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THE HUMAN FACTOR AS A CAUSE FOR UNSEAWORTHINESS OF VESSELS IN MARINE INSURANCE

Peter Sandell*

Abstract. Mistakes are made by the crews, and the human factor is present in approximately 80 percent of maritime casualties. Owners take out hull insurances to mitigate the maritime risk, but they are also protected against the negligence and mistakes which have been committed by the crew they have employed if that leads to casualty and damage for the vessel. As the owner is usually the person who effects the insurance, he is entitled to compensation for damages from the insurer. The privity of the owner is, however, essential. If the vessel is sent to the sea in an unseaworthy condition with the privity of the owner, he will lose his insurance cover. Traditionally this privity has been related more to the physical state of the vessel than crew. With the specialization of the vessels more knowledge is demanded of the crew. The owners must ensure that the crew has the skills demanded for the specialized vessels and their specialized cargo. The owners must be able to prove that they have procedures in place to guarantee that the crew is not only knowledgeable according to the certificates, but also able to perform their duties efficiently. For example, transportation of electric cars and Hazardous and Noxious (HNS) goods in containers require special knowledge, training and equipment. The procedures should be described in Safety Management Systems (SMS) of the vessel and the company. This applies also to the use of vessels and their equipment more generally. For example, if the vessel drags its anchor when the vessel is proceeding with normal cruising speed and the crew has not noticed anything, it is clear that the vessel has been unseaworthy due to the fact that the crew has been negligent in procuring that the safety procedures that normally prevent the anchor from falling by itself, have not been taught for the crew. It is the owner's obligation to ensure that the Safety Management System (SMS) in place prevents this kind of incident relating to anchor handling. Normally in relation to anchor handling there are at least three precautionary measures which need to be conducted before the anchor falls off. If all these fails, the vessel is probably either technically unseaworthy or unseaworthy due to human unseaworthiness as the persons on-board are not able to use the equipment and the owners have not committed to provide them with proper training. This is also a liability insurance issue if the anchor cuts cables while being dragged. Liability insurers will deny compensation for the damage if the vessel has been unseaworthy. The article addresses the research results which have been achieved by familiarizing with the studies in literature and case law in English and Nordic insurance case practice. The purpose of the article is to highlight and explain the consequences of human unseaworthiness in different jurisdictions as the approach is based on varying rules and practices in different jurisdictions.

Keywords: Human Factor; Unseaworthiness: Hull Insurance: Liability Insurance.

Novia University of Applied Sciences, Technology and Seafaring, Turku, Juhana Herttuan puistokatu 21, Finland

* **Corresponding author:** peter.sandell@novia.fi

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1. INTRODUCTION

1.1. Unseaworthiness in General

Unseaworthiness is a term that has been used in maritime law for centuries. It can be divided, for the purpose of systematization in three different categories. The first is usually determined as seaworthiness which is in control of the administrations. The vessels must be in condition to meet the requirements of the international conventions and classification societies. Very often the ship inspections by administrations are delegated to classification societies. This unseaworthiness relates mainly to safety of persons on a vessel and protection of marine environment. The second category of unseaworthiness relates to insurance of vessels as an insured object. Most important insurance in this respect is the hull insurance of the vessel, which is based on insurance terms and conditions incorporated into a contract between the owners of the vessel and the insurers. The third category is the liability for unseaworthiness for the vessel when vessel is transporting cargo. The cargo owners have normally a limited right to receive compensation from the vessels owners when cargo is lost or damaged during transportation. This is based on the principle that the liability of the shipowner is limited according to international conventions for the cargo carried. This right to limitation of liability can however be lost if the vessel was unseaworthy. The key provision in this respect is the Hague-Visby Rules, Art. III, r. 1:6 according to which the carrier shall be bound before and at the beginning of the voyage to exercise due diligence to (a) make the ship seaworthy and (b) properly man, equip and supply the ship. Even though the Hague-Visby rules are non-mandatory in relation to charterparties, they are generally incorporated in standard charterparty forms and they become part of the regulation of shipowners liability insurance system (P & I clubs) this way.

