



WE ARE SMARTER BUT ARE WE SAFER?



ICHCA
INTERNATIONAL

Captain Richard W A Brough B.A., O.B.E., Head of ICHCA International,

At CTAC 2018, I told the audience that for a port or terminal to fulfil its needs and be futureproof it needed 5 things all beginning with "S". That is to be 'Safe', 'Smart' (and there is much focus on this at the moment), 'Secure', 'Sustainable', and 'Skilled'. At present, IoT is connecting billions of sensors, pieces of machinery and data points, and that means there are billions of opportunities for cyber-attackers. On top of that, the physical security of goods and data is just as important.

In an ever-changing world of energy efficiency, reductions in GHGs and so forth, we need to be sustainable and move ever closer to zero emissions and the circular economy. Many ports and terminals will also be focussed on financial stability as investment decisions become ever more complex.

Despite advances in automation and the 'tweaks' that AI is adding to the mix, we still need people to carry out basic functions. We have not yet found a non-manual solution for lashing containers on deck, but a very few terminals have found an automatic solution for twist lock handling

ashore. Automation means equipment has to run perfectly, the machine itself may not be able to ignore non-critical functions, so we need people to deal with the exceptions. Whilst we may be developing ever-more sophisticated remote diagnostics, at some point someone has to go into the machine and swap worn-out or broken components. The skill-set may be changing but we still need a competent or skilled workforce.

SAFETY IN PORTS

The standard hierarchy of safety measures starts off with 'separating people from the hazard', but even in our highly complex world this is not always going to be possible. Of course, automation is one way of improving and reducing the human/machine interaction. If there is an incident the latter almost invariably wins, and some accidents can be fatal.

At CTAC I also told the audience that we had gone from what I call 'barely intelligent' (BI) operations to intelligent operations in approximately 75 years, the same length of time it took 500 million people to have access to a telephone. The world is changing

faster than ever before. Moore's' Law states that computing capacity doubles every two years, however with the increasing pace of connectivity, neural networking and AI that is likely to accelerate much faster than this.

There is another significance of the number 75. It is the number of people that we know died in the port and terminal sector doing their job in 2018 alone. This is only what has been reported to ICHCA, the number could, naturally, be much higher. As ports are 24-7 operations, that means someone has died every 4.9 days. That is a staggering thought, especially when considering the grief of all the families involved, and of secondary but none-the-less relevant importance, the costs of dealing with the aftermath.

What is worse is that in 2019 that average fatality figure has increased. Now we are experiencing a fatality throughout the industry almost once every 4 days. An example is an operative who was ran over by a reversing reach stacker in early 2019, as well as 2 operatives killed lashing cargo. The industry has long since known that heavy plant (and smaller fork-lifts)



reversing, in particular, pose a major threat due the lack of visibility the driver has. We can fit reverse mirrors, cameras, flashing lights and sirens, even proximity sensors in the cab and on the port worker (although we should try and keep terminals worker-free areas).

Clearly this state of affairs cannot continue, but how do we reconcile this against the significant advances ports have made both in terms of intelligent technology and complex safety systems? Well, in some cases the human interaction with technology can be flawed. We can rely on it too much and then when it fails, we are taken by surprise. Redundancy and back-up systems need to be specified, and operatives need to understand the limitations of the equipment. HAI (human augmented intelligence) is key.

In this regard, PEMA (The Port Equipment Manufacturers Association) in conjunction with ICHCA International and TT Club (who insure most of the world’s container fleet and much of terminal port equipment) have developed a new joint publication called: “Collision Prevention at Ports and Terminals” which explores this theme and looks at the technology available, but perhaps more importantly, lists its limitations.

LIMITATIONS OF TECHNOLOGY

Technological limitation is an extremely important aspect as we learnt, at a recent ICHCA event, from Dr Kate Blackford, Head of Behavioural Safety at Associated British Ports in the UK who quoted the 7+ or –2 rule. This implies that we can only concentrate on 7 things plus or minus 2, so a task that

requires a lot of concentration takes up all our capacity, if something then changes, we struggle to deal with it. Eurofighter pilots have experienced this and have used up their 7 just flying the plane, leaving nothing to actually carry out combat operations. The solution? Automation of most of the plane’s functions.

We at ICHCA have been trying to drill down into why incidents still occur, and despite all our best endeavours, the fact is that all too often we expect people to do the right thing, when as explained above, their mind-set may not be in the right place. Sometimes that is due to (or a combination of) stress, fatigue, repetitive actions, boredom, and even substance abuse. Job and task rotation can help with this, as will technology also (given – as explained – an understanding of what it cannot do). Shift patterns and adequate rest are also a major concern, they are one of the advantages of an automated (or semi-automated) terminal. However, many of the incidents cited occur in non-automated operations such as bulk cargo handling, project cargoes, wind turbine handling, and break bulk, etcetera. There has also been a significant number of incidents of asphyxiation in cargo enclosed spaces due to oxygen depletion or emission of toxic gases, such as fumigants.

CONCLUSION

Incidents such as those mentioned in this paper are totally avoidable. That is the real tragedy. The knowledge and the regulations are there, and organizations like ICHCA are constantly beating the drum and advising

of incidents and issuing complementary guidance. Nevertheless, fatalities still happen and the trend is getting worse.

What is the answer? All the data-mining and dissemination in the world will not save a life if we are not getting the information through to those that need it, and we are losing control (one of ICHCA’s 5 ‘C’s). Communication (another one) is paramount, but it is not much use if it is ignored. The industry, collectively, is spending billions on developing faster and more efficient equipment and tweaking it with augmentations and enhancements made possible by AI and machine learning in a frantic drive to improve productivity. Why not then spend a bigger proportion of that, more than we do today, on protection of our people? People, after all, are our greatest asset and not as easily replaceable as a machine. Further, there is the human tragedy ensuing from a fatal incident that can wound workers, operations and families for life.

ABOUT THE AUTHOR

Richard Brough started his career in 1969 with the Merchant Navy, culminating in command level. After 20 years at sea, he came ashore and worked in various port and stevedoring management positions until 2004, when he established his own port and logistics consultancy. From 2008-2011 he also launched, ran and sold UK Port Services Ltd. As well as his board role, Richard provides ICHCA International’s Technical Advisor service and is deeply involved in the association’s work with various international agencies and regulatory bodies.

ABOUT THE ORGANIZATION

The International Cargo Handling Coordination Association (ICHCA), founded in 1952, is an independent, not-for-profit organisation dedicated to improving the safety, security, sustainability, productivity and efficiency of cargo handling and goods movement by all modes and through all phases of national and international supply chains. ICHCA International’s privileged non-government organisation (NGO) status enables it to represent its members, and the cargo handling industry at large, in front of national and international agencies and regulatory bodies. Its Expert Panel provides technical advice and publications on a wide range of practical cargo handling issues.

ENQUIRIES

<https://ichca.com/>