

Maritime Autonomous Systems Regulatory Conference

Keynote Day 2

20 January 2021, 09:00am

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Conference Theme: Unlocking the Potential of MASS

I would like to start by wishing you and your families all well, during what remain uncertain and somewhat difficult times. I am sure, that like me, you look forwards to the day when we can see an end to the pandemic, and whilst a return to a pre-pandemic normal is unlikely in this new digital age, we shall at least be able to meet and resume a more social and interactive way of working.

I would like to thank James and the Working Group for giving me the opportunity to speak today at this virtual conference, for what is now my fourth time, albeit my first as Chair of Maritime UK. And I have to say that I am not sure if I should be flattered that you want to hear from me again, or worried that you cannot find someone else!

I would also like to take this opportunity to say thank you to all of you who have continued to work, under very difficult circumstances, throughout the maritime sector, to ensure that essential goods and services have continued to flow. I am especially acutely aware of the huge difficulties that have been faced by our seafarers, to whom many attending this virtual conference today owe a great deal of gratitude...

I fully envisage that many of the technologies that underpin maritime autonomy will help overcome some of these challenges, if this should ever arise again. I have to say that the experience of the past 9 months - of how we as a collective sector of seafarers, academics, government, industry, media, and society, have responded to the global pandemic, has caused me to stop and re-think, not just about the number of technologies that are emerging, but also the pace at which technological change and disruption is accelerating, and additionally, how much pace and success can be achieved through collaboration.

It is only a year since the last conference, and since then we have all experienced the colossal disruptive impact of the COVID pandemic, but to my mind, with this disruption has come real and positive change.

The very rapid adoption of virtual working technologies over the past few months has profoundly altered the way that many of us work, and has become largely embedded in to what we could now view as an established way of working – as evidenced perhaps by the low number of workers returning to city offices even after the first UK lockdown lifted. So, not only does this demonstrate the potential for rapid introduction and adoption of technology, but also how quickly technology *can* be fully integrated into our lives - transforming what was a wholly accepted but, perhaps now, somewhat obsolescent view of the work-place environment.

In the past I have spoken about the benefits of autonomous systems, their wider implications and more recently the challenges facing regulators, and the need for collaborative entrepreneurial leadership. I find it somewhat of a worry, then, that here we are again, this time discussing “unlocking the future of MASS”. Surely by now we could, and should, have unlocked it?

Here in the UK, we started this journey back in 2013, looking in detail at a programme to bring the industry together, and establishing a working group to start to address the known Regulatory challenges, which I believe we all thought would be the biggest enabler. Through this working group, we have now delivered four iterations of a UK Code of Practice, and yet, here we are still searching for the keys to unlocking it!

So, what, then, are the keys to unlocking MASS? I have identified six for discussion today. I wouldn't claim this list to be exhaustive – I simply offer them as an opening for debate.

I'll start with a relatively easy one: **technology**. The technology cupboard is already unlocked; indeed, we have a plethora of technologies to apply to MASS. Sensors are widely available, AI has developed to a useable capability, connectivity and communications technologies are sufficiently mature and available, as are data collection and processing techniques. The list goes on and on!

Much of the innovation behind these technologies is actually being driven by global demand in consumer markets for related civilian applications, and many of these innovative products and services have created huge opportunities for a diverse array of SMEs and large companies across multiple markets. However, much of their commercial success has been enabled not just by the innovative nature of the technology or product, but by the dynamic nature of product development processes, supported by agile and flexible approaches to acquisition, supply chain management, and product integration. I would suggest that as a sector we have been slow in adopting them, although I can reflect that over the last 12 months, the take up of digital technologies in the sector has accelerated. Perhaps the key to going beyond adoption, and into the full integration of these technologies, lies in a more coordinated approach, including the joint development of **standards** for this new digital world which supports the operation of MASS.

A second area that has to be unlocked is **policy and governance**, addressing not just the technical aspects but also the societal, economic and environmental challenges. It is no longer compelling that technology is the solution, and we need to consider the development of policies at national and international, and potentially even global levels. Furthermore, policies may well need to extend far beyond just the maritime sector – the obvious connection being the application of common approaches across the entire transport sector. I suggest that now is the time to break down governance and regulatory silos and work together to transform policies across the transport sector, to enable the widespread adoption of autonomous systems across land, air and sea.

