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(Edition 3)**

NATO POLICY ON AN INTEGRATED SYSTEMS APPROACH TO QUALITY THROUGH THE LIFE CYCLE

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**NORTH ATLANTIC TREATY ORGANIZATION
NATO STANDARDIZATION AGENCY (NSA)
NATO LETTER OF PROMULGATION**

3 December 2009

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2. AQAP-2000(Edition 3) replaces AQAP-2000(Edition 2) and is effective on receipt.
3. It is permissible to distribute copies of this publication to Contractors and Suppliers and such distribution is encouraged.

A handwritten signature in black ink, appearing to read 'Juan A. Moreno', is written over a horizontal line. The signature is stylized and cursive.

Juan A. MORENO
Vice Admiral, ESP(N)
Director, NATO Standardization Agency

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Record of Changes

Change Date	Date Entered	Effective Date	By Whom Entered

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1. General

1.1 Introduction

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 the member nations. Collaboration between NATO and Partnership for Peace (PfP) partners is a way of mitigating some of the cost of defence systems and providing a mutual defence capability.

The defence capability depends, to a great extent, on the quality of defence systems¹ containing integrated hardware, software, facilities, people, and underlying processes. Quality is best achieved through an integrated systems approach throughout the life cycle. This document provides information and guidance on the NATO Policy for such an approach.

This policy 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 products that fulfil the requirements as seen from a lifecycle perspective, to optimise internal and external interfaces, and to develop good commercial relationships with industry.

The structure of the document is illustrated at Annex A.

1.2 Scope

This document should be used, as a part of the overall policy of an organisation, to assure the quality of life cycle processes, products² and services. This document is not intended to be used as a contractual document.

1.3 Normative references

Documents relevant to this AQAP are Standardisation Agreement (STANAG) 4107 and the documents listed in Annexes D and F.

1.4 Terms and definitions

The definitions of AQAP 2110 “NATO Quality Assurance Requirement for Design, Development and Production” shall apply. Additional definitions and acronyms used in this document are listed in Annex G.

¹ “Defence system” will later in this document be considered synonymous with “Product”.

² Ranging from simple to complex combinations of hardware, software, facilities, people and underlying processes.

1.5 NATO Policy on an Integrated Systems Approach to Quality Throughout the Life Cycle

1.5.1 Policy framework

This policy provides the framework for an integrated systems approach to the achievement of quality in products and services throughout the life cycle. This approach establishes a structure that addresses both managerial and technical elements and is based on the following:

- a. an organisation must establish, manage and conduct processes³ in order to effectively set and reach its goals;
- b. hardware, software, human interaction and other elements are integrated into a system and the corresponding disciplines⁴ are harmonised;
- c. the interests of all the interested parties in the life cycle, including the natural environment, are taken into account. The related needs are translated into appropriate functional and technical requirements;
- d. the life cycle participants⁵ use a common framework⁶ and terminology to create and manage the system/product; and
- e. the quality management process and the associated activities are applied continuously to the products and all life cycle processes.

1.5.2 The challenge for industry and for government

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 goal is to design capable products, establish and use efficient and effective processes and prevent deficiencies. This contributes to the reduction of risks and quality costs, and focuses on the needs of the customer.

Industry has realised that, in harmony with changes in business and industrial processes, there is a continual need for improvement in the skills and knowledge of personnel. There is a corresponding need for government personnel⁷ and personnel in NATO Agencies and Commands to maintain and improve their skills and knowledge. Effective performance demands a thorough knowledge of the quality management process and industrial practices and techniques as well as the technical knowledge associated with the product.

³ A process is a set of interrelated activities and resources that transform inputs into outputs. When related resources and activities are managed as a process, a desired result is achieved more efficiently. Resources can include personnel, finance, facilities, equipment, techniques and methods. Outputs (products) can be (any combination of) tangibles such as hardware or documentation or intangibles such as software or service.

⁴ E.g. software engineering.

⁵ In this AQAP the word "participant" is to be understood as people directly involved in the activities through the life cycle processes and stages. See §2.3. By this definition a user is a participant.

⁶ "Common framework" refers to a set of processes shared by all life cycle participants, and may include common management systems, compatible/interoperable engineering environments/tools, etc.

⁷ Including the personnel with responsibility for Government Quality Assurance.

2.0 Concepts

The concepts of this document relate to one or more of the following four domains: Time, Function, Resource and Organisation:

- a. the time domain mainly deals with the stages of the life cycle;
- b. the function domain mainly deals with the life cycle processes;
- c. the resource domain mainly deals with the life cycle participants; and
- d. the organisation domain mainly deals with the management system(s).

The relationship among these domains and the related concepts is shown in Annex A.

The integrated systems approach to quality throughout the life cycle is based on the concepts described in the following paragraphs.

2.1 Life Cycle Stages

The life cycle (ranging from conception through to retirement) of the system is divided into well-defined stages that provide a framework for the project(s). The end of each stage is a decision gate (milestone) in the project. A project may be in more than one stage at the same time.

2.2 Life Cycle Processes

In each stage of the life cycle there are processes, which may be employed organisation wide or project specific (see Annex B for examples). The organisations of the life cycle participants should establish, document, maintain and improve effective and economical processes. Organisations can use international standards, as appropriate, to align and tailor the applicable processes with the organisation's structure, goals and business strategy. These standards may also contain the criteria that confirm the successful execution of the processes.

