

SOLENT MARITIME INNOVATION GATEWAY

YOUR COMPASS FOR THE SOLENT'S CLEAN,
CONNECTED, AND AUTONOMOUS MARITIME ECOSYSTEM

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Maritime Innovation Gateway

WELCOME TO SOLENT

OUR PURPOSE

The Solent Maritime Innovation Gateway is the “One Stop Shop” for building a flourishing environment of exciting ideas, strong relationships and pioneering innovative technology in the Solent, by providing a single point of access, coherence and an enterprise approach.

HOW IT WORKS?



**SOLENT MARITIME
INNOVATION GATEWAY**



Provide trusted matchmaking
to actively connect business ecosystems where synergies exist.

Guide innovators, researchers and businesses to new opportunities from industry challenges to potential future customers.

Create a shop window for maritime innovation in the Solent via a single point of contact for international and national investors.

Act as a catalyst service to drive the cluster effect and ensure coherence across the region.



ABOUT THE SOLENT

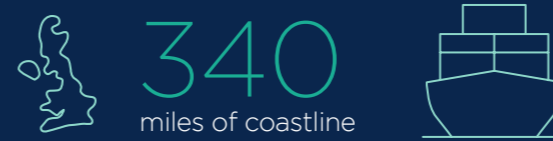
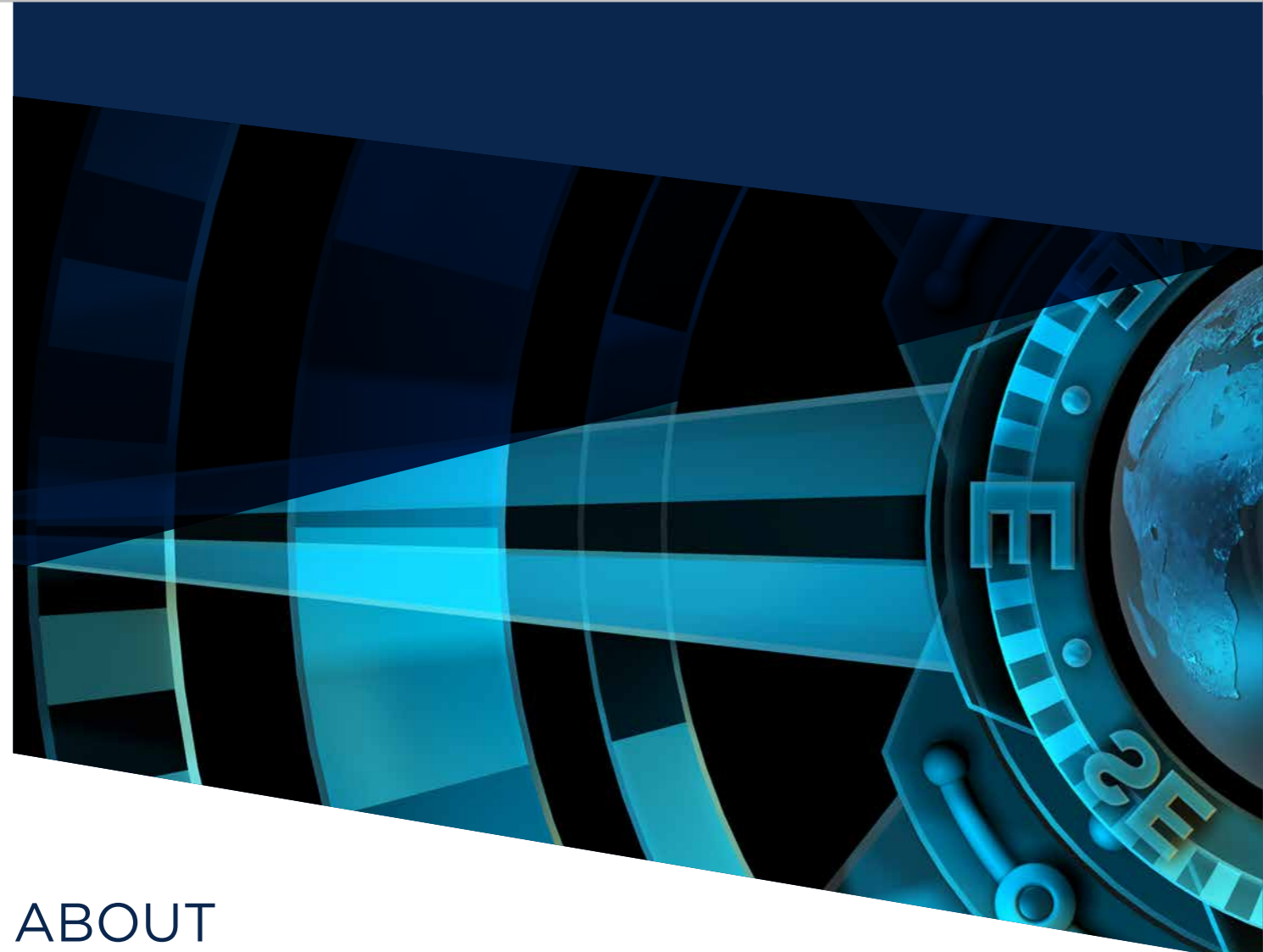
The Solent is the UK's most important gateway to European and global markets.

