

IALA TECHNICAL POLICY 2016

(DRAFT V5 2016-03-16 Work in Progress)

Edition 1.0

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1. THIS DOCUMENT

This document contains a description of the technical policy for Technical Committees for 2016. It is intended as an explanatory document for use by all IALA members.

2. HIGH LEVEL POLICY

2.1. High level policy formulation

High level policy and strategy is created in draft by a Policy Advisory Panel (PAP) and submitted to Council for approval. The Strategy Group of the Council reviews this advice before its consideration by the full Council.

The Deputy Secretary-General chairs meetings of the PAP twice per year, with membership including the leadership of the Committees, the Chair of the Legal Advisory Panel, and the Dean of the WWA.

The current high level “Strategic Vision for IALA” was approved by Council in December 2013. Execution of this high level policy is managed by the Secretariat.

2.2. Strategic Vision for IALA

The high level “Strategic Vision for IALA” covers the work period 2014 to 2026.

It provides a framework for IALA’s work to create technical guidance documents for use by members, and its activity within the World Wide Academy for capacity building and education. Its Goals, Strategies, and Priorities were vital in the planning of the current four-year work programme for Committees and they enable Committee Chairs to maintain direction and progress. It aims at achieving two Goals by the end of that period.

Goal 1: Ensure that aids to navigation systems and related services, including e-Navigation, Vessel Traffic Services, and emerging technologies, are harmonised through international cooperation and the provision of standards.

Goal 2: All coastal states have contributed to an efficient global network of aids to navigation and services for the safety of navigation, through capacity building and the sharing of expertise.

In order to achieve those Goals, the Strategic Vision has a series of Strategies for 2014-2026 and a set of Priorities for 2014-2018.

When the Strategic Vision was approved, the Council also approved the current structure of four Committees, and the Technical Domains which indicate the areas in which the Committees should work.

The Strategic Vision xxxxxxx

(Insert some or all of the Strategic Vision?)

3. TECHNICAL ACTIVITY

3.1. Management of technical activity

The management of the technical work of IALA is the responsibility of the Deputy Secretary-General, assisted by the Technical Operations Manager and her team.

The Technical Operations Manager's team includes two full-time technical experts seconded to IALA HQ by national members, and three part-time experts managing Committee documents and meetings.

3.2. Creation of technical documents

The primary function of the Committees is to create draft guidance documents, Recommendations, Guidelines, Model Courses, and Manuals, for approval by the Council and then use by members and all concerned with aids to navigation.

Each Committee is led by a Chair, assisted by a Vice-Chair. Committee Chairs structure and manage the work of the Committees, including establishing working groups and appointing the leaders of these groups.

3.3. Work programmes for Committees

Work Programmes for Committees are prepared by PAP before the start of each four-year work period. The Work Programmes are adjusted as necessary to meet the objectives of the four year period, and changes are noted by Council.

4. TECHNICAL DOCUMENTS

4.1. Concept

Within the content of the Strategic Vision is the creation of Standards. These will be top level technical documents, supported by Recommendations at the second level and Guidelines at the third level. Figure 1 shows the general scheme, with names for example purposes only.

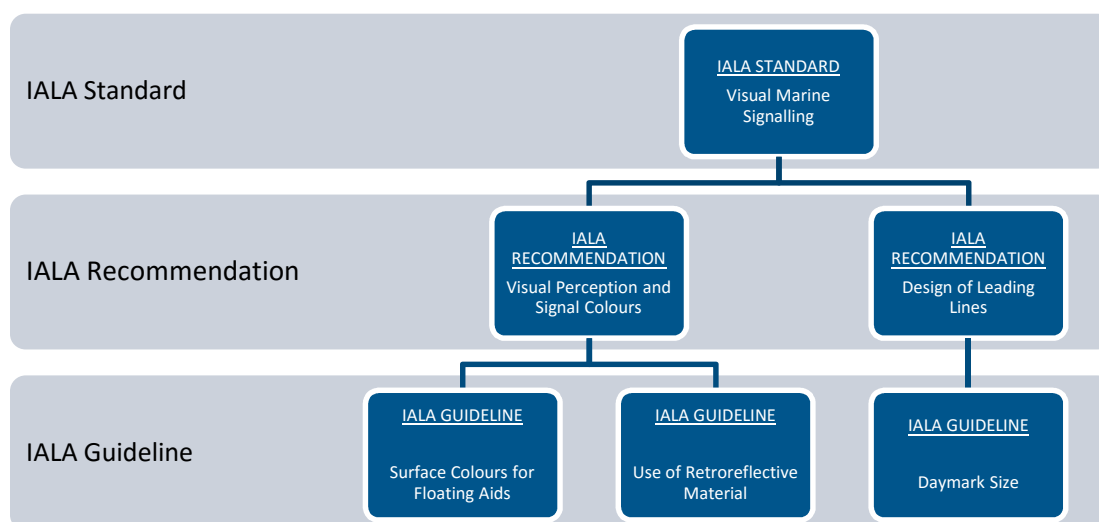


Figure 1 Documents hierarchy

IALA documents also include Model Courses, Manuals, and the IALA Dictionary which are not shown in Figure 1.

4.2. Plan for the introduction of Standards

A forward plan for seven initial Standards was approved by Council in December 2014. In December 2015 the Council agreed the draft titles of the first seven Standards and the general content for subsidiary Recommendations.

IALA is now working towards revising existing Recommendations and Guidelines under the seven Standards plan, and developing new guidance documents made necessary by changes in technology and the maritime world.

The intention is to have this scheme of revised and new Recommendations and Guidelines completed and approved by late 2017, and propose the seven draft Standards for approval by the General Assembly to be held during the 2018 Conference at Incheon, Korea.

4.3. Participation in projects

Where it would assist or speed the development of needed guidance documents, the Secretariat may participate as a partner in a technical project, receiving funding from the project sponsor.

At present IALA is participating in the EfficienSea2 project, a European funded project to create and deploy innovative solutions for safer and more efficient waterborne operations. The project receives funding from the European Union's Horizon 2020 research and innovation programme. EfficienSea2 has 32 partners from countries in the Baltic Sea region and beyond. The IALA involvement is concerned primarily with the development and management of technical guidelines that will arise from the project. The project is scheduled to end in May 2018.

4.4. Description and purpose

The tables which follow describe the purpose of each document in the hierarchy, its purpose, and its method of approval.

Note that in Figure 2 the titles of the seven initial Standards are shown in the top row. The boxes below the Standards simply describe the general technical area for subsidiary Recommendations. They are not a list of Recommendations titles.

