NATO STANDARD

AQAP-2000

NATO POLICY FOR QUALITY USING AN INTEGRATED SYSTEMS APPROACH THROUGH THE LIFE CYCLE

Edition D, Version 1
MONTH YEAR
RATIFICATION DRAFT 1

NORTH ATLANTIC TREATY ORGANIZATION

ALLIED QUALITY ASSURANCE PUBLICATION

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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

NATO STANDARDIZATION OFFICE (NSO)

NATO LETTER OF PROMULGATION

[Date]

1.   The enclosed Allied Quality Assurance Publication AQAP-2000, Edition D, Version 1, NATO POLICY FOR QUALITY USING AN INTEGRATED SYSTEMS APPROACH THROUGH THE LIFE CYCLE, which has been approved by the nations in the LIFE CYCLE MANAGEMENT GROUP, is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 4107.

2.   AQAP-2000, Edition D, Version 1, is effective upon receipt and supersedes AQAP-2000, Edition 3, which shall be destroyed in accordance with the local procedure for the destruction of documents. This edition is a complete revision and update of the previous edition.

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4.   This publication shall be handled in accordance with C-M(2002)60.

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Lieutenant General, GRC (A)
Director, NATO Standardization Office

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<u>RECORD OF RESERVATIONS</u>

CHAPTER	RECORD OF RESERVATION BY NATIONS

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RECORD OF SPECIFIC RESERVATIONS

[nation]	[detail of reservation]

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CHAPTER 1   GENERAL

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1.1.   INTRODUCTION

1.   The activities of the Armed Forces in NATO are carried out as a result of a political decision process, primarily in order to provide a defence service to society in member nations. Collaboration among NATO nations, sometimes with Interoperability Platform (IP) Nations, is a way of mitigating some of the cost of defence systems and providing a mutual military capability.

2.   To achieve an integrated approach to the delivery of military capabilities for NATO operations, it is Alliance policy that Nations and NATO Organisations apply the five principles[1] of Systems Life Cycle Management as elaborated in policy document (C-M(2005)0108)[2]. The fifth of these principles is Quality. Defence capability depends to a great extent on the quality of systems. Quality is best achieved through an integrated systems approach throughout the life cycle.

3.   This publication sets out NATO Policy for Quality using an integrated systems approach through the life cycle and recognises that quality management is a continuous process involving multiple participants, including industry, which support the development, delivery and sustainment of military capability from concept to disposal. The overall aim is to acquire and support products[3] and services that fulfil the capability requirement, to optimise internal and external interfaces and to develop good commercial relationships with industry.

4.   The challenge for both industry and government is to emphasise the processes for planning, controlling, assuring, and improving quality early in, and throughout all the processes and activities of the life cycle, as well as in project management itself. The defence capability depends, to a great extent, on the quality of defence systems containing integrated hardware, software, facilities, people, and underlying processes. The goal is to design, maintain and update capable products, establish, improve, and use efficient and effective processes and prevent deficiencies. This contributes to the reduction of risks and lifecycle costs and focuses on the needs of the customer. Ultimately an integrated approach to quality increases confidence that war fighters have the equipment they need to be able to successfully carry out the defence services which were politically determined.

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[1] Five Principles are: Commitment to Systems Life Cycle Management, Cooperation and interoperability, Efficiency, Collaboration with Industry and Quality.
[2] NATO policy for Systems Life Cycle Management
[3] In the context of this publication the term product includes services. For further guidance see AQAP 2110 definitions and ISO 9000:2015 3.7.6 and 3.7.7

1.2 POLICY STATEMENT

To achieve an integrated systems approach to the provision of defence products[4], it is Alliance policy that NATO Programmes, NATO Nations and NATO Organisations apply quality management and quality assurance as elaborated in this policy publication. IP Nations are invited to follow the policy set out in this document.

1.3 SCOPE

1.   The scope of this publication is to establish the quality approach that shall be applied to the provision of defence products that contribute to NATO military capability. This model can also be applied to national Programmes. It also sets out the arrangements for the development, use and management of NATO quality publications.

2.   The scope of this publication covers NATO programmes, NATO Nations and NATO Organisations in the implementation of quality management and quality assurance. It facilitates interoperability, communication, collaboration and cooperation in the context of life cycle management. NATO armaments acquisition is focusing on multinational programmes, which emphasises the need for common methods of work by Nations and NATO Organisations. IP Nations may use this document in their activities.

1.4 PURPOSE

The purpose of this publication is to identify the life cycle management (LCM) quality principles that Nations and NATO Organisations utilise in realisation of NATO military capabilities.

