**SSI roadmap**

As leaders in our industry, SSI members want to show the way towards a better future – for our own success and for wider society, with sustainable shipping serving a genuinely sustainable economy.

The Roadmap has been developed by the SSI members, and reviewed by panels of industry stakeholders, to show the complex pathways, through to a sustainable industry in 2040. The story begins with the analysis of the key mega-trends affecting the industry outlined in our Case for Action document. These were then projected forwards in our Vision2040 to six key defined areas which were each comprised of the evolution of one or more of the mega-trends. These six vision areas form the basis of the Roadmap which aims to help us on the journey.

It is important to note that the Roadmap is not static. Content has already changed and evolved during the development and it will need to be reviewed and updated often to maintain relevance. It is also impossible to include absolutely everything that could or should happen, but there has been some consensus on the content. It is a working document for the SSI and its members and it is hoped that the industry will also find it useful. If there are suggestions for inclusion, update or deletion of items, please contact us.

Click to find out more about the [Case For Action & Vision 2040](#)

| 1. | Proactively contributing to the responsible governance of the oceans |
| 2. | Earning the reputation of being a trusted and responsible partner in the communities where we live, work and operate |
| 3. | Provide healthy, safe and secure work environments so that people want to work in shipping, where they can enjoy rewarding careers and achieve their full potential |
| 4. | Transparency and accountability drive performance improvements and enable better, sustainable decision making |
| 5. | Develop financial solutions that reward sustainable performance and enable large scale uptake of innovation, technology, design and operational efficiencies |
| 6. | Change to a diverse range of energy sources, using resources more efficiently and responsibly, and dramatically reducing greenhouse gas intensity |
**Proactively contributing to the responsible governance of the oceans**

**THE CASE FOR ACTION**

2020's outcome ... the Prevention of Pollution from Ships (MARPOL).

**LATE 2010's**

**LATE 2010's**

**LATE 2010's**

**NEXT ROADMAP**

**VISION 2040**

A formal system of global ocean governance is in place, recognizing the rights and responsibilities of key ocean users.

All ‘heavy use areas’ are managed through a system of well enforced Marine Spatial Plans.

Ideally, we would measure success by the specific schedule of regulations considered by the SSI to be ‘desirable by 2040’. In the absence of such a schedule, the following outcomes are proposed:

**IMPEDING FACTORS**

Communication between all stakeholders.

**VISION 2040**

**LATE 2010's**

**LATE 2010's**

**LATE 2010's**

**OUTCOME 2040's**

**IMPEDING FACTORS**

Communication between all stakeholders.
Earning the reputation of being a trusted and responsible partner in the communities where we live, work and operate.
Provide healthy, safe and secure work environments so that people want to work in shipping, where they can enjoy rewarding careers and achieve their full potential.

**THE CASE FOR ACTION**

- **NO SECRETS - DEMAND FOR TRANSPARENCY**
  - Increased transparency and visibility of shipping creates more demand for higher standards from beyond the industry.
  - Low cost personal satellite / internet technology empowers seafarers to expose poor conditions.
  - Technology enabling real-time monitoring of activity on ships is required by key customers to monitor standards.

- **DEMANDING HIGHER STANDARDS - SUSTAINABILITY REGULATION**
  - Ongoing difficulty in recruiting Officer level seafarers puts pressure on the industry.
  - Branded shipping customers seek to eradicate ‘sweatshop ships’ - the final frontier of supply chain management.
  - Growing BRIC middle class demands better social standards.

**VISION 2040**

- **LEGAL STANDARDS**
  - Ratification of the MLC by 95% of member states.

- **SAFETY**
  - Globally agreed accident and near miss reporting formats developed, and used by critical mass of industry leaders.
  - Global standards for accident and near miss reporting are enshrined in regulation.

- **SHIP RECYCLING**
  - Industry and regulators apply strong financial, legal and regulatory pressure to ship recyclers to significantly improve ‘worst case’ performance.

- **TRAINING**
  - Agreed global minimum standards of training for mariners, ratified by 95% of IMO member states.

- **LABOUR CONDITIONS**
  - Bullying, harassment and discrimination are eliminated / managed through actively enforced company policies, with minimum standards set and enforced by the IMO.
  - There is equality of opportunity for people wishing to enter the shipping industry, regardless of race, gender, religion etc.

**EMPLOY BEST PRACTICE IN LEADERSHIP AND EMPLOYEE DEVELOPMENT TO ATTRACT PEOPLE TO SHIPPING CAREERS**

- **EQUALITY**
  - Women represent 2% of the maritime workforce (CURRENT).
  - Women represent 95% of the maritime workforce.

- **TRAINING**
  - Cultural / language support Eco / tech training awareness.
  - High quality training facilities in all areas associated with poor standards of mariner training. 80% of mariners have access to “high quality” training.

- **LABOUR CONDITIONS**
  - Greater education of shipping as a career option.

**OUTCOME 2040**

- **Zero Accidents.**
  - (Accident rates in shipping achieve parity with those of land-based industries).
  - The shipping sector’s fatality rates are reduced by 90% (over x baseline).

- **Shipping is a recognised career sector and features in rankings of sought-after careers.**
  - Labour conditions are assessed on a level playing field across all segments of the industry (short sea, coastal, deep sea etc.) – no ‘hidden horrors’.

- **LABOUR CONDITIONS**
  - Mariners pay, benefits and recognition are, as a minimum, equal to those of shore staff.
Transparency and accountability drive performance improvements and enable better, sustainable decision making.

