



“Digitalising the Future Port”

Digital Ship’s Maritime CIO Forum London

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The UK Major Ports Group



Major ports matter to the UK

Examples of the contribution of major ports to the UK

£550M
of investment per year
by UK Major Ports Group
members in the UK,
90%+ of all port sector
investment.

87%
of the UK's food
imports are handled by
UKMPG members (51% of
UK's food consumption is
imported, 90%+ by sea)

7/10
Cars made in the UK
are exported via a UK
Major Ports Member



The UK's major
ports handle
75%
of UK seaborne trade –
fundamental for a confident,
global trading nation

**Leadership to
boost standards**
Provider of leadership
and critical mass to
improve ports safety,
innovation and skills



**Building a more
sustainable UK**
Major contribution to more
resource efficient UK and
world – modal shift, renewable
energy, best practice



**Any screen
you look at is very likely
to have been imported
via a UK Major Ports
Group member**



**Boosting & rebalancing
UK economies**
Enables strategic UK
supply chains, drives
regional growth for Britain's
coastal communities



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Contributing to the DfT's Maritime 2050 vision



Port 2050

What could shape the port of the future?

TRENDS EMERGING NOW



Physical

- Ports as hubs for wider economic activity – logistics, manufacturing, 'free areas'
- More solutions specific for customers
- Decline in coal and hydro-carbon cargoes
- Connectivity – ongoing shift to multi-modal



Augmentation and Automation

- Remotely operated equipment (e.g. cranes)
- Autonomous operations (e.g. container yards)
- Operators as supervisors & technology users



Digital

- Ports as data platforms (e.g. Port Community Systems and advanced inventory systems)
- Providing tracking data
- Blockchain and 'smart contracts'
- Cyber security as a core skill



Sustainable

- Ports as (renewable) power stations
- Electrification of processes and plant & equipment
- Reducing emissions and improving air quality through smarter operations (e.g. Vehicle Booking Systems)
- UK as a key influencer of global standards

- More flexible usage of assets
 - Use of data for real time utilisation
 - End to end supply chain visibility
 - Adaptable buildings / space
- Large scale port-based value addition
- Connectivity
 - Focused key trade corridors
 - More & better integrated hub & spoke water borne freight
 - New modes (e.g. hyper loop)
- Constrained assets / 'capacity markets'

- Further applications of enhanced technology developments
- An Internet of Things enabled world
- New business opportunities – 'Air Traffic Control' for near UK waters; drone operation hubs; human services to enable remote / autonomous operations
- Changed roles for human interface

- Applying Artificial Intelligence, Machine Learning, 'Digital twins' and other advanced analytics for applications such as predictive planning & operations, self diagnosis
- Seamless end-to-end data supply chains – data as a service
- Large scale blockchain adoption
- More dynamic charging in response to demand

- Large scale alternative fuelling
- Ports as key nodes in energy transition – both as consumers & enablers
- Electric vessels for some uses (e.g. coastal feeder services)
- Natural capital businesses
- Use of advanced analytics in monitoring & approvals
- Appropriately integrated regulatory framework

POSSIBLE FUTURE GAME-CHANGERS



THE HUMAN DIMENSION

Challenges but also opportunities

- Safer jobs – Less man / machine interface, height, confined spaces
- Different jobs – e.g. high intensity crewing, data services
- Better jobs – more skilled, new skills
- Balance – Increased gender diversity
- Continuity – Ports will remain significant sources and catalysts of employment



THE ROLE FOR GOVERNMENT

Create an enabling framework for investment, development and innovation

- Do – provide infrastructure – physical and knowledge; set a consistent long-term direction; join and align the regulatory framework with strategic goals (e.g. trade)
- Don't – pick winners, over regulate

Driving better port operations



Operations

- The augmented human interface
- Rising tide of automation
- More flexible use of assets

