4.1.2 Understanding the requirements of rules and regulations

Practical guidance – maritime

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Work has been being carried out for some time to develop Maritime Autonomous Surface Ships (MASSs) that can be used in commercial shipping. As is often the case with emerging technologies, there is a risk that such technological developments may get ahead of the current legal and regulatory framework and that adjustments in the regulatory sense will need to be made within a short period of time [1]. For such vessels to operate in international waters, changes in international conventions/rules are required [2]. This will need to be done at international level and is likely to be a lengthy process [3].

In this guidance we concentrate on how UK national law (more specifically, English and Welsh law) can be adapted so that such vessels can operate in UK waters in the near future, however long it may be before they are permitted to operate in international waters. We conclude that addressing the emerging legal and regulatory challenges will not come under the purview of any single regulatory body. Different national regulators (e.g. the Marine and Coastguard Agency (MCA), Port Authorities and Parliament) need to co-operate to engage in this exercise.

Our guidance considers the following areas:

The Marine and Coastguard Agency (MCA)

Remote Control Centres (RCCs) will play a crucial role in the operations of the MASSs by way of remote command, control and monitoring. Current maritime conventions and national regulations are, however, silent on the functional and operational requirements of such centres, and this needs to be changed. This is something that need to be addressed as a matter of urgency, ideally in consultation with those developing such technology.

There is also a legal vacuum when it comes to the national and international legal requirements for the qualifications and training needs of personnel in RCCs. This vacuum needs to be filled as a matter of urgency. We need requirements introduced to ensure that such personnel have a good understanding of navigational matters, as with seafarers; but given that they are not expected to go on board, some matters relevant to traditional seafarers' qualifications may be able to be omitted. Conversely, however, some further qualifications may well be necessary: notably, a good technical knowledge of the relevant computer and communication systems.

It is also necessary to define the technical legal status of the person in an RCC who assumes command of a MASS. It would make sense to view them equivalent to a conventional master of a vessel. If this were done, however, it would necessitate the revision of a number of international conventions that clearly assume (and arguably by implication require) the presence of a master on board. For example, under the STCW 1978 it is stated that officers in charge of the navigational watch should be physically present on the navigating bridge or in directly associated locations, such as a chartroom or bridge control room at all times.

Ports and Harbours

The use of ports in the United Kingdom is subject to a combination of national and local regimes, consisting of Parliamentary statutes and individual port bye-laws. See, for an example of the former, the Harbours, Docks and Piers Clauses Act 1847; and for the latter, the Humber Navigation Bye-laws 1990. Neither of these types of legislation was drafted with MASSs in mind. It is true that there is no general prohibition on MASSs using UK ports. However, since individual ports have the legal right to regulate their mode of use, subject only to the principles of non-discrimination between different ship operators, some have provided for individual rules that have the unintended effect of excluding MASSs entirely by insisting that vessels be crewed.

Assuming a port authority has no wish to exclude MASSs altogether, two things need to be done.

(i) Specific rules must be checked over, and provisions that have the effect of making MASS use impossible (for example, requiring crew members to be aboard in certain circumstances) amended.
(ii) The legislation in relation to many ports puts duties on, and gives rights to, a vessel's "master". There is a need for a general provision as to the person who is to count as the "master" of a MASS for this purpose, accompanied by a requirement for owners to nominate such a person where necessary.

Pilotage is vital. Most vessels of any size use the services of a pilot in visiting UK ports, and in many areas, pilotage is compulsory. The present rules about pilotage are contained in the Pilotage Act 1987, but these do not make any provision for remotely controlled or autonomous vessels. The following matters need dealing with in this respect.

(i) Provision needs to be made for remote pilotage where appropriate, particularly because some MASSs will not have any, or any adequate, facilities for on-board control.
(ii) Ancillary provision needs to be made for (a) the qualifications and training of remote pilots; (b) technical standards for allowing a vessel's control systems to accommodate control by remote pilots; and (c) a legal division of rights and responsibilities between RCCs and remote pilots.
(iii) Serious consideration needs to be given to how far requirements for compulsory pilotage are appropriate to MASSs, and whether they should be relaxed in such cases where such relaxation is consistent with technical safety.
(iv) In some cases, experienced masters who know an area well can be issued with pilotage exemption certificates allowing them, in effect, to act as their own pilots. This facility needs to be made equally available, where this is consistent with safety, in respect of RCC operators.
(v) The conditions (technical and manning, including that of its RCC operators) that a MASS should satisfy prior to being given access to a particular UK port;
(vi) How far it is appropriate to exempt MASSs from requirements in harbour byelaws that vessels in harbours should in various circumstances have someone on board.
(vii) How the owners or operators of a MASS can ensure that the vessel has a technical "master"- essentially a person to whom notices required to be sent to the master can be communicated, so as to ensure safety.

Legislators (Parliament)

Some of the above suggestions will incidentally also involve Parliamentary legislation (for example, changes to the Pilotage Act 1987 can only be made by Parliament). There is also a need for adjustments to criminal jurisdiction. The jurisdiction of English and Welsh criminal courts currently extends as a matter of course only to crimes committed within England and Wales or their territorial waters. True, there are some extensions in the context of shipping. Thus, English and Welsh criminal jurisdiction extends to cover (1) acts in relation to persons or property done by seamen employed on any UK ship, and (2) offences under the Merchant Shipping Act committed anywhere by British citizens, and by non-British citizens aboard British vessels.

But these exceptions are inadequate and need to be widened. For example, where there is no crew on board, there is a need to overhaul the criminal law to cover events taking place in RCCs, even if those RCCs are situated abroad.

Remote Control Centres (RCCs).

There must be defined technical and manning requirements (including training) for RCCs. It is also essential to define the legal status of those working at RCCs and (i) their role and function of each officer within an RCC; (ii) how to achieve co-ordination between different units within an RCC; and (iii) the safety management system that needs to be put in place at an RCC to ensure safety.

Pilotage

There must for safety reasons be legislative and regulatory provision concerning (i) the nature of pilotage in respect of a MASS; and (ii) the training and operational procedures to be followed by pilots assigned to MASSs.

Collisions and navigation

As regards collisions and their prevention, legislation must (i) provide that owners are liable for the negligence of RCCs and their owners even though the latter may in law be independent contractors; and (ii) adapt the provisions of COLREGS on matters such as lookout to make sure they are appropriate for conditions on a MASS.

Product liability

As regards product liability involving compensation for injuries caused by dangerous products, legislation should make it clear (i) that the 1987 Consumer Protection Act applies to any injury suffered in UK territorial waters, and to defective products wherever manufactured; and (ii) that in the context of claims arising out of a marine casualty, the rules of English law apply whenever the casualty took place in England or its territorial waters, and wherever the offending property was at the time of the casualty.

Uniformity

There must be laws as far as possible parallel and similar concerning remote controllers and MASSs and controllers of UASs.

For further details see: Soyer, B., Tettenborn, A., & Leloudas, G. (2022). *Remote Controlled and Autonomous Shipping: UK Based Case Study- this can be found at:* https://www.swansea.ac.uk/media/Remote-Control-and-Autonomous-Shipping-Final.pdf

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