



Air Force Life Cycle Management Center (AFLCMC)

Standard Process

for

Engineering Data Management

Process Owner: AFLCMC/EZSC

Date: 20 August 2020

Version: 6.0

Record of Changes		
Version	Effective Date	Summary
1.0	24 Apr 2014	Baseline standard process approved by the AFLCMC Standard & Process (S&P) Board on 17 Apr 2014.
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
5.0	15 Aug 2019	Administrative changes to adjust format, update Table 5 with current POCs, update hyperlinks, properly embed Attachment 1, CMP, and update revision on reference documents, and incorporated comments from coordination. Approved by S&P Board on 15 Aug 2019
6.0	20 Aug 2020	Annual update – Metric (Section 5) waived, administrative changes, update Table 5 with current POCs, update hyperlinks, update Attachment 1 per updates within doc, update revision on reference documents, update training and tools, and incorporated comments from coordination. Approved by S&P Board on 20 Aug 2020

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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), Intellectual Property Strategy (IPS), Sustainment Strategy (SS), and logistics support requirements. This standard process applies to both traditional acquisitions via prime contractor and organically acquired engineering data.

1.2 Per American Society of Mechanical Engineers (ASME) Y14.100, Engineering Data includes engineering documents such as drawings, associated lists, accompanying documents, specifications, standards, or other information prepared or used by a design activity and relating to the design, manufacture, procurement, testing, or inspection of items. In accordance with MIL-STD-31000B, Engineering Design Data consist of engineering drawings, 3-Dimensional Intelligent (3Di) viewables, native Computer Aided Design (CAD) models, neutral CAD models or a combination of these, which define an item by means of graphic and textual presentations, the physical and/or functional requirements of an item, sufficient to fulfill its Technical Data Package (TDP) element and level (Conceptual, Developmental and Product) requirements. For definition of neutral and native CAD data, refer to MIL-STD-31000B. Product Level Engineering Design Data is the most common level of design data requested by AFLCMC. This level 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. Engineering data shall comply with DFARS 227-7103 and DFARS 252.227 sections 7013 through 7015 to reflect the rights in technical data to which the Government is entitled based on contractual agreement.

1.2.1 In addition, it may be prudent for a program office to acquire supplementary technical data. IAW MIL-STD-31000B, supplementary technical data is defined as, "Data related to or in support of a TDP, but not an inherent part of the TDP, which is provided as reference material or is explanatory in nature. For example, supplementary technical data for a particular item could include manufacturing instructions, simulations, work flow data, inspection equipment or procedures (which are not required as an inherent part of the TDP or TDP element), manufacturing machine code, design studies, analysis studies, test results, safety data sheets, etc." TDP supplementary technical data are deliverable data products used by the procuring activity to better acquire and support the end product defined by the TDP. When supplementary technical data is required, it shall be delivered in accordance with the contract. AFLCMC/EZSI has defined this supplementary data necessary if a program office's sustainment strategy is to fully/organically sustain an end item. The data needed to sustain, maintain, modify and produce is referred to as the Acquisition & Sustainment Data Package (ASDP). Please contact AFLCMC/EZSI for draft contractual language to acquire the appropriate data to sustain, maintain, modify and produce an end item.

1.3 All types and formats of engineering data shall display the appropriate distribution statement IAW DoDI 5230,24 to indicate controlling DoD office (CDO) preapproved secondary distribution. The distribution statement shall be displayed on the cover, title page, and all pages or digital displays to the maximum extent practicable—per AFI 61-201, Management of Scientific and Technical Information paragraph 2.3.4.1. Most AFLCMC managed technical data is also export controlled and so must also display the Export Control Warning, also provided in DoDI 5230.24. Consult with your

STINFO officer or liaison to ensure the accuracy and completeness of these markings. (References: DoDI 5230.24, DoDD 5230.25, AFI 61-201.)

