
Autonomy is on the horizon.
ELNAV.AI ensures we
get there safely.

ACHIEVEMENTS

$ 400K IN GRANTS

5 INNOVATION AWARDS

80% OF INTEREST

Partners

Fraunhofer Institute (Germany)

Developing a custom Automatic Speech Recognition system tailored for maritime safety needs.

Axis Communications (Sweden)

Providing cutting-edge camera technology for the Aware Mate project, ensuring high-quality video feeds for AI-driven analysis.

Audeering (Germany)

Partnering on advanced Speech Emotion Recognition technology to monitor and detect cognitive impairment in real-time.

Faculty of Maritime Studies and Split Maritime Pilots (Croatia)

Collaborating for testing and validation of solutions in both simulated and real-world marine environments.

Secure investments and grants

€ 400K SECURED

- **Validation of Potential**:
Funding from reputable institutions demonstrates confidence in ELNAV.AI's innovative solutions.

- **Support for Development:**
These grants and investments enable accelerated development, testing, and commercialization.

- **Strong Financial Foundation:**
Existing funding de-risks further investments, showcasing ELNAV.AI as a secure and scalable opportunity.

European Institute of Innovation and Technology (EIT)

€30,000 Proof of Concept grant for the Helm Order Monitor (September 2021).

Ministry of Economy and Sustainable Development (Croatia)

€142,000 grant for the further development of the Helm Order Monitor project (July 2023).

Ministry of Science and Education (Croatia)

€60,000 Proof of Concept grant for the Aware Mate project (April 2024).

SAFE Investment

Secured funding from Arthur E. Benjamin of Benjamin Investments (USA), further validating the company's vision and potential.

ELNAV AI

THE PROBLEM

75%

of maritime accidents are due to human errors

Mostly due to fatigue, miscommunication, and cognitive impairment.

Understanding the maritime safety gap

At sea, modern ships primarily rely on **autopilot systems** to maintain their course, reducing manual intervention and ensuring smooth sailing over long distances. However, as vessels approach **ports** or navigate through **narrow channels**, the situation becomes significantly more complex:

- A **marine pilot**, an expert in local waterways, boards the ship to guide navigation.
- The pilot issues **helm orders** (spoken instructions) to the helmsman, who manually steers the vessel.
- During these critical moments, **automatic course monitoring** systems are disabled, placing full reliance on manual operations.

This creates two critical challenges:

1. **Outdated Monitoring Systems:** Helm order execution relies on analog instruments designed decades ago, which lack real-time precision and modern functionality.
2. **Fatigue Risks:** The Bridge Navigational Watch Alarm System (BNWAS), implemented 25 years ago, does not provide real-time detection of fatigue, leaving crews vulnerable during night navigation, or prolonged operations.

These outdated systems leave a **critical safety gap**, increasing risks of miscommunication, fatigue-induced errors, and unsafe decision-making in the most demanding navigation phases.

Understanding the maritime safety gap

Challenges with Manual Steering

As a ship nears a port or navigates tight waterways, it shifts from automated navigation to manual control. During this phase, a marine pilot provides guidance, and the helmsman follows spoken helm orders using outdated, analog instruments. These decades-old systems lack modern precision and responsiveness, increasing the risk of steering errors at critical moments.

Cognitive Impairment-Induced Mistakes:

High-pressure maneuvers and demanding communication environments can trigger heightened cognitive strain, resulting in hesitation, delayed decision-making, and erratic responses. Stress, and information overload often exacerbate these impairments, yet no real-time system currently detects them. Although protocols and training provide a foundation of safety, the lack of continuous cognitive monitoring leaves crews vulnerable to critical navigation errors.

Fatigue Vulnerabilities

Fatigue can degrade performance, concentration, and decision-making over time. The Bridge Navigational Watch Alarm System (BNWAS), implemented 25 years ago, does not provide real-time detection of fatigue. Consequently, crews remain susceptible to performance declines due to inadequate rest and long working hours.

What's at stake?

- **Human error** is the leading cause of accidents in maritime and inland waterways industries.

- Risks are amplified by **fatigue, miscommunication, and cognitive impairment**, resulting in:
  - **Significant financial losses** from damages and delays.
  - **Lives at risk** onboard and in surrounding areas.

