NATO Guidance on the use of AQAP-160 Edition 1

AQAP-169 Edition 1

(July 2001)

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NORTH ATLANTIC TREATY ORGANIZATION MILITARY AGENCY FOR STANDARDIZATION (MAS) NATO LETTER OF PROMULGATION

July 2001

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(Signed) Jan H ERIKSEN Rear Admiral, NONA Chairman MAS

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Record of Changes

| Change Date | Date Entered | Effective Date | By Whom Entered |
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General

1.1 Purpose

- 1.1.1 This publication contains background information, interpretation guidance and application guidance on AQAP-160 Edition 1 'NATO integrated quality requirements for software throughout the life cycle'.
- 1.1.2 As a background for AQAP-160 Edition 1, it is important to stress NATO's policy to adopt International Standards wherever possible. The basis for AQAP-160 Edition 1 is ISO/IEC 12207 and ISO 9001. This guide intends to explain the full context of the adoption of International Standards in AQAP-160 Edition 1.
- 1.1.3 The interpretation guidance explains the AQAP-160 Edition 1 model and the concept behind the standard. For guidance on the adopted International Standards please refer to the guides, ISO has published for them: ISO/IEC 15271 for ISO/IEC 12207 and ISO 9000-3 for ISO 9001.
- 1.1.4 The application guidance primarily focuses on the implementation of the tailoring of AQAP-160 Edition 1. The application guidance tries to contribute to the visibility of the tailoring process, but it is not intended to be exhaustive.
- 1.1.5 This publication is not a contractual document. Its content has no legal or contractual status, nor does it supersede, add to or cancel any of the AQAP-160 Edition 1 requirements. However, some implementation issues (e.g. tailoring methodologies) can be made contractual on a case-by-case basis.

1.2 Prerequisites

- 1.2.1 The user of this guide has to be familiar with the model, the concept and the contents of AQAP-160 Edition 1.
- 1.2.2 AQAP-160 Edition 1 is primarily based on the standards ISO/IEC 12207 and ISO 9001. The user of this document has to be familiar with both International Standards. Familiarizing with the ISO-guides (ISO/IEC 15271 and ISO 9000-3) will be helpful to accomplish this task.
- 1.2.3 AQAP-160 Edition 1 has to be tailored for use by an organization. The user of AQAP-160 Edition 1 has to be familiar with all relevant organizational policies.
- 1.2.4 AQAP-160 Edition 1 is written at the intersection of the quality domain and the engineering domain. The user of AQAP-160 Edition 1 has to be familiar with general quality practices and with system/software engineering.

1.3 Intended audience

1.3.1 The guide is written for those who will apply or implement AQAP-160 Edition 1: in contractual situations, on an in-house software development, on self-assessment activities and/or for software process improvement initiatives.

- 1.3.2 AQAP-160 Edition 1 addresses the software life cycle as a whole from an acquisition perspective. For the organizational-level and project-level tailoring/implementation of AQAP-160 Edition 1, it is recommended to involve all life cycle parties, e.g. as an Integrated Project Team.
- 1.3.3 As a consequence this guidance, interpretation as well as application, can be utilized by acquirers, suppliers, developers, producers, operators, maintainers of software, as well as quality managers, and is not aimed at a particular category.
- 1.4 <u>Informative references</u>
- 1.4.1 ISO/IEC 12207 Edition 1: 1995, Information technology Software life cycle processes
- 1.4.2 ISO/IEC 15271 Edition 1: 1997, Information technology Guide for ISO/IEC 12207 (Software life-cycle processes)
- 1.4.3 ISO 9001:2000: Quality management systems Requirements
- 1.4.4 ISO 9001 Edition 2: 1994, Quality systems Model for quality assurance in design, development, production, installation and servicing
- 1.4.5 AQAP-150 Edition 2: 1997, NATO Quality assurance requirements for software development
- 1.4.6 AQAP-110 Edition 2 : NATO Quality assurance requirements for design, development and production
- 1.4.7 ISO 9000-3 Edition 2: 1997, Guidelines for the application of ISO 9001: 1994 to the development, supply, installation and maintenance of computer software.
- 1.4.8 ISO/IEC 9126 Edition 1: 1991, Information technology Software product evaluation Quality characteristics and guidelines for use
- 1.4.9 ISO 10012-1 Edition 1992: Quality assurance requirements for measuring equipment Part 1: Meteorological Confirmation system of measuring equipment
- 1.4.10 IEEE/EIA-Std-12207 Edition 1: 1998, Industry implementation of International Standard ISO/IEC 12207 Software life-cycle processes
- 1.4.11 IEEE/EIA-Std-016 : 1995, Software life-cycle processes –Software development (Acquirer-Supplier agreement)
- 1.5 <u>Informative references</u> (Work In Progress)
- 1.5.1 ISO/IEC 9126 (Part 1-4): Information Technology Software product quality
- 1.5.2 ISO/IEC 15939: Software Engineering Software measurement process framework
- 1.5.3 ISO/IEC 15504 (Part 1-9): Information Technology Software process assessment
- 1.5.4 ISO/IEC 14598 (Part 1-6): Information Technology Software product evaluation
- 1.5.5 ISO/IEC 15288: System life-cycle processes

Background

- 2.1 AQAP-160 Edition 1: the successor of AQAP-150 Ed.2
- 2.1.1 AQAP-160 Edition 1 is the natural successor of AQAP-150 Edition 2 'NATO Quality assurance requirements for software development'. AQAP-150 Edition 1 nor AQAP-150 Edition 2 were based on an international standard, because at the time when the work started there was no international standard available.
- 2.1.2 NATO disposes of the AQAP-100-series, which are based on the ISO 9000-series, and was striving for a similar adoption in the software field. In the mean time, AQAP-150 Edition 2 was created as a project-specific software-supplement to AQAP-110 Edition 2.
- 2.1.3 While adopting ISO/IEC 12207 into AQAP-160 Edition 1, NATO has made sure that the AQAP-150 Edition 2 requirements remained completely covered. However, AQAP-160 Edition 1 is based on a different model, which leads to a different structure of the standard, and introduces a different (international) terminology, which adds to the common understanding in the software field.
- 2.2 AQAP-160 Edition 1: the NATO adoption of ISO/IEC 12207 Edition 1
- 2.2.1 ISO/IEC 12207 'Software life cycle processes' establishes a common framework for software life cycle processes, with a well-defined terminology, that can be referenced by the software industry. ISO/IEC 12207 remains at the what-to-do engineering level: it is a performance-based standard.
- 2.2.2 ISO/IEC 12207 is not intended to be used 'as-is' in contractual situations, but has to be selectively applied or implemented.
- 2.2.3 NATO decided to use also ISO/IEC 12207 as a basis for AQAP-160 Edition 1. Since AQAP-160 Edition 1 will primarily be used in contractual situations, NATO has implemented ISO/IEC 12207 with the focus on the acquisition point of view. However, this allows also the use of AQAP-160 Edition 1 for supplier qualifications and engineering activities.
- 2.2.4 AQAP-160 Edition 1 maintains the well-defined international terminology, the life cycle thinking and the process-approach of ISO/IEC 12207. To a large extent ISO/IEC 12207 requirements (the processes with associated activities and tasks) were adopted without modification. In some occasions however, NATO deemed it necessary to supplement ISO/IEC 12207, due to experience with AQAP-150 Edition 2 or due to areas where ISO/IEC 12207 fell short.
- 2.2.5 The major supplement added by NATO is the encapsulation of the ISO/IEC 12207-model and associated processes into the quality system-concept of the ISO 9000- and AQAP-100-world. NATO believes it is essential that quality and software engineering do not march separately. To achieve this, AQAP-160 Edition 1 tries to marry the engineering-(ISO/IEC 12207) and the quality-(ISO 9000) world.

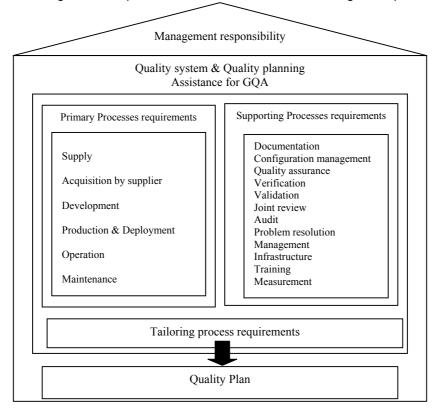
- 2.3 AQAP-160 Edition 1: a structure consistent with the evolution of ISO-standards
- 2.3.1 The marriage of the engineering domain and the quality domain is becoming more easy with the evolution of the ISO 9000:2000 series, of the ISO/IEC 15288 and ISO/IEC 12207. This is valid either at the software level or at the system level.
- 2.4 AQAP-160 Edition 1: a step towards the integrated systems approach
- 2.4.1 In the end NATO is pursuing an integrated systems approach: i.e. an approach where software, hardware, human interaction, infrastructure and processes are integrated into a system and where the corresponding disciplines and technologies are harmonized into a system discipline, i.e. systems thinking and systems engineering.
- 2.4.2 NATO strives towards the integrated systems approach, and looks for opportunity to adopt an international 'integrated systems' standard. At the time of this writing, NATO is supporting ISO-initiatives under way in the integrated systems arena. However, this might take a few more years.
- 2.4.3 Although ISO/IEC 12207, and as a consequence AQAP-160 Edition 1, is not an integrated system standard (it addresses only software and no other system components), its Development Process contains the crucial 'system definition'- and 'system integration'-activities. The Acquisition, Supply and Operation processes can also be interpreted at the system level. In that sense, adopting ISO/IEC 12207 into AQAP-160 Edition 1 provides NATO with a first step towards the integrated systems approach.
- 2.4.4 AQAP-150 Edition 2 had to be used as a project-specific supplement to AQAP-110 Edition 2, because AQAP-150 Edition 2 does not contain any organizational requirements, such as the quality system-concept and associated requirements. Unfortunately, AQAP-110 Edition 2 contains no explicit system-level activities, such as system definition and system integration, which makes the AQAP-110/150 Edition 2 combination rather implicit and not always straightforward to use for complex systems with an important software component.
- 2.4.5 NATO tried to solve this problem by incorporating organizational level requirements into AQAP-160 Edition 1, which no longer requires a reference to AQAP-110 Edition 2. In addition, AQAP-160 Edition 1 does contain the explicit system-level activities. AQAP-160 Edition 1 takes care of the system-level and software-related activities. AQAP-110 Edition 2 should then be called to cover the hardware, human interaction and other elements in between system definition and system integration.

Interpretation guidance on AQAP-160 Edition 1

| 3.1 | AQAP-160 Edition 1: the model |
|---------|---|
| 3.1.1 | AQAP-160 Edition 1 Para 1.5.1 describes the model. |
| 3.2 | AQAP-160 Edition 1: the concept |
| 3.2.1 | The AQAP-160 Edition 1 concept is a marriage of quality (ISO 9001) and engineering (ISO/IEC 12207). |
| 3.2.2 | The marriage-concept is based on the following principles: |
| 3.2.2.1 | Adopt the ISO/IEC 12207-terminology and -model untouched (expressed in 'engineering'-language). |
| 3.2.2.2 | Encapsulate the ISO/IEC 12207-processes in an untouched ISO 9001-quality system concept (expressed in 'quality'-language). |
| 3.2.2.3 | Supplement ISO/IEC 12207- and ISO 9001-requirements in an efficient and disciplined manner (minimal supplements). |
| 3.2.2.4 | Establish the links between quality and engineering in an efficient and disciplined manner (connect 'quality'-language and 'engineering'-language with minimal impact). |
| 3.2.3 | This concept and its associated principles was followed by NATO in order to maximize consistency, maintainability and reusability. |

3.3 AQAP-160 Edition 1: the conceptual model

3.3.1 Combining the concept and the model leads to the following conceptual model:



- 3.3.2 The conceptual model is built up as follows:
- 3.3.2.1 The core of AQAP-160 Edition 1 is formed by a set of primary life cycle processes requirements (AQAP-160 Edition 1 Chapter 3.) with a set of supporting life cycle processes requirements (AQAP-160 Edition 1 Chapter 4.), most of them originating from ISO/IEC 12207. NATO supplemented or transformed ISO/IEC 12207 by:
 - a. deleting the Acquisition process;
 - b. adding an Acquisition process (to be invoked by the supplier);
 - c. adding a Production & Deployment process;
 - d. transforming the Management process to a supporting process;
 - e. transforming the Infrastructure process to a supporting process;
 - f. transforming the Training process to a supporting process;
 - g. adding a Measurement process;
 - h. exploding the Improvement process into its three constituent activities (establishment, assessment, and improvement of processes) and incorporating them into the corresponding ISO 9001-quality system concept (AQAP-160 Edition 1, Chapter 2).

- 3.3.2.2 In some processes activities have been added, changed or deleted.
- 3.3.2.3 The primary and supporting life cycle processes requirements have to be tailored and implemented. Tailoring has to be done in accordance with the Tailoring process requirements, that has been incorporated from ISO/IEC 12207 (AQAP-160 Edition 1 Chapter 5).
- 3.3.2.4 The core, consisting of the AQAP-160 Edition 1 processes requirements, has to be institutionalized into a quality system. This leads to the incorporation of the appropriate requirements from ISO 9001 (AQAP-160 Edition 1 Chapter 2).
- 3.3.2.5 The quality system has to function at an organizational level under an umbrella of Management Responsibility with an appropriate organization and resources. Again this gives rise to the incorporation of the appropriate requirements from ISO 9001 and ISO/IEC 12207 (AQAP-160 Edition 1 Chapter 2).
- 3.3.2.6 AQAP-160 Edition 1 is a quality standard for NATO use. As with other quality standards, NATO requires appropriate Government Quality Assurance, which leads to the incorporation of the appropriate requirements from AQAP-110 Edition 2 (AQAP-160 Edition 1 Chapter 2 and 6).
- 3.3.3 The implementation of the conceptual model into the AQAP-160 Edition 1 document based on a practical composition scheme is explained in AQAP-160 Edition 1 Para 1.5.2.
- 3.4 <u>Guidance on Chapter 2. Quality system requirements</u>
- 3.4.1 Chapter 2 contains quality system requirements, originating from ISO 9001, in some places supplemented with requirements originating from ISO/IEC 12207. Chapter 2 is expressed in quality language, with the appropriate links to Chapters 3 and 4 (in engineering language).
- 3.4.2 Guidance on AQAP-160 Edition 1 '2.1. Management responsibility'

 In general, this requirement is based on ISO 9001:1994 '4.1 Management Responsibility'/ISO 9001:2000 '6.2.2 Competence, awareness and training', but a few supplements have been included, in particular:
 - a. ISO 9001:1994 '4.18. Training'/ISO 9001:2000 '6.2.2 Competence, awareness and training'
 Training at the organizational level is considered an important asset for human

resources and it is the responsibility of management (from ISO 9001:1994 4.18).

- ISO/IEC 12207 '7.2 Infrastructure Process'
 Infrastructure at the organizational level is considered an important resource and it is the responsibility of management (from ISO/IEC 12207, 7.2).
- 3.4.3 Guidance on AQAP-160 Edition 1 '2.2. Quality system'
 In general, this requirement is based on ISO 9001:1994 '4.2 Quality system'/
 ISO9001:2000 '4.1, 5.1, 5.4.1 and 4.2.2', and contains the fundamental links between
 quality (ISO 9001) and engineering (ISO/IEC 12207). The structure of the requirement is
 defined in three steps.
 - a. Establishment of the quality system The primary and supporting life cycle processes requirements of AQAP-160 Edition 1 have to be tailored/implemented in accordance with the need of the organization and incorporated into a quality system (this step corresponds to activity '7.3.1 Process establishment' of ISO/IEC 12207's Improvement process).

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- b. Assessment of the quality system
 - Internal quality audits have to be performed on the established quality system. The internal quality audits have to include the primary and supporting life cycle processes of AQAP-160 Edition 1. In response to the internal quality audits appropriate corrective action has to be taken (this step corresponds to activity '7.3.2 Process assessment' of ISO/IEC 12207's Improvement process).
- c. Improvement of the quality system
 - Based on the application of the quality system and other experience, the quality system may be improved and as such appropriate preventive action has to be taken (this step corresponds to activity '7.3.3 Process improvement' of ISO/IEC 12207's Improvement process).
- 3.5 Guidance on Chapter 3. Primary life cycle processes requirements
- 3.5.1 Chapter 3 of AQAP-160 Edition 1 contains primary life cycle processes requirements, originating from ISO/IEC 12207, in some places supplemented with requirements originating from ISO 9001. Chapter 3 is expressed in engineering language.
- 3.5.2 Guidance on AQAP-160 Edition 1 '3.2. Acquisition process (to be invoked by the supplier)'
- 3.5.2.1 If the supplier decides to acquire part(s) of the contract, he is obliged to perform this acquisition in accordance with this process. 'Acquisition' should be interpreted in the broadest sense:
 - subcontracting part of the effort;
 - b. buying an off-the-shelf product (including incorporating a customer-supplied or government-furnished product)
- 3.5.2.2 The rationale behind this new process is ISO/IEC 12207's requirement 5.2.5.4 that mandates a call to a new instance of ISO/IEC 12207 in case of a subcontracting by the supplier. NATO has followed this principle, but has introduced additional requirements originating from ISO 9001:
 - a. the appropriate evaluation of subcontractors (ISO 9001:1994 '4.6.2' / ISO 9001:2000 '5.1.4 and 5.1.5 and 7.4.1');
 - b. appropriate purchasing data (ISO 9001:1994 '4.6.3' / ISO 9001:2000 '7.4.2');
 - c. if required, the verification by the supplier at the subcontractor's premises (ISO 9001:1994 '4.6.4.1' / ISO 9001:2000 '7.4.3');
 - d. if required, the verification of the subcontracted product by the customer (ISO 9001:1994 '4.6.4.2' / ISO 9001:2000 '7.4.3');
 - e. the appropriate control of a customer-supplied product (ISO 9001:1994 '4.7' / ISO 9001:2000 '7.5.4);
 - f. the appropriate receiving inspection and testing (ISO 9001:1994 '4.10.2' / ISO 9001:2000 '7.4.3 and 7.5.1 and 8.2.4').
- 3.5.2.3 These additional requirements are risk areas identified in ISO 9001, that are not explicitly addressed by ISO/IEC 12207 '5.1 Acquisition Process'. NATO prefers to introduce these additional requirements at the level of the 'Acquisition process to be invoked by the supplier' itself, instead of rewriting the process and its associated activities. It is up to the user of the standard to introduce the additional requirements at the appropriate time.

