

ENTRY 13: CREW RATING SYSTEM

Question	Answer
1. Are you submitting as a:	Team
2. Email	alec.schenning@maritime.edu
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4. Tell us about yourself/team	<p>This project is being submitted by Alec Schenning and Ian Costello. We are both senior cadets studying International Maritime Business at the Massachusetts Maritime Academy. Alec Schenning is from Maryland and Ian Costello is from Massachusetts. We heard about this competition through our professors.</p>
5. Date of birth	13/7/1998
6. Brief description of your idea	<p>For this project, the concept is to create a rating agency similar to those used for personal credit, to rate mariner performance. This premise is based off the fact that there has been a gradual decline of the quality of mariners at sea. It is estimated that 80-90 percent of maritime related accidents are attributable to human error (This number fluctuates depending on the source, but the percentage remains high).</p> <p>For instance, a shipping company may have a great operating history with no major claims. After the tests and credit rankings are administered, it may be found that all of their crew members receive the highest ratings. If this same company eventually hired a level "C" employee who barely passed his or her exams, it is likely that this employee may increase the risk of an accident. This proposed system would be similar to Moody's or other rating agencies to allow insurance companies to set premiums and based on the crews skill level. If a majority of marine accidents are a result of human error, insurance companies should make their assessments based on the individual crews.</p> <p>From experience in the United States, educational institutions have lower overall expectations for students. Institutions often scale grades in order to pass students through their degrees, and the students fail to retain a majority of the information covered during their time in school. Additionally, the United States Coast Guard exams required to earn mariners credentials in the United States have online test</p>

Question**Answer**

banks for students to study, which ultimately causes students to put less effort into their courses, and more effort into simply memorizing questions and answers. In the current practice, all mariners who pass the exam are viewed equal despite different levels of understanding. These changes in the education system have drastically decreased the level of expertise that licensed mariners have when going to sea. The number of maritime accidents attributable to human error is staggering, and they are caused by a combination of fatigue, negligence, and lack of knowledge. This can all be reduced through a series of additional examinations, hands-on training, and risk assessments.

This three stage mariner improvement process would begin with company-specific examinations. In order to better hire prospective mariners, a system would need to be implemented to test mariners with a consensus between individual company standards and expectations, third party company standards and expectations and insurance company policies. These preliminary examinations would allow employers to filter out poor mariners immediately, so that there is never an instance where an uneducated mariner is allowed onto a vessel. These exams would pertain to various different areas, including knowledge of the Electronic Chart Display and Information System (ECDIS), manual charting, firefighting, Global Maritime Distress Signals (GMDS), the rules of the road, cargo handling, radar, bridge resource management, celestial navigation, and even company policies such as ethics and security. Furthermore, preventing the questions from being leaked, shared or disseminated is paramount. In order to accurately test a mariner's knowledge, no two exams should be the same. If this is not the case, it is likely that mariners will simply memorize information as opposed to understanding it. Ultimately, mariners would then be ranked and graded on a percentile system. Companies could then use this rating to select the highest quality mariner. The percentile system would rank mariners based on their relative knowledge compared to other mariners taking the exam. Additionally, the exam should be more comprehensive and practical than a multiple choice exam. Following the examinations, the mariners would be given feedback on their areas that need improvement.

For the second stage, the selected mariners would then be continuously tested and trained through hands-on exercises while underway. These trainings would be conducted by a particular vessel's master and chief mate. These trainings would ensure that all mariners are fully prepared to not only perform their daily tasks safely and correctly, but also to effectively handle any potential disasters such as a fire or grounding. The most effective way to ensure that mariners do not forget their training is through a continuous application of the learned skills. It is vital that each crew member be versed

Question**Answer**

in all areas of their particular vessel and for each of the projected trade routes. If there are areas that crew members are not fully trained, it is possible that the vessel, crew, and environment could be at risk. While it is important to have this area of practical education, practices may fall below standards in some areas or not be properly enforced, so a third form of training is also applied.

This third stage of training comes in the form of random evaluations, or REV's. These REV's would be conducted by either third parties or insurance companies, and the purpose would be to conduct oral examinations of crew members. Oral examinations would test how much a mariner truly knows and understands about their particular vessel, its cargo and the safety required to keep the vessel and the crew safe. Typically, a compliance officer would board the vessel with a pilot during transit, or while the vessel is conducting cargo transfer operations. These are the times when a vessel's crew is most active, and it is vital that during each operation, the mariners are able to provide answers that could mean the difference between life and death should an emergency situation arise. Ultimately, REV's would ensure that each mariner is continuously learning, and understanding the importance of their actions at sea.

The first stage is to prove that the mariner is qualified to undergo voyages, the second stage ensures that mariners do not forget the essential skills to navigation and safety, while the third stage acts as a quality control system to prevent complacency and the decline of standards. Ultimately, the feasibility of this project will be decided through the economic implications and partnerships decided on by insurance companies and carriers. If the investment made into more effective training decreases the amount of losses paid, the idea will be beneficial to insurance companies. If the investment into more effective training lowers premiums and incident related expenses for shipowners, the project will be successful.

