

IALA Guideline No. 1052

**On Quality Management
Systems for Aids to Navigation
Service Delivery**

Edition 2

December 2006



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Document Revisions

Revisions to the IALA Document are to be noted in the table prior to the issue of a revised document.

Date	Page / Section Revised	Requirement for Revision
October 2006	Entire document	Reformatted for ease of use. Added: <ul style="list-style-type: none">• references to IMO VIMSAS• section on definitions• section on maintaining a QMS

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THE USE OF QUALITY MANAGEMENT SYSTEMS FOR AIDS TO NAVIGATION SERVICE DELIVERY

1 INTRODUCTION

Although there are unique circumstances surrounding the work that aids to navigation (AtoN) authorities undertake, in many ways the overall objectives of all businesses are the same:

To perform satisfactorily and meet the customer's requirements.

In the case of the provision of AtoN, the main customer is the mariner and the aim is to assist the mariner in making safe and expeditious passage. The customer also requires consistency of performance, with confidence in the fact that the organisation delivers what it says it will deliver.

Many organisations are also recognising a need to operate more efficiently, with due regard for cost effectiveness and value for money. AtoN organisations need to identify best practices in service delivery to make optimum use of management and staff. In addition, this will assist in effective planning; ensuring that money is invested wisely in new technology; eliminating duplication and waste; and measuring performance to ensure that targets are met and also identify areas of weakness. Customers/users require higher and more visible levels of accountability. The result is a growing need to provide, and prove, quality service delivery, as evidenced through the development and maintenance of a Quality Management System (QMS).

At its 24th Session the IMO Assembly adopted Resolution A.973(24) on the Code for the Implementation of Mandatory IMO Instruments and Resolution A.974(24) on Framework and Procedures for the Voluntary IMO Member State Audit Scheme. The two Resolutions are complementary, and the voluntary IMO audit scheme described in Resolution A.974(24) is based on the implementation of the Code contained in Resolution A.973(24). It has been noted that this audit scheme is likely to become mandatory in the future, and that an established QMS will assist members when preparing for such an audit.¹

2 SCOPE

This Guideline provides a basic platform for the implementation of a QMS so that Authorities can objectively evaluate compliance to established service levels depending on user needs and expectations, traffic and the risks associated to each area.

This document provides a generic overview of QMS, and should be read in conjunction with IALA Recommendation O-132 on Quality Management for AtoN authorities, and related QMS standards documents as appropriate. In developing the QMS, AtoN Authorities should note that a quality management system could be approached at different levels:

- certification by an accredited third party; and/or
- assessment by a third party; and/or

¹ IALA Guidelines on the preparation for an audit under the Voluntary IMO Member State Audit Scheme (VIMSAS) refer.

- self-assessment.

The process for implementing any of these mechanisms may vary between Member States.

3 DEFINITIONS

To assist in the use of this document, a number of definitions are supplied. There are a number of internationally recognised QMS Standards and further definitions can be found in these standards.

Term / Acronym	Expansion / Definition
Accreditation	The act of granting recognition in maintaining suitable standards.
AtoN	aid to navigation is a device or system external to vessels that is designed and operated to enhance the safe and efficient navigation of vessels and/or vessel traffic (includes Vessel Traffic Services (VTS)). <i>(as defined in IALA NAVGUIDE)</i>
AtoN Authority	The organization legally responsible for Aids to Navigation in their country or part thereof. <i>(as defined in IALA Statutes)</i>
Audit	an evaluation of an organization, system, process, project or product performed by a competent, independent, objective, and unbiased person or persons, (auditors).
Benchmarks	(also "best practice benchmarks" or "process benchmarking") is a process used in management and particularly strategic management, in which organizations evaluate various aspects of their processes in relation to best practice, usually within their own sector.
Certification	Demonstrates that the service or product is being provided in accordance to a standard.
Customer / User/Stakeholder	A person or group that benefit of a product or service. (as further defined in section 4.8.1.
Gap Analysis	a business assessment tool enabling a company to compare its actual performance with its potential performance. Gap analysis naturally flows from benchmarking or other assessments.
IALA Certified Product	Products for which a valid declaration of conformity has been made by the manufacturer and recognized by IALA. (IALA Guideline 1034 on the Certification of Marine Aids to Navigation Products refers).
IMO	The International Maritime Organization

Performance Measurement	the use of statistical evidence to determine progress toward specific defined organizational objectives.
QMS	Quality Management System The set of procedures for determining and implementing the intentions of an organization as regards to quality.
Quality Manual	documentation that identifies the processes and procedures, technical instructions, indicators, records, forms of measurement, monitoring analysis and improvement to ensure that customer requirements, needs and expectations are met.
Record Keeping	Making and maintaining complete, accurate and reliable documented evidence of business activities.
RFP	Request for Proposal an invitation for suppliers, through a bidding process, to bid on a specific product or service. (may be referred to as request for tender - RFT).
Risk Management	process of measuring, or assessing risk and developing strategies to manage the risk.
SOLAS	The International Convention for the Safety of Life at Sea.
SWOT	Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis Strategic analysis process to identify areas for improvement and assist with the definition of the strategic and other processes in support of the business activities.
VIMSAS	Voluntary IMO Member State Audit Scheme (IMO Resolution A.973(24) and A.974(24) refer)

4 Developing a Quality Management System

The main objective of a QMS is to provide the AtoN service effectively and efficiently. QMS certification demonstrates that the service is being provided in accordance with the published aims of the organisation and adds a level of trust between the AtoN Authority and the user. Certification should not be the main objective of developing and implementing any QMS.

4.1 Identifying Legal Framework

The statutory basis for each AtoN Authority should be set out in a way that specifies the legal basis for the provision of the service and/or the regulating activity. The legal powers from which the responsibility flows should also be clearly identified.

A QMS should include reference to relevant sections of The International Convention for the Safety of Life at Sea (SOLAS), Chapter V².