The Solent has long been a critical point of entry and exit to the United Kingdom, both for people and goods. Through the history of the UK, the Solent has consistently demonstrated an ability to continuously adapt to new global trends, changing imports, vessel designs and maritime infrastructure requirements.

Maritime activities in the Solent benefit from the region's natural coastline, with sheltered deep water harbours and estuaries. These features provided a safe, convenient location to import and export goods, working as a focal point in global trade and travel.

Being the preferred UK trading hub, the Solent is just **20 nautical miles** from the world's busiest shipping route from Shanghai to Rotterdam and has direct routes to over **70 ports** around the world. It also benefits from direct road and rail links to both London and the UK's key manufacturing centres, as well as further international connectivity provided through Southampton Airport. These factors and more, contribute to our regions attractiveness for maritime logistics operations, including those that are technology-focused.

All of this drives a powerful **£7.7bn** maritime economy and makes the Solent the beating heart of the world's marine and maritime sector.



Isle of Wight - The Isle of Wight is home to world-class Regatta racing, hosting both the famous Round the Island Race, and the Cowes Week Regatta.

Home of the **Royal Navy**

Solent Freeport
one of only **eight** freeport sites in England



Hosts world-leading **maritime** businesses covering robotics, autonomy, ship-building and professional services

World-leading research and training institutions

Major maritime **testing facilities**



1. <https://solentlep.org.uk/media/2777/maritime-uk-solent-web.pdf>

A REGION OF MARITIME INNOVATION AND EXCELLENCE



Southampton Airport

Southampton

London is less than 90 mins by train



In a fast-changing world, the maritime sector is facing transformation of a scale not seen in a generation, including the transition to unlocking **net zero**, strengthening resilience, driving efficiency and **digital transformation**.

These challenges create significant opportunities for innovators to engage with the Solent ecosystem, mapping into coordinated activity and the region's position as a global leader in clean, connected and autonomous maritime.

The Solent benefits from several maritime innovation advantages, including its maritime research institutions which provide world-leading capabilities and leadership for the maritime industry and are crucial in maintaining our status as a UK leader in:

- Clean maritime
- Defence
- Maritime transportation and logistics
- Leisure marine
- Offshore renewables
- Ocean science and exploration
- Regulation
- Maritime training
- Maritime autonomy and robotics

Together with its coastal geography, ports, maritime education and research, advanced manufacturing capabilities, science parks, and skilled workers, the Solent is well placed to deliver maritime innovation.

