Maritime Autonomy
An Overview of UK Policy Development

Context

"My view that there is a technological and business revolution underway has only been reinforced. It brings with it the scope to transform the way we use and harness the potential of data, through the development of connected and autonomous vehicles, and by building Smart Infrastructure." – *Secretary of State for Transport, on DfT's priorities, September 2017*

The Secretary of State is keen for Government to:

▸ Be a pathfinder in supporting the development of new technologies in the UK

▸ Ensure a regulatory environment which attracts and encourages innovation

▸ Become best in class internationally for working with the Private Sector to deliver Smart Shipping technologies

▸ Support Government-wide objectives, such as the Industrial Strategy.

UK's first fully autonomous vessel the C-Worker 7 is launched

THE TIMES

UK eyes hi-tech future for shipping

Lloyd's List — Maritime intelligence

01 Mar 2018 | NEWS

Transport Secretary Chris Grayling hails 'new era' of shipping and pledges to do 'everything possible' to create a thriving hi-tech industry

Public interest

PORT TECHNOLOGY

UK Secretary to Announce Autonomous Maritime Revolution

28 Feb 2018 05.02pm

THE TIMES

Abandon crew … as ships go it alone

Graeme Paton Transport Correspondent

Unmanned ships could soon become a common sight in the seas around Britain after the launch of the UK's first fully autonomous vessel.

Chris Grayling, the transport secretary, hailed the introduction of a self-operating ship as he unveiled plans for a strategy to boost Britain's maritime industry for the next three decades.

The vessel, C-Worker 7, which is 7.2m long was added to the UK ship register in November and will be used for sub-sea navigation, surveying and environmental monitoring work. The vessel can be operated directly or remotely, travels at up to 6.5 knots and can be at sea for up to 30 days. It has been built by ASV Global, a maritime company in Portchester near Portsmouth.

Rolls-Royce is pioneering the development of full-size autonomous ships and forecasts that remote-control vessels will operate along the coastline by 2025 and cross oceans by 2035. It has opened a research facility in Finland to develop the technology.

With the majority of casualties at sea said to be caused by human error, autonomous shipping is thought to have the potential to improve safety and to follow more accurate shipping routes, cutting congestion and emissions.

Mr Grayling said it was hoped that Britain would become a centre for the technology. It follows the launch last month of a strategy — Maritime 2050 — designed to shape the industry for the next 30 years. He said other advances that could be developed included electric and hybrid vessels, cutting down on the levels of carbon emissions.

Emissions from ships are considered a big cause of pollution around the world, with cruise ships having a huge impact on coastal cities.

Mr Grayling said that magnetic berthing would also be developed as an alternative to traditional lines to make the mooring process safer and more efficient.

He told the Smart Shipping Event in London yesterday: "The UK is determined to be at the forefront of this exciting time of change."

apolitical

Autonomous ships are the future — and the UK government is getting ready

Opinion: Policymakers are consulting industry to map out the future of the maritime sector

Maritime 2050

- ✓ Delivering the Government's long term strategy for UK maritime

- ✓ Setting a clear vision for the future

- ✓ Providing industry with the confidence to embrace change

- ✓ Ensuring that the UK remains at the forefront of global maritime

- ✓ Working closely with stakeholders to gather evidence and inform recommendations

Adopting a thematic approach

People The skills needed, improving diversity, adapting to technological change, lifelong education and training

Technology Impacts on shipping, ports, maritime services, communication, navigation and exploration

Environment Zero emission shipping, minimising environmental impacts, adapting to climate change, international leadership

Security of UK waters, on board and in ports, global route security, cyber, crime and piracy, terrorism

Trade trading frameworks, UK competitiveness, promotion, trading volumes, new routes

Infrastructure coastal shipping, safety, leisure, passenger services, ports and harbours, ship building, logistics, connectivity and supply chain

UK Competitive Advantage the UK's unique Maritime offer, focusing on the UK's maritime thought leadership, strong partnership between government and industry, regulation, safety, and the UK flag.

The Maritime 2050 route maps

▸ Each Maritime 2050 theme has a route map. Released throughout 2019.

▸ The route maps set out short and medium term policy pathways to help achieve the long-term ambitions of Maritime 2050.

▸ Technology theme: 'Technology and Innovation in UK Maritime' (TIUK) (the artist formerly known as the Smart Shipping Route Map).

