STRATEGIC VISION FOR THE PERIOD 2018-2026

PAP33-5.1, Secretariat 2017-01

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1. PURPOSE OF THIS DOCUMENT

This document reviews the 2014-2026 Strategic Vision and proposes revision for the period 2018-2026.

It takes account of the introduction of the new "Position on the Development of AtoN Services" in which the position of IALA is stated on technical developments, priorities in work programmes, and related matters. This is a document intended to be reviewed and amended as necessary once or twice per annum. The -Strategic Vision, on the other hand, is intended to be reviewed at intervals of about four years.
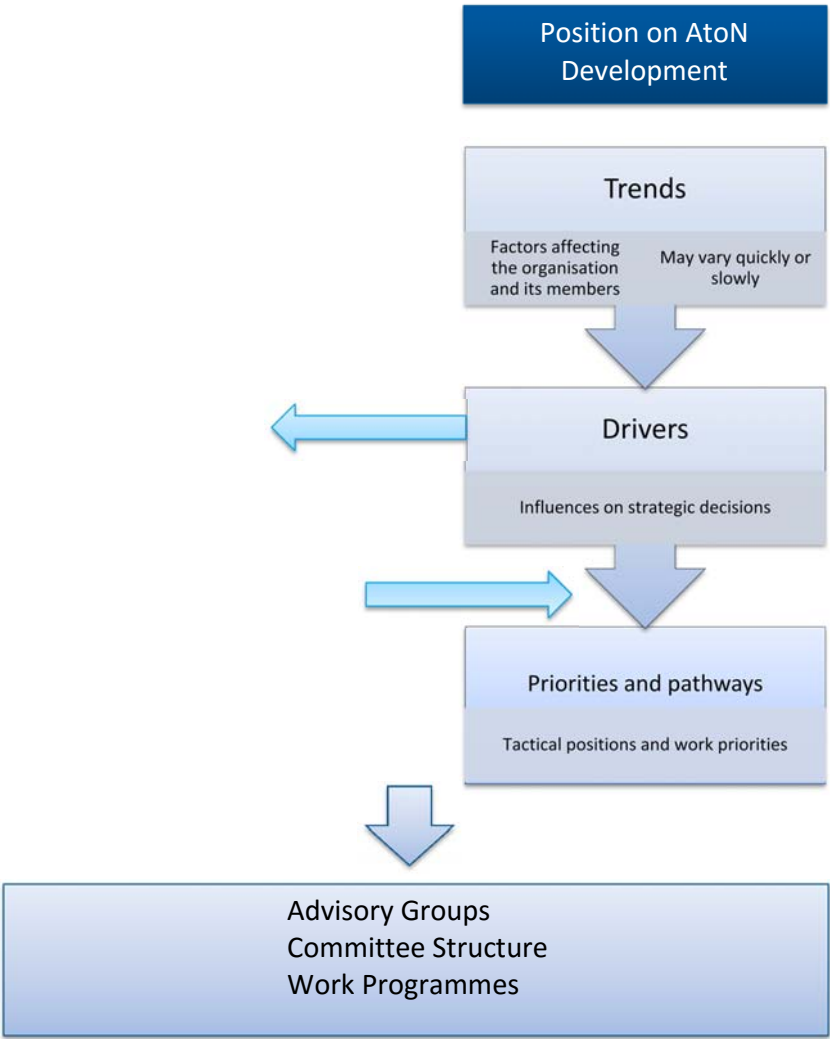
2. STRATEGIC VISION 2014-2026, BACKGROUND

The Strategic Vision was prepared in 2013, approved by Council in December 2013, and announced to the General Assembly in May 2014.

It covers three work periods of four years each to 2026, has two Goals for 2026, a Strategy for the period from 2014-2026, and a set of Priorities for 2014-2018. It also contains a Motto.

3. RELATIONSHIP OF THE COMPONENTS OF THE STRATEGIC VISION

The figure following shows how the components of the Strategic Vision are related to each other and to the components of the Position on the Development of AtoN Services. Note that the Trends and Drivers discussed below are placed in the latter document.

Strategic Vision

Position on AtoN Development

Trends

Factors affecting the organisation and its members	May vary quickly or slowly

Drivers

Influences on strategic decisions

Priorities and pathways

Tactical positions and work priorities

Advisory Groups
Committee Structure
Work Programmes

4. REVISION NEEDED FOR 2018-2026

The Purpose, Motto, and Goals, Strategy for 2026 all appear generally valid after nearly four years. This is a confirmation of the careful and extensive work that we did in 2013.