- Current solutions, like the **Bridge Navigational Watch Alarm System (BNWAS)**, are:
  - **Outdated** and unable to meet modern safety needs.
  - Lacking **real-time monitoring** and **actionable insights**, leaving a critical safety gap.

"While huge strides continue to be made in improving marine safety, human error remains, by far, the most important factor in marine liability claims and losses, according to Allianz Global Corporate & Specialty (AGCS) in its Global Claims Review: Liability in Focus."
MaritimeJournal

"Navigational technology in the maritime industry has not seen major upgrades in the last thirty years."

ELNAV AI

THE SOLUTION

- ✓ Real-time monitoring
- ✓ Seamless integration with existing systems
- ✓ Non-intrusive technology ensuring privacy

Aware Mate

AI-Powered Fatigue & Distraction Detection

An advanced AI-driven solution that detects fatigue and distraction in real-time, improving crew performance and filling the gaps left by legacy systems like BNWAS.

Aware Mate®

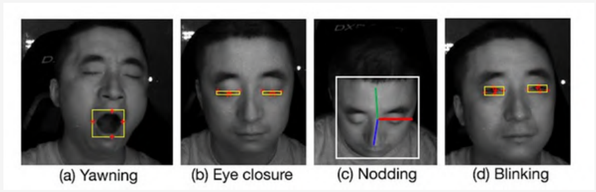
Helm Order Monitor

Real-Time Verbal Commands Validation and Safety Alerts

A cutting-edge system ensuring precise execution of helm orders, reducing miscommunication risks, and enhancing safety during manual navigation.

HELM ORDER H⊙M® MONITOR

AWARE MATE



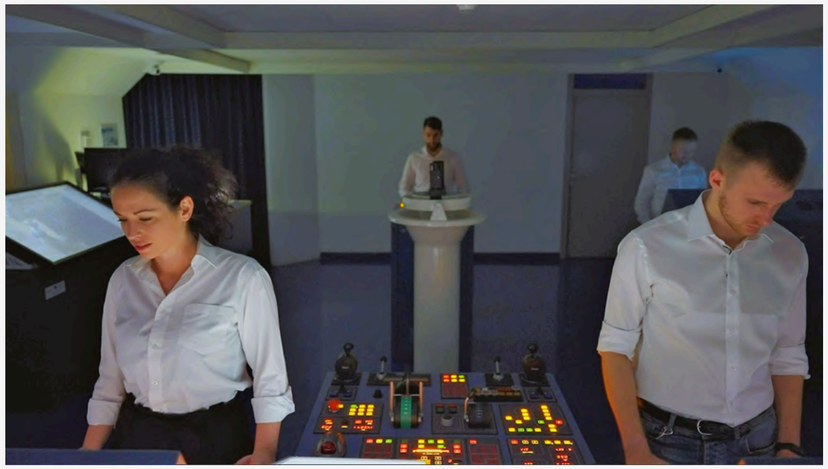
Key features:

- AI-Driven fatigue detection:
  - Monitors facial and eye features in real-time to identify fatigue signs.
  - Employs PERCLOS to measure eyelid closure percentages for precision.
- AI-Driven cognitive monitoring:
  - Tracks cognitive impairment through biometric indicators.
  - Enables deeper insights into performance and situational awareness.
- Seamless integration:
  - Fully compatible with existing Bridge Navigational Watch Alarm Systems (BNWAS).
  - Functions as a standalone solution or integrates smoothly with legacy systems.
- Privacy assurance:
  - Operates offline, ensuring no personal data leaves the vessel.

Technology:

- RETINA FACE NETWORK: For accurate facial recognition.
- SHUFFLENET V2: For detecting patterns in real-time.
- PERCLOS: For monitoring eyelid closure percentages.

HELM ORDER MONITOR



Key features:

- Automatic Speech Recognition (ASR):
  - Verifies helm orders against actual rudder movements in real time.
  - Functions effectively even in noisy environments.
- Speech Emotion Recognition (SER):
  - Monitors bridge personnel for cognitive impairments.
  - Issues alerts when unsafe levels are detected.
- Real-Time Alerts:
  - Immediate notifications for miscommunication or operational issues.
  - Includes automated alerts unavailable in manual steering mode.
- Language Barrier Solutions:
  - Focus on clear English pronunciation to ease communication.

