



NorthStandard



FAQs

Orca AI

In an era marked by unprecedented advances in maritime technology, it's time for shipping companies to rethink the way they operate their fleets and embrace innovative solutions that drive operational efficiency and cost savings through improved risk management.

As part of our ongoing commitment to delivering exceptional service and groundbreaking solutions, we're introducing a pioneering portfolio of vessel-based technology – designed to support your crew onboard with enhanced situational awareness that takes the vessel's safety and operational efficiency to the next level.

It's why we have partnered with Orca AI.

Q Who are Orca AI?

A The story of Orca AI begins 15 years ago, when co-founders Yarden Gross and Dor Raviv met. They engaged in a discussion about the profound impact autonomy, AI, and computer vision are making on the mobility, satellite, and aviation industries.

Fast forward to 2018, when they founded Orca AI, inspired by the vision to bring the shipping industry to the digital age and to lay the foundation for global adoption of smart, fully autonomous ships. Today, Orca AI is moving fast with a robust team of maritime veterans, computer vision experts, deep learning engineers, creators, and doers, who are all driven by the mission to make ships smarter, to empower industry leaders to rethink shipping operations, and to be a leading force in spearheading the shipping revolution.

Q What are the components of the Orca AI platform?

A The Orca AI platform is made of three main units:

1. A Look-Out-Unit called "SeaPod", made of 5 HD (day) and 3 thermal (night) cameras, which is usually installed on the compass deck, Fore-mast or the Christmas tree, covering 225 degrees day field-of-view and 100 degrees thermal field-of-view.
2. A monitor on the bridge for the crew and a monitor at the Master cabin – both constantly showing what the Look-Out-Unit sees.
3. A dashboard called "FleetView" for the operations team in the office.

Q How does the Orca AI platform work?

A The Orca AI platform works in three main stages:

1. It connects to the mandatory onboard navigation sensors.
2. It integrates them with high-resolution cameras and proprietary AI algorithms to alert the crew on dangerous targets.
3. It prioritises risky targets in real-time and helps to make better decisions in complex navigation situations like congested waters and low visibility.

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FAQs (cont).

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Q Does Orca AI replace the Radar or ECDIS on the bridge?

A No, it doesn't. Radar is the official collision avoidance tool regulated by SOLAS. The Orca AI platform is complementary to the radar and ECDIS and together with them provides full coverage for optimal situational awareness.

Q Is the Orca AI platform approved by regulatory bodies?

A Yes, it is. In February 2022, the Orca AI platform received Product Design Assessment (PDA) certification from the American Bureau of Shipping (ABS) and became the world's first AI-based navigation platform to receive this certification. In addition, Orca AI collaborates with leading-class organisations such as ABS, DNV and LR, to make sure our solutions are constantly reviewed and comply with regulatory requirements.

Q In case of an incident, what is the legal status of recommendations made from the platform?

A The Master of the ship is responsible for all actions and decisions, as with any other system onboard. Orca AI shall conduct constant visual detection and confirmation of marine targets, highlight risks, and prioritise them according to COLREG, yet discretion should be performed by the OOW.

Q Does the platform rely solely on visual inputs received by its computer vision sensors?

A The platform is connected to nine sensors on the vessel: AIS, Radar S-band, Radar X-band, GPS, Gyrocompass, Echo-sounder (depth), rudder angle, Anemometer (wind), and engine RPM. It fuses the information received from the ship's navigation sensors alongside computer vision sensors and AI algorithms.

Q Where is the SeaPod (LOU) installed?

A The SeaPod is installed on the highest point available such as the compass deck, Christmas Tree, or Fore Mast.

Q How many cameras are in the SeaPod (LOU)?

A The SeaPod includes 5 high-resolution day cameras and 3 thermal cameras. Day cameras provide a FOV of 225° and thermal cameras provide a FOV of 100°.

Q Can the platform detect all targets at all distances?

A Yes, it can. The platform can detect floating containers, fishing boats, docking and sailing vessels, motorboats, ferries, navigation hazards, buoys, and whales. The detection range depends on a number of parameters, including the Look-Out-Unit installation height, visibility conditions, size of the target, and ambient temperature.