4.1. Purpose

The **Purpose** in the Strategic Vision 2014-2026 differs slightly in wording, but not in intent, from that in the Constitution. How this happened is not clear but it is desirable to change the Purpose to that stated in the Constitution.

The present wording in the Strategic Vision is as follows:

> The aim of IALA is to foster the safe and efficient movement of vessels through the improvement and harmonisation of marine aids to navigation worldwide, and by other appropriate means.

This should be replaced by the statement from the Constitution:

> The aim of IALA is to foster the safe, economic and efficient movement of vessels, through improvement and harmonisation of aids to navigation worldwide and other appropriate means, for the benefit of the maritime community and the protection of the environment.

The term "Marine Aid to Navigation" referred to in the Constitution of IALA, should be understood to be device, system or service, external to vessels, designed and operated to enhance safe and efficient navigation of individual vessels and/or vessel traffic. For the purposes of IALA this definition includes Vessel Traffic Services.

4.2. Motto

The Motto remains satisfactory. No change is required. "Successful voyages, sustainable planet."

4.3. Goals

The **Goals** also appear complete and correct. No change is required.

> G1 -- Marine Aids to Nnavigation systems and related services, including e-Navigation, Vessel Traffic Services, and emerging technologies, are harmonised through international cooperation and the provision of standards.

> G2 - All coastal states have contributed to an efficient global network of Marine aAids to Nnavigation and services for the safety of navigation, through capacity building and the sharing of expertise.

4.4. Strategies

The Strategies were intended to carry through to 2026 and could be left unchanged, but it seems wise to make adjustments to these to take account of external trends and drivers and of our progress since 2013.

When the Strategic Vision was created in 2013, a great deal of consideration was given by PAP over a number of days to the factors, trends, and drivers affecting the provision and management of aids to navigation (AtoN) and the role of IALA. This work was done on flip-charts and refined into the final Strategies but the details were not recorded electronically.

It will be beneficial now to gather, review, and record these trends and drivers, and to use them to amend the Strategies as necessary. This is done below.

4.5. Priorities

Examination of the Priorities which were established for 2014-2018 suggests that revision should be made, to note progress and to take account of technical, institutional, and other developments. However the Secretariat has been working for some time on a new document provisionally named "Technical Directions". This will be a compendium of all priorities and pathways in our current work. The Secretariat will ask PAP33 to finalise this document, and will then send it to Council 64 for approval. It will then be placed on the website for use by all.

With a "Technical Directions" document carrying our priorities and pathways, it seems desirable that all priorities should be within this document and a separate set of Priorities in the Strategic Vision is not needed.

4.6. Content of the revised Strategic Vision

The revised Strategic Vision would therefore contain Purpose, Motto, Goals, and Strategies.

5. TRENDS AND DRIVERS OF STRATEGY FOR THE PERIOD 2018-2026

Numerous trends and factors affect the work of IALA members and the directions in which the organization should focus its attention. We think that these can be summarized into Trends and Drivers.

The Drivers are derived from the Trends, and are a useful way of summarising a multitude of factors. We believe that four Drivers need to be considered in determining Strategy. These are:

- Volume of traffic and degree of risk
- Environment and sustainability
- Efficiency and safety
- New technology

The origin of these four Drivers is now explained. Trends are discussed and then a diagram draws these together into a Driver, with a diagram to illustrate.

5.1. Driver 1, Volume of traffic and degree of risk

There have been substantial changes in global shipping, including an increase in the volume of vessel traffic and the size of vessels, an increasing dependence on an interconnected global economy, and the rapid development and availability of modern information technology. In addition, there has been an increasing public demand for improved surveillance and management of vessel traffic. This is coupled with a developing expectation to prevent shipping related incidents along with a need to respond effectively to emergencies in all navigable waters, especially in port and coastal areas.

These increasing demands and needs have been imposed upon coastal and port infrastructures, as well as on the interaction between ships and shore authorities and stakeholders. New technologies have provided the opportunity for efficient and effective information exchange and re-use of the collected data by participants and stakeholders in the maritime environment.

