ISO/TC 8
Ships and marine technology

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STRATEGIC BUSINESS PLAN
ISO/TC 8

EXECUTIVE SUMMARY

ISO/TC 8 is responsible for standardization related to the sector of ships and marine technology. TC 8 serves international shipping and shipbuilding, which is comprised of shipbuilders, ship repairers, ship owners, ship operators, marine suppliers and the regulatory bodies, such as the IMO, national or regional maritime and port authorities, class societies, etc. Marine Technology may be defined as any technology related to the marine field or maritime affairs. The marine technology sector is mainly concerned with scientific research vessels, companies engaged in marine surveying/ocean environmental assessment, oil companies, universities and researchers involved in the development of marine technology, and cooperates with marine environmental protection organisations and other public authorities. ISO/TC 8 is responsible for all ships with a hull length of more than 24 m, smaller ships are dealt with in ISO/TC 188. International shipping may also include national shipping where the ships are built to international standards – e.g. inland waterway vessels. Typical examples would be other vessels not normally described as ships, such as submersibles, floating offshore platforms, barges, wind farms, various offshore structures, fishing farms, floating or fixed man-made structures or islands at sea, exploratory and exploitative technology, diving systems, floating docks, caissons, autonomous (smart) ships, etc.

Transporting around 90% the world trade volume, seaborne trade plays a critical role in the world economy. Standards developed by ISO/TC 8 not only benefit the maritime industry by minimizing the world trade barriers, but also encourage technical innovation to the overall benefit of safety, environmental protection, the general welfare and economy of the world. Maritime affairs are unique in their international places, and their influence on trade, prosperity, human welfare, safety and the environment and must have sector-specific experts addressing standardization.

With the strategy of acting as the link between international regulatory bodies and the maritime industry, ISO/TC 8 takes both regulatory requirements and industry demands as the main drive for standardization. It actively participates in the activities of international organizations including IMO, UN BBNJ, ISA etc. to provide timely solutions for efficient regulation implementation. Meanwhile TC 8 is also actively involved in industry activities and forums in order to determine industry needs and respond in a timely and coordinated manner.

Taking IMO as the focus of standardization activities, Chair of TC 8 acts as the permanent representative of ISO to IMO. ISO/TC 8 also designates representatives to attend meetings of the IMO MSC, MEPC and relevant Subcommittees. TC8 standards address safety, environment protection, security as well as education and training issues, which is in line with several areas in the IMO Program of Work. Smart shipping, liquid and gas fueled vessels, greenhouse gas (GHG), aquatic nuisance species, polar region vessels, marine environment impact assessment, marine plastic, maritime safety and security are the priority items of ISO/TC8 at this time.

ISO/TC 8 is well represented by most maritime nations. Broader involvement worldwide and diverse representation is encouraged. Therefore TC 8 rotates the annual plenary meeting locations and organizes seminars during the plenary to gain better knowledge of specific region demands and encourage stakeholder involvement.
1 INTRODUCTION.

1.1 ISO technical committees and business planning.

The aim of the SBP is to align the ISO work programme with expressed business environment needs and trends and to allow ISO/TCs to prioritize among different projects, to identify the benefits expected from the availability of International Standards, and to ensure adequate resources for projects throughout their development.

1.2 International standardization and the role of ISO.

The foremost aim of international standardization is to facilitate the exchange of goods and services through the elimination of technical barriers to trade.

Three bodies are responsible for the planning, development and adoption of International Standards: ISO (International Organization for Standardization) is responsible for all sectors excluding electro-technical issues, which is the responsibility of IEC (International Electrotechnical Committee), and most of the telecommunications technologies, which are largely the responsibility of ITU (International Telecommunication Union).

ISO is a legal association, the members of which are the National Standards Bodies (NSBs) of some 160 countries (organizations representing social and economic interests at the international level), supported by a Central Secretariat based in Geneva, Switzerland.

The principal deliverable of ISO is the International Standard.

An International Standard embodies the essential principles of global openness and transparency, consensus and technical coherence. These are safeguarded through its development in an ISO Technical Committee (ISO/TC), representative of all interested parties, supported by a public comment phase (the ISO Technical Enquiry). ISO and its Technical Committees are also able to offer the ISO Technical Specification (ISO/TS), the ISO Public Available Specification (ISO/PAS) and the ISO Technical Report (ISO/TR) as solutions to market needs. These ISO products represent lower levels of consensus and have therefore not the same status as an International Standard.

ISO also offers the Industry Technical Agreement (ITA) as a deliverable which aims to bridge the gap between the activities of consortia and the formal process of standardization represented by ISO and its national members. An important distinction is that the ITA is developed by ISO workshops and forms, comprising only participants with direct interest, and so it is not accorded the status of an International Standard.

1.3 ISO/TC8 contributes to the UN Sustainable Development Goals

The UN Sustainable Development Goals (SDGs) represent an ambitious plan to enhance peace and prosperity, eradicate poverty and protect the planet. They are recognized globally as essential to the future sustainability of our world. TC 8 (Ships and Marine Technology) has an impact on all of the 17 development goals, but some more than others. Of the 17, TC 8 has the strongest contact relationship with the following eight goals.

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1. BAE Systems is a British multinational defence, security and aerospace company. It was formed On 30 November 1999. The company is the largest defence contractor in Europe and among the world’s Larest defence companies. https://www.baesystems.com/en/home (accessed July 29, 2020)
1.4 ISO/TC8 responses to ISO Guide 84:2020

According to the requirements of item 6 in ISO Guide 84:2020, existing or new TCs can choose to establish a new SC, a new Working Group (WG), or simply adopt committee policy on climate change (e.g. recognizing and recommending use of this document). A checkbox will be added to NWIPs indicating the standard did/ or did not address climate changes issues.

ISO requires each TC to prepare a strategic plan for its field of activity within 18 months of its creation. ISO/TC8 instructs that all subcommittees and working groups should review ISO GUIDE 84:2020 (Guidelines for addressing climate change in standards) and take climate change into consideration when planning, drafting, revising and updating ISO International Standards or other deliverables as appropriate. And ISO/TC8 should also include the review and discussion of the different aspects of climate change (adaptation, mitigation and adaptation-mitigation), as applicable to the respective TAP (technology, activity or product).

