.8.6 Upon request of a Program Office or AFLCMC/EZSC, AFLCMC/LZPE's EDMS personnel will accomplish engineering data training, consultation, and support.

6.9 Contracting Officer.

6.9.1 Ensures Federal Acquisition Regulations (FARS) and DFARS clauses pertaining to TDP rights in data are included in the contract.

6.9.2 Ensures Deferred Ordering and Deferred Delivery clauses are established and remain on contract.

6.9.3 Ensures negotiated contract changes to the engineering data contractual requirements (CDRL, SOO, SOW, and PWS) have been coordinated and approved by the PM, C/DM and EDMS prior to contract award.

6.10 Legal Support Counsel.

6.10.1 Provides the Contracting Officers and acquisition team members legal support and resolution of questions regarding Contractor data markings as required by the contract.

6.10.2 Provides assistance with data assertion list – reviewing and challenging assertions as required to meet program needs.

7.0 Organically Developed Technical Data

7.1 The Program Office identifies that new and/or modified engineering data is needed. This need can be for a new requirement, a follow-on requirement, or a modification to an existing requirement. The PM shall invite his/her functional support staff (stakeholders) to be part of the Integrated Process Team (IPT) to address the need for engineering data: Configuration and Data Management (C/DM), Engineering Data Management Specialist (EDMS), Engineering, Logistics, Financial Manager (FM), Contracting Officer, User, and Legal Counsel (as needed) should be part of this team. The Program office customer submits a Drafting Service Request, AFMCI Form 199 to LZP for prioritization based on requirements.

With an approved Air Force Form 199, Air Force CAGE Technical Data Packages (TDP) i.e. Models and viewable data are developed under the direction and guidance of the Engineering Support Activity (ESA) engineer. JEDMICS metadata or Teamcenter product data structure is built as part of TDP development, An AFMC 2602 digital signature document is developed. The TDP is routed/promoted to the LZP checker for compliance with Air Force policy and for compatibility with existing repository data. Air Force Policy includes proper configuration control and compliance with American Society of Mechanical Engineers ASME compliance. The TDP is routed/promoted to the program office for technical review and the AFMCI Form 2602 is routed/promoted for required signatures. Upon approval, the TDP is routed/promoted to LZP release personnel, JEDMICS Metadata is developed if required, TDP elements are uploaded into the JEDMICS repository and the TDP is formally released.

8.0 Tools. A standard product tool has not been selected for this process. However, the following paragraphs describe existing tools that may be used to support this process.

8.1 Acquisition Streamlining and Standardization Information System (ASSIST). A database system for DoD-wide standardization document information. ASSIST is located at the Defense Logistics Agency Document Services, Philadelphia, PA. ASSIST-Online provides web-based access to digital documents on the ASSIST database. ASSIST is the official source of DoD specifications and standards. ASSIST provides an online, interactive listing of source documents and DIDs that DoD has approved for repetitive contractual application in DoD acquisitions and those that DoD has cancelled or superseded. ASSIST can be accessed at https://assist.dla.mil/online/start/index.cfm.

8.2 Product Data Acquisition (PDAQ) Website. PDAQ is an AF/A4I initiative to provide tools, guidance, instruction, and training to help acquisition personnel identify, define, acquire data, data rights requirements, develop data strategies, properly request the data with needed government rights through request for proposal language, inspect and accept data deliverables received. Contained on the Air Force Portal, this guidance also addresses essential DFARS clauses, CDRLs, DIDs, common language to put in contracts and requirements documents, and other product data considerations that should be made throughout the acquisition life cycle. The PDAQ website is: https://www.my.af.mil/gcss-af/USAF/content/pdaqtraining.

8.3 JEDMICS is a DoD initiative for the management and control of engineering drawings. It is a DoD standard engineering data management and repository system that provides the means to efficiently convert, store, protect, process, locate, receive, and output information previously contained on aperture cards and paper. Large engineering drawings and related text are scanned and stored on network-accessible digital media, providing online access at distributed workstations. The JEDMICS application also provides the capability to accept data directly from various other digital media processes. The JEDMICS website is located at: https://jedmics.af.mil/webjedmics/index.jsp.

