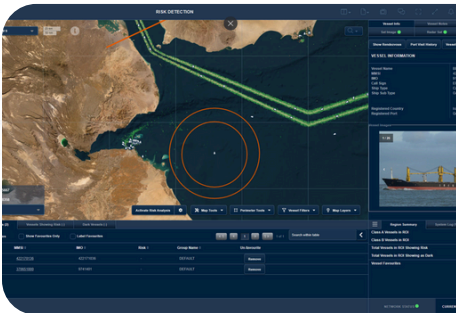# OCIANA®: PREDICTING MARITIME THREATS AND OPTIMISING MARITIME OPERATIONS USING ADVANCED AI

Global Spatial Technology Solutions Inc. (GSTS) is a 100% Canadian-owned, maritime AI company, headquartered in Montreal, at the forefront of maritime situational awareness, prediction and optimisation.
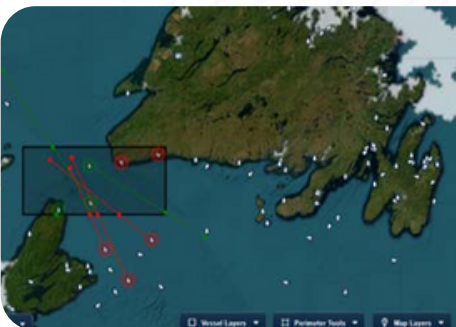
Our flagship platform, OCIANA® fuses real-time data sources and harnesses custom-engineered AI algorithms to provide comprehensive risk prediction and optimisation capabilities. We help naval defence, maritime security and supply chain organisations respond proactively to emerging risks and to optimise their maritime operations.

OCIANA®: A DUAL-USE COMMERCIAL PLATFORM

Defence & Security Use Cases

- On-ship and on shore: continuous and persistent maritime domain awareness and risk prediction
- Advanced geofences and pattern of life analytics enable proactive threat response while improving high-value asset utilization
- Dark vessel detection, shadow fleet tracking and suspicious vessel behaviour profiling

Supply Chain Use Cases

- Optimising port operations, and asset utilisation, including advanced anchorage forecasting and berth optimisation
- Advanced vessel tracking, emissions tracking, long-range estimated-time-arrival, route and fuel optimisation
- World's first Collaborative Optimisation Solution to transform maritime operations across stakeholder groups

GSTS®
Navigate Tomorrow Today

A NEW OPPORTUNITY FOR PROACTIVE THREAT DETECTION

Geo-political and climate volatility increasingly threaten maritime security, economics and the environment including:

- Threats from shadow fleets, dark vessel and suspicious vessel behaviour
- Critical maritime infrastructure - from undersea cables to offshore wind farms are under increasing threat
- Smuggling and illegal, unreported and unregulated fishing (IUU) increasingly threaten global trade and security
- Increased traffic, environmental risks and technological limitations in the Arctic region

Traditional aerial, ship and space based surveillance methods have several limitations, including persistence and cost.

THE OCIANA® SOLUTION

OCIANA® Risk Manager offers unprecedented surveillance and risk prediction capabilities:

- Fuses multiple data sets, Radar, Satellite AIS, Radio Frequency, Optical and Oceanographic, to provide persistent, continuous monitoring of the entire maritime domain in real-time
- Proprietary AI algorithms include advanced pattern-of-life analytics to identify dark and suspicious vessel behaviour, advanced rendezvous and path prediction, among several others, to provide proactive threat detection and mitigation response
- Provides decision support intelligence to improve aerial and ship-based asset utilisation and reduce surveillance costs while expanding surveillance capabilities

Dark Vessel Detection and Behaviour Profiling

- AI-powered behavioural analysis predicts deviations indicative of dark or suspicious vessel activity before manual detection is possible

Predictive Identification of Security Threats

- AI-powered geofences, rendezvous and path prediction to identify potential threats proactively
- Sanctions violations risk monitoring

Advanced Multi-Factor Threat Modeling

- AI-powered analysis of vessel traffic patterns using real-time AIS, historical port visit history, and anomaly detection

Enhanced Arctic Surveillance

- Supporting safe and efficient operations in challenging Arctic regions, addressing unique risks like extreme weather and ice navigation
- Creation of a common operating picture for stakeholders to share real-time data and insights, enhancing decision-making in high-risk areas

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OCIANA® DIFFERENTIATORS

SCALABLE PLATFORM

Proven commercial interest and market traction in global maritime defence, security and supply chains:

- Ability to integrate into existing ISR, CMS, C2 and PMIS systems
- Ability to integrate and fuse new data sources
- Exceptional user experience, validated across two NATO customers including the Royal Canadian Navy
- Used extensively by Transport Canada, port and pilotage customers across Canada

ESTABLISHED INNOVATION TRACK RECORD

Since 2019, we have invested over $20M in R&D, and have developed transformative maritime solutions using AI. Currently, we have 6 global patents (granted and pending), 23 trade secrets.

NATIVE AI CAPABILITIES

Exceptional data science capabilities, with custom AI models including:

- Path prediction using improved Convolutional Neural Networks
- Dark Vessel detection using improved computer vision algorithms
- Pattern of life and vessel profile analytics using improved neural network architectures and geospatial analysis
- Rendezvous detection using hybrid neural network models
- Proprietary data cleaning and fusion methods

OUR CUSTOMERS AND COLLABORATORS

Contact us at: sales@gsts.ca

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