² SOLAS Consolidated Edition, 2004

For VTS, Regulation 12, (Vessel Traffic Services) states:

1. *Vessel traffic services (VTS) contribute to safety of life at sea, safety and efficiency of navigation and protection of the marine environment, adjacent shore areas, work sites and offshore installations from possible adverse effects of maritime traffic.*
2. *Contracting Governments undertake to arrange for the establishment of VTS where, in their opinion, the volume of traffic or the degree of risk justifies such services.*
3. *Contracting Governments planning and implementing VTS shall, wherever possible, follow the guidelines developed by the Organization. The use of VTS may only be made mandatory in sea areas within the territorial seas of a coastal State.*
4. *Contracting Governments shall endeavour to secure the participation in, and compliance with, the provisions of vessel traffic services by ships entitled to fly their flag.*
5. *Nothing in this regulation or the guidelines adopted by the Organization shall prejudice the rights and duties of Governments under international law or the legal regimes of straits used for international navigation and archipelagic sea lanes.*

For Aids to Navigation, Regulation 13, (Establishment and operation of aids to navigation) states:

- 1 *Each Contracting Government undertakes to provide, as it deems practical and necessary, either individually or in co-operation with other Contracting Governments, such aids to navigation as the volume of traffic justifies and the degree of risk requires.*
- 2 *In order to obtain the greatest possible uniformity in aids to navigation, Contracting Governments undertake to take into account the international recommendations and guidelines³ when establishing such aids.*
- 3 *Contracting Governments undertake to arrange for information relating to aids to navigation to be made available to all concerned. Changes in the transmissions of position-fixing systems which could adversely affect the performance of receivers fitted in ships shall be avoided as far as possible and only be effected after timely and adequate notice has been promulgated.*

4.2 Service Definition

Traditionally called maritime signals, all visual, acoustic, electronic or radioelectronic devices that are meant to improve navigation safety, facilitating traffic and preserving the environment, are considered aids to navigation (AtoN).

³ Refer to the appropriate Recommendations and guidelines of IALA and to SN/Cir. 107, Maritime Buoyage System.

The service that provides and maintains these devices is called the AtoN service. To exist as such, it requires interaction in time and space between the service provider and the user (i.e. the mariner).

There should be uniformity not only in the AtoN themselves, but also in the level of service provided to ensure similar standards throughout the maritime community, with particular emphasis in areas that serve as international boundaries.

For the purpose of identifying its scope of activity, the AtoN Authority should prepare a basic document explaining its role and responsibilities and the statutory or other basis for its powers.

The AtoN Authority should use flow processes, matrices and diagrams, to represent the different actions involved in the management of an AtoN system (Appendix A refers).

User satisfaction exists when the user receives the service in the expected terms.⁴ These terms should be defined as quality commitments beyond the minimum accepted legal terms. A service level commitment may be associated to every single AtoN or to a combination of AtoN.

⁴ Refer to IALA Recommendation O-130 on Categorisation and Availability Objectives for Short Range Aids to navigation (December 2004) and IALA Guideline 1035 (Ed. 2) on Availability and reliability of Aids to Navigation (December 2004).

4.3 Organisational Policy

Organisational policy should be developed to translate the organisations' vision, missions and values into more specific guidance for provision of the AtoN service. The policy should contain a description of the services to be provided and guidance to align the service with higher-level priorities and objectives. The policy should be periodically reviewed.

4.4 Planning

There are a number of internationally recognised QMS Standards. While the terminology used may differ, the basic principles are the same. The implementation of a QMS should generally be carried out by the organisation's own staff. While advisors may be used to support and provide guidance on organisational aspects, ownership of the system by the organisation is fundamental to its success. The QMS should properly represent the policies, goals and culture of the organisation. Figure 1 is an example of a QMS.

The first steps in developing a QMS include:

- Defining the Mission, Vision and/or Values,
- Organisational Policy,
- Strategic Plan,
- Business Plan, annual or multi-annual objectives or projects;
- Quality Manual (refer to definitions in Section 3).

The Quality Manual is a part of the QMS of the AtoN Authority. The result of applying the QMS is the identification of strong points and areas of improvement. This cycle of continuous improvement will result in changes to the business plan and QMS.

Figure 1 provides an overview of the elements that make up a QMS, and their relationship. There are many items that need to be included in a QMS. These include items at the Organisational level, Strategic Planning level, Business Planning and Implementation.

A checklist for items to be included in a QMS is provided at Annex C. This checklist should be amended and revised to reflect the specific situation within each AtoN Authority.

Authorities may have existing documentation and processes that fulfil many requirements of a QMS.

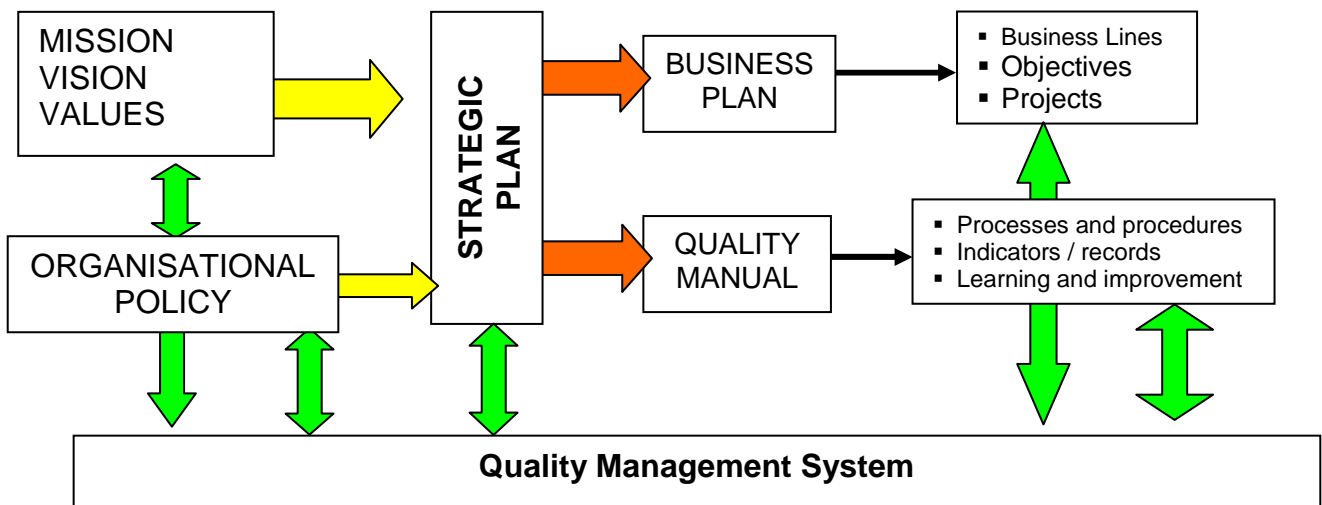


Figure 1 – Quality Management System

4.4.1 Risk Evaluation

AtoN Authorities should respond to criteria based on an evaluation of risks in the area under analysis, take the needs and expectations of users and the impact on other customers into account.