2 BUSINESS ENVIRONMENT OF ISO/TC 8

2.1 Description of the Business Environment.

The following political, economic, technical, regulatory, legal, societal and/or international dynamics describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of ISO/TC 8, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards:

The international shipping industry is responsible for the carriage of about 90% of world trade and is vital to the functioning of the global economy. International trade, the bulk transport of raw materials and the import/export of affordable food and goods would simply not be possible without shipping. Main factors impacting the business of international shipping are global economic globalization, world trade, shipbuilding, international oil price, exchange rate, etc. Ship owners provide the ships to move the cargo to fulfill the physical mechanics of the trade deal. Other entities in the maritime industry provide services in support of the movement of goods. Trade itself is heavily influenced by the relative ease of movement and hence everything must be done to facilitate movement. This is enshrined by some of the highest level international treaties brokered under the United Nations – such as UNCLOS – The ‘United Nations Convention on the Law of the Sea’. Against this background, the United Nations created the IMO as a specialist agency to fulfill the demand for ease of movement as described by the ship owner and as regulated by the governments.

- All the above must be developed for the open oceans that are governed by international agreements that are enforced by cooperating governments. This is why the IMO, a specialized organization of the UN, is uniquely qualified to develop these international agreements. The ISO’s role is to develop international standards that support the IMO agreements, and this necessitates a close working relationship between the ISO and IMO. For this reason, one ISO TC8 represents the ISO at the IMO.

- The industry benefits from international regulations, without which there would be an unexpected patchwork of requirements that differ in every port. The free movement of cargo therefore depends on internationally recognised regulations – and certificates of compliance with these regulations. The compliance is supported by implementation through internationally recognized standards – standards provided by TC 8 since it understands the political, economic and technical environment that those standards must serve.

- Industry and other stakeholders are therefore highly involved in IMO work, and this reinforces the value and necessity of TC 8 representation at IMO – it shows we serve industry alongside the regulator – and link the two.
This section addresses the principal customers of ISO/TC 8 (Ships and Marine Technology) and the market needs. The ‘Ship’ industry that served are international shipping and shipbuilding, which is comprised of shipbuilders, ship repairers, ship owners, ship operators and marine suppliers and the regulatory bodies, such as IMO, national or regional maritime and port authorities, class societies, etc. The ‘ships’ segment of the marine (maritime) industry is a complex mix of ship types and separate segments of the market – cruise ships, container ships, reefer ships, ro-ro ships, dry bulk carriers, liquefied natural gas (LNG) carriers, liquefied petroleum gas (LPG) carriers, tankers, offshore market ships (FPSO, FSO and support vessels), scientific investigation vessels and other miscellaneous ship types. There are multiple operating scenarios – transoceanic, short sea shipping and inland navigation vessels.

Each of these ship types has unique requirements and those large ships operating in international waters are subject to the IMO regulations.

Marine technology is a branch of marine science and technology, which includes ocean exploration technology and ocean development technology with the latter as its core. Technologies involved in marine technology are the following: test methods, operation, design, construction and logistics of equipment, systems, infrastructure and technology used for observation, exploitation and protection of the ocean and sea areas, as well as seawater desalination, deep-water exploration, ocean remote sensing, ecosystem monitoring, oil and gas exploitation, seabed mining, etc. There are a variety of equipment used for marine technology – buoy array, research vessels (geology, geophysics, hydrology, chemistry, biology), underwater vehicles and sensors (ROV, AUV, HOV), etc.

There are many different levels of inter-governmental organizations (IGO) that TC 8 deals with. The highest level regularly dealt with is the International Maritime Organization (IMO), comprised of 174 member nations, which sets the requirements and regulations for the maritime industry to promote the highest practicable standards in maritime safety, efficiency of navigation, and prevention and control of maritime pollution. IMO describes itself (www.imo.org) as follows;

IMO – the International Maritime Organization – is the United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships.

In essence, TC 8 mirrors the work of the IMO from the perspective of the ISO with the development of timely relevant standards.

The principal international conventions of IMO are SOLAS (the International Convention for the Safety of Life at Sea), MARPOL (the International Convention for the Prevention of Pollution from Ships) and STCW (the Internaional Convention on Standards of Training, Certification and Watchkeeping for Seafarers). Additional IGOS involved with the shipping industry include the World Customs Organization (WCO) for supply chain security and international trade facilitation matters, the International Hydrographic Organization (IHO), the authoritative worldwide hydrographic body which actively engages all coastal and interested States to advance maritime safety and efficiency and which supports the protection and sustainable use of the marine environment, the International Labor Organization (ILO) and International Seabed Authority (ISA) to organize and control activities in International Sea Area.

Thus, our market is the global marine industry which is required to comply with the requirements of the IMO (and other IGOS).

What must be done is to achieve a “well-balanced optimum” between achieving the desired global levels of safety and environmental protection, and maintaining a level playing field with sufficient freedom for the maritime industry to apply innovative technology? We believe that a key step in achieving the “well balanced optimum” lies in recognition of another I – I in “integration”. The strategy and objectives for ISO/TC 8 is to be the “linking” instrument between IMO and the Industry, which is discussed in “Strategy and Objectives” (Section 5) of this Business Plan. To be effective in executing this strategy requires the “I” for integration between IMO and ISO. Thus to meet our market requirements, we have built a solid roof resting on solid pillars – IMO, ISO, Industry, and Integration. A close collaboration between IMO and ISO will allow the “requirements” to be
established using technical standards as the foundation for the content of the requirements. With the limited resources of both organizations such an approach would come closer to the “optimum.” The adoption of ISO standards could offer greater participation by the industry and provide technical voluntary consensus standards developed for and by industry to be considered in the requirements-establishing process.

The UN is directly represented with ISO TC 8 through the IMO and accordingly we need, and have, strong permanent liaison and representatives. Further these liaisons must be ‘single point of contact’ (with support) at any given time in order to avoid confusion or misunderstanding and to assist coordination and cooperation.

TC 8 does deal with other IGOs, especially UN agencies – Basel Convention, BBNJ, UNEP, ILO, WMO, WCO, IHO, etc. but also other regional IGOs such as the EC, with whom TC 8 maintains a particularly strong relationship. Indeed the EU Marine Equipment Directive makes it a virtual requirement to meet certain ISO standards in order to show compliance.

Safety, environmental and security regulations are increasing in importance and complexity, and stricter inspections are being implemented to respond to unqualified countries, substandard shipping, piracy and other disruptions to the supply chain.