Technology partners:

- Kraken Beamforming Microphones: Custom-made in Germany by Fraunhofer IDMT – HSA branch.
- Marine Computers: Developed in Norway by Hatteland for demanding maritime conditions.

What’s sets us apart?

- **Comprehensive solution:** Unlike competitors, ELNAV.AI integrates multiple safety dimensions (fatigue monitoring, speech recognition, cognitive state monitoring, and predictive safety) into a single, user-friendly system tailored for the maritime industry.

- **Advanced AI capabilities: Aware Mate** leverages cutting-edge AI and video detection to deliver real-time, non-intrusive fatigue, distraction, and cognitive impairment monitoring, unmatched in reliability and ease of use.

- **Strategic partnerships:** Collaborations with leading technology institutions ensure access to state-of-the-art innovations, enhancing our competitive edge.

ELNAV AI

THE MARKET

- ✓ The global maritime and inland waterways industry comprises **178,000 commercial vessels.**
- ✓ The Maritime AI market is projected to grow at a 23% **CAGR.**

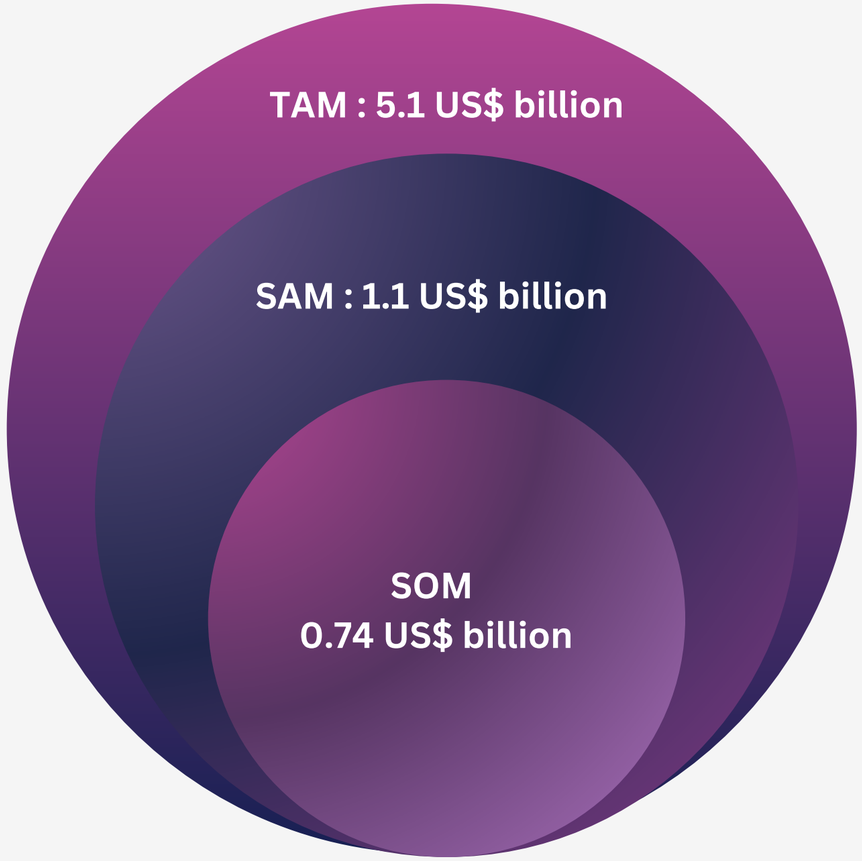
GROWING MARKET

178 000 commercial vessels

- 93,000 commercial sea ships
- 85,000 commercial river ships

Global focus, with initial targeting of **high-traffic shipping routes and ports.**

The **Maritime AI market**, relevant to ELNAV.AI's products, is expected to grow at a **CAGR of 23%,** reflecting increased demand for innovative and regulatory-compliant solutions.