3.5.3 Guidance on AQAP-160 Edition 1 '3.4. Production & Deployment process'

After the design and the development of a system, a phase or process that may be called 'Production & Deployment' follows. ISO/IEC 12207 does not contain such a process for software. Although the Production process for software is microscopic (e.g. replicating the software on disks or burning-in EPROMs), the production process needs to be controlled.

Delivery and installation are also important activities. ISO/IEC 12207 addresses them as part of the Supply (ISO/IEC 12207 5.2) and Development (ISO/IEC 12207 5.3) processes.

NATO prefers to create a new software process and regroup the appropriate activities into this new process: Production & Deployment.

The general basis for this process is provided by ISO 9001:1994 '4.9 Process control'/ISO 9001:2000 '6.3 Infrastructure' and '6.4 Work environment' and '7.1 Planning of product realization' and '7.5.1 Control of production and service provision' and '7.5.2 Validation of processes for production and service provision', supplemented with the appropriate activities of ISO/IEC 12207:

- a. ISO/IEC 12207 '5.2.7 Delivery and completion';
- b. ISO/IEC 12207 '5.3.12 Software installation';
- c. ISO/IEC 12207 '5.3.13 Software acceptance support'.

In adopting ISO/IEC 12207's processes, these supplementary activities are of course deleted in the processes, where they were originally present (see AQAP-160 Edition 1, Annex A – crossreference tables).

- 3.6 <u>Guidance on Chapter 4. Supporting life cycle processes</u> requirements
- 3.6.1 Chapter 4 of AQAP-160 Edition 1 contains supporting life cycle processes requirements, originating from ISO/IEC 12207, in some places supplemented with requirements originating from ISO 9001. Chapter 4 is expressed in engineering language.
- 3.6.2 Guidance on AQAP-160 Edition 1 '4.9. Management process'
- 3.6.2.1 In ISO/IEC 12207 the Management process is a generic organizational process that has to be instantiated when executing any primary process.
- 3.6.2.2 In AQAP-160 Edition 1 the Management process is adopted from ISO/IEC 12207 without modification, but as a supporting process. The supporting Management process should be interpreted as project-level management.
- 3.6.3 Guidance on AQAP-160 Edition 1 '4.10. Infrastructure process'

The necessary infrastructure (e.g. engineering environment, test tools, etc.) has to be allocated to a project. That is why at the project level the Infrastructure process is a supporting process.

3.6.4 Guidance on AQAP-160 Edition 1 '4.11. Training process'

The participants at a project should have the necessary personnel skills and receive the proper training. That is why at the project level the Training process is a supporting process.

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- 3.6.5 Guidance on AQAP-160 Edition 1 '4.12. Measurement process'
- 3.6.5.1 The general basis for this process is provided by ISO 9001:1994 '4.20 Statistical techniques' or by ISO 9001:2000 '8.2.3 Monitoring and measurement of processes' & '8.2.4 Monitoring and measurement of product'. ISO/IEC 12207 does not have a separate measurement process, therefore this process was added in AQAP-160 Edition 1. For process measurement, ISO/IEC 12207 contains an Improvement process. For product measurement, ISO/IEC 12207 refers to ISO/IEC 9126.
- 3.6.5.2 There are several ISO-initiatives in the software measurement arena. Although the state of software measurement is somewhat immature, NATO believes some sort of measurement should be undertaken. The extent of software measurement and the application of certain standards or methods should be decided on a contract-by-contract basis. Therefore AQAP-160 Edition 1's Measurement process requirements have to be tailored for each contract.

Application guidance on AQAP-160 Edition 1

4.1 Purpose

- 4.1.1 The main objective of the application guidance is to increase the visibility on AQAP-160 Edition 1, without being prescriptive.
- 4.1.2 This chapter provides supporting information for tailoring the requirements of chapter 3 and chapter 4 of AQAP-160 Edition 1. Since these chapters constitute the NATO adoption of ISO/IEC 12207, the supporting information addresses essentially the tailoring of ISO/IEC 12207.
- 4.1.3 The supporting information for tailoring tries to help users of AQAP-160 Edition 1 to apply and to implement chapter 5 'Tailoring process requirements' in a successful manner. The supporting information in Tables 4-1, 4-2, and 4-3 provide a conceptual structure or method that may be used in the tailoring process. In addition, the contents of each table is based on expert judgement and as such should be used as tools to assist in the tailoring process.
- 4.1.4 This chapter also introduces software life cycle data as an additional dimension to the process dimension already provided by AQAP-160 Edition 1.
- 4.1.5 This chapter provides a first-level guidance and is not intended to be exhaustive. Nations, organizations, industry and/or individuals may want to improve or extend this guidance.

4.2 Scope

- 4.2.1 The application guidance can be useful for a wide range of potential users of AQAP-160 Edition 1: acquirers, suppliers, developers, operators, maintainers, engineers, quality managers, project managers, etc. When tailoring AQAP-160 Edition 1 requirements and using the supporting information for tailoring on a project, all possible influences from the relevant parties should be taken into account.
- 4.2.2 The application guidance can be consulted for all types of products and/or systems ranging from complex weapon systems, over database-oriented applications, to simple software products.
- 4.2.3 The application guidance is not dependent on the particular contractual situation (e.g. sole source, competitive, etc.).
- 4.2.4 The application guidance does not address issues related to when (e.g. pre-contractual tailoring, tailoring by negotiation, post-contractual tailoring, etc.) and by whom (supplier, acquirer, or other) the tailoring of AQAP-160 Edition 1 is performed.
- 4.2.5 The application guidance does not absolve the supplier of the ultimate responsibility for the quality of the software.

4.3 The life cycle data

- 4.3.1 In order to increase visibility on the application of the process-dimension of AQAP-160 Edition 1, an additional dimension has been added: the life cycle data. If a task produces a life cycle data item, this item is identified and named in accordance with the terminology of ISO/IEC 12207 or ISO 9001.
- 4.3.2 A life cycle data item can be part of the actual software product (e.g. an engineering product like a specification, source code, etc.) or can be of a supporting nature (e.g. a plan, an evaluation report, etc.).
- 4.3.3 The application guidance does not address the required contents or format of each life cycle data item. Contents may be deduced from the corresponding task and/or may be retrieved from more detailed standards (e.g. IEEE/EIA-Std-12207, IEEE/EIA-Std-016).
- 4.3.4 The life cycle data identified in the application guidance constitute the 'AQAP-160 Edition 1-complete set'. Nations, organizations, industry and/or individuals may want to adjust, improve or extend the set of life cycle data.
- 4.4 <u>Use of the supporting information for the tailoring process</u>
- 4.4.1 The tailoring process is driven by project and product characteristics (drivers for tailoring). The drivers are either an implicit part of the project team's collective expertise, or can be explicitly derived for a specific project, application within a project, or organization.
- 4.4.2 In order to support the explicit derivation of appropriate drivers, Table 4-3 of Para 4.8 provides a non-exhaustive list. This list may be adjusted, improved or extended by nations, organizations, industry and/or individuals in order to be more direct in line with their policy or business.
- 4.4.3 In some cases supplier and/or acquirer may decide not to use the tailoring support offered in this chapter to obtain a tailored version of the requirements of AQAP-160 Edition 1.
- 4.4.4 The tailoring process may follow two different roads, each using the supporting information provided by this chapter in a different way:
- 4.4.4.1 Based on the implicit drivers, tailoring proceeds task-by-task and life-cycle data item-by-life-cycle data item. The tailoring process and related result is supported by, and may be checked against the tailorability Table 4-1 in Para 4.6.
- 4.4.4.2 Based on the explicit table of characteristics generated for driving the tailoring process (see Table 4-3 in Para 4.8), and their value for the specific project, tailoring proceeds by identifying their impact on the sets of interrelated tasks for tailoring (see Table 4-2 in Para 4.7). The tailoring process and related result is supported by, and may be checked against the tailorability (Table 4-1 in Para 4.6).
- 4.5 <u>Supporting information provided in AQAP-169 Edition 1</u>
- 4.5.1 Tailorability Table 4-1 for AQAP-160 Edition 1 at the task and life cycle data item level.
- 4.5.1.1 In Para 4.6, an indication of the tailorability of each task as well as of the corresponding life cycle data item has been provided in a table-format. This table provides the following information:
 - a. which tasks should never be tailored:

- b. which tasks should only be tailored under exceptional circumstances;
- c. which tasks can be tailored partially in some circumstances;
- d. which tasks can be tailored totally in some circumstances.
- 4.5.1.2 The table contains an analogue indication with respect to the tailorability of the (possible) life cycle data produced by the tasks.
- 4.5.2 Sets of interrelated tasks and life cycle data items: Table 4-2.
- 4.5.2.1 In Para 4.7, sets of interrelated tasks of AQAP-160 Edition 1 have been provided in table-format. Functionally interrelated tasks are being abstracted into 'sets', which in turn are grouped into 'groups of sets'.
- 4.5.2.2 The sets provide different functional views on AQAP-160 Edition 1. In short, a set can be considered to be a functional abstraction of interrelated tasks.
- 4.5.2.3 The sets of interrelated tasks serve two purposes:
 - a. enhance the understanding of the AQAP-160 Edition 1-model, more specifically its relationship and implementation by different life cycle participants (e.g. supplier, developer, maintainer) and disciplines (e.g. engineer, project manager, quality manager);
 - b. indicate the influence of drivers for tailoring (product and project characteristics) on the tailoring of these sets of interrelated tasks (see Para 4.5.3).
- 4.5.2.4 By checking which set of interrelated tasks a particular task belongs to, it becomes possible:
 - a. to determine the category of the possibly associated life cycle data item;
 - b. to get an indication on which discipline (e.g. engineering, project management, quality management, etc.) should be involved in the tailoring of that particular task and possible life cycle data item;
 - c. to get an indication on which discipline (e.g. engineering, project management, quality management, etc.) should be involved in the implementation, execution and follow-up of a particular task;
- 4.5.3 Impact of drivers on the sets of interrelated tasks: Table 4-3.
- 4.5.3.1 In Para 4.8, a correlation between drivers and sets of interrelated tasks is provided.
- 4.5.3.2 The drivers are organized in two categories:
 - a. Product-related characteristics:
 - b. Project-related characteristics.
- 4.5.3.3 When the value of a particular driver is high, the impact can be described as an indication of which sets of interrelated tasks become very important for the product or the project:

- 4.6 <u>Table of tailorability for AQAP-160 Edition 1</u>
- 4.6.1 The Tailorability Table 4-1 written at the task level contains the following information:
- 4.6.1.1 For each task of AQAP-160 Edition 1 is indicated:
 - a. the process and activity the task belongs to;
 - b. the activity number, the AQAP 160 Edition 1 task numbers when an activity contains modified tasks or a newly created task, and for each task the original number from the corresponding standard is referenced: ISO/IEC 12207, ISO 9001:2000 or ISO 9001:1994.
 - c. the task level of tailorability, where the following definitions apply:
 - (1) N(ot): the task cannot be tailored, and shall be executed to the full extent as required by the standard.
 - (2) <u>E(xceptional)</u>: the task should be executed to the full extent as required by the standard, but can be tailored (partial or full) under exceptional conditions; tailoring this task might compromise software quality.
 - (3) $\underline{P}(\text{artial})$: the task can be tailored to be executed to a lesser extent as required by the standard (i.e., portions of the task may be omitted, or the level of performance may be reduced).
 - (4) \underline{F} (ull): the task can be tailored out (i.e., may be omitted) under specific conditions.

It should be clear that a task may be tailored partially in some circumstances and the same task may be tailored fully in other circumstances. Rationale for tailoring decisions should be documented in accordance with Annex B of AQAP-160 Ed 1.

- 4.6.1.2 If applicable, for each <u>life cycle data item</u> produced by a task is indicated:
 - a. the name of the life cycle data item based on ISO/IEC 12207 or ISO 9001;
 - b. the category of the life cycle data item. The category is based on the sets of interrelated tasks (see Table 4.2 in Para 4.7). The following categories are identified:
 - (1) Ag(reement) data
 - (2) <u>E(ngineering)</u> data
 - (a) R(equirements specification) data
 - (b) Co(nstruction) data
 - (c) <u>T</u>(esting) data
 - (d) Ch(ange analysis) data
 - (3) <u>Co(nfiguration management)</u> data
 - (4) Ch(ange management) data
 - (5) P(roject management) data
 - (6) Q(uality management) data
 - (7) <u>Pr</u>(oduction and deployment) data

- (8) O(peration) data
- (9) R(esource management) data
- c. the type of the life cycle data item, where the following types are identified:
 - (1) <u>P</u>(lan)

Define when, where, how, and by whom specific activities are to be performed, including options and alternatives, as required.

(2) <u>S(pecification)</u>

Specify a required function, performance, or process.

(3) D(escription)

Describe a concept, function, design, as-built product, test, or process.

(4) Rep(ort)

Document and submit the results of tasks, findings, studies, evaluations, and other activities.

(5) R(ecord)

Document and retain objective evidence of the results of tasks, findings, studies, evaluations, and other activities.

(6) <u>M</u>(anual)

Describe the installation and use of the product(s).

- d. the life cycle data item level of tailorability, where the following definitions apply:
 - (1) N(ot): the life cycle data shall be produced and documented in a formal way addressing all issues required by the standard.
 - (2) <u>E(xceptional)</u>: the life cycle data should be produced and documented in a formal way addressing all issues required by the standard, but can be tailored (partial or full) under exceptional conditions; tailoring these life cycle data might compromise software quality.
 - (3) P(artial): the life cycle data can be produced and/or documented in an informal way, or addressing not all issues required by the standard, or combined with other life cycle data.
 - (4) \underline{F} (ull): the life cycle data can be tailored out (i.e., may be omitted) under specific conditions.

It should be clear that a life cycle data item may be tailored partially in some circumstances and the same item may be tailored fully in other circumstances. Rationale for tailoring decisions should be documented in accordance with Annex B of AQAP-160 Ed 1.