The activities of processes employed by the project should be structured into a Work Breakdown Structure (WBS). A typical profile of activities may be found in the NATO document Allied Administrative Publication (AAP-20)" or in a similar national document.

2.2.1 The application of the Quality management process

The quality management process is a process which can be applied to all processes throughout the life cycle with a focus on controlling the execution of processes and their improvement as necessary. This process includes planning, review, audit, measurement and monitoring, verification, validation, corrective and preventive action activities. Costs incurred in ensuring and assuring satisfactory quality must be balanced against the estimated cost from losses⁸ potentially incurred when satisfactory quality is not achieved.

⁸ Losses are measured in terms of impact from: high levels of rework/maintenance, low reliability, safety issues, human casualties, etc.

Based on the contract requirements, including the contractual AQAPs, quality management activities must be applied to all aspects of the processes.

2.3 Life cycle participants.

The participants directly involved in processes and associated activities throughout the life cycle stages can be expressed in generic terms: e. g. the user, the acquirer, the owner, the supplier, and the personnel with responsibility for Government Quality Assurance (GQA). Since quality is a shared responsibility, the responsibilities should not be allocated exclusively to any one of the participants.

2.3.1 The user

The user's⁹ primary responsibility is to define needs with the greatest possible accuracy, clarity and completeness; not only operational and delivery requirements, but also requirements pertaining to readiness, logistics, training, environment, mission success and life cycle costs.

2.3.2 The acquirer

The acquirer's responsibility is to:

- a. Ensure the capture of the requirements to the necessary extent by:
 - (1) Translation of the user's needs into appropriate functional and technical requirements.
 - (2) Consideration of the interests of all the other interested parties in the life cycle.
 - (3) Consideration of all applicable national and international regulations, including environmental regulations.
 - (4) Reflection of the resulting requirements in the project documents, e. g. the contract, and in the continuing project management processes.
- b. Ensure the preparation of contracts that:
 - (1) Allow sufficient freedom and incentives for the suppliers, e.g. to use commercial products.
 - (2) Allow the acquirer the fullest view of the suppliers activities in order to gain confidence in the resultant product.
 - (3) Contain appropriate quality management requirements.
- c. Ensure compliance with contract requirements including cost and schedule.
- d. Ensure the integration of management, engineering and commercial practices.
- e. Ensure the existence of a strategy for co-ordinating and implementing quality management activities¹⁰.
- f. Ensure that quality management activities are applied continuously to all life cycle processes.

⁹ More than one, in all applicable organisational levels and in all the life cycle stages, e. g. staff, operators and maintainers. And in some cases the owner.

¹⁰ This is especially important for complex multinational projects.

- g. Ensure that data is collected and the necessary updates/corrections initiated. Especially feedback from the user can be used to create a knowledge base, the output from which may influence either future modifications¹¹ to the product or future projects.
- h. Evaluate the risks associated with the product and the supplier in co-operation with the other members of the Project Management Team.
- i. Provide for the final contractual acceptance of the product.

2.3.3 The owner

The owner is regarded as a life cycle participant only in cases where he also has the role of the acquirer or the supplier and/or the user. Otherwise he is considered an interested party.

2.3.4 The supplier

The supplier's responsibility is to fulfil the contractual requirements including any part of the contract that might be sub-contracted¹². This includes the responsibility to:

- a. Ensure that any uncertainty with the interpretation of contractual requirements is brought to the attention of the acquirer.
- b. Plan all the applicable processes necessary for the appropriate stage(s) of the life cycle. (See Annex B.)
- c. Control the quality of products and services.
- d. Ensure that only products and services that conform to contract requirements are offered for acceptance to the acquirer.
- e. Provide the acquirer with proof and confidence that:
 - (1) The necessary measures to manage any risks are being taken.
 - (2) The required preventive and corrective actions are being taken.
 - (3) The products and services meet contractual requirements.

2.3.5 The personnel with responsibility for GQA

NATO nations have developed their national systems for GQA to gain confidence in the quality of a product or service. The range of activities associated with these systems may include the evaluation of the capability of potential suppliers quality management system and surveillance of the contract-related activities at an appropriate level. The most important aspect of GQA is the action of assuring that all contract requirements are fulfilled by the supplier.

In a specific project the primary role of the personnel with an appointed responsibility for quality management, usually the Government Quality Assurance Representative (GQAR), is to support the acquirer GQA. An important part of that support, is to:

¹¹ Including product improvement.

¹² NATO support organisations can also act as suppliers, particularly during the operation and support of an installed system.

- a. Ensure that the quality-related paragraphs of the contract are formulated in a feasible manner.
- b. Take part in any pre-evaluation of the supplier's quality management system.
- c. Ensure that quality management activities are applied to the processes¹³ of the supplier and any sub-supplier. The results of GQA activities are reported to the Project Management Team as agreed.

This data can be used to create a knowledge base, the content of which may then be used to make decisions on whether to increase or decrease the involvement of the GQAR at the supplier or in future projects.

GQA cannot be performed in an exhaustive manner by GQA staff alone. For this reason GQA in NATO nations' procurement is based on co-operation with the other life-cycle participants and the allocation of resources where they are expected to be most effective.

Appropriate contract paragraphs (containing appropriate AQAP and other) and the complete visibility of the supplier's quality activities, supported by objective evidence, is necessary for the National Quality Assurance Authority (NQAA) to perform its task efficiently.