In evaluating risks, the IALA Guideline 1018 on Risk Management (June 2001), should be taken into account, along with the tools developed for the application of Risk Assessment Procedures⁵.

4.4.2 Identification of Processes

The marine AtoN service is the result of a series of elements and actions provided for the user. This is best represented through the management by process method, involving Strategic Processes, Key Processes and Support Processes, or Sub-Processes.

⁵ The IALA Risk Assessment Model (PASWA and IWRAP) refer

4.5 Management by Process

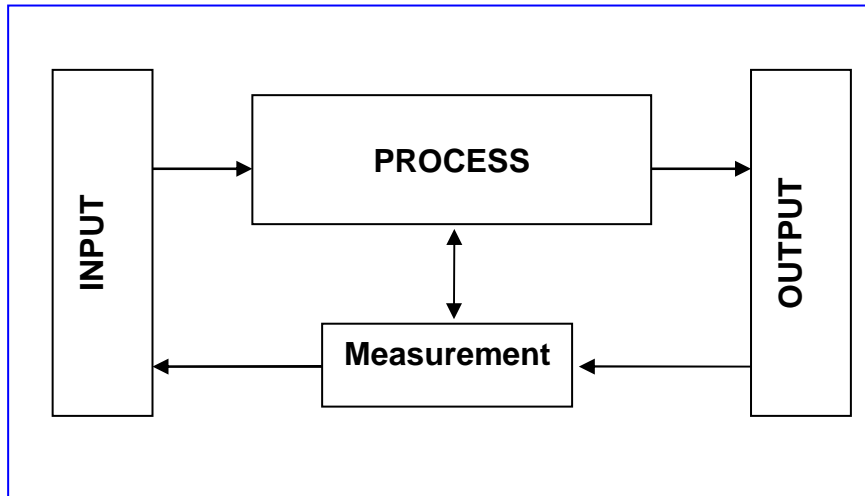


Figure 2 – Management by Process

All processes (including Strategic, Key and Support processes or Sub-Processes), as explained in this section, should follow the scheme in the Figure 2. Each process identifies input and output elements and should be assigned a “process owner” responsible for the activity, its management, and its improvement. The process should also determine regulating framework, necessary resources, specific tasks and any sub-processes required. The process should clearly define measurement, recording points and the target values for each aspect, so that the entire process is auditable. This ensures that the process has traceability and may be reviewed by third parties.

Within the process, the user should be clearly identified. It is important to determine the user’s needs and expectations and the aim of the process should be to satisfy these needs through quality management criteria.

To identify processes, the AtoN Authority should state its mission and carry out an analysis such as Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis, comparison to benchmarks and/or gap analysis. From this analysis areas for improvement should be identified to assist with the definition of the strategic and other processes in support of the mission.

To implement the business lines, key (operational/direct) and support (generic) processes should be developed. The following are examples of processes that, among others, should be considered in the Aids to Navigation Marine Service.

Strategic (Management) Processes:

- Study and review customer requirements,
- Study and review Aids to Navigation technology,
- Preparation of standards and recommendations,
- Management control (costs/results /resources),
- Communication, image and presence in Society,
- Organisation structure.

Key (Operational) Processes

- Design, build and revision of Aids to Navigation,
- Deployment of Aids to Navigation,
- Monitoring and inspection of Aids to Navigation (Service Operation),
- Maintenance and corrective action of Aids to Navigation.

Support (Generic) Processes:

- Purchase and service subcontracting management,
- Information systems and databases,
- Finance and cost accounting,
- Legal assessment,
- Personnel management and training,
- Surveys, records and auditing,
- Logistics (transport, facilities),
- Health and safety.

Processes should unfold through flow diagrams that define each one of the different activities. Each AtoN Authority should prepare its own Process Maps. Examples of Process Maps are given in Appendix A.

4.6 Developing Performance Criteria

There are four monitoring and measurement areas that need to be considered by the AtoN Authorities when developing performance criteria and implementing a QMS. The performance measurement of these areas provides a systematic method and approach to continual improvement:

1) Service Delivery – (Monitor and Measurement of Service):

The AtoN authority should monitor and measure the characteristics of the service to verify that service requirements have been met. This should be carried out at appropriate stages of the service realisation process in accordance with the planned arrangements.

2) Customer Satisfaction:

As one of the measurements of the performance of the QMS, the AtoN authority should monitor information relating to customer perception as to whether the organisation has met customer requirements. The methods of obtaining and using this information should be determined locally.

3) Monitoring and Measurement of Processes:

The AtoN authority should apply suitable methods for monitoring and, where applicable, measurement of the QMS processes. These methods should demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, correction and corrective action should be taken, as appropriate, to ensure conformity.

4) Internal Audit:

The AtoN authority should conduct internal audits at planned intervals to determine whether the QMS:

- i) Conforms to the planned arrangements and to the QMS requirements established by the AtoN authority; and
- ii) Is effectively implemented and maintained.

4.7 Documentation

Documentation and records are basic elements in any quality system. Without documents and records, it is difficult to consider any kind of improvement action.

The basic objectives of the service should respond to specific normative, mandatory, and reference documentation. These references should be composed of international and national standards, and, if applicable, regional or local standards.

All documents required by the QMS shall be controlled.

Documentation for the QMS should include:

- Quality Manual that describes the QMS elements as described in this guideline and how they interrelate;
- Procedure documents, e.g., operating guidelines, operating procedures, work instructions;
- Recordkeeping.

4.8 Communication and Awareness

The QMS must include the participation of all persons affected by or involved in the delivery of the AtoN service, the ‘customers’. These customers can be internal (such as administration staff) or external customers (such as mariners or the public).

A QMS should ensure that communication protocols are established with all customers to maintain effectiveness and awareness of the QMS. These communication protocols will facilitate managing customer expectations, risk management and service delivery.

4.8.1 Customer Identification

To facilitate communication and awareness, an important task is customer identification. The participation of mariners and other customers may be achieved in different ways, but should be documented in the QMS.