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[4] NATO Definition: Defence Product – product or service that contributes to a defence capability

> **CHAPTER 2   QUALITY FUNDAMENTALS**

2.1. QUALITY

1.   Good quality is vital to success. Organisations focused on quality promote a culture that delivers value to their stakeholders, continually improving their products, services, systems and processes. Quality is about making sure that organizations' activities and outcomes are fit for purpose and improving. Quality is about defining, through a process approach how tasks are to be done, gaining assurance that this is happening and then identifying less effective areas and improving them.

2.   The LCM stakeholders are varied with many expectations. For example, the war fighter seeks battle-winning equipment, the taxpayer seeks value for money equipment, industry seek stable and long-term partnering, wider society wishes to see that its armed forces are not put in danger through poor performing equipment; increasingly there is also a push for equipment to be sustainable.

3.   Adopting the Quality approach in this document enables LCM participants to support the NATO 2030 transatlantic agenda for the future and promote interoperability, innovation, collaboration and resilience.

2.2. QUALITY PRINCIPLES

This publication endorses the quality principles articulated in International organisation for Standardisation (2015). *Quality management systems - Fundamentals and vocabulary* (ISO 9000:2015) noting that they should be considered in the context of LCM in the defence environment.

2.3. QUALITY MANAGEMENT

1.   Implementing Quality Management is best achieved through the adoption of a Quality Management System (QMS). For this to be done successfully Top Management must make the strategic organizational decision through demonstrated commitment and leadership. Adoption brings the benefits of:

- •   Increased customer satisfaction,
- •   Improved organization efficiency and effectiveness,
- •   Focused risk and opportunity management,
- •   Delivering Tax-payer value for money,
- •   Aiding organizational learning, and
- •   Providing a mechanism for the delivery of safe defence products.

2.   All of which, contribute to protecting and enhancing the organisation's reputation. Engagement between an organisation and stakeholders is more effective when both adopt a QMS.

3.   In establishing a QMS, organisations shall adopt the Quality Management principles set out in ISO 9000. Organizations shall determine their objectives and then the processes required to achieve them. Assurance shall be sought through monitoring, measuring, and analysing the organization's performance, to ensure the intended outcomes are delivered and processes are continuously improved. Implementation and maintenance of, as well as the assurance of and improvement of a QMS requires competent Quality practitioners.

2.4.   QUALITY ASSURANCE DURING THE ACQUISITION PROCESS

The importance of collaboration with industry and cooperation between nations and NATO Organisations to ensure an effective and economic use of resources is recognised in C-M(2005)0108 and is reflected in this publication. Quality makes a significant contribution to the acquisition of defence capability.

2.4.1. Quality Assurance During Acquisition - Policy Statement

1.   Acquirers[5] of defence products shall ensure that appropriate resources are committed for the conduct of quality assurance activities. In the context of NATO nations, this is Government Quality Assurance (GQA)[6]. These quality assurance activities are to be proportionate to the complexity, criticality, and risk of the acquisition programme[7]. They are applicable to all stages of the life cycle management acquisition process[8] and the product lifecycle[9].

2.   Acquiring NATO nations and NATO Organisations shall support the development and use of common quality processes and requirements[10] to support increased interoperability between nations and across the global defence supply chain.

3.   NATO nations shall appoint a National Quality Assurance Authority (NQAA)[11] and support collaboration[12] through the provision of mutual government quality assurance services to other NATO nations and NATO organisations.

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[5] AQAP Definition – Acquirer – Governmental and/or NATO Organisations, that enter into a contractual relationship with a Supplier, defining the product and quality requirements.
[6] NATO Definition: the process by which the appropriate National Authorities establish confidence that the contractual requirements relating to quality are met.
[7] AQAP 2070 "NATO Mutual Government Quality Assurance (GQA)" provides further guidance about risk in the context of GQA.
[8] Life Cycle Processes are defined in NATO publication AAP-48 which is based on ISO 15288
[9] Product Lifecycle is defined in NATO publication AAP-20 - Programme Management Framework (NATO Life Cycle Model)
[10] AC327 Line of Operation 1 – standardisation of system life cycle management policies, processes, standards and tools
[11] NATO Definition – National Quality Assurance Authority (NQAA): The Military service, Government agency or organisation within a NATO and PfP nation identified to other Allied nations as the authority for NATO quality assurance matters.
Note – There may be more than one designated NQAA within a NATO or PfP nation.
[12] Mutual GQA supports AC327 Line of Operation 2: Establishment and Maintenance of Enablers for Collaboration.

2.4.2. Policy Implementation

1.   NATO nations shall have processes and resources to support the deployment of government quality assurance across all stages of the lifecycle acquisition process in order to achieve an integrated systems approach to the delivery of defence related capabilities.