- 1.4 This standard process is mandatory for AFLCMC programs acquiring engineering data and does not 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 enables the ability to effectively use the data due to acquiring the proper data rights. This standard process also facilitates the ability to obtain and maintain Operational Safety, Suitability and Effectiveness (OSS&E) certifications (including Airworthiness and Cyber Security). In addition, this process guarantees the program's AS, SS, IPS, and logistics support requirements are met. Furthermore, this standard process supports competition (reprocurement packages) throughout the life cycle.

2.2 This Standard Process serves as reference for the Program Office, Program Manager (PM), Product Support Manager/Logistic (LG) representative, Configuration and Data Management (C/DM) and AFLCMC/LZPE's Engineering Data Management Specialist (EDMS) to successfully plan, document, and implement engineering data acquisition and management. Throughout this standard process there are commonly used terms; "Technical Data Package (TDP)" and "TDP documentation." These terms are synonymous. TDP typically refers to a package delivered at one, or more instances. In accordance with MIL-STD-31000B, TDP consist of models, drawings, associated lists, specifications, standards quality assurance provisions, software documentation (e.g. logic flow diagrams, software requirements documentation, software model executables, software version description, etc.) and packaging details. A program office can either request a packaged delivery of these document, via Contract Data Requirements List (CDRL), or request individual deliveries of the documentation, via multiple CDRLs, that makes up the TDP throughout the lifecycle of the acquisition.

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 an Air Force Product Lifecycle Management (AF-PLM) solution).

4.0 Process Workflow and Activities

4.1 Suppliers, Inputs, Process, Outputs, Customers (SIPOC)

Table 1. SIPOC

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 Product Lifecycle Management (PLM) solution	Engineering Data accepted and loaded into JEDMICS, DTIC or a Product Lifecycle Management (PLM) solution	Successful loading of Engineering Data complete	AFLCMC, AFSC, DLA and Using Command

Table 2. SIPOC (Organic)

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 AF-PLM Solution and DTIC	Engineering Data loaded into JEDMICS or AF-PLM Solution and DTIC as needed	Engineering Data loading completed	AFLCMC, AFSC, DLA and user