The following are potential customers for the AtoN service:

4.8.1.1 Internal

The internal customers of the AtoN service could include:

- Staff of the AtoN authority
- Government or regulating authority

4.8.1.2 External

The external customers of the AtoN authority could include:

- *Mariners*: Whatever their activity (including commercial traffic, fishing vessels and pleasure craft), mariners must be considered as the main users of the marine AtoN service, to the extent that such a service is used to facilitate their navigation and improve their safety.

- *Others – include, but not limited to:*
 - Coastal Pilots
 - Port Community (including: Harbour Authorities, Ship Brokers, Agents, etc.)
 - Related Agencies (including: Hydrographic Institutes, Marine Search and Rescue, marine structure agencies, Organisations representing Fishermen and Leisure interests, etc.)
 - Community in General (including: those affected by the environmental impact of the AtoN or heritage value).

5 Implementing a Quality Management System

Once a QMS has been developed, specific elements will be required to ensure full implementation. Many of these elements will be on-going, and will necessitate continuous development through the maintenance of the QMS (Section 6 refers).

5.1 Training and Awareness

The AtoN Authority needs to have assigned process ownership to facilitate and encourage staff buy-in to the QMS. The owner shall be responsible for the process, its management and its improvement.

The training for staff needs to be aligned to the competency requirements determined for the process.

Mechanisms to enable staff to reach and sustain the required level of competence could include:

- Ensuring staff induction training incorporates quality management training
- Access for staff to QMS documents e.g., web-based
- Feedback loop including comments, suggestions and statistical information.

5.2 Customer Relationships

To facilitate ongoing communication and awareness, customers must be included in the implementation. The participation of mariners and other customers may be achieved in different ways, but should be documented in the QMS. The customers for the AtoN service, as identified in section 4.8, should participate in the implementation of the QMS.

As one of the measurements of the performance of the AtoN service, the AtoN authority should monitor information relating to customer perception as to whether the organisation has met customer requirements. The methods of obtaining and using this information should be determined locally but could include:

- Establishing ongoing consultative forums
- Communicating implications of establishment of QMS
- Ensuring customer continues to receive the service to a consistent standard during implementation.

5.3 Resource Management

Resources assigned to a process should be considered independently. These resources may be owned by the entities responsible for the process, may be subcontracted, or may be identified by some other type of indirect transaction.

Resources available to an AtoN Authority for supporting the QMS can include:

- Infrastructure (eg AtoN maintenance management system)
 - Systems (hardware, software)
 - Buildings
 - Logistics eg transport
- Working Environment (Health and safety)
- Financial
- People

5.4 Provision of Services

The AtoN authority should monitor and measure the characteristics of the service provided to verify that service requirements have been met. This should be carried out at appropriate stages of the service realisation process in accordance with the planned arrangements.

Appendix B provides an overview of purchasing elements in AtoN, including a listing of services.

5.5 Performance Measurement

The AtoN authority should apply suitable methods for monitoring and, where applicable, measurement of the QMS processes. These methods should demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, corrective action should be taken, as appropriate, to ensure conformity.

The performance management process involves creating and maintaining a system for comparing performance against key performance indicators and would normally include:

- Collection, analysis & reporting of performance data
- Feedback to process owner/service provider
- Corrective action including refining process where necessary

5.6 Auditing

Initial verification of the implementation of a QMS would normally be carried out through an audit process. The framework for these audit processes are usually based on international or national standards.⁶

The AtoN authority should conduct internal and/or external audits at planned intervals to determine whether the QMS:

⁶ Voluntary IMO Member State Audit Scheme refers. For more information on preparing for a Voluntary IMO Audit, refer to IALA Guideline numbers 1054 and 1055.

- Conforms to the planned arrangements and to the QMS requirements established by the AtoN authority; and
- Is effectively implemented and maintained.

6 Maintaining a Quality Management System

Once a Quality Management System (QMS) has been developed and implemented, organizations must strive for the satisfaction of their customers and the continual improvement of the QMS. Continual improvement is a process of increasing the effectiveness of the organization to fulfil its quality policy requirements and defined quality objectives.

This section provides AtoN organisations with a basic platform for maintaining a QMS so that they can extend beyond compliance into business improvement. Organisations can learn to use QMS as a business tool to improve performance and efficiency of their processes.

In maintaining an effective quality management system the focus should be on continual business improvement. This should be fostered and led by senior management of an organization. A QMS is a dynamic system that needs to be continually reviewed and updated in order to operate effectively.