| | | | | | | | Task L | | | | | | | Data Leve Tailon | elof | |
|------------|-----------------|-------------------------|-------------------|--|---|--|--------|------|-----|--|------------------|--------------|---|------------------------|------|---------|
| | AQAP - | | AQAP -160 ed 1 | ISO /IEC 12207 *= ISO 9001:2000 | | | | | | | | Data | | | | |
| Process | Act. num ber | Activity | Task ^=m odif | ** = 150 9001:1994 | Task (paraphrased) | N | E | Р | F | Liffe cycle data item | Dataitem cat. | item type | N | E | Р | F |
| | 311. | h ta tion | | 5.21.1 | Review RFP,policies,negulations | | П | Р | F | Review ofrequirem entsrecord | Ag | R | | | Р | F |
| | | | | 5212 | Decide to bil oracceptcontact | | П | Р | F | Bil orletterofacceptance (Loa.) | Ag | R | | | Р | F |
| | | | | | | | | | | | | | | | | |
| | 312. | Preparation of response | | 5221 | Prepare proposalin response to RFP | | | Р | F | Proposal | Ag | D | Ν | | | |
| | | | | | | | | | | | | | | | | |
| | 313. | Contact | | 5231 | Negotiate and enterinto contract | | | Р | F | Contact | Ag | S | Ν | | | |
| | | | | 5232 | M od contactperchange m echanism | | | Р | F | M od itation request | Ag | R | Ν | | | |
| | | | | | | | | | | | | | | | | |
| | 314. | Planning | | 5241 | Review the acquisition require ents | | | Р | | Fram ework form anagem entand assurance | P | S | | | Р | |
| | | | | 5242 | Selecta software life cycle m odel | Ν | | | | Software life cycle modeldescription | E | D | | | Р | |
| | | | | 5243 | Establish requirem ents forplans | | | Р | F | Requiem entsforplans | P | P | | | Р | F |
| > | | | | 5.2.4.4 | Evaluate m ake-orbuy decision | | | Р | ╝ | Software options analysis record | P | R | | | Р | Щ. |
| Supply | | | | 5.2.4.5 | Docum entprojectm anagem entplans | | | Р | | Projectm anagem entplan | P | P | | | Р | |
| д | | | | | | | | | | | | | | | | |
| | 315 | Execution and control | 3151. | 5251 | Execute projectm anagem entplans | Ν | | | ┙ | N/A | | | | | Ш | |
| 3.1 | | | 3152^ | 5252 | Develop,Operate,orMaintain iaw process | | | Р | _ | N/A | | | | | Ш | |
| " | | | 3153. | 5253 | Montorprogress, ilentify problems | | | Р | ┙ | Progressand problem records | P | R | | | P | |
| | | | 31.5.4.^ | 5254 | Controlsubcontractors haw Acq.Process | | Ш | Р | F | Subcontractorcontrolprocedures/contractualrequirem ent | P | P | | | Р | F |
| | | | 3155. | 5255 | Interface with IV&V and testagent | | Щ | _ | F | N/A | | | | | Ш | <u></u> |
| | | | 3156. | 5.2.5.6 | Interface with otherspercontract and plans | 乚 | Ш | Р | F | N/A | | | Ш | | ப | |
| | | | | | | | | | | | | | | | | |
| | 316. | Review and evaluation | | 5.2.6.1 | Coordinate contract reviews | | Щ | Ρ | 4 | N/A | | | | | | |
| | | | | 5.2.6.2 | Supportmeetings, neviews, tests, audits | | Ш | Р | _ | Jointmeview & Auditmesuls | P | Rep | | | Р | F |
| | | | | 5.2.6.3 | ConductV&V per6 A and 6.5 | | | _ | E | Verification & Validation results | P | Rep | | | ┙ | F |
| | | | | 5.2.6.4 | Report evaluations, aud its, tests to acquier | | Ц | Р | _ | Reports and problem resolutions | P | Rep | | | Р | |
| | | | | 5.2.6.5 | Provide access to facilities | | Ш | Р | _ | N/A | | | | | Ш | |
| | | | | 5.2.6.6 | Perform quality assurance iaw 63 | $oldsymbol{ol}}}}}}}}}}}}}}}}}}$ | Ш | Р | | Qualty assumance nesults | P | Rep | Ш | | Ш | F |
| | | | Table 4 | l-1 ∶Tail | orability of AQAP-160 Edition | 1 a | at th | ne t | ask | and life cycle data item level. | | | | | | |

| | | | | ISO /IEC | | | Task L of Tailon | | | | | | | Data Leve Tailora | elof |
|--------------------------------|---------------------------------------|--|---------------------------------------|------------------|--|-----|---------------------|------|-----|---|-------------------|----------------------|---|-------------------------|------|
| Process | AQAP - 160 ed 1 Act. num ber | Activity | AQ AP -160 ed 1 Task ^=modif | 12207 *= | Task (pamphmæd) | N | E | Р | F | Life cycle data hem | Data inem cat. | Data item type | N | E | P F |
| | 31.7. | Contractreview | | 5.2* | Custom erfocus | | | Р | | C ustom errequirem ents | P | S | | П | Р |
| | | | | 721* | Determination of requirements related to the product | | | Р | П | Custom er-, intended use-, product-, additional requirem ents | P | S | | П | Р |
| Supply | | | | 7.2.2* | Review of requirem ents related to the product | | П | Р | 7 | Review mesults and action meconds | P | R | | ╛ | Р |
| g | | | | 7.2.3* | Custom ercom m unitation | | | Ρ | ╗ | Com m unication amangem ents | P | P | | П | Р |
| 1. S | | | | 4.3.1** | G enemal | | | Р | | Contract review and coordination procedures | P | P | | П | Р |
| 3.1 | | | | 4.3.2** | Review | | | Р | | Contractneview necond | Ag | R | | | Р |
| | | | | 4.3.3** | Am endm entto a contract | | | Р | F | Contzactam endm ent | Ag | D | | | P F |
| | | | | 4.3.4** | Records | | | Р | F | Contractmeview mecond | Ag | R | | | P F |
| | | | | | | | | | | | | | | | |
| | 3.2.1. | hitation | | 5111 | Describe conceptorneed forpioduct | | Е | | | C onceptdescription | Ag ÆR | S | | | Р |
| | | | | 5112 | Analyze system nequinements | | | Р | F | System mequinements | Ag ÆR | S | | | P F |
| | | | | 5113 | Approve analyzed requirem ents | | | Р | F | Approvalofanalyzed requirem ents | Ag ÆR | S | | | P F |
| | | | | 5114 | Define software requirements | | | Ρ | | Software requirem entdescription | Ag ÆR | S | | | Р |
| | | | | 5115 | Use DevelProcessfor5112 and 5114 | | | Р | F | N /A | | | | | |
| | | | | 511.6 | Consideracquistion options | | | Р | F | Acquisition options analysis record | Ag P | R | | ╝ | PF |
| <u>.</u> | | | | 511.7 | Evaluate off-the-shelfproducts | | | Р | F | COTS acceptance records | ET | R | | _ | PF |
| E i | | | | 5118 | Docum entand execute acquisition plan | | | Р | F | Acqu isiti on p lan | P | P | | ╝ | P F |
| Acquisition ed by supplier) | | | | 5119 | Docum entacceptance criteria | | Е | | | Acceptance strategy and criteria | Ag ÆT | S | | | Р |
| isi | | I | | | | | | | | | | , | | | |
| 무중 | 322. | Request-for-proposal[- tender]preparation | | 5121 | Docum entacquistion requirem ents (RFP) | | Ε | | | Request-forproposal | Ag | S | | | Р |
| A P | | | | 5122 | TaibrStandards | | Ε | T | ╗ | Taibmed AQAP-160 Ed 1 forsubcontractor | P | P | | П | PF |
| 2 × | | | | 5123 | Define contractm ilestones and audits | | | Ρ | П | Contractmilestones neview and audiplan | P | P | | П | Р |
| 3.2. Acqu (invoked by | | | | 5124 | G ive nequinem entsto penform er | | | Р | F | Acquisition requirem ents issued | P | S | | \Box | PF |
| Ë | | | | | | | | | | | | | | | |
| | 323. | Contract preparation and update | 3231. | 5131 | Establish selection procedure | | | Р | F | Supplierse lection procedure | P | P | | . 7 | PF |
| | | | 3232. | 5132 | Select supplier based on evaluation | | | П | F | Supplierselection necond | P | R | | T | TF |
| | | | 3233. | 5133 | Get inputs on tailoring this Standard | | | Р | F | Taibred AQAP-160 Ed 1 forsubcontractor | Ag | S | | \neg | PF |
| | | | 3234. | 5134 | Prepare and negotiate contract | | П | Р | F | Contmact/order | Ag | s | | コ | F |
| | | | 3235.^ | 5135 | Negotiate changes to contract | | П | Р | F | Contractchange controlmecond | Ag | R | | \neg | PF |
| | | | | | | | | | | | | | | | |
| | | | Table 4 | <u>l-1</u> :Tail | orability of AQAP-160 Edition | 1 a | it th | ie t | ask | and life cycle data item level. | | | | | |

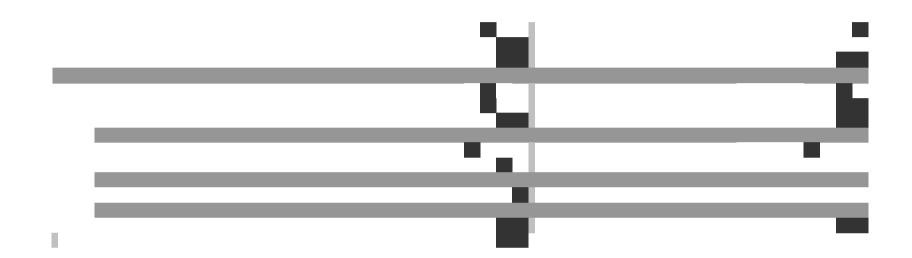
| | | | | ISO /IEC | | | Task I ofTaibi | | | | | | | Data Rem Levelof Taibrabili | |
|----------------------|---------------------------------------|--|-----------------------------|-------------------|--|-----|-------------------|------|-----|---|-------------------|----------------------|---------------|---|-------------|
| Process | AQAP - 160 ed 1 Act. num ber | Activity | AQAP-160 ed 1 Task ^=m odif | 12207 *= | Task (pazaphzased) | N | E | P | F | Liffe cycle data inem | Data item cat. | Data item type | N | E P | P F |
| | 324. | Supplierm ontoring | | 5141 | Monitorsuppliers activities iaw 6.6 and 6.7 | | | Р | F | Subcontactor pint neview and auditesults Subcontactor verification and validation results | P | Rep | | F | F |
| | | | | 5142 | Cooperate with tinely resolutions | | | Р | F | Neccessary information provided | P | R | | F | F |
| | | Acceptance and | | | | | | | ų | | | | | | |
| (r | 325. | completion | | 5151 | Define acceptance testsand procedures | | Ш | Р | _ | Testorva lidation procedures | Ag P ET | D | Щ | | Щ |
| i | | | | 5152 | Conductacceptance zeview and testing | | Е | 4 | _ | Acceptance record | Ag | R | oxdot | 45 | Ϋ́Е |
| supplier) | | | | 5153 | Perform CM afteracceptance | | | _ | ы | CM transfernecords | Co | R | Ц | _ | <u> 1</u> F |
| | 0.04 | | | 741+ | Durche de nors est | | | ۹ | | Sub-contractorselection criteria and records | 3 | Б | $\overline{}$ | ┯ | |
| þ | 326. | Evaluation of subcontractors | | 7.41.* 4.6.2** | Purchasing process Evaluation of subcontractors | | H | ┥ | 듼 | Quality recordson subcontractors | Ag Ag | R R | \vdash | + | 두 |
| þ | | Evaluation of table o | | 102 | Iva na con original constructions | | Н | 4 | _ | guary accompositable strategies | Ag | 10 | | _ | |
| 8 | 32.7. | | | 7.4.2.* | Purchasing information | | П | П | E | Purchasing docum ents | Ag | R | op | 丅 | TE |
| _ ≥ | | Purchasing data | | 4.6.3** | Purchasing data | | | ┪ | F | Punchasing docum ents | Ag | R | 寸 | ┪ | F |
| l j | | | | | | | | | | | | | | | |
| <u>.</u> | 328. | | | 7.43.* | Verification of purchased product | | | | F | Purchased product verification records | Ag | R | | $oldsymbol{ol}}}}}}}}}}}}}}}$ | F |
| Acquisition (invoked | | Verification of purchased product | | 4.6.4.1** | Supplierverfication at subcontractors premies | | | | F | Verification arrangem ents | Ag | R | | | F |
| n b | | - | | | | | | | | | | | | | |
| Ac | 329. | | | 7.4.3.* | Verfication of purchased product | | | | F | Purchased product verification records | Ag | R | | \Box | F |
| 3.2. | | Verification of purchased product | | 4642** | Custom erverification of subcontracted product | : | | - 1 | Εľ | Verification right(s) | Ag | R | | | F |
| က် | | | | | | | | | | | | | | | |
| | 3210. | | | 754.* | Custom erproperty | | | Р | F | Procedures forcontrolof custom ersupplied products | P | P | | F | F |
| | | Controlof custom ersupplied product | | 4.7** | Controlofcustom ersupplied product | | Н | Р | F | Procedures for control of custom er supplied products | P | P | | F | F |
| | | | | | | | | | | | | | | | |
| | | | Table 4 | l-1∶Tail | orability of AQAP-160 Edition | 1 a | at th | ne t | ask | and life cycle data item level. | | | | | |

| | | | | | | | Task Le | | | | | | | Data Leve Tailoz | elof | |
|------------------------------|------------------|--|--------------|----------------------|---|-----|---------|-----|----------|---|-----------|--------------|---|------------------------|--------|---|
| | | | | ISO /IEC 12207 *= | | | П | Т | - | | | | Н | | \Box | - |
| | AQAP- | | AQ AP -160 | 180 | | | | | | | | | | ı | 1 | |
| | 160 ed 1 Act. | | ed 1 Task | 9001:2000 **= ISO | | | | | | | Data item | Data item | | ı | H | |
| Process | num ber | Activity | ^ =m odif | 90011994 | Task (paraphrased) | N | E | Р | F | Liffe cycle data inem | cat. | type | N | E | Р | F |
| _ | 3211. | | | 71.* | Planning of productrealization | | | Р | F | Productrea lization p lan | P | P | | | Р | F |
| io > | | | | 751.* | Controlofproduction and service provision | | | Р | F | Production and service plan | P | P | | | Р | F |
| isit d b | | | | 81.* | G eneral | | | Р | F | Monitoring and measuring plan | P | P | | | Р | F |
| ke d | <u>.</u> | | | 824.* | Monitoring and measuring of product | | | Р | F | Productm ontoring and m easuring records | Q | R | | | Р | F |
| 3.2. Acquisition (invoked by | 5 | Rece ivi ng inspection and testing | | 41021** | Ensuring not-use orprocess incom ing products | | Ц | Р | E | Procedure incom ing products | P | P | | Ш | Р | F |
| 3.2 | | | | 41022** | Consideram ountofcontolofsubcontactor | | | Р | E | Subcontractors ating | P | P | | Ш | P | F |
| ., | | | | 410.23** | Positive identification and recording | | | Р | F | Procedure for identification of unverified productsured | P | P | | | Р | F |
| | | | | | | | | | | | | | | | | |
| | 331. | Processin plem entation | 3311. | 5311 | Define software life cyclemodel | | | Р | | Software life cycle modeldescription | ER | D | | | Р | |
| | | | 3312. | 5312 | Docum entand controloutputs | | | Р | | N/A | | | | | | |
| | | | 3313. | 5313 | Selectand use standards, tools, languages | | | Р | | Software development standards description | P | P | | | Р | |
| | | | 3314. | 531.4 | Docum entdevelpm entplans | | | Р | | System /software developmentplan | P | P | | | Р | |
| + | | | 3315. | 5315 | De livera Ineeded products | | Ш | ┙ | <u>F</u> | Non-deliverable tem independance verification report | P | Rep | Ш | | Ш | F |
| e | | O-stani | | | | | | | 4 | | | | | | | |
| | 332. | System nequinements analysis | | 5321 | Specifysystem nequinements | | | Р | | System requirem ents specification | ER | S | | | Р | |
| | | | | 5322 | Evaluate nequinem entsagainst criteria | | Е | | | System requirem entsevaluation record | Q | R | | | Р | F |
| 8 | | | | | | | | | | | | | | | | |
| ا م | 333. | System architecturaldesign | | 5331 | Establish top-leve lanchitectune | Ν | Ш | | _ | System auchitecture description | ECo | D | | Ш | Р | |
| 3.3.Development | | | | 5332 | Evaluate architecture against.criteria | | E | | _ | System architecture evaluation record | Q | R | Ш | ╝ | P | F |
| " | | Coffee are received on to | | | | | | | - | | | _ | | | | |
| | 334. | Softwane nequinem ents analysis | 33.41.^ | 53.41 | Docum entsoftware requirem ents | | Ш | Р | 4 | Software irem requirem entsspecification | ER ET | S | | Ш | Р | |
| | | | 33.42. | 5342 | Evaluate requirem entsagainst criteria | | Е | _ | 4 | Software item requirem entsevaluation record | Q | R | | Ш | Р | F |
| | | | 33.43. | 5343 | Conductjointheviewsiaw 6.6 | | Щ | ┙ | F | Jointeview meault | P | Rep | | | P | F |
| | | | | | | | | | | | | | | | | |
| | | | mabb / | 1 1 • 110-5 | ombite of AOAD 160 Edition | 1. | _+ +b_ | ۰. | ~ ~l - | and the grade data than breat | | | | | | |
| | | | Table 4 | <u>-1</u> · 1 a 1 | orability of AQAP-160 Edition | ⊥ ∂ | ac tn | e t | ask | . ала ше сусе аата теп ечет. | | | | | | |
| <u> </u> | | | | | | | | | | | | | | | | |

