

**TECH OFFER**

## AI Platform for Maritime Carbon Compliance and Operational Efficiency



### KEY INFORMATION

TECHNOLOGY CATEGORY:

**Sustainability** - Low Carbon Economy

**Logistics** - Transportation

**Infocomm** - Natural Language Processing & Semantic  
Technology

**Infocomm** - Artificial Intelligence

TECHNOLOGY READINESS LEVEL (TRL): **TRL9**

COUNTRY: **SOUTH KOREA**

ID NUMBER: **TO175231**

### OVERVIEW

Maritime carbon emissions are a significant contributor global climate change. The maritime industry faces increasing pressure to comply with stringent carbon emissions regulations from entities like the European Union (EU) and the International Maritime Organization (IMO). Traditional compliance methods are often manual, time-consuming, and prone to errors, leading to increased operational costs and the risk of hefty non-compliance penalties.

This technology is an artificial intelligence (AI) powered platform that automates data collection, emissions calculation, and regulatory reporting for maritime carbon compliance. Seamlessly integrating with existing vessel data systems, it utilizes advanced machine learning algorithms to provide real-time tracking of carbon emissions and Carbon Intensity Indicator (CII) performance across entire fleets. The AI-platform also automates the parsing and extraction of data from various document

formats using cutting-edge natural language processing (NLP) and machine learning technologies, adapting to unstructured and semi-structured data without the need for predefined templates.

The technology owner is interested to work with Singapore companies in the maritime sector to testbed the technology and support activities on effective carbon footprint management. The team is also seeking co-development projects on the proprietary AI platform for automated document processing and data extraction across various industries.

## TECHNOLOGY FEATURES & SPECIFICATIONS

This patent-pending technology is an AI-powered data collection and processing system capable of handling various data formats from ship operations.

Features of this platform for include:

- **Automated Data Integration:** Connects with various vessel data sources to extract operational and fuel consumption data without manual input
- **Advanced Emissions Analytics:** Calculates emissions in real-time, adhering to EU ETS, IMO DCS, and CII standards
- **EUA Management Module:** Simplifies the handling of EU Allowances transactions
- **Predictive Modelling:** Uses machine learning to forecast emissions and CII ratings based on operational changes
- **API Accessibility:** Provides RESTful APIs for seamless integration with existing enterprise systems
- **Robust Security:** Ensures data protection through encryption and compliance with international data regulations
- **Scalability:** Designed to accommodate fleets of all sizes with customizable features

Additional features of the AI document parsing component include:

- **Versatile Data Handling:** Processes PDFs, images, handwritten text, and speech-to-text conversions
- **Advanced NLP Algorithms:** Understands context to extract relevant data accurately
- **Machine Learning Adaptability:** Learns from each document to improve over time
- **Security Compliance:** Meets GDPR standards with end-to-end encryption
- **API Integration:** Easily connects with ERP, CRM, and other enterprise systems
- **User-Friendly Dashboard:** Allows for easy monitoring and management without technical expertise

## POTENTIAL APPLICATIONS

This technology can be deployed by stakeholders in the maritime sector including (but not limited to):

- **Global Shipping Operations:** Streamlining compliance for vessels operating in international waters
- **Fleet Management:** Enhancing operational efficiency and sustainability across entire fleets
- **Regulatory Agencies:** Assisting in monitoring and enforcing emissions regulations
- **Maritime Logistics Firms:** Integrating emissions data for comprehensive supply chain management

The AI document parsing technology is also suitable for adjacent sectors such as:

- **Financial Services:** Automating loan applications, compliance documents, and financial reporting
- **Healthcare:** Streamlining patient data entry, billing, and insurance claims
- **Legal Industry:** Simplifying contract analysis and due diligence processes
- **Supply Chain Management:** Enhancing data accuracy in inventory and shipping documentation

## UNIQUE VALUE PROPOSITION

- **Holistic Solution:** Integrates compliance management with operational optimization in one platform and eliminates the need for manual template creation, saving time and resources
- **Real-Time Monitoring:** Empowers companies to make immediate adjustments to stay compliant with quick integration into existing systems
- **User-Friendly Interface:** Simplifies complex regulatory requirements into actionable insights and capable of handling industry-specific documents with minimal customization