SOLENT'S R&D INSTITUTES AND TESTING FACILITIES

- | | | | |
|---|---|----|--|
| 1 | Centre for Maritime Archaeology (CMA) | 8 | Portsdown Technology Park |
| 2 | Centre of Excellence for Composites, Advanced Manufacturing and Marine (CECAMM) | 9 | Portsmouth International Port |
| 3 | Lloyd's Register | 10 | Portsmouth Naval Base |
| 4 | Haslar Marine Towing Tank | 11 | Portsmouth University |
| 5 | The Wolfson Unit | 12 | Solent University |
| 6 | National Maritime Autonomy Centre | 13 | Southampton Marine and Maritime Institute (SMMI) |
| 7 | National Oceanography Centre | 14 | University of Southampton |
| | | 15 | Warsash Maritime School |



A region of Maritime Innovation and Excellence

MARITIME MANUFACTURING AND TECHNOLOGY

A world-renowned marine and maritime manufacturing cluster in the Solent supports a maritime sector that contributes **£7.7 billion** of GVA each year, equivalent to 25% of the Solent economy.

The Solent is a global leader in the field of marine and maritime autonomy / robotics and clean maritime, with cutting-edge projects including the application of emerging autonomous vehicle technologies, the development of hydrogen-powered water transport, and pioneering state-of-the-art shore-to-ship power solutions.

The Isle of Wight is a key location for offshore renewables with Vestas Offshore Wind located on the Medina. The offshore wind sector is a key growth area for the government and is expected to supply 50GW and **employ 90,000 people** by 2030.



A region of Maritime Innovation and Excellence

MARITIME EDUCATION AND RESEARCH

The Solent is home to three universities: the **University of Portsmouth**; the **University of Southampton**, and **Solent University**.

The academic ecosystem ensures that future skills are continuously supplied into industry, especially in engineering, maritime, aerospace, advanced manufacturing, and clean technology.

The Southampton Marine & Maritime Institute (SMMI) provides independent expertise, spanning both the marine and maritime sectors. The SMMI fosters new research collaborations, educates the next generation of maritime leaders, and generates knowledge and intelligence for organisations of all kinds.

The National Oceanography Centre (NOC), based at Southampton, is one of the world's leading centres of excellence for oceanographic sciences. The NOC works closely with research centres and academia to develop solutions to the challenges and opportunities of ocean sciences.

Warsah Maritime School is the only maritime training centre of its kind in the world. It offers over 150 maritime and offshore courses including deck, engineering, ship handling, and maritime and offshore safety.

Preparing for the future

The Solent is well placed to continue to establish itself as a centre of excellence for maritime innovation by meeting the emerging skill demand in the clean and digital maritime economy. For example, a £11M Centre of Excellency for Composites, Advanced Manufacturing and Marine (CECMM) located at the Island Technology Park, East Cowes has been established. The CECMM offers students a choice of career first with facilities such as 3D Printing, Boat Construction and Design and Marine Engineering Simulators.



A region of Maritime Innovation and Excellence

PORT LOGISTICS

The Port of Southampton is the UK's biggest export port, handling more than **£40bn** of exports.



The **Port of Southampton** has grown into a major container port and is a significant site for the importing of motor vehicles. The Port of Southampton supports industries across the UK, operating services across the globe and handled £71bn of imports and £40bn of exports. It is also the UK's prime automotive hub, handling 900,000 vehicles per year.

Portsmouth is home to **Portsmouth International Port (PIP)**. The port handles multiple cargoes, including roll-on/roll-off passenger traffic, cruises and freight, particularly goods such as bananas due to its purpose-built ripening warehouses. More recently, it increased its handling of various mixed dry goods, aggregates, and paper.

The **Solent Gateway** is a key logistics hub with four berths and 225 acres of multimodal port capacity with great links to the rest of the UK via road and rail.

A GLOBAL OPPORTUNITY AT ONE OF THE UK'S GATEWAYS

The OECD predicts that the ocean economy² will double by 2030 to **£2.4trillion** compared to the 2010 market³.

The **Solent Freeport** will unlock billions of pounds' worth of investment, create tens of thousands of new jobs and level up our important coastal communities. The Solent has a thriving maritime industry and innovation ecosystem, consisting of incubators, accelerators, field labs, and testing facilities.

