

Port of Felixstowe: innovative yard strategies



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The Port of Felixstowe – otherwise known as the Port of Britain – is the largest container port in the UK. It handles over 4 million TEU per year; over 40% of all the container traffic that comes into, or out of, the UK.

An increasing proportion of those containers are carried on the rapidly increasing fleet of mega-ships employed, in particular, on the Asia – Europe trades. The port handled its first 18,000 TEU ship in November, 2013 when the Majestic Maersk, one of Maersk Line's first Triple-E vessels, made its maiden call at the port.

Since then, the capacity of the largest ships has increased still further. The 19,100 TEU CSCL Globe first called at Felixstowe in January, 2015, but was quickly surpassed as the world's biggest by the 19,224 MSC Oscar, which made its maiden call at Felixstowe in March. Felixstowe is now the clear port-of-choice in the UK for the largest mega-ships. In total, the port will play host to over 100 calls by these huge ships this year.

Tackling mega-ships

The growth in both the absolute size of the largest vessels, and the number of such vessels being introduced in a relatively short space of time, throws up a number of challenges for ports.

The most obvious one is the provision of facilities physically big enough to accommodate these giants of the sea. Quays need to be deeper, cranes higher and wider, and approach channels need to allow access across the widest possible tidal window. What gets less attention is the impact these giant vessels have on other aspects of port and supply chain operations.

Since time immemorial port operators

have had to deal with the inherent 'peakiness' of shipping. When there are no ships on the berth there is not so much to do and utilising resources efficiently becomes difficult. When all berths are full, huge levels of resources are needed to meet the expectations of each of the vessels' operators.

The introduction of mega-vessels has exacerbated these challenges as greater numbers of containers are arriving on fewer ships. At the inland end of the supply chain however, shippers and receivers need a smooth flow of traffic to maintain the efficiency of their operations. A major distribution centre does not want to receive 50 containers in one day and then nothing for the rest of the week. They want a steady and predictable flow of traffic with the same number of containers arriving every day.

Given that containers arrive at ports in bigger and bigger shipments – the largest turnaround at Felixstowe now stands at 12,122 TEU exchanged on a single vessel – flexibility needs to be injected somewhere in the process.

That challenge falls upon ports' container yards. Container yard operations would be much easier if they too had a steady and predictable flow on both shipping and land-side but that is a luxury that the larger ports can no longer enjoy.

Yard operations

Felixstowe's container yard is home to around 50,000 full containers at any time, with the added ingredient of another 30,000 empties also onsite awaiting export. For every one of those 80,000 boxes, its arrival and departure has to be planned – the right container needs to go to the right location at the right time. Every time.

The daily work plan needs to take into

account that every single container has an owner, a destination and a departure time. It is a massive and complex puzzle that port operators need to solve, with a schedule of work specifically planned for every piece of equipment.

It is very much like an ant colony. To the uninformed observer, all they see are lots of things moving in lots of directions in an apparently chaotic manner. What they don't see is that the internal movement vehicle knows precisely which ship it is working with, which boxes it is to move and what time the vessel is due to finish.

As well as the planning team taking a strategic approach, the details of the operation, at a very fine level of granularity, have to be cascaded right through to the equipment drivers and stevedores. Communication is vital; everyone throughout the organisation has to know the role they are playing and how important that role is.

In a typical 24-hour period, the container yard at Felixstowe will handle 2,300 boxes to/from rail; 8,400 boxes to/from ship; 200 boxes for examination by statutory authorities; 200 boxes connected with the port's logistics operations; and 5,000 boxes for the haulage industry. That cannot be achieved without meticulous planning. But despite the need for a plan, a modern port needs both the people and systems in place to be able to change everything as the plan progresses.

Productivity

The aim of the game is productivity. For example, containers need to be stacked as close to the relevant berth as possible, or close to the rail terminal where they will depart from. Everything is ordered so that productivity can be maximised and that can mean doing a lot of shuffling



About the author

In the role of Chief Operating Officer (COO), Stephen Abraham is responsible for the smooth running of the day to day operations of the Port Of Felixstowe. As well as the core container handling operations, Stephen is also responsible for a number of critical supporting functions including Engineering, Health and Safety, Information Systems, Operations Development as well as the short sea Ro-Ro business. Stephen initially studied Mechanical Engineering at Manchester University, later in his career he completed a Master's Degree in Business Administration at Manchester Business School. He is a Fellow of the Institute of Mechanical Engineers.

About the organisation

PORT OF FELIXSTOWE THE PORT OF BRITAIN

The Port of Felixstowe is the largest container port in the UK, and one of the largest in Europe. Felixstowe is a member of the Hutchison Port Holdings (HPH) Group. HPH, a subsidiary of the multinational conglomerate CK Hutchison Holdings Limited (CK Hutchison), is the world's leading port investor, developer and operator. The HPH network of port operations comprises 319 berths in 52 ports, spanning 26 countries throughout Asia, the Middle East, Africa, Europe, the Americas and Australasia. In 2014, the HPH port network handled a combined throughput of 82.9 million TEU worldwide.

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of containers, or 'housekeeping', in the yard. In all of this, the strength of communications in the planning team is a key aspect.

To give that structure, regular meetings of key staff are essential. Ships due, and the numbers of boxes to be loaded and unloaded, are analysed; equipment is allocated and shifts are organised, using a base level of contract labour and others on flexible hours and overtime.

Flexibility is the key to dealing with the 'lumpy' demand inherent in port operations. Ports on the main Asia-Europe trade lane are seeing fewer, but significantly larger, vessels. So where 1,800 moves on a ship may once have been the norm, that is now 3,500 or 4,000 moves with exchanges of over 7,000 containers not uncommon.

Add in the fact that the best-laid plans change – a lot – and the challenge is clear. A customer with no vessels scheduled in the next seven days may suddenly need to bring in two vessels with 9,000 box moves between them. Anything from fog in the Far East to stormy weather in the Bay of Biscay can throw ships significantly out of schedule.

The one constant is that things will constantly change. Systems and working practices need to be able to react to this change. If ports work on some sort of fixed plan that cannot be dynamic and cannot change, they will fail. Often, a container yard is perceived as a mathematician's paradise, and a lot of science is employed, but the puzzle cannot be solved by theory alone.

A good operator also needs a wealth of experience and the depth of knowledge and industry background to enable them to look at the challenges from a variety of different points of view. The right balance of approach is essential.

Conclusion

Taking a step back from the ants' nest and relentlessly analysing and reviewing every detail of the operation is the key to constant improvement. As a result of this more strategic view and deliberately targeting activities to improve performance, productivity has improved year on year at Felixstowe, with significant new records set in all benchmark KPIs for quayside, rail and yard performance; one reason why it remains the operators' port-of-choice in the United Kingdom.