| | | | | ISO /IEC | | | Task Le of Tailora | | | | | | | Data: Leve Tailora | lof | |
|--------------|--------------------------------------|----------------------------------|-----------------------------|--|---|-----|-----------------------|------|----------|--|-------------------|----------------------|---|--------------------------|-----|---|
| Process | AQAP - 160 ed 1 Act num ber | Activ h y | AQAP -160 ed 1 Task ^=modif | ISO 9001:2000 **= ISO 9001:1994 | Task (paraphraæd) | N | E | P | F | Liffe cycle data item | Data inem cat. | Data item type | N | E | Р | F |
| | 335. | Software architectural design | | 5351 | Tansform requirem ents into architecture | Ν | | | | Software item architecture description | ECo | D | | | Р | |
| | | | | 5352 | Docum enttop-leveldesign for interfaces | Ν | | | | Interface design description | EC o | D | | | Р | |
| | | | | 5353 | Docum enttop-Eveldesign fordatabase | | | | E | Database design description | EC o | D | | | P | F |
| | | | | 5354 | Docum entpælin hary uærdocum entation | | | | E | Uærdocum entation | EC o | М | | | Р | F |
| | | | | 5355 | Docum entpælin inary testræquiæm ents | | | Р | <u>F</u> | Software nem integration test description | EC o ET | D | | | Р | F |
| | | | | 535.6 | Evaluate architecture against criteria | | Ε | | _ | Software item architecture evaluation record | Q | R | | | Р | F |
| | | | | 535.7 | Conductjointneviewsiaw 6.6 | | Ш | | F | Jointmeview mesult | P | Rep | | | Р | F |
| | | | | | | | | | | | | | | | | |
| Development | 336. | Software detailed design | | 5361 | Docum entdesign foreach com ponent | | | | ΕĮ | Software item detailed design description | ECo | D | | | Р | F |
| J e | | | | 5362 | Docum entdesign forinterfaces | | | | ΕĮ | Interface detailed design description | EC o | D | | _ | Р | F |
| ᅙ | | | | 5363 | Docum entdesign fordatabase | | | | ΕĮ | Database detailed design description | EC o | D | | _ | Р | F |
| | | | | 5364 | Update uærdocum entation | | | 4 | ΕĮ | Uærdocum entation | EC o | М | | _ | Р | F |
| 6 | | | | 5365 | Docum entunitestrequiem ents | | | Р | ΕĮ | Software unitest descriptions | ET | D | | _ | Р | F |
| _ | | | | 3.3.6.6 | Update integration test requirem ents | | Ш | | F | Software item integration test description | EC o ET | D | | _ | Р | F |
| က | | | | 536.7 | Evaluate detailed design against criteria | | Ε | Ц | _ | Software item detailed design evaluation record | Q | R | | _ | Р | F |
| က | | | | 5368 | Conductjointheviewsiaw 66 | | Ш | _ | F | Jointeview meault | P | Rep | | _ | Р | Ε |
| | | | | | | | щ | | | I Course and a | | | | ц | | |
| | 337. | Software coding and testing | | 5371 | Docum enteach un±,database and tests | | | Р | F | Source code Executable code Software unit test description | EC o ET | D | | | Р | F |
| | | | | 53.7.2 | Conductand docum entunitesting | | | Р | | Software unit test result | ET | R | | | P | F |
| | | | | 53.73 | Update userdocum entation | | | | F | Userdocum entation | EC o | М | | | P | F |
| | | | | 5374 | Update integration testrequiem ents | | | | F | Software item integration test description | ECo,ET | D | | | P | F |
| | | | | 53.7.5 | Evaluatie code and testresults | | Ε | | | Software item code and testing evaluation record | Q | R | | | Р | F |
| | | | | | | | | | | | | | | | | |
| | | | Table 4 | <u>l-1</u> :Tail | onability of AQAP-160 Edition | 1 a | at th | e ta | ask | and life cycle data item level. | | | | | | |

| | | | | ISO /IEC | | | Task I of Tailor | | | | | | | Data I Leve: Tailoral | lof | |
|-------------|---------------------------------------|-----------------------------------|----------------------------|------------------|---|--------------|---------------------|------|-----|---|-------------------|----------------------|---|-----------------------------|-----|---|
| Process | AQAP - 160 ed 1 Act. num ber | Activity | AQAP-160 ed 1 Task ^=modif | 12207 *= | Task (pazaphrased) | N | E | P | F | Liffe cycle data hem | Data item cat. | Data item type | N | E | Р | F |
| | 338. | Software integration | | 5381 | Docum entintegration plans | | | Р | F | Software tem integration testplan | P | P | | \neg | Р | F |
| | | | | 5382 | Conductand docum entintegration tests | | | Ρ | | Software tem integration test results | EC o , ET | R | | | Р | F |
| | | | | 5383 | Update uærdocum entation | | | | F | Userdocum entation | ECo | М | | | Р | F |
| | | | | 5384 | Docum entqualfication tests | | | | F | Software item qualification test description | ECo | D | | | Р | F |
| | | | | 5385 | Evaluate plans and tests against criteria | | Ш | | | Software tem integration test evaluation record | Q | R | | | P | F |
| | | | | 5386 | Conductjintævæwsaw 66 | | | | F | Jointmeview mesult | P | Rep | | | Р | F |
| | | | | | | | | | | | | | | | | |
| | 339. | Software qualification testing | | 5391 | Conductand docum entqualification testing | | | Р | E | Software tem qualification test result | ET | R | | | Р | F |
| ۲ | | | | 5392 | Update uærdocum entation | | | | E | Userdocum entation | ECo | М | | | P | F |
| Je | | | | 5393 | Evaluate testsagainst.criteria | | Е | | | Software tem qualification testevaluation result | Q | Rep | | | Р | F |
| ď | | | | 5394 | Support audis aw 6.7 | | | | F | Software tem qualification auditresult | Q | Rep | | | | F |
| Development | | | | 5395 | Prepare product for next phase | | | 1 | F | System integration test description Software izem baseline | ECOETCO | D | | | | F |
| ě | | | | | | | | | | | | | | | | |
| | 3310. | System integration | | 53101 | Integrate software with handware & others | | | Р | | System integration testmesult | EC o , ET | Rep | | \neg | P | F |
| က | | | | 53102 | Docum entintegration tests | | Е | | | System qua lification test description | ET | D | | | P | |
| က | | | | 53103 | Evaluate integrated system against criteria | | Е | | | System integration evaluation record | Q | R | | | P | F |
| | | | | | | | | | | | | | | | | |
| | 3311. | System qualification testing | | 53111 | Conductand docum entqualification tests | Ν | | | | System qualification test result | ET | Rep | N | | | |
| | | | | 53112 | Evaluate system against.criteria | | Е | | | System qualification evaluation record | Q | R | Ш | | Р | F |
| | | | | 53113 | Supportaudisiaw 6.7 | | | _ | F | System qualification audit nesult | Q | Rep | Ш | \Box | _ | F |
| | | | | 53114 | Prepare product for installation | | Ш | ╝ | F | System baseline | Со | S | Ш | 丄 | _ | F |
| | | | | | | | | | | | | | | | | |
| | 3312. | System validation | 33121. | | Validate system against intended use | Ν | Ш | | _ | System validation result | Q | Rep | N | 4 | _ | |
| | | | 33122. | | Docum entæsukofvalidation | $oxed{oxed}$ | E | ┙ | | System validation evaluation necond | Q | R | Ц | ╝ | Р | F |
| | | | | | | | | | | | | | | | | |
| | | | Table 4 | <u>1-1</u> ∶Tail | brability of AQAP-160 Edition | . 1 a | at tł | ne t | ask | and life cycle data item level. | | | | | | |

| | | | | ISO /IEC | | | Task L of Tailor | | | | | | | Data Leve Tailoza | relof | |
|---------------------------|---------------------------------------|--------------------------|----------------------------|--|---|-----|---------------------|------|------|---|-------------------|---------------------|---|-------------------------|-------|---|
| Process | AQAP - 160 ed 1 Act. num ber | Activity | AQAP-160 ed 1 Task ^=modif | 12207 *= ISO 90012000 **= ISO 90011994 | Task (paraphraæd) | N | E | P | F | Liffe cycle data item | Data item cat. | Data tem type | N | E | Р | F |
| | 3.41. | Process in plem entation | 3.4.1.1. | | Docum entand execute plansand procedures | | | Ρ | | Production and Deploym entplan | P | P | | \Box | Р | |
| | | | 3.412. | | In plem entorestablish docum ented interface with CM process | | | Ρ | | Procedure for interface to CM proces | P | P | | | Р | |
| | | | 3.413. | | Record encountered problems | | | Ρ | | Problem records | Pr | R | | \Box | Р | F |
| | | | | | | | | | | | | | | | | |
| | 342. | Rep <i>l</i> ication | 3.4.21. | 71.* | Planning and product realization | | | Ρ | | Product realization plan | P | P | | | Р | F |
| | | | 3422. | 751.* | Controlofproduction and service provision | | | Р | | Production and service plan | P | P | | \Box | Р | F |
| | | | 3.4.2.3. | 752.* | Validation of processes for production and service provision | | | Р | | Production processes validation records | Pr | D | Ν | | | |
| | | Processcontrol | | 4.9** | Blentify and plan replication | | | Ρ | | Software copy | Pr | D | Ν | | | |
| 1_ | | | | | | | | | | | | | | | | |
| 2 | 343. | Re lease | 3431 | 71.* | Planning and product realization | | | Ρ | | Productrealization plan | P | P | | | Р | F |
| ~ ± | | | 3432. | 751.* | Controlofproduction and service provision | | | Р | | Production and service plan | P | P | | | Р | F |
| Production and deployment | | | 3.4.3.3. | 752.* | Validation of processes for production and service provision | | | Ρ | | Production processes validation records | Pr | D | Ν | | | |
| | | Processcontrol | | 4.9** | identify and plan ze lease | | | Ρ | | Software version description | Pr | D | Ν | | | |
| l 호 응 | | | | | | | | | | | | | | | | |
| 무물 | 344. | Delivery | 3.4.4.1. | 751.* | Controlofproduction and service provision | | | Ρ | | N/A | | | | | | |
| | | | | 4.9** | tlentify and plan delivery | | | Р | | Software product | Pr | D | Ν | | | |
| 3.4. | | | 3442. | 5271 | Deliverthe productpercontract | Ν | | | ш | Delivery docum ents | P | R | Ш | | Р | F |
| | | | | 52.72 | Supportacquierwith product percontract | | Ш | Р | F | Supportreport | P | Rep | Ш | | Р | F |
| | | | | | | | | | | | | | | | | |
| | 345. | nsta la tion | 3.4.5.1. | 71.* | Planning and product realization | | Ш | Ρ | Ш | Productrea lization plan | P | P | | | Р | F |
| | | | | 751.* | Controlofproduction and service provision | | Ш | Ρ | Ц | Production and service plan | P | P | Ш | _ | Р | F |
| | | | | 752.* | Validation of processes for production and service provision | | | Р | Ш | Production processes validation records | Q | R | | | Р | F |
| | | | | 4.9** | Mentify and plan installation | | | Р | ш | Software installation plan | Pr | P | | | Р | F |
| | | | 3.4.5.2. | 53121 | Plan installation in target environm ent | | | Р | | Software installation plan | P | P | | | Р | ĺ |
| | | | | 53122 | Installsoftware iaw plan | | | Р | | Software installation record | Pr | R | | ╝ | Р | F |
| | | | Table 4 | 1_1:Tai | onability of AQAP-160 Edition | 1 = | at th | ne t | task | and life cycle data item level | | | | | | |
| | | | 1001 | <u></u> | OLINGIII 100 EGILDII | | ac u | (| | . Can said by Car Carrier and a a vota | | | | | | |



AQAP-169 (Edition 1)

- 4.7 <u>Table with the sets of interrelated tasks</u>
- 4.7.1 Table 4-2 with the sets of interrelated tasks for AQAP-160 Edition 1 contains the following information:
- 4.7.1.1 the process and activity the task belongs to;
- 4.7.1.2 the activity number, the AQAP 160 Edition 1 task numbers when an activity contains modified tasks or a newly created task, and for each task the original number from the corresponding standard is referenced: ISO/IEC 12207, ISO 9001:2000 or ISO 9001:1994.
- 4.7.1.3 if applicable, the associated life cycle data item;
- 4.7.1.4 if applicable, the category of the life cycle data item (based on the set of interrelated tasks the corresponding task belongs to);
- 4.7.1.5 if applicable, the type of the life cycle data item;
- 4.7.1.6 an indication whether a task with associated life cycle data item belongs to a particular set of interrelated tasks (black box).
- 4.7.2 In order to further increase the visibility on AQAP-160 Edition 1, the functional abstraction has been further extended by grouping sets.

| P-169 ion 1) | | |
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| ## A CAP- | Res urc agement uality managemen | Dro fact M en egem en t | a | Engineering | Agree | ata Kem Levelof | | | | | | | | |
|--|---|---|--|---|--|--------------------|--------------------|--------------|--|--|---------------------------|-----------------|--|---------|
| ### ACAP. #################################### | m an gem | Su anagement | Testing 0 | Construction Te | m ent | | | | | | | | | |
| Verification of product 1,6.4.1* Verification arrangements Ag R | Operation Maintenance Enginearing evaluation Quality assurance Verification Validation John review Maudit Maudit Production & Deployment Operation Intrastructure | connye menagement Supply Acquisition (invoked/suppli Development Production & Deployment Operation | Unitegration Integration Qualification Change analysis & implementa Configuration management | Authrectural Design Detailed Design Cooling Coulombut Documentation Integration documentation User documentation Unit | tion (invoked/ | E P F | ta item type | item cat. | | 12207 task * = ISO 9001: 2000 ** = ISO 9001: 1994 | 160 ed 1 Task ^= | A ctivity | 160 ed 1 Acti- vity num - ber | 2202020 |
| December 1.6.4.1 Verification ammagements Ag R | | | \bot | | | F | R | Ag | Purchased product verification records | 7 .4 .3 .* | | ** '6' | 3 .2 .8 . | |
| 3.2.10 7.5.4. Procedums for control of custom ergospied products Particle Part | | | | | | F | R | Ag | Verification arrangem ents | 4.6.4.1 * * | | purchased | | |
| 1.2.10 7.5.4.* Procedums for control of custom error p p | | | | | | | | - | | | | | 2 | |
| 3.2.10 7.5.4. Procedums for control of custom ergospied products Particle Part | ╂╏╏╏╏╏╏ | + + + + + + + + + + + + + + + + + + + | - | | | F | R | Ag | Purchased product verification records | 7.4.3.* | | Verification of | 3 .2 .9 . | L |
| 3.2.10 7.5.4. Procedums for control of custom ergospied products Particle Part | | | | | | F | R | Ag | Verification right(s) | 4 .6 .4 .2 * * | | purchased | ilqq | tion |
| Courton exampled product 4.7** Suppled products P P | | | | | | | | | Duranda and fare and the last fare and the | | | 1 | J.S. | 81 |
| Coutem estampled product 4.7.* Suppled products P P | | 11111 | | | | PF | P | P | | 7 .5 .4 .* | | - | 3 .2 .1 0 | 浢 |
| 1.0 | | | | | | p F | Р | P | Procedures for control of custom er- | 4 .7 * * | | custom er- | | |
| 1.0 1.1 1.0 | | | | | | | | | | | | | ii 💮 | m |
| 8.1.* Monkoring and measuring plan P P N N | | ++++++ | $oldsymbol{+}oldsymbol{+}oldsymbol{+}$ | | | P F | | | | | | | 3 .2 .1 1 | |
| | | | | | \blacksquare | PF | | | | | | | | |
| Receiving | | | - | - | | PF | | | | | | | | |
| And testing 4.10.2.3* Procedure for Mentification of unverified products used 9 | | | | | | P F | | | | | 4 | Receiving | | |
| 3.3.1. Process 3.3.1.1. 5.3.1.1 Softw are life cycle model description ER D F | | | | | | PF | P | P | Subcontractors rating | 4 .1 0 .2 .2 * 1 | 4 | | | |
| m plem entation 3.3.1.2. 5.3.1.2 N/A 3.3.1.3. 5.3.1.3 Softw are development standards description P P P P P P P P P | | | | | | P F | P | P | | 4 .1 0 .2 .3 * 1 | 4 | and testing | | L |
| Im plem entation 3.3.1.2. 5.3.1.2 N/A 3.3.1.3. 5.3.1.3 Softw are development standards description P P P P P P P P P | | | 1111 | | | | р | ED | Software life cycle model description | 5311 | 3 3 1 1 | Process | 2 2 1 | |
| 3.3.1.3. 5.3.1.3 Softw are development standards description 3.3.1.4. 5.3.1.4 System /softw are development plan | ▍ ▍▐▐▕▕▕▕▕▐▐▐▐ ▋ | ╅╅┼╬╃┼┼ | | | | F | - | ла | | | | | J .3 .1 . | |
| 3.3.1.5.7 5.3.1.5 Non-deliverable item independance verification report 3.3.2. System sequirements 5.3.2.1 System requirements specification ER S D requirements 5.3.2.2 System requirements cond Q R P P F 3.3.3. System system architecture description architectural 5.3.3.1 System architecture evaluation record Q R P P F 3.3.4. Softw are requirements 3.3.4.1.7 5.3.4.1 Softw are item requirements specification ER, ET S P requirements 3.3.4.2. 5.3.4.2 Softw are item requirements evaluation Q R P P F Rep P F | | | - | | | P | P | p P | Softw are developm ent standards descri | | 3 .3 .1 .3 . | | | |
| 3.3.3. System 5.3.3.1 System architecture description EC o D P architectural 5.3.3.2 System architecture evaluation record Q R P P P S S S S S S S S S S S S S S S S | | | | | | P | P | P | | 5 .3 .1 .4 | 3 .3 .1 .4 . | | | ÷ |
| 3.3.3. System 5.3.3.1 System architecture description EC | | | | | | F | Rep | P | | 5 .3 .1 .5 | 3 .3 .1 .5 .^ | | | 1 |
| 3.3.3. System 5.3.3.1 System architecture description EC o D P architectural 5.3.3.2 System architecture evaluation record Q R P P P 3.3.4. Softw are requirements specification ER, ET S P analysis 3.3.4.2. 5.3.4.1 Softw are item requirements evaluation Q R P P P 3.3.4.3. 5.3.4.3 Joint review result P Rep P P P P P P P P P P P P P P P P P P P | | | | | | | - | P.D. | Curatam may been onto an a differ-ti- | E 2 2 1 | | Cyctem | 222 | [] |
| 3.3.3. System 5.3.3.1 System architecture description EC o D P architectural 5.3.3.2 System architecture evaluation record Q R P P P 3.3.4. Softw are 3.3.4.1.5.3.4.1 Softw are item requirements specification ER, ET S P requirements 3.3.4.2.5.3.4.2 Softw are item requirements evaluation Q R P P P 3.3.4.3 Joint review result P Rep P P P P P P P P P P P P P P P P P P P | ╂╏╘╅┼┼┼┼╂╂╂╂ | ╂╂┼┼┼┼ | | | | PP | | | | | | | 3 .3 .2 . | 0 |
| 3.3.3. System 5.3.3.1 System architecture description EC o D P architectural 5.3.3.2 System architecture evaluation record Q R P P P 3.3.4. Softw are 3.3.4.1.5.3.4.1 Softw are item requirements specification ER, ET S P requirements 3.3.4.2.5.3.4.2 Softw are item requirements evaluation Q R P P P 3.3.4.3 Joint review result P Rep P P P P P P P P P P P P P P P P P P P | | | | | | | | × | 5,111 Indiana character record | 3.3.2.2 | | 1 1 | | 8 |
| 3.3.4. Softw are 3.3.4.1. Softw are item requirements specification ER,ET S P requirements 3.3.4.2. Softw are item requirements evaluation: Q R D P 3.3.4.3. Softw ar | | | | | | P | D | ECo | System architecture description | 5 .3 .3 .1 | | | 3 .3 .3 . | |
| 3.3.4.1.5.3.4.1 Softw are item requirements specification ER,ET S P requirements 3.3.4.2.5.3.4.2 Softw are item requirements evaluation Q R P P P Rep P P P Rep P P P Rep P P P P P P P P P P P P P P P P P P P | | | | | | PF | R | Q | System architecture evaluation record | 5 .3 .3 .2 | | architectural | | |
| requirements 3.3.4.2. 5.3.4.2 Software item requirements evaluation: Q R P F A A A A A A A A A A A A A A A A A A | | | | | | | | | | 4 | | u 1 | | ٣ |
| analysis 3.3.4.3. 5.3.4.3 Jointreview result P Rep P F | ╏╏╏ ┪┪┼┼┼┼┼╂╂╂┼ | ╂╂┼┼┼┼ | | | | P | | | | | | | 3 .3 .4 . | |
| | ▎▎▐▀▍▎▍▏▍▋▋▋ | ╂╂┼╘╅┼┼ | | | ⊪ | PF | | | _ | | | | | |
| Table 4-2: Sets of interrelated tasks and life cycle data item s | | | | | | | | | | | | | | |
| | | | | ta item s | ycle d | nd life c | sks a | ated tas | Table 4-2: Sets of interrela | | | | | |