Our regional ecosystem can be categorised into three innovation market opportunities which focus on the strengths of the region and encompass some of the key future maritime trends.

These market opportunities are:

- Clean Maritime
- Connected Maritime
- Maritime Autonomy.

² The Ocean Economy is the sum of the economic activities of ocean-based industries, together with the assets, goods and services of marine ecosystems

³ <https://www.oecd.org/futures/Policy-Note-Ocean-Economy.pdf>



“The Solent is the UK's most important gateway to European and global markets.”



THE MARKET OPPORTUNITY EXPLAINED: **CLEAN MARITIME**

Examples from the Solent Clean Maritime Cluster:

- Vestas Wind turbines made on the Isle of Wight
- Wightlink MV Victoria
- ABP Southampton Shore-to-Ship Power

Research completed by the UK Government indicates that the global market for maritime emission reduction technologies could reach £11bn per year by 2050⁴.

Clean maritime relates to the combination of infrastructure and technology required for the transition to a future of zero-emission shipping. This focuses on both the supply of new technology required to reduce emissions including zero-emissions propulsion technologies and renewable onshore power sources, as well as developing the demand side to establish the business case for sector decarbonisation and accelerate the transition. For the Solent, this clean maritime cluster includes utilising its world-leading maritime research facilities to develop new technology, as well as providing the enabling services through regulators such as the Maritime and Coastguard Agency, or classification societies including Lloyds Register.

⁴ Clean maritime plan (<https://www.gov.uk/government/speeches/clean-maritime-plan>)



THE MARKET OPPORTUNITY EXPLAINED: **CONNECTED MARITIME**

Examples from the Solent Connected Maritime Cluster:

- ChargeMetrix providing remote vessel monitoring technology
- Jet Engineering providing 5G connectivity in the Solent
- B4T providing data transmissions via secure IoT network
- 5G private network are deployed in the Port of Southampton to enabled real-time analytics, workflow management, critical asset tracking and much greater efficiency across the entire ecosystem



Inmarsat is forecasting the global maritime digital technology industry to be worth £275bn by 2030⁵.

Connected maritime relates to the ability to communicate using **IoT, 5G, and satellite modes** to enable new types of services and products in the maritime sector. This focuses on secure, sustainable, and safe communication to facilitate new services in clean and autonomous maritime, as well as world-class exploitation of earth observation data to deliver net-zero policy agenda.

For the Solent, this means increasing connected capabilities at key locations, building on initiatives such as the private 5G network to be installed at the Port of Southampton. The Solent is home to a network of innovators that can utilise these research facilities to trial and develop smart, connected maritime solutions.

⁵ Inmarsat report (<https://www.inmarsat.com/en/insights/maritime/2021/state-of-digital-transformation-post-covid-maritime.html>)



THE MARKET OPPORTUNITY EXPLAINED: MARITIME AUTONOMY

The global autonomous vessel market is set to be valued at £131bn by 2030⁶.

Examples from the Solent Maritime Autonomy Cluster:

- L3Harris are providing autonomous and remote control system for unmanned vehicles and the conversion of manned vessels for unmanned use
- BAE Systems collaborating with naval and industrial partners to develop autonomous boats capabilities
- The Warsash Maritime Autonomous Surface Ships (MASS) Research Centre (WMRC) is pioneering research into maritime autonomy
- Ocean Infinity deploys autonomous robots, typically in fleet formation, to obtain large amounts information from the oceans and seabed
- National Oceanography Centre work on the development of innovative autonomous vehicles to aid in the advancement of scientific research undertaken in the most extreme marine environments

Maritime autonomy relates to products and services which support the safe implementation of autonomous technology. This includes providing the enabling services such as suitable test, certification, and verification capacity to remove market barriers for maritime automation.

