MENTOR AI: REVOLUTIONISING MARITIME TRAINING WITH REAL-TIME, ON-DEMAND LEARNING

In an era where digital transformation is reshaping industries across the globe, the maritime sector, known for its deep-rooted traditions, finds itself on the cusp of a technological revolution, argues Paul Munro, Mintra.

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Seafarers, the lifeblood of global trade, are increasingly encountering a complex, dynamic environment that requires real-time adaptability—both at sea and onshore.

Central to this digital shift is a transformation in how we learn. Today's workforce expects personalised, accessible training, with the ability to acquire critical knowledge precisely when and where it's needed. Artificial intelligence (AI) is rapidly emerging as a game-changer in this evolution. As Innovation Director at Mintra, I believe that AI, and specifically AI chatbots for training, are not just valuable—they are essential for the future of seafarers. The time for AI integration is now.

It is not news to anyone that the maritime industry, with its 1.79 million seafarers, faces a knowledge gap—especially in new domains like automation, decarbonisation, and digitalisation. These gaps are particularly apparent in high-demand areas such as cybersecurity, remote operations, and the handling of alternative fuels like ammonia and hydrogen. The challenge is further compounded by a shortage of recruits, with demand specifically for skilled officers—tens of thousands more will be required by 2026.

This skills shortage necessitates a stronger emphasis on upskilling the current workforce while attracting new talent. The industry must turn to smarter and more scalable technological solutions to enable greater output from less people. In this context, AI chatbots are poised to become indispensable tools, offering efficient, data-driven solutions in real time. The need for speed, accuracy, and timeliness in training has never been more critical.

AI chatbots can serve as on-demand mentors for crews, offering real-time regulatory updates, technical advice, and safety insights, even in the most remote environments. As regulations evolve and scrutiny on safety and environmental compliance intensifies, AI will ensure that crews stay informed, reducing risks and legal exposure.

However, the full benefits of AI chatbots will only be realised with improved connectivity. Currently, the maritime sector struggles with limited access to high-speed, low-latency internet—essential for real-time insights and AI-driven decision-making. Satellite technology, particularly the rising prominence of LEO satellite constellations like Starlink, holds the promise of filling this gap. Yet, complete integration will take time.

Mentor AI: Mintra's solution for the future of maritime

Recognising the unique challenges faced by the maritime industry, Mintra has developed Mentor AI—an intelligent chatbot designed specifically for maritime professionals. Mentor AI bridges the gap in training by offering dependable up-to-date, on-demand, real-time

learning and refresher training to seafarers, no matter where they are located. With the industry constantly evolving, maritime workers must have access to immediate, relevant information, especially in critical situations. Mentor AI addresses this need with its robust set of features and capabilities.

The chatbot is trained exclusively on Mintra's comprehensive safety and compliance content, ensuring it provides accurate and consistent guidance. The content is industry-specific, accredited and factually sound, making it a highly credible and accurate source of knowledge for seafarers.

Designed to serve as a virtual training buddy, Mentor AI provides immediate access to critical information or course refreshers on specific topics. It empowers crews by increasing downtime and enhancing workplace safety. Whether a seafarer needs to check a safety procedure or refresh their knowledge of a technical process, Mentor AI delivers immediate access to the information, available both online and through mobile platforms. This flex-

ibility ensures that seafarers can learn whenever and wherever necessary.

When users ask questions, Mentor AI pulls information from across all the courses within Mintra's knowledge database. The responses are rich in content and include text, videos, or direct links to specific sections of related courses. One standout feature of the system is the "test me" function, which generates a quick 10-question quiz based on the chatbot's knowledge, allowing users to challenge themselves and reinforce their understanding in real time.

To illustrate Mentor AI's practical application, consider the case of John, a seafarer tasked with routine engine maintenance aboard a cargo ship. During an inspection, John identifies an unfamiliar issue with one of the auxiliary engines, a problem not covered in his standard training. Typically, he would either have to complete an entire course to find the necessary information or, worse, continue working by trial and error until the issue is resolved.
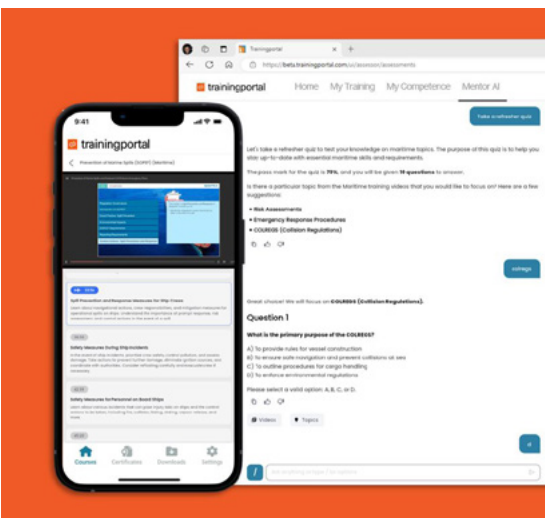
However, with Mentor AI, John can describe the problem to the chatbot and receive immediate, precise guidance. Mentor AI will draw on Mintra's extensive database of industry guidelines and the ship's maintenance history to provide step-by-step instructions, including the required safety precautions and tools. This real-time support allows John to resolve the issue promptly, ensuring smooth engine operation without the need to complete a full course, contact shore-based support, or wait for a response from senior engineers.

Mentor AI offers several advantages and future potential for further improvement. It is available 24/7, ensuring that crews have constant access

to critical information. The AI system also adapts to individual user needs, tailoring its responses and learning paths based on previous interactions and learning progress. Furthermore, given the diversity of maritime crews, Mentor AI supports multiple languages, making it accessible to users from a variety of linguistic backgrounds.

Looking ahead, Mentor AI will continue to evolve. Future enhancements include the integration of predictive analytics to anticipate operational issues before they occur, allowing crews to address problems pre-emptively. As maritime connectivity improves, Mentor AI will also integrate more seamlessly with other ship systems, enabling even more real-time decision-making. Additionally, Mentor AI's natural language processing capabilities will advance, allowing it to handle increasingly sophisticated diagnostics, offer operational advice and resolve complex queries, enabling crews to access support even in the most remote regions of the world.

There is no denying that the maritime industry's future includes AI and enhanced connectivity. AI chatbots, like Mentor AI, will not just be a luxury—they will become a necessity for improving operational efficiency, compliance, and training in this fast-paced, high-stakes industry. At Mintra, we are proud to lead this charge with Mentor AI, helping maritime operators stay ahead of the curve by leveraging AI to solve real-world challenges. As technology continues to advance, so too will Mentor AI, solidifying its role as a critical tool for the future of maritime operations.