Asda uses webcams to provide real-time monitoring of conditions in supplier factories. Will this extend to shipping in future?

Branded shipping customers begin to focus on Shipping - the final frontier of supply chain management.

Growing BRIC/MINT middle class demands better social standards.

Increased transparency and visibility of shipping creates more demand for higher standards from beyond the industry.

Low cost personal satellite /internet technology empowers mariners with social media ‘voice’

Technology enables real time, remote monitoring of almost every aspect of ship performance, crew activity, efficiency, emissions etc

Encourage shipping customers to make sure performance key in service selection and agreed set of performance standards.

Pioneer methods for shipping stakeholders to compare sustainability performance & drive improvement.

Energy performance

Credible rating schemes enable shipping customers to select ships based on “good enough” estimates of energy performance, based on assessing ship design.

Design and operation

Credible rating schemes enable shipping customers to select ships based on “good enough” estimates of energy performance, assessing ship design AND operation.

Reporting

All vessels (Box, Nocx, CO2) published as audited “accounts” by flag states.

Validation, public domain, high accuracy, (<-5% uncertainty) quantification of a ships performance across a range of speeds and weather / loading conditions - route specific fuel consumption.

Credible sustainability rating schemes are in place for all ship types, assessing both design and operation across a comprehensive range of environmental, social and economic criteria.

Beyond performance, are commensurate with Vision2040 aspirations.

Levels of uptake enable significant increase in performance levels required by rating schemes and stakeholders to a level projected to meet all Vision 2040 Milestones.

Mainstream schemes expand or merge to increase scope to beyond carbon/energy, to include all key environmental and labour issues in the design and operation of ships.

Data outputs monetised to triple bottom-line by validated metrics.

IMO significantly increases minimum performance standards under EEDI following lead set by Beyond Compliance standards.

Key rating schemes and reporting standards require real-time data provision and automated reporting of emissions, labour conditions and other performance indicators.

Credible compliance sustainability rating schemes are used to inform shipping-related commercial decisions – only transparent, accountable companies have “license to trade”. Performance is effectively monitored and policed.
Develop financial solutions that reward sustainable performance and enable large scale uptake of innovation, technology, design and operational efficiencies.

New ownership models emerge
- ownership of the vessel and all technical installations
- owner buys and supplies to yard (owner supply)
- ESCO models (energy service company) with suppliers retaining ownership of equipment and guaranteeing lifecycle cost OR performance on spot-test

Ecosystem valuations are routinely used by key global institutions in decisions affecting maritime regulation and ocean planning (MSP). There is clear evidence that ecosystem valuations have a material impact on decisions.
Change to a diverse range of energy sources, using resources more efficiently and responsibly, and dramatically reducing greenhouse gas intensity.

- Reduce CO₂ to 1990 levels in present usage (Climate Change)
- Arctic shipping
- IPCC predict significant increase in extreme weather
- Likely date of 3rd generation biofuel with availability to shipping
- Predicted date of depletion of US crude oil reserves
- 50% reduction in CO₂ emissions required by 2050 to prevent climate changes (UCL)
- New technologies currently take around 50 to 100 years to develop. Average rate of improvement is 10% efficiency of new ship is 15% per decade.
- New technologies are continuously introduced and changed.

**Operational Allocations**
- CO₂ reduction of global ports under Virtual Arrival Arrangements.
- Slow cooling, weather routing and other key operational practices are used on many voyages.
- Winterisation Sustained 26% reduction in CO₂ per tonne/mile from 2012 levels.
- Winterisation Average 50–70% reduction in CO₂ per tonne/mile from 2012 levels.
- Rapid Prototype 2012 (Advanced COP and Model Based Systems Engineering) enables development of new technologies at lower cost, particularly in groups or categories. Rapid Prototyping is used to introduce new technology to sea for the first time, typically at full maturity in 2020.
- New materials means ships are 50% lighter than in 2010, improving efficiency by 5% per tonne of cargo. Options of power train modules.
- New ship building materials/composites may dramatically reduce weight and balance; high-tech and light-weight shipbuilding technologies.
- Polar ice-cap melting has resulted in steeper transport costs between Europe and Asia.

**Operational Allocations**
- New technologies currently take around 50 to 100 years to develop. Average rate of improvement is 10% efficiency of new ship is 15% per decade.
- New technologies are continuously introduced and changed.

**Operational Allocations**
- CO₂ reduction of global ports under Virtual Arrival Arrangements.
- Slow cooling, weather routing and other key operational practices are used on many voyages.
- Winterisation Sustained 26% reduction in CO₂ per tonne/mile from 2012 levels.
- Winterisation Average 50–70% reduction in CO₂ per tonne/mile from 2012 levels.
- Rapid Prototype 2012 (Advanced COP and Model Based Systems Engineering) enables development of new technologies at lower cost, particularly in groups or categories. Rapid Prototyping is used to introduce new technology to sea for the first time, typically at full maturity in 2020.
- New materials means ships are 50% lighter than in 2010, improving efficiency by 5% per tonne of cargo. Options of power train modules.
- New ship building materials/composites may dramatically reduce weight and balance; high-tech and light-weight shipbuilding technologies.
- Polar ice-cap melting has resulted in steeper transport costs between Europe and Asia.

**Operational Allocations**
- New technologies currently take around 50 to 100 years to develop. Average rate of improvement is 10% efficiency of new ship is 15% per decade.
- New technologies are continuously introduced and changed.