Shipping rates are presently low and larger ships and corporate mergers are being seen as shipping companies strive to remain competitive. Despite this the world SOLAS fleet continues to grow. Globalisation including the associated manufacturing and assembly practices increases the international flow of components and completed goods.

Development of vessels which are controlled from shore is well advanced. Small autonomous vessels have been in use for many years, for example for survey and data gathering, but generally do not require (conventional) aids to navigation. Unmanned or autonomous ships are being developed in a number of countries, with some already at sea. As commercial shipping enters this new era, we can expect change in the electronic services which

members will be required to provide. The manner in which these ships interact with other vessels and with shore services and authorities, and the Vessel Traffic Services (VTS) which will be required in VTS areas for these ships are matters of concern

Fishing vessels, pleasure craft, and smaller ships that do not fall under the provisions of the IMO SOLAS Convention are far more numerous than SOLAS ships. In many countries, perhaps most, the non-SOLAS vessels account for more accidents and emergencies than SOLAS vessels. Depending on the type of vessel, their equipment fit may vary from very basic, to systems of the highest sophistication. Some of IALA's national members are tasked to provide aids to navigation services for all vessels. Other members may be funded by "light dues" levied on commercial shipping arriving at their ports, and so may have a need to direct their main efforts to serving these ships. The need to provide better and modern shore services to non-SOLAS vessels is an increasing consideration.

The IMO has recognised a trend towards a reduction in the skills of bridge teams.

The volume of traffic and the desire by coastal authorities to reduce risk is resulting in increasing numbers of VTS being established.

The compulsory fitting of AIS to SOLAS ships, and its voluntary uptake by other vessels, originally for safety of navigation, has enabled shore authorities to build up a picture of shipping density, and preferred routes, assisting the computation of risk and the design of aids to navigation systems. AIS revolutionised VTS also, with vessel details and course, speed, and rate of turn all available on the VTS display. AIS receivers in satellites have extended knowledge of tracks to areas outside terrestrial VHF range. VDES will make this tracking capability more competent.

In some nations, the institutions for managing aids to navigation services including VTS require further development. Legislation or regulations may not be in place, or staff may not be aware of the country's responsibility under international laws and conventions.

At the same time, the job of VTS operators has changed from mostly radar observation tasks to interacting with vessels in an ever increasing traffic complexity. It developed from a reactive task to a proactive task. The number of ships in a VTS area has often increased but the main change is the increasing size of ships. In a VTS area with narrow navigable waters and a lot of channel bends, where inland ships weave with seagoing vessels constrained by length or draft, there is a huge impact on the operational VTS procedures. Not only the length and width of the constrained ships have to be taken into account, but sometimes more importantly their swept path width must be taken into account. More advanced operational solutions are needed including improved measures for effective slot management.

A future consequence of the evolution of VTS is the focus increasingly being placed on ensuring the general efficiency of vessel traffic from both operational and commercial perspectives. VTS is increasingly being utilised as a means to optimise the flow of vessel traffic to provide benefits to ship operators and ports ranging from enhancing fuel efficiency through to managing vessel traffic to facilitate optimal berthing windows and time alongside.

The global harmonisation of VTS procedures has not yet been achieved. There are moves in some regions to extend VTS services outside promulgated VTS areas.

The need for correct and complete training of aids to navigation and VTS personnel is now becoming universally recognised. Some national members are establishing dedicated training institutions, and offering their services to neighbouring countries also. At the same time, the availability of skilled technicians is reducing, especially in developed countries as cost pressures drive outsourcing and staff reductions.
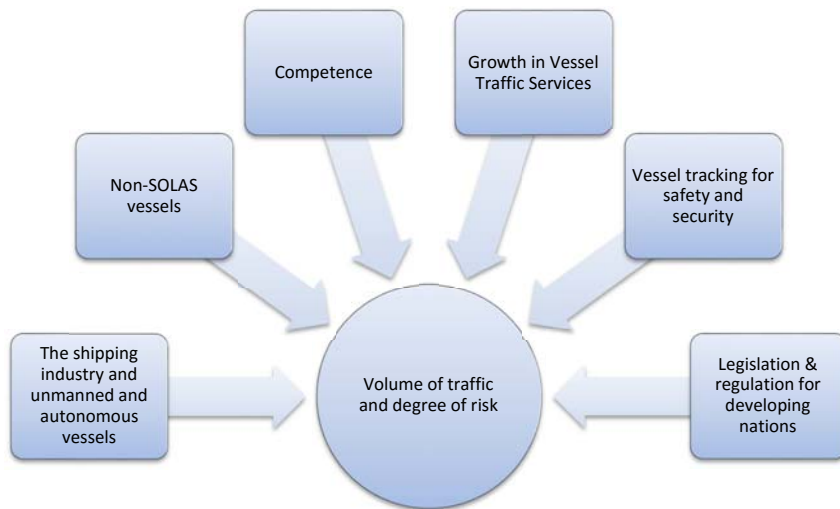
5.2. Driver 2, Environment and sustainability

