# 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.

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**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

1. Arctic sea passages ‘open for business’
2. Proliferation of ocean industries - deep sea mining, floating wind generation, wave power, algal biofuel etc.
3. Global fleet doubles = 200,000 ships
4. “sea traffic control” necessary
5. Proliferation of coastal shipping around Africa and Asia puts pressure on coastal waters

LATE 2010’s
LATE 2010’s
LATE 2010’s
LATE 2010’s
NEXT ROAD MAP

VISION 2040

WORK WITH KEY POLICY & REGULATORY FORUMS, AND WITH RELEVANT STAKEHOLDERS TO BALANCE RIGHTS AND RESPONSIBILITIES FOR USE AND ACCESS, AND IMPROVE OCEAN GOVERNANCE

NOTE: WE HAVE USED MARINE SPATIAL PLANNING (MSP) AS A PROXY

IMPLEMENTATION
Pilot projects (Irish sea + Great Barrier Reef Pilots, Polar Code) have demonstrated good practice, and benefits of spatially driven legislation that brings together multiple sectors to balance rights and responsibilities of key ocean users.

GOVERNANCE
IMO has strengthened links with national and International governments (EU, African Union, ROICRAM, etc.), giving teeth to enforce standards and regulations.

INFLUENCING FACTOR
Communication between all stakeholders.

ENFORCEMENT
Marine Spatial Planning in national waters includes all users.

REGULATION
Rate of ratification of regulation at IMO is increased significantly.

GOVERNANCE
Oil and gas, wind, and all other key maritime industries are represented by an international governance body, enabling formal participation in global ocean governance processes.

UNCTAD, World Ocean Council, IMO, International Seabed Authority, FAO, regional fisheries management, oil and gas (etc).

PIRACY
Piracy is eliminated/solved.

A formal system of global ocean governance is in place, recognising 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:

PRACTICAL MEASURES
Unmanned vessels.

BIG DATA
Better ship tracking
Better port management
Better route management.

NEXT ROAD MAP

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Earning the reputation of being a trusted and responsible partner in the communities where we live, work and operate

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

Growing (BRIC/MINT) middle class demands better social and environmental standards.

**The Case for Action**

**Vision 2040**

**Develop and Facilitate the Implementation of Economic, Social and Governance Best Practices That Benefit the Key Communities Affected by Shipping.**

**Eradicating Worst Practices**
- UNEP develops a coalition of developing country ports focused on minimising health impacts of black carbon and other particulates. Improvements expected by 2020.

**Defining Best Practice**
- Measures are developed of Social Value Contribution from shipping to port communities.

**Governance**
- An international governance body formed to represent ports and other coastal communities, involving port tates/cities/authorities and maritime users across the land-sea interface.

**Defining Best Practice**
- Voluntary standards for port and port communities agreed by leading port cities/authorities.

**Defining Best Practice**
- Major ports report environmental and social performance using a common standard.

**Equal Treatment for Seafarers / Decriminalisation**
- Seafarers are given equal treatment to on-shore staff. Criminalisation of seafarers reversed communities.

**Practical Measures**
- Deregulation of Cabotage frees up land based congestion.
- Improve port infrastructure. Improve port efficiency.

**Practical Measures**
- Improved infrastructure removes bottlenecks, improves access for smaller producers, eg small parcel, part container loads etc. increasing productivity and employment. Shore leave for seafarers.

**Critical**
- Politicians recognise shipping as a responsible industry.

Coastal communities are effectively represented in maritime and land-based governance bodies, at a local, national and international level, with well-defined and enforced standards.
- Port communities have clean and healthy environments.
- Shipping industry is seen as an enabler to trade and development.
- Corruption is eradicated.
- IAPH drives improvements through globally recognised standards and reporting requirements.
- There is harmony between ships, ports and port communities in terms of jobs, conditions and technology.
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.
Transparency and accountability drive performance improvements and enable better, sustainable decision making.

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

Campaign groups use Google satellite data to prosecute ship operators following pollution incidents.

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.

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.

Shippers articulate to end user (retailer/customer)

CUSTOMER DEMAND
>60% of cargo market is actively using beyond compliance sustainability rating schemes to inform charter/carrier decisions.

>20% of shipping finance and insurance decisions require minimum performance against recognised rating schemes.

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

BEYOND ENERGY
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.

CUSTOMER DEMAND
Globally agreed minimum performance expectations are actively used to eliminate 'worst offenders' in terms of labour standards, environmental performance etc.