TARGET MARKETS

Shipping companies
(Helm Order Monitor & Aware Mate)

- Operators and managers of fleets with a vested interest in improving safety and reducing risks.

- Benefits:
  - Enhanced compliance with industry regulations.
  - Reduced accident risks and associated costs.
  - Differentiation in a competitive market by prioritizing safety.

Key customer profile :
Large multinational shipping companies.

Training centers for seafarers
(Helm Order Monitor)

- Maritime universities, private institutions, and public training centers worldwide.

- Benefits:
  - Provides realistic tools for navigational training.
  - Prepares seafarers for real-world scenarios, improving safety across the industry.

Key customer profile :
Training institutions with investments in maritime safety systems.

MARKET DRIVERS

Increasing regulatory requirements for safety

Adoption of advanced technologies in maritime operations

Growing awareness of human factors in maritime safety

SWOT ANALYSIS

STRENGTHS

- Advanced fatigue detection and helm order validation technology.
- Comprehensive, AI-driven solutions addressing multiple safety gaps.
- Strong expertise in maritime operations and AI integration.
- High interest and traction from key stakeholders

WEAKNESSES

- Dependence on initial funding for scaling.
- Ongoing need for updates and compliance certification.
- Resistance to adopting new technologies among some stakeholders.

OPPORTUNITIES

- Growing regulatory focus on maritime safety and human factors.
- Expansion into training markets and adjacent sectors like aviation and road transport.
- Rising demand for AI-driven and real-time safety technologies globally.

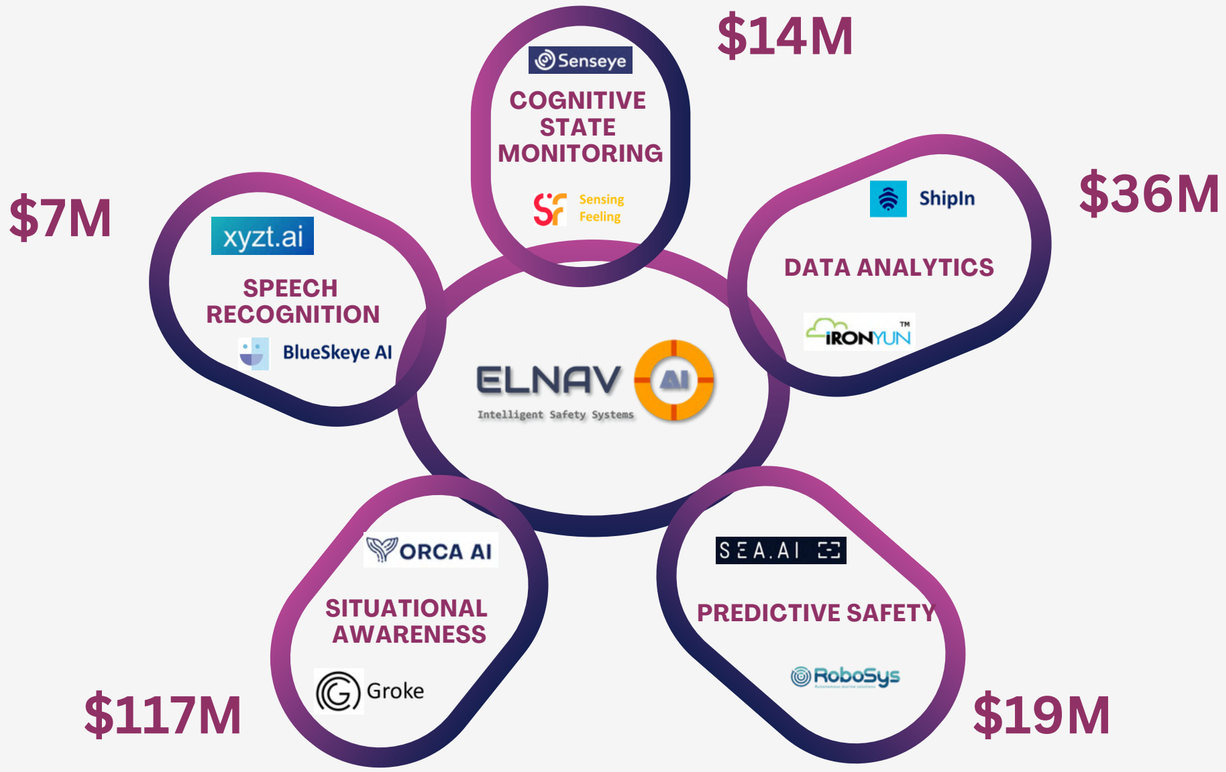
THREATS

- Market resistance and cost concerns from shipping companies.
- Technological competition and potential system failures.
- Lengthy regulatory approval processes and cybersecurity risks.