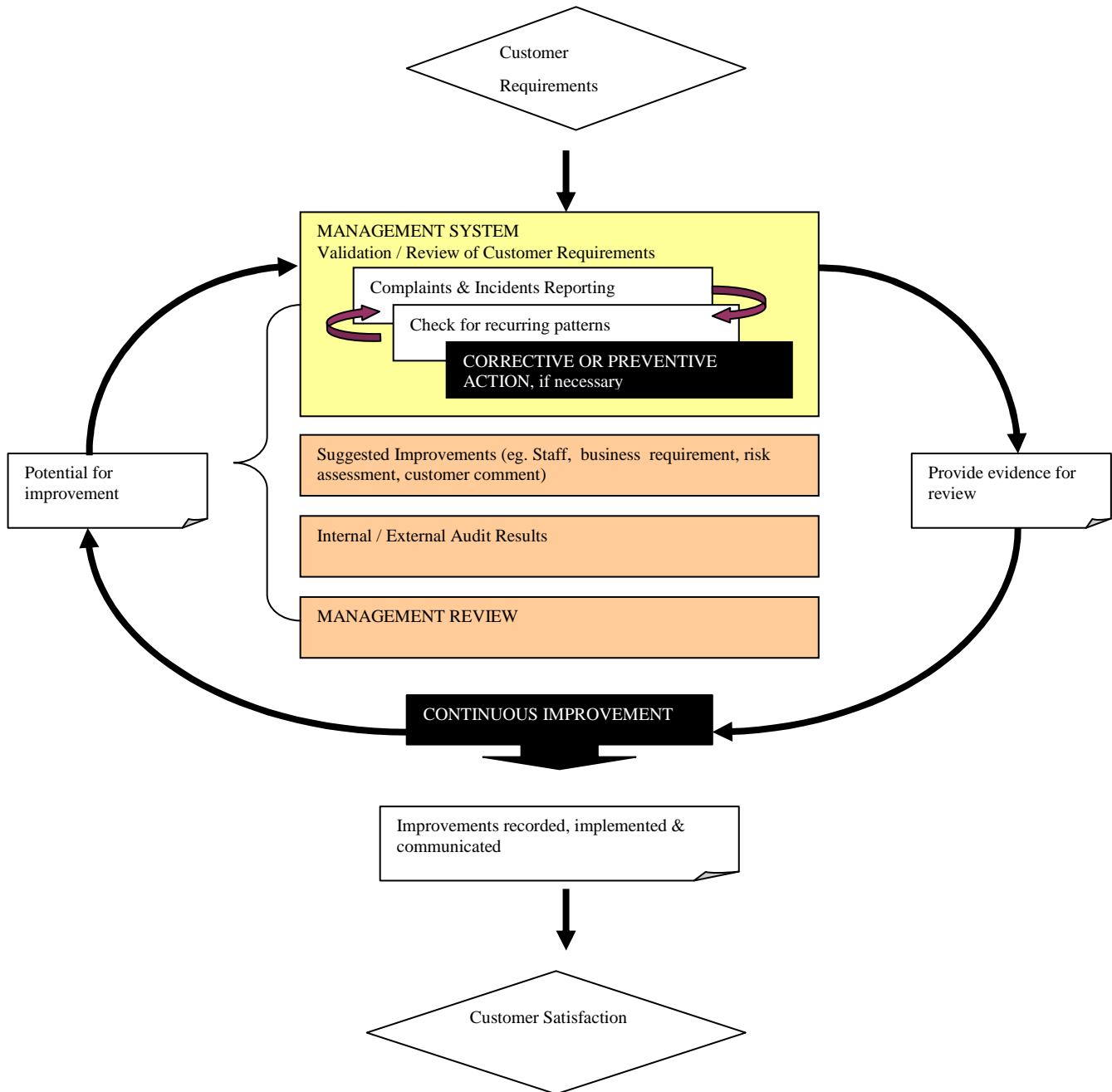
6.1 Characteristics of an Effective QMS

Characteristics of an effective QMS may include:

- Flexibility and adaptability
- Development and ownership by personnel within the organization
- The organization taking responsibility for a strategic approach to maintaining a quality management system
- A basis for continuous improvement
- Effective allocation of resources (financial / training / personnel / etc)
- System processes supportive of customers needs and expectations
- An audit process acknowledged as adding value to the organisation
- Effective organizational communication

An example of a process-based continuous improvement cycle for a quality management system is shown at Figure 3.

Figure 3 – Model of a continuous improvement cycle of a QMS



6.2 Components of Maintaining an Effective QMS

To ensure the continued relevance and effectiveness of the QMS, the organization should undertake reviews and maintenance of the system. Components of maintaining the QMS include:

- Management Review
- Customer Satisfaction
- Internal / External Communications
- Audit of the QMS
- Continuous Improvement

In some cases all of the areas can be captured and reported on through a single Management Review forum and/or report as the primary means for ensuring that the system is being maintained and improved.

6.2.1 Management Review

- Periodic management reviews should be conducted by personnel who have the appropriate authority to implement changes, taking into account relevant feedback from other interested parties;
- Ensure that the processes developed whilst establishing a QMS, are still applicable (section 4.5 refers);
- The management review should consist of, but not limited to:
 - AtoN Management System / Policies / Objectives / Procedures.
 - Legal / legislative framework for provision of AtoN service.
 - AtoN customer consultation.
 - AtoN resources (physical / financial / training / etc.) Are they adequate for appropriate level of service?
 - Performance Measurement results and future targets.
 - Effectiveness of corrective or preventative actions.
 - AtoN internal / external audits (i.e. IMO-Voluntary Audit Scheme, ISO compliance).

6.2.2 Customer Satisfaction

- Are processes developed for collecting customer satisfaction implemented and accurately capturing that information?
- Are the appropriate metrics being captured?
- Do the results meet pre-stated customer satisfaction targets?
- Ensure customer satisfaction results are reviewed

6.2.3 Internal and External Communication

- Is information communicated in line with the Communication Plan?
- Review Communication Plan to ensure continued effectiveness
 - Is adequate marine information being effectively communicated?
 - Do metrics indicate communication deficiencies?

6.2.4 Audit of the Quality Management System

- Ensure sufficient resources continue to be allocated to ensure all AtoN activities are audited within a suitable timeframe
- Ensure all internal auditors continue to be fully competent (i.e. training & experience)
- Ensure audit results are reviewed and promulgated

6.2.5 Continuous Improvement

- Ensure opportunities for improvement continue to be identified and that they are:
 - Recorded and assessed
 - Implemented and evaluated
 - Communicated to appropriate customers
- Ensure opportunities for improvement are reviewed to enable optimization of performance measures