2.4. The use of risk based tasking

With the prerequisite described above, the Project Management Team (PMT) is in a position to decide on the extent to which GQA staff should be involved at the supplier. This decision is taken, based on an evaluation of risk, contract by contract, depending on the category and the requirements of the product procured as well as on the NQAA's confidence in the supplier and his quality management system.

To ensure the cost effective use of resources, GQA in the supplying country should only be requested when areas of risk, associated with, for example, the product or the supplier, have been identified. The delegator should evaluate whether GQA is necessary based on the information provided by the acquirer. If necessary, the delegator should define the minimum requirements for GQA. AQAP 2070 gives information on how risks may be considered.

2.5 Communication and information

It is important that information from all interested parties is exchanged continuously in order to take all interests into account as early as possible in the life cycle. This is necessary in order to prevent problems occurring in the later stages¹⁴. The early exchange of information is also necessary during life cycle planning, in order to assess the ramification and consequences of all activities, design parameters etc. which may constrain or otherwise cause a disadvantage during subsequent stages of the life cycle.

¹³ Including process input and output, see Annex A.

¹⁴ Such as unnecessary expensive maintenance and disposal.

The requirements resulting from the information obtained must be documented. Thereby it may be ensured that:

- a. Products and services for the armed forces are developed, produced, and provided in accordance with the contractual requirements in a cost-effective way.
- b. The service to society is balanced so that unwanted effects during the life cycle, e. g. on society, man, and nature, are taken into consideration.
- c. The life cycle participants down-stream¹⁵ are provided with the prerequisites to do their jobs.

Each of the participants must develop effective interfaces and dialogue with the others in order to take all points of view into account and to ensure that important and honest information is shared.

Both the participants and the project would suffer from any weakness in these interfaces and dialogue.

The best way to obtain information and protect the interest of the interested parties and enhance the effectiveness of interfaces and dialogues is to establish integrated teams (See § 2.6 below).

2.6 Project Management Teams

It is considered important that Project Management Teams (PMTs) are set up as early as possible and continue to operate throughout the entire life cycle¹⁶. This must be done to ensure efficient and effective implementation of an integrated systems approach to quality and to assist the common understanding of the purpose and performance goals of the project, and the approach to meet them. A project may exist for all or only some of the product life cycle stages.

These teams are cross-functional and the team members should have complementary skills and be committed to common objectives. The PMTs should have the delegated authority to trade-off performance, time, cost, and risk, as appropriate, while maintaining a focus on quality. The responsibilities and accountability of participants within the PMTs should be defined unequivocally at project initiation and be updated as the project progresses, with the understanding that project management is a team effort.

The PMTs ensure that:

- a. All the interested parties are co-operating and their interests are taken into account
- b. Life cycle planning is performed and documented¹⁷.

¹⁵ Examples of these are producers, operational staffs, operators and maintainers.

¹⁶ If the project e.g. is only a "development project", the Project Management Team (PMT) can discontinue at the end of the "Development" stage.

¹⁷ Information about planning in projects may be found in ISO10006 "Quality management – Guidelines to quality in project management". (See Annex B, Table 1).

- c. A project Quality Plan is developed considering the acquisition strategy, identifying measurable quality objectives.
- d. There exists a common understanding of the purpose and performance goals of the project, and the approach to meet them.
- e. Common terminology is used, including agreed definitions for the life cycle stages.
- f. Data is collected and evaluated and the necessary actions initiated. Especially feedback from the user can be used to create a knowledge base upon which future modifications to the product may be identified and future projects influenced.
- g. Product conforming to the functional and technical requirements of the contract is delivered.

Figure 1 illustrates how interested parties and participants throughout the life cycle interface with the PMT.

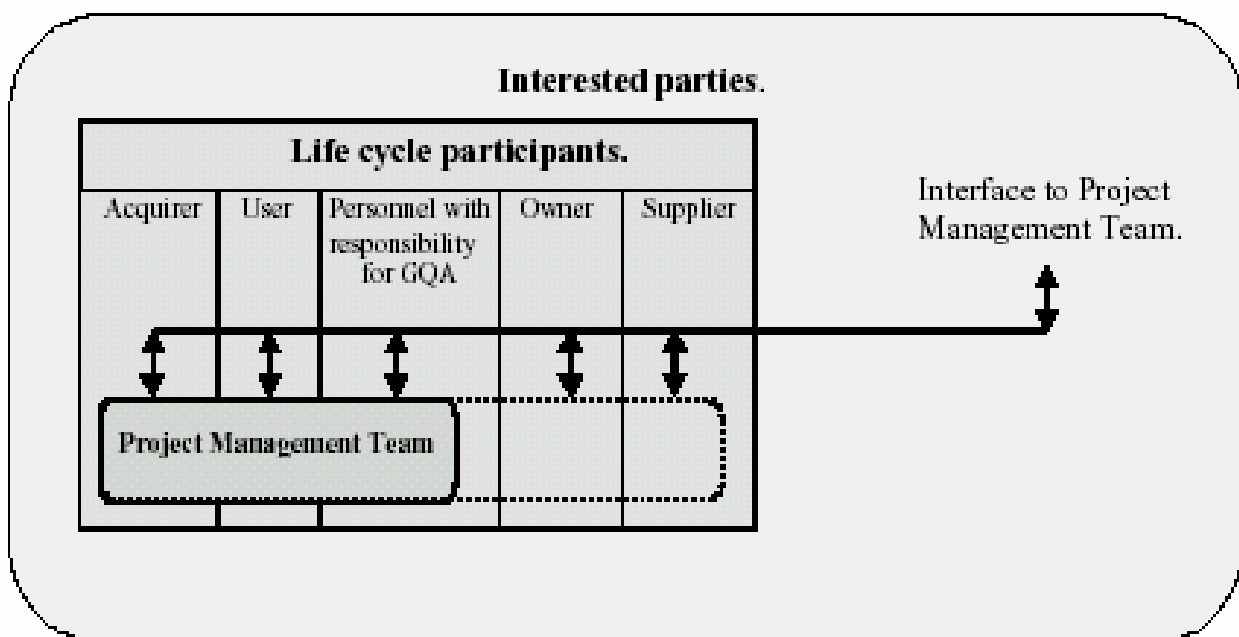


Figure 1.