4.4.1. Documents, definition and purpose

<i>Document type</i>	<i>Definition</i>	<i>Purpose</i>	<i>Typical users</i>
Standard	IALA Standards form a framework, implementation of which by all coastal states will harmonize marine aids to navigation worldwide. IALA standards cover technology and services and are non-mandatory.	Essential for global harmonisation. Suitable for citation in legislation or regulations.	State National authority IMO and other IGOs
Recommendation	IALA Recommendations describe how to plan, design, operate, and manage marine aids to navigation in order to comply with IALA Standards. Each Recommendation is related to an IALA Standard.	Recommended practice to aid in meeting an IALA Standard, and which may be suitable for citation in legislation or regulations. Ensures that a product or service meets expectations	State National authority Local authority Industrial Member Contractor
Guideline	IALA Guidelines provide information on aspects of IALA Recommendations, indicating best practices for implementation. Each Guideline is related to an IALA Recommendation.	Practical and detailed information for implementing an IALA Recommendation	Manager or technician Industrial Member Contractor
Manual	IALA Manuals provide an overall view of a wide subject area. "IALA Manuals" includes the IALA Dictionary.	Introduction to broad topic areas, such as Vessel Traffic Services, Aids to Navigation, and Heritage.	State National authority Manager or technician
Model Course	IALA Model Courses are training documents which define the level of training and knowledge needed to reach levels of competence defined by IALA.	For training of managers, operators and technicians to the IALA recommended level of competence.	State National authority Teaching staff VTS personnel Managers Technicians



4.4.2. Documents, approval method

<i>Document type</i>	<i>Approval method</i>
Standard	By the IALA General Assembly in accordance with Article 7.3 of the Constitution.
Recommendation	By the IALA Council in accordance with Article 8.4 of the Constitution.
Guideline	By the IALA Council in accordance with Article 8.4 of the Constitution.
Manual, including the IALA Dictionary	By the IALA Council in accordance with Article 8.4 of the Constitution.
Model Course	By the IALA Council in accordance with Article 8.4 of the Constitution.