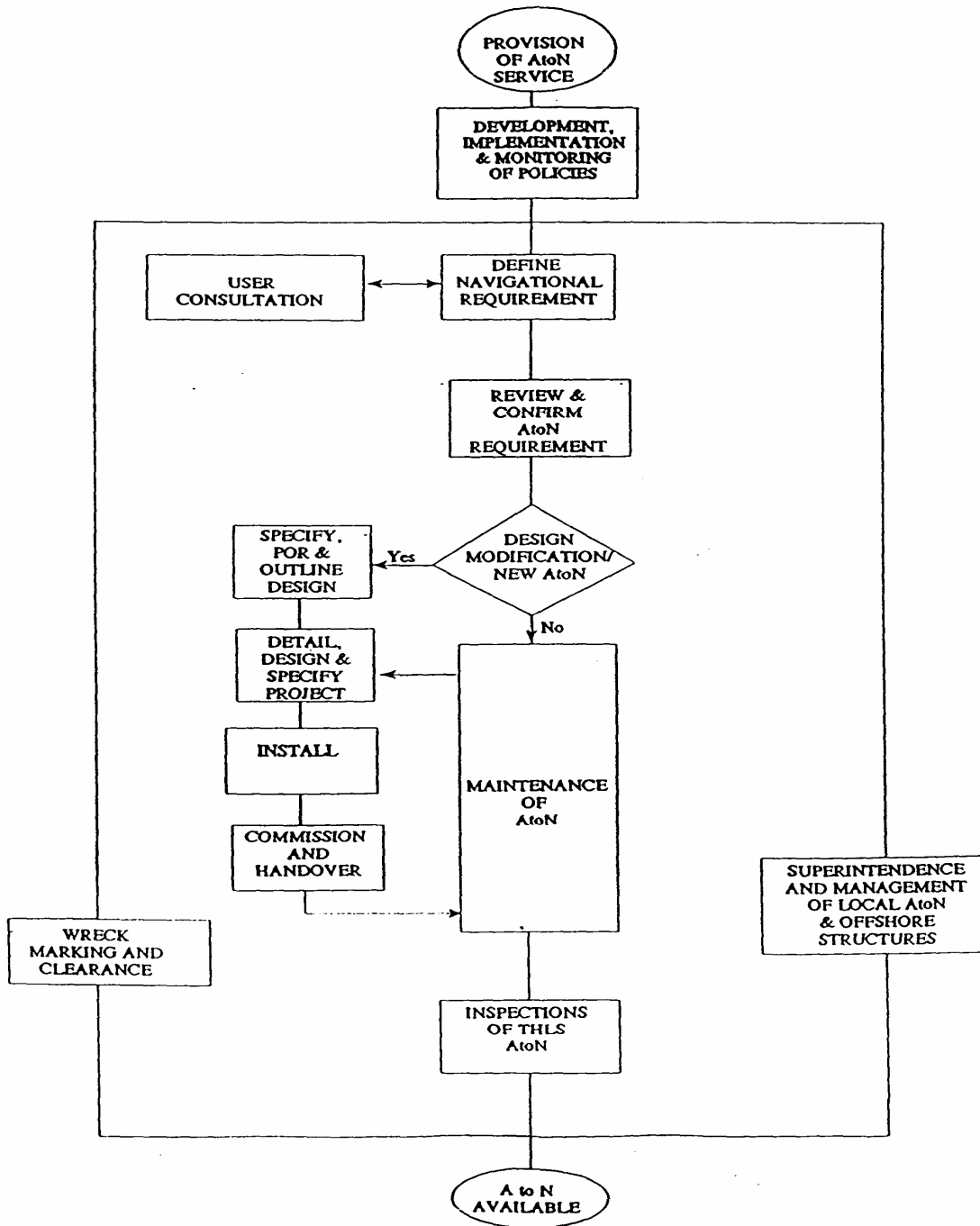
Appendix A – Process Diagrams

The sample diagrams have been provided, with permission, by IALA members. These are included to assist in the development of individual process diagrams. For further information on specific diagrams, please contact the AtoN organisation directly.

A.1 Trinity House

For example, the following diagram represents the core business (key processes), according to Trinity House Lighthouse Service.

Core business (key processes), of Trinity House

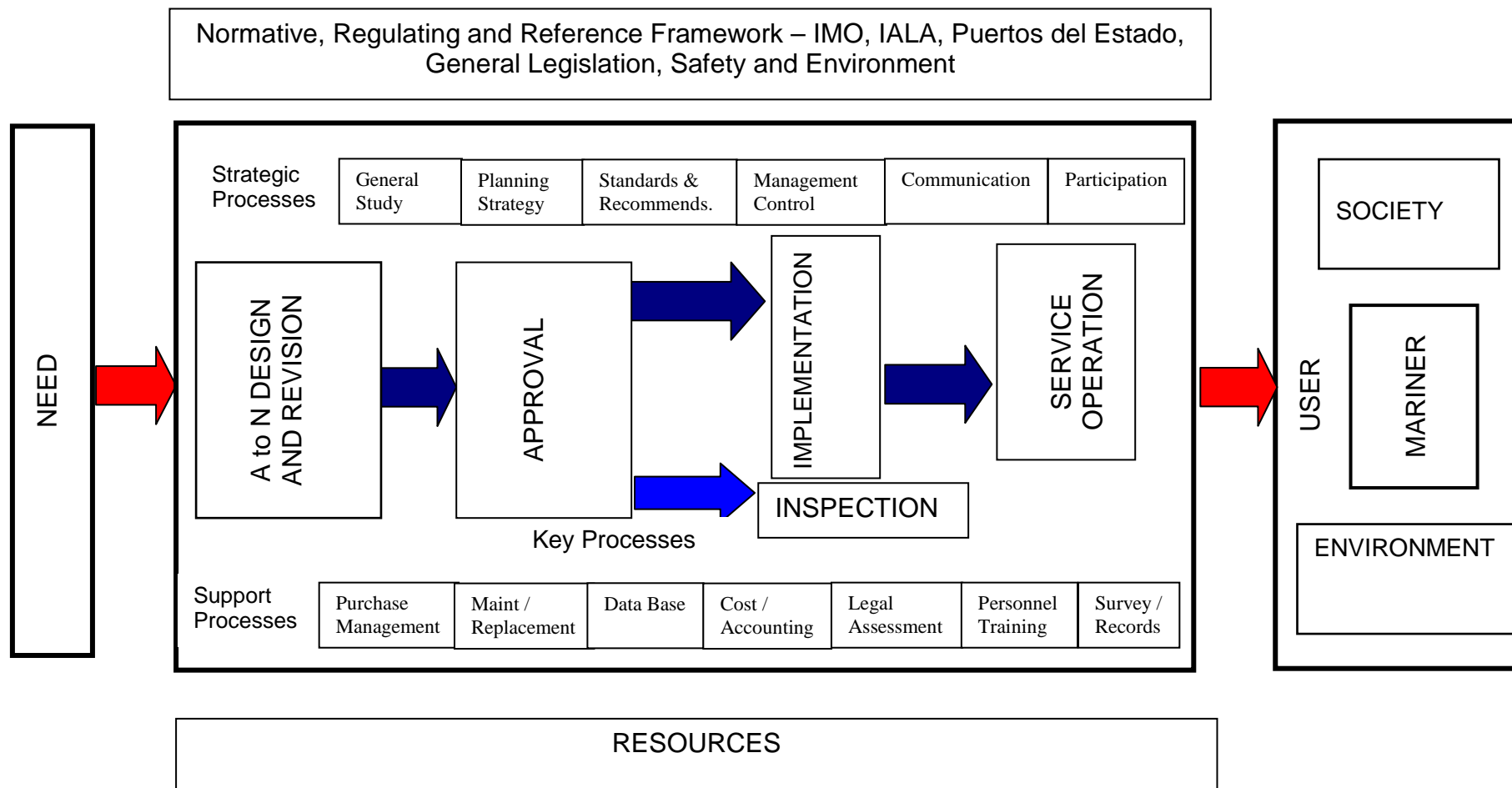


A.2 State Ports - Spain

The following example, is the process map for the marine aids to navigation service of State Ports (Spain). The Process Map is a matrix in which “horizontal” relationships cross over a “vertical” structure. The process relationships, reflected high, medium and low involvement, of the strategic and support processes through the key processes.

