

MARITIME SITUATIONAL AWARENESS SYSTEM (MSAS)

Safeguarding territorial waters with actionable maritime intelligence



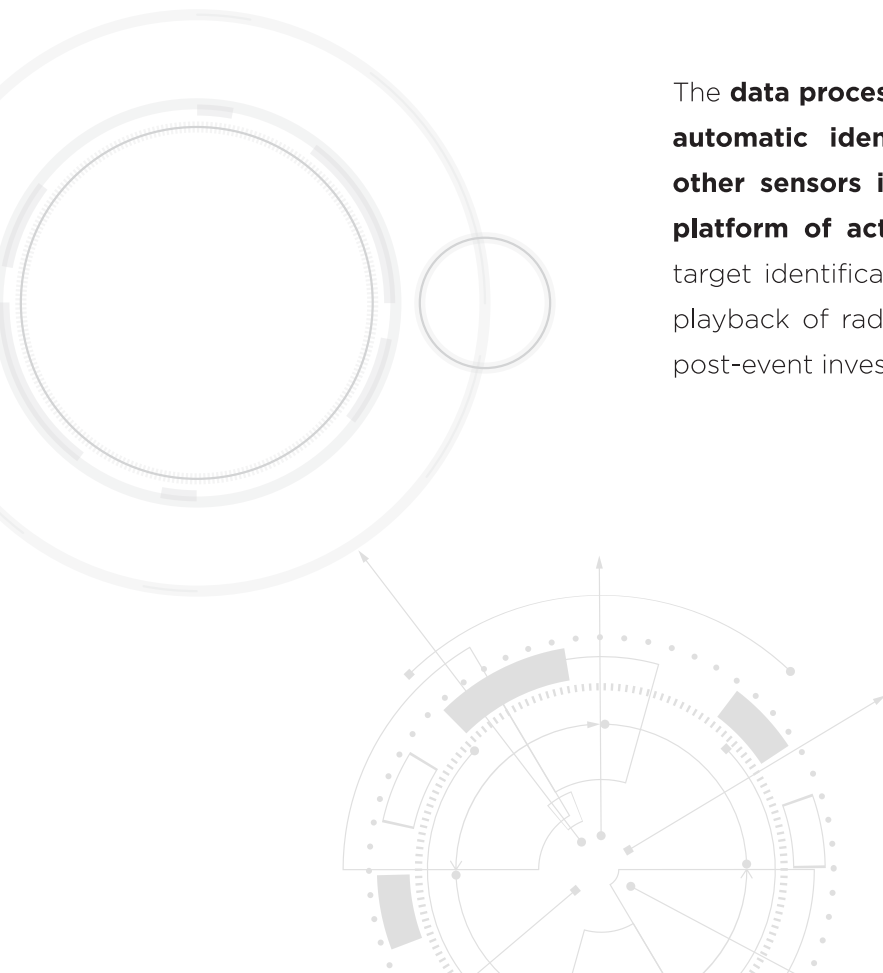
THE COMPLETE SITUATIONAL AWARENESS PICTURE

Through **smart mobility tracking, data fusion and behavioural analytics** of our Maritime Situational Awareness Solution (MSAS), we are obsessed with a deep sense of purpose to **enhance maritime security in real-time, maximise surveillance capabilities and increase operational efficiencies.**

With **artificial intelligence** and **experiential thinking**, we have **effected several maritime and coastal environments globally.**

MSAS detects **small, fast-moving vessels in highly cluttered environments** proven difficult for most maritime trackers, maximising assets through enhancing existing conventional radars into surveillance-capable radars.

The **data processing and fusion of multiple radar tracks, automatic identification system (AIS), cameras and other sensors information put together an integrated platform of actionable surveillance intelligence.** Upon target identification, automatic activation, recording and playback of radar tracks and camera footages allow for post-event investigation.



DEPLOYMENTS



Navies, Coast Guards,
Maritime Police Vessels



Navies, Coast Guards, Maritime
Police Command and Control
Centre (C2)

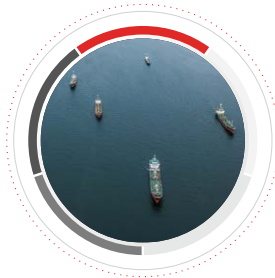


Ports, Harbours and
Terminals

APPLICATIONS



Border security
and control



Area and vessel
monitoring



Assist in search and
rescue



Assist in detection of
illegal activities such as
smuggling, trafficking,
illegal immigration,
illegal fishing

KEY BENEFITS AT A GLANCE



Heighten situational awareness
and surveillance capability



Allow for top-level decision making
and communications



Increase response time with
better-directed actionable intelligence



Post-event incident reporting
and investigation



Lean and optimised
manpower deployment

SINGLE INTEGRATED UNIFIED PLATFORM ACROSS COMMAND AND CONTROL CENTRE (C2), COASTAL AND MOBILE STATIONS

Coastal & Mobile Stations

MSAS can be installed across all radar and surveillance systems on coastal stations and patrol vessels.



