



ROUND TABLES

Resilience Shift round-table:
Ports and logistics

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AT A GLANCE

- The round-table provided an opportunity for participants to consider the role of resilience thinking for sea ports and associated logistics operations. The event was designed to stimulate conversation among port operators and stakeholders associated with their supply chains.
- It is helpful to consider the operation of a “port system” in three parts: the port itself, its marine interface and its land interface.
- Ports individually manage challenges of day to day operations and currently have good ability to develop and respond to changes in import-export demand. However, lack of strategic oversight of this sector presents a gap in ability for coordinated responses to major events.
- Despite ports adapting for expected future demand, it was perceived that road and rail infrastructure is not planned with future changes in freight demand in mind. This exacerbates the issue of bottlenecks on the land-side of operations.
- Marine-side interfaces will face pressure to change as ship size grows, automation becomes more readily available and affordable, and cold ironing increases in demand.
- There are good initiatives to support proactive environmental action in the sector but they generally remain secondary to commercial priorities.

1. INTRODUCTION

As part of the Resilience Shift round-table series a meeting was held in London on 26 November 2018 to explore the challenges and opportunities for the resilience of ports and logistics.

Senior leaders representing Hapag-Lloyd, the Port of Tilbury, P&O Ferrymasters, Associated British Ports, the UK Major Ports Group, Peel Land and Property Group, Arup, Lloyd's Register, the National Infrastructure Commission and the UK Chamber of Shipping, came together for the day-long meeting hosted by the Resilience Shift's Technical Advisory Group. The discussion was predominantly focused on the UK, but participants could draw on international experience.

The round-table provided an opportunity for participants to consider the role of resilience thinking for sea ports and associated logistics operations. The event was designed to stimulate conversation among port operators and stakeholders associated with their supply chains and to cultivate a network of decision-makers within the sector.

The purpose of this report is to capture the discussion as a reference point for possible future activity – both in terms of *how* to engage people in a resilience-focused activity (the approach) and in terms of identifying sector strengths (the insights) to consider *areas for action*.

Please note that this report represents issues raised by participants on the day, as captured by the Resilience Shift's Technical Advisory Group, who facilitated the meeting. This does not necessarily represent the wider views of the organisations represented.

2. APPROACH

The day included activities to facilitate discussion on the nature of critical infrastructure within ports, directly connected to ports and further afield as part of a wider system. Participants were asked to consider the impact of possible shocks and stresses on ports and logistics operations and the perceived control that stakeholders have over managing potential impacts, according to the matrix in Figure 1. In general “impact” meant impact on the ability of the sector to move goods around the country and “capability to respond” was in reference to the capability of ports and their supply chains. It was left open to interpretation whether participants

THE RESILIENCE SHIFT

responded from the perspective of their organisation, or with a wider view of the sector.

high impact / low capability to respond	high impact / high capability to respond
low impact / low capability to respond	low impact / high capability to respond

Figure 1 - Impact/Response Capability Matrix concept

Critical stresses that were identified during the morning exercise were discussed, with the aim of distinguishing where intervention could take place to minimise the consequences of these stresses. Participants were asked to establish who had control over these stresses, and what actions could be taken to minimise their impact.

The purpose of the mapping exercise was to facilitate a broad discussion on what really matters to ports and logistics. This provided the basis for an open discussion, without narrowing down to any single issue while being blinded to others.

Each participant clearly had different perspectives and experience. It was not the intention to establish a quantified measurement of potential shocks and stresses, but to identify whether there is general agreement over the issues (and if not, why there are differing views) and whether there are areas that warrant specific action within this sector.

Table 1 shows where participants chose to place the various stresses within the matrix. There was strong consensus that road and rail capacity were stresses with high potential impact over which the ports sector had low capability to respond. Lack of access to data was considered to have high potential impact, but the industry had a good ability to respond to this challenge. Otherwise, there was a range of opinions of the impact/response characteristics of stresses. This resulted in several stresses, such as data fraud, power capacity and climate change, appearing in more than one quadrant.

Low ability to respond/High Impact	# of Responses	High ability to respond/High Impact	# of Responses
Infrastructure capacity (roads)	16	Lack of access to information/data	14
Infrastructure capacity (rail)	14	Labour dispute	6
Power failure	4	Critical information infrastructure breakdown	5
Tidal surge	4	Availability of labour	5
Critical information infrastructure breakdown	4	Power failure	5
Infrastructure capacity (power)	4	Infrastructure capacity (power)	4
Food crisis changing balance of imports/exports	4	Fragmentation within the wider ports system	4
Data fraud	3	Reliance on specific customers	4
Climate change	3	Data fraud	4
Availability labour	3	Local environmental spill	3
Failure of national governance	3	Food crisis changing balance of imports/exports	3
Failure of international governance	3		
Sustained adverse weather	3		