8.4 Military Engineering Data Access Location System (MEDALS). MEDALS is an interactive online system that is accessed globally and indicates quickly and easily where engineering drawings or documents reside. The MEDALS program is a research tool, or first discovery mechanism, for those who do not know where engineering documents might reside, or where all revision levels are located. It also contains information on which repositories are

holding specific engineering documents. The MEDALS website is located at: https://www.logisticsinformationservice.dla.mil/medals/.

8.5 AFLCMC/EZSC C/DM SharePoint. This site contains information about AFLCMC Configuration and Data Management. The AFLCMC C/DM SharePoint is located at: https://cs2.eis.af.mil/sites/22105/systems/cdm/SitePages/Home.aspx

8.6 AFLCMC/LZP Product Data Services Division SharePoint. This site contains information about AFLCMC/LZP Product Data Services. The AFLCMC/LZP Product Data Services Division SharePoint is located at: https://org2.eis.af.mil/sites/21763/AFLCMCLZP/default.aspx

9.0 Training.

9.1 Training Plan: Will be briefed to AFLCMC senior leaders, pushed down to all personnel, and the standard process document will be available on the AFLCMC Process Directory (APD): https://cs4.eis.afmc.af.mil/sites/1534/APD/APD/Forms/UserView.aspx

9.2 Available Training.

9.2.1 Defense Acquisition University (http://icatalog.dau.mil/onlinecatalog/tabnavcl.aspx) offers useful web-based courses such as:

- CLE 040,
- IUID Marking
- CLM 200
- Item-Unique Identification
- CLE 068, “Intellectual Property and Data Rights”,
- Logistics 215, “Technical Data Management”
- DAU Data Management series (CLM071 – CLM077).

9.2.2 Air Force Institute of Technology (http://www.afit.edu/LS/courseList.cfm) offers a useful residential and web-based course:

- Systems 150, “Engineering Data Management.”
- Systems 110, “Fundamentals of Data Management” and

9.2.3 Configuration and Data Management Branch (AFLCMC/EZSC) routinely offers training classes for engineering data and data rights during AFLCMC Focus Weeks.

9.2.4 Product Data Acquisition (PDAQ) website offers 10-web-based Training modules that include: (https://www.my.af.mil/gcss-af/USAF/content/pdaqtraining)

- Overview and Introduction of PDAQ,
- Laws, Policy, and Guidance
- Product & Software Data Deliverables
- Data Rights, IR & D Data Rights
- IPS
- RFP
- Integrated Data Environments,
- Data Rights Assertions
- Data Deliverables & Data Rights in Source Selection Evaluations.

These courses/classes are intended to help the user understand engineering data acquisition concepts, the responsibilities of the engineering data manager and other valuable information.

10.0 Guiding Principles, Ground Rules, and Definitions.

10.1 This standard process is mandatory for AFLCMC programs acquiring engineering data.

10.2 This standard process does not replace or supersede any existing laws, regulations, directives, policies, or instructions for acquiring engineering data.

10.3 This standard process supersedes all previously followed processes for acquiring engineering data.

10.4 Acronyms.

AFB	Air Force Base
AFLCMC	Air Force Life Cycle Management Center
AFMC	Air Force Materiel Command
AFMCI	Air Force Materiel Command Instruction
AFMCMAN	Air Force Materiel Command Manual
AFSC	Air Force Sustainment Center
APD	AFLCMC Process Directory
AS	Acquisition Strategy
ASSIST	Acquisition Streamlining and Standardization Information System
BCA	Business Case Analysis
BOM	Bill of Materials
CAD	Computer Aided Design
C/DM	Configuration and Data Management
CDR	Critical Design Review
CDRL	Contractor Data Requirements List (DD Form 1423)