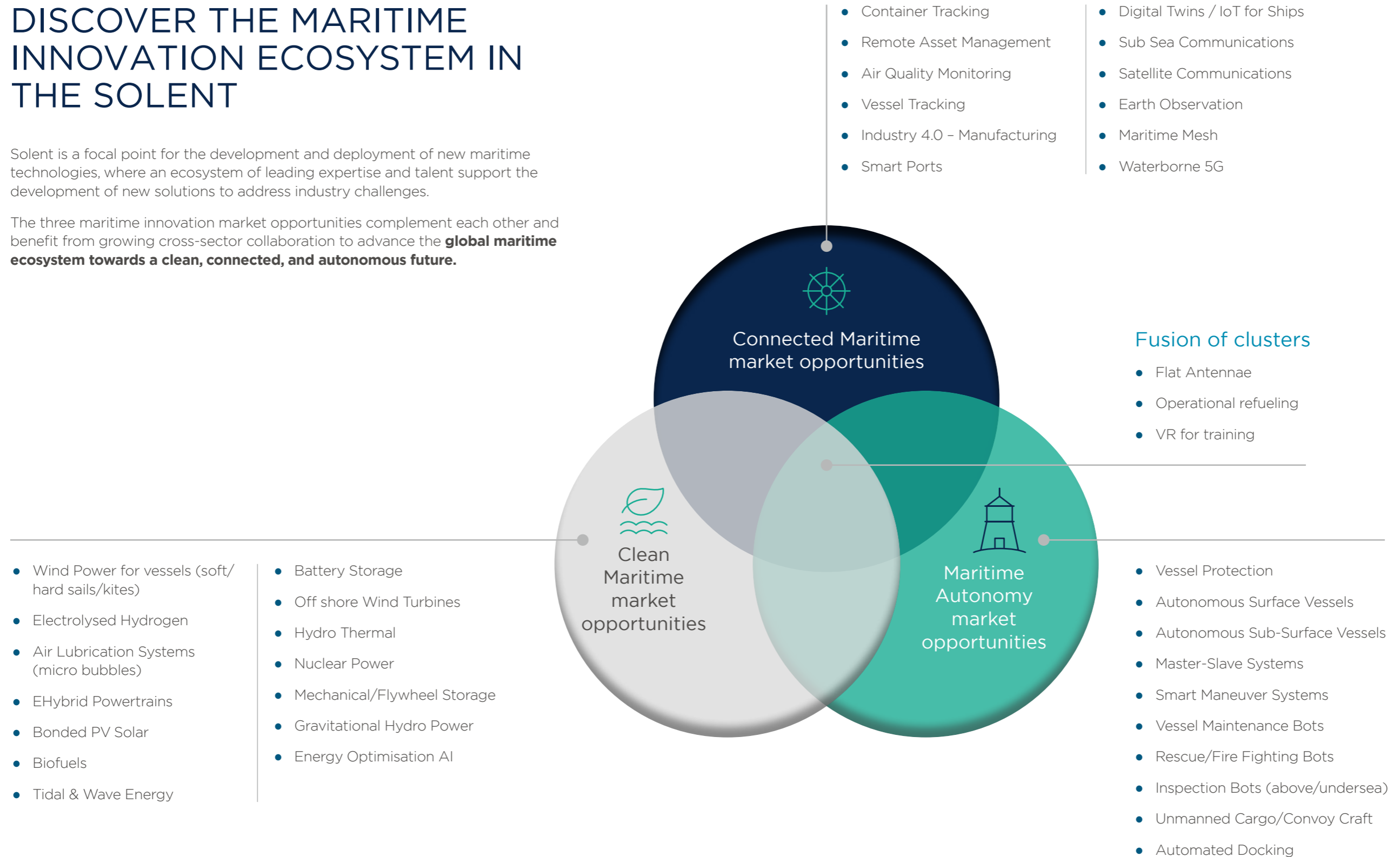
Remotely operated and fully autonomous shipping technologies are immature markets, however, the rate of technology development has been rapid. The Solent has been a region of excellence in this field through its network of advanced maritime technology specialists including BAE systems, Ocean Infinity, L3Harris, the Royal Navy, and others. Additionally, with the presence of regulators and classification societies including the MCA and Lloyds Register the Solent can further grow this market opportunity to become a **world-renowned focal point** for the development of autonomous maritime technology.

