

2050

INNOVATION HUB



THE UK'S FIRST INNOVATION HUB, IS AN EXCITING PARTNERSHIP WITH PORT OF TYNE, PD PORTS, NISSAN, CONNECTED PLACES CATAPULT, ACCENTURE, ROYAL HASKONINGDHV, UBISOFT AND THE DEPARTMENT FOR TRANSPORT.

The 2050 Innovation Hub will inspire partners to collaborate to develop solutions to technological challenges facing the maritime sector and the wider logistics industry both nationally and globally. The 2050 Innovation Hub will act as a catalyst for sharing ideas, harnessing research and development, advancing technology and tackling shared challenges.

Fully aligned with the Government's Maritime 2050 Strategy, the 2050 Innovation Hub will work closely with the Department for Transport and MarRI-UK to ensure that it delivers for the benefit of the maritime sector as a whole.

Projects will be focused on specific challenges that will shape future markets, as a focus for transformation which will apply technology rapidly, effectively and sustainably to develop new models of knowledge exchange and open innovation.

For more information please email:
innovationhub@portoftyne.co.uk

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INNOVATION HUB

OUR EVENTS



Innovation sprints



Design thinking



Hackathons



Digital showcases



Thought-leadership conferences

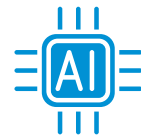
COME AND JOIN US

- UK and international ports
- Department for Transport
- Department for Business, Energy and Industrial Strategy
- Employees
- Customers
- Supplier partners
- Technology providers
- SMEs
- Research
- Education