CM	Configuration Management
DFARS	Defense Federal Acquisition Regulation Supplement
DID	Data Item Description
DLA	Defense Logistics Agency
DoD	Department of Defense
DoDI	Department of Defense Instruction
DRRB	Data Requirements Review Board
DTIC	Defense Technical Information Center
ECP	Engineering Change Proposal
EDARF	Engineering Data Action Records File or Engineering Data Activity Records
EDM	Engineering Data Manager/Management
EDMS	Engineering Data Management Specialist
EO	Engineering Order
FAR	Federal Acquisition Regulation
FCA	Functional Configuration Audit
FM	Financial Manager
IDE	Integrated Digital Environment
IPR	In-Process Review
IP	Intellectual Property
IPS	Intellectual Property Strategy
IPT	Integrated Product Team
IUID	Item Unique Identifier
JEDMICS	Joint Engineering Data Management Information and Control System
MEDALS	Military Engineering Data Access Location System
MIL	Military
MS	Microsoft
OEM	Original Equipment Manufacturer
OSS&E	Operational Safety, Suitability and Effectiveness
PCA	Physical Configuration Audit
PDAQ	Product Data Acquisition
PDR	Preliminary Design Review
PK	Contracting
PM	Program Manager
PWS	Performance Work Statement
QA	Quality Assurance
RFP	Request for Proposal
SE	Systems Engineering
S&P	Standard and Process
SIPOC	Supplier, Inputs, Process, Outputs, Customers
SOO	Statement of Objectives
SOW	Statement of Work
SRR	System Requirement Review
STINFO	Scientific and Technical Information
TDP	Technical Data Package
TO	Technical Order
TOMA	Technical Order Management Agency

WBS Work Breakdown Structure

11.0 References to Law, Policy, Instructions, and Guidance.

11.1 10 United States Code 2320, *Rights in technical data*

11.2 10 United States Code, 2304, *Contracts: Competition Requirements*, Para f (4).

11.3 Federal Acquisition Regulation Part 27, Patents, Data, and Copyrights; Subpart 27.4, Rights in Data and Copyrights

11.4 Defense Federal Acquisition Regulations Part 227, *Patents, Data, and Copyrights*; Sub Part 227.71 and 227.72*Rights in Data and Copyrights*

11.5 DoD 5010.12M, Procedures for the Acquisition and Management of Technical Data, 14May 93.

11.6 DoDD 5230.09, Clearance of DoD Information for Public Release, 22 Aug 2015

11.7 Interim DoDI 5000.02, Operational of the Defense Acquisition System, 10 August 2017.

11.8 DoDI 5230.24, Distribution Statements on Technical Documents, 18 Mar 1987

11.9 DoDD 5230.25, Withholding of Unclassified Technical Data From Public Disclosure, 18 Aug 1995

11.10 MIL-STD-31000A, *Technical Data Packages*, 26 Feb 2013.

11.11 MIL-HDBK-61A, Configuration Management Guidance, 7 Feb 2001

11.12 MIL-HDBK-288B, Review and Acceptance of Engineering Drawing Packages, 14 Jan 1991

11.13 AFI 63-101/20-101, Integrated Life Cycle Management Center, 9 May 2017.

11.14 AFMCI 21-401, Engineering Drawing, Data Storage, Distribution and Control System, 30 March 2015.

11.15 AFMCI 63-1201 Operational Safety Suitability and Effectiveness (OSS&E) and Life Cycle System Engineering (LCSE), 28 March 2017

11.16 AFMCMAN 21-2, Engineering Data Storage, Distribution, and Control, 30 March 2015.

11.17 AFPAM 63-128, Integrated *Life Cycle Management*, 10 July 2014.

11.18 AFLCMC Standard Process for (P03) *Technical Order (TO) Emergency and Urgent Changes*, dated 11 April 2017.

11.17 AFLCMC Standard Process to Own the Technical Baseline, March 2017

11.18 EIA 649B, Configuration Management Standard

11.19 EIA 649-1, Configuration Management Requirements for Defense Contracts

11.21 IS0/IEC/IEEE 15288:2015 Systems and Software Engineering – System Lifecycle processes

11.22 Understanding and Leveraging Data Rights in DoD Acquisitions

https://www.dau.mil/cop/mosa/_layouts/15/WopiFrame.aspx?sourcedoc=/cop/mosa/DAU%20Sponsored%20Documents/Data%20Rights%20Focus%20Sheet%20final.pdf&action=default&DefaultItemOpen=1

10.20 Intellectual Property Strategy Brochure

https://www.dau.mil/acquipedia/Pages/ArticleDetails.aspx?aid=748310a5-9552-44ef-991a-f14cb99293f4

List of Attachments:

Attachment 1: MS Excel version of the complete WBS	 EDM WBS Attachment
Attachment 2: Example of EDARF	 ATTACHMENT 2 EDARF file.docx