4.4.3. Standards, initial set of seven

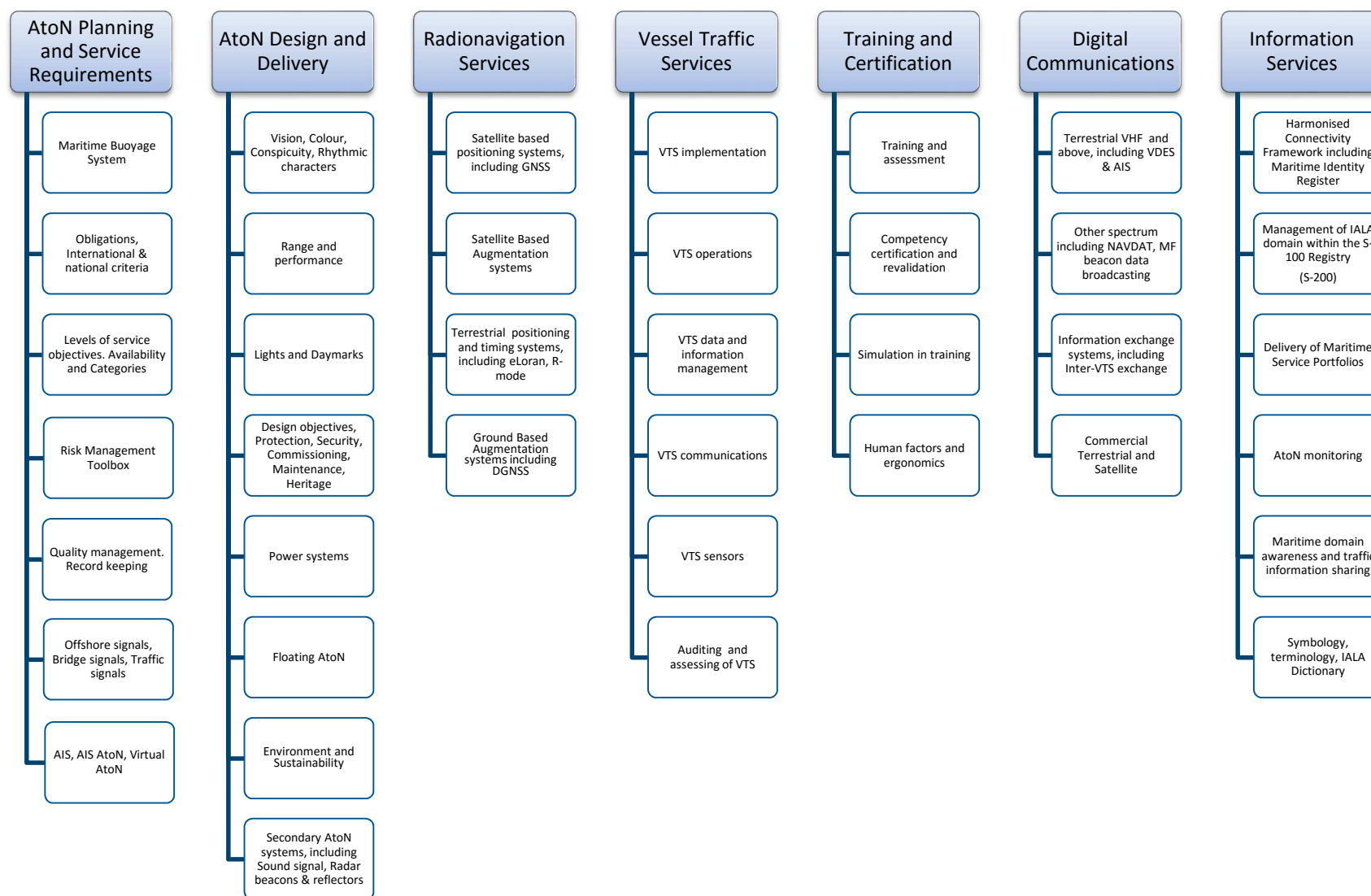


Figure 2 Standards draft plan

5. POLICY FOR AIDS TO NAVIGATION REQUIREMENTS AND MANAGEMENT

5.1. Policy Content – Aids to Navigation Requirements and Management

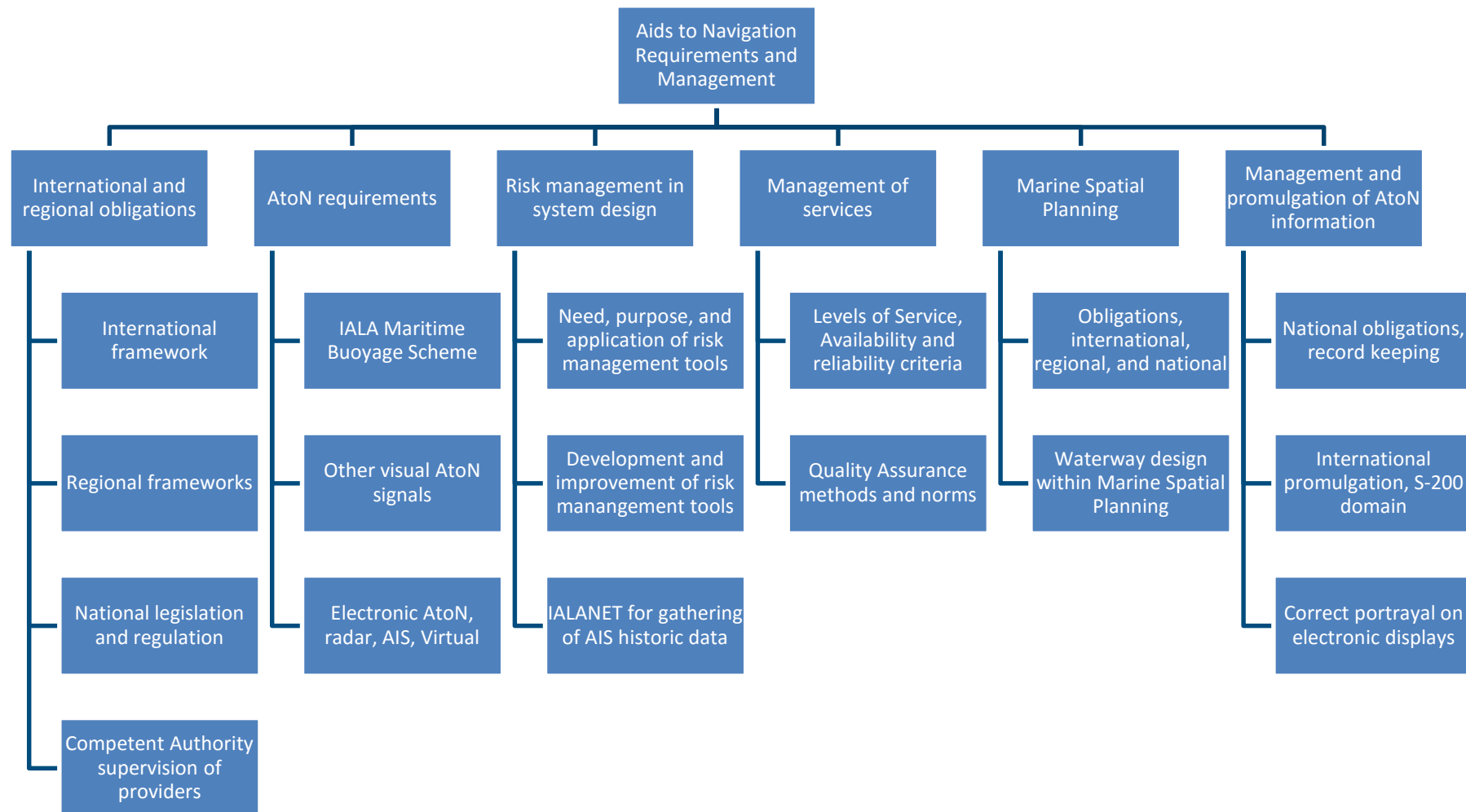


Figure 3 Aids to Navigation Requirements and Management Policy Content

5.2. Policy Statement – Aids to Navigation Requirements and Management

5.2.1. Fields of work

Activities will be carried out in the following field.

- International and regional obligations
- Aids to Navigation requirements
- Risk management applied to aids to navigation system design
- Management of services
- Marine Spatial Planning
- Management and promulgation of information

The overall objective will be to create and maintain a suite of guidance documents to inform those concerned with the planning, management, and operation of aids to navigation, and also those concerned with the approval, certifying, or supervision of aids to navigation service providers.

The Aids to Navigation Requirements and Management Committee will concern itself with higher level advice on requirements for and management of aids to navigation systems. The Engineering and Sustainability Committee will work on engineering and technical aspects of aids to navigation provision and maintenance.

5.2.2. International and regional obligations

The obligations of coastal states to provide aids to navigation are included in international Conventions. The Safety of Life at Sea Convention Chapter V, Regulation 13 is of prime importance, but other Conventions such as UNCLOS and also regional arrangements, for example EC Directives, may also apply.

National legislation and regulations may also prescribe the obligations of aids to navigation services providers, whether government or private.

IALA will provide information and guidance to its members on the conventions and other instruments that provide the international framework for the provision of aids to navigation.

It will also provide guidance to advise members on national frameworks for the establishment and operation of aids to navigation competent authorities, including

- Advice on content of legislation and regulation
- Responsibilities of a competent authority for aids to navigation, and organisational considerations
- Certification and auditing of aids to navigation providers
- Promulgation of aids to navigation information nationally and internationally

5.2.3. Aids to Navigation requirements

Guidance will be provided to describe the requirements for the use of the IALA Maritime Buoyage Scheme and other aids to navigation including AIS, radar, and virtual aids to navigation for marking natural or man-made hazards, giving position information, and marking safe routes to protect safety of life and the environment.

The guidance will take account of international norms for the accuracy required of on-board position fixing systems, including electronic systems, but IALA may comment on these for specific waterway types or circumstances.

5.2.4. Risk management applied to aids to navigation system design

The design of aids to navigation systems for waterways can be carried out in a rigorous manner by the use of risk management analysis tools, employing computer assisted techniques. Until 2016, IALA's work in this field was managed by a Steering Group which included members from IT specialists. From 2016 the risk management work will be taken within the Aids to Navigation Requirements and Management Committee, and previous members of the Steering Group will be encouraged to participate and contribute their knowledge and advice.

Development of risk analysis tools

The improvement of existing risk management analysis tools and the development of new ones will be one objective, and the training of users of the tools will be a second. The Aids to Navigation Requirements and Management Committee will develop and expand the tools presently available and will create guidance explaining the need, purpose, and use of the analysis tools.

The IALA World Wide Academy will play an important role in raising awareness of the merits of risk management analysis and in facilitating the training of users of the tools.

Gathering and use of historical AIS data

For some years, IALA has encouraged its national members to contribute received AIS data to the IALANET system which stores historical AIS data and also allows IALANET participants to exchange data between countries. With the development of improved risk analysis tools which use historical AIS data, the value of the IALANET system has moved emphasis from the exchange of near real-time information between participating nations to the use of the historical data for risk analysis.

IALA will focus its attention on the use of the IALANET historical data in risk analysis for waterway design and will encourage national members to contribute to the IALANET data bank and to use the historical data to optimise waterway design.

5.2.5. Management of services

Guidance will be provided on correct management of aids to navigation services with emphasis on levels of service, reliability and availability criteria and norms, and quality assurance methods and standards.

5.2.6. Marine Spatial Planning

Increasing pressure on marine space, for the exploitation of resources including energy, requires that in some areas the design of waterways must be carried out in cooperation with other national or regional bodies.

IALA guidance on Marine Spatial Planning will assist aids to navigation competent authorities to ensure safe and efficient waterways design within the Marine Spatial Planning process.