| | | | | | | | | Dε | ata Itei | a | | _ | | E | ngin | eerin | ıg | | | | _ | | | | | | | | Kes |
|-------------|---------------|--------------------------|------------|---------------|---|--------------|------------|-----|-----------------|-----|-------|----------------|----------|---------|------------|----------------|-------|------|----------|------------|------------|----------|--|------------|----------|--------------------|--------|----------|------------------------|
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| 1 / | | | | | | | | Та | ailorab lity | 1- | m e | II O | C | onst | nucti | | Test | ing | | | pl i | | | | | | | | m an gem |
| 1 / | | | | ISO/IEC | | | | Н | <u> </u> | -1 | | sup) | Н | | 8 8 | \blacksquare | Н | 0 | int | H | 1 g T | ÷. | П | a I | ТТ | Т | _ | ıt | gelli |
| 1 / | | | | 12207 task | | | | | | - 1 | | d/8 | Ε . | | tat tat | | | Ę | eme | | ď/s | mer | | ioi | Ш | | | 'me | |
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| | 160 ed | | AQAP- | 9001: | | | | | | - 1 | l P | | a I | η Δ | ğ | nta | | uo C | u u | | Ξ. | 23 | | er ura | c c | 3 | | ~ | ure |
| Ω | 1 | | 160 | 2000 | | | | | | - 1 | | ent | THE C | 7 | ent | nme | uo. | ati | ati | | lon | n n | 1 1 Ce | ng | 100 | 7.je | ent | uo u | ict |
| ě | Acti- | | ed 1 | **= | | | Da- | | | - 1 | I. I | i ti | D 7 | J . | pme | 150 | ati | i Ci | ura | | iti | tic | ior | er: | cat | re | eme | iti | 타 |
| Process | vity num - | | Task ^= | ISO 9001: | | Data item | ta item | | | - 1 | ρlγ | uis uis | E 13 | ing | elo eqr | יט | egr | lif | fig | oly oly | uis G | gro | rat | ine lit | ifi | t i | it | duc | ras r |
| Pr | ber | A ctivity | m od if | 1994 | Life cycle data item | cat. | type | N | E P | F | dng | kcqui kequ. | ALC: | od | nt. | se | nt |)ua | lo. | dn | log | ro ro |)pe | ing | rer | 0.1 | iea | Pro | 3 12 |
| | | Softw are | | 5 .3 .5 .1 | Software item architecture description | ECo | D | | P | _ | 0, | | | | т | Ĭ | | Ϋ́ | Ť | | ~ | | 0 2 | | ۲Ť | T | ~ | ĦŤ | +7+ |
| | | architectural | | 5 .3 .5 .2 | Interface design description | ECo | D | | P | 7 | П | 7 | Н | Т | П | T | т | П | П | 1 | П | Т | т | Ħ | Ħ | П | | П | \top |
| | | design | | 5 .3 .5 .3 | Database design description | ECo | D | | P | F | | | | | П | T | Т | П | Ħ | T | П | T | | Ħ | Ħ | П | | | \top |
| | | | | 5 .3 .5 .4 | U ser docum entation | ECo | М | П | P | F | | | П | | П | | | П | | 1 | П | | | П | П | TT | | | 11 |
| | | | | 5 .3 .5 .5 | Software item integration test descripti | ECo,ET | D | П | P | F | | | П | | | | | | | T | | | | | П | TI | | | 11 |
| | | | | 5 .3 .5 .6 | Software item architecture evaluation record | Q | R | | P | F | | | П | | П | | | | | T | | | | | П | T | | | 11 |
| | | | | 5 .3 .5 .7 | Joint review result | P | Rep | | P | F | | | П | | П | | | П | П | T | | | | П | П | TT | | | \top |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 .3 .6 . | Softw are | | 5 .3 .6 .1 | Software item detailed design description | ECo | D | | P | F | | | | | | | | | | | | | | | | | | | |
| | | detailed design | | 5 .3 .6 .2 | Interface detailed design description | ECo | D | | P | F | | | | | | | | | | | | | | | | | | | |
| | | | | 5 .3 .6 .3 | Database detailed design description | ECo | D | | P | F | | | | | | | | | | | | | | | | | | | |
| | | | | 5 .3 .6 .4 | U ser docum entation | ECo | M | | P | F | | | | | | | | | | | | | | | Ш | Ш | | | ш |
| | | | | 5 .3 .6 .5 | Software unit test descriptions | ET | D | | P | F | | | Ш | | Ш | | | Ш | Ш | | ш | | | Ш | Ш | Ш | | | |
| l ., | | | | 5 .3 .6 .6 | Software item integration test descripti | ECo,ET | D | | P | F | Ш | | ш | | | | | ш | ш | ┸ | ш | | | Ш | ш | Ш | | | ш |
| ğ | | | | 5 .3 .6 .7 | Software item detailed design evaluatio | Q | R | | P | F | ш | _ | ш | \perp | ш | Ш | Ш | ш | ш | 4 | ш | | Ш | | ш | ш | _ | Ш | |
| Development | | | | 5 .3 .6 .8 | Joint review result | P | Rep | Ш | P | F | ш | <u></u> | <u> </u> | ш | <u>ш</u> | ш | Щ_ | Щ | <u>ப</u> | _ | | | Щ | <u> </u> | <u>ш</u> | <u> </u> | | <u>ц</u> | ш |
| g l | | Softw are coding | | | Source code | | | | | _ | | _ | | - | | _ | - | | _ | - | | | _ | | - | _ | _ | _ | 44 |
| 9 | 3 .3 .7 . | and testing | | 5 .3 .7 .1 | Executable code | ECo,ET | D | | | П | | | | | | | | Н | | | Н | | | | Ш | | | | |
| Š | | | | | Softw are unit test description | , | _ | | P | F | | | | | | | | Н | | | Н | | | | Ш | | | | |
| ă | | | | 5 .3 .7 .2 | Softw are unit test result | ET | R | | P | F | П | 7 | Ħ | | П | T | | П | Ħ | 1 | П | Т | т | Ħ | Ħ | Ħ | \top | П | T |
| 1 . ! | | | | 5 .3 .7 .3 | U ser docum entation | ECo | М | | P | F | | 1 | П | | П | | | П | Ħ | 1 | П | T | П | Ħ | Ħ | П | | П | \top |
| ω. | | | | 5 .3 .7 .4 | Software item integration test descripti | ECo, ET | D | | P | F | П | 1 | Ħ | T | | | | П | Ħ | T | П | T | | | Ħ | 11 | | | |
| m | | | | 5 .3 .7 .5 | Software item code and testing evaluat | Q | R | | P | F | П | 7 | П | т | П | | т | П | П | T | П | T | т | | П | П | _ | П | |
| 1 1 | | | | | | | | _ | | ٦ | | | | | | | | | | | | | | | | | | | |
| 1 7 | | Softw are | | 5 .3 .8 .1 | Software item integration test plan | P | P | П | P | F | П | Т | П | | П | П | | П | П | Т | | | | П | П | П | | П | TT |
| 1 1 | | integration | | 5 .3 .8 .2 | Software item integration test results | ECo, ET | R | | Р | F | | | | | | | | | II | | \Box | T | | Lİ | \Box | | | | \mathbf{T}^{\dagger} |
| | | | | 5 .3 .8 .3 | U ser docum entation | ECo | М | | P | F | | | П | | | | | □ | П | | П | | | П | \Box | П | I | | П |
| 1 1 | | | | 5 .3 .8 .4 | Software item qualification test descrip | ECo | D | | P | F | | | | | | \prod | | | II | | | Ι | | \prod | Ш | $oldsymbol{\Box}$ | | | |
| 1 / | | | | 5 .3 .8 .5 | Software item integration test evaluatio | Q | R | | Р | F | | | П | | Ш | | | П | П | | П | Ι | | | П | Ш | | | Ш |
| | | | | 5 .3 .8 .6 | Jointreview result | P | Rep | | P | F | | | | | | | | | | | | | | | П | | | | |
| 1 / | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Software | | | Software item qualification test result | ET | R | Ш | P | F | Щ | | ш | Ш | Щ | Ш | Щ | | Ш | ┸ | ш | \perp | Щ | ш | ш | ш | | Ш | 44 |
| | | qualification testing | | 5 .3 .9 .2 | U ser docum entation | ECo | M | Ш | P | F | Ш | | ш | Ш | Щ | Æ | oxdot | ш | Ш | ┸ | Ц | \perp | $\sqcup \! \! \! \! \! \! \! \! \perp$ | ᄔ | ш | $oldsymbol{\perp}$ | | Ш | $oldsymbol{\perp}$ |
| | | CC CALLS | | 5 .3 .9 .3 | Software item qualification test evaluat | Q | Rep | Ш | P | F | ш | _ | ш | ш | Щ | Ш | Щ | Н | 11 | 4 | Щ | | \sqcup | | \sqcup | $oldsymbol{\perp}$ | _ | Щ | $oldsymbol{+}$ |
| 1 1 | | | | 5 .3 .9 .4 | Software item qualification audit result System integration test description | Q | Rep | Н | ш | F | Н | | + | + | H | Н | ╙ | Ц | ш | + | Н | - | oxdot | \vdash | + | + | + | H | $+\!\!+$ |
| | | | | 5 .3 .9 .5 | System integration test description Software item baseline | Co,ET,C | D | | | F | | | | | | | | | | | | | | | | | | | |
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| | | | | | Table 4-2: Sets of intermela | ited ta | sks a | ano | d life | C | yc le | e da | ata | ite | m s | | | | | | | | | | | | | | |
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| | | | | | ISO/IEC | | | | | ilorabi | | m ent | IOI | Cons | etnic | ugo n | Те | sting | | ш | Pro | ject M a | anage | nent | ualit | y m a | nage | m en | | m a | |
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| | | | | | task | | | | | | П | ed, | 111 | | | n të | . 1 | | imi | ig er | lŀ | e e | уmе | H | it it | | | | Ę, | | |
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| <u> </u> | | ber | A ctivity | m odif | 1994 | Life cycle data item | cat. | type | N I | E P | F | Sur | RE | Det | S S | Int | (un | Int Que | che | COL | īns | Acc Dev | erc Ope | Maj | Eng | Ver Val | Toj | Mea | Pr | jui | Tre |
| | 3 | .3 .1 0 . | System | | 5 .3 .1 0 .1 | System integration test result | ECo, ET | Rep | | P | F | | Ш | Ш | | | | | | | Ш | | | | | | Ш | | $oldsymbol{\perp}$ | | |
| Į | | | integration | | 5 .3 .1 0 .2 | System qualification test description | ET | D | | P | _ | ш | ш | ш | | ш | ш | | | Ш | ш | | Ш | ш | | | ш | ш | ᆚ | Ш | |
| Ιğ | - 1 | | | | 5 .3 .1 0 .3 | System integration evaluation record | Q | R | | P | F | ш | <u>ш</u> | ш | \perp | ш | ш | \perp | <u>Ц</u> | Щ | <u>Ц</u> | \perp | ш | <u>ш</u> | | ш | ш | ш | ㅗ | ш | _ |
| l ö | | 0.44 | | | | | | | | _ | - | | | _ | _ | | _ | - | | _ | | _ | _ | | | _ | - | 44 | Ŧ | — | |
| 5 | 3 | .3 .11 . | System qualification | | 5 .3 .11 .1 | System qualification test result | ET | Rep | N | ш | _ | oxdot | ш | $oldsymbol{+}$ | _ | Н | ш | | | 4 | Н | _ | ш | Н | _ | | ш | $oldsymbol{+}$ | 4 | ₩ | _ |
| Devlopment | | | testing | | 5 .3 .11 .2 | System qualification evaluation record | Q | R | \vdash | Р | P' | \vdash | ₩ | + | \bot | Н | ш | 4 | H | \vdash | Н | | Ш | Н | 4_ | \vdash | \vdash | ╨ | 4 | ₩ | 4 |
| Ι. | | | | | 5 .3 .11 .3 | System qualification audit result | Q | Rep | \vdash | + | F | $\vdash \vdash$ | ┅ | + | \perp | Н | + | \vdash | H | Ш | Н | | \vdash | $oldsymbol{+}$ | _ | $\vdash \vdash$ | ₩ | ╨ | + | Н | 4 |
| m | - 1 | | | | 5.3.11.4 | System baseline | Сo | S | | | 2 | Щ. | щ | ш | | Щ | ш | Ц_ | ш | | Ц | | Щ | ш | | Щ | ш | | _ | _ | |
| m | | 3 1 2 | System | 3 .3 .1 2 .1 . | | System validation result | Q | Rep | NT. | | 4 | | | | | | | | | | | | T | | | | | | T | | |
| | ٦ | .5 .1 2 . | validation | 3 .3 .1 2 .2 . | | System validation result System validation evaluation record | Q | R | N | D | 2 | $\vdash \vdash$ | Н | + | + | H | + | - | 4 | + | Н | - | \vdash | Н | | - | | + | + | Н | - |
| | - | | | 3 .3 .1 2 .2 . | | System Valuation evaluation record | Q | А | _ | 121 | _ | <u> </u> | <u> </u> | _ | _ | ш | | _ | <u> </u> | <u> —</u> | <u> </u> | _ | щ | _ | _ | ш | <u> —</u> | _ | _ | ᆜ | |
| | 3 | .4 .1 . | Process | 3 .4 .1 .1 . | | Production and Deploym ent plan | P | P | | D | - | _ | П | _ | _ | | _ | | П | _ | П | _ | - | | _ | _ | _ | ╗ | 〒 | \blacksquare | - |
| | ľ | | im plem entation | 3 .4 .1 .2 . | | Procedure for interface to CM proces | P | P | + | P | -1 | $\vdash\vdash$ | H | + | + | H | + | + | + | + | H | + | | + | \dashv | H | H | + | + | + | -1 |
| | | | | 3 .4 .1 .3 . | | Problem records | Pr | R | + | P | F | $\vdash\vdash$ | H | + | + | H | + | + | Н | + | H | + | | + | + | + | + | + | + | + | -1 |
| | - 1 | | | | | | | | - | _ | н | | | - | _ | - | _ | _ | ш | _ | _ | _ | - | _ | | | - | | | | |
| | 3 | .4 .2 . | Replication | 3 .4 .2 .1 . | 7 .1 .* | Product realization plan | P | P | П | Р | F | $\overline{}$ | П | П | Т | П | П | Т | П | П | П | Т | П | П | | П | П | т | | П | |
| | | | | 3 .4 .2 .2 . | 7 .5 .1 .* | Production and service plan | P | P | | Р | F | П | | \Box | | П | П | | П | | П | | | П | | | Ħ | \Box | | П | |
| | | | | 3 .4 .2 .3 . | 7 .5 .2 .* | Production processes validation records | Pr | D | N | П | 7 | | | | | | | | | | | | | П | | | | | | П | |
| and | | | Process control | | 4 .9 * * | Softw are copy | Pr | D | | П | 7 | | | П | | П | П | | | | П | | | П | | | | \Box | | П | |
| 뮵 | - 1- | | | | | | | | N | ш | _ | ш. | <u>ш</u> | ш | | ш | ш | ш | <u>ш</u> | щ | <u>ц</u> | | ш | <u>ш</u> | | ш | ш | | | ш | _ |
| ŭ | 2 | .4 .3 . | Release | 3 .4 .3 .1 | 7 .1 .* | Product realization plan | P | P | _ | | _ | | П | | _ | | | _ | | _ | | _ | _ | | _ | _ | _ | | | | _ |
| 10 | | .4 .5 . | Release | 3 .4 .3 .2 . | 7 .5 .1 .* | | P | P | + | P | P T | $\vdash\vdash$ | ₩ | + | | H | + | _ | Н | - | Н | | \vdash | + | - | - | Н | + | | ₩ | - |
| Ċζ | e e | | | 3 .4 .3 .3 . | 7 .5 .2 .* | Production and service plan Production processes validation records | Pr | D | NT. | - | - | $\vdash \vdash$ | ++ | + | - | H | + | - | + | + | Н | - | \vdash | Н | + | H | H | + | | Н | - |
| Ħ | oyment | | Process control | 3.4.3.3. | | | | | - | + | -1 | $\vdash\vdash$ | H | + | + | H | + | - | Н | H | H | + | \vdash | Н | + | + | H | + | | $oldsymbol{+}$ | -1 |
| Production | <u>6</u> | | 11000000 0011401 | | 4 .9 * * | Softw are version description | Pr | D | N | | П | | | | | | | | | | | | | | | | | | | | |
| $\mathbf{P}_{\mathbf{I}}$ | depl | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| • | ٦ ۾ | .4 .4 . | Delivery | 3 .4 .4 .1 . | 7 .5 .1 .* | N /A | | | | \Box |] | Ш | П | Ш | | | Ш | | | | П | | | | | | П | \Box | | П | 1 |
| 4 | | | | | 4 .9 * * | Softw are product | Pr | D | N | | _] | | | П | | \Box | $oldsymbol{\square}$ | | | | П | | | П | | | \Box | $oxed{\Box}$ | | | |
| m | | | | 3 .4 .4 .2 . | 5 .2 .7 .1 | Delivery docum ents | P | R | | P | F | | | | | Ш | | | | | | | | П | | | | \Box | | | 1 |
| | L | | | | 5 .2 .7 .2 | Support report | P | Rep | | P | F | | | П | | Ш | П | | П | | П | | Ш | П | | | Ш | Ш | | | ┚ |
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| | 3 | .4 .5 . | Installation | 3 .4 .5 .1 . | 7 .1 .* | Product realization plan | P | P | $\sqcup \bot$ | Р | F | $oldsymbol{\sqcup}$ | ш | $\perp \! \! \! \! \! \perp$ | | Ш | ш | | Н | $oldsymbol{oldsymbol{oldsymbol{eta}}}$ | Н | | Ш | Ш | | Ш | ш | $oldsymbol{\perp}$ | | ш | 4 |
| | | | | | 7.5.1.* | Production and service plan | P | P | \vdash | P | F | $\vdash \vdash$ | $oldsymbol{\sqcup}$ | + | \perp | Н | Н | \vdash | Н | \vdash | Н | \perp | H | H | _ | $\vdash \vdash$ | \vdash | ╨ | | ₩ | 4 |
| | | | | | 7 .5 .2 .* | Production processes validation records | Q Pr | R P | \vdash | P | - | $\vdash \vdash$ | ₩ | + | + | Н | + | \vdash | H | \vdash | Н | + | \vdash | $oldsymbol{+}$ | + | \vdash | + | ╨ | | Н | 4 |
| 1 | | | | 3 .4 .5 .2 . | 5 .3 .1 2 .1 | Software installation plan Software installation plan | Pr | P | \vdash | Р. | 2 | $\vdash \vdash$ | $oldsymbol{+}oldsymbol{+}$ | + | - | H | + | | H | \vdash | Н | - | Ш | ╫ | + | $\vdash\vdash$ | ₩ | + | 4 | $oldsymbol{++}$ | \dashv |
| 1 | | | | 3 .4 .3 .2 . | | Software installation record | Pr | R | + | P. | R | \vdash | ₩ | + | + | H | + | + | Н | + | Н | + | Ħ | H | + | + | + | ╫ | ┹ | ↤ | \dashv |
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| 1 | | | | | | Table 4-2: Sets of interrela | ited ta | sks | and | life | C. | vcle | dat | a it | em | s | | | | | | | | | | | | | | | - [|
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|-------------|--|---|---|--|--|----------------------|---------------------------|----------|---------------------------|-----|-------------|--|---|--------------------|---------------------------|----------------------------|--------------|---|--------------------------|--------|---|-------------------------|--------------------------|------------------------|-----------------------------------|----------------------------|------------------|-------------------------|-----------------------------|---------------------|
| Process | AQA 160 1 Act vity num ber | ed ::- / - | AQAP- 160 ed 1 Task ^= modif | ISO /IEC 12207 task * = ISO 9001: 2000 ** = ISO 9001: 1994 | Liffe cycle data item | Data ibem cat. | Da- ta item type | N | lity | TH. | Supply | Acquisition (invoked/supplier) Requirements specification | Archirectural besign Detailed Design | Coding | Integration documentation | User documentation Unit | Integration | Quaililcation Change analysis & implementati | Configuration management | ZIddnS | Acquisition (invoked/supplier) Development | Production & Deployment | Operation Maintenance | Engineering evaluation | Quality assurance Verification | Validation Joint review | Audit | Production & Deployment | Operation Infrastructure | Training |
| . ro | 3 .4 . | | | 5 .3 .1 3 .1 | Softw are acceptance test results | P,Pr | Rep | | | F | | | Ш | П | Ш | | П | | П | | Щ | | | П | | Ш | П | | Д | Ш |
| and | Depl | support | | 5 .3 .1 3 .2 | N /A | Dr | R | \vdash | | E. | ⊩ | $\vdash \vdash$ | \vdash | \dashv | + | + | H | + | H | ╂ | \vdash | П | $\vdash\vdash$ | H | + | H | ${}^{+}$ | | $oldsymbol{+}$ | + |
| | | | | ⊃ .3 .⊥ 3 .3 | Training records | Pr | K | ш | | F | Н | Щ. | щ. | щ | ш | _ | ш | + | щ | _ | 4 | | 4 | щ | _ | 4 | щ | | 4 | _ |
| | 3 .5 . | 1. Process | | 5 .4 .1 .1 | Operation plan | P | P | П | P | П | | T | П | П | T | T | П | T | П | T | П | П | | П | T | T | П | T | T | 币 |
| ٦ | | im plem entation | | 5 .4 .1 .2 | Problem reports handling procedure | P | P | П | P | F | ╚ | | H | ${\dagger\dagger}$ | \dag | T | Ħ | 1 | H | T | H | Ħ | | Н | T | H | $\dagger\dagger$ | П | 十 | \forall |
| Operation | | | | 5 .4 .1 .3 | Test procedure for operational environm | P | P | | P | F | | | П | П | П | | П | | П | | | П | | | | | П | | \blacksquare | П |
| a C | | - Ia | | | | | | | | | | | | | | ų. | | - | | - | | | - | | | | | | | |
| ers | 3.5. | O perational testing | | 5 .4 .2 .1 | 0 perational test records N /A | 0 | R | N | \vdash | H | ⊩ | Н | Н | H | + | + | H | + | H | ╂ | H | Н | + | Н | + | \vdash | H | + | | + |
| lğ | | | | 3.4.2.2 | N /A | | | Н | _ | | | - | - | - | - | _ | н | _ | н | - | - | Н | _ | н | _ | ш | _ | - | | _ |
| 3.5. | 3 .5 . | System 3. operation | | 5 .4 .3 .1 | N /A | | | Ш | П | Ц | | П | П | П | | I | П | 1 | П | I | Ц | П | Ι | П | L | Ц | Ц | П | | П |
| 1 " | 3 .5 . | 4. User support | | 5 .4 .4 .1 | U ser assistance requests | 0 | Rep | П | P | F | | т | П | П | П | Т | П | т | П | т | П | П | Т | П | Т | П | П | П | | П |
| | | | | 5 .4 .4 .2 | U ser assistance resolution reports | 0 | Rep | Ħ | P | F | | | Ħ | Ħ | П | T | Ħ | 1 | tt | T | Н | Ħ | | H | T | Ħ | Ħ | T | | Н |
| | | | | 5 .4 .4 .3 | Tem porary w orkarounds | ECh | P | | P | F | | | | | | | П | | | | | | | | | | П | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 .6 . | Process im plem entation | | 5 .5 .1 .1 | Software maintenance plan | P | P | Ш | P | Н | ┡ | ₩. | ш | Н | - | 4 | Н | 4 | Н | 4 | Щ | Н | | Н | \bot | Щ | Н | \bot | H | Н |
| | | In p I m chacen | | 5 .5 .1 .2 | Problem resolution procedure Software configuration modification | P | P | H | P | Н | ⊩ | H | H | H | + | + | Н | + | H | ╁ | H | H | | Н | + | H | H | + | + | + |
| ø | | | | 5 .5 .1 .3 | procedure | P | P | | P | | | | | | | | Ш | | | | | | | | | | | | | |
| l g | | | | | | | | | | | | | | | | | | | | Ţ | | | | | | | | | | |
| Maintenance | 3 .6 . | Problem and m odification | | 5 .5 .2 .1 | M odification request | ECh | S | N | $\vdash \vdash$ | Ш | | $oldsymbol{\sqcup}$ | Н | \sqcup | \dashv | 1 | ${m \sqcup}$ | | Н | 4 | Щ | \sqcup | 1 | Н | \bot | Щ | \sqcup | Ш | $oldsymbol{oldsymbol{+}}$ | $oldsymbol{\sqcup}$ |
| t t | | analysis | | 5 .5 .2 .2 | N/A M odification proposals | ECh | D | Н | | Н | ⊩ | + | \vdash | ₩ | + | + | H | | H | ╂ | + | H | + | ${\sf H}$ | + | \vdash | ₩ | + | $oldsymbol{+}$ | + |
| 뷰 | | | | 5 .5 .2 .4 | M odification analysis record | ECh | R | Н | P | Н | ⊩ | | \vdash | H | + | + | H | | Н | ╁ | \vdash | H | + | Н | + | + | H | + | H | + |
| Μ | | | | 5 .5 .2 .5 | M odification approvalmecord | ECh | R | N | | Н | | | H | Ħ | Ħ | | Ħ | | H | ╁ | H | Ħ | | H | + | H | Ħ | Ħ | H | +1 |
| Ι. | | | | | | | | | | | | | | | | | | | - | | ۰ | | ÷ | | | + | | - | | |
| 9 | 3 .6 . | 3. Modification | | 5 .5 .3 .1 | M odification in plem entation description | ECh | D | N | | | | | П | П | П | I | П | | П | I | П | | Ι | | Ι | П | П | $oldsymbol{\Pi}$ | I | \Box |
| М | | im plem entation | | 5 .5 .3 .2 | M odification implementation record | ECh | R | N | | П | | | П | П | П | \perp | П | | П | I | Ш | П | \perp | Ц | \perp | Ш | П | П | Щ | Ш |
| | 2.6 | 4 Maintenance | | E E 4 1 | To hak you four you as It | D. | Dor | | | La | | | | | | Ŧ | | | | | | | | | | | | | | |
| | 3 .6 . | M aintenance review /acceptan | | 5 .5 .4 .1 | Joint review result Modification closure record | P ECh | R ep R | N. | - | H | \parallel | $\vdash\vdash$ | + | ₩ | ╫ | + | ₩ | - | H | ╂ | + | \varTheta | - [| ${\sf H}$ | + | + | ₩ | + | H | + |
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| | | | | | Table 4-2: Sets of interrela | ted ta | sks | an | d lif | e c | yc. | le da | ıta | item | s | | | | | | | | | | | | | | | |