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

Figure 1. Process Flowchart – AFLCMC Engineering Data Management Process

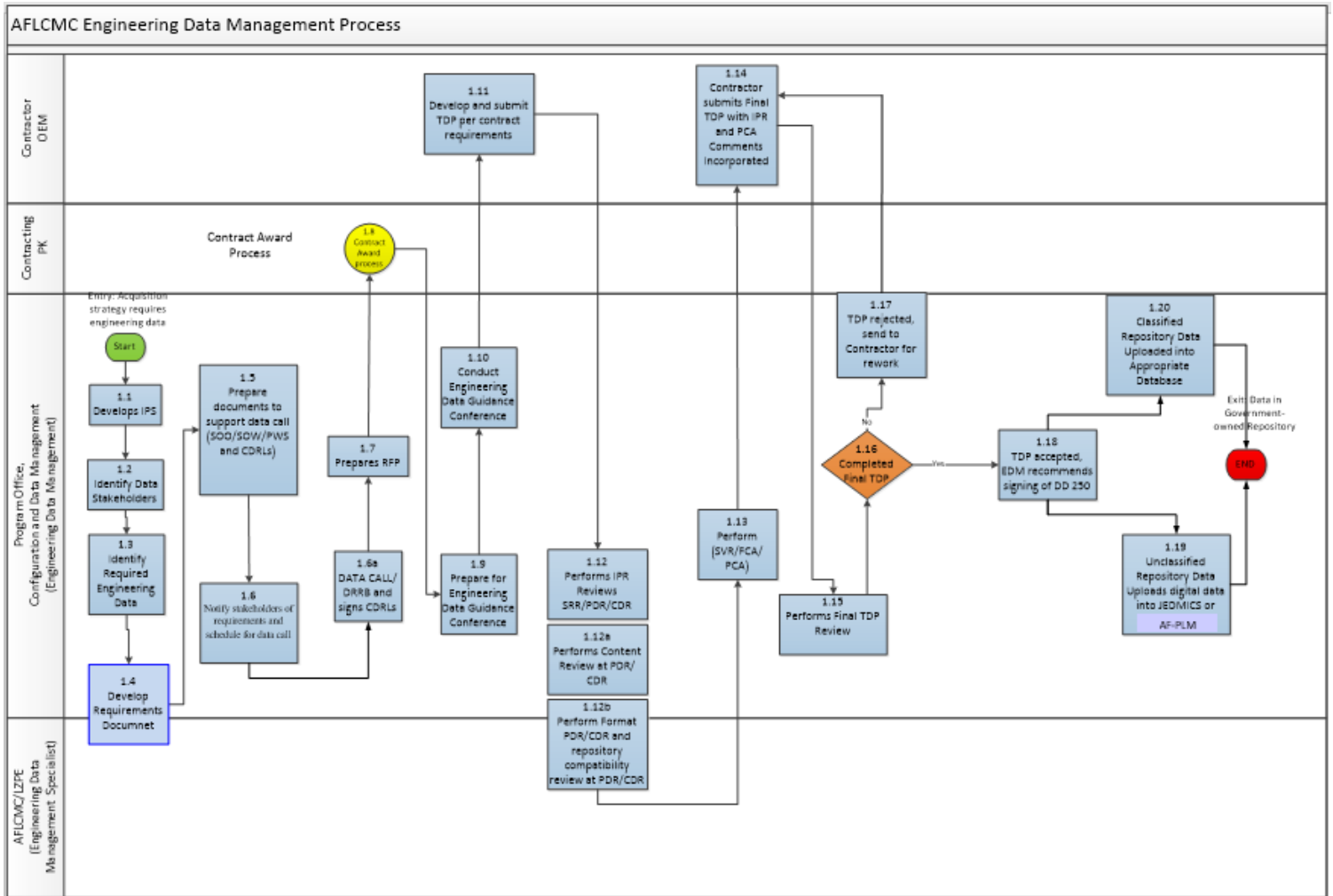
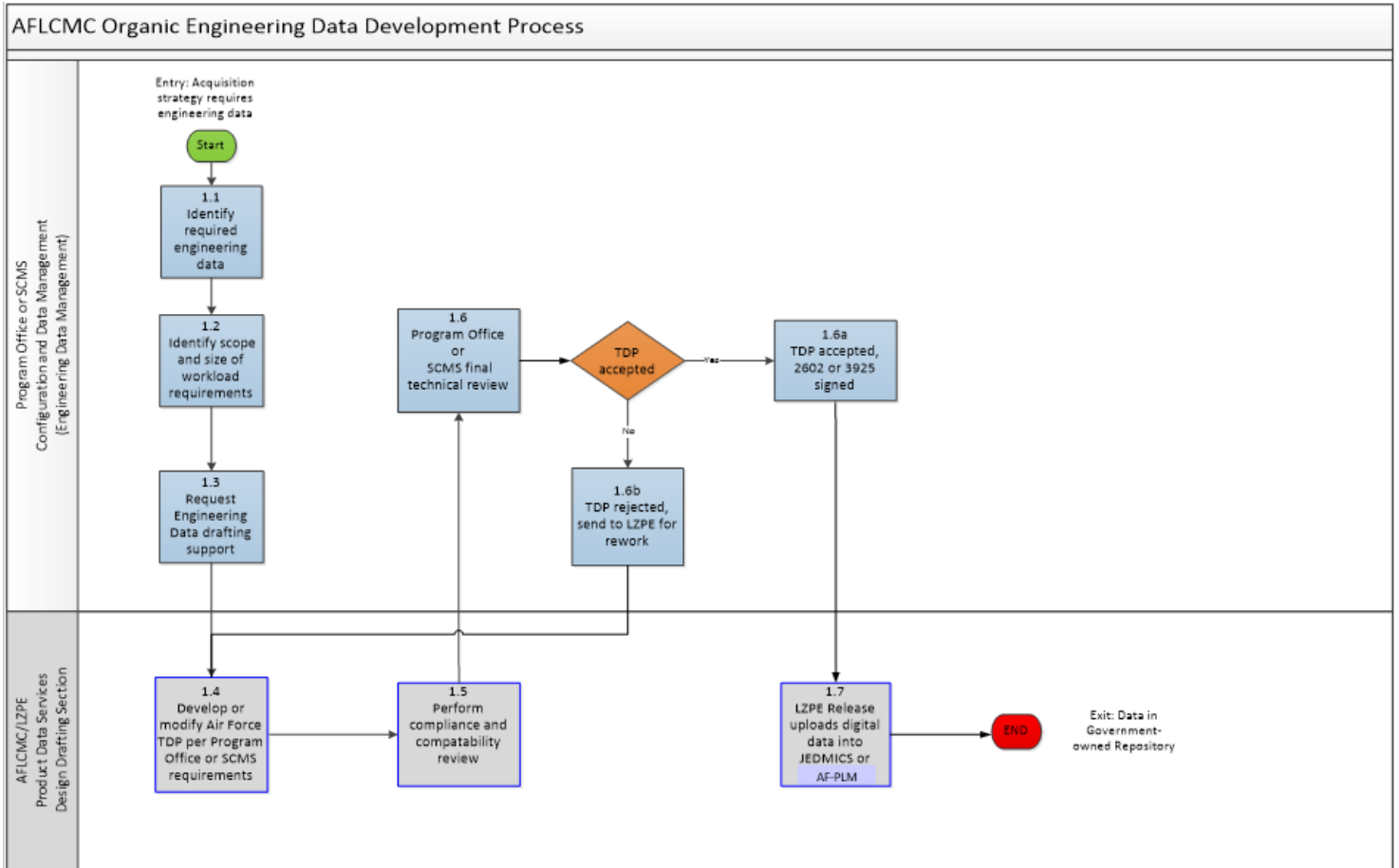