5.2.7. Management and promulgation of information



The management and promulgation of information on aids to navigation is carried out at national and international level. As part of the development of e-Navigation, IALA has been allocated the S-200 domain in the IHO S-100 GIS registry.

IALA will provide advice for the use of national competent authorities on the correct management of aids to navigation information and its provision to international registries.

With the change from paper charts to electronic displays, the correct portrayal of AtoN on electronic displays is vital to safe navigation. IALA will work with its members and with the IHO to assist in ensuring correct portrayal of AtoN information.

The e-Navigation Committee and the Aids to Navigation Requirements and Management Committee will be involved in this work, with the former generally concerning itself with guidance for competent authorities, and the latter with technical aspects of information organisation.

5.2.8. Standards, Recommendations, and Guidelines for Aids to Navigation Requirements and Management

IALA will create Standards, Recommendations, and Guidelines for Aids to Navigation Requirements and Management.



6. POLICY FOR e-NAVIGATION

6.1. Policy Content – e-Navigation

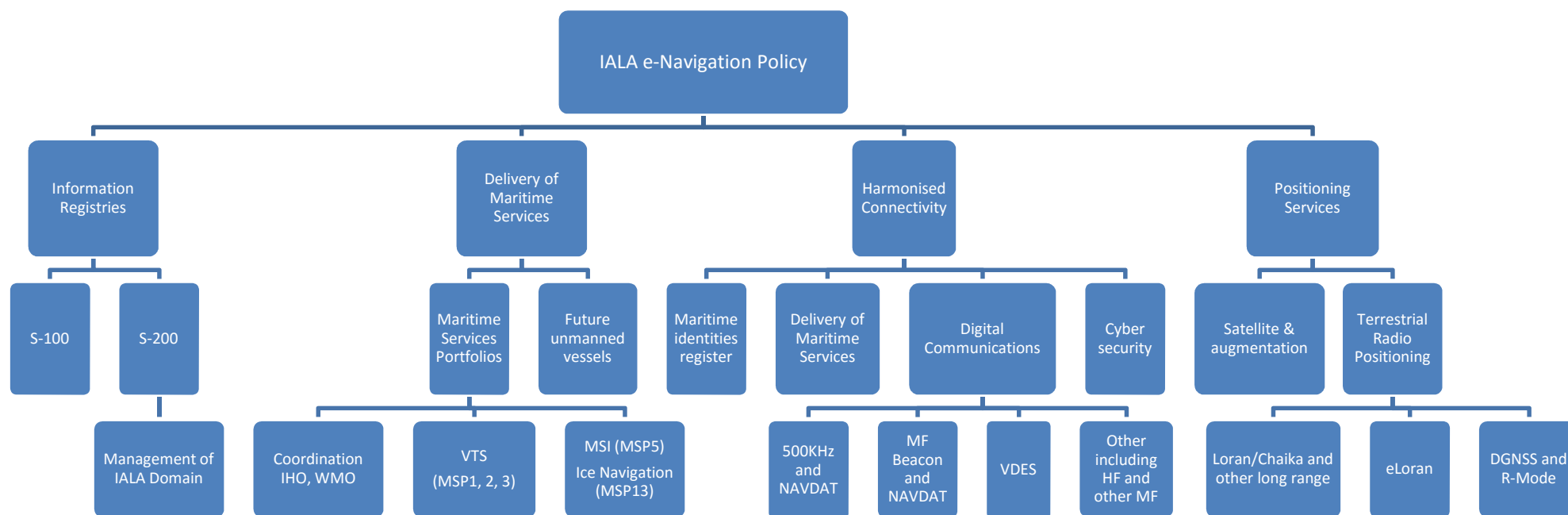


Figure 4 e-Navigation Policy Content

6.2. Policy Statement – e-Navigation

6.2.1. Fields of work

Noting the Goals and Strategies of the IALA Strategic Vision, as approved by the IALA Council in December 2013, the work of IALA in e-Navigation will be carried out in the following fields:-

- Information Registries
- Delivery of Maritime Services
- Harmonised Connectivity
- Cyber Security
- Positioning Services

[Or should it be

- Harmonisation
- Implementation
- Telecommunications
- ENAV Services including Cyber Security
- Positioning, Navigation, and Timing (PNT)]

6.2.2. Information Registries / Harmonisation

The harmonised connectivity of all e-navigation elements is essential to ensure delivery of Maritime Services and to avoid erroneous interpretation of received data. This will require:-

- Common Marine Data Structure (based on IHO S100)
- Establishment of a Unique Identifiers for Maritime Resources [~~Maritime Identities Register~~]
- Harmonised MSPs
- Harmonised communications
- ???

The Common Marine Data Structure uses the International Hydrographic Organisation (IHO) S-100 Registry will be the means by which e-Navigation information is registered and made available to the maritime community.

IALA will use its S-200 Domain within the S-100 Registry for the registration of aids-to-navigation information. A management structure for maintaining this Domain will be established and operated by IALA, and guidance documents for this management will be created.

IALA will work to establish a system of Unique Identifiers for Maritime Resources [~~Maritime Identities Register~~], and will cooperate with other international organisations to achieve this. IALA does not have an ambition to be the host of this Register.

6.2.3. Delivery of Maritime Services / Implementation

IALA will work for the harmonisation of maritime services using the Maritime Services Portfolios (MSPs) scheme of the International Maritime Organization (IMO) e-Navigation Strategy Implementation Plan (SIP), updated to reflect the latest needs, and adapted for digital telecommunications. See Annex 7, page 11 of IMO document NCSR1/28, which lists sixteen initially proposed MSPs.

IALA will cooperate with other bodies, including the IMO, the IHO, and the World Meteorological Organization (WMO) coordinate a structure of MSPs. IALA envisages that this set would include some globally harmonised MSPs and other MSPs that would be defined locally or by particular user groups.

IALA will work to harmonise MSPs for Vessel Traffic Services (VTS), including Information Services, Navigational Assistance Services, and Traffic Organisation Services, again with a mix of globally harmonised and locally defined services.

The provision of maritime services for unmanned vessels has not been addressed yet by IALA. IALA will decide at a later date what services for unmanned vessels should be within its concern.

6.2.4. Harmonised Connectivity / Telecommunications

IALA will focus on:-

- The VHF Data Exchange System (VDES)
- 300KHz broadcast using converted DGNSS stations
- 500KHz broadcast

IALA notes that other digital radio communications, including existing and future satellites services and HF digital radio may be used for MSP broadcast, but will not expend effort in these areas.

VHF Data Exchange System (VDES)

VDES will be the successor to the present AIS, and includes the present AIS frequencies AIS1 and AIS2. Shore authorities should plan to convert their existing AIS base station networks to VDES base station networks as soon as the technical characteristics of VDES have been finalised by IALA Recommendation and the publications of the International Telecommunications Union (ITU).