DIGITAL INNOVATIONS



Autonomous systems



Artificial intelligence



Augmented reality



Robotics



Smart sensors



Internet of things



Big data analytics



Drones



Biometrics



Location detection



3D printing

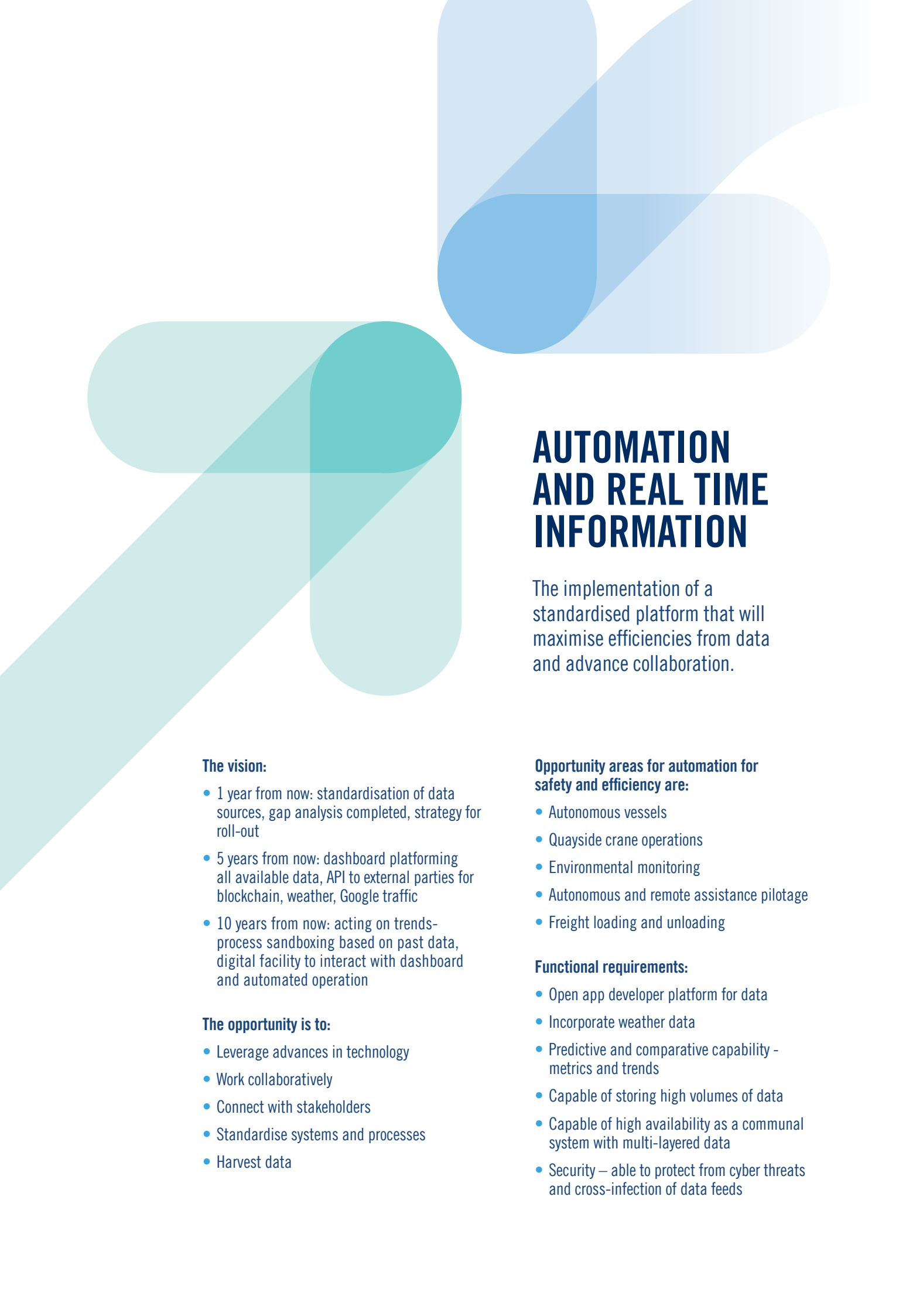


Authentication



maritime
2050
NAVIGATING THE FUTURE

**MARITIME 2050 IS THE FIRST
LONG-TERM STRATEGY DEVELOPED IN
CLOSE PARTNERSHIP WITH INDUSTRY
UNDERLINING THE GOVERNMENT'S
RECOGNITION OF THE IMPORTANCE OF
THE MARITIME SECTOR TO BRITAIN'S
FUTURE SUCCESS.**



AUTOMATION AND REAL TIME INFORMATION

The implementation of a standardised platform that will maximise efficiencies from data and advance collaboration.

The vision:

- 1 year from now: standardisation of data sources, gap analysis completed, strategy for roll-out
- 5 years from now: dashboard platforming all available data, API to external parties for blockchain, weather, Google traffic
- 10 years from now: acting on trends-process sandboxing based on past data, digital facility to interact with dashboard and automated operation

The opportunity is to:

- Leverage advances in technology
- Work collaboratively
- Connect with stakeholders
- Standardise systems and processes
- Harvest data

Opportunity areas for automation for safety and efficiency are:

- Autonomous vessels
- Quayside crane operations
- Environmental monitoring
- Autonomous and remote assistance pilotage
- Freight loading and unloading

Functional requirements:

- Open app developer platform for data
- Incorporate weather data
- Predictive and comparative capability - metrics and trends
- Capable of storing high volumes of data
- Capable of high availability as a communal system with multi-layered data
- Security – able to protect from cyber threats and cross-infection of data feeds

REGIONAL DISTRIBUTION CENTRE

Developing smart distribution centres for the consolidation of deliveries into urban areas.

The evaluation and development of an environmentally-friendly freight consolidation centre for urban areas to address the Government's challenge to reduce NOx emissions by 2021 to legal levels utilising multi-modal transportation.

Concern about health impacts of air pollution has led Government to order urban councils to bring down excessive levels of NOx emissions by 2021. One of the major contributors to urban congestion emissions are freight deliveries to city centres. A smart freight consolidation system could contribute to the solution.

The vision:

- 1 year from now: clarify rationale and impact to stakeholders, data analysis, collection and prototyping of freight consolidation system – who, what and where should the consolidation point be, further development of clean vehicle technology
- 5+ years from now: use of clean transport for the above, development of network of centres
- 10+ years from now: reduction in environmental impact, cost and time reductions, extend process to households and new transportation such as drones and robots on dedicated routes

The opportunity is to:

- Reduce NOx
- Have fewer vehicles in urban areas
- Connect and develop regional transport ecosystems
- Use innovative delivery approaches
- Take a multi-modal approach
- Optimise land in distribution centres

Target benefits are to:

- Avoid the introduction of a congestion / emission tax for the public and business
- Improve health and reduce care costs
- Have more attractive and accessible urban areas, with a revitalised city centre
- Have cleaner air, in line with Government legal levels or better
- Generate upskilling and new jobs
- Attract more business to the region via the distribution centre

Functional requirements:

- Open technology solution
- Technology on an accessible, open platform
- Scalability
- No constraints on what could be transported: chilled, perishable, hazardous etc.
- Initially able to use existing road, rail, air, river infrastructure

PREDICTIVE SAFETY AND ENVIRONMENTAL IMPACT MODELLING

Using data to understand the impact of decisions before they are implemented to create a safer, cleaner workplace, comply with regulations, reduce cost and support stakeholders.

Port of Tyne to become a zero-harm, sustainable and resilient port by 2030 via this predictive modelling project.

A digital twin view Safety and Environmental data that will enable a holistic view of the safety and environmental landscape. This will facilitate a proactive approach to the management of these issues and challenges, and help to identify opportunities.

All incidents are currently being recorded, but there are multiple systems in use which do not speak to each other. Environmental issues are not continuously monitored via sensors, but all issues are recorded. There is minimal forecasting and no current modelling. Benchmarking is done in line with industry practice.



The vision:

- 1 year from now: benchmark of current environment and safety accident data, problem definition, environment data gathering – land, sea, air – understanding what to measure and how, as well as the baseline, understand patterns of safety incidents and impact, culture that is more safety and environmentally aware
- 5 years from now: zero harm and zero negative impact on the environment. Health and Safety predictive model created and technology used to reduce incidents; aggressive, benchmarked targets across the industry
- 10 years from now: proactive management of the future risks and environmental impacts

Proactive approach:

- Full stakeholder engagement, with the creation of steering groups
- Culture change and staff upskilling
- Use of technology to validate decisions

Target benefits are to:

- Reduce environmental impacts
- Lead Health and Safety and Environmental compliance requirements
- Have a positive social impact
- Be more attractive to customers
- Improve stakeholder engagement

Functional requirements:

- Predictive analytics dashboard with machine learning element
- Modular, APIs, scalable
- App and desktop functionality
- Legacy data
- Virtual reality training
- Augmented reality



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