RAISING THE BAR (again)
Performance levels achieved as required to meet or exceed Safety, CO2, and other Vision 2040 objectives.

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

Beyond-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.

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.

Performance levels are commensurate with Vision2040 aspirations.
Develop financial solutions that reward sustainable performance and enable large scale uptake of innovation, technology, design and operational efficiencies.
Change to a diverse range of energy sources, using resources more efficiently and responsibly, and dramatically reducing greenhouse gas intensity

**THE CASE FOR ACTION**

### ADAPTING TO CLIMATE CHANGE

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<th>2030’s</th>
<th>OUTCOME 2040’s</th>
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<tr>
<td><strong>Reduce CO₂ to 1990 levels to prevent runaway Climate Change</strong></td>
<td>Oil price spike + downturn hits shipping.</td>
<td>Increasing reliance on ‘hard to reach’ oil reserves and shale gas.</td>
<td><strong>Global shipping fleet achieves 80-90% CO₂ per tonne/mile from 2012 levels.</strong></td>
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<tr>
<td>Arctic sea passages ‘open for business’</td>
<td>IPCC predict significant increase in extreme weather</td>
<td>Likely date of 3rd generation biofuel wide availability to shipping.</td>
<td>80% reduction in CO₂ emissions required (by 2050) to prevent runaway climate change.</td>
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<td>IPCC predict significant impact on coastal infrastructure due to CC.</td>
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<td>Predicted date of depletion of US shale gas reserves.</td>
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### MOVING ON FROM OIL - THE FUTURE OF ENERGY

**VISION 2040**

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<td><strong>INDUSTRY MILESTONE</strong></td>
<td><strong>ENTIRE SYSTEM APPROACH TO LOGISTICS</strong></td>
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<tr>
<td>IMO implements CO₂ reduction plan towards UNFCCC warming target.</td>
<td>Slow steaming, weather routing and other key operational practices are used on majority of voyages.</td>
<td>Sustained 20% reduction in CO₂ per tonne/mile from 2012 levels.</td>
<td><strong>WHOLE SYSTEM APPROACH TO LOGISTICS</strong></td>
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<td><strong>INFLUENCING FACTOR</strong></td>
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<td>New technologies currently take around 10-15yrs to achieve market penetration. Average rate of improvement in energy efficiency of new ships is &lt;10% per decade.</td>
<td>IMO requires 10% improvement in EEDI – this is insufficient.</td>
<td>Global fleet doubles to 200,000 ships.</td>
<td>Finished goods are consumed primarily by domestic market – facilitate by 3rd party licenses for manufacture reducing import/export cross over.</td>
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**INDUSTRY MILESTONE** | **BATTERIES/ELECTRIC** | **ALT FUEL TRIALS** |
| MARPOL, low sulphur regulation and SECAs promote fuel switch (rather than scrubbers). | Electric hybrid propulsion for large ships enabled by 50% drop in battery cost (per kWh) by 2025. Enables on-shore charging, and energy harvesting and recovery, estimated 8-15% efficiency gain. | Many experimental projects for ship propulsion have materialized by 2020, using wind/solar/wave energy. |

**BIOFUEL TRANSITION** | **LNG** | **BIOFUEL** |
| Transition plan in place to enable transition from methanol/ethanol from coal/natural gas, to bio-methanol and bio-ethanol. | LNG use in deep sea ships well established. | Sustainable biofuel used for marine engines + fuel cells on gas/methanol begin to be used for auxiliary engines. |

**INDUSTRY MILESTONE** | **INDUSTRY MILESTONE** |
| The practice of ships / containers returning empty from a voyage is phased out (WBCSD). | Elimination of ‘in ballast’ phase. More efficient positioning of cargo / ship (DHL model). |

**TRANSPARENCY** | **TRANSPARENCY AND COLLABORATION** |
| Carbon pricing is used to inform procurement processes and logistics design. | Optimisation of supply chain and 3rd party supplier licensing. |

**PERVERSE TRADING** |
| Business/trading models to avoid ‘perverse trading’ are developed and trialled. |

Average 25-30% reduction in CO₂ emissions per tonne/km required, every decade to 2040

**Climate Change** | **Energy Efficiency Design Index** | **Ship Energy Efficiency Management Plan** |
| Intergovernmental Panel on Climate Change | Energy Efficiency Rating | World Business Council for Sustainable Development |

**Subsidy Emission Control Area** | **DME** | **International Maritime Organization** |
| Subsidy | Dimethyl Ether | International Maritime Organization |

**European Union** | **WSUSD** |
| | World Wildlife Fund for Nature