In most cases, large marine targets can be detected during the day in high visibility conditions up to 8NM. In low visibility conditions, this range is reduced to 0.5-4 NM. In general, the range highly depends on environmental conditions, such as ambient temperature and humidity.

Q Is it safe to install SeaPod (LOU)?

A Yes, it is. Orca AI SeaPod houses low-voltage cameras (24V supplied by the vessel, which is converted into 12V). The system is installed in a safe zone on the compass deck, next to other electronic devices (e.g., Gyrocompass, radar, etc.), without compromising them.

Q Should I be concerned that my crew will look out of the window less and will rely too much on the Orca AI?

A This is a valid concern, but as safety mechanisms evolve, data shows the opposite is true. For example, when public awareness about seat belts grew, drivers did not drive more aggressively – the opposite, they drove with more caution.

The crew is using the system as a decision support system which is complementary to the existing navigational tools and they keep watching outside the bridge and acquiring targets in the Radar and the ECDIS.

FAQs (cont).

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Q Night vision is fully developed after 45 minutes. Does the bridge screen deteriorate night vision?

A The screens for the system onboard the vessel have minimal interference with the crew's biological night vision. The platform allows the user to dim the screen, to dim the video and also provides a dark mode of the entire UI, which works better in low brightness.

Q How does auto-recording of events work and for how long the recording is saved? Can it be used for navigational audits?

A Video recordings are performed automatically according to thresholds set by the office in various congestion-level conditions. These videos are uploaded to the cloud and can be used for navigational audits, or additional investigation. All the relevant event information is accessible including event summaries, videos, and maps.

Q What information is presented in Orca AI FleetView?

A The Orca AI FleetView highlights the fleet's safety and operations KPIs including: safety score trend, top events, distribution of events and recommendations. The user can explore individual events with a playback on ENC (Electronic Navigation Chart), video recording and additional even information. The following event types are constantly logged in the dashboard:

- Sharp manoeuvres
- Heavy weather encounters via pitch and roll
- Close encounters
- Speed drops
- UKC violations

All events can be filtered according to congestion level, location, COLREG and more, in order to create the best-customised dashboard experience.

Q Which types of alerts exist and who get them?

A The Orca AI SeaPod onboard alerts the crew in real time, based on the settings set by the Master. Alerts to the office are based on threshold settings in the Orca AI FleetView, according to the fleet safety policy under different navigation conditions. Events such as extreme rolling and pitching, SOG compliance violations and no-go zones are sent automatically and immediately to the office.

Q How do you ensure data integrity?

A Orca AI has developed a proprietary data pipeline, designed specifically for deprived bandwidth environments onboard. The data is constantly monitored by the platform visibility team, alongside tech-ops specialists and QA.

Q What is the bandwidth requirement to connect to the internet?

A Data requirements are flexible according to the customer's data plan. Most common bandwidth is between 300 Kbps upload and 1 Mbps download, where Orca AI's data consumption impact on download is minimal, and limited to remote software upgrades only, pending the user's approval.

Q How secure is the data collected by the Orca AI platform?

A Orca AI is certified by ISO 27001. The customer's data is confidential and is kept in Orca AI's secured private cloud (VPC). Data transfer is conducted via VPN (Virtual Private Network) and is encrypted both in transit and at rest. Orca AI only uses the data to train the algorithm in an anonymous and aggregated manner.

FAQs (cont).

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Q Is there a risk to the system from spoofing or tapping?

A No there isn't. The system creates information based on relative information received by the cameras and is not dependent on potentially spoofed sensors.

Q Why is NorthStandard partnering with Orca AI?

A Collisions have been a stubborn source of incidents and claims for our members and the club for many years. Degraded situational awareness is a key factor in most of the collisions that the club has analysed. Orca AI's SeaPod supports the bridge team in making sense of the navigational environment around them by enhancing situational awareness. Data shows that the enhanced situational awareness provided by Orca AI SeaPod contributes to fewer close-quarters situations and, as a result, fewer collisions.

Q How does the partnership work?

A NorthStandard members who may be interested in trialling Orca AI can do so at a significantly reduced cost for a limited number of vessels.

For more details please contact colin.gillepsie@north-standard.com

Click [here](#) to learn more about our Get SET! Safety & Efficiency Technologies.