1.2. Human Factor and Unseaworthiness

The human factor is present in approximately 80 percent of maritime casualties. Owners take out hull insurances to mitigate the maritime risk, but they are also protected against the negligence and mistakes which have been committed by the crew they have employed if that leads to casualty and damage for the vessel. The basic idea is both in hull insurance and liability insurance for cargo, that the owner of the vessel should be protected for loss if he could not avoid the loss through his own actions and that he has exercised due diligence in providing a seaworthy vessel under hull insurance, for transporting cargo or for chartering. Lack of due diligence is considered negligence. If a carrier fails to make a vessel seaworthy in the sense of providing a competent crew, he may still avoid liability if he can prove that he exercised "due diligence". The aforesaid applies to situations when English law is applied to charterparties and in marine hull insurance according to English Marine Insurance Act and the contract is made for certain period of time and not for a voyage. In English marine insurance contract for a voyage, the owners can lose their insurance cover even though they were not even aware of, or did not contribute in any way to the fact of the vessel being unseaworthy. However, English case law on unseaworthiness can be used for interpretation of both transport law/chartering and marine insurance.

Traditionally, the seaworthiness of a vessel has been related mostly to technical condition of the vessel. The traditional test is that, for a vessel to be seaworthy, it "must have that degree of fitness which an ordinary careful and prudent owner would require his vessel to have at the commencement of her voyage having regard to all the probable circumstances of it. The test in relation to the obligation to provide a competent crew is: would a reasonably prudent owner, knowing the relevant facts, allow the vessel to put to sea with the particular master and crew that was on board at the commencement of the voyage. If the vessel is not manned by an efficient crew, then the vessel is unseaworthy (White, 1993). In the end of this article, we also consider the situation if this is applicable rule also in a situation when there is no crew on board at all. This can be the situation in future when the IMO MASS code enters into force in 2026.

2. DUE DILIGENCE AND PRIVITY OF THE OWNER

2.1. Introduction

As the owner is usually the person who effects the insurance, he is entitled to compensation for damages from the insurer. The privity of the owner is, however, essential. If the vessel is sent to the sea in an unseaworthy condition with the privity of the owner, he will lose his insurance cover. Traditionally this privity has been related more to the physical state of the vessel than crew. With the specialization of the vessels more knowledge is demanded of the crew. The owners must ensure that the crew has the skills demanded for the specialized vessels and their specialized cargo. The owners must be able to prove that they have procedures in place to guarantee that the crew is not only knowledgeable according to the certificates, but also able to perform their duties efficiently. As the MASS code enters into force 2026, this applies also to the persons in the "command bridge" which is situated in the Remote Operation Center

(ROC) on land or in another vessel (mothership) when the vessel is unmanned. This will be further considered below in chapter 4.

2.2. Negligent or Incompetent?

When we first consider the situation relating to shipowners liability for cargo-owners, the key distinction is whether the master, officer or crew member in question was simply negligent or incompetent. If simply negligent, the carrier will have the usual defense available to him under Hague-Visby Rules Art. IV, r. 2. If he/she can be considered incompetent, then the carrier may be in breach of his duty to "properly man" and/or make seaworthy the vessel. In Marine Hull Insurance the same applies to marine insurance contract. If the owner has been negligent or has "turned a blind eye" to the procedures of hiring a crew or confirming the procedures of assuring their competence, the causal connection between unseaworthiness and casualty may be proved and the owners have serious problems in providing evidence that due diligence has been taken care of in process.

If a person onboard has been negligent, the shipowners is free from liability, but if he has been/is incompetent, then the shipowners may be considered negligent in hiring a incompetent crew. This means that there is causal connection between the cause of the casualty and the loss. Therefore, the cause of the casualty is the mistake made by the owner when he hired the incompetent crewmember who acted in a way he should not have acted in professional service of the carrier/owner. This sounds logical as the causal relation to the owner is established. Next we need to consider the situation from the point of view from the owner and his servants responsible for hiring the crew and ensuring their competence is adequately maintained/increased and oriented for example when they change the vessel where they work, or new equipment are installed to the vessel.