Competitor valuations and fundraising insights

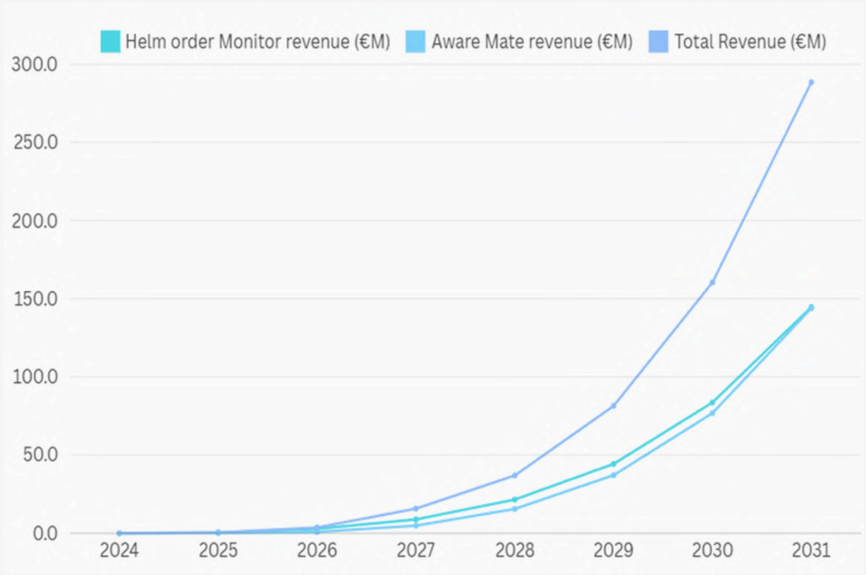
The maritime safety sector is attracting significant investment, with specialized solutions addressing narrow aspects of safety.

However, no single competitor integrates technologies across **fatigue & distraction detection, speech recognition, cognitive state monitoring, and predictive safety** like ELNAV.AI.



By offering a platform that combines the strengths of these verticals, ELNAV.AI is uniquely positioned to **outpace standalone competitors** in both valuation and market adoption.

Business Model



Direct sales subscriptions

Annual subsciption fees per vessel for real-time monitoring

Revenue streams

Support and software updates

Customer lifetime value (CLV)

€ 11.000 - € 11.500 per vessel

THE TEAM

Hrvoje Mihovilović

Founder & CEO
With 30 years of maritime experience, Hrvoje oversees the company's strategic direction and operations

Ivan Biliškov

CTO
An expert in computer vision and deep learning, Ivan leads the technological development of Aware Mate

Mislav Biondić

Marketing advisor
Specializes in marketing strategies and business development.

ROADMAP

2021

Problem definition & research

2022

Technology validation

2023 - 2024

Prototype development

2025

Q3 Pilot implementation - Marine testing

Q4 Regulatory compliance & certification (DNV)

2026

Market launch

Scale & optimize

Go-to-market strategy : Partnerships

- **Shipping companies:**
  - Collaborate directly to facilitate the adoption and integration of Aware Mate and Helm Order Monitor across fleets.

- **Maritime regulatory bodies:**
  - Work with organizations like the International Maritime Organization (IMO) and regional authorities to advocate for our solutions as industry standards.

- **Educational institutions:**
  - Partner with maritime academies and training centers to integrate our technologies into educational programs, fostering early adoption among future professionals.

Go-to-market strategy : Regulatory and compliance

- **Certification:**
  - Obtain necessary certifications from maritime safety authorities, including **Det Norske Veritas (DNV).**

- **Compliance:**
  - Ensure adherence to international maritime safety regulations, including the new EU AI Act, facilitating smoother adoption.