⁶ Allied Market Research (<https://www.alliedmarketresearch.com/autonomous-ships-market>)

DISCOVER THE MARITIME INNOVATION ECOSYSTEM IN THE SOLENT

Solent is a focal point for the development and deployment of new maritime technologies, where an ecosystem of leading expertise and talent support the development of new solutions to address industry challenges.

The three maritime innovation market opportunities complement each other and benefit from growing cross-sector collaboration to advance the **global maritime ecosystem towards a clean, connected, and autonomous future.**





CONNECTED MARITIME – CONNECTED AUTONOMOUS MARITIME (CAM)

The CAM project was launched in December 2020, sponsored by the UK Space Agency in partnership with the Satellite Applications Catapult. The “Connected Solent” 5G initiative was developed to support the adoption of maritime autonomous systems by creating a high bandwidth, low-latency network to support testing and experimentation using this disruptive technology.

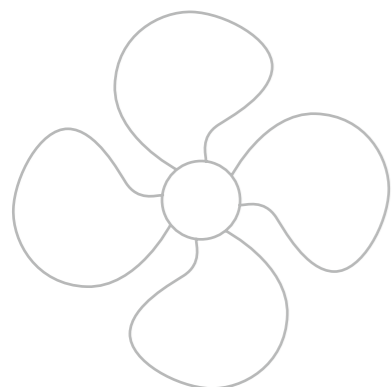
This will support experimentation and adoption of uncrewed surface vessels to move large quantities of goods, which will help decarbonise the maritime sector towards net-zero.

The 5G network will underpin the Solent as a leading 5G maritime testbed and draw further organisations to the region, to realise wide-ranging benefits, including:

- Smart sensors that generate high volumes of data to monitor cargo condition and flow
- Replacing traditional Wi-Fi networks in and around ports and the coastal community
- Supporting autonomous underwater and surface technology testing

This will also facilitate broader connections with other South Coast 5G initiatives (including Plymouth Smart Sound and Portland), to support the “Zero-Carbon Coastal Highway” concept.

CASE STUDIES OF MARITIME INNOVATION IN THE SOLENT



MARINE AUTONOMY – ROYAL NAVY, BAE SYSTEMS, SUBSEA CRAFT

The Solent has many maritime organisations as well as those that focus on technology and innovation. When the two come together, the whole region benefits through the development of industry-leading expertise. Perhaps the best example is in the development of autonomous vessels.

The uncrewed version of the Pacific 24 rigid inflatable used by the Royal Navy was developed in Portsmouth in conjunction with BAE Systems and NavyX – the specialist wing of the Royal Navy that trials cutting-edge technology for use on the front line.

It is not just large companies and defence organisations, however. SubSea Craft are based in the Camber, which previously served as the Ben Ainslie Racing base. They are developing a craft which can conduct surface and sub-surface operations to covertly deliver divers to Access Restricted and Access Denied (AR/AD) areas.

CLEAN MARITIME – SHAPE UK

The SHAPE UK project brought together a wide range of expertise from industry and academia in the Solent region to identify the barriers, infrastructure, and regulatory considerations that will enable port managers to install and demonstrate a “Green Hydrogen” generation and storage system within the Port. The project also implemented a digital twin which provided real-time air quality data to the port.

The consortium benefited from collaborations across sectors and successfully won grant funding from Department for Transport via the Clean Maritime Demonstration Competition.

IN PARTNERSHIP WITH:



FUNDED BY:



THE SOLENT MARITIME INNOVATION GATEWAY PARTNERS



The Solent Maritime Innovation Gateway is the ground breaking collaboration introduced by Maritime UK Solent, the Solent Maritime Enterprise Zone and Connected Places Catapult.



Maritime UK Solent is the regional body within the Maritime UK national network that brings together the Solent's maritime strengths and assets and champions the region as a globally significant maritime cluster.