Figure 2. Process Flowchart – AFLCMC Engineering Data Management Organic Process



4.3 Work Breakdown Structure. The WBS, Table 3 & 4 (organic), provides additional detail for the flowchart activity boxes. The Microsoft Excel version of the WBS is in Attachment 1.

Table 3. WBS (1 of 4)

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. This shall include establishment of digital engineering tools, database, etc. to be used through product lifecycle. Also, the determination if a classified repository is needed (see 1.20 for additional details). The Engineering Data Manager (EDM), C/DM and/or contracting officials 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 (CO), 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, C/DM or Designated Official, Functionals	30
2	1.4	Develop Requirements Document	The PM, with inputs from functionals (C/DM, EDMS, Engineering, Logistic, etc.), 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 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, C/DM 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 3. WBS (2 of 4)

Lvl	WBS	Activity	Description	OPR	Days
2	1.6	Notifies 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 functional staff that supports the program (e.g., Engineering (including, but not limited to, Airworthiness and Cyber Security SMEs, Logistics, Configuration Management, Test and Evaluation, Quality Assurance (QA), Safety, 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, LG and Contracting Officer	5
2	1.7	Prepares RFP	PM along with other functional support team members, will prepare RFP (inclusive of all requirements, deliverables, data rights, meetings and potential travel requirements) by following Change Control process, outlined in Standard Process for Change Control.	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, in what format, what data rights (license) the Government will obtain, and will verify contractor restrictive markings to be displayed on the data..	Contracting (PK) and PM	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 and Contractor review of the Government's contractual requirements to ensure that the Contractor understands their contractual obligations (i.e., format, deliverables, due dates, 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 documentation requirements. In addition, USAF and Contractor teams should ensure appropriate data rights/permissions are in place to share information across established digital engineering tools. 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, all changes incorporated, correctly marked per DoDI 5230.24 and DFARS technical data rights requirements, and are adequate for intended purposes.	Program Office (Functional Team)	3
2	1.11	Develop and submit TDP documentation per contract requirements	Contractor will develop and submit the engineering data in accordance with the contract requirements.	Contractor	
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 3. WBS (3 of 4)