Low Ability to Respond/Low impact	# of Responses	High Ability to respond/Low Impact	# of Responses
Food crisis	6	Local environmental spill	6
Tidal surge	5	Fragmentation within the wider port system	4
Failure of international governance	5	Failure of international governance	3
Changing shipping routes	4	Introduction of new border tariffs	3
Failure of national governance	4	Reliance on specific customers	3
Water shortage	4	Data fraud	3
Fragmentation within the wider port system	4		
Climate Change	3		

Table 1 – Participant responses to the Impact/Response Capability matrix

Specialist presentations were provided which covered fragmentation within organisations, planning for port resilience, guidelines for climate change management for ports, and the role of systems modelling in improving port operations. This served to raise awareness of various initiatives of interest to participants and to explore potential avenues for action.

3. CRITICAL INFRASTRUCTURE IN THE CONTEXT OF PORTS

It is helpful to consider the “port system” in three parts: the port itself, its marine interface and its land interface. This view provided a helpful framing for participants to identify key stresses the sector faces. Connectivity of infrastructure linking to ports was a key point of discussion, both in terms of capacity and quality. Road and rail

connections were identified as a bottleneck to the movement of freight around the country – a point that will be outlined further in the next section.

Discussion on port resilience needs to navigate between consideration of physical infrastructure and the governance of that infrastructure. The discussion moved relatively quickly towards engagement with the wider system beyond physical infrastructure. Perceived lack of, or less overall governance of ports (compared to other infrastructure sectors), entered the discussion early in the day.

4. INSIGHTS: MANAGING SHOCKS AND STRESSES

Stakeholders directly involved in operating ports suggest there is operational redundancy and flexibility within their own operations. This is in light of the challenges encountered by operators “on the ground”, who are problem-solving on an everyday basis. Where issues are encountered, there are often alternative solutions, for example, for discharging ships: road freight provides redundancy for the rail network (and vice versa) and alternative berths can often be used. The ports sector has also demonstrated the ability to adapt to new market demands, responding to changes in policy relatively quickly, in turn driving changes in the type of products that are being imported and exported.

The ability to continue to maintain land development powers was raised as a particular issue for ports when considering the future of planning and development. These land development powers enable ports to develop flexibly without layers of bureaucracy. It was recognised that the nature of the challenges is likely to be different in other areas of Europe. Several locations in Western Europe have higher levels of central planning where the public sector has a more active influence.

Despite ports adapting for expected future demand, it was perceived that roads and rail is not planned with future freight demand in mind. This exacerbates the issue of bottlenecks on the land-side of operations. Freight was considered by participants to be less of a priority than passenger transport and participants expressed concern about poor rail and road capacity inhibiting the movement of goods around the country. There is scope for innovation that may help on this front, but ports themselves have limited ability to drive the development of these new technologies. There is concern that investment into strategic rail and road infrastructure for passengers, including the “last mile” considerations (i.e. the networks directly feeding the port), are prioritised over the movement of freight. Freight issues are often overlooked as freight tends to present a poorer economic case when based on the criteria currently used in strategic decision making. As

such, the movement of freight from roads onto rail does not always feel “welcome”. Rail is a relatively fixed asset in terms of capacity and there is a general view that passengers matter more, which limits the incentive to put extra freight on key corridors.

Environmental considerations were not deemed to be a priority in economic decision-making. A range of environmental issues entered into consideration, but there was no clear consensus on their significance. “Tidal surge” was, for example, placed by participants in all four quadrants of the shocks and stresses matrix. It was considered by some to be a risk that presents short-term delay. Flooding risk is already actively managed through planning mechanisms. However, the scale of environmental risks was not fully explored and it is unclear whether stakeholders have a comprehensive view of their exposure. Participants also identified that pressure on maritime space is becoming more acute as environmental protection, off-shore wind, and maintenance of shipping lanes can present conflicting priorities. The “environmental net gain” concept emerging from the national planning framework was also identified as a consideration for stakeholders. Finally, cold ironing, a potential “greening” strategy for the sector, is limited by the capacity of the national grid supply ports. Poor electricity distribution capacity was considered a challenge for the future resilience of the sector.

Automation was identified as having a potential major impact on ports, but in the foreseeable future this will not necessarily present fundamental changes to operations, particularly for smaller ports. Scale of operations is required to justify investment into automation in ports. Regulation also has an impact on change, for example automation of ships is currently prevented by regulation.

Several other commercial trends are impacting the operational efficiency and strategic decisions of participants in shipping. High fuel costs for shipping has led to ships adopting slower ship speeds in order to improve fuel efficiency. While this may have some environmental benefits (as long as energy supply remains fossil-based), this can prevent ships from docking on time. Late berthing has significant impacts on downstream operations. The increasing size of vessels, and the associated space and time requirements for off-loading and loading is also creating congestion around ports. There are fewer major shipping lines now than 20 years ago, as mergers have occurred to gain economies of scale, fuelling investment in larger carriers. Another area of increased “spikiness” is the growing size of cruise ships. A lack of 24-hour operations was cited as a barrier to operational

THE RESILIENCE SHIFT

efficiency at ports, but it is not, at present, economically viable for some port operators to consider increasing hours of operation.