Navigation Radar



AIS & Sensors Proxy



Surveillance Camera



Satellite Compass



- Shipboard Application Display (local display)
- Mobile Application Display (tablet)



MSAS Processing Unit

Command And Control Centre

- Front-end Application Display



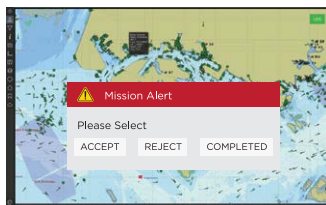
4G Network



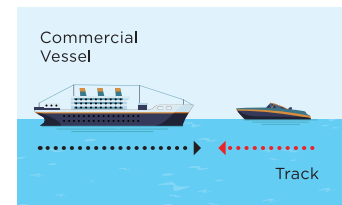
MSAS C2 System (with multi-sensor fusion)

Plug-and-play modules in MSAS:

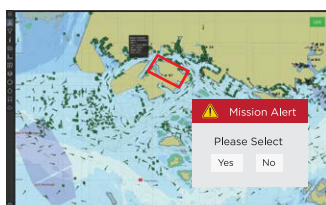
Mission Handling Module
Command And Control Centre



Behavioural Analysis Module
Automatically identify collision risks or suspicious vessels



Traffic Analysis System (TAS)
Monitor and regulate traffic rules in area of interest.

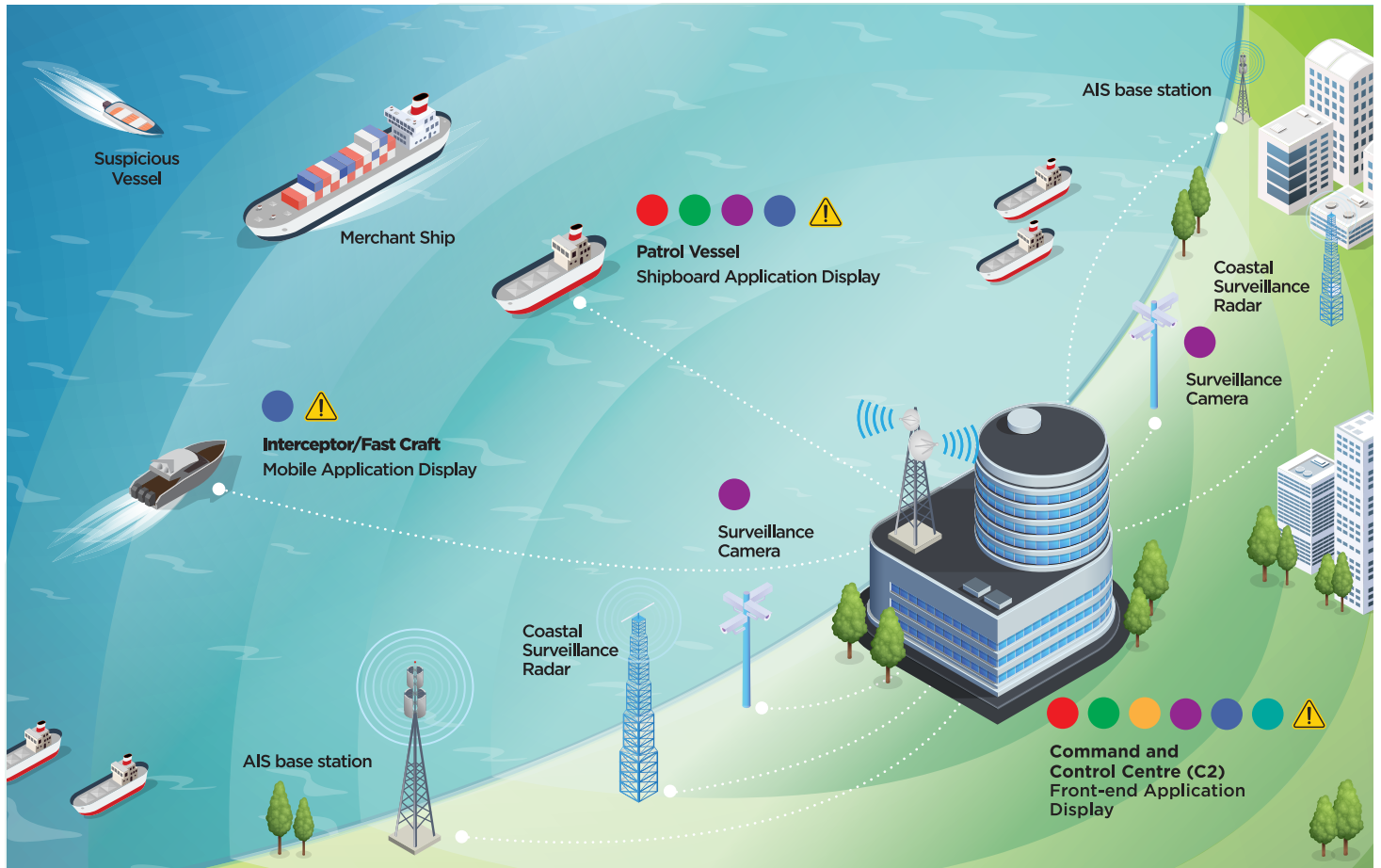


Video Management System
Management of CCTV footages for post-event investigation



NEXT-GENERATION TECHNOLOGY FOR MARITIME SITUATIONAL AWARENESS

Integrated surveillance information provides a full seamless picture of situational awareness, enabling fast instruction and information exchange between C2 centres, coastal sites and patrol vessels for timely mission handling.



- **Enhanced Maritime Radar**
Conventional coastal and shipborne radars are enhanced to detect small targets of interests.
- **Behavioural Analysis**
Suspicious activities identified trigger alerts at C2 centre, patrol vessels and even on hand-held tablets.
- **Data Fusion of Multiple Sensors**
Coastal and shipborne radars, satellite compass, AIS and cameras information are fused at C2 centre.
- **Camera Tracking**
Integration with cameras allows automatic recording and playback of footages for evidence and investigation.
- **Mission Handling**
Dispatch mobile vessels to a specific location to accomplish missions.
- **Traffic Analysis**
Monitor and track vessel movements and safeguard sensitive sites.
- ⚠
Alerts
C2 centres, patrol vessels and interceptors/fast crafts receive alerts at the same time.

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