7. Tell us how your idea is original?

This project is original because it does not just focus on increased training, but on the quality and results of that training. After marine incidents caused by human error, the first reaction is often a call for more training. This thought, however, seeks to review the effectiveness of training and act as a way for carriers and insurance companies to standardize, while also ensuring that the best possible mariners are navigating the vessels. Companies can always offer training to their officers, but if the training is not effective and does not reduce human error, then the training is worthless. Continuing education and other related trainings are offered online for the sake of convenience, but they are not necessarily the best learning tool. Many of these lectures can be placed on mute or skipped through. Some of the more

Question

Answer

advanced online programs do not let you skip, but they can still be completed without focused attention from the viewer. The answers to the final exams for many online trainings are publicly posted; subsequently, they are very easy to cheat on which diminishes the integrity of the exam . This idea goes beyond just training and focuses on the quality and results of that training through the implementation of a credit system. Better mariners will lead to a reduction in the number of marine incidents. It also allows insurance companies to make informed decisions based on the quality of mariner. This idea also allows for a greater amount of communication between shipping companies, insurance companies and third parties to collaborate on the issue of safety in the maritime industry. Finally, the percentile ranking system allows companies to make more informed employment decisions while allowing insurance companies to quote more accurate premiums.

8. How relevant is your idea to the shipping industry?

The problem outlined above is witnessed in many different industries, but it is especially applicable to the maritime industry. Implementing a higher quality of training that is checked and agreed upon by carriers, insurance companies and third parties is directly related to the maritime industry. Deck officers receive numerous hours of necessary training to obtain their qualifications. There are many systems, laws, and intricacies required to safely navigate a vessel and, all aspects of their training are of equal importance. Systems and skills like the Electronic Chart Display and Information System (ECDIS), manual charting, firefighting, Global Maritime Distress Signals (GMDS), the rules of the road, cargo handling, radar, bridge resource management, celestial navigation, and meteorology are all necessary to transporting goods by sea. Each of the aforementioned systems have their own intricacies and skills that need to be reviewed. Deck officers should continuously train to keep these skills sharp. These trainings must be completed and graded to a high standard to ensure that competent mariners are able to perform at the highest level. Ensuring that mariners retain information and are able to apply their various types of training is paramount to safety in the maritime industry. Also, providing more information on the quality of mariners in navigation allows insurance companies to make decisions on the people that lead to a majority of maritime accidents.

9. How relevant is your idea to safety?

This idea is directly related to safety as better mariners should reduce the number of accidents originating from human error, which accounts for the highest percentage of marine accidents today. With more effective and continuous training, mariners will be able to make better and safer decisions. The percentile ranking system will also have a rippling effect across the maritime academies, companies and other interested parties to that seek to hire and produce the safest and most effective mariners.

Question

Answer

10. How might your idea be implemented?

This project can be implemented in several ways. First, insurance companies can become involved. Insurance companies can aid in the creation of a new breed of training program, as well as sponsor more effective training services. With the help of insurance companies, they can provide quality control and ensure that the mariners are learning and retaining the necessary information. Furthermore, companies can require all mariners to pass preliminary exams before gaining approval to work as a credentialed mariner onboard a vessel. This exam will be conducted after people earn their licenses from maritime academies across the globe. This exam will be much more practical and will not have question banks or pre-released answers. Additionally, insurance companies can send experienced mariners out as a part of a field team to conduct random inspections. These risk control agents or auditors can test the crew's knowledge in all areas of shipping. These random, frequent tests would serve as quality control and measurement for the new trainings as well as give individual mariners more of a reason to completely understand the intricacies of their ship.

These inspections would then allow insurance companies to use a credit system where vessels that perform well on inspections would receive lower premiums and vice-versa for those that perform poorly. This could help provide a standard grade for mariners aside from test scores. These grades could then be compared across the industry to further quote premiums. This system would then create a sense of urgency for the crew, and would cultivate better processes, procedures, and effective crew members. Since the majority of maritime accidents are caused by human error, insurance companies should make their assessments based off of the quality of mariners on board. Without losing coverage, ship owners wish to minimize their premium payments. With premiums directly related to the quality of mariner, this will cause a trickle-down effect. Companies will seek to hire the best possible mariner. The maritime academies will seek to produce the most effective mariner and the individual mariner will become the safest and most effective mariner possible.

11. What is the overall aim of your idea – will it save lives? Prevent losses?

The objective of this project is to improve the quality of the individual mariner. An improved mariner will make better decisions at sea and be involved in less accidents. Mariners should not become overly reliant on technology to make decisions. Mariners should utilize their knowledge and experience with the aid of technology in their decision making process. Mariners should not become robotic in their decision making process as their logic and training is the only thing that prevents shipping from becoming completely autonomous. Humans and machines working together will provide the safest way to ship goods that will minimize marine accidents and prevent losses while saving lives.

Question

Answer

12. Declaration

I hereby declare that this submission is my own work and that it contains no material previously published by another person, or material which has to any substantial extent been taken from any existing project or programme.