Lvl	WBS	Activity	Description	OPR	Days
2	1.12a	Perform Content Review (PDR/CDR)	The C/DM, Engineers, and functionals 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, Engineering, & functional team	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 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	Performs (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 Configuration Items (CI)/Computer Software Configuration Items (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, & functional team	5
2	1.14	Contractor submits Final TDP documentation with IPR and PCA comments incorporated	Contractor's TDP documentation 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 documentation and the contractor will update in accordance with contract written direction.	Contractor	3
2	1.15	Performs Final TDP documentation Review	The final TDP documentation 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 documentation is reviewed for contract compliance.	C/DM and EDMS	14
	1.16 No	Completed Final TDP documentation (No): Go to 1.17	The Completed Final TDP documentation is delivered to the Program office to be reviewed for contract compliance. If the TDP documentation is found to be unacceptable and does not meet the contract requirement it will be returned to the Contractor for correction. The final TDP documentation will then be resubmitted for review (1.14).	PM, C/DM, EDMS	14
	1.16 Yes	Completed Final TDP documentation (Yes): Go to 1.18	The Completed Final TDP documentation will be delivered to the Program Office to be reviewed for contract compliance. If the TDP documentation 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 acceptance.	PM, C/DM, EDMS	14
2	1.17	TDP documentation 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	15

Table 3. WBS (4 of 4)

Lvl	WBS	Activity	Description	OPR	Days
2	1.18	TDP documentation accepted EDM recommends acceptance	TDP documentation accepted; EDM recommends approving engineering data package. After the EDMS ensures that the entire engineering data package meets the contract requirements and is loaded into JEDMICS or a Product Lifecycle Management (PLM) solution, the EDMS will notify the C/DM to approve the Program's CDRL for engineering data.	C/DM	3
2	1.19	Unclassified Repository Data Uploads digital data into JEDMICS or PLM	Engineering data determined to be unclassified or Controlled Unclassified Information (CUI) may be input into JEDMICS, AF-PLM solution, or an approved Government-owned Repository. When CUI is stored on contractor information systems confirm compliance with DFARS 252.204-7012.	Contractor, C/DM, 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 and PM	1

Table 4. Organic WBS

Lvl	WBS	Activity	Description	OPR	Days
1	1.0	Organic Engineering Data development			
2	1.1	Identify required engineering data	The Program Office or Supply Chain Management Squadron (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, Air Force Materiel Command (AFMC) Form 199 to LZPE 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 Commercial and Government Entity (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/AF-PLM Solution 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 AFMC Form 3925 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. AFMC Form 2602 Digital Signature Form or AFMC 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/AF-PLM Solution.	LZPE	5

5.0 Measurement

5.1 As of 20 August 2020 S&P Board, this metric received a waiver until further notice.

5.2 Process Results. Efficiency and effectiveness of this Standard Process is measured via metrics and reported to the C/DM 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 prior to and 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).

5.3 Process Evaluation.

5.3.1 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://cs2.eis.af.mil/sites/22842/VANTIJ/app/index.aspx#!/bizcaps/details/17>

5.3.2 AFLCMC/EZSC collects the data via the AFLCMC Process Directory (APD). Table 5 below provides details on this standard process metric.