The reduction in sea ice in the Arctic has led to a great interest in polar routes between the continents. At present, the increase in polar traffic for commercial purpose has been small, but the future may see this change. Provision of visual aids and of electronic services in Polar Regions is difficult. We can expect that area radionavigation systems and electronic dissemination of information will be important, but may be limited by the costs and difficulties of installation and of maintenance access.

Pressure has been increasing on the sea space available for navigation, as demands for offshore energy production (oil, gas, electricity) increase, and as exploration and exploitation of the sea and sea floor grow. The effect in some sea areas is to confine conventional ship navigation and fishing to more constrained spaces. Marking of offshore activities by conventional and electronic means, to make all classes of vessel aware, is an ongoing task. Further harmonisation is increasingly important here, both with light signals and electronic information, to avoid misinterpretation and thus accidents.

Marine aids to navigation services are generally required to observe best practice for preventing pollution of the seas, for preserving the beauty of littoral regions, and for avoiding harm to certain sea creatures. This is resulting in restrictions on the use of certain materials, in changes of operational practices, and in increased workload in planning and operations.
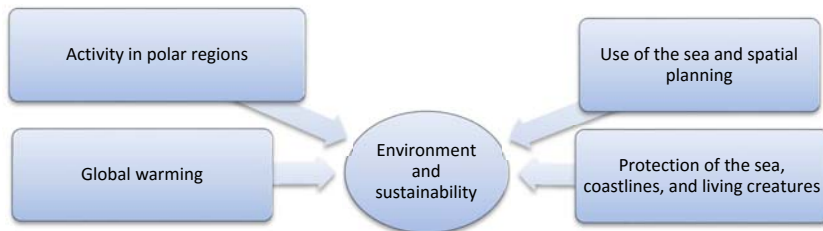
5.3. Driver 3, Efficiency and Safety

The public has an expectation that commercial shipping, including the cruise industry, is managed and conducted in a safe manner. Accidents and pollution incidents, especially near shore, receive heavy attention in the media. There is also probably an impression among parts of the public that shipping traffic is monitored and controlled in a manner similar to commercial aviation.

As technology develops, accident reports for all transport modes show human error as a primary factor. Automated vehicles, on rails, on roads, and in the sky are accepted by the public and generally trusted to be safe and reliable. The development of personal technology and communications and the almost universal use of GNSS for all transport modes have created an impression that high technology and precise vehicle control must apply to the sea also.

The pressure on most governments to contain their operating expenses coupled with a technology focus is leading to a reduction in focus on traditional aids to navigation services. Outsourcing of activities in many service areas by governments means that for aids to navigation services the knowledge and competences of the services are lost and replaced by contract and performance monitoring. This requires a new skill set in the authorities.
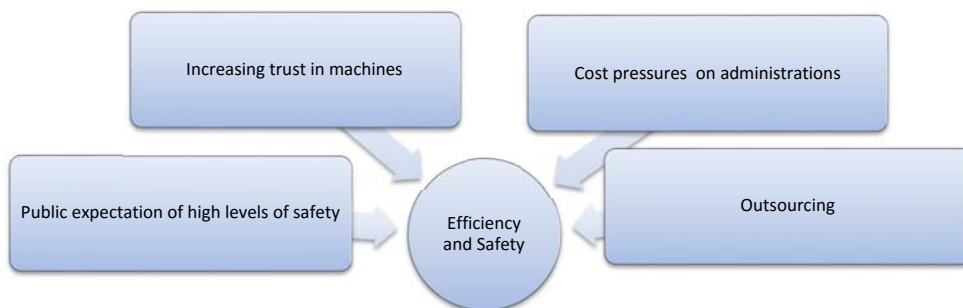
5.4. Driver 4, New Technology

In contrast with the aviation industry, a provider of shore services for vessels at sea must remain aware of the wide range of capability that may be found on the bridges of vessels. This is a long-standing problem, but may be assuaged gradually by IALA's work towards harmonisation of electronic shore service provided to shipping by its members, driving bridge hardware and software gradually towards its own harmonisation. Cost pressures in the shipping industry will mean obsolete bridges remaining in service.