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| | | | | | 12207 task | | | | | lity | 1 | 'pa | LICA | П | ıta t | ┰╂ | ТТ | - Juli | gemer | 7 | 3 1 | i i | ion | П | ТТ | П | ymen | ge | em e |
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| | ÖĞ | v ity | | Task | IS O | | Data | ta | | | ı | oly iisi | altr | ng ng | lopi | op . | gra | e G | ige i | ly isi | lopi | nct | nee | ity | dat | , t | duct | ratı | nin |
| | Pr | num - ber | A ctivity | ^ = m odif | 9001: 1994 | Life cycle data item | item cat. | item type | N E | P | F | Supi | таты Бам | Deta | Deve | User | Inte | Char | Conf | idns | Deve | Oper | Mair Engi | Qua] | Vali | Audi | Pro | Ope | Trai |
| | | 3 .6 .5 . | M igration | | 5 .5 .5 .1 | N/A Software migration plan | P | P | _ | | _ | | | \blacksquare | \Box | Н | Ш | | | П | \blacksquare | \blacksquare | | Ш | П | \blacksquare | \bot | Ŧ | П |
| | G G | | | | 5 .5 .5 .3 | Software migration planning notification | EC h | D | _ | P | | \vdash | H | ++ | ++ | ++ | + | ш | - | H | + | + | 4 | + | + | ++ | + | + | + |
| | lan | | | | 5 .5 .5 .4 | Paralleloperation record | 0 | R | | | F | | H | TT | TT | TT | \top | | 1 | H | \top | o | ╅ | Ħ | \top | 11 | T | \neg | П |
| | Çer | | | | 5 .5 .5 .5 | Software migration notification | ECh | D | | P | _ | | | | ш | Ш | ш | | | Ш | | | | ш | ш | \perp | | I | Ш |
| | Maintenance | | | | 5 .5 .5 .6 | Jointreview result N/A | P | Rep | + | P : | F | \vdash | H | ₩ | ₩ | ₩ | ₩ | ш | - | Н | + | +H | 4 | ₩ | ₩ | ₩ | + | + | Н |
| | | | | | 3 .3 .3 .7 | N /A | | | | _ | ı | | - | - | - | - | - | | _ | - | - | - | _ | н | - | _ | Н | | |
| | 3.6. | 3 .6 .6 . | Softw are retirem ent | | | Softw are retirem ent plan | P | P | N | | | | | Ш | Ш | Ш | Ш | ш | | Ц | Ш | | | ш | П | П | Ш | I | Ш |
| | ů. | | retirem ent | | 5 .5 .6 .2 | Software retirement planning notification | ECh O | D R | + | P | - | \vdash | H | ₩ | ₩ | ₩ | ₩ | | | H | + | + | - | ₩ | ₩ | + | + | + | + |
| | | | | | 5 .5 .6 .4 | Softw are retirem ent notification | ECh | D | N | + 6 | ٦ | \vdash | H | ++ | ++ | ++ | ++ | | - | H | + | + | + | H | + | + | + | 十 | +1 |
| L | | | | | 5 .5 .6 .5 | N /A | | | | | 1 | | | Ш | | ш | П | | | П | | | | П | ш | П | | 工 | |
| F | 님 | 4.1.1. | Process | | | | | | _ | _ | 4 | | _ | | - | _ | _ | | _ | | _ | _ | - | П | 7 | _ | | | |
| | Documentation | | im plem entation | | 6 .1 .1 .1 | Docum entation plan | ECo | P | ⊥ | P | F | Ш | Ш | Ш | ┸ | Ш | Ш | Ш | \perp | Ц | Ш | Ш | _ | Ц | Ш | Ш | Ш | 丄 | Ц |
| | ent | 4 .1 .2 . | Design and | | 6 .1 .2 .1 | Docum ents according to standards | E | R | $\overline{}$ | P | 7 | | П | П | | П | П | П | Т | П | | | ┰ | П | П | П | П | $\overline{}$ | |
| | Ě | | developm ent | | 6 .1 .2 .2 | Confirm ed docum entsources | E | R | | P | 1 | | | Ħ | | T | Ħ | 11 | | | | | | \Box | \Box | Ħ | 1 | 止 | T |
| | Ö | | | | 6 .1 .2 .3 | Approved docum ents | E | R | | P : | F | Н | ш | П | | П | П | П | \perp | П | Ш | \Box | \perp | П | П | П | П | 工 | П |
| | • | 4 .1 .3 . | Production | | 6 .1 .3 .1 | N /A | | | $\overline{}$ | $\overline{}$ | 7 | | | П | | П | П | _ | _ | | _ | | 7 | П | П | _ | 77 | $\overline{}$ | |
| | 4.1 | | | | | N /A | | | | 廿 | 1 | | | ፗ | | ፗ | ፗ | П | | 且 | 丗 | 丗 | | 口 | 廿 | ፗ | | 土 | |
| | 4 | 4 .1 .4 . | M aintenance | | 6 .1 .4 .1 | N /A | | | _ | _ | 4 | _ | - | _ | - | _ | _ | н, | 7 | _ | _ | _ | 7 | - | _ | _ | _ | | |
| Н | | | | | 0 .1 .1 .1 | 742 | | | - | - | 1 | - | н | - | - | * | - | _ | _ | н | _ | - | _ | н | - | - | - | | |
| Г | | 4 .2 .1 . | Process im plem entation | 4 .2 .1 .1 .^ | 6 .2 .1 .1 | Softw are configuration m anagem ent pl | Co | P | | П | 7 | П | | П | | П | П | | | П | П | | | П | П | П | | Т | П |
| | | | in piem entacion | 4 .2 .1 .1 . | 0 .2 .1 .1 | Soltw are configuration a anagement pr | CO | F | N | | ╛ | | | Ш | | | Ш | | | Ш | | | | Ш | | | | Щ | |
| ď | | 4 2 2 | Configuration | | | | | | - | | 4 | | _ | - | - | | - | | | | | - | Ţ | | | - | _ | | |
| Configuration | | | identification | | 6 .2 .2 .1 | Software configuration identification so | Co | s | N | Щ | 4 | _ | щ | Щ | щ | щ | Щ | Щ | _ | Ц | Щ | Ш | _ | Щ | щ | щ | ш | 丄 | Ц |
| ura | ц | 4 .2 .3 . | Configuration control | | 6 .2 .3 .1 | Softw are change requests | Co | D | | П | 7 | т | П | П | П | П | П | П | П | П | П | П | Т | П | П | П | П | Т | П |
| 1.9 | management | | control | | | | | | AN . | - | ı | _ | - | - | - | - | - | - | | н | - | _ | - | - | - | - | - | | |
| ğ | gen | 4 .2 .4 . | Configuration status | | 6 .2 .4 .1 | Softw are configuration index | Co | D | | | 1 | | | П | | | | | | П | | | | | | | | П | П |
| | ဌ | | accounting | | 0 .2 .4 .1 | Soltw are configuration intex | | | N | | _ | Ш | | Ш | | Ш | Ш | Ш | | Ш | | Ш | | Ш | Ш | Ш | Ш | Щ | |
| 7 | ma | 4 .2 .5 . | Configuration | | | Functional software configuration | | | _ | _ | 4 | | ~ | _ | _ | _ | _ | | | | _ | _ | 7 | П | _ | _ | | | |
| 41 | | | evaluation | | 6 .2 .5 .1 | audit result | Co | Rep | | | П | | | | | | | | | | | | | | | | | ı | |
| | | | | | | Physicalsoftw are configuration audit result | | | | ш | F | Щ | Щ | Ш | Щ | Ш | Щ | Щ | ┸ | Ц | Ш | Ш | _ | Ц | ш | ш | Ш | 丄 | Ш |
| | | 4 .2 .6 . | Release m anage- m ent and | 4 .2 .6 .1 .^ | 6 .2 .6 .1 | Release and delivery procedure | Pr | P | Т | П | 1 | т | П | П | П | П | П | П | | П | П | П | Т | П | П | П | П | Т | П |
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| | | | | | | Table 4-2: Sets of interrela | ated ta | sks | and | life | СУ | cle | lata | a ite | m s | | | | | | | | | | | | | | |
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| io | 4 .2 | 2 .7 . | | | 7 .1 .* | Product realization plan | P | P | | P | | | | | | | | | | | | | | | П | П | \Box | П | П | | |
| at | | Ī | | | 7 .5 .5 .* | Procedures for Identification, Handl, | Q | P | | | | | | П | | | | | | | | П | П | | П | П | | П | П | | П |
| L L | ! | L | | | 7 .5 .5 . | Pack, Stor & Protection | × | - | Ш | P | | ш | | ш | | | $\perp \perp$ | | | | | Ш | Ш | | ш | ш | Ш | ш | Ц | | |
| Configuratio | | | Handling, | | 4 .1 5 .1 * * | Procedures for Handl, Stor, Pack, Pres | Q | P | | | | | | | | | 11 | | | | | H | | | | | | . | <i>i</i> I | | ıl |
| ğ, | 1 | | storage, | | | & Delivery | | L . | \vdash | P | | ш | + | + | + | \vdash | ++ | + | - | | + | \vdash | ₩ | + | \vdash | ₩ | + | + | $m{+}$ | $oldsymbol{+}$ | Н |
| 2. Configu | 3 | | packaging, preservation and | | 4 .1 5 .2 * * | Dam age or deterioration prevention | Q | P | \vdash | P | F | ш | | + | ш | $oldsymbol{\perp}$ | + | Н | | | \bot | \vdash | ₩ | + | ╙ | ₩ | 44 | ╨ | $oldsymbol{+}$ | 44 | Н |
| 1. 3 | i | | delivery | | 4 .1 5 .3 * * | N /A | | | ш | | | ш | | ш | ш | | ш | ш | | | _ | щ | ш | \perp | ш | ш | ш | ш | щ | ш | ш |
| 4.2 | 1 | | acm cry | | 4.15.4** | Procedure for packing, packaging and m arking | Q | P | ш | P | | ш | | ш | | | ш | ш | | | | Щ | ш | \bot | ш | ш | ш | لللا | ш | Ш | ш |
| 4 | | | | | 4 .1 5 .5 * * | Procedure for preservation and segregat | Q | P | Ш | P | | ш | | ш | | | | | | | | Ш | Ш | | ш | ш | Ш | ш | Ц | | |
| | | | | | 4 .1 5 .6 * * | Procedure for protection of product | Q | P | | P | F | | | Ш | | | | | | | | | | | Ш | Ш | | ш | ш | | 1 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4 .3 | | Process | 4 .3 .1 .1 . | 6 .3 .1 .1 | Tailored QA process | Q | P | N | | | | | | | | | | | Ш | | | | | | ш | | | П | | |
| | | | im plem entation | 4 .3 .1 .2 . | 6 .3 .1 .2 | N /A | | | | | | | | | | | | | | | | | | | | | | | П | | i |
| | | | | 4 .3 .1 .3 . | 6 .3 .1 .3 | Q uality assurance plan | Q | P | N | | | | | | | | | | | | | | | | | | | | П | | |
| | | | | 4 .3 .1 .4 . | 6 .3 .1 .4 | Quality assurance records | Q | R | N | | | | | П | | | | | | П | | | | | | 4 1 | П | П | П | TI | П |
| × | | | | 4 .3 .1 .5 . | 6 .3 .1 .5 | N /A | | | | | | | | | | | | | | | | | | | | | | | Ш | | |
| Ħ, | ע | | | 4 .3 .1 .6 . | 6 .3 .1 .6 | Q A authorisation | Q | P | N | | | | | | | | | | | | | | | | | | | | Ш | | i |
| Quality | 4.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ž, | 4.3 | | Product | | 6 .3 .2 .1 | N /A | | | | | | | | | | | | | | | | | | | | Ш | | | Ш | | i |
| | ∄ [| | assurance | | 6 .3 .2 .2 | N /A | | | | | | | | | | | | | | | | | | | | | | | П | | 1 |
| ω. | מ | | | | 6 .3 .2 .3 | N /A | | | | | | | | | | | | | | | | | | | | | \Box | | П | | |
| 4.3. | ď | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Γ | 4 .3 | | Process | | 6 .3 .3 .1 | N /A | | | | | | | | | | | П | | | П | | | | | | | | П | П | | П |
| | | ŀ | assurance | | 6 .3 .3 .2 | N /A | | | | | | | | | | | | \prod | | П | | | П | | | $oldsymbol{\Box}$ | П | ┚ | $\Box T$ | \mathbf{I}^{T} | ┒ |
| | | | | | 6 .3 .3 .3 | N /A | | | | Т | | | | П | | | П | П | | П | | П | П | П | | П | П | П | П | П | П |
| | | | | | 6 .3 .3 .4 | N /A | | | | | | | | П | | | | | | П | | | | | | | П | П | П | | П |
| | | | | | 6 .3 .3 .5 | N /A | | | | | | | | П | | | | | | | | П | | | | | | П | П | | П |
| | | | | | 6 .3 .3 .6 | N /A | | | | | | | | П | | | П | | | П | | П | П | | | П | \Box | П | П | | П |
| | | | | | | | | | _ | | | | | | | | | | | | | | | | | | | | | | |
| Ü | 4 .4 | .1 . | Process | 4 .4 .1 .1 . | 6 .4 .1 .1 | Criticality analysis report | Q | Rep | П | Р | F | | Т | П | П | T | П | П | T | П | П | T | П | T | П | T | \top | \neg | П | \mathbf{T} | П |
| Verific | | | im plem entation | 4 .4 .1 .2 . | 6 .4 .1 .2 | Verification proces description | Q | D | H | P | F | Н | | Ħ | \top | \top | Ħ | Ħ | 1 | Ħ | 1 | H | † | \top | H | | \forall | ${\mathcal H}$ | 廾 | \mathbf{T} | П |
| 7. | | | | 4 .4 .1 .3 . | 6 .4 .1 .3 | Selected independent verificator | Q | Rep | \vdash | P | F | \blacksquare | \pm | Ħ | + | \vdash | H | + | | H | | \vdash | + | + | \vdash | | + | Н | + | + | П |
| ē | | | | 4 .4 .1 .4 . | 6 .4 .1 .4 | Rientification of activities an products to verifi | Q | P | H | P | | \blacksquare | + | + | + | + | + | + | + | H | + | \vdash | + | + | \vdash | | + | \dashv | + | + | М |
| | | | | 4 .4 .1 .5 . | 6 .4 .1 .5 | Verification plan | Q | P | + | - | - | \blacksquare | + | + | + | + | ++ | + | + | + | + | \vdash | ╫ | + | \vdash | | ┯ | ┌┼┼┤ | $m{H}$ | + | Н |
| 4. | | | | 4.4.1.0. | 6 .4 .1 .6 | Verification results | | | $\vdash\vdash$ | P | - | \blacksquare | $-\mathbf{F}$ | + | + | \vdash | + | + | $-\mathbf{I}$ | $oldsymbol{H}$ | - | \vdash | + | + | \vdash | | 44 | H | + | + | Н |
| 4. | | ! | | ^ | 0.4.1.6 | vermeacon results | Q | Rep | щ | P | Ц | | | щ | ш | Щ. | щ | ш | | щ | | щ | ш | | 4 | | ш | | 4 | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | Table 4-2: Sets of interrela | ted ta | sks a | and | Life | e c | Ac] | e da | ata | ıter | n s | | | | | | | | | | | | | | | |
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|--------------|--------------|---------------------------------------|-------------------------|--|--|--|----------------------|---------------------------|--|--------------------------------|-----|-----------|------------------------------|---|--------|--|----------------------------|-------------|---|--------------------------|--------|---|--------------------------------------|---------------------------------------|-------------------|----------------------------|--------------|----------------------|--------------------------------------|----------------|----------|
| Process | 16 A v | Q A P - 5 0 ed 1 A cti- vity um - ber | A ctiv ity | AQAP- 160 ed 1 Task ^ = modif | IS O /IE C 1 2 2 0 7 task * = IS O 9 0 0 1: 2 0 0 0 * * = IS O 9 0 0 1: | Life cycle data item | Data item cat. | Da- ta item type | N | | F | Supply | Acquisition (invoked/suppli- | nicurcectural Design Detailed Design | Coding | Development Documentation Integration documentation | User documentation Unit | Integration | gwarriteation Change analysis & implementa | Configuration management | Supply | Acquisition (invoked/supplie Development | Production & Deployment Operation | Maintenance Engineering evaluation | Quality assurance | Verification Validation | Joint review | Audit Measurement | Production & Deployment Operation | Infrastructure | Training |
| ior | 4 . | .4 .2 . | V erification | | 6 .4 .2 .1 | Contract verification results | Q | Rep | | P | | П | | П | T | П | | П | | П | | | | П | | | | П | П | П | |
| Verification | | | | | 6 .4 .2 .2 | Proces verification results | Q | Rep | | P | F | П | | | | | | | | | | | | | | | П | П | | П | |
| ı. | | | | | 6 .4 .2 .3 | Requirem ent verification results | Q | Rep | | P | | П | | | | | П | | | П | | | | П | | | | П | П | П | |
| Ver | | | | | 6 .4 .2 .4 | Design verification results | Q | Rep | | P | F | П | | П | | | П | | | П | | | | П | | | П | П | П | П | |
| 4. | | | | | 6 .4 .2 .5 | Code verification results | Q | Rep | | P | F | П | | П | | П | П | П | | П | | | | П | | | П | П | П | П | |
| 4.4 | | | | | 6 .4 .2 .6 | Integration verification results | Q | Rep | | P | F | П | | | | | П | | | П | | | | П | | | | П | П | П | |
| | | | | | 6 .4 .2 .7 | Docum entation verification results | Q | Rep | | P | F | П | | | | | П | | | П | | | | П | | | | П | П | П | |
| | 4 . | .5 .1 . | Process | 4 .5 .1 .1 . | 6 .5 .1 .1 | V /3 | | | | Ŧ | | | | | Ť | | | | ÷ | | | | | | ÷ | | | Ħ | F | | |
| | | | im plem entation | 4 .5 .1 .2 . | | Validation proces description | Q | D | Н | Р | F | Н | | Н | ╁ | H | ₩ | ++ | - | H | + | + | + | Н | | | H | ╫ | H | Н | \dashv |
| দ | | | | 4 .5 .1 .3 . | 6 .5 .1 .3 | Selected independent validator | Q | Rep | ΠŤ | P | F | | | Ħ | T | П | TT | \top | T | tt | Ħ | 1 | \Box | Ħ | \top | | Ħ | \forall | 一 | П | _ |
| ıt iç | | | | 4 .5 .1 .4 . | | Validation plan | Q | P | | P | F | | | | | П | П | П | | П | | | | П | | | | П | П | \square | |
| Validation | | ! | | 4 .5 .1 .5 . | 6 .5 .1 .5 | Validation results | Q | Rep | Щ | P | F | ш | | ш | | Щ | Ш | Ш | | Щ | ш | | Щ | Щ | | | Ш | Ш | Щ | Ш | |
| | 4 . | .5 .2 . | V a lid a tio n | | 6 .5 .2 .1 | Test requirem ents, cases, specs | Q | s | N | Т | П | П | Т | П | Т | П | П | П | Т | П | П | Т | П | П | Т | | П | П | П | \Box | ٦ |
| 4.5. | | | | | 6 .5 .2 .2 | N /A | | | П | T | | П | | П | T | П | П | П | | П | | | | П | | | | П | П | П | |
| 41 | | | | | 6 .5 .2 .3 | Validation test results | Q | Rep | | P | F | П | | П | | | П | | Ī | П | | | | П | | | | П | П | П | |
| | | | | | 6 .5 .2 .4 | Softw are validation results | Q | Rep | | P | F | П | | | | Ħ | Ħ | | | | | | | П | | | | \top | П | П | |
| | | | | | 6 .5 .2 .5 | Validation results in target environment | Q | Rep | | P | F | | | | | | | | | | | | | П | | | | \Box | | | |
| | | .6 .1 . | Process | | 6 6 1 1 | Periodic and ad hoc review records | Q | R | | 7 | 1 | | 7 | П | T | | П | | T | П | П | ┯ | | П | 7 | | | $\overline{}$ | F | | |
| ă. | 4 . | .0 .1 . | im plem entation | - | | | | R | ${oldsymbol{arphi}}$ | P | | $\ H \ $ | | H | + | ${\sf H}$ | ${\sf H}$ | H | + | Н | H | - | \vdash | Н | | Н | | $+\!\!\!+\!\!\!\!+$ | H | ₽ | \dashv |
| review | | | | | | A greem ent on resources A greem ent on review s | Ag | R R | ${oldsymbol{ec{ec{ec{ec{ec{ec{ec{ec{ec{ec$ | P | F | $\ H \ $ | | ${f H}$ | ╀ | ${f H}$ | H | ₩ | + | ${\sf H}$ | H | + | \vdash | $oldsymbol{H}$ | + | \vdash | | ┼┦ | H | ₽ | \dashv |
| | | | | | | Detected problem records | E E | R | Н | P | F | Н | - | H | ╁ | H | H | + | - | Н | + | - | \vdash | Н | | | | $+\!\!\!+\!\!\!\!+$ | H | Н | \dashv |
| Joint | | | | - | | D istributed results | Q | R | Н | P | F | Н | | Н | ╁ | H | H | + | - | Н | + | - | + | Н | | + | | $+\!\!\!+\!\!\!\!+$ | H | H | \dashv |
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| 4.6. | | | | | 6 .6 .1 .6 | A greem ent on outcom e of review | Ag | R | щ | P | F | Н | | Ш | | Щ | Ш | Ш | _ | щ | Ц | | щ | Ц | | Ш | | | 4 | Ш | \dashv |
| 1 | 4 . | .6 .2 . | Project m anagem ent | | 6 .6 .2 .1 | Joint review results (management) | Q | Rep | | P | F | | | П | | П | П | П | I | | | Ī | I | \prod | | | | \Box | $oldsymbol{\mathbb{I}}$ | | |
| | 4 . | .6 .3 . | Technical | | 6 .6 .3 .1 | Joint review results (technical) | Q | Rep | | P | F | | | П | Ī | | | | | | Ī | | | | Ī | | | | | | |
| | | | | | | Table 4-2: Sets of interrela | ted ta | sks | a n d | l lif | e c | y c l | le d | a ta | ite | m s | | | | | | | | | | | | | | | |