New technologies in polar class vessels which navigate arctic areas shall be equipped with the Anti-icing and De-icing deck machinery following the IMO polar code. However there are no specific standards to show a ship owner whether their equipment satisfies the heating performance requirements under real conditions. If there is an official international test standard, they could refer to it. Meanwhile, the application of polar icebreaker engineering is urgently needed, such as the direction of real ice-breaking vessel trial and stress monitoring. There is also an emerging need for Digitalizing much of the ship’s work, especially paper work such as Logbooks and reports, to reduce the human error and fatigue of ship's crew. A system and verification method must be standardized to avoid confusion on this system.

There are many cutting-edge technologies such as smart shipping, CO₂ emission and aquatic nuisance species, liquid and gas fueled vessels, etc. are key development directions of ISO/TC8. For example, smart shipping is undoubtedly one of the hottest issues in the maritime community – and rightly so. In recent years, the shipbuilding industries have witnessed the rapid evolvement of information and communication technologies and their applications in this centered sector. With regards to the reduction of CO₂ emission, actions are considered towards the year 2030 with the ambition of more than 40% GHG reduction (compared with the GHG level of the year 2008), which are not for a ‘real’ decarbonization, more proper as ‘low carbon’. ISO/TC8 is playing the leading role in guiding the future development of standardization in marine arena and deploying a batch of frontier technology international standards.

Aside from physical safety, security, environmental, human factors and other actual dangers, hazards and liabilities, and their management – the risk of not complying with legislation is a very real one for ship owners and other stakeholders in such a complex arena. Therefore ISO TC 8 standards seek to provide recognized benchmarks that stakeholders can trust to facilitate compliance with regulations and other items to which they subscribe.

Major core areas of TC8 focus include, but are not limited to:

- **Maritime safety**
  This is a core activity of TC 8 and coordinated by the Safety Director for TC 8 Chair. Safety activities may be carried out by SCs, WGs or specific projects when agreed and their areas of expertise is more relevant. It mirrors the IMO Marine Safety Committee and covers all their activities directly.

- **Marine environment protection**
  This is a core activity of TC 8 and coordinated by the Environment Director for TC 8 Chair. Environmental activities may be carried out by SCs, WGs or specific projects when agreed and their areas of expertise are
more relevant. It mirrors the IMO marine Environmental Protection Committee and covers all their activities
directly.

- **Renewable energy**
  Renewable energy is treated generally as an environmental matter and may be covered by the SCs, WGs or
  projects with direct specialization in relevant matters.

- **Inland navigation**
  Inland navigation is a vital area for TC 8 since global shipowners, operators, builders and other stakeholders
  want international standards for these items so they can build, operate, manage national fleet globally. Further
  the inland navigation industry is enhanced through sharing information and common standards. A special SC
  exists dedicated to this task; SC 7

- **Smart shipping**
  Emerging concepts e.g. smart or intelligent ships, autonomous or unmanned shipping are anticipated to bring
  dramatic changes to the community. The impacts of smart shipping will be fundamental and widespread.
  Adapting it relies on joint efforts of various stakeholders, and thus requires effective cooperation and
  collaboration. Standardization, especially international standardization, provides such a mechanism. A dedicated WG – ISO TC 8 WG 10 is playing the role of an international hub for discussing IMO MASS
  regulatory issues and international standardization projects

- **Shipping Decarbonization**
  Shipping decarbonization is a long-term target concerned by ISO/TC8, requiring joint efforts by IMO,
  UNFCCC and stakeholders. For the time being, it considers life-cycle low carbon or neutral carbon solutions
  both technical and operational, such as energy efficiency, alternative fuels towards the year 2030.

- **New technology applications**
  This is fundamental to the success of TC 8 and all SCs, WGs are required to closely monitor sector
  developments and identify needs for relevant ISO standards to be developed. Much information comes from
  the needs of coordinating and liaison bodies such as IMO.

- **Leisure industry (small craft)**
  The leisure industry of craft below 24m is dealt with by ISO TC 188. However, commercial yachts, super
  yachts, and the leisure industry for craft greater than 24m length is the focus of a dedicated TC 8
  subcommittee with the skills and expertise for this industry – SC 12.

- **Marine Technology**
  Marine technology is factors related to this – economic, research, safety, environmental, security, human
  factors, etc. It also includes all the technology to understand, develop, protect and exploit the resources of the
  marine world through all of the work done by SC 13 and supports all developments in TC 8.

There are substantial changes in port terminals to provide for faster ship turnaround and greater focus on
seamless transition of intermodal transport. There is also the need to deal with new high speed ship types and
increases in short sea shipping, ferries, and mega yachts. High attention has been paid on ship to shore interface
especially best working practices for the terminal and the ship to minimize the risk of incident and to help raise
overall safety awareness.

The COVID-19 has had a huge impact on shipbuilding, international shipping line, marine equipment, import and
export trade. At the same time, ISO/TC8 also focuses on the new technologies urgent needed for international
standards under the current circumstances.

**NOTE [1]** Excluded from ISO/TC 8 is: Offshore structures for petroleum and natural gas industries, including
procedures for assessment of the site specific application of mobile offshore drilling and accommodation units for
the petroleum and natural gas industry which are the responsibility of ISO/TC 67. Also **NOTE** that the Chairs of
ISO/TC 8 and ISO/TC 67 signed a MOU regarding the working relationship as defined by the two Chairs
(Congratulated by ISO Secretary General, Dr. Larry Eicher, for the first such MOU signed between two committees in the history of ISO.

2.2 Quantitative Indicators of the Business Environment.

The United Nations Conference on Trade and Development estimates that the operation of merchant ships contributes about $380 billion in freight rates within the global economy, equivalent to about 5% of world trade. This is a very simple measure that clearly hugely underestimates the contribution of shipping to the world economy. (ICS website, 21/12/2017)

In the last four decades, seaborne trade estimates have quadrupled from just over 8 trillion tonne miles in 1968 to over 32 thousand billion in 2008 (ibid).

In early 2019, total world fleet capacity stood at 1.97 billion dead-weight tons (dwt), equivalent to 2.61 per cent growth – the slowest growth of the decade. World maritime trade lost momentum in 2018, with volumes expanding at 2.7 per cent, below the historical averages of 3.0 per cent and 4.1 per cent recorded in 2017. Total volumes are estimated to have reached 11 billion tons, an all-time high (UNCTAD website, 30/10/2019)

The growth rate for world seaborne trade is supposed to succeed the growth rate for world economy. According to statistics of Clarksons Studies, the global new order have reached 19.08 million compensated gross tons (cgt) from January to July 2020. The global completion reached 54.97 million cgt and the global orderbook is 156 million cgt.

