



NATO Naval Armaments Group

“Counter-piracy equipment and technologies” workshop

NATO HQ, Brussels – 04JUN09

# “Distributed Situation Awareness: the counter piracy solution”

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- operational analysis
- the counter piracy solution:
  - Distributed Situation Awareness
  - proposed solution
  - technology supporting DSA
- conclusions

# Comments from the last CJOS COE 2009 Maritime Security conference



- Maritime Security initiatives and systems
- no UN Organization currently in the position to lead across all domains
- achievement of persistent deterrence and prevention
- commercial shipping and coalition operations
- standard planning and management framework for MS
- constructive engagement and cooperation

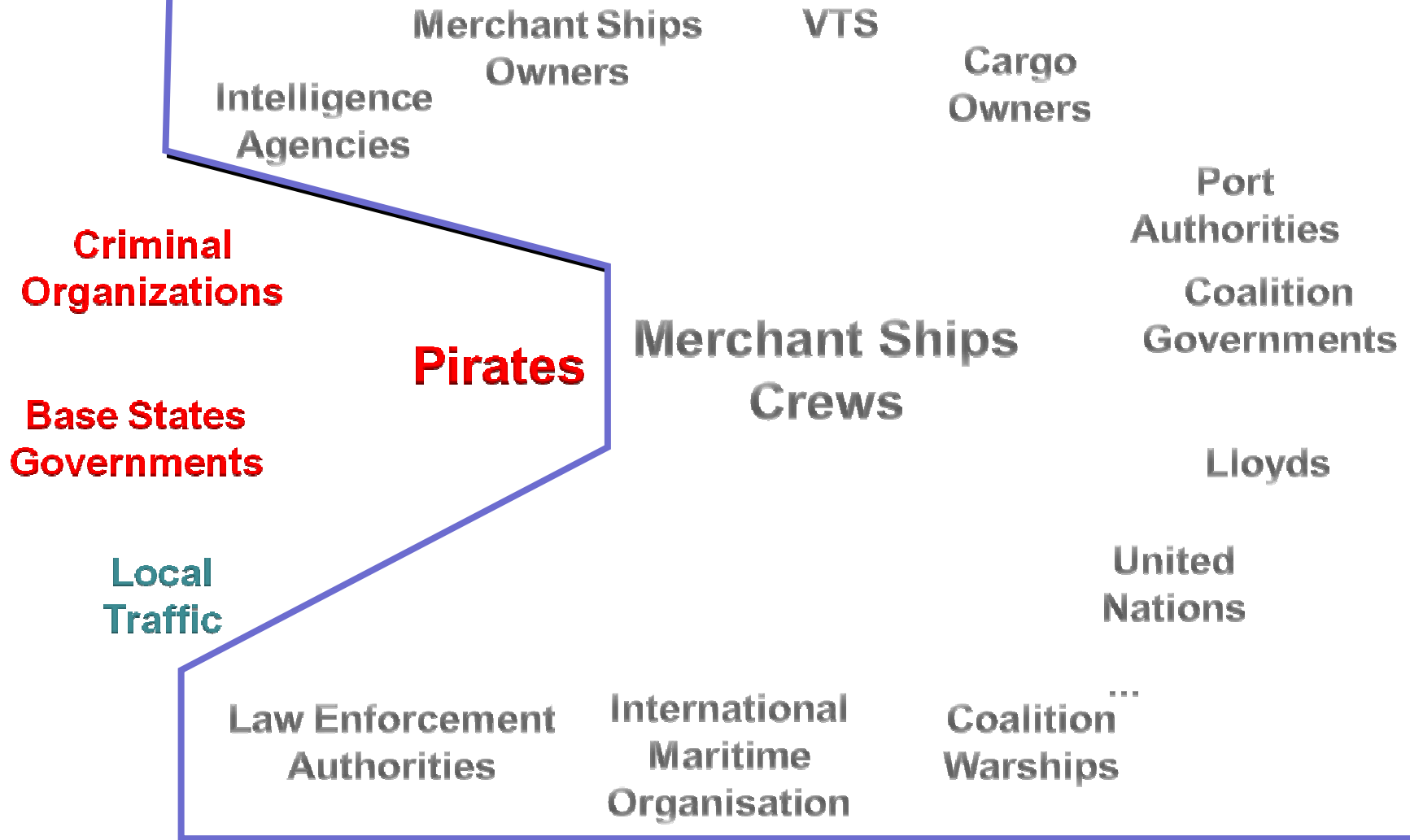
- choke-points / increasing distance from shore (mother-ships support)
- hiding among the fishing traffic until reached a suitable distance, then speeding up
- high-speed skiffs
- limited-range lethal weapons
- attack performed in line-of-sight
- boarding through Pilot's ladder, lines, rigid aluminum ladders