VDES is expected to become the primary means for shore authorities to provide toll-free higher-speed maritime services in coastal and harbour areas. Implementing VDES ashore and afloat will enable provision of harmonised shore services without communications time cost, and the freeing of the channels AIS1 and AIS2 for safety of navigation.

VDES will require upgrading of ship AIS systems to the VDES standard. This may involve firmware upgrade for some newer AIS ship units or replacement of hardware for older units.

IALA will maintain its online register of AIS Application Specific Messages and will encourage the moving of these and other messages not for safety of navigation from AIS1 and AIS2 to other VDES channels.

Longer range terrestrial broadcast of MSPs

IALA will encourage the provision of MSPs to longer range by digital terrestrial radio using converted MF DGNSS stations and 500 KHz broadcast.

In summary, IALA's work to achieve harmonised digital radio communications will focus on:-

- The VHF Data Exchange System (VDES)
 - For terrestrial and satellite communications for higher-speed delivery of MSPs
 - To about 30 miles from shore

- Converted MF DGSS stations [possibly using NAVDAT format]
 - For lower-speed delivery of MSPs
 - And optionally DGNSS messages
 - To about 100 miles from shore
 - And converted to R-Mode for GNSS back-up positioning
- 500KHz using NAVDAT format as the replacement for Navtex services
 - For lower-speed delivery of MSPs
 - Over long range

Maritime Cloud

The Maritime Cloud is planned to be a digital Information Technology (IT) framework consisting of standards, infrastructure and governance that facilitates secure interoperable information exchange between stakeholders in the maritime community using the principles of Service Oriented Architectures (SOA). The core of the Maritime Cloud consists of three key infrastructural components providing central framework services.

It will contain a registry of Maritime Service Portfolios (MSPs), a Maritime Identity Register which is expected to be the set of Unique Identifiers for Maritime Resources mentioned above, and a geo-aware Maritime Messaging Service which takes account of available data links, and can use geo-casting or addressed messages.

This concept is presently being developed by the EfficienSea 2.0 project in which IALA is a contracted partner.

6.2.5. ENAV Services

XXXXXXXXXXXXXXXXXXXX

6.2.6. Cyber security

Cyber security for maritime services will be developed in cooperation with other international and regional organisations and will require coordination of shore service providers, VTS system designers, and ship system designers.

Cyber security should be provided in applications, not within the communications transport layer.

6.2.7. Positioning Services

IALA sees resilient positioning as desirable for safe and efficient navigation. At present the GNSS systems GPS and GLONASS provide global coverage. Galileo and BeiDou GNSS systems are under development and will provide extra resilience when operational.

IALA is not directly concerned with the provision of Global Navigational Satellite Services (GNSS) or with the provision of augmentation services via satellite, but encourages the provision of these services.

All four GNSS mentioned above use the same frequency band for positioning signal broadcast, and all can be vulnerable to jamming and spoofing by a local terrestrial signal. Increased positioning resilience for navigators can be achieved by the provision of terrestrial radio-positioning [back-up] broadcast.

6.2.8. Terrestrial radio-navigation services for GNSS resilience

R-Mode conversion of existing DGNSS radio beacons

Noting the large number of existing DGNSS Medium Frequency Radio Beacons in service worldwide, IALA views the conversion of these to R-Mode operation as having maximum potential for providing terrestrial back-up positioning for GNSS for maritime use. The conversion of these existing DGNSS beacons to R-Mode could provide a global network of harmonised services for positioning. Positioning accuracy would depend on beacon locations, geometry, and other factors.

IALA recommends that its members should consider retaining existing DGNSS Medium Frequency Radio Beacons, and should plan to convert them to R-Mode when IALA has developed technical Recommendations for R-Mode. If existing DGNSS Medium Frequency Radio Beacon broadcasts are to be discontinued, then the sites and antennas should be retained in anticipation of conversion of the site to R-Mode operation.

Conversion of existing DGNSS stations to R-Mode should include provision for broadcast of Maritime Service Portfolio (MSP) information, possibly via NAVDAT format.

IALA will publish a Recommendation for R-Mode operation of Medium Frequency Radio Beacons when the technical requirements are finalised, which is planned for 2017.

Loran, Chayka

IALA will strongly support the work of the Far East Radionavigation Service (FERNS) to provide Loran-C and Chayka services and other future radio-navigation services.

eLoran

Future services provided by the FERNS Parties may include eLoran if the FERNS Parties so decide, but the establishment of eLoran services in other parts of the globe appears unlikely, and IALA will place priority on R-Mode over eLoran in the creation of its Recommendations.

Timing services

IALA does not consider that the provision of terrestrial broadcast timing services is within its scope, except as may be inherent in terrestrial positioning services.

6.2.9. e-Navigation Projects

IALA will engage as a partner in a limited number of e-Navigation development projects with the objective of furthering progress and the development of its technical guidance for e-Navigation.

A current project is EfficienSea 2.0, led by the Danish Maritime Authority.

6.2.10. Standards, Recommendations, and Guidelines for e-Navigation

IALA will create Standards, Recommendations, and Guidelines for e-Navigation. Only the minimum necessary to ensure essential harmonisation will be created, to allow maximum freedom of creative development by users and providers.