- **Data Privacy:**
  - Implement stringent data privacy measures to protect crew members' information and comply with GDPR, and global privacy laws.

Go-to-market strategy : Marketing and sales

- **Digital marketing strategies:**
  - SEO optimization: Enhance online visibility to reach maritime professionals searching for safety solutions.
  - Social media engagement: Utilize platforms like LinkedIn and industry-specific forums to connect with key decision-makers.
  - Targeted online advertising: Deploy precision-targeted ads to reach maritime professionals globally.

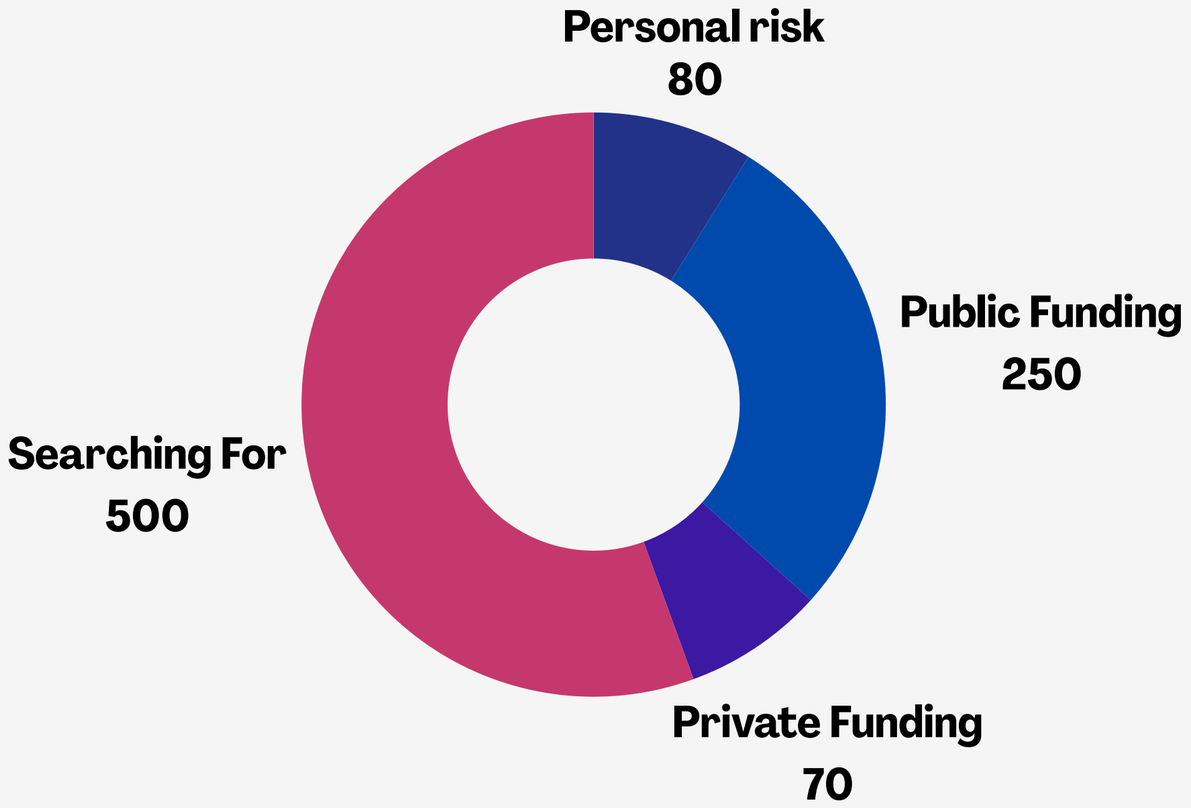
- **Events and demonstrations:**
  - Maritime expos and conferences: Present our products at major industry events to showcase their effectiveness and network with potential clients.
  - Live ship demonstrations: Conduct onboard demonstrations to exhibit seamless integration and real-world benefits.

Seed investment

900.000€

45% committed

- ✓ Product certification
- ✓ Marketing activities
- ✓ Commercialisation



Captain with over 30 years of maritime expertise

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