The third key is **trust**, which when achieved, goes hand-in-hand with adoption and integration, by operators, procurers, seafarers and the wider public. This goes well beyond demonstrating compliance with regulations. We need to recognise that just because we pronounce things as 'compliant', it will not automatically translate in to being trusted and acceptable to others. We only have to look to the recent Boeing 737 Max issues in the aerospace sector to demonstrate this. There are perhaps more subtle societal aspects to this as well, for which I will use as an example the 'anti vac' rhetoric around COVID vaccines. Key to the success of this narrative is nothing to do with the rigour of testing or degree of compliance with regulations, it is about public perception – do we, the people who will be injected, trust the vaccine? We routinely roll out scientists, the experts and the politicians, but that may not convince the public. As one of our leading UK politicians Michael Gove once said, "I think people in this country have had enough of experts with organisations from acronyms saying they know what is best and getting it consistently wrong". Not only that, but the proliferation of social media gives unqualified people a credible voice. So, to earn public trust in our systems we must prove that we are trustworthy as engineers, and as people, and that what we propose has societal and environmental benefit, as well as being compliant.

The next key centres around the **adoption of new business models and practices**. MASS offers us a wealth of opportunity to both improve our existing business models and practices, and to innovate to create new approaches. For business, this offers the potential for fantastic growth, greater profitability and a heightened position in the global transport industry. But, *are* we making this happen? I mentioned earlier that here in the UK we began our MASS journey back in 2013, around the same time that the iPhone 5 was launched. I am sure that you are all familiar now with the impact that smart phones have had over the last decade. Just one example is the way they have enabled and accelerated online shopping, which has decimated our town centres and high streets, recently accelerated by COVID. Many of our best-known traditional retailers have disappeared, and new innovative, agile, digital companies have risen and grown to a colossal size. So, I believe that now is the time to think about transforming ourselves and our sector. If we don't, someone will do it to us. Instead of fearing disruption, let's be disruptive!

The next key area is **skills**. MASS will require us to develop digital skills throughout the enterprise. We need them to design, build, operate and maintain this future of Smart Ships and MASS. We need them in the business services and ports and harbours that support the sector, and we will need them in the regulatory and legal bodies. At the same time, we need to start the transition of skills to support future green technologies. Taken together, this will require us to deliver the greatest skills change in the sector since the transition from sail to steam, but at a much faster pace. At the same time that we must do this, we also need to bear in mind that in this Fourth Industrial Revolution, virtually every sector is doing the same thing, and therefore the demand for talent will be intense. We need to really work on the employee value proposition and the image of our sector if we truly want to unlock our ability to attract the best talent.

The final key I want to raise is **investment**. It is no secret that attracting innovation investment into the maritime sector is extremely challenging. It is a sector that is highly price competitive, operates on low margins, has high capital expenditure, requires the training and development of people and the provision of shore facilities. At the same time, national and international regulations, such as environmental standards and BREXIT related changes, are being implemented which also require investment. So, how do we build a compelling business case that makes investment attractive to investors, governments, and industry in general, against this backdrop of business-model and regulatory challenges, not to mention the additional overlay of COVID and geopolitical uncertainty.

So, that's all six keys! Just to recap, the keys to unlocking the potential of MASS as I see them are:

- Technology and Standards
- Governance and policy development, working with other transport sectors and beyond
- Developing and engendering the trust and acceptance of others in our systems, products and our people
- The transformation of our sectors business processes and practices
- Developing and nurturing our skills and talent, making this an attractive industry to work in
- Building a compelling investment case to attract both private and government investment

Having identified these keys, how do we - as an enterprise - deliver, acknowledging the uncertainty and turbulence that lies ahead? I believe that to accelerate our thinking and realise the technological opportunities ahead of us, we must build a culture of collaboration within our sector - one that does not necessarily have a long tradition of such. We have made some progress on this, but there is much more to do, and those who can disrupt us won't wait whilst we work out how to work together to transform our sector.

So, we need to recognise that we simply cannot stand still or ignore this. We must not hold back this tide of progress. And, rather than fearing this technology-driven disruption as it impacts our sector, we must face the reality that there is huge opportunity in transforming and adapting as part of a truly global industry. This requires real, collaborative, and possibly courageous leadership, and perhaps this is the biggest key of all if we are to unlock this future.

That's it from me. Thank you for listening, and I hope my thoughts act as a catalyst for a productive discussion today. Take very good care and stay well.