2.2.1. Hiring Process

In English case law the courts have stated that when hiring persons to responsible positions, the checking the required documents is simply not enough. In the case "Makedonia" a chief engineer was hired on basis of papers and five minute interview only. This was considered a total failure. Also, the court stated that the owner is obliged to delve into the background of the officer to find out the nature of the individual behind the certificate: written references must be obtained, former employers approached, and technical questions asked if necessary (White, 1993). Problem with unseaworthy vessels which have not been properly maintained is that sometimes several chief engineers have declined to go to sea with them. If the engine rooms maintenance has been neglected for long, the chiefs can find easier place for work elsewhere as if they accept the position, they will be making the work of previous chiefs who have neglected their duties – and assume responsibility for their actions in case of accidents. This leads sometimes to a situation in which several chief engineers decline the work when they see/realize the situation. Then the vessel is waiting for the person who would accept the job. He is not usually the best but the last choice – which is made just before the vessel is leaving the port. And he has been left far too little time to familiarize himself with the vessel. These cases came to daylight especially in the years during/after the shipping crises in 1990´s because they created accidents due to the incompetence of the chief engineers. After the implementation of ISM Code the situation in this respect has been better.

2.2.2. Relation to a Particular Vessel on a Given Voyage.

A distinction is drawn between an individual's general competence and his specific competence in relation to a particular vessel on a given voyage. The example above concerning the chief engineer highlights this. The chief engineer can be competent in relation to general competence but has not enough time to familiarize himself with the vessel before departure. A lack of knowledge of a particular vessel whereby the skill possessed becomes ineffective may also render an individual inefficient or incompetent and when his/her actions lead to casualty, unseaworthiness issue is examined and the owners/designated persons actions investigated. The ISM Code chapter 6.3 issues the following requirement: "The Company should establish procedures to ensure that new personnel and personnel transferred to new assignments related to safety and protection of the environment are given proper familiarization with their duties. Instructions which are essential to be provided prior to sailing should be identified, documented and given." If these procedures have not been identified in the company, or they have not been followed, it is the company management who will be responsible for breach of its duties in ensuring that the vessel is in seaworthy condition when it leaves the port.

2.2.3. Privity Concerning Seamen's Habits or Inclination

The designated person in the company should be constantly provided with information that is relevant for the safety of the vessel and crew. A good example

might be an officer who has become lazy in relation to the techniques of navigation and seeks to "cut corners". This kind of practices shall be documented and brought to the attention of the owners or their responsible servants like designated person. Habits and/or disabilities of a seaman which prevent him from performing the job with the necessary skill and capability may render him inefficient or incompetent. Use of alcohol against the company policy makes the vessel unseaworthy and if a vessel's master or chief engineer are drunkards, then the vessel is unseaworthy, irrespective of how well qualified they are. ISM code § 6.2 says the following: "The Company should ensure that each ship is manned with qualified, certificated and medically fit seafarers in accordance with national and international requirements." It is the responsibility of the Company to ensure that misuse of alcohol, which can be considered as a symptom of a disease, is not allowed.

Some habits may cause imminent danger but are simply not understood by seamen: If the engine-room staff are allowed to smoke in the purifier room despite the obvious safety implications, this may mean that the vessel is not seaworthy. Officers and crew who may be perfectly adequate on appointment may lapse into slack ways. In order to have a reasonable chance of establishing the exercise of due diligence, a carrier must prove that he has set up a suitable system to monitor the performance of the master, officers and crew on an on-going basis.