Table 5. Specific, Measurable, Actionable, Relevant, Time-bound (SMART) Metric

Metric Characteristic	Metric Information	AFLCMC Std Processes									
Relevance	APD Ref No	N/A									
Relevance	Process Name	Engineering Data Management (EDM)									
Specific	Process Lead	Nathan Vega, AFLCMC/EZSC									
Specific	Metric POC	Nathan Vega, AFLCMC/EZSC									
Relevance	Date Completed	No Completion Date (Perpetual)									
Specific	Process Owner	AFLCMC/EZSC									
Relevance	Enterprise Impact / Process Purpose	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. 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.									
Relevance	AFLCMC Obj	N/A									
Specific	Metric Name	Drawing Availability for Major Reviews									
Specific	Metric Description	Captures percentage of drawings reviewed and number of discrepancies found during the IPRs.									
Measurable	Data Source	SharePoint – each organization is required to input their respective changes									
Specific	Calculation	Number of available drawings/Number of new and revised drawings proposed by contractor = % available									
Specific	Business Rules	Only actions with Technical Data Packages (TDPs) on contract are included in the metric.									
Time Based	Update Frequency	Annually									
Actionable	Decision Maker	Rose Morton, AFLCMC/EZSC									
Actionable	Review Forum / Governance Body	S&P									
Time Based	Review Frequency	Annually									
Actionable	Target	Overall: 10%; 75%; 100%									
Actionable	Thresholds (R/Y/G)	<table border="0"> <tr> <td>1st IPR</td> <td>2nd IPR</td> <td>3rd Final IPR</td> </tr> <tr> <td>Green: 10-25%</td> <td>Green: 75-90%</td> <td>Green: 100%</td> </tr> <tr> <td>Red: Less than 10%</td> <td>Red: Less than 75%</td> <td>Red: Less than 100%</td> </tr> </table>	1st IPR	2nd IPR	3rd Final IPR	Green: 10-25%	Green: 75-90%	Green: 100%	Red: Less than 10%	Red: Less than 75%	Red: Less than 100%
1st IPR	2nd IPR	3rd Final IPR									
Green: 10-25%	Green: 75-90%	Green: 100%									
Red: Less than 10%	Red: Less than 75%	Red: Less than 100%									
Actionable	Baseline Performance	Start of project to first milestone (receipt of acceptable change package)									
Time Based	Baseline Date	16 February 2017									

6.0 Roles and Responsibilities

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

6.1.1 Acts as AFLCMC 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, airworthiness and cyber security 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, precise and included in contract requirements, ensure all OPRs 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, baseline management, 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 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 personnel is responsible for the planning, receiving, distributing, coordinating disposition, and status accounting of all engineering data.

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/Sustainment Strategy

6.5.3 In coordination with the PM, Engineering 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. Ensures administrative engineering changes to DoDI 5230.24 control markings instructed by the program office (controlling DoD office) are executed as necessary by the data repository(ies), or by the contractor--at no additional cost. An example is when the controlling DoD office needs to update or correct a distribution statement.

6.5.5 Ensures the Program Office's IPS includes data rights, conforming data rights markings for data using the codes listed in DFARS (252.227-7014), applied in accordance with the contractual requirements.

6.5.6 Ensures appropriate Data Rights legends IAW DFARS (252.227-7013 or -7015, as applicable and IAW the contracted).

6.5.7 Ensures the appropriate DoDI 5230.24 distribution statement is selected and displayed on all pages, covers, and digital items to the greatest extent practicable IAW AFI 61-201, citing all applicable reasons for control, the date of determination, and controlling DoD office contact information. Also display the Export Control Warning where applicable, and apply the appropriate Destruction Notice IAW AFI 61-201.

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

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

6.5.10 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 C/DM.

6.5.11 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.

6.5.12 Assists in fact finding for engineering data. Establish procedures for receipt, inspection, acceptance, and access of engineering data.

6.5.13 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 Product Support Manager.

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 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.

6.6.3 Ensure acquisition of engineering technical data to support program provisioning activities.

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 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.

6.8 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 performs system compatibility checks and inputs the engineering data into the Government-owned Repository (e.g., JEDMICS, or a Product Lifecycle Management (PLM) solution).

6.8.2 Supports 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 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 final TDP documentation is loaded into a Government-owned Repository (e.g. JEDMICS or a Product Lifecycle Management (PLM) solution) in a format compatible with CDRL and contract requirements. The compatibility review will be accomplished by the Product Data Services Division (AFLCMC/LZPE) located at Hill, Robins, and Tinker AFBs early in the acquisition process during design reviews/IPRs and throughout the acquisition life cycle.