2.7 Quality management system

In order to achieve maximum effectiveness, the organisations of the life cycle participants should establish, document, assess and improve an effective and economical quality management system.

There is a cause and effect between the Quality Management System and the processes of an organisation.

To implement the quality management system, the organisation shall:

- a. Identify the processes needed for the quality management system;

- b. Determine the sequence and interaction of these processes;
- c. Determine criteria and methods required to ensure the effective operation and control of these processes;
- d. Ensure the availability of information necessary to support the operation and monitoring of these processes;
- e. Measure, monitor and analyse these processes, and implement action necessary to achieve planned results and continual improvement.

2.7.1 Establishment

The quality management system is that part of the organisation's management system that establishes the quality policy and quality objectives and then focuses on the achievement of results according to the quality objectives. The quality objectives complement other objectives of the Organisation such as those related to growth, funding, profitability, personnel safety, and environmental effects of processes, products and services. The various parts of an organisation's management system that focus on the achievement of those other objectives (for instance relating to environmental protection) can be integrated into a single, cohesive and unified management system where they use common elements.

The quality management policy and objectives should provide a way of effectively managing resources and life cycle processes based on the participation of all members of the organisation. This approach aims at long-term success by creating a focus on continuous improvement, customer satisfaction and benefits to all interested parties¹⁸.

2.7.2 Assessment and improvement

In order to survive in an environment where businesses are facing increasing competitive challenges every day, organisations are finding new ways to extend/augment their competitive edge and measure how far they are from "Performance Excellence" as it is expressed today. The use of internationally recognised "life cycle process models", "capability maturity levels" and the use of "assessment type(s)" depending on the need is seen as a trend.

Assessment provides an insight into an organisation, which indicates the areas where corrections are required and opportunities for improvement exist.

There are three ways to conduct an assessment:

- 1st party (internal audit/self assessment)
- 2nd party (customer) and
- 3rd party (independent certification bodies)

Applying feedback from these assessments can be a way of improving performance. In general, these assessments include:

¹⁸ This also covers the principles of "Total Quality Management".

- a. An analysis of the areas in the organisation itself where opportunities are identified (or improvement is needed the most).
- b. A “bench marking” against competitors, co-operative partners, business processes in general, technical processes, etc.
- c. A Project assessment.

See Annex C for examples of methodologies for assessment and improvement. These methodologies, that enable quantitative evaluation of organisational performance, should be considered for use by all organisations.

2.8 The use of International Standards

NATO AC/327 has decided to “the maximum use of civil standards, where appropriate”. NATO Quality management requires that the AQAP document and related international standards must be used to form a complete standard for NATO use. The NATO community should seek to influence evolving international standards.

If standards from the ISO9000 series are used in contracts, NATO needs additional contractual quality requirements. These requirements are incorporated into the AQAP documents described in Annex D. The present set of contractual AQAPs therefore includes requirements of the respective international standard plus NATO specific requirement as necessary.

2.9 The use of NATO Publications

Since defence materiel may be purchased or developed as multinational projects, a set of NATO documents (including Allied Quality Assurance Publications) should be maintained and used for the mutual benefit of NATO and member nations.

2.9.1 The two types of AQAPs

The basic document is the STANAG 4107, ratified by NATO nations involved in the procurement of defence materiel. STANAG 4107 concerns the “Mutual Acceptance of Government Quality Assurance and usage of the AQAPs” and establishes the rules for delegation of contract-related GQA activities from a purchasing authority to the NQAA in the supplier's nation. An overview of the AQAPs and an illustration of their structure is shown at Annexes E and D respectively.

According to their scope there are two types of AQAPs: (1) Contractual type and (2) Guidance type. The most essential AQAPs are the contractual type. These AQAPs require the supplier to provide objective evidence that a contract-related quality management system has been established and is maintained. The system should contain the necessary elements to give the GQAR confidence that the product meets the contract requirements.

2.9.2 The contractual type AQAPs

Criteria for application of the contractual AQAPs are as laid down in AQAP 2009 and provide guidance for the proper selection of the applicable requirements for quality management for a contract.

- a. AQAPs 2110, 2120, and 2130 are based on the ISO 9001:2008
- b. AQAP 2131 and 2105 are not based on an applicable international standard.
- c. AQAP 2210 and AQAP 160 are available for software acquisition. AQAP 2210 (Ed 1) is not based on an applicable international standard. AQAP 160 is based on ISO/IEC 12207 and ISO 9001:2000.