Changing regulations create large amounts of work, both in retrofitting equipment if needed, or in replacing older tonnage with new compliant tonnage. For instance, it is estimated that around 32000 ships need to be retrofitted with treatment system because of the implementation of the BWM (Ballast Water Management) Convention, which will bring a new opportunity for shipyards. Furthermore, the effective entry into force of this Convention had been delayed due to the lack of a coherent international understanding of how it is to be implemented – a key indication of the need for standards and a core example of how TC 8 is proactively acting to help and has restructured itself to help focus and provide resources to this huge challenge.

About 90% of world trade is carried by the International shipping industry. Shipping is the least environmentally damaging form of commercial transport and, compared to the land based transport industry, a relatively minor contributor to global pollution.

There are around 50 000 merchant ships trading internationally, registered in over 150 nations and manned by over a million seafarers of virtually every nationality.

Shipping, due to its enormous size, is a significant contributor to CO₂ emissions – approximately 3% of total worldwide emissions of CO₂. However, this has to be put into perspective in terms of efficiency. A very large container ship emits 3 grammes per tonne kilometer; by comparison, a truck emits 80 and air freight emits 435. In this light, the preferable mode for transporting cargo is via ships.

The shipping industry plans to increase operations in Polar regions. This will need considerable technical innovation to allow the required level of performance and safety with the increased scale of engagement. TC 8 is meeting this need in parallel with IMO work.

Alternative fuels are critical to the continued use of ships as a form of transport. TC 8 has expertise in the fields of both safety and environmental performance specific to ships. Much of the work is focused on LNG and LPG at present.

3 BENEFITS EXPECTED FROM THE WORK OF ISO/TC 8.

1. BAE Systems is a British multinational defence, security and aerospace company. It was formed On 30 November 1999. The company is the largest defence contractor in Europe and among the world’s Larest defence companies.https://www.baesystems.com/en/home(accessed July 29,2020)
Specific benefits are:

- An increase in voluntary consensus marine industry standards in lieu of increased regulations
- Providing the technical standards to implement the broad aspects of IMO regulations where details have been left to each port state for implementation – ability to translate regulatory requirements into specific industry standards for implementation universally - currently over 100 ISO/TC 8 work items are in direct support of IMO requirements
- Providing industry standards to serve as a foundation for implementation of international regulations.
- Providing the proper balance between environmental concerns and a prospering marine industry. Safety, security and environmental protection are basic IMO concerns. Through industry standards that are adopted we can help create the balance between regulatory needs and industry advancements.
- Providing the ship owners with a common base for design, construction and repair of ships regardless of which shipyard in which nation the work is performed
- Ensuring the interchangeability of key components and systems across ships of the same type in each owner’s fleet
- A reduction in unit cost of ship construction by applying uniform design/building standards internationally
- Through active participation of regional bodies, obtaining greater support to the development and use of international standards and harmonization of regional standards. Since the maritime industry is international, regional or national standards only serve to increase trade barriers, limit market size, and do not help to “level the playing field”.
- In the increasingly connected world, the marine sector needs to lay down its own sector specific performance requirements for interconnected items and the information they generate, communicate, manipulate, manage and store. TC 8 has the structure and resources to understand and provide the required standards to provide this, in a safe, secure and environmentally friendly manner, along with others, such as the IEC who would provide the actual items that fulfill the performance requirements. For example – IMO will specify the required performance of a bridge equipment, but ISO TC 8 and IEC would provide a technical standard for the electrotechnical devices that provide such performance.

4. REPRESENTATION AND PARTICIPATION IN THE ISO/TC.

The number of ISO/TC 8 member bodies including P and O members and liaisons is routinely updated and can be found via https://www.iso.org/committee/45776.html.

- The balance of participation among the maritime nations of the world is excellent. Most of the seafaring-nations are actively involved within ISO/TC 8. The participation of the Asian countries is growing, and at the same time the European participation has decreased in recent years. In order to include any countries in a fair way, ISO/TC 8 meets in various continents each year. The goal of ISO/TC 8 is to better integrate South America and Africa in future work.

- Key to our success requires the close collaboration with other international organizations and major regional bodies. As previously stated, the International Maritime Organization (IMO) is the most closely connected, but ISO TC 8 relies on relations with the following major additional organizations:
  - Baltic & International Maritime Council (BIMCO)
  - International Association for Marine Electronics Companies (CLIA)
ISO/TC 8 Strategic business plan
Date: 10/08/2020
Version: Draft 2020

1. BAE Systems is a British multinational defence, security and aerospace company. It was formed
On 30 November 1999. The company is the largest defence contractor in Europe and among the world’s

- International Association of Classification Societies (IACS - classification)
- International Association of Ports and Harbors (IAPH)
- International Council of Marine Industry Associations (ICOMIA)
- International Chamber of Shipping (ICS - shipping)
- International Life Saving Appliance Manufacturer’s Association (ILAMA)
- International Labour Organisation (ILO)
- International Marine Contractors Association (IMCA)
- International Marine Electronics Alliance (IMEA)
- International Maritime Pilots Association (IMPA)
- International Security Management Association (ISMA)
- International Ship Recycling Association (ISRA)
- NACE International (NACE)
- North Atlantic Treaty Organisation (AC/35) (NATO)
- Natural Gas Vehicle Knowledge Base (NGV Global)
- World Organization for Animal Health (OIE)
- The Royal Institution of Naval Architects (RINA)
- Security Association for the Maritime Industry (SAMi)
- The Society for Gas as a Marine Fuel (SGMF)
- Society of International Gas Tanker and Terminal Operators (SIGTTO)
- The Society of Naval Architects and Marine Engineers (SNAME)
- United Nations Environment Programme (UNEP)
- World Customs Organization (WCO)
- World Meteorological Organization (WMO)
- World Shipping Council
- European Commission Directorate-General for Mobility and Transport (DGMOVE)
- International Police Organization (INTERPOL)
- International Association of Airport and Seaport Police (IAASP)
- International Electrotechnical Commission (IEC) – TC 18 / TC 80
- World Trade Organization (WTO)
- United Nations Economic Commission for Europe (UN/ECE)
- UN Conference on Trade and Development (UNCTAD)
- International Association of Drilling Contractors (IADC)
- Oil Companies International Marine Forum (OCIMF)
- International Hydrographic Organization (IHO)
- International Shipping Federation (ISF)
- International Towing Tank Conference (ITTC)
- International Association of Marine Aids to Navigation & Lighthouse Authorities (IALA)
- International Mobile Satellite Organization (IMSO)