6.8.5 Works with Program Engineers, Drafting Department, and Program Office for processing of Engineering Orders (EOs); signs AFMC Form 3925, 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 Defense Federal Acquisition Regulation Supplement (DFARS) clauses pertaining to technical data rights 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 and all stakeholder prior to contract award.

6.9.4 Ensures administrative engineering changes to DoDI 5230.24 control markings are executed as instructed by the Government program office at no added cost. For example, the controlling DoD office updates the distribution on the engineering data when Government purpose rights (GPR) license limitations expire after five years when government license rights convert to Unlimited.

6.10 Legal Support Counsel.

6.10.1 Provides the Contracting Officers and acquisition team members legal support and resolution of questions regarding Contractor intellectual property assertions and dissemination control markings as required by the contract.

6.10.2 Provides assistance with data assertion list – reviewing contractor intellectual property assertions and challenging questionable assertions that may not be legitimate.

7.0 Organically Developed Technical Data

7.1 The Program Office identifies what type of engineering data is required. 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 IPT to address the need for engineering data: C/DM, EDMS, Engineering, Logistics, FM, Contracting Officer, User, and Legal Counsel (as needed) should be part of this team. The Program office customer submits a Drafting Service Request, AFMC Form 199 to LZP for prioritization based on requirements.

7.2 With an approved AFMC 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 AF-PLM Solution product data structure is built as part of TDP development, and 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 AFMC 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://quicksearch.dla.mil/qsSearch.aspx>

8.2 Product Data Acquisition (PDAQ) Website. Please note, this site has not been updated since ~ 2014 so information may be outdated (use as reference only).

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/23230/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://usaf.dps.mil/sites/AFLCMC-LGLZ/aflcmclzp/default.aspx>

8.7 AF-PLM Capability Support Office. AF-PLM enables the Digital Enterprise (DE) by creating the linkages and synchronization needed between derived technical data types throughout the lifecycle as well as enabling other external tools and processes requiring data across the logistics and engineering communities. AF-PLM Capability Support Office SharePoint is located at: <https://usaf.dps.mil/teams/AFPLM/PLM/SitePages/Home.aspx>

8.8 Multi-User Engineering Change Proposals Automated Review System (MEARS). MEARS is a system that generates DD Form 1423, allows for CDRL tracking, CDRL status accounting, and repository for CDRL data deliverables. For access to MEARS please contact AFLCMC/EZSC.

9.0 Training

9.1 Available EDM Related Training.

9.1.1 Defense Acquisition University (DAU)

(<https://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”
- LOG 215, “Technical Data Management”
- DAU Data Management series (CLM071 – CLM077)

9.1.2 Air Force Institute of Technology (AFIT) (<https://www.afit.edu/LS/courseList.cfm>) offers a useful residential and web-based course:

- SYS 110, “Fundamentals of Data Management”

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

9.1.4 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.

3Di

3-Dimensional Intelligent

AFB	Air Force Base
AFIT	Air Force Institute of Technology
AFLCMC	Air Force Life Cycle Management Center
AFMC	Air Force Materiel Command
AFMCI	Air Force Materiel Command Instruction
AFMCMAN	Air Force Materiel Command Manual
AF-PLM	Air Force Product Lifecycle Management
AFSC	Air Force Sustainment Center
APD	AFLCMC Process Directory
AS	Acquisition Strategy
ASME	American Society of Mechanical Engineers
ASSIST	Acquisition Streamlining and Standardization Information System
BCA	Business Case Analysis
BOM	Bill of Materials
C/DM	Configuration and Data Management
CAD	Computer Aided Design
CAGE	Commercial and Government Entity
CDR	Critical Design Review
CDRL	Contractor Data Requirements List (DD Form 1423)
CI	Configuration Item
CSCI	Computer Software Configuration Item
CO	Contracting Officer
CUI	Controlled Unclassified Information
DAU	Defense Acquisition University
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
ESA	Engineering Support Activity
FAR	Federal Acquisition Regulation
FCA	Functional Configuration Audit
FM	Financial Manager
IDE	Integrated Digital Environment
IP	Intellectual Property
IPR	In-Process Review
IPS	Intellectual Property Strategy
IPT	Integrated Product Team
IUID	Item Unique Identifier
JEDMICS	Joint Engineering Data Management Information and Control System