7. POLICY FOR AtoN ENGINEERING AND SUSTAINABILITY

7.1. Policy Content – Aids to Navigation Engineering and Sustainability

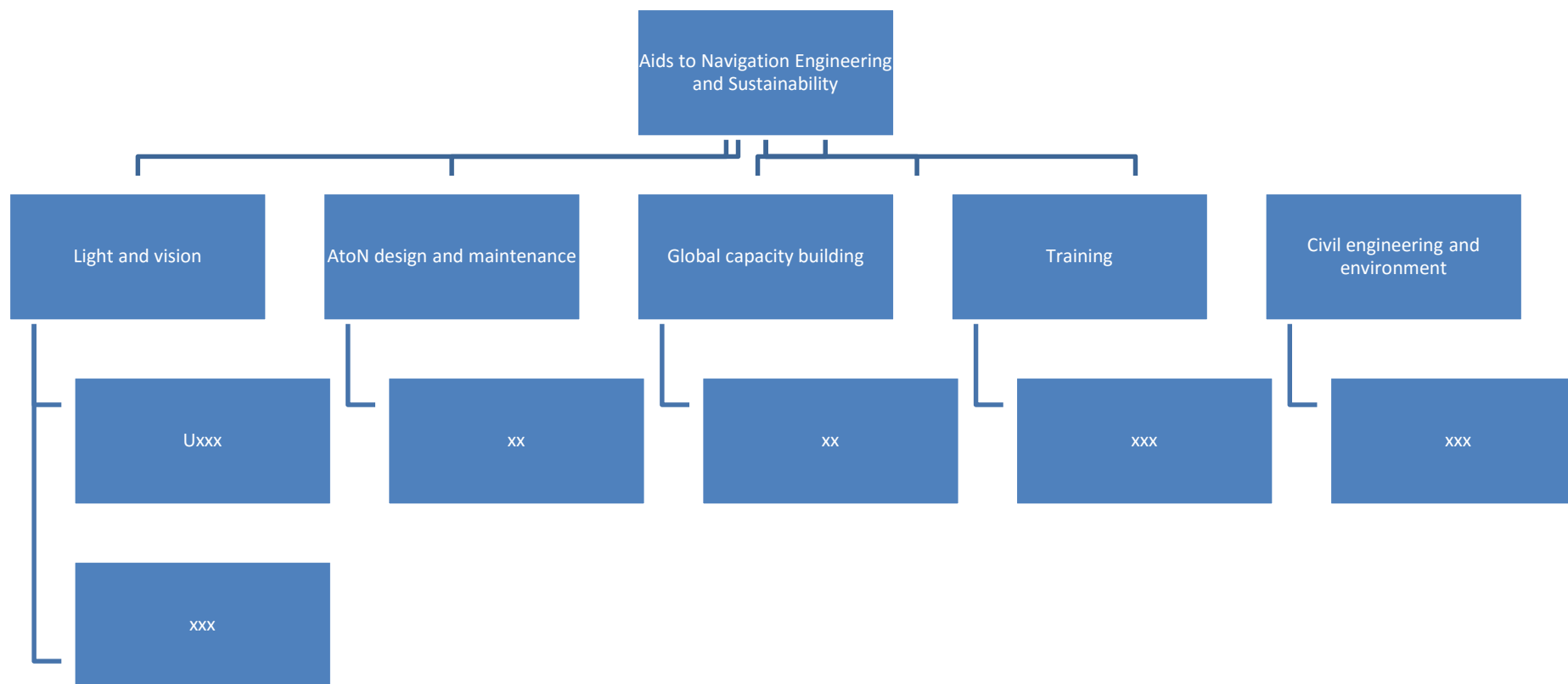


Figure 5 Aids to Navigation Engineering and Sustainability Policy Content

7.1. Policy Statement – Aids to Navigation Engineering and Sustainability

7.1.1. Fields of work

Noting the Goals and Strategies of the IALA Strategic Vision, as approved by the IALA Council in December 2013, the work of IALA in Engineering & Sustainability will be carried out in the following fields:-

- Reviewing the current IALA document suite to support IALA Standards & Recommendations in the following areas:
 - AtoN Lights
 - Power systems
 - Maintenance
 - Floating AtoN
- Promoting Sustainability in AtoN provision
- WWA Support in updating training modules
- IALA Navguide review and revision
- IALA Dictionary

7.1.2. Document review

The suite of documents available to support AtoN authorities, providers and manufacturers has held IALA in good stead for many years and has been developed to incorporate emerging technology, new methods and legislative changes. The new IALA Standards presents the opportunity to reorganise these documents into a more structured and logical format. This will require a combination of reviewing, merging, deletion and the writing of some new documents. This is a major piece of work to cover the whole arena and this work will carry over into the next workplan from 2018. The objective is to provide a comprehensive suite of Recommendations, Guidelines, Training modules and Manuals that will provide all the technical information needed to select, install, maintain and operate AtoN in a competent manner worldwide.

- AtoN Lights: The E-200 series of recommendations is well developed covering this topic though it requires review and updating to ensure a common format and verification with modern materials and current usage.
- Power systems; The guidance on Power systems is to be developed to ensure that it is accurate and relevant to all users in order to accurately assess, design install and maintain the appropriate level of power to support AtoN systems worldwide. A new recommendation on AtoN Power Systems is to be written with commensurate guidelines to support this.
- Maintenance: Guidance on maintenance is to be reviewed and merged to reduce duplication. A new recommendation on AtoN Design, Implementation and Maintenance is to be written with commensurate guidelines to support this. This area will cover all maintenance topics including Lightning protection, Painting, Building conditioning & cathodic protection.
- Floating AtoN: The existing recommendations in this area are to be reviewed and merged into a new recommendation on Floating AtoN with commensurate guidelines to support this. Current guidelines are to be reviewed and expanded to ensure full coverage of this often neglected but prevalent AtoN.

7.1.3. Light and vision

IALA will maintain its guidance on visual perception, light measurement and computation, colour, reflective effects, and similar. Coordination with CIE will be important as well as the advice of specialists in this field within the Committee.

7.1.4. Safe working practices

In general IALA will not provide guidance on safe practices for aids to navigation work, and will leave this to be covered by national or local rules.

7.1.5. Providing AtoN Services in Extremely Hot Climates

This challenging topic has never been analysed by IALA before and work will be carried out to generate guidance on the design, performance, operation and maintenance of AtoN in extremely hot climates, and Human Factors related to working in extremely hot climates

7.1.6. Sustainability in AtoN provision.

Sustainability is a key area of interest for IALA and emphasis will be placed on environmental responsibility in aids to navigation provision, with an emphasis on sustainable power sources, especially renewable energy sources and newly-emerging power storage systems. Current guidance on this topic will be reviewed for modernity.

Guidance documents will include advice on safe disposal of consumables related to aids to navigation power systems, including primary batteries, secondary batteries, solar panels, and electronic components.

Treatment, use, and disposal of materials with a significant environmental impact such as mercury in older lighthouse pedestals, anti-fouling on buoys and structures, paints and solvents, will be included in guidance documents.

Legacy structures with ongoing use as AtoN and which are typically subject to local statutory regulation will be the subject of specialist guidance to ensure that their heritage features are preserved while the aids to navigation service is not compromised.

7.1.7. WWA Support in updating training modules

The Engineering & Sustainability Committee will continue to review, update and create training modules for the use of the World Wide Academy and of IALA members. Modules still to be written are:-

- Xx
- Yy
- Zz

7.1.8. IALA Dictionary

At present there remains some inconsistency in the definition of aids to navigation terms within IALA guidance documents. The IALA Dictionary was created to eliminate this by being a single reference point for aids to navigation terms to ensure consistent use and meaning throughout the IALA document suite.

The Engineering & Sustainability Committee will lead the IALA Dictionary editing process. This work is increasingly important as IALA moves towards introducing its first standards and as the change to an IGO proceeds.

The Dictionary will also carry a list of standard IALA acronyms.



As the Dictionary is developed, definitions and acronyms within guidance documents will be removed, or reduced in scope.

7.1.9. Heritage matters

Aids to navigation have a long heritage and the history of lighthouses has an attraction for many outside the world of aids to navigation service providers and users.

In many littoral countries lighthouses and similar aids to navigation, and also artefacts and publications associated with them, form an important part of the national heritage and are being recorded and preserved for future generations.

When heritage structures continue to be used as aids to navigation, the generation of guidance to advise on their maintenance and correct preservation will remain part of IALA's work and will be done by the appropriate technical Committee. However there will be other structures no longer used as aids to navigation, and where the guidance above does not apply the technical Committee will generally not involve itself, but leave preservation and maintenance advice to others. In many cases there will be a national body, government or other, which is concerned with the upkeep of these structures.