- NOT recommended by most players:
  - the use of security personnel on board
  - placing military systems/weapons/soldiers/armed security guards on board the ships
- presence of Coalition Navies in the dangerous zones is seen as fundamental

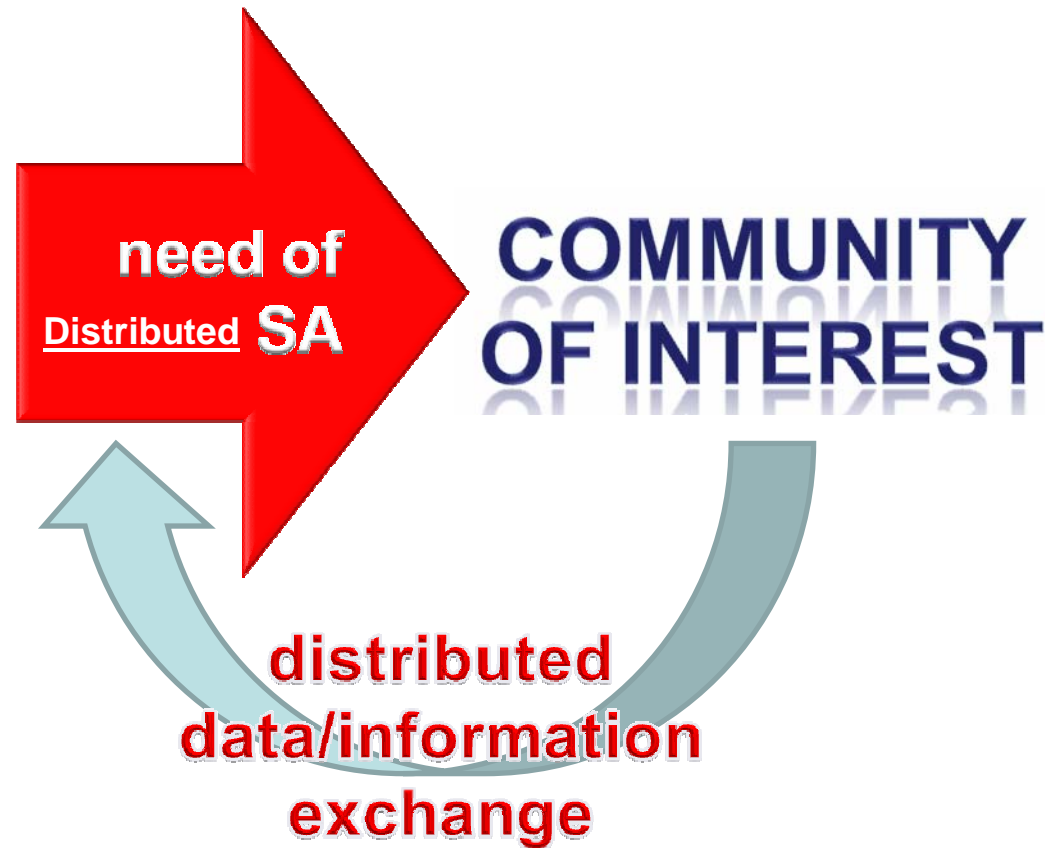
**surveillance system**  
**with (optional) non-lethal  
defensive capability**

on board surveillance and non-lethal defensive systems aim **to complement** the protection offered by the presence of navy ships, not to replace it

## COMMUNITY OF INTEREST



- **complexity of operations**
- **heterogeneous attributes**
- **distributed assets**
- **man-in-the-loop**
- **collaborative attitude**



