Technology, risk and insurance – Getting the right perspective

Over the last decade, the Club has developed a range of bespoke policies to support the specific needs of its Membership. Fishing vessels, yachts and dive boats all benefit from cover adapted specifically to their unique requirements, whilst vessels engaged in offshore work have a choice of multiple cover packages catering to their contractual and operational requirements.

One of the most recent additions to the Club's suite of specialist covers is our Maritime Autonomous Vessel Liability Insurance policy. This policy was introduced in 2018 as Marine Autonomous Surface Ships (MASS) began to shift from concept to reality. The development of MASS seeks to enhance safety and security, lower costs and increase productivity whilst importantly boosting environmental protection. These vessels are in many ways aligned to the green agenda and for the most part can be categorised as "small and specialist". Today, these vessels form a small but rapidly growing vessel sector in the marine insurance market.

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Gabriel Pickering

With increased levels of safety, one might assume that underwriting MASS is relatively simple. However, it is indisputable that this new sector is still in its infancy and as such it presents some unique challenges for underwriters when assessing risk. Perhaps the most acute challenge is the almost complete lack of historical claims data to inform underwriters in relation to the risk both in terms of frequency and quantum. Furthermore, when underwriting a traditional risk, assurance is often provided by a vessel's classification with a Class Society. Although it is very encouraging to see Class Societies embracing MASS with specific guidance, it does not always remain appropriate to class these small, specialised and regionally trading vessels (as the Club's experience can attest for with the majority of MASS entered being so without class).

When assessing a MASS risk, it is important to look at a wide variety of issues including: operational vessel range, levels of autonomy, experience of the company in operating MASS,

build standard, experience of the vessel builders, cyber security measures etc. We also consider the reliability of communication between ship and shore with obvious cyber implications.

We must also understand the wider MASS operating environment. Are operators navigating more than one MASS? What is the experience and qualification of a MASS operator? With traditional fully manned vessels we expect and rely on seafarers possessing the requisite maritime qualifications. For MASS we consider that training and qualification is equally important even if the operator is essentially shore based. There are encouraging developments in this area which will be explored further in future articles.

These issues aside, perhaps the most obvious factor to consider when underwriting MASS is the reduced seafarer risk. Seafarer claims whether injury, illness or death, represent the Clubs largest exposure by frequency and whilst MASS are certainly not always entirely crewless the reduction in seafarer numbers on board is significant and as such represents a considerable reduction in this particular risk.

This risk is of course evidenced most recently by the extremely difficult operating conditions seafarers have faced over the last few years as a result of COVID-19. The human factor impacts in both negative and positive ways, as human error is often seen as causative of a loss. However, it is important to also recognise and appreciate the role that seafarers play in loss avoidance or mitigation. Therefore, underwriting MASS must be done on a far more bespoke basis than perhaps is first imagined.

Whilst underwriting MASS comes with some inherent challenges, those doing so are extremely fortunate to be able to consult the Maritime Autonomous Surface Ships – UK Code of Practice (first introduced in 2017 and now in its 6th iteration). This publication provides focused guidance on design, construction, and operation of MASS as well as skills, training, qualification, communication and vessel registration.

In this instalment of the *Technology in Shipping* series, we invited James Fanshawe CBE who Chairs the Maritime Autonomous Systems Regulatory Working Group (MASRWG) at Maritime UK, to share his views on this exciting sector.

A rapid period of change

It was not long ago that seafarers were dependent on Star Globes, Sextants, Slide Rules and books like Norrie’s Nautical Tables. The technology we take for granted today had a relatively slow start both ashore and at sea. The first mobile phone call was made in April 1973; Microsoft was founded in November 1975; Apple appeared in April 1976; the first laptop was commercially available in November 1979 and the Internet was declared open in January 1983. All the apps which dominate our lives today are products of the 21st Century.

Those who lived through the introduction of all this technology and innovation have developed a healthy cynicism about the true capabilities which were on offer at any point on the journey.

Some of it just did not work until the next release was made available, and beyond that, very little investment was made to train the individual on these new tools of the trade. We moved forward to suit our needs as best we could but always carried the risk of exposing ourselves to both State and criminal interventions in our activities. With that, a new term entered the lexicon – “Cyber Warfare”.

There has been so much change in our world, but this is not fairly reflected in the very conventional world of maritime operations. The child of today receives education from a very young age on such subjects as the Metaverse, Blockchain, NFT and Robotics and before this they use mobile phones and tablets to ensure they are up to date with the latest developments in their favourite cartoons and shows.

