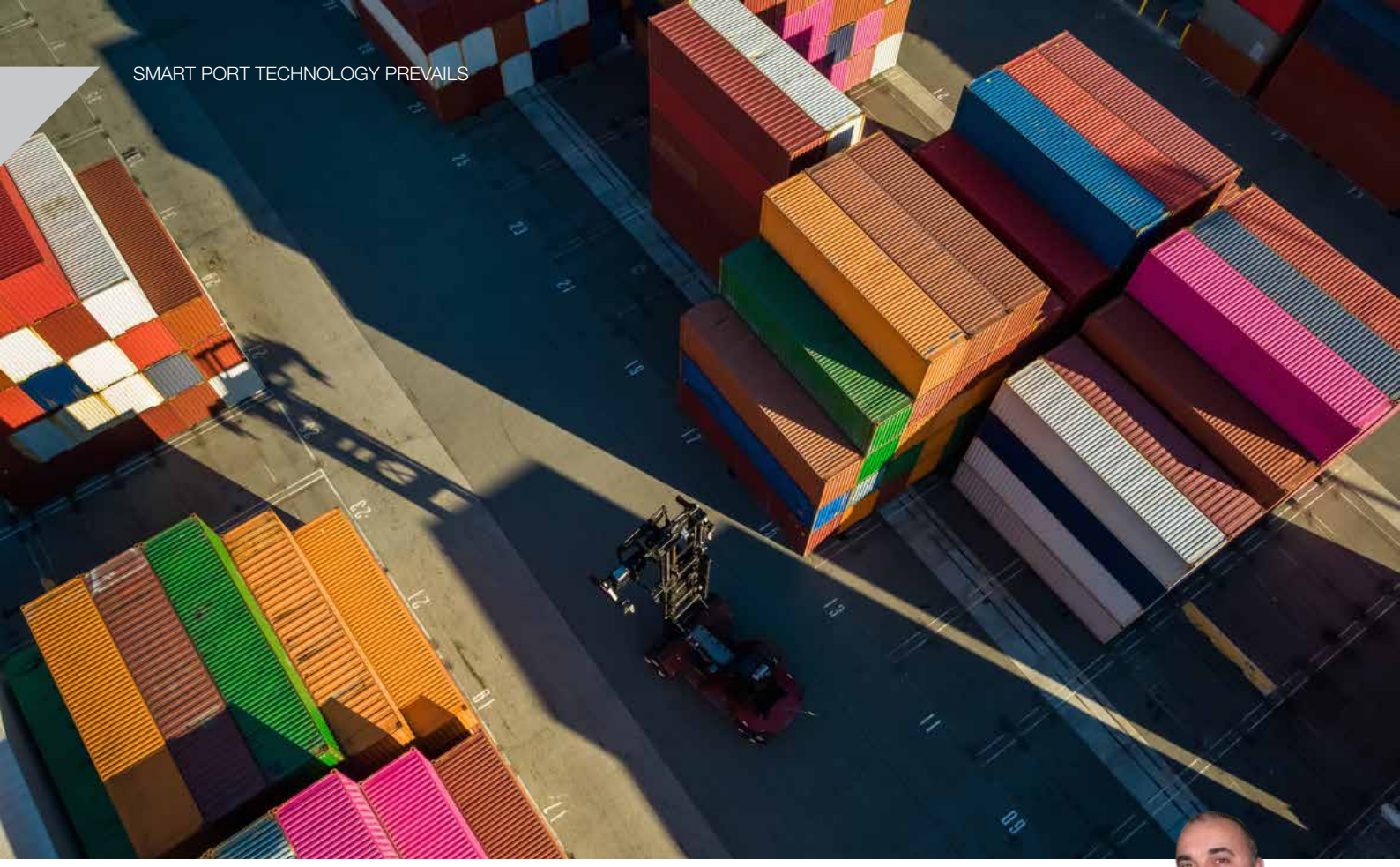

DISCUSSING THE NEED FOR INTELLIGENT CENTRALISED SYSTEMS

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The COVID-19 pandemic has created many challenges for the international supply chain and not least for the global ports and terminals that have continued to handle the flow of traffic during these trying times.

The pressures of 2020 have been felt within the operations at ports and terminals as they have implemented a range of alternative operational processes to handle the containers, cargo and vessels that flow through their facilities.

With workforces being affected by lockdowns, social distancing and at worst sickness, the limited ability of personnel to engage at an operational level has meant it has become very clear there is a need for ports to fall back on the technology they have deployed.

Port and terminal management and operational teams have had to rely heavily on their automated and integrated systems to run and manage their workflows. We are likely to see greater levels of automation being implemented and operators will look for more centralised systems to run and manage the daily operations across their facilities.

TO A CENTRAL POINT

The key terminal operating companies will use the COVID-19 pandemic to look at the adoption of these centralised solutions, with the aim to reduce the overall number of personnel that are physically operating across their facilities. The questions of centralised systems are not new, but the question has always revolved around the level of integration and the ability to harness the valuable data in a real time and ability to make decision on the fly.