**Liaisons with Other ISO Technical Committees**

ISO/TC 8 has maintained good cooperation and relationships with related technical committees, covering but not limited to ISO/TC 28, ISO/TC 43, ISO/TC 67, ISO/TC 104, ISO/TC 147, ISO/TC 188, ISO/TC 292 ISO/TC 8 has also been working on IMO issues on behalf of ISO with support and assistance of other TCs. ISO/TC8 is also planning to set up regular IMO round table meeting with other TCs to better provide international standard as solutions to IMO and maritime industry. MoU have been signed with ISO/TC 67 and ISO/TC 104 respectively as guidance of work for mutual interest.

The list with other ISO Technical Committees can be found at: https://www.iso.org/committee/45776.html

**Recruitment and Publicity.**

Publicity to increase visibility of the TC 8 activities will be coordinated through TC 8 Secretariat as authorized by the Chairman, ISO/TC 8.
Efforts shall be made towards increasing awareness by regulatory bodies and industry about TC 8 activities through various ways. Numerous articles have been published in the ISO FOCUS and will continue. ISO/TC 8 flyers have been prepared and distributed in IMO/MSC and IMO/MEPC meetings over the past several years. Major achievements are bought to the attention of IMO and all other stakeholders at IMO via formal document submission to IMO secretariat. A special pamphlet was designed especially for the celebration of the 70 years of ISO/TC 8 and distributed.

Status Reports are published twice a year. An Opening Ceremony has been added to each plenary meeting which helps TC 8 to better comprehend the local industry development and standardization demand. Also, ISO/TC 8 supports different kinds of activities (workshop, seminar, forum etc.) to communicate the concept of standardization of ships and marine technology, to attract more experts and stakeholders to be involved in the work of ISOTC 8.

Speeches and presentations are made by the Chairman or other persons designated by the Chairman of TC 8, and Subcommittee Chairs at various international conferences, symposia and other meetings (or interviews on TV, radio, and other social media) shall be recorded and open to the public to increase awareness of ISO/TC 8 and its activities.

An ISO/TC 8 Committee Profile Video can be found at https://www.iso.org/committee/45776.html

An ISO/TC8 official exclusive website can be found at https://committee.iso.org/home/tc8

5. OBJECTIVES OF ISO/TC 8 AND STRATEGIES FOR THEIR ACHIEVEMENT.

5.1 Defined objectives of the ISO/TC 8.

ISO TC 8 is the internationally recognized body of experts in the development of standards for the marine community. As part of a continuous process for improvement, ISO/TC 8 revised its strategic vision to be the world-wide standards body that is the “linking instrument” between the international regulatory bodies, which sets the requirements and regulations, and the maritime industry.

Our standards must satisfy the following strategic objectives:

- **Internationalism.** Maritime standards may be used across national boundaries. Equipment and materials will come from many sources as long as they comply with recognized standards. Suppliers will compete in many more areas when standards are in harmony with requirements of the IMO.

- **Standards will drive Products/Standardization.** Due to the rapid changes in marine technology, product life cycles are becoming shorter. The customer wants to protect his investment; therefore, a greater emphasis will be placed on products meeting accepted standards. Standards must be developed concurrently with new technology. Standards must be focused on interchangeability and performance, rather than detail design, to allow improved technology to be used. This can also be accomplished by creating interface standards.

- **Shortened Development Cycles.** To convert technology advancements into products in a timely manner, the ship design cycle will be shortened. A body of current standards is required so that new technology can be combined with existing technology in a building block approach.

- **Electronic Document Distribution and Maintenance.** With the increasing availability and capability of on-line computer systems, our standards must be located, reviewed, coordinated, and updated electronically.

- **Quality and Productivity.** To support the visions of how standards will fit into the world of the future, the
standards must be of the highest calibre to define high quality, cost effective products capable of meeting ISO 9000 Series requirements. They must also define a product that can be manufactured, installed, used, and supported safely and efficiently at a competitive cost. Standards should provide for improvement in overall safety, including environmental protection, through standardization of specific safety features, standard operating procedures, reliability and maintainability, and standards for testing and inspection.

- **Satisfy the market need.** Be sure that the Committee is working on standards that the international maritime industry needs - get feedback from shipbuilders, ship owners and operators, and suppliers.

- **Universal acceptance.** Since the primary priority of the Committee is to produce standards for products capable of competing in worldwide markets, Committee activity must reflect this objective. Standards developed must be seen by producers/users as “the standard of choice” in preference to any national or regional developed standard. (Work to reduce proliferation of standards). Harmonization between international standards and domestic standards and rules (legislation) must be actively pursued through continuous long-range efforts.

- **Forward compatibility.** Revisions to standards are few in number and minor or narrow in scope. This is essential for sustainability and to continue to maintain acceptance by the IMO in regulatory requirements.

- **Developing standards in a timely manner.** Streamline the process and ensure that standards developed to reflect current and emerging technologies in the marine industry and that they are kept up-to-date. Offer “guidance” standards as well as “contractual” standards. Since timely development and timing are key issues, it shall be a goal to have an accepted committee draft (CD) within one year of the accepted work item proposal for a standard. Maximum use will be made of the PAS (Publicly Available Specification) to facilitate the process and to ensure meeting market required dates.

- **Strengthen ties with other international bodies and with other ISO Technical Committees.** Strengthen ties with IMO and other regulatory bodies to ensure that regulatory goal are met in international standards. Ensure that marine applications are satisfied in standards developed by other ISO Technical Committees - through amendment, supplement or development of a new marine industry particular standard.

- **Increase national participation.** Expand our active working membership to include Europe, Asia, Africa, Oceania, North and South America as well as developing nations.

### 5.2 Identified strategies to achieve the ISO/TC’s defined objectives.

- Make TC 8 and its SCs working groups transparent to guarantee more open and inclusive working to assist reaching consensus.