2.2.4. Lack of Common Language

Another characteristic which may render a member of crew inefficient or incompetent is an inability to communicate with other members of crew in a common language. Notwithstanding the fact that a crew member may be generally competent, lack of essential language skills may render him specifically incompetent in relation to the crew with whom he must work. This is now also emphasized in the § 6.7 of the ISM Code: "The Company should ensure that the ship's personnel are able to communicate effectively in the execution of their duties related to the safety management system." The crew may also be considered collectively inefficient or incompetent if they cannot effectively communicate in a common language between themselves. They should also be able to understand the safety information provided by the owner according to § 6.6 of the ISM Code: "The Company should establish procedures by which the ship's personnel receive relevant information on the safety management system in a working language or languages understood by them."

3. BREACH OF SAFETY REGULATIONS

3.1. Introduction

The actions that the owners have to take in order to follow rules on how to make their vessel seaworthy and act according to the rules on due diligence to provide a seaworthy vessel have been described above. Previously Unseaworthiness was also a term which was used in Nordic Marine Insure together with Safety regulations. The situation has however been changed in 2013 when Nordic Marine Insurance Plan became the basis for the shipowners insurances in Nordic countries (Finland, Denmark, Norway, Sweden). Nordic Marine Insurance Plan has introduced a solution in which unseaworthiness as a concept has been abolished from Marine Insurance. It has been replaced by the rules regarding breach of Safety Regulations, which previously existed in the rules together with the unseaworthiness concept.

A safety regulation in Nordic Marine Insurance Plan is a rule concerning measures for the prevention of loss, issued by public authorities, stipulated in the insurance contract, prescribed by the insurer pursuant to the insurance contract, or issued by the classification society. If a safety regulation has been breached, the insurer shall only be liable to the extent that the loss is not a consequence of the breach, or that the assured has not breached the safety regulation through negligence. If the breach relates to a special safety regulation laid down in the insurance contract, negligence by anyone whose duty it is on behalf of the assured to comply with the regulation or to ensure that it is complied with shall be deemed equivalent to negligence by the assured itself. The insurer has the burden of proving that a safety regulation has been breached, unless the vessel springs a leak whilst afloat. The assured has the burden of proving that it did not breach the safety regulation through negligence, and that there is no causal connection between the breach of safety regulation and the casualty.

This Nordic solution applies to hull and other owners insurances but not to liability insurance based on P & I policies. ISM code is also a safety regulation, but its position as a safety regulation has been under consideration. The duty according to the ISM Code is to "develop, implement and maintain" the Safety Management System. A mere establishment is therefore not enough if the system is not prudently maintained. Further, a repeated breach of the individual instructions or procedures may indicate that the Safety Management System is in reality not implemented or maintained by the management, or that they have failed to supervise the system. To the extent an individual manual repeatedly is breached by

the management, depending on the circumstances in each case such breach may also be considered breach of a safety regulation. (Nordic Marine Insurance Plan 2013, 2023).

4. HUMAN FACTOR, UNSEAWORTHINESS AND AUTONOMOUS VESSELS

4.1. Introduction

The Maritime Safety Committee (MSC) in IMO is currently working on a MASS Code for Maritime Autonomous Surface Ships to enter in force as a non-mandatory instrument in 2026. The Code is for vessels which are categorized in four different categories and levels of autonomy. The interesting ones in respect of our topic in this article, are the levels 3 and 4 in which the vessel does not have a crew onboard, but it is either maneuvered from distance Remote Operation Center (ROC) (level 3) or it is only taken into control by an ROC in case of an emergency (level 4). The levels 1 and 2 are for the vessels where there is increased amount of technology in the vessel, but there is still crew on board. The human factor in seaworthiness issues is very much the same as above, the owners have to follow due diligence in order to guarantee that the crew is able to use and maintain the increasing amount of technological solutions in use onboard the MASS vessel (level 1 and 2). In the following we are analyzing how human factor is relevant in relation to autonomous vessels in the different jurisdictions described above (level 3 and 4) when there is no longer humans onboard, but they are ashore in ROC.