GNSS systems are now (almost) universally used by all. With GPS, GLONASS, Galileo, and Beidou in service or soon to be, GNSS services are increasingly resilient. However deliberate jamming of GNSS is easy to do, solar weather can disrupt GNSS services, and some man-made radiation can unintentionally upset GNSS position fixing. At least one IALA member suffers deliberate jamming of GNSS, disrupting shipping, aviation, and land transport. Back-up systems will be important.

"e-Navigation" was proposed more than ten years ago, but has been slow in gestation. The advent of AIS drove a leap forward, as did development in bridge electronics. The harmonisation and delivery of electronic services from shore, packaged into "Maritime Service Portfolios", will be vital to ongoing progress. Developments in connectivity and information flow between ship and shore will create opportunities to increase port efficiency through advanced VTS services. Cyber security concerns will need to be addressed.

Despite these electronic advances, mariners still require the visual cues provided by traditional visual signals from light-beacons, buoys and day-marks in constricted waterways. These require only the human eye and the mariner's skill to use. We can expect them to be in service for the near future and probably longer

Legacy systems, including GNSS and AIS, can be disrupted by malignant action. Future communications and information services for marine navigation must be cyber secure.

Allocation of frequency bands for radio transmissions are governed by the regulations of the ITU. The provision of frequency allocations sufficient for digital information flow between ship and shore is vital for safety and efficiency.

The modernisation of GMDSS is a current task in IMO. The IALA concept of VDES is for the broadcast of maritime safety and other information, and for AIS vessel identification and tracking, but may have the capability to form part of a new GMDSS.

Sometimes viewed with disdain by traditionalists, the near-ubiquity of cellular phone aboard all classes of vessel, may provide a near-coastline communication system of good performance. The use of cellular phone systems for delivering shore services will become increasingly important, especially for non-SOLAS craft and for emergencies.

Decision support software for bridge crews and for VTS personnel are expected to become increasingly used.
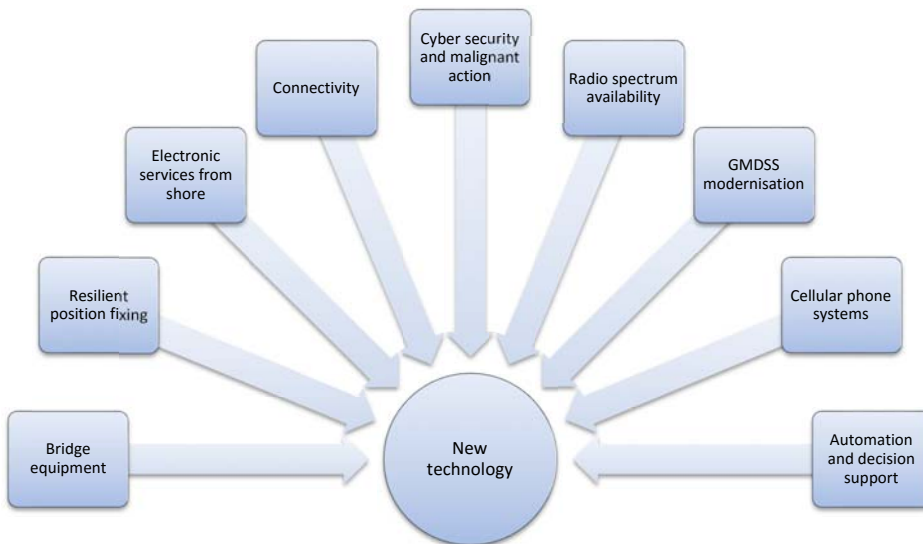
6. STRATEGIES FOR 2018-2026

Taking the Goals and Drivers into account, the following changes to Strategy are proposed to take IALA into the 2018-2026 period.

Note the revised order with creation of Standards, Recommendations and Guidelines first S1+2, coordination and development second S3+4, technology third S5+6, and organisation fourth S7+8.