- Appoint Heads of Delegation (HoD) to IMO meetings and produce better quality TC 8 information before the meeting for planning, and after the meeting for understanding the consequences of the meeting and actions required; accompanied by relevant and timely news releases.

- Encourage of ISO members to participate in industry meetings, for example, Tripartite (annual meeting among Ship owners, Classification Societies and Shipbuilders) and other meetings so as to get ISO/TC 8/SCs recognized by stakeholders.

- Liaisons play a critical role in the promotion of standards development. Each subcommittee of TC 8 will establish its own liaisons for work in their area, keeping ISO/TC 8 Chair and Committee Manager informed. Liaisons at the Subcommittee level with IMO or IACS must be coordinated with the ISO Head of Delegation and Chairman ISO/TC 8 to insure a single overall coordinated position. The following Liaisons are the most active ones in participation ISO/TC 8 standards development:

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1. BAE Systems is a British multinational defence, security and aerospace company. It was formed on 30 November 1999. The company is the largest defence contractor in Europe and among the world’s Larest defence companies. [https://www.baesystems.com/en/home](https://www.baesystems.com/en/home) (accessed July 29, 2020)
 IMO liaison is substantial because IMO represents a significant segment of our market in addition to routine liaison. ISO/TC 8 maintains the liaison with IMO/MSC (Maritime Safety Committee) and IMO/MEPC (Marine Environment Protection Committee) at the Chairman level. The Chairman or designated representatives attend meetings of the IMO and its subcommittees accordingly.

IACS is an organization that represents Classification Societies. Classification Societies are also empowered to work as ‘Recognised Organisations’ which are specifically referred to in legal text requiring compliance with statutory requirements. It is vital that ISO works in close collaboration with NGOs such as IACS to ensure that ISO standards complement such work and does not merely copy it, or accidentally clash with it.

BIMCO is the world’s largest international shipping association and was the first such organisation to recognize the benefit of international standards. As such, its strong, ongoing, hands on assistance to ISO TC 8 is very much appreciated and considerably strengthens TC 8. TC 8 regularly works directly with BIMCO to develop the standards that industry has identified it needs.

Expanding Regional Relationships

While a formal relationship exists between CEN and ISO through the Vienna Agreement, in the maritime industry sector there exists a close relationship between ISO/TC 8 (Ships and Marine Technology) and CEN with positive collaboration. TC 8 has several CEN initiatives underway in TC 8 Subcommittees using a CEN member country to provide the Project Leader.

The need exists to establish similar relationships with other major regional bodies such as COPANT (Pan American Standards Commission) and PASC (the Pacific Area Standards Congress).

1 COPANT has representation from 32 national standards bodies (from Canada to Argentina). COPANT was established as the Pan-American Standards Committee (COPANT) in 1949. In 1964, the organization changed its name to COPANT. A significant role of COPANT is promoting and consolidating the National Standards Bodies in many of their member countries. Its process of regional standardization is founded on the use of international standards. The relationships between ISO, IEC and COPANT are therefore of the utmost importance. In 1994, cooperation agreements were established between COPANT and each of the two international standards organizations. COPANT has agreed to spread and promote use of the international standards and ISO and IEC shall facilitate participation of COPANT in the process of elaboration of international standards. As of 1997, 1653 COPANT Pan American Standards had been approved. The focus of their current standards development that are of interest to ISO/TC 8 are in the fields of: quality assurance, fire protection, harmonization of standards, environment and terminology.

2 PASC was formed in 1973 and currently has 24 member countries including several of the world leaders in market share for shipbuilding. It serves as a forum for the countries and territories of the Pacific area to develop recommendations for communication to the international standards bodies, particularly ISO and IEC. With the formation of Asia-Pacific Economic Cooperation (APEC) Subcommittee on Standards and Conformance (SCSC), a subcommittee of APEC’s Committee on Trade and Investment (CTI), governments of the region began to look at standards vis-a-vis their relationship to trade issues. PASC took the lead in making it clear to APEC/SCSC that it was an organization prepared to meet the needs of Asia-Pacific governments in the area of standardization so that those governments did not have to develop regional standards in order to facilitate trade and commerce. Several PASC members have committed to aligning their national standards with ISO and IEC, but have discovered that several of the international standards are outdated. In the eyes of APEC, “international standard” equates with ISO and IEC standards.

What is equally, or perhaps more important, is our use of national and regional standards from all parts of the world to establish a starting point, or draft, for developing an ISO/TC 8 standard. We have an ongoing work item, maintained and updated, which is a “review of existing maritime standards” from all standards bodies in the world. This approach assists in determining what has already been done in a particular area and gives us our first list of
candidate experts for developing the ISO standard.

- Use of Various ISO Deliverables

The focus in TC 8 is on the timely development of ISO/PAS and formal ISO standards instead of TS, TR or ITAs. IMO is receptive to citing an ISO standard, but the other forms are not well received.

- Change of working mode under the impact of COVID-19

Due to the impact of COVID-19, no physical meeting were allowed in ISO until 31st October (will continue to be reviewed and communicated on a monthly basis). All ISO/TC8 physical meetings have been converted to virtual meeting, such as SC plenary, CSAG and Secretaries’ Workshop, ISO/TC8 plenary preparatory meetings, etc. In order to ensure the effect of participation and quality of the 39th ISO/TC8 plenary in 2020, three individual sessions on safety, environmental protection and marine technology were added in the agenda and chaired by three senior experts who effectively strengthen the internal coordination and cooperation within ISO/TC8. ISO/TC8 also promotes the use of IT tools, such as web conferences and eventually online collaborative authoring and ISO virtual projects.

6. FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE ISO/TC WORK PROGRAMME.

<table>
<thead>
<tr>
<th>Factors that could negatively impact work of ISO/TC 8</th>
<th>Strategy of ISO/TC 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMO is receptive in citing ISO Standards, but ISO/TS and ISO/TR are not well received.</td>
<td>ISO/TC 8 focus on ISO standards and ISO/PAS.</td>
</tr>
<tr>
<td>IMO requests a standard on very short notice.</td>
<td>ISO/TC 8 publishes an ISO/PAS within a year and transfers the PAS document into a standard within a short time.</td>
</tr>
<tr>
<td>Standards are well written but not used.</td>
<td>ISO/TC 8 ensures that senior industry leaders take part in SC management (Chair and Manager) as well participate in the working groups to ensure standards reflect market needs.</td>
</tr>
<tr>
<td>Standards are outdated.</td>
<td>Review of existing standards and update or withdraw them if required.</td>
</tr>
<tr>
<td>Standards has not used to guide industrial practice, ISO/TC8 also lack the latest industry needs for standards.</td>
<td>ISO/TC8 hold seminar every year in different continent to share the best practice of ISO standards and learn the urgent needs.</td>
</tr>
</tbody>
</table>

- The most important factor in maintaining credibility in the international maritime industry with an ISO standard is to be certain that it does not conflict with an IMO regulation or requirement. If it is supportive in complying with the regulation by providing necessary information for the safe, environmentally sound and cost efficient manufacture, installation, usage, maintenance and support; then the standard will be used.
ISO/TC 8 establishes standards based on market needs. Proposals that do not find sufficient support are not followed.