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| | | | | | 6 .7 .1 .2 | N /A | | | | | | | | | Ш | | Ш | Ш | | | | | Ш | | | | | | | | |
| ליוּקייַ | | | | | 6 .7 .1 .3 | Agreem ent on resources | Ag | R | Ш | P | F | | | | \prod | | Ш | | | | | | | | | | | | | | |
| \ \f | | | | | 6 .7 .1 .4 | Agreem ent on audits | Ag | R | | P | F | | | | П | | | | | | | | П | | | | | | | | |
| 4 7 | | | | | 6 .7 .1 .5 | Problem records | EC h | R | | P | F | | | | П | П | | П | | П | | | П | | | П | | | | | П |
| 4 | | | | | 6 .7 .1 .6 | D istributed audit results | Q | R | | P | F | | | | П | П | П | Ħ | T | | T | | П | T | | | | | | | |
| | | | | | 6 .7 .1 .7 | A greem ent on outcom e of audits | Ag | D | | P | F | | | | П | T | | Ħ | T | Ħ | | | П | | | Ħ | | | | | |
| | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4 .7 .2 . | Audit | | 6 .7 .2 .1 | Audit results | Q | Rep | | P | F | ш | | | Ш | | | | | | | | Ш | | | | | | | | |
| a) | Е | | Process | _ | | | | | | - | _ | | _ | | _ | | | | _ | | | _ | _ | | | _ | _ | _ | | _ | |
| 4.8. Proble | tio | 4 .8 .1 . | im plem entation | 4 .8 .1 .1 .1 | 6 .8 .1 .1 | Problem resolution process description | Q | D | | | | | | | ш | | | | | | | | П | | | | | | | | Ш |
| Pr | 010 | | | | | | | | | P | F | ш | | <u> </u> | Ш | Ш | ட | | | | | | ш | | Ш | | | Ш | Ш | | |
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| 44 | | 4 .8 .2 . | Problem resolution | | 6 .8 .2 .1 | Problem reports | Ch | Rep | | P | F | | | | ш | | | | | | | | П | | | | | | | | Ш |
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| | | | Initiation and scope definition | | 7 .1 .1 .1 | M anaging proces requirem ents | Q | S | | P | F | | | Ш | ш | Ш | Щ | Ш | | ш | | | | | | Ш | | | Ш | | Ш |
| | | | scope deiminon | | 7 .1 .1 .2 | Resource verification records | Q | R | ш | P | F | Ш | _ | ш | Н | 4 | Н | ₩ | 4 | ш | | | | | Н | ш | _ | щ | Н | 4 | Н |
| ١. | | | | | 7 .1 .1 .3 | M odified proces requirem ents | Ag | D | щ | Р | F | ш | | щ | <u> </u> | | щ | <u>ш</u> | | Щ | | | | | щ | <u>ш</u> | _ | щ | ш | | ч |
| ţ | | 4 9 2 | Planning | | 7 .1 .2 .1 | M anagem ent plan(s) | P | P | т | р | | | $\overline{}$ | П | П | | т | П | т | П | _ | | | | $\overline{}$ | т | $\overline{}$ | $\overline{}$ | П | т | |
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| Management | , 1 | 4 .9 .3 . | Execution and | 4 .9 .3 .1 .1 | 7 .1 .3 .1 | Initiation of implementation (kick off) | P | R | | | | | | П | П | | П | TT | T | П | | | | | | TT | T | | П | T | П |
| 2 | | | control | 4 .9 .3 .2 . | 7 .1 .3 .2 | Progress reports | P | Rep | Ħ | Р | П | | | П | Ħ | П | H | \top | T | T | | | | | Ħ | Ħ | \top | | П | 1 | П |
| , d | | | | 4 .9 .3 .3 . | 7 .1 .3 .3 | Problem s and resolution reports | P | Rep | | P | F | | | Ш | П | | Ш | Ш | | | | | | | | | | | П | | |
| | . L | | | 4 .9 .3 .4 . | 7 .1 .3 .4 | M anagem ent reports | P | Rep | | P | | | | Ш | П | Ш | Ш | Ш | | П | | | | | Ш | Ш | I | | П | 1 | П |
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| 4 | · | 4 .9 .4 . | Review and evaluation | | | Product and plan evaluation record | Q | R | \vdash | P | | Щ | - | + | ₩ | + | \vdash | + | 4 | Н | | | | | Н | $oldsymbol{\sqcup}$ | \bot | \vdash | Н | 4 | ш |
| 1 | , j | | C V G AND CADIT | | 7 .1 .4 .2 | Evaluation results assessment | Q | R | 4 | P | F | | | Щ. | ш | щ | щ | ш | | щ | | | | | щ | ш | | Щ. | Ц | _ | |
| 1 | . P | 4 .9 .5 | C lo sure | | 7 .1 .5 .1 | Process completion record | P | Rep | | р | R | | | П | | | П | T | T | П | | | | | | T | | | П | T | |
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| . ; | 0 | 4.10.1. | Process | | 7 .2 .1 .1 | Infrastructure definition | Q | D | T | P | F | | T | П | П | | Т | T | T | П | П | T | П | П | П | T | | | П | | |
| Tuffrage | tur | | im plem entation | | 7 .2 .1 .2 | Infrastructure plan | R | P | 口 | P | F | | | | П | \Box | ╓ | IJ | ፗ | 口 | П | ▆ | П | T | □ | I | ፗ | | П | | |
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| 1 | 1 | | | | | Table $4-2$: Sets of interrela | ted ta | sks a | and | Llif | e c | УС] | e da | ata i | ıte m | ıs | | | | | | | | | | | | | | | |
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| 4. | 4.11. | 3 Training plan | | 7 .4 .3 .1 | Training records | R | R | П | Р | 71 | \blacksquare | П | П | П | П | П | П | Т | П | П | П | П | Т | П | П | П | \mathbf{T} | |
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| Ž | | | | | Capability assessment method | Q | D ,P | H | P 1 | F | H | | H | П | Ħ | \sqcap | П | | П | ${\sf T}^{\dagger}$ | \top | T | | | | Ħ | 11 | 7 |
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| 4. | | m easurem ent | | 8 .2 .4 .* | Product m easurem ent and m on ito: | Q | R | | D. | | | | | | П | | | | | | | | | | | | | |
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| | | | 4 .1 2 .3 .2 | <u>. </u> | Product characteristic evaluation n | Q | D ,P | H | P | - | H | | \vdash | \vdash | ++ | ++ | H | + | 11 | ++ | ++ | + | + | H | | H | + | \dashv |
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| 1 | | | | | Table 4-2: Sets of inter | rre la te | ed ta | asl | cs a | n d | life | СУ | c le | da | ta | iten | n s | | | | | | | | | | | |
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- 4.8 Table of influence of drivers for tailoring on the sets of interrelated tasks
- 4.8.1 Table 4-3 contains the following information:
- 4.8.1.1 A non-exhaustive list of drivers for tailoring (product and project characteristics);
- 4.8.1.2 Sets of interrelated tasks for tailoring, as defined in Table 4-2 in Para 4.7;
- 4.8.1.3 An indication of a positive correlation of the importance of a driver to the importance of the tasks and related life cycle data in a set: i.e. an indication of which sets of interrelated tasks become very important when there is a strong consideration for a particular driver (characteristic).
- 4.8.2 The list of drivers for tailoring in Table 4-3 is not exhaustive. Nations, organizations, industry and/or individuals may want to adjust, improve or extent this list.
- 4.8.3 Other drivers that might have to be taken into account on a case-by-case basis when tailoring AQAP-160 Edition 1 are:
 - a. the type of software product;
 - b. the type of installation;
 - c. the software life cycle model;
 - d. organizational policies and procedures;
 - e. the supplier's capability level;
 - f. the acquisition strategy.