4.2. Seaworthiness and ROC

We have considered before the negligence of humans, competence and incompetence and their interrelation regarding seaworthiness and the owners situation when he wants to seek compensation for his loss through insurance. We have summarized that the essential is the owners negligence in "knowing" the truth or "turning the blind eye" to the truth, when the processes are followed in order to guarantee the seaworthiness of the vessel and follow the due diligence procedures in maintaining the insurance in force in respect of the human behavior in vessel.

When there are no persons in the vessel, the vessel is either controlled by the persons on distance in the ROC or followed by them and taken into control in case of emergency (Ahvenjärvi, 2016). The relevant question for our purpose is 1) is the ROC considered as an extension of the ship that should also be considered seaworthy or unseaworthy? or 2) in case of Nordic Marine Insurance Plan – is it part of the vessel or Company that should follow the safety regulations and ISM Code?

On the basis of Draft Mass Code under preparation in the working Group in the IMO, the answers to these questions seem to be positive. As the persons working in the ROCs will be persons working for the vessel, they will be evaluated according to the same principles. The ROC is considered as the "command-bridge" of the vessel which needs to be seaworthy and persons working there need to have training required and they need to be competent. Their training needs are still undecided by the IMO, but they will be trained probably according to the standards regulated by STCW-convention or its attachments or separate regulatory framework. Human seaworthiness in this respect will be important for the evaluation of shipowners liability insurance and hull insurance under the Marine Insurance Act.

4.3. Safety Regulations and Nordic Marine Insurance Plan

"Human seaworthiness" will in Nordic Marine Insurance be based on ISM Code and its application as safety regulation in respect of the ROC and the Company. The ISM certificate of the vessel extends to the ROC and the company ISM certificate of the company in the company premises on land based organization. Safety regulations are applied in both and if they are breached, it is up to the evaluation of the negligence of the persons responsible for their fulfillment: "…negligence by anyone whose duty it is on behalf of the assured to comply with the regulation or to ensure that it is complied with shall be deemed equivalent to negligence by the assured itself." The safety regulations shall also be applied to humans who will work for the vessel when it is maintained or updated when in harbor or yard (upkeep or update of software etc.) so the ROC is not the only place "outside" the vessel where safety regulations based on human factor will be applied.

5. CONCLUSION

Human factor will not vanish from marine insurance despite the increasing use of autonomy and autonomous vessels in the future. As we have seen above, the situations will only become more complex. There will still be traditional seafaring where humans have a decisive role in operations, and the management of the company is responsible for ensuring that the crew is competent for acting in all required situations. These situations require more information and education from management of the vessel and its crew. One of the problematic issues the industry has

faced in recent times is the increasing amount of container fires due to chemicals transported in them. Also, transportation of electric cars has caused increasing need for precautionary measures and need for extra training for seafarers. This is the most visible part of the development of traditional industry.

When we consider the change, we are facing in traditional seafaring, the imminent change is that the seafarers in traditional vessels need to learn to cope with unmanned vessels that start international traffic 2026. Then we need to consider the training needs for the persons working in the vessels in which automation is fast increasing. For simplification we can call these vessels MASS vessels level 1 and 2 ships. The increasing autonomy will be valuable aid for crews which are to be smaller and smaller. They need further education though to cope with the increasing use of technology. The relevant question is, are they no longer seafarers or engineers if the navigational decisions more or less in the end are left to computers? Which ones are more needed in future vessels is a relevant question. What kind of skills do the owners need to ensure that the seamen have when they have been hired to the vessels in order to keep the vessels seaworthy ? Are the programming skills more needed than seafaring skills? This is a question to which the questions hopefully will be determined by some working group determined by the Maritime Safety Committee (MSC). The research already conducted shows that persons working for the vessels, which will be autonomous, will in future possess more engineering skills than nowadays.

Until the IMO MSC has determined the mandate to someone concerning the training of future seafarers / persons working for the ROC´s, the industry will follow the pattern of rules and regulations existing today. Human factor will surely be needed also in the future when in marine insurance and seaworthiness or breach of safety regulations is evaluated by the insurers and the owners.

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