A significant factor in completing and implementing the ISO/TC 8 work programme is the extent and greater use of senior industry leaders in SC management (Chair and Committee Manager). Make sure that SCs in TC 8 are now predominantly industry led, industry driven.

ISO TC 8 must be flexible to provide solutions to IMO.

7. STRUCTURE, SCOPES AND WORK PROGRAMME OF THE ISO/TC.

Scope: Standardization of design, construction, training, structural elements, outfitting parts, equipment, methods and technology, and marine environmental matters, used in shipbuilding, comprising sea-going ships, vessels for inland navigation, offshore structures, ship-to-shore interface, the operation of ships, marine structures subject to IMO requirements, and the observation and exploration of the sea.

Excluded:

- electrical and electronic equipment on board ships and marine structures (IEC / TC 18 and IEC / TC 80);
- internal combustion engines (ISO / TC 70);
- offshore structures for petroleum and natural gas industries, including procedures for assessment of the site specific application of mobile offshore drilling and accommodation units for the petroleum and natural gas industry (ISO / TC 67 / SC 7);
- steel and aluminium structures (ISO / TC 167);
- equipment and construction details of recreational craft and other small craft (not being lifeboats and lifesaving equipment) less than 24 metres in overall length (ISO / TC 188);
- sea bed mining;
- equipment which is not specific for use on board ships and marine structures (e.g. pipes, steel wire ropes, etc.) and falling within the scope of particular ISO technical committees with which a regular mutual liaison must be maintained.

ISO/TC8 Chairman's Strategic Advisory Group (CSAG)

Scope: The Chairman of a technical committee is responsible for the overall management of that technical committee, including any subcommittees and working groups (ISO/IEC Directives, Part 1, paragraph 1.8.2 - Responsibilities).

The Chairman's Strategic Advisory Group is a small group of experts in the international community appointed by the Chairman to advise and assist the Chairman in his Strategic and Business Planning and Successful Programme Management and Direction of the Committee; especially in strategic goals for the future, resolution of resource issues, reallocation of "slow process" work items or reallocation of other work items between subcommittees to avoid duplication of work and to insure optimum assignment of the work.

TC8 meets annually and the Chairman’s Strategic Advisory Group (CSAG) which serves as non –voting advisors to the Chairman. The Chairman may consider the suggestions of the CSAG for his further action as he deems appropriate. The experts do not represent any member bodies; they provide individual expertise and advice - not national positions. The CSAG does not deal with routine administrative matters which remain the responsibility of our TC8 Manager and the cognizant SC Managers. The TC8 Manager is responsible for the overall administrative aspects of the Committee, working in close coordination with the Chairman.

1. BAE Systems is a British multinational defence, security and aerospace company. It was formed On 30 November 1999. The company is the largest defence contractor in Europe and among the world’s Larest defence companies: https://www.bae Systems.com/en/home(accessed July 29, 2020)
SUBCOMMITTEES (SCs)

ISO/TC 8/SC 1 Maritime Safety
Chair: Mr. Bill Cairns
Committee Manager: Ms. Stephanie Groleau (USA)
Scope: Standardization of marine lifesaving and fire protection design, construction, equipment, materials, and technology used in shipbuilding and the operation of ships in support of requirements developed by the International Maritime Organization and the needs of the world maritime industry.

ISO/TC 8/SC 2 Marine Environment Protection
Chair: Dr. Tetsuya Senda
Committee Manager: Dr Carolyn Junemann (USA)
Scope: Standardization of marine pollution abatement materials, equipment and technologies and environmental matters to be used in shipbuilding and operation of ships, comprising sea-going ships, vessels for inland navigation, offshore structures, ship-to-shore interface and all other marine structures subject to International Maritime Organization (IMO) requirements.

ISO/TC 8/SC 3 Piping and Machinery
Chair: Mr. Woon-ho Lee
Committee Manager: Mr. Thane Gilman (USA)
Scope: Standardization of design, construction, equipment and technology for piping and machinery used in shipbuilding and the operation of ships, comprising sea-going ships, fishing vessels and trawlers, vessels for inland navigation, offshore structures, ship-to-shore interfaces, and all other marine structures subject to IMO requirements.

ISO/TC 8/SC 4 Outfitting and Deck Machinery
Chair: Mr. Zhen Liu
Committee Manager: Ms. Longxia Yang (China)
Scope: Standardization of design, construction and operation of equipment and technology for ship outfitting and deck machinery, including ship-to-shore interface, cargo systems and lifting gear etc. used in shipbuilding and the operation of ships in support of the requirements developed by the International Maritime Organization (IMO) and the needs of the world maritime industry.

ISO/TC 8/SC 6 Navigation and Ship Operations
Chair: Dr. Ruri Shoji
Committee Manager: Mr. Kosei Hasegawa (Japan)
Scope: Standardization in the field of navigation, including instruments and systems etc., for navigation.

ISO/TC 8/SC 7 Inland Navigation
Chair: Mr. Anton Lutskevich
Committee Manager: Mrs. Dipl.-Holzwirtin Maja Buntrock (Germany)
Scope: Standardization of general issues, principal requirements, design elements, equipment and technology in the field of inland navigation vessels, including shipborne barges and dredging equipment.

ISO/TC 8/SC 8 Ship Design
Chair: Dr. Jong-Kap Lee
Committee Manager: Mr. Byeong Cheol Choi (Korea)
Scope: Standardization of design and construction for ships and maritime installations for definition of interfaces and creation of the interchangeability as well as for determination of safety requirements and ship performance.