▸ TIUK map will apply technology recommendations to case study of maritime autonomy.

Key requirements of industry and government

The scope of the Technology and Innovation in UK Maritime route map covers:

▸ Developing and future-proofing UK **infrastructure**, from the implementation of next-generation communications technologies such as 5G broadband, to how our ports operate;

▸ Understanding the **skills** requirements for the future and how this will affect employment, shifting the demographics within the Maritime sector and enhancing the attractiveness of working in Maritime;

▸ The **technologies** which will shape the sector, including the increase in the use of autonomous technologies, machine learning and AI, along with communications, data storage, and digitalisation of supply chains using various methods, including blockchain-based technologies ;

▸ Working to create the **regulations** and environment which enables the safe, stable testing and operation of these technologies, and which promotes and fosters innovation in the sector.

What we've done – developing the policy

▶ Maritime Autonomy Futures Lab, February 2018.

▶ Targeted stakeholder engagement (workshops, interviews) throughout 2018.

▶ Testing and developing key policy recommendations.

▶ Publication of 'Technology and Innovation in UK Maritime': The Case of Maritime Autonomy Route Map alongside Maritime 2050 in early 2019.

▶ Then…

Government and Industry – A Track Record of Working Together
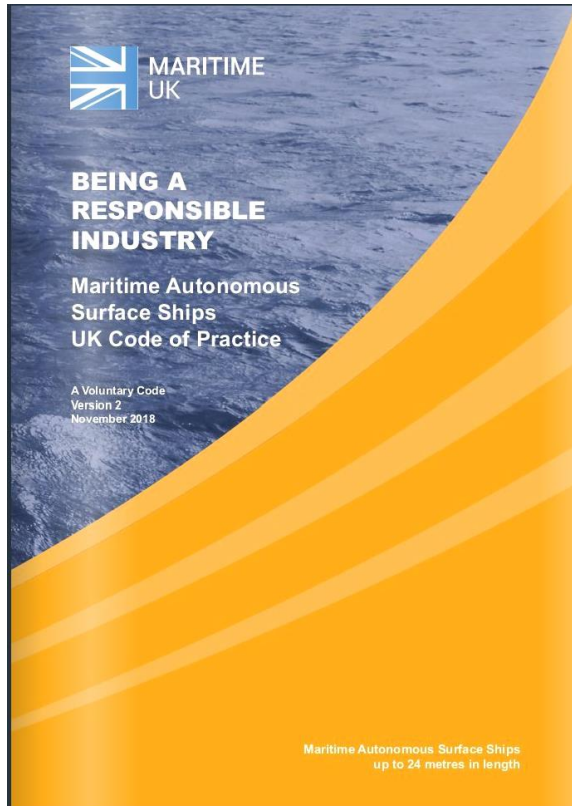
- MASRWG

- IMarEST Special Interest Group – Future Skills Needs

- Maritime Autonomy Regulation Lab

Regulating for Innovation: MARLab

▸ Technology moves fast, regulation cannot always keep pace.

▸ Regulators' Pioneer Fund, £10m to remove regulatory barriers to innovation, allowing new products to enter the marketplace.

▸ Clear role for the MCA to support UK autonomous shipping industry.

▸ Collaborative application put together by MCA, DfT and NOC.

MARLab in Brief

▸ 18-month project, with £1m budget ,MARLab aims to:

1. Open UK waters to MASS

2. Make data available to industry

3. Find new ways to regulate

▸ Based at the NOC, Southampton.

▸ Will act as a single point of contact between government, academia, and industry.

Moving Britain Ahead

MARLab – Work-streams

▸ Two major work-streams:

Regulatory:

Identify barriers to innovation, use best practice from other sectors / nations to pioneer new approaches – to be more collaborative and responsive

Data:

Identify industry uses for government data. Start with MCA's maritime situational awareness datasets, investigate their value in testing new tech and allowing new ideas to enter the sector

But we need your help…

▸ MCA need to know: what is being tested in UK waters at the moment?

▸ To regulate properly we need to understand the risk, identify use-cases, and provide MCA expertise to support innovators.

▸ Any questions? Please contact:

Katrina.Kemp@mcga.gov.uk

Tim.Wilkes@mcga.gov.uk

Contact details

- David.Kenrick@dft.gov.uk

- Maritime.2050@dft.gov.uk

Moving Britain Ahead