In order to facilitate the preservation and maintenance of lighthouses and other buildings no longer used as aids to navigation, and also to consider the preservation of artefacts and documents, IALA will from time to time convene the IALA Heritage Forum. The Forum will provide an opportunity for the exchange of information and experience in the maintenance and preservation work. It will be open to IALA members and to interested non-members by approval of the Secretariat.

The Chair of the IALA Aids to Navigation Engineering and Sustainability Committee will oversee the activities of the Forum. The Secretariat and the Chair will decide on the dates of meetings of the Forum.

7.1.10. Standards, Recommendations, and Guidelines for Aids to Navigation Engineering and Sustainability

IALA will create Standards, Recommendations, and Guidelines for Aids to Navigation Requirements and Management[, with a particular focus on

- Aaa
- Bbb
- Ccc].

8. POLICY FOR VESSEL TRAFFIC SERVICES

8.1. Policy Content – Vessel Traffic Services

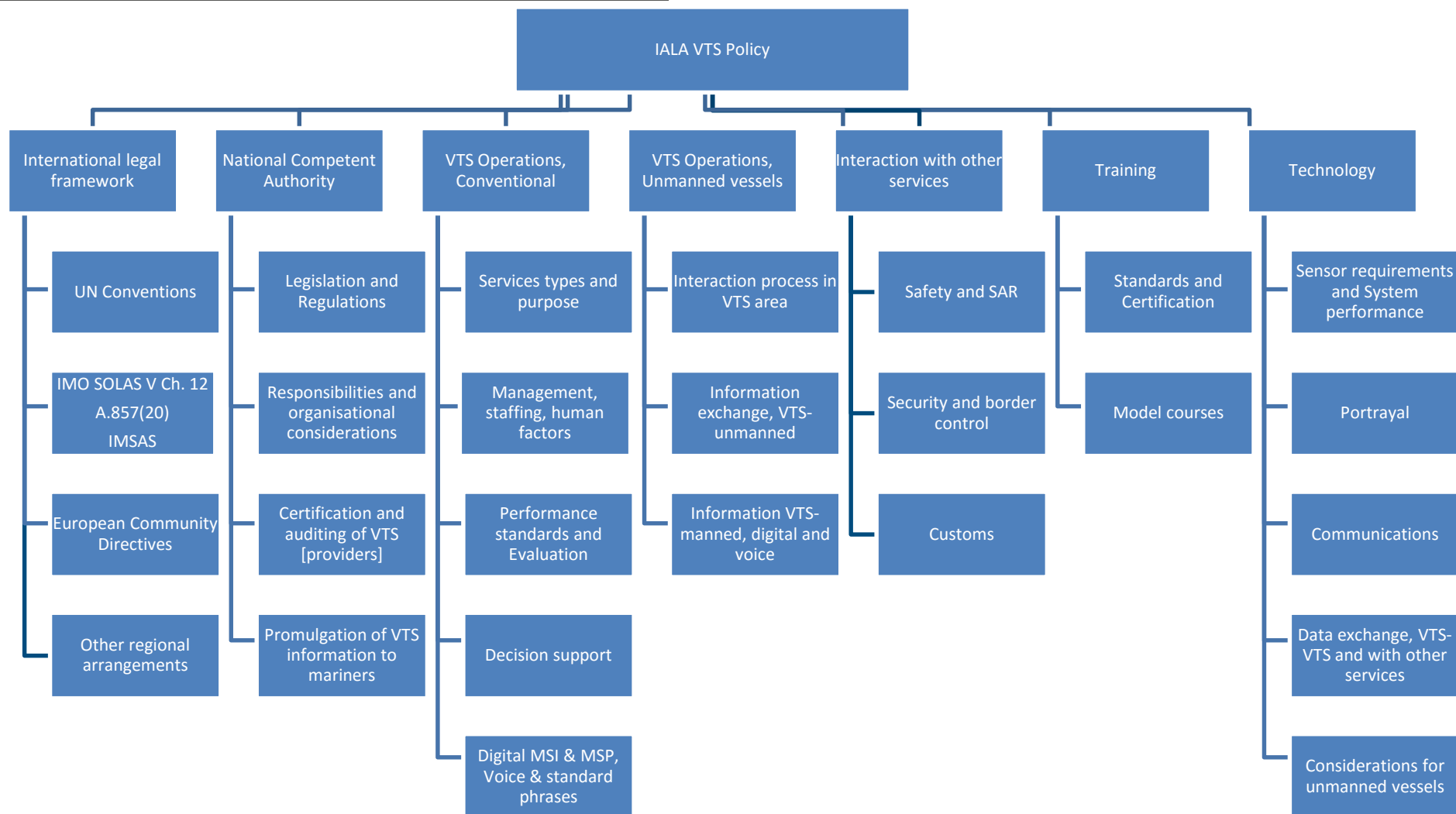


Figure 6 VTS Policy Content

8.2. Policy Statement – Vessel Traffic Services

8.2.1. Fields of work

Noting the Goals and Strategies of the IALA Strategic Vision, as approved by the IALA Council in December 2013, the work of IALA in Vessel Traffic Services (VTS) will be carried out in the following fields.

- International framework for the provision of VTS
- National competent authority and legislation and regulations
- Operations
- Training
- Technological requirements

8.2.2. International framework for the provision of VTS

IALA will provide information and guidance to its members on the conventions and other instruments that provide the international framework for the establishment of VTS.

As necessary, IALA will work with its members and with other international organisations towards maintaining the international framework.

8.2.3. National competent authority and legislation and regulations

Guidance will be created to assist members in the establishment of national frameworks for the establishment and operation of VTS competent authorities, including

- Advice on the content of legislation and regulation
- The relationship of VTS with other Aids to Navigation services
- Responsibilities of a competent authority for VTS, and its organisational considerations
- Certification and auditing of VTS providers and their staff
- Promulgation of VTS information nationally and internationally

8.2.4. Operations

IALA will create guidance for the use of VTS providers, on the correct operation of a VTS to ensure the safety and efficiency of vessel movements in the VTS area. Guidance will cover the various types of VTS, port, coastal, regional, national, and the services that can be provided.

This guidance will aim at harmonising VTS operational procedures worldwide, so that ships' masters will encounter familiar VTS procedures, but recognising that local requirements, such as geographical characteristics, traffic density and diversity, accessibility, and environmental conditions may sometimes dictate special needs. The determination and decision of which services, and on what level they shall be provided to shipping and other stakeholders will remain assigned to the relevant national, regional or local authorities.

IALA guidance for VTS operations will include

- Performance standards
- Performance monitoring and evaluation

- Management and staffing
- Decision support tools
- Digital information exchange
- Voice communications procedures and standard phrases

IALA will cooperate with sister organisations, in particular with IMPA and IHMA, to ensure that its operations guidance is complete and appropriate.