Among the key findings of the day was that the ports sector has little government involvement. **Due to the privatised nature of the sector, there is significant fragmentation between the various UK ports.** As a result, there is currently no practice of overarching co-operation between ports on preparing for unexpected events. Individual ports are deemed to be efficient and effective. Most port operators carry out regular training exercises for unexpected events. There is however, very little communication & collaboration between the ports. Overall, within a typical port, those actors involved with operations are considered to be resilient to day-to-day minor stresses e.g. the breakdown of machinery or sudden changes in labour availability.

Finally, specific labour-related risks to the ports sector were identified by participants, including a lack of personnel to carry out low and medium-skilled jobs and an aging workforce which could lead to a ‘brain-drain’, with younger generations lacking interest in entering the sector.

5. AREAS FOR ACTION

The areas identified below were considered by the groups as areas of potentially high impact for advancing action:

Table 2: Areas for potential action

Stress (identified sources of the stress)	Current and possible solutions	Potential activity for Resilience Shift to support
<p>Availability of labour (appeal to younger generations, lack of experience and training, potential race to bottom as stakeholders compete for labour, conflict between efficiency and resilience).</p> <p>Related issue: loss of corporate knowledge.</p>	<p>Automation may reduce labour requirements, picking up labour from retail sector which is moving online, training initiatives to develop skills.</p>	<p>This labour-focused stress should be recognised as a wider system issue for the sector, but is beyond the remit of the Resilience Shift focus on infrastructure and associated governance.</p>

<p>Climate change (severity of extreme weather is already having an impact on shipping routes, change in carbon costing/increasing emphasis on reducing carbon, migration, changing rain patterns impacting operations at ports).</p>	<p>Possible opening up of new routes in the north (not yet feasible), increasing capacity on route to divert around storms, fuel efficiency measures.</p>	<p>Development of consumer/investor awareness to drive demand for longer-term thinking, rather than reducing short-term costs. Possible leverage of existing initiatives via PIANC.</p>
<p>Lack of access to information and data (commercial sensitivity, data not available and required scale).</p>	<p>Local resilience forums are helping to facilitate discussion across local organisations.</p>	<p>Development of sector ability to more explicitly explore strategic-level response to stresses (e.g. response to incapacitation of a major port). Facilitate future event that builds on this round-table, taking the form of a conference that would embrace a wider community</p>
<p>Poor communication between the roads and the ports sectors. Specifically, the ports sector appears to be planning for a longer time-frame than the roads sector.</p>	<p>Carry out planning activities simultaneously with both roads and ports decision-makers.</p>	<p>Facilitate future event that builds on this round-table, with several representatives from the road & rail sectors invited as well as ports representatives.</p>

6. SUMMARY

The round-table provided participants with a forum in which they could share concerns without the threat of undermining commercial sensitivities. Given the commercial nature of the sector, the value of this should not be underestimated. The Resilience Shift can provide a forum for collaboration, and to seek a common language for resilience of the sector.

Participant list:

- Borbala Trifunovics, Associate Director, Arup
- Cameron Bowie, Managing Director, Hapag-Lloyd
- Darren Briggs, Associate Director, Arup
- Dr. Duncan Shaw, Assistant Professor, Nottingham University
- Gerard de Villiers, Logistics & Operations Senior Consultant, Arup
- Ian Williams, Independent Consultant: freight, transport planning and policy
- Jale Cairney, Global Head of Commercial, Business Assurance-Certification, Lloyd's Register
- Jan Reier Huse, Vice President, Lloyd's Register Foundation
- Jo Holden, Sustainability Manager, Peel Land and Property Group
- Dr. Juliet Mian, Resilience Shift Technical Lead
- Dr. Kevin Fitzgerald, Department Manager, UK Risk Management Consulting, Energy, Lloyd's Register
- Matt Crossman, Team Leader, National Infrastructure Commission
- Dr. Maurizio Pilu, Vice President Digital Innovation, Lloyd's Register
- Peter Ward, Managing Director, Port of Tilbury
- Robert Carington, Policy Advisor, UK Chamber of Shipping
- Sarah West, Group Head of Risk and Resilience, Associated British Ports
- Tim James, Finance Business Partner, P&O Ferrymasters
- Tim Morris, CEO, UK Major Ports Group

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The Resilience Shift is a global initiative to catalyse resilience within and between critical infrastructure sectors. It is funded by Lloyd's Register Foundation, with Arup as host institution, working with a diverse network of grantees.

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