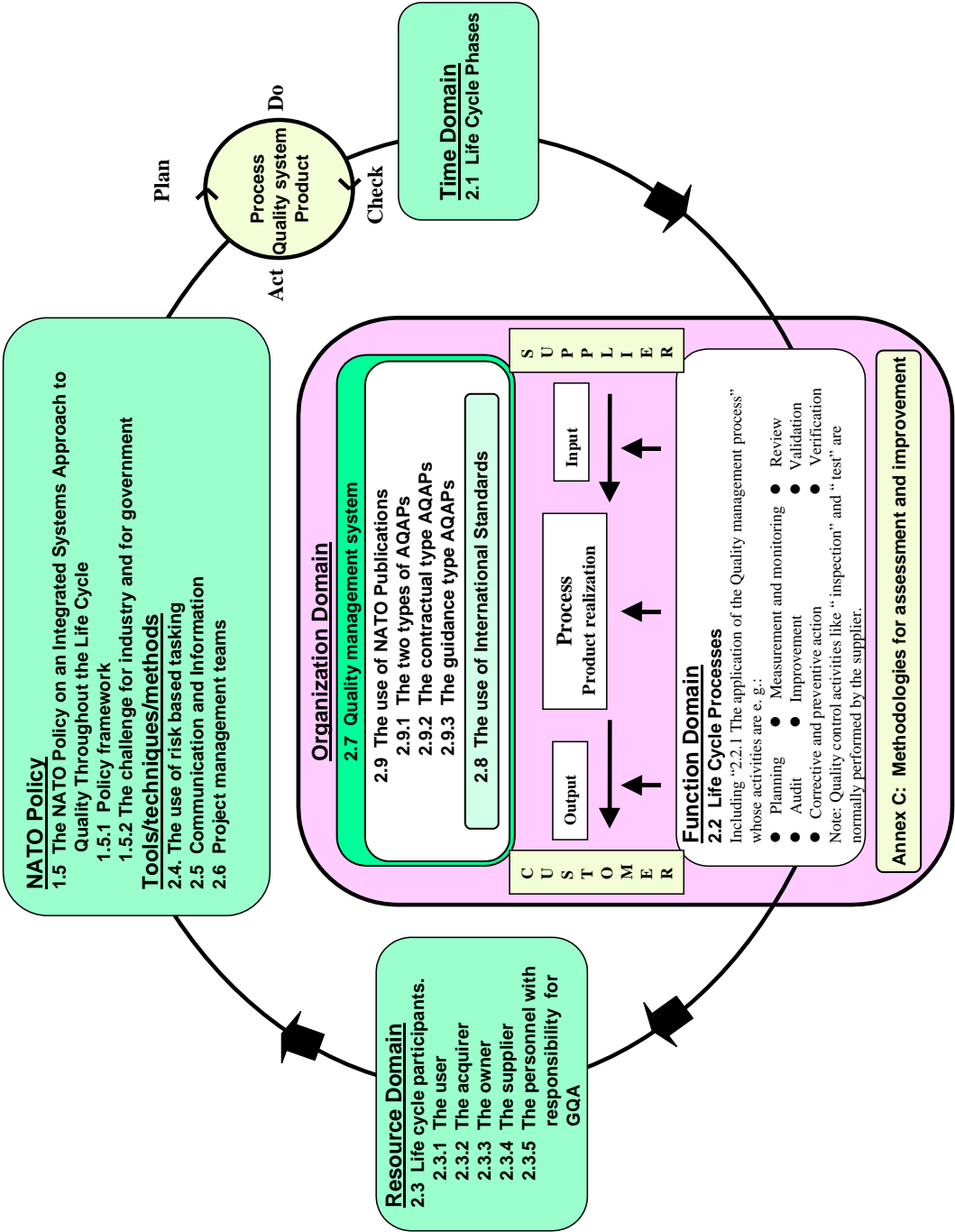
2.9.3 The guidance type AQAPs

The use of contractual type AQAPs is supported by guidance type AQAPs. These guides will be of use to personnel responsible for contract preparation, accomplishment, surveillance and/or evaluating a supplier's quality management system for compliance to the AQAPs. They will also contribute to the commonality of interpretation of the requirements between suppliers, GQA personnel and NQAAs when GQA is to be performed within the provisions of STANAG 4107.

- a. AQAP 2009 "NATO Guidance on the use of the AQAP 2000 series."
- b. AQAP 169 "NATO Guidance on the use of AQAP 160" has been developed to provide background information, interpretation guidance and application guidance on AQAP 160. The interpretation guidance explains the AQAP 160 model and the concept behind the standard. The application guidance primarily focuses on the tailoring of AQAP 160.
- c. AQAP 2070 "NATO Mutual Government Quality Assurance (GQA) Process", gives guidance for the conduct of Government Quality Assurance under the conditions of STANAG 4107 and supports the harmonisation of practices in GQA among NATO Nations, Agencies and Commands.
- d. AQAP 2050 "NATO Project Assessment Model". This AQAP specifies guidance for conducting project assessments.

Annex A The NATO Policy on an Integrated Systems Approach to Quality through the Life Cycle

The relationship among the domains and related concepts:



**Annex B
Examples of Life Cycle and Project Management Processes.**

Table 1 shows examples from ISO 10006, “Quality management systems - Guidelines for quality management in projects”. Table 2 shows examples from ISO/IEC 15288, “System and software engineering—System Life Cycle Processes”.