The provision of Maritime Safety Information (MSI) in the form of digital Maritime Service Portfolios (MSPs) is a future component of VTS. IALA will work with IMO, IHO, CIRM, and others towards the definition and harmonisation of these digital services.

IALA will assume responsibility for the detail of MSPs allocated to VTS.

8.2.5. Interaction and cooperation of VTS with other national or regional services

Although the coordination of VTS with other services, such as SAR, police, customs, and border control will be a matter for local, national, or regional decision, IALA will work to raise awareness of the capabilities of VTS sensors and VTS organisations to complement the work of these other services at times of special need, and will include awareness of this in its training.

8.2.6. Training

Standards of training and certification of VTS operators, supervisors, and managers will be covered by guidance documents and by the provision of IALA World Wide Academy (WWA) Model Courses on VTS operations.

The Model Courses will be created for the use of IALA-accredited training institutions, and IALA will encourage the introduction of mandatory training and accreditation of VTS operators.

The WWA will assist national competent authorities with the process of accrediting VTS training institutions, and advising on the training of trainers.

8.2.7. Technological requirements

IALA's technological guidance for VTS will describe the sensor and system performance required for VTS equipment installations, but IALA will not concern itself with technical specifications.

VTS for unmanned vessels

IALA will prepare for the advent of unmanned vessels and for their interaction with conventional manned vessels within VTS areas. IALA will cooperate with other international organisations in this preparation work.

Initial work in this area will consider the interaction process of unmanned vessels with conventional traffic, the information flow between unmanned vessels and shore authorities, and the related information exchange with conventional traffic.

IALA envisages that unmanned vessels will need services from shore, including MSI packaged in MSPs, perhaps in formats specific for unmanned vessels.



8.2.8. Standards, Recommendations, and Guidelines for Vessel Traffic Services

IALA will create Standards, Recommendations, and Guidelines for use by VTS competent authorities, VTS providers, and by IALA-accredited VTS training institutions.

IALA will create Model Courses for IALA-accredited VTS training institutions.



9. TECHNICAL DOMAINS FOR COMMITTEES

In 2013 the PAP agreed four sets of Technical Domains to define the areas of work for the four Committees. These were approved [noted?] by Council in December 2013 when it approved [noted?] the Committee structure for 2014-2018, and were used by the PAP for designing the 2014-2018 work programme for Committees.

These Technical Domains have largely served their purpose, although they can assist as reminders, and the Secretariat and Committees will now [start to phase them out and] use the policy content Figures above.

The Technical Domains of December 2013, with some content updated since then, are reproduced on the following pages.



9.1. Technical Domains – AtoN Requirements and Management (ARM) Committee

<i>Technical Domains – AtoN Requirements and Management (ARM) Committee</i>	
TD#1 – Risk management and risk analysis tools	
	Risk management purpose, drivers, and principles
	Risk analysis tools
	Management and use of IALANET and other data sources for risk analysis
	Maintenance and expansion of IALANET for gathering of historical data
TD#2 – Requirements for AtoN systems	
	Requirements for the use of Maritime Buoyage Scheme and other AtoN including AIS , radar, etc. for marking, natural or man-made hazards, giving position information and safe routes to protect safety of life and the environment
	Use of Virtual AtoN
TD#3 – Management of AtoN services	
	Levels of service and Record keeping
	Availability and reliability criteria
	Quality management of AtoN services
	Means of provision, including contracting
TD#4 – Marine Spatial Planning	
	International, regional, and national planning and management of maritime areas
	National planning and decision making
TD#5 – Management and promulgation of AtoN information	
	National and international information storage and distribution
	Data populating for the S-200 domain in the S-100 GIS
	Portrayal of AtoN on electronic charts



9.2. Technical Domains – e-Navigation (ENAV) Committee

<i>Technical Domains – e-Navigation (ENAV) Committee</i>	
TD#1 – Data modelling and message systems	
	AtoN data information structure, exchange, presentation S-100 registry and Product Specifications S-100 registry – coordination of work by all Committees
	Message structure for e-Navigation including VDES
TD#2 – e-Navigation communications	
	VDES, satellite, WRCP
	AIS technology ASM coordination and web hosting
	ITU planning and liaison, WRC preparation and national coordination
TD#3 – Shore technical infrastructure	
	Resilient PNT shore services - DGPS, e-Loran, other
	Virtual AtoN technology
	Sharing of shore data
TD#4 – e-Navigation test beds	
	Data gathering and analysis Participation in and harmonisation of results of test beds Harmonisation policy and planning
	Monitoring of developments nationally and regionally, and effect on competent authorities
TD#5 – Maritime Service Portfolios	
	Maritime Service Portfolios, design, content, and implementation



9.3. Technical Domains for AtoN Engineering and Sustainability (ENG) Committee

<i>Technical Domains for AtoN Engineering and Sustainability (ENG) Committee</i>	
TD#1 – Light and vision physics	
	Visual perception Conspicuity and the effectiveness of visual signalling Background lighting effects and mitigation Colours in visual signalling Range and performance of visual AtoN
TD#2 – AtoN design and maintenance	
	Buoy and beacon engineering and performance, including power systems, harmonising and interfacing of equipment and systems, and remote monitoring and control Maintenance strategy and techniques Extreme environment AtoN engineering Safety of personnel
	Data populating for S-100
TD#3 – Global capacity building and training	
	Standards for training and certification of AtoN personnel
	Support for the WWA, including developing and coordinating model courses for AtoN and e-Navigation
TD#4 – Civil engineering and environment	
	Maintenance of AtoN structures Maintenance and repair of heritage structures still used as AtoN
	Protection of the marine environment
	Supervision of the Heritage Forum



9.4. Technical Domains – Heritage Forum

<i>Heritage Forum</i>	
TD#1 – Preservation of structures and artefacts	
	Preservation of structures no longer used as or for AtoN Selection and display of artefacts
TD#2 – Ownership, public access	
	Complementary use of historic structures Management of surplus property Branding and promotion



9.5. Technical Domains – Vessel Traffic Services (VTS) Committee

<i>Vessel Traffic Services (VTS)</i>	
TD#1 – Operations	
	VTS operations, service standards, and performance measures
	Inter-VTS operations, interactions with allied and other services
	VTS communications
	Monitoring and evaluating developments in VTS and potential impacts on the recognised framework for VTS
TD#2 – Technology	
	VTS systems technology, Sensors, Presentation
	VTS equipment standards and performance requirements
	Inter-VTS data exchange
	Data populating for S-100
TD#3 – VTS training	
	Qualification, training, and certification of VTS personnel
	Accreditation and approval process for VTS training
	Human factors
	VTS training for navigating officers
	Support for the WWA

END OF DOCUMENT