Our current plan is framed around three locally significant priorities for the marine and maritime sector, Innovation, Environment, and People. Each has a series of supporting future actions to guide a return to prosperity.



The Solent Maritime Enterprise Zone (Solent MEZ), established December 2019, is an umbrella organisation comprising a consortium of the Royal Navy, industry (including small and medium sized enterprises), government and academia working collaboratively to create a centre of excellence for maritime research, innovation, education, skills and training.

The Solent MEZ consortium connects networks regionally and nationally, collaborating on key maritime initiatives to support the maritime sector in its broadest sense. Through an enterprise approach it partners with other regions, maritime clusters and cross-sectors to benefit maritime businesses and institutions. With the mantra 'Connect. Collaborate. Deliver.' the Solent MEZ optimises the enterprise approach to tackle key maritime issues.



The Connected Places Catapult is the UK's innovation accelerator for cities, transport and places. We provide impartial 'innovation as a service' for public bodies, businesses, and infrastructure providers to catalyse step-change improvements in the way people live, work and travel. We connect businesses and public sector leaders to cutting-edge research to spark innovation and grow new markets.

Decarbonisation of maritime and ports is a key focus area for Connected Places Catapult, having delivered the Department for Transport Ports of the Future study in 2020 and our Smart Ports use cases in 2021, working with ports around the UK in collaboration with Royal Haskoning DHV.

WE WOULD LIKE TO THANK THE FOLLOWING ORGANISATIONS FOR HELPING US PUT THIS TOGETHER...

Adaptive Engineering Solutions Ltd

Aixplain

AMC Ltd

Associated British Ports

Atlas Elektronik UK

BAE Systems

BAR Technologies

BDB Pitmans

Bournemouth, Christchurch and Poole Council

Calivian Essential Paint

CEbotiX

Centre for Marine Sustainability, Solent University

CGI

ClearWater Sensors

Cooper Marine Advisors

D P World Southampton

Defence and Security Accelerator

Defence Science and Technology Laboratory

Ecomar Propulsion Limited

Expense Reduction Analysts

Fareham College

Fawley Waterside Ltd

Forum Technologies Ltd

Fuel Cell Systems Ltd

Fugro

Griffon Hoverwork Limited

Hampshire County Council

HARNESS

iconsys

Innovate UK KTN

Institute of Marine Engineering, Science and Technology

IOTICS

Isle of Wight College

JET Engineering Solutions Ltd

JPEB Consultancy Ltd

L3 Harris

Langstone Engineering

Marchwood Military Port

MARINE CONCEPTS

Marine Management Organisation

Maritime and Coastguard Agency

Mercator

Ministry of Defence

NASH Maritime

Natant Blue

National Oceanography Centre

National Shipbuilding Office

New Breed

Nirray Limited

OCEA Shipbuilding (UK) Ltd

Ocean Infinity

Oceanic Engineering Consultants Ltd

OceanWise Limited

Offshore Renewable Energy Catapult

OneSails

Optima Projects Ltd

Ordnance Survey

Oxford Innovation

Planet Ocean Ltd

Ports & Maritime Organisation

Portsmouth City Council

Portsmouth International Port

QED Naval

QinetiQ

RAD Propulsion

RINA Consulting UK Ltd

Royal Navy

RS Aqua

RSM UK

SeaBot XR

Serco

Solent Local Enterprise Partnership

Solent Transport

Solent University

Sonardyne

South Coast Centre of Excellence in Satellite Applications

SubSea Craft

The Lord Lives Designs

The Royal Institution of Naval Architects

The Work Shop Resourcing Ltd

Through Life Design Ltd

Totton College

UK Research and Innovation Trustworthy Autonomous System Hub

University of Portsmouth

University of Southampton

University of Plymouth

Viking Maritime Group

Vision Architects

Wightlink Isle of Wight Ferries

CONTACT US

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SOLENT MARITIME ENTERPRISE ZONE

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CONNECTED PLACES CATAPULT

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