S1 - Develop ~~s~~Standards suitable for direct citation by States, in areas deemed important by the General Assembly, and the related Recommendations and Guidelines.~~continue to improve strong governance, including document policy and procedure for standards~~

> *Logic: Clearly state the creation of Standards, Recommendations, and Guidelines as our primary Strategy. 2. Document policy and procedure is completed and approved.*

S2 - Position IALA as the source of standards, knowledge, and expertise that will enable States to ~~undertake and share the technical development of~~ provide ~~M~~marine ~~A~~aids to ~~N~~navigation ~~services~~, in accordance with ~~UNCLOS, SOLAS, and other~~ relevant international obligations and recommendations.

> *Logic: Clearer statement for Goal 2 and WWA objectives.*

S3 - Coordinate the further development of ~~VTS, e-Navigation, and short range~~ ~~M~~marine ~~A~~aids to ~~N~~navigation, taking into account new technologies and sustainability.
> *Logic: Broadened to cover our coordination of all AtoN developments.*

S4 - Continue to develop capacity building activities to improve the global ~~operations and management~~ provision of ~~M~~marine ~~A~~aids to ~~N~~navigation ~~systems and related services including VTS~~.

> *Logic: Clearer statement for Goal 2 and WWA objectives.*

S5 - Harmonise the information structure, Maritime Service Portfolios, and communications for e-Navigation by creating standards, and by cooperation with other ~~IGOs~~ international organisations, to achieve worldwide interoperability of shore and ship systems, including IMO sustainability goals for a maritime transport system.

Logic: Some partner organisations are not IGOs.

S6 - Improve and harmonise the delivery of VTS globally and in a manner consistent with international conventions, ~~legislative~~ national ~~frameworks~~ legislation and public expectations, taking account of ~~technology~~ sea traffic management ~~developments~~ for maximising the safety and efficiency of ~~port~~ maritime operations.

S7 - Work towards the transformation of IALA into an IGO, to enable the organisation to better fulfil its objectives~~, subject to General Assembly decision~~.

Logic: GA approved in 2014.

S8 - Ensure that the resources and capabilities of the Secretariat are sufficient to enable IALA and its committees and organs to reach its goals.

7. DRAFT REVISED STRATEGIC VISION FOR 2018-2026

The Strategic Vision, draft revision for 2018-2026, is at Annex A.

8. NEXT STEPS

- For discussion at Policy Advisory Panel session 33, and the conclusion sent to Council session 64
- Decision at Council session 64
- Announced to General Assembly, May 2018
- Published on website

Secretariat 2017-01-12

> **Commenté [MG1]:** LAP18 advises PAP to give Committee participants a chance to review the document. It therefore suggests sending it to Council 64 for comment/noting, and to Council 65 for final approval after review of Committee comments.

9. ANNEX A, DRAFT REVISED STRATEGIC VISION FOR 2018-2026

Purpose

The aim of IALA is to foster the safe, economic and efficient movement of vessels, through improvement and harmonisation of aids to navigation worldwide and other appropriate means, for the benefit of the maritime community and the protection of the environment.

Motto

"Successful voyages, sustainable planet."

Goals

G1 - 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.

G2 - 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.

Strategies

S1 - Develop Standards suitable for direct citation by States, in areas deemed important by the General Assembly, and the related Recommendations and Guidelines.

S2 - Position IALA as the source of standards, knowledge, and expertise that will enable States to provide marine aids to navigation services, in accordance with UNCLOS, SOLAS, and other obligations.

S3 - Coordinate the further development of marine aids to navigation, taking into account new technologies and sustainability.

S4 - Continue to develop capacity building activities to improve the global provision of marine aids to navigation systems and related services including VTS.

S5 - Harmonise the information structure, Maritime Service Portfolios, and communications for e-Navigation by creating standards, and by cooperation with other international organisations, to achieve worldwide interoperability of shore and ship systems, including IMO sustainability goals for a maritime transport system.

S6 - Improve and harmonise the delivery of VTS globally and in a manner consistent with international conventions, legislative frameworks and public expectations, taking account of technology developments for maximising the efficiency of port operations.

S7 - Work towards the transformation of IALA into an IGO, to enable the organisation to better fulfil its objectives.

S8 - Ensure that the resources and capabilities of the Secretariat are sufficient to enable IALA and its committees and organs to reach its goals.