# operational analysis

## Piracy Protection System requirements

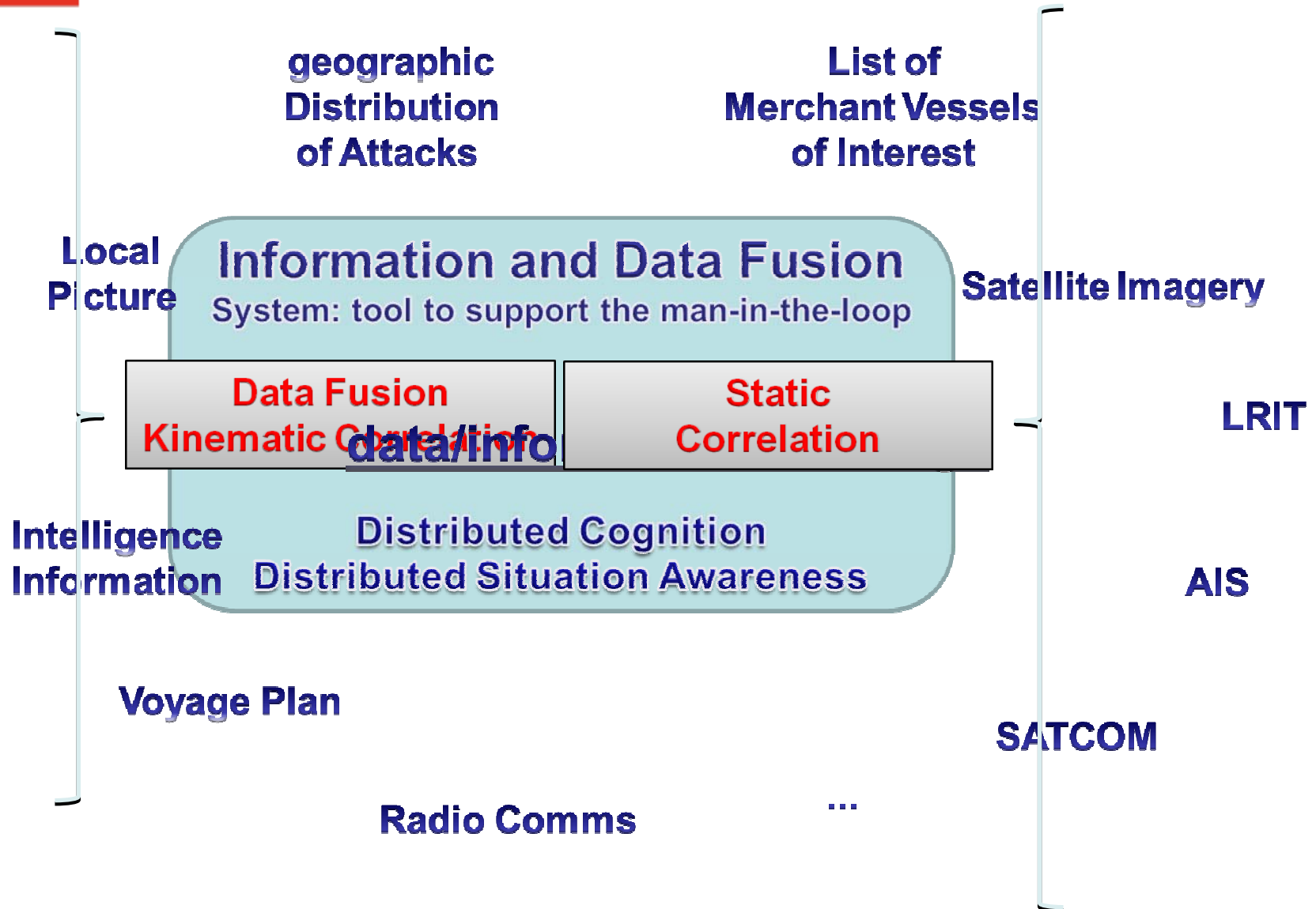
- matching of heterogeneous data/information
- coordination of the different players
- User-friendly HCI to ease the achievement of Situational Awareness as well as supporting the Man-in-the-loop assessment
- automated threat evaluation
- integrated (local and remote) direction of subsystems (cueing collectors, directing effectors)
- automated recommendation and implementation of deterring/protection measures
- automated issue of request for intervention



# Distributed Situation Awareness definition

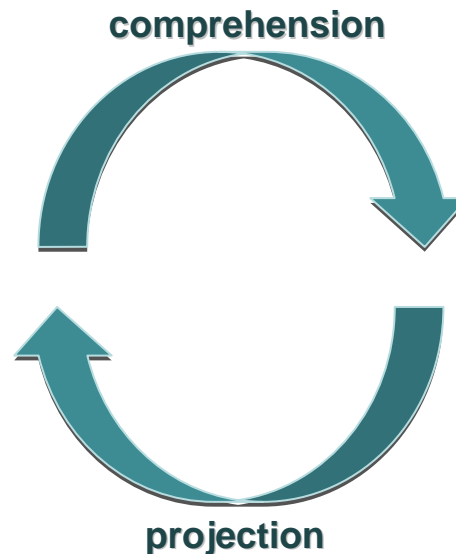
- **Situation Awareness** is the **Perception** of the Elements in the Environment within a Volume of Time and Space, the **Comprehension** of their Meaning, and the **Projection** of their Status in the Near Future. (Endsley, 1988)
- **Distributed Situation Awareness** (within the **Community of Interest**) is supported by the achievement of a **Distributed Cognition**.
- **DSA** supports the **Coordination** of the **COI Players**.

# Distributed Situation Awareness Perception



## Merchant Ships

- **local picture**