**TABLE 1. Examples from ISO10006
“Quality management – Guidelines for quality management in projects”**

No.	System life cycle Stages.	Concept	Development	Production	Utilisation	Support	Retirement
	Project Management Processes.						
5.2	STRATEGIC PROCESS¹⁹.						
5.2	Strategic process.						
6.1	RESOURCE RELATED PROCESS.						
6.1.2	Resource planning						
6.1.3	Resource control						
6.2	PERSONNEL RELATED PROCESSES						
6.2.2	Establishment of project organizational structure						
6.2.3.	Allocation of personnel						
6.2.4	Team development						
7.2	INTERDEPENDENCY-RELATED PROCESSES						
7.2.2	Project initiation and project management plan development						
7.2.3.	Interaction management						
7.2.4	Change management						
7.2.5	Process and project closure						
7.3	SCOPE-RELATED PROCESSES						
7.3.2	Concept development						
7.3.3	Scope development and control						
7.3.4	Definition of activities						
7.3.5	Control of activities						
7.4	TIME-RELATED PROCESSES						
7.4.2	Planning of activity dependencies						
7.4.3	Estimation of duration						
7.4.4	Schedule development						
7.4.5	Schedule control						
7.5	COST-RELATED PROCESSES						
7.5.2	Cost estimation						

¹⁹ A direction setting-process which includes planning the establishment and implementation of the Quality Management system based on the application of the quality management principle

No.	System life cycle Stages.	Concept	Development	Production	Utilisation	Support	Retirement
	Project Management Processes.						
7.5.3	Budgeting						
7.5.4	Cost control						
7.6	COMMUNICATION-RELATED PROCESSES						
7.6.2	Communication planning						
7.6.3	Information management						
7.6.4	Communication control						
7.7	RISK-RELATED PROCESSES						
7.7.2	Risk identification						
7.7.3	Risk assessment						
7.7.4	Risk treatment						
7.7.5	Risk control						
7.8	PURCHASING-RELATED PROCESSES						
7.8.2	Purchasing planning and control						
7.8.3	Documentation of purchasing requirements						
7.8.4	Supplier evaluation						
7.8.5	Contracting						
7.8.6	Contracting Control						
8.1	IMPROVEMENT-RELATED PROCESSES						
8.1	Improvement						
8.2	Measurement and analysis						
8.3.1	Continual improvement by the originating organisation						
8.3.2	Continual improvement by the project organization						

**Table 2. Examples from ISO/IEC 15288
“System and software engineering—System Life Cycle Processes”**

System life cycle Stages.	Concept	Development	Production	Utilization	Support	Retirement
Life Cycle Processes.						
ORGANIZATIONAL PROJECT-ENABLING PROCESSES						
Life Cycle management Process						
Infrastructure Management process						
Project Portfolio Management process						
Human Resource Management Process						
Quality management Process						
AGREEMENT PROCESSES						
Acquisition Process						
Supply Process						
PROJECT PROCESSES						
Project Planning Process						
Project Assessment and Control process						
Decision Management Process						
Risk Management Process						
Configuration Management Process						
Information Management Process						
Measurement Process						
TECHNICAL PROCESSES						
Stakeholder Requirements Definition Process						
Requirements Analysis Process						
Architectural Design Process						
Implementation Process						
Integration Process						
Verification Process						
Transition Process						
Validation Process						
Operation Process						
Maintenance Process						
Disposal process						
ANNEX A						
Tailoring Process						

Annex C Methodologies for Assessment and Improvement

1. The international community has developed some assessment tools and performance indicators. Examples are:
 - a. The ISO 9000 series.

Eight quality management principles have been identified to facilitate the achievement of quality objectives. These are:

Customer focused organisation - organisations depend on their customers and therefore should understand current and future customer needs, meet customer requirements and strive to exceed customer expectations;

Leadership – leaders establish unity of purpose, direction, and the internal environment of the organisation. They create the environment in which people can become fully involved in achieving the organisation’s objectives;

Involvement of people – people at all levels are the essence of an organisation and their full involvement enables their abilities to be used for the organisation’s benefit;

Process approach – a desired result is achieved more efficiently when related resources and activities are managed as a process;

System approach to management – identifying, understanding and managing a system of interrelated processes for a given objective contributes to the effectiveness and efficiency of the organisation;

Continual improvement – continual improvement is a permanent objective of the organisation;

Factual approach to decision making – effective decisions are based on the logical and intuitive analysis of data and information;

Mutually beneficial supplier relationships – mutually beneficial relationships between the organisation and its suppliers enhance the ability of both organisations to create value.
 - b. The Malcolm Baldrige National Quality Award.

This award program promotes quality awareness, recognises quality achievements of organisations, and provides a vehicle for sharing successful strategies. The Baldrige Award criteria focus on results and continuous improvement. They provide a framework for designing, implementing, and assessing a process for managing all business operations. Seven categories make up the award criteria:

Leadership - Examines how senior executives guide the organisation and how the organisation addresses its responsibilities to the public and practices good citizenship.

Strategic planning - Examines how the organisation directs its strategy and how it determines key action plans.

Customer and market focus - Examines how the organisation determines the requirements and expectations of customers and markets.

Information and analysis - Examines the management, effective use, and analysis of data and information to support key organisational processes and the organisation’s performance management system.

Human resource focus - Examines how the organisation enables its workforce to develop its full potential and how the workforce is aligned with the organisation's objectives.

Process management - Examines aspects of how key production/delivery and support processes are designed, managed, and improved.

Business results - Examines the organisation's performance and improvement in its key business areas: customer satisfaction, financial and market performance, human resources, supplier and partner performance, and operational performance. This category also examines how the organisation performs relative to competitors.