O&M

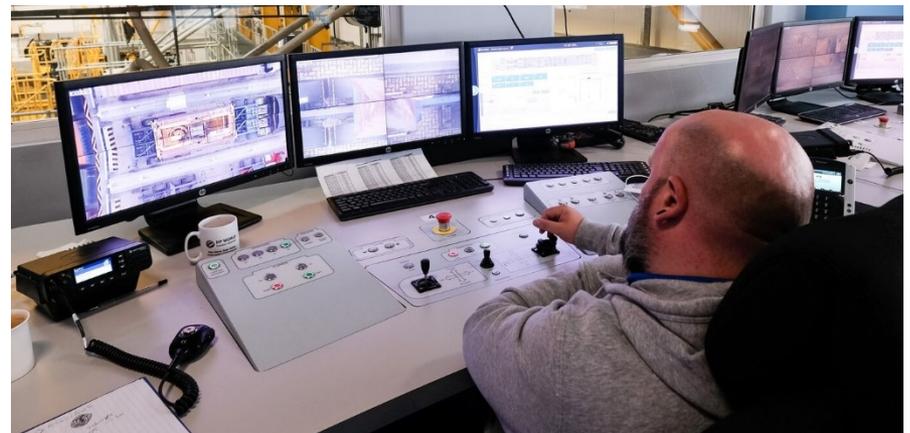
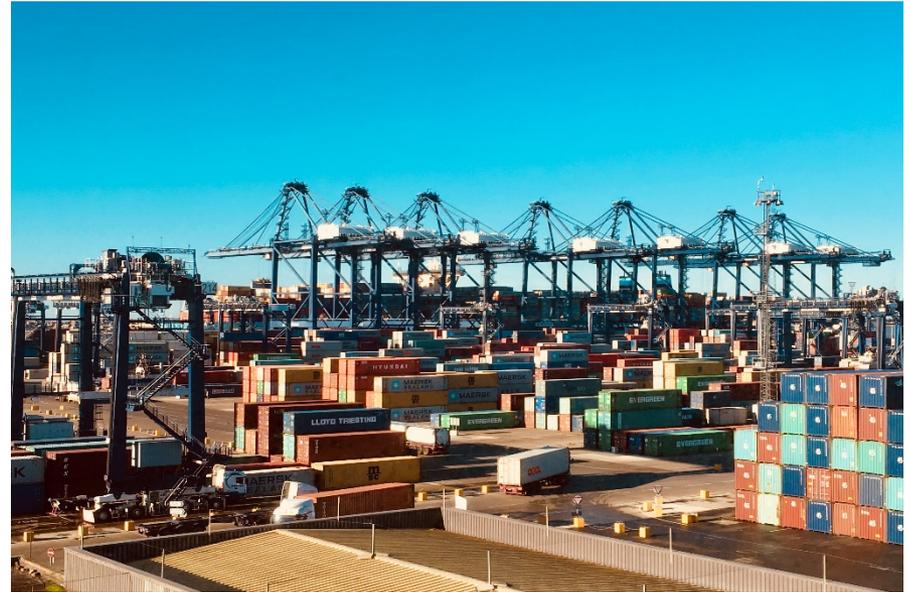
- IoT embedded in plant and equipment
- Monitoring but also predicting
- Preventative maintenance

Environmental

- Better scheduling makes better neighbours
- A more efficient regulatory interface

People and security

- A new skill set throughout the business
- A safer working environment
- Cyber security a core competency



Ports as global gateways for data, enabling more efficient and effective supply chains

‘Where’s my container’

- Visibility of your physical shipment
- Building the rich data set
- Driving interface efficiencies

Transparency

- Blockchain
- Smart contracts

Government & agencies

- Revenue
- Security & health

But are we getting ahead of ourselves?

- McKinsey estimate that applying AI to supply chains offers a \$1.3trn value prize
- But only 29% of manufacturers understand what digitised supply chains should mean (Sapio)



A 'Digital Dragons Den'

- UK Major Ports Group members know that it's a wide and fast moving area
- Launched an open innovation initiative – a 'Digital Dragons Den'
- *Do you have good ideas about how the digital revolution can transform the way ports are run?*
- *Do you want the opportunity to convince the people who invest in and run the UK's major ports?*
- *Then this is your chance...*
- The 'Exam Questions':
 - 1. What are the top five ways digitisation could transform the major port of tomorrow?**
 - 2. What is the right role for Government is in making this future vision a reality in the UK?**
- The 'Dragons' are the CEOs / COOs of UKMPGs nine members
- We're working with Government, contributes to their Maritime 2050 process
- Also academics and technologists

Thank you! Any questions?