General Regulation specific to AtoN (OMI, IALA, PdE)	User Participation	Communication, image, presence in	Management Control	Preparation of standards and	Strategic planning for the service	"State-of-the-art" study and review on	KEY PROCESSES									
							Purchase and service subcontracting management	Infrastructure maintenance management and	Information systems and Databases	Cost accounting	Legal assessment	Personnel management and Training	Surveys, records and auditing.	General regulation infrastructures, safety and Environment		
X	X	O	O	X	X	X	BEACONING DESIGN AND REVISION	-	O	O	O	O	X	X	X	
O							BEACONING APPROVAL						X	X		
X	--	--	--	X	--	O	IMPLANTATION OF AIDS	X	O	X	X	X	X	X	X	
O	X	X	X	X	--	O	SERVICE OPERATION	X	X	X	X	X	X	X	X	
O	--	--	--	X	--	--	INSPECTION AND MONITORING	O	O	X	--	X	X	X	X	
STRATEGIC PROCESSES							SUPPORT PROCESSES									
							<p style="text-align: center;">X=High O=Medium --=Low</p>									

A.2.1 Spain – Puertos del Estado – Example 1



A.2.2 Puertos del Estado – Example 2

A.2.2.1 Process: AtoN Design and Revision

OWNER:

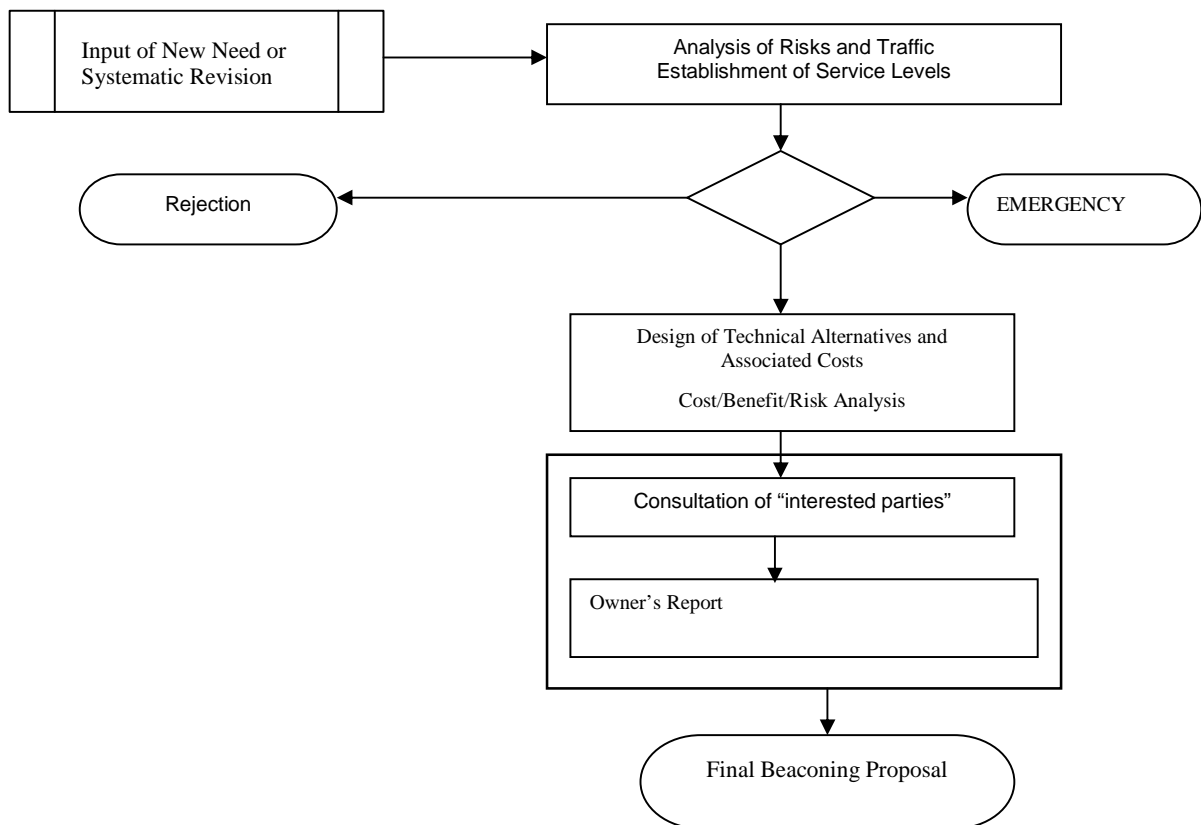
State port area of influence: PORT AUTHORITY

State non-port area: STATE PORTS

INPUT: New need or revision of AtoN in the area under consideration.

OUTPUT: Proposal for Aids to Navigation, (upgrade)

Process Diagram



A procedure should be developed, resources assigned and the points of measurement and recording identified for each process.

Appendix B – Purchasing elements in Aids to Navigation

This appendix is concerned with the purchase of products and services critical to the provision of Aids to Navigation. It is recognised that this element is, in many instances, unique to AtoN. Reference should always be made regional, national and international purchasing objectives and constraints.

B.1 Scope of Purchasing

The purpose of this appendix is to identify the key characteristics of purchasing as they relate to aids to navigation.

Purchasing for the aids to navigation function covers two broad areas, service provision and equipment purchase.

Approved suppliers and qualified equipment lists may reduce the purchasing risk to an AtoN Authority by ensuring minimum equipment or service standard is maintained and promotes continuity and standardisation. Cost savings can be achieved by eliminating the requirement to validate the quality of the equipment or service currently in use for each purchase event.