LG	Logistic
MEDALS	Military Engineering Data Access Location System
MIL	Military
MS	Microsoft
OSS&E	Operational Safety, Suitability and Effectiveness
PCA	Physical Configuration Audit
PDAQ	Product Data Acquisition
PDR	Preliminary Design Review
PK	Contracting
PLM	Product Lifecycle Management
PM	Program Manager
PWS	Performance Work Statement
QA	Quality Assurance
RFP	Request for Proposal
SCMS	Supply Chain Management Squadron
S&P	Standard and Process
SE	Systems Engineering
SIPOC	Supplier, Inputs, Process, Outputs, Customers
SMART	Specific, Measurable, Actionable, Relevant, Time-bound
SOO	Statement of Objectives
SOW	Statement of Work
SRR	System Requirement Review
SS	Sustainment Strategy
STINFO	Scientific and Technical Information
SVR	System Verification Review
TDP	Technical Data Package
TMCR	Technical Manual Contract Requirement
TO	Technical Order
TOMA	Technical Order Management Agency
TSSC	Training System Support Center
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, 14 May 93.
- 11.6 DoDI 5230.09, Clearance of DoD Information for Public Release, 25 Jan 2019

- 11.7 Interim DoDI 5000.02, Operational of the Defense Acquisition System, 10 Aug 2017
- 11.8 DoDI 5230.24, Distribution Statements on Technical Documents, 23 Aug 2012
- 11.9 DoDD 5230.25, Withholding of Unclassified Technical Data From Public Disclosure, 15 Oct 2018
- 11.10 MIL-STD-31000B, Technical Data Packages, 31 Oct 2018
- 11.11 MIL-HDBK-61B, Configuration Management Guidance, 7 Apr 2020
- 11.12 MIL-HDBK-288B, Review and Acceptance of Engineering Drawing Packages, 14 Jan 1991
- 11.13 AFI 61-201, Management of Scientific and Technical Information, 29 Jan 2016
- 11.14 AFI 63-101/20-101, Integrated Life Cycle Management Center, 9 May 2017
- 11.15 AFMCI 21-401, Engineering Drawing, Data Storage, Distribution and Control System, 30 Mar 2015
- 11.16 AFMCI 63-1201 Implementing Operational Safety Suitability and Effectiveness (OSS&E) and Life Cycle Systems Engineering (LCSE), 28 Mar 2017
- 11.17 AFMCMAN 21-2, Engineering Data Storage, Distribution, and Control, 30 Mar 2015
- 11.18 AFPAM 63-128, Integrated Life Cycle Management, 10 Jul 2014
- 11.19 AFLCMC Standard Process for (P03) Technical Order (TO) Emergency and Urgent Changes, dated 11 Apr 2017
- 11.20 AFLCMC Standard Process Managing the Technical Baseline (MTB), Mar 2019
- 11.21 EIA-649C, Configuration Management Standard
- 11.22 EIA-649-1, Configuration Management Requirements for Defense Contracts, Nov 2014
- 11.23 GEIA-859A, Data Management, Apr 2012
- 11.24 ISO/IEC/IEEE 15288:2015 Systems and Software Engineering – System Lifecycle processes
- 11.25 Intellectual Property
- 11.26 Air Force Data Rights Guidebook, Smart IP, 2019
- 11.27 AFLCMC Standard Process for Change Control, 12 Jul 18

12.0 List of Attachments:

Attachment 1: MS Excel version of the complete WBS	 WBS_EDM_6.0.xls
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Attachment 2: Example of EDARF	 ATTACHMENT 2 EDARF file.docx
Attachment 3: Change Management Plan	 Change Management Plan_E