We are already witnessing several leading terminal groups running centralised operations, such as their vessel and yard planning, and these are having mixed effects.

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Operators can see that they can reduce the physical head count by operating a central team of planners, but they are also nervous that if things do go wrong not having the applicable personal on the ground could cause issues, it has also becomes quite complex in terms of handling multiple sites from one location.

Therefore, the need for standardisation is critical, covering all the following aspects:

- Automated gates
- Security systems
- Terminal Operating Solutions (TOS)
- Enterprise Resource Planning (ERP) solutions
- Equipment operations (semi or fully automated facilities)
- Data communications

Having an advanced level of integration across these systems and facilities is critical and this is where many of the terminals are falling well short on those objectives. Although most of these groups are not shy at investing in terms of new technology many still fail to really appreciate the importance of the integration component and to harness the full potential of the technology they deploy.

This is one of the key areas for success, coupled to the speed on which data is received and processed. In this respect many operators are looking at harnessing the adoption of 5G communications across their global terminal portfolios. The essence of capturing the integrated data and the transmission will be essential for rolling out more centralised operational systems.

THE BIGGER PICTURE

Centralised solutions can create higher levels of operational efficiencies, lowering costs and providing a more focused real time flow of data for the corporate management to assimilate. Other benefits will embrace a better handle on their customers' performances, measuring and comparing port calls, focusing, and addressing areas where time savings or services could be improved.

Better information on the performance of operating equipment and more control over areas such as asset management, planning and traffic flows can be accomplished.

However, greater benefits could be identified on centralised system as the further adoption of Machine Learning (ML) and Artificial Intelligence (AI) are embraced. These solutions could in turn result in the total adoption of human-free central control systems becoming the norm.

As the local port and terminal solutions become less engaging with the central systems holding the majority of the data much of the local TOS will be stripped down versions that perform data capturing and the generation of work orders that are fed from the central systems.

The ML and AI will provide the ability to manage the data and perform and learn the way in which operations and tasks are performed, these can be automated and autonomously transmitted to the machinery that physically handles the movement of the containers across the various facilities.

The systems will be fed with data on inbound vessels, gate moves, physical yard planning and the availability of assets that are allocated to handle the processes. The equipment will adopt more robotics, and these will manage and filter information about the running performances of the machinery. The result being that predictive maintenance can be analysed and managed from a central system as well as centralised equipment procurement can all takeaway decisions that were made at a local level.

MANAGING DATA FLOWS

Other centralised approaches have seen the adoption of smart port eco-systems which have helped to provide a lot of visibility across the inland clearing depots, container and distribution hubs and the various transportation operators that pick up and deliver containers to the ports. These eco-systems work by capturing and processing this critical data, resulting in more efficient localized planning, trucks arriving for specific containers can be processed, and equipment and work orders will be performed allowing for traffic flow to move whilst reducing congestion levels and allowing for real time data to be shared.

By managing data flows from a central point can provide far reaching benefits for numerous parties, but those ports that look to adopt these types of solutions will certainly benefit to form closer ties with the shipper and carrier communities.

There will always be discussions around centralised systems versus regional and localised solutions, particularly when looking at every terminal that would need to be conceptualised and the ability to manage multiple sites could become very complex in nature due to different restrictions and operating environments. But as technology becomes smarter these issues will become secondary in comparison to the overall savings and benefits that could be achieved.

However, if COVID-19 has taught us anything it is the fact that a pandemic can cause chaos across a port whilst new measures and additional costs have been incurred to maintain the safety of the workforce. Lots of interaction between management and operational teams have been performed in a virtual environment proving that these methods can work well.

If we look beyond that and start to integrate the next generation of centralised control centres then much of the daily activities can be performed from one location, whilst ultimately introducing the newer technologies such as ML and AI will ultimately remove the human element for good.

Yes, the future is coming whether we like it or not, so we will have to watch and wait as to the decisions that will play out during the coming years, but I certainly believe that centralised systems will be further enhanced and adopted as the need to become more automated will drive those decisions forward.

ABOUT THE AUTHOR

Richard has over 35 years of management experience gained across the maritime, ports and technology arena. Having been engaged on multiple consulting engagements with Leading Ocean Carriers, Port Operators and Technology Groups. He has considerable exposure of working with Middle East based Maritime Organizations in Abu Dhabi, Dubai, Saudi Arabia, and Qatar.

ABOUT THE ORGANIZATION

CNB is tackling the problems of ocean freight logistics supply chain through the first principle methodology, where they understand that unless the data collection of the physical movements of cargo does not happen without any human intervention and in digitised form; productivity cannot be enhanced. CNB uses IIOT, AI and ML based solution to optimise operations in Ports, containers yards, depots and transports to deliver tangible benefits on time and resources deployed. They do fully automated real-time planning based on real-time data collected through the IOT systems deployed at these infrastructures through which the EXIM cargo moves in any geography.