- c. EFQM-model (European Foundation for Quality Management) with guidelines on self-assessment (both for companies and public sector).

Excellent results with respects to Performance, Customers, People and Society are achieved through Leadership driving Policy and Strategy, People, Partnerships and Resources, and Processes.

Leadership - How leaders develop and facilitate the achievement of the mission and vision, develop values required for long term success and implement these via appropriate actions and behaviours, and are personally involved in ensuring that the organisation's management system is developed and implemented.

Policy and Strategy - How the organisation implements its mission and vision via a clear stakeholder focused strategy, supported by relevant policies, plans, objectives, targets and processes.

People - How the organisation manages, develops and releases the knowledge and full potential of its people at an individual, team-based and organisation-wide level, and plans these activities in order to support its policy and strategy and the effective operation of its processes.

Partnerships and Resources - How the organisation plans and manages its external partnerships and internal resources in order to support its policy and strategy and the effective operation of its processes.

Processes - How the organisation designs, manages and improves its processes in order to support its policy and strategy and fully satisfy, and generate increasing value for, its customers and other stakeholders.

Customer Results - What the organisation is achieving in relation to its external customers.

People Results - What the organisation is achieving in relation to its people.

Society Results - What the organisation is achieving in relation to local, national and international society as appropriate.

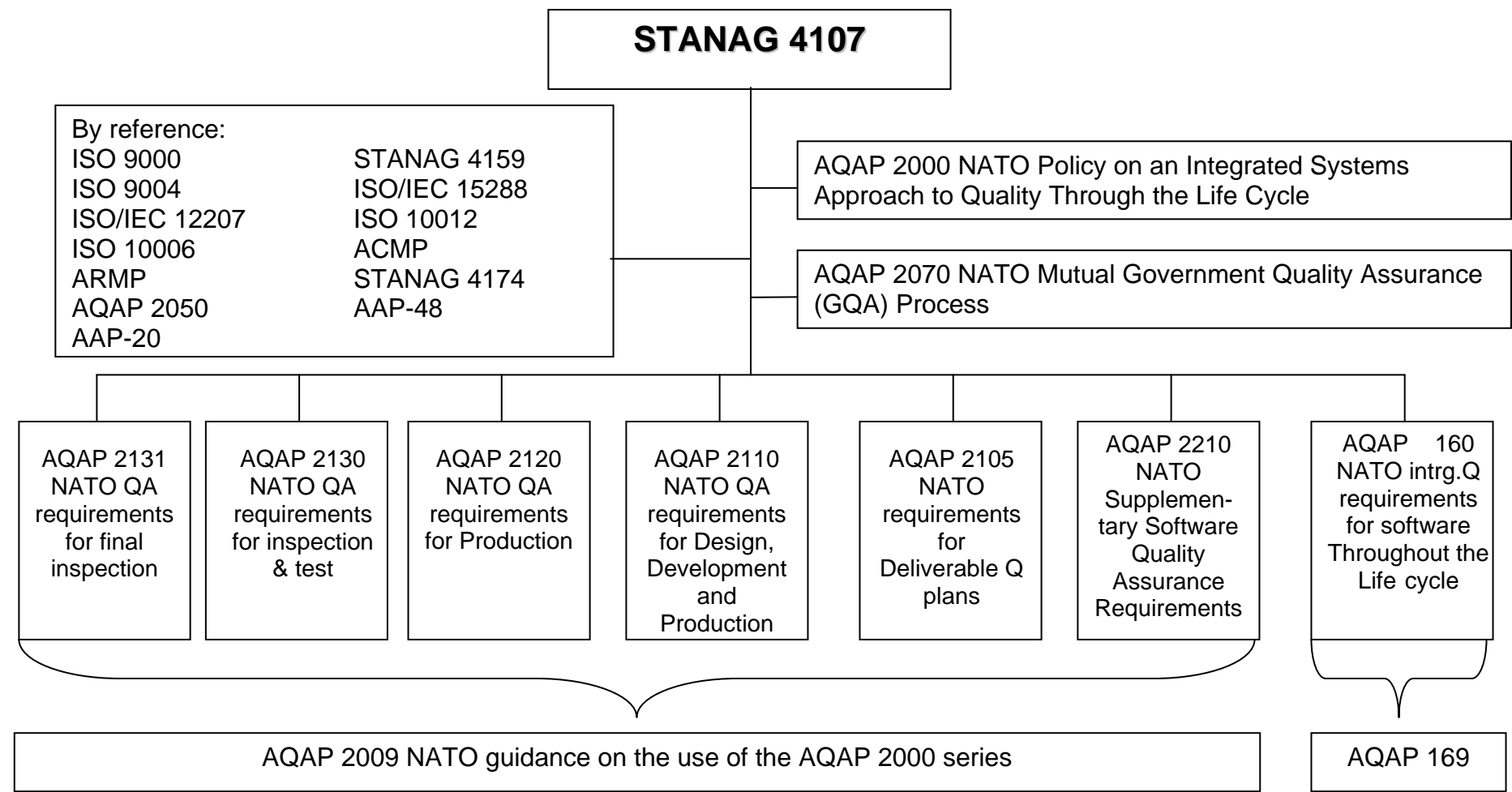
Key Performance Results - What the organisation is achieving in relation to its planned performance.

