Australian Government

MEA729 Apply configuration management procedures in airworthiness engineering management

Release: 2

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Modification History

Release 2. Equivalent to MEA729 Apply configuration management procedures in airworthiness engineering management with amended prerequisite codes.

Application

This unit of competency applies to engineering or related projects or operations across all forms of manufacturing and engineering. It is suitable for people with system design, installation, commissioning and project or operational management responsibilities who are required to apply configuration management (CM) procedures during system design and/or during the life-cycle of a product. The procedures are used as the control mechanism during the application of the systems engineering design processes which may be used in the design of complex hardware and software products, both for initial design and then as an iterative process as the need for modifications are identified throughout the life-cycle of the product. The outputs of the CM process are configuration documentation that can be used for through-life management or for input of data to logistic management plans where integrated logistics support (ILS) is mandated as the through-life management system.

This unit is used in workplaces that operate under the airworthiness regulatory systems of the Australian Defence Force (ADF) and the Civil Aviation Safety Authority (CASA).

Pre-requisite Unit

MEA135	Use computers in aviation maintenance-related integrated logistic support activities
MEA163	Perform aviation technical publication management activities

Competency Field

Airworthiness engineering management

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.

1.	Plan CM activities	1.1	Identify the context and environment in which CM is to be applied
		1.2	Identify any contractual requirements and specifications for the application of CM procedures to through-life management of product configuration, including the relationship with logistics management systems, such as ILS
		1.3	Document the required CM activities
2.	Develop CM plan	2.1	Describe how CM is to be accomplished
		2.2	Specify how consistency between the product definition, configuration and the CM records is to be achieved and maintained throughout the applicable phases of the product's life-cycle
		2.3	Identify and specify performance indicators for assessing the effectiveness of the plan in terms of implementation and performance of the CM discipline
3.	Specify and set up CM documentation	3.1	Identify records required to effectively implement CM within the identified product context and environment, regulatory requirements and CM plan
		3.2	Select documentation media and develop documentation templates
		3.3	Specify a document version control system
		3.4	Determine and specify protocols for documentation safeguarding and access
4.	Establish and control CM baseline	4.1	Establish product CM baseline in relation to the systems engineering or other design process
		4.2	Revise CM baseline at applicable stages of product development, production and engineering changes in accordance with the CM plan
		4.3	Establish and review documentation baselines in line with the requirements of the CM plan and with changes in the product CM baseline
5.	Implement CM processes	5.1	Develop and deliver training to responsible individuals covering roles and responsibilities and the procedures for implementing CM processes as

			defined in the CM plan
		5.2	Measure performance against the performance indicators in the CM plan and assess measurements/trends to identify possible process improvements
6.	Perform configuration status accounting	6.1	Develop and populate a database with information relating to the configuration of products classified as configuration items
		6.2	Develop and promulgate procedures to update and validate the database whenever there is a configuration change throughout product life-cycle
		6.3	Disseminate data in accordance with the CM plan and standard enterprise procedures
7.	Participate in configuration audits	7.1	Participate in configuration audits where required by the applicable CM standard and the CM plan
		7.2	Initiate action to correct deficiencies identified during audits

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

CM context and environment include:

- The nature of the products, such as hardware and/or software, complete systems and system components or subsystems
- Whether or not CM must extend to subcontractors and/or vendors
- Specific CM value adding functions and level of emphasis
- Contractual CM requirements, including specification of a CM standard to be applied
- Airworthiness regulatory requirements

Use of CM data in logistic management system activities includes:	• Reliability and maintainability engineering • Maintenance planning • Life-cycle costing • Spares support requirements • Technical data and publications • Support and test equipment identification • Determining facilities requirements • Determining personnel training requirements
CM plan includes:	• Brief description of system or top level configuration item (CI) and of the lower level CI's covered by the plan • List of reference documents (specifications, standards, manuals, etc) • CM organisation and responsibilities • CM phasing and milestones • Data management • Configuration identification, including selection of CI's, baseline establishment, configuration identifiers for hardware and for software • Interface management • Performance indicators • Configuration control procedures • Configuration status accounting procedures • Configuration audit procedures • Subcontractor/vendor control procedures
Systems engineering interface refers to:	• Systems engineering processes result in the output of technical information that is controlled through the CM process. Through the service life of the product the CM process identifies the need for modifications and the systems engineering process is used to design and develop the modifications which then result in changes to the CM baseline and documentation which may then also feed into logistic support plan updates
CM standards and references include:	• EIA-649-A 2004 National Consensus Standard for Configuration Management • GEIA Standard 836-2002 Configuration Management Data Exchange and Interoperability • IEEE Standard 828-1998 IEEE Standard for Software Configuration Management Plans • MIL-STD-973 Configuration Management • STANAG 4159 NATO Materiel Configuration Management Policy and Procedures for Multinational Joint Projects • STANAG 4427Introduction of Allied Configuration Management Publications

	• IEEE Standard 1042-1987 IEEE Guide to Software Configuration Management • MIL-HDBK-61A Configuration Management Guidance • 10007 Quality management – Guidelines for configuration management • GEIA-HB-649 Implementation Guide for Configuration Management • EIA-836 Consensus Standard for Configuration Management Data Exchange and Interoperability • ANSI/EIA-632-1998 Processes for Engineering a System
Airworthiness regulations are found in:	• AAP7001.053 Technical Airworthiness Management Manual • Civil Aviation Safety Regulations (CASRs) and related documentation/publications

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371