ISO/TC 8/SC 11 Intermodal and Short Sea Shipping
Chair: Mr. Steven O'Malley
Committee Manager: Ms Su-yeon Oh (Korea)
Scope: Standardization of general issues, principal requirements, design elements, construction and operation of ships technology for intermodal, including ship/port interface and other modes of transportation, and short sea shipping.

ISO/TC 8/SC 12 Large yachts
Chair: Mr. Jo Assael
Committee Manager: Mr. Paolo Santato (Italy)
Scope: Standardization of design, construction, structural elements, outfitting parts, equipment, methods and technology, and marine environmental matters, used in large yacht building and in the operation of large yachts, comprising super-yachts, mega-yachts and large yachts used in commercial, charter and pleasure use. Focus should be on unique requirements for large yachts as defined and should not duplicate existing standards.
Excluded: Small recreational craft less than 24 meters, which are within the Scope of ISO TC 188 (Small craft)

ISO/TC 8/SC 13 Marine technology
Chair: Dr. Jiabiao Li
Committee Manager: Ms Xuwen Feng (China)
Scope: Standardization of test methods, operation, design, construction and logistics of equipment, systems, infrastructure and technology used for observation, exploitation and protection of the ocean and sea areas.

1. BAE Systems is a British multinational defence, security and aerospace company. It was formed on 30 November 1999. The company is the largest defence contractor in Europe and among the world’s largest defence companies. https://www.baesystems.com/en/home (accessed July 29, 2020)
ANNEX 1 -GLOSSARY OF TERMS AND ABBREVIATIONS USED IN ISO/TC BUSINESS PLANS.

This glossary gives the full name and status of terms used, in abbreviated form or in full, in the above “Business Plan for ISO/TCs”. The glossary also gives the source of the information provided. The glossary intends to help with the understanding of the terms used. Whenever any of these terms are used by contributors to this Business Plan, they are requested to use them coherently as foreseen in the glossary.

<table>
<thead>
<tr>
<th>Term</th>
<th>Abbrev.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standardization</td>
<td></td>
<td>Activity of establishing, with regard to actual or potential problems, provisions for common and repeated use, aimed at the achievement of the optimum degree of order in a given context. NOTES 1 In particular, the activity consists of the processes of formulating, issuing and implementing standards. 2 Important benefits of standardization are improvement of the suitability of products, processes and services for their intended purposes, prevention of barriers to trade and facilitation of technological co-operation.</td>
</tr>
<tr>
<td>Standard</td>
<td></td>
<td>Document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context. NOTE Standards should be based on the consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits.</td>
</tr>
<tr>
<td>package of standards</td>
<td></td>
<td>A group, as small as possible, of inter-related standards in the scope of one or more ISO/TCs which are usually developed simultaneously to one another as parts of one standard, or standards that must be developed simultaneously.</td>
</tr>
<tr>
<td>Consensus</td>
<td></td>
<td>General agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments. NOTE Consensus need not imply unanimity.</td>
</tr>
<tr>
<td>ISO Deliverables:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Standard</td>
<td>IS</td>
<td>A normative document, developed according to consensus procedures, which has been approved by the ISO membership and P-members of the responsible committee in accordance with Part 1 of the ISO/IEC Directives as a draft International Standard and/or as a final draft International Standard and which has been published by the ISO Central Secretariat.</td>
</tr>
<tr>
<td>ISO Technical Specification</td>
<td>ISO/TS</td>
<td>A normative document representing the technical consensus within an ISO committee, approved by 2/3 of the P-members of the ISO/TC or SC.</td>
</tr>
<tr>
<td>ISO Public Available Specification</td>
<td>ISO/PAS</td>
<td>A normative document representing the consensus within a working group, approved by a simple majority of the P-members of the TC/SC under which the working group operates.</td>
</tr>
</tbody>
</table>
Annex 2 – List of Acronyms

• Autonomous Underwater Vehicle (AUV)
• Biological Diversity of Areas Beyond National Jurisdiction (BBNJ)
• Baltic & International Maritime Council (BIMCO)
• International Association for Marine Electronics Companies (CLIA)
• European Commission Directorate-General for Mobility and Transport (DGMOVE)
• Floating Production Storage and Offloading (FPSO)
• Floating Storage and Offloading (FSO)
• Human Occupied Vehicle (HOV)
• International Association of Airport and Seaport Police (IAASP)
• International Association of Classification Societies (IACS - classification)
• International Association of Drilling Contractors (IADC)
• International Association of Marine Aids to Navigation & Lighthouse Authorities (IALA)
• International Association of Ports and Harbors (IAPH)
• International Council of Marine Industry Associations (ICOMIA)
• International Chamber of Shipping (ICS - shipping)
• International Electrotechnical Commission (IEC) – TC 18 / TC 80
• International Hydrographic Organization (IHO)
• International Life Saving Appliance Manufacturer’s Association (ILAMA)
• International Labour Organization (ILO)
• International Marine Contractors Association (IMCA)
• International Marine Electronics Alliance (IMEA)
• International Maritime Organization (IMO)
• International Maritime Pilots Association (IMPA)
• International Mobile Satellite Organization (IMSO)
• International Police Organization (INTERPOL)
• International Security Management Association (ISMA)
• International Ship Recycling Association (ISRA)
• International Shipping Federation (ISF)
• International Seabed Authority (ISA)
• International Towing Tank Conference (ITTC)
• International Convention for the Prevention of Pollution from Ships (MARPOL)
• Marine Environment Protection Committee (MEPC)
• Maritime Safety Committee (MSC)
• NACE International (NACE)
• North Atlantic Treaty Organisation (AC/35) (NATO)
• Natural Gas Vehicle Knowledge Base (NGV Global)
• Oil Companies International Marine Forum (OCIMF)
• World Organization for Animal Health (OIE)
• The Royal Institution of Naval Architects (RINA)
• Remote Operated Vehicle (ROV)
• Security Association for the Maritime Industry (SAMI)
• The Society for Gas as a Marine Fuel (SGMF)
• Society of International Gas Tanker and Terminal Operators (SIGTTO)
• The Society of Naval Architects and Marine Engineers (SNAME)
• International Convention for Safety of Life at Sea (SOLAS)
• International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW)
• United Nations (UN)
• UN Conference on Trade and Development (UNCTAD)
• United Nations Environment Programme (UNEP)
• United Nations Economic Commission for Europe (UNECE)
• World Customs Organization (WCO)
• World Meteorological Organization (WMO)
• World Shipping Council