2. Assessment approaches have also been developed for specific processes. For example, software life cycle processes have assessment approaches such as the following:
- a. Capability Maturity Model (CMM)
 - b. Software Process Assessment, ISO/IEC15504. (SPICE)
 - c. Bootstrap

3. The AQAP 2050 NATO Project Assessment Model (NPAM) is a tool to assess projects, identify specific project issues, provide recommendations, and extract cross-project systemic issues. This document describes the methodology, which includes guidance on its use, and feedback of results into common information repository(s). The objectives of the NPAM are as follows:

- a. Provide assistance to Project Management Teams in order to:
 - Identify issues within and outside of their control;
 - Recommend areas for improvement;
 - Provide follow up assistance as needed;
 - Improve organisation-wide processes
- b. Focus on project management issues throughout the system lifecycle
- c. Enable identification and use of common/systemic issues across projects through:
 - Monitoring statistical outcomes;
 - Establishing benchmarks;
 - Maintaining and disseminating lessons learned.

**Annex D
Quality Management Documents used by NATO**



**Annex E
Types of Allied Quality Assurance Publication (AQAP)**

1. Contractual Type

These AQAPs specify NATO requirements for quality management to be met by suppliers in fulfilling defence contracts in which the AQAPs are invoked:

AQAP 2110 "NATO Quality Assurance Requirements for Design, Development and Production"

AQAP 2120 "NATO Quality Assurance Requirements for Production"

AQAP 2130 "NATO Quality Assurance Requirements for Inspection and Test"

AQAP 2131 "NATO Quality Assurance Requirements for Final Inspection"

AQAP 2105 "NATO Quality Assurance requirements for Deliverable Quality Plans"

AQAP 2210 "NATO Supplementary Software Quality Assurance Requirements "

AQAP 160 "NATO integrated quality requirements for software throughout the life cycle"

2. Guidance Type

a. Policy document

AQAP 2000 "NATO Policy on an Integrated Systems Approach to Quality through the Life Cycle".

b. Guidance for contractual AQAPs

These AQAPs are complementary guides to AQAPs 2110, 2120, 2130, 2105 AQAP 2210, and 160 respectively to aid in their interpretation and for use when undertaking the evaluation of suppliers' quality arrangements for compliance with these AQAPs:

AQAP 2009 "NATO Guidance on the use of the AQAP 2000 series"

AQAP 169 "NATO Guidance on the use of AQAP-160".

c. Guidance for GQA activities

This AQAP specifies guidance for the National Quality Assurance Authorities (NQAA) for Government Quality Assurance (GQA):

AQAP 2070 "NATO Mutual Government Quality Assurance (GQA) Process".

d. Guidance for project assessment activities

This AQAP specifies guidance for project assessments.

AQAP 2050 "NATO Project Assessment Model"

**Annex F
Standards, as referenced in the text of this AQAP**

Standard Title Issue Date

Standard	Title	Issue Date
ISO 9000	Quality management systems – Fundamentals and vocabulary	2005
ISO 9001	Quality management systems – Requirements	2008
ISO 9004	Managing for the sustained success of an organization — A quality management approach	2009 ²⁰
ISO/IEC 12207	System and software engineering – Software life cycle processes	2008
ISO/IEC TR 15504 - N	Information technology -- Process assessment	Various
ISO/IEC 15288	System and software engineering – System life cycle processes	2002
ISO10006	Quality management systems – Guidelines to quality management in projects	2003
AAP-48	NATO System Life Cycle Stages and Processes	2006

²⁰ Expected release

Annex G
Definitions and acronyms

AAP	Allied Administrative Publication
AC/327	Life Cycle Management Group
AQAP	Allied Quality Assurance Publication
CMM (SM)	Capability Maturity Model (SM) for Software
Disposal	Disposal consolidates the activities required to remove the equipment or system, and the supporting materiel and facilities as necessary at the end of its life cycle. Disposal may be accomplished by, but is not limited to, any combination of: Depositing; Burning or Recycling
GQA	Government Quality Assurance is the process by which the appropriate National Authorities establish confidence that the contractual requirements relating to quality are met
Interested Party	2.3.7 interested party: person or group having an interest in the performance or success of an organisation (2.3.1)
ISO	International Organisation for Standardisation
Management	2.2.2 management system: system (2.2.1) to establish policy and objectives and to achieve those objectives
Quality management System:	(2.2.1) to establish a quality policy (2.2.4) and quality objectives (2.2.5) and to achieve those objectives 2.2.6 management (noun): co-ordinated activities to direct and control an organisation (2.3.1) 2.2.7 top management: person or group of people who direct and control an organisation (2.3.1) at the highest level 2.2.8 quality management: co-ordinated activities to direct and control an organisation (2.3.1) with regard to quality (2.1.1)
Natural environment	From ISO 14001: 3.2 environment: surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans, and their interrelation
NPAM	NATO Project Assessment Model
NQAA	National Quality Assurance Authority
PAPS	AAP-20
Participants, life cycle	In this AQAP, the word “participant” is to be understood as people directly involved in the activities through the life cycle stages. By this definition a user is a participant. (See figure 1.)
PfP	Partnership for Peace
GQAR	Government Quality Assurance Representatives are the Personnel with responsibility for Government Quality Assurance (GQA) and act on behalf of the acquirer
SPICE	Software Process Improvement and Capability Evaluation
STANAG	Standardisation Agreement

DEFINITIONS AND ACRONYMS

Team	A small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable
User	More than one, in all applicable organisational levels and in all the life cycle stages, e.g. staff, operators and maintainers
Defence System	“Defence system” is in this document considered to be synonymous with “Product”
WBS	Work Breakdown Structure