They swipe left and right to imitate their parents and have little or no fear of technology. Young people do not see technology as a threat, like many of their antecedents. It is merely the enabler to allow them to draw forward what they need to be able to learn, communicate, entertain themselves and enjoy their lives.

With this change of emphasis for the next generation comes a concomitant favourable shift in the balance between the development and use of technology and the risks associated with using it. There is a powerful argument that humans are responsible for the majority of navigational accidents and incidents; 70% is not an unreasonable figure, supported by claims statistics, although there may have been some additional form of mechanical or electrical failure which contributed to the event.

The rise of MASS

It should therefore be a logical argument that removing humans from vessels would lead to a rise in safety standards with an obvious reduction in the number and scale of claims against the various forms of insurance. It is early days but the rise in the number of Maritime Autonomous Surface Ships (MASS) operating around the world, without a corresponding noticeable rise in incidents, is providing an initial benchmark supporting the theory. In fact, the number of events is falling.

There remains a very strong awareness within the MASS industry that results must continue to prove this point. There is no place for complacency. This is encapsulated within the ‘Being a Responsible Industry – MASS UK Industry Conduct Principles and Code of Practice[1]. Version 6’ which was published in November 2022. Whilst not a legal document it is widely used as a reference set of guidelines and best practice whilst International and National organisations continue to build legal frameworks.

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James Fanshawe CBE FNI

There is no room for outdated thinking in the maritime world. Technology has as much importance for conventionally manned vessels as it does for MASS. However, people are right to question the efficacy of the risk management behind MASS operations and their reliance on technology. The opportunities and challenges surrounding the technology to make them work more safely than manned ships with less, or even no, human intervention must be fully understood and accounted for.

For comparison purposes, step onto the bridge of a relatively mature ship where a newly qualified officer is in charge at 0300 with the standard array of sensors (radar, ECDIS etc), with one deckhand to support him or her whilst navigating across the North Sea during a gale in January. Their displays are not necessarily optimally tuned. The officer is tired and has several professional and domestic pressures bearing down on them. Fatigue management is not top of the list of command imperatives.

The “C-Worker 7” (ASV Global)

Now consider the Remote-Control Centre (RCC) responsible for monitoring and controlling an individual MASS within a fleet of similar vessels. From the outset this vessel has been designed to incorporate all the latest technology including full integration of Artificial Intelligence (AI) and Machine Learning (ML), an area which has not yet achieved the recognition it deserves. By way of example, take the new mobile phone you have just had delivered. It contains all the basics you need but must ‘machine learn’ and adapt how you expect to use it. This can be a fairly complicated process due to human behaviour. If the learning process was contained within machines, whilst it may not be perfect, it will certainly be swifter and more efficient and can always be updated.

Class & Flag certification

To achieve Class and Flag certification, a MASS vessel must have an extensive suite of sensors, communications and other monitoring technologies which enable the fully qualified RCC staff to do their job in whatever level of control, or degree of autonomy, the vessel is operating. In reality, this equipment may well exceed the capabilities of the equipment fitted in the average conventional ship. Some may argue that this enhances the cyber risk, but this will have been accounted for from the outset. Every possible step will have been taken to reduce this threat, or measures put in place to deal with an attack swiftly should it prove to have been successful. The chances of this, however, are relatively small given the redundancies incorporated within the key systems and it is important to remember that every movement of a MASS vessel will be monitored 24/7 from ashore.

The rationale behind the use of autonomous systems is diverse. It is correctly associated with the exclusion of crew from a vessel, and the implications for new ship designs, including a major reduction in power demand and space. It should be also viewed as a significant step on the path to achieving zero emissions in ships, which certainly drives the needs of the customers who are lining up to use them.

Conclusion

The reduction in emissions is necessary but not at the expense of safety; increased safety will always be the key driving factor. Effective risk management, fully embracing the technology we now have available, is critical to achieving enhanced safety. This process provides the insurance industry with the reassurance they seek in offering the required levels of cover for MASS. P&I clubs, like the Shipowners’ Club, have been early adopters of understanding, and embracing the benefits of technology in their willingness to provide bespoke policies for MASS. They see this as a real way of protecting the indemnity they offer whilst providing essential cover to owners and operators.

[1] https://www.maritimeuk.org/priorities/innovation/maritime-uk-autonomous-systems-regulatory-working-group/mass-uk-industry-conduct-principles-and-code-practice-2021-v5/.