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| | Driver/characteristic | Supply | Acquisition (invoked by supplie | Requirements specification | Architectural design | Detailed design | Coding | Development documentation | ntegration documentation | Jser documentation | Unit | Integration | Qualification | Change analysis & implementation | Configuration management | Change management | Supply | Acquisition (invoked by supplie | Development | Production & Deployment | Operation | Maintenance | Engineering evaluation | Qaulity assurance | Verification | Validation | Joint review | Audit | Measurement | Production & Deployment | Operation | nfrastructure | lraining |
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| ڇ | system complexity | | | | Χ | | | Χ | Х | | | Χ | | X | X | | | | | | | | Χ | X | | | | | X | | X | | |
| | software complexity | | | | Χ | | | Χ | | | Χ | Χ | | Χ | Х | | | | | | | | Χ | Χ | | | | | Χ | | | | |
| | software size | | | | Χ | | | | Х | | | | | | | | | | Х | | | | | Χ | | | | | Χ | | | | |
| | hardware/software resources constr | aint | ts | | Χ | Χ | Х | | Х | | | | | | | | | | | | | | Χ | | | | | | Χ | | | | |
| | level of reuse | | | | Χ | Χ | | | | | | | X | | | | | | | | | | Χ | | | | | | | | | | |
| | use of new technologies | | | | Χ | Χ | Χ | | | | | | | | | | | | | | | | X | | | | | | | | | Χ | X |
| Project | project schedule constraints | X | Χ | | | | | | | | | | | | | | X | Х | X | X | | | | Χ | | | Χ | X | Χ | | | | |
| ģ | project resources constraints | Χ | Χ | | | | | | | | | | | | | | X | Х | Х | X | | | | Χ | | | Χ | Х | Χ | | | | |
| <u>Ā</u> | contractual complexity | Χ | Χ | Χ | | | | | Х | | | Χ | Х | | X | X | Х | X | Χ | Х | | | | Χ | | | | | | | | | |
| | | Χ | | | | | | | task pac | | | | | | • | | | | | | | | | me | ver | y im | про | rtan | t | | | | |

Interim solution for an integrated system approach

5.1 Purpose

- 5.1.1 In paragraph 2.4 of this publication, it was made clear that NATO is pursuing an integrated systems approach: i.e. an approach where software, hardware, human interaction, infrastructure and processes are integrated into a system (the definition 'system' of ISO/IEC 12207 applies).
- In AQAP-160 Edition 1 paragraph 1.2.3. on the applicability of the standard, it was stressed that for the supply, the development, the production and deployment, the operation and the maintenance of other system components (e.g. hardware), AQAP-160 Edition 1 has to be used with other appropriate standards (e.g. AQAP-110 Edition 2).
- 5.1.3 Although AQAP-160 Edition 1 does not permit a full systems approach, the standard tries to function as a bridge towards that approach.
- 5.1.4 This chapter contains guidance on the level of coverage of AQAP-160 Edition 1 requirements (system-level, software-level) and where exactly the standard needs to be supplemented by additional requirements to reach the system level.
- 5.1.5 As an example, AQAP-160 Edition 1-requirements are being supplemented with the appropriate AQAP-110 Edition 2-requirements in order to cover the quality for a full system.
- 5.2 Interim solution for an Integrated Systems approach
- 5.2.1 The interim solution for an Integrated Systems approach has been provided in a table-format. The Table 5-1 provides the following information:
- 5.2.1.1 For each AQAP-160 Edition 1-requirement is indicated:
 - a. which ISO-requirement has been plugged in (sources: ISO/IEC 12207 or ISO 9001);
 - b. the level of the AQAP-160 Edition 1-requirement (i.e. at which level is the requirement written or to which component the requirement applies):
 - (1) quality system level;
 - (2) system level;
 - (3) software level;
 - (4) hardware level;
 - whether an action is needed to reach the system-level (i.e. whether additional requirements need to be added or whether the scope of the AQAP-160 Edition 1 has to be changed in order to cover other system components);
 - d. as an example, which AQAP-110 Edition 2-requirement is best called up and with which scope;
 - e. the level reached by combining the AQAP-160 Edition 1 requirement with the appropriate AQAP-110 Edition 2-requirement.

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- 5.2.1.2 The table could be adjusted for the case where other standards than AQAP-110 Edition 2 are called up.
- 5.2.2 The exercise has been made for hardware. By analogy the same applies for other system components.

| | | Plug-in | | | Leve: | 1 | | | | L | evel |
|---|---------------------------|--------------------------|--------------------------|----------------|--------|----------|--|---|----------------|--------|----------|
| AQAP-160 ed 1 nequi l em ents | 180 /IBC 12207 Plig-in | EO 9001: 1994 Plug-in | BO 9001: 2000 Plug-in | Quality system | System | Bortware | Action to meach system - level (Y/N) | Add AQAP-110 ed 2 sequisem ent | Ouality system | System | Software |
| 2.1 Management responsibility | | | | | | | | | | | |
| 2.1.1 Quality policy | | 4.1.1 | 5,3 | | | | Ν | | | | |
| 2.1.2 Organization | | | | | | | | | | | |
| 2.1.2.1 Responsibility and authority | | 4.1.2.1 | 5.5.2 | | | | N | | | | |
| 2.1.2.2 Resources | 7,2 | 4.1.2.2 4.18 | 5.1 6.1 6.2.2 | | | | N | | | ı | |
| 2.1.2.3 Management representative | | 4.1.2.3 | 5.5.3 | | | | N | | | | |
| 2.1.3 Management review | | 4.1.3 | 5,6 | | | | N | | | | П |
| 2.2 Quality system | | | | | | | | | | T | |
| 2.2.1 General | | 4.2.1 | 4.1 5.1 5.4.1 5.5.5 | | | | Υ | Expand Quality System to include system, HW and other components | | | |
| 2.2.2 Quality system procedures | | 4.2.2 | 4,2 | | | | Υ | Include procedures related to system, HW and other components | | | |
| 2.2.3 Internal quality audits and Corrective action | | 4.17 4.14.2 | 8.2.1 8.5.2 | | | | Υ | Include activities/procedures related to system, HW and other components | | | |
| 2.2.4 Preventive action | 7.3.3 | 4.14.3 | 8.5.3 | | | | Υ | Include activities/procedures related to system, HW and other components | | | |
| 2.2.5 Control of quality records | | 4,16 | 5.5.7 | | | | Υ | Include activities/procedures related to system, HW and other components | | | |
| 2.2.6 Quality system maintenance | | 4.2.3 | 5.4.2 7.1 | | | | N | | | | П |
| 2.4 Assistance for Government Quality Assurance | | | | | | | N | | | | П |
| | | <u>Table 5-1</u> : | Interim solu | — | requ | uireme | nt is co | equirement is covered bovered for this type of component ted Systems approach | | | |

| | | Plug-in | | Τ | Lev | el | Т | | | Т | I | Level | — |
|---|---------------------------|---|--|----------------|--------|----------|-----------------|---|--|----------------|--------|--------------|----------|
| AQAF-160 ed 1 mquisen ents | EO/EC 12207 Plug-in | EO 9001: 1994 Plug-in | EO 9001: 2000 Plug-in | Quality system | System | Software | nardware n R | Action o meach system level (Y/N) | h - Add AQAP-110 ed 2 mquimm ent | Quality system | System | Software | Hardware |
| 3.1 Supply process | 5,2 | 4,3 | 7.2.2 | | | | | Υ | "4.3 Contract review" also applied to system, HW and other components | | | | |
| 3.2 Acquisition process to be invoked by the supplier | 5,1 | 4.6.2 4.6.3 4.6.4.1 4.6.4.2 4.7 4.10.2 | 7.4.1 7.4.2 7.4.3 7.5.3 7.1 7.5.1 8.1 8.2.4 | | | | | Υ | "4.6 Purchasing" "4.7 Control of customer-supplied product" also applied to system, HW and other components "4.10.2 Receiving inspection and testing" | | | | |
| 3.3 Development process | 5,3 | | | | | | | | | | | | |
| 5.3.2, 5.3.3, 5.3.10, 5.3.11, 5.3.14 System definition & system integration | | | | | | | | N | | | | | |
| 5.3.4 - 5.3.9 Software development | | | | | | | | Υ | "4.4 Design control" "4.10 Inspection and testing" also applied to system, HW and other components "4.12 Inspection and test status" | | | | |
| 3.4 Production and deployment process | 5.2.7 5.3.12 5.3.13 | 4,9 | 7.1 7.5.1 7.5.5 | | | | | Y | "4.9 Process control" "4.13 Control of non-conforming product" also applied to system, HW and other components "4.15 Handling, storage, packaging, preservation and delivery" | | | | |
| 3.5 Operation process | 5,4 | | | | | | | N | | | | | |
| 3.6 Maintenance process | 5,5 | | | | | | | Υ | "4.19 Servicing" also applied to system, HW and other components | | | | |
| 4.1 Documentation process | 6,1 | 1 | | | _ | | - | Y | I'm C Decrees the add date controlly and lighter all decrees and date | | _ | _ | _ |
| 4.2 Configuration management process | 6,1 | 4,15 | 7.1 7.5.4 | | | | | Y | "4.5 Document and data control" applied to all documents and data "4.8 Product identification and traceability" "4.15 Handling, storage, packaging, preservation and delivery" also applied to system, HW and other components Ch III Par 1 Configuration management | | | | |
| 4.3 Quality assurance process | 6,3 | | | | ╗ | | | Υ | Product : include system, HW and other components Process : include processes for system, HW and other components | | | | |
| 4.4 Verification process | 6,4 | | | П | | | T | Υ | "4.4.7 Design verification" applied to system, HW and other components | T | | | |
| 4.5 Validation process | 6,5 | | | | | | T | Υ | "4.4.8 Design validation" applied to system, HW and other components | | | | |
| 4.6 Joint review process | 6,6 | | | | | | | Υ | "4.4.7 Design review applied to system, HW and other components | | | | |
| 4.7 Audit process | 6,7 | | | | | | | | | | Ш | | |
| 4.8 Problem resolution process | 6,8 | | | | | | | | "4.14 Corrective and preventive action" applied to system, HW and other components | | | | |
| 4.9 Management process | 7,1 | | | | | | | | | | | 丄 | \perp |
| 4.10 Infrastructure process | 7,2 | | | Ш | | | | | | | 丄 | | 4 |
| 4.11 Training process | 7,4 | | | | | | 4 | Υ | "4.18 Training" applied to procedures for system, HW and other components | | 4_ | 丄 | 上 |
| 4.12 Measurement process | | 4.20 | 8.1 8.2.3 8.2.4 | | | | | Υ | "4. 20 Statistical techniques" applied to system, HW and other components | | | | |
| | ! | ! | | — | _ | | | | | | _ | | _ |
| 5.1 Tailoring process | A.1 | | | | | | | | | | I | \mathbb{L} | |
| | | <u>Table 5-1</u> : | Interim solu | ution | : req | uiren | nen | t is co | quirement is covered overed for this type of component ted Systems approach | | | | _ |