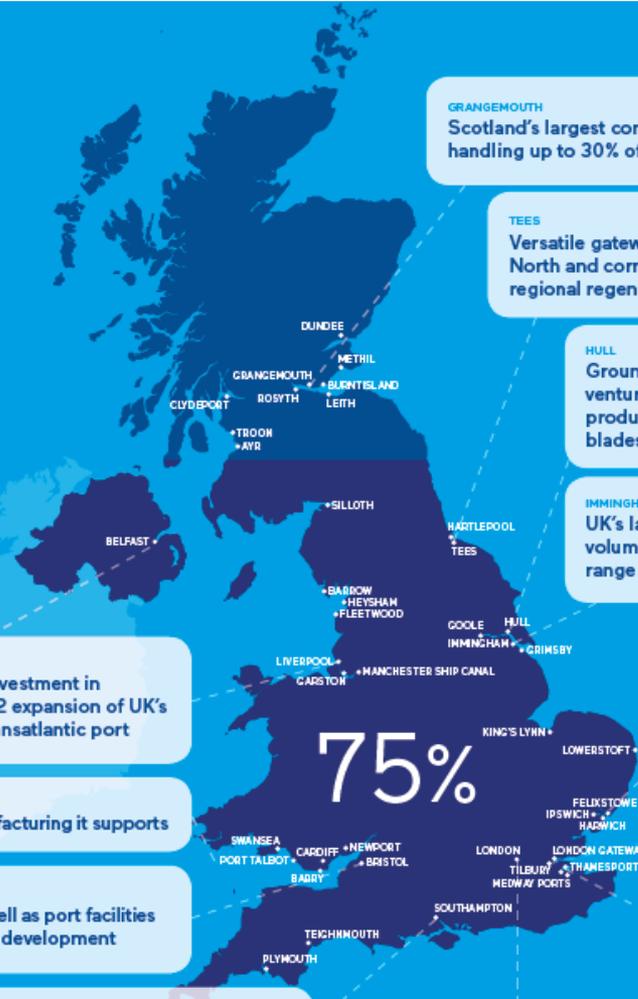
UKMPG

UK Major Ports Group

Member ports

Some examples of activity

The UK's major ports handle
75%
of UK seaborne trade – fundamental for a confident, global trading nation



GRANGEMOUTH
Scotland's largest container port, handling up to 30% of Scotland's GDP

TEES
Versatile gateway to the North and cornerstone of regional regeneration

HULL
Ground breaking joint venture with Siemens to produce wind turbine blades on the port

IMMINGHAM
UK's largest port by volume from a wide range of cargoes

FELIXSTOWE
UK's largest container port, handling the world's largest vessels in operation for 50 years

TILBURY
£100m Tibury2 development, regenerating a former power station site

LONDON GATEWAY
£1.5bn invested in creating a cutting edge container port on a former oil terminal site

LONDON
Ensuring safe navigation for UK's busiest inland waterway. First port to launch air quality strategy

BELFAST
Major development & revitalisation of port area – including a film studio

LIVERPOOL
£400m investment in Liverpool2 expansion of UK's largest transatlantic port

PORT TALBOT
Critical to the UK steel sector and the manufacturing it supports

BRISTOL
Providing offsite modular construction as well as port facilities to support strategic energy infrastructure development

SOUTHAMPTON
UK's largest cruise terminal and a crucial export point for the UK car industry

UKMPG Members



Associated British Ports
www.abports.co.uk



Belfast Harbour
www.belfast-harbour.co.uk



Port of Bristol
www.bristolport.co.uk



DP World UK
www.londongateway.com
www.dpworldsouthampton.com



Forth Ports
www.forthports.co.uk/ports/#



Hutchinson Ports UK
www.hutchinsonports.com/en



Port of London Authority
www.pla.co.uk



PD Ports
www.pdports.co.uk



Peel Ports
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