B.2 Services

The range of services that could be expected to be purchased, include:

- AtoN maintenance;
- AtoN construction, removal or demolition;
- Logistics;
 - Vessels/helicopters/aircraft,
 - Land transport,
 - Infrastructure (berthing, depots, workshops, etc),
 - Environmental services e.g. recycling, disposal.
- Advisory services including engineering and other design, environmental, cultural and heritage, Occupational Health and Safety experts to address issues such as radiation hazards and site contamination (e.g. mercury, diesel, asbestos);
- Training – external training providers covering new equipment, QMS etc.;
- Certification auditors;
 - Services,
 - Equipment,
 - Logistics and infrastructure.

B.3 Equipment Purchase

AtoN equipment purchasing can include the following categories:

- Capital Assets e.g. ships;

- Inventory e.g. lamps, solar panels, moorings;
- Environmental e.g. Hazardous Waste disposal / recycling equipment.

B.4 Policy and Principles

AtoN Authorities should be aware of and take into consideration, where appropriate:

- International trading agreements;
- National requirements (e.g. purchasing policies);
- Legislation and other regulatory processes applicable to product /services and the impact of compliance (e.g. Environmental, cultural, local communities, heritage);
- Corporate policies;
- Compliance with a recognised QMS (e.g. ISO 9001:2000);
- IALA Recommendations and Guidelines (e.g. Guideline 1005 Contracting Out Aids to Navigation Services, Guideline 1034 Certification of Marine Aids to Navigation Products).

B.5 Purchasing Process

The AtoN Authorities should ensure that the purchased product and/or services conform to specified requirements. The type and extent of control applied should reflect the criticality to the AtoN Authority of the product and/or services provided.

The AtoN Authority should evaluate and select suppliers based on their ability to supply product and/or services in accordance with the AtoN Authority's requirements. Criteria for selection, evaluation and re-evaluation should be established. Records of the results of evaluations and necessary actions arising from the evaluation should be maintained.

AtoN purchasing is a continuous improvement process where equipment and supplier performance over the life of a contract is used to refine future specifications, as shown in Figure 3.

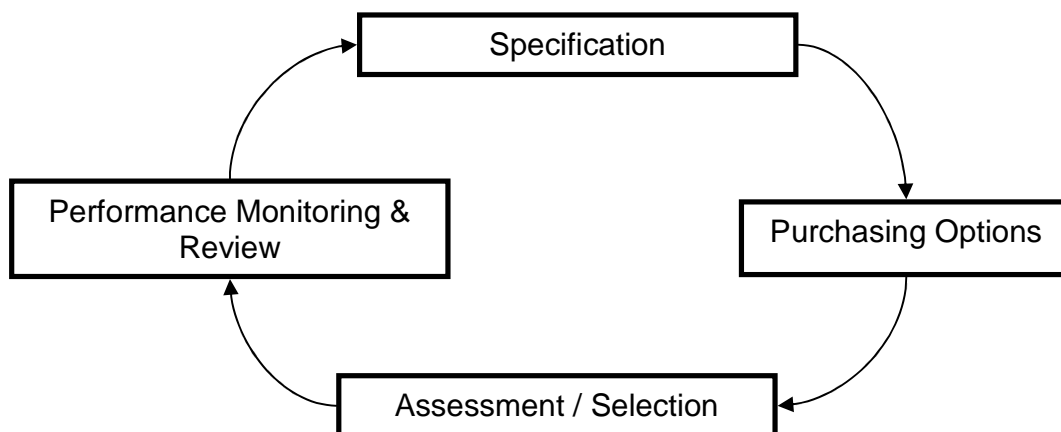


Figure 3 – Purchasing Model

The purchasing process should comprise the following elements where appropriate:

- Specification,
- Purchasing options,
- Product / supplier evaluation and selection,
- Contracting,
- Product / service monitoring and review.

B.6 Specification

In developing the specification of the product or service the AtoN Authority should give consideration to the following:

- Industry standards,
- Criticality – as determined by risk assessment,
- Budgetary constraints,
- Appropriate design standards which take into account cost benefit analysis and fit for purpose criteria.

The specification should include the following where appropriate:

- Clear description of service or product to be purchased,
- Performance criteria,
- Warranty requirements,
- Definition of the process for approval of product / service to be purchased.

It is important that purchasing terms and conditions form part of the purchasing documentation e.g. request for tender (RFP)

Purchasing options could include:

- Open Proposal / Tender / Quotation (request for quote (RFP)),
- Restricted tender/ Quotation,
- Single source (sole supplier/preferred supplier/panel contract),
- Multiple suppliers (Dependant on e.g. geographic location),
- Price basis e.g. fixed price, time and materials,
- Turn-key solution.

Product/supplier evaluation should consider:

- Required specifications,
- Recognised QMS,
- IALA certified product or supplier,
- Vetting of suppliers e.g. assessment questionnaires, site visits, independent reviewers,
- Evaluation plan (scoring system / selection criteria, price, risk, financial viability, safety, quality),
- Previous experience/ known supplier,
- International and national standard marks.

B.7 Contracting

The IALA Guideline 1005 on “Contracting Out Aids to Navigation Services” should be taken into consideration when drafting contract terms:

B.8 Performance Monitoring and Review

Product/service performance monitoring and review needs to occur over the life of the contract and should encompass the following:

- Specification and regular monitoring of performance indicators,
- Audit/inspection plan,
- Acceptance testing, ongoing monitoring of equipment performance,
- Identify areas of greatest risk and allocate contract management resources accordingly,
- Regular contract performance reviews including comprehensive feedback ensuring no surprises for suppliers if performance incentives/penalties apply.

Preferably any Management plans, work programmes, or performance indicators should be agreed and in place at the commencement of the contract.

Appendix C – Checklist for developing a QMS

When developing a QMS, the items below should be reviewed and referenced in some manner. Existing documentation may already provide the basis for many elements on the list. This list may be adapted to meet the requirements of any specific AtoN Authority.

Element	How Met?
Scope and objectives of the AtoN service	
Geographic limits, area of responsibility	
Regulating National Authority	
Authorities or agencies providing the service	
Organisational structure	
Possible alliances	
Customers	
Mandatory and reference documentation	
Measurement	
Records	
Internal and external audits	
Mechanisms for dealing with non-compliances	
Training needs	
Supplier management	
Improvement actions	