2.   NATO nations shall ratify and implement STANAG 4107: *Mutual Acceptance of Government Quality Assurance and Usage of the Allied Quality Assurance Publications (AQAP).*

3.   The implementation of STANAG 4107 requires nations to:
- have adequate infrastructure and processes to support their NQAA's role
- appoint a GQA focal point,
- establish competent GQAR resource with supporting processes and implement AQAP 2070,
- monitor and continually improve delivery of Government Quality Assurance Surveillance (GQAS) services,
- promote the use of contractual AQAPs for acquisition,
- proactively support NATO AC/327 Working Group 2.

4.   NATO Organisations involved in the implementation of System Life Cycle Management shall have the processes and resources to support the required quality assurance activities across all stages of the acquisition lifecycle. NATO organizations shall appoint a focal point for quality who shall ensure that this publication is applied to the organisation and engage as appropriate with nations for the provision of mutual GQA. NATO organisations shall promote the use of AQAPs for acquisition throughout the supply chain and proactively support NATO AC/327 Working Group 2.

2.4.3. Government Quality Assurance

1.   Organisations can be acquirers and suppliers at the same time[13]: they are part of a supply chain that develops and delivers defence capability. In the context of this publication the acquirer is the Governmental and/or NATO Organisation that enters a contractual relationship with a Supplier, defining the product and quality requirements. The industrial supply base is very much recognized as a key partner in the provision of defence capability and quality as a key enabler.

2.   Acquisition can occur at all stages of the product lifecycle: from pre-concept through to retirement and at all times suppliers are responsible for demonstrating compliance with contractual requirements. To the maximum extent possible, acquirers shall use the common contractual quality requirements defined in the AQAPs. Such action promotes a common understanding of harmonised NATO quality requirements across the global defence supply chain.

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[13] ISO 15288:2015 'Agreement Process' at para 5.6.2 recognises that organisations can 'act simultaneously or successively as both acquirers and suppliers of systems'

3.   Government Quality Assurance (GQA) is focused on providing confidence to acquirers that suppliers will meet their contractual responsibilities for quality. GQA contributes to all stages of the acquisition process from applying risk-based thinking during the development of the acquisition strategy, preparation of the requirements, selection of suppliers, identifying contractual requirements through monitoring supplier performance during contract execution to acceptance of product. GQA also extends to post-delivery activities such as fault investigation.

4.   GQA should be proportionate to the complexity and criticality of the acquisition programme and level of risk. GQA can be performed by staff members belonging to a government body (either the NQAA or another MOD department).

2.4.4. Government Quality Assurance Surveillance

1.   GQA Surveillance (GQAS) is a term used to describe the activities by which acquiring nations establish confidence that suppliers will meet their contractual obligations. This can be performed at all levels of the supply chain and is based on an assessment of risk. The objective evidence from quality assurance activities, built progressively through acquisition supports the acquirer's decision-making process including acceptance. Objective evidence of assurance can be provided by the supplier, sub-supplier and GQA activities.

2.   GQAS activities should focus on the supplier's capability and performance and application of their QMS in relation to the contract. GQAS should not replicate the broader QMS assurance that is provided by accredited third party management system certification. Irrespective of any accredited certification, GQAS can result in the rejection of the supplier's QMS in relation to the contract. GQAS should not be used as a replacement for the supplier's quality control/inspection activities. Instead it should provide confidence that the supplier's arrangements are appropriate for the contract.

2.5.   MUTUAL GOVERNMENT QUALITY ASSURANCE

Mutual Government Quality Assurance is the process by which NATO Nations provide each other and NATO organisations with risk-based Government Quality Assurance Surveillance of defence products, which establishes confidence that the contractual requirements relating to quality are met.   Mutual GQA can only be provided by the NQAA. Mutual GQA does not include the provision of quality control/inspection activities as the suppliers are responsible for demonstrating compliance. Mutual GQA does not include any kind of product certification (e.g., airworthiness or seaworthiness) as compulsory/legal requirements are exclusively the responsibility of the acquirer and supplier. Mutual GQA can only be provided once there is a contractual arrangement in place and requested by NATO organisations and those NATO nations that have ratified STANAG 4107.

> Note – GQA is part of the acquiring organisations arrangements for managing the quality of the delivered product or service and only applies when products or services are acquired from an external provider. This can occur at any stage

of the product life cycle. Where NATO nations or NATO organisations are managing the product or service delivery in-house then their internal QMS will control their activities and make provision for internal QA activities. The term GQA specifically refers to the assurance activities performed by acquirers on their suppliers. This reflects the importance of the supply chain to the acquisition of defence capability. The term GQA is widely recognised by NATO nations and suppliers. In the context of NATO organisations, it can be interpreted as meaning 'assurance of external providers'. GQA covers all stages of the life cycle acquisition process, (identification of contract requirements, selection of suppliers, etc) and not just surveillance activities performed at the supplier.

2.6. QUALITY MANAGEMENT SYSTEM CERTIFICATION

1.   NATO recognises the relevance of ISO 9001 and AS EN 9100 series quality management system certification to organisations involved in the life cycle management of defence product.

2.   Certification of an organisation's QMS provides a level of confidence to the organisation, its customers and other interested parties that the organisation has established a QMS with an appropriate scope for its operations, products, services and processes and is compliant with the management system standard.

3.   QMS Certification does not imply that the product or service itself is certified as meeting the requirements of any standard or specification.

4.   QMS Certification to ISO 9001 or AS EN 9100 is widely used throughout the global supply chain to provide a level of confidence in the organisation and so is often used in the selection of suppliers. This certification shall be from certification bodies that are accredited as competent by an International Accreditation Forum recognised National Accreditation Body.

5.   By recognising the influence that accredited QMS certification can have on organisations involved in the supply chain, it is important that third party certification and national accreditation bodies are aware that NATO nations are effectively customers of the certification process. NATO encourages NQAAs to engage with these bodies to drive continual improvement and ensure a closer alignment between the certification process and receipt of conforming product or services.

6.   In the context of defence acquisition, this publication recognises that the primary NATO contractual QA conditions (AQAP) invoke the ISO or AS standards and introduce additional NATO requirements. The primary AQAPs are published by NATO for use as contractual requirements. They are not formally recognised as the basis of quality management system certification. NATO does not publish a sector scheme, nor does it have arrangements in place to award certification. NATO does not recognize AQAP certification.

7.   NATO nations' National Quality Assurance Authorities are free to use AQAPs for their own national purposes. NATO encourages nations to harmonize their approaches.

8.   The NQAA will decide how AQAP certification is to be used within their nation. Some nations offer AQAP certification or confirmation as part of their approach to supplier assessment[14]. This is part of their national acquisition risk management strategy. The merit of such certification as a source of confidence is directly related to the accreditation status of the certification body. Some NQAAs might allow their National Accreditation Body to accredit third party certification bodies for AQAP. This is also part of their national acquisition risk management strategy.

9.   Acquirers shall not use AQAP certification as a discriminator at supplier selection because it is not available to all potential suppliers.

2.7.   NATO AC/327 WORKING GROUP 2 QUALITY

1.   As a Domain Working Group of the CNAD Life Cycle Management Group (AC/327) Working Group 2 (WG/2) maintains continuous awareness of advances in quality management and quality assurance and is responsible for developing NATO quality policies, processes and standards to be applied to the acquisition and lifecycle support of NATO armaments systems, programmes and projects that contribute to defence capability.

2.   Specifically, WG/2 is required to support:
  - **AC/327 Line of Operation 1**. Standardisation of Systems Life Cycle Management policies, processes, standards and tools.
  - **AC/327 Line of Operation 2**. Establishment and maintenance of enablers to collaboration.

3.   WG/2 supports interoperability by developing common working practices and acquisition quality assurance requirements and supports collaboration between nations and NATO organisations through mutual government quality assurance. There are three areas of responsibility:
  - Quality Management (Line of operation 1)
  - Acquisition Quality Assurance including contractual requirements (Line of operation 1)
  - Mutual Government Quality Assurance between nations and NATO organisations (Line of operation 2).

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[14] NATO definition: supplier assessment
The formal examination by a national quality assurance authority to determine the ability of a supplier or potential supplier to meet Allied quality assurance publication requirements.

2.8. COLLABORATION AND CIVIL STANDARDS

1.   The development of NATO publications requires WG/2 to maintain awareness of advances in the field of quality management and quality assurance and where beneficial pursue opportunities for collaboration with other relevant organisations to establish common understanding and where possible harmonise requirements. This subject matter awareness and collaboration enables WG/2 to maximise the use of civil standards[15] and provides access to expert advice and guidance to assist with the production of NATO publications.

2.   In general terms WG/2 recognises the ISO 9000 fundamental concepts and quality principles and the QMS requirements defined in ISO 9001 and AS 9100. These are enabled through contractual AQAPs which introduce additional NATO requirements and where appropriate, definitions.

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[15] PO(2016)0315 NATO Policy for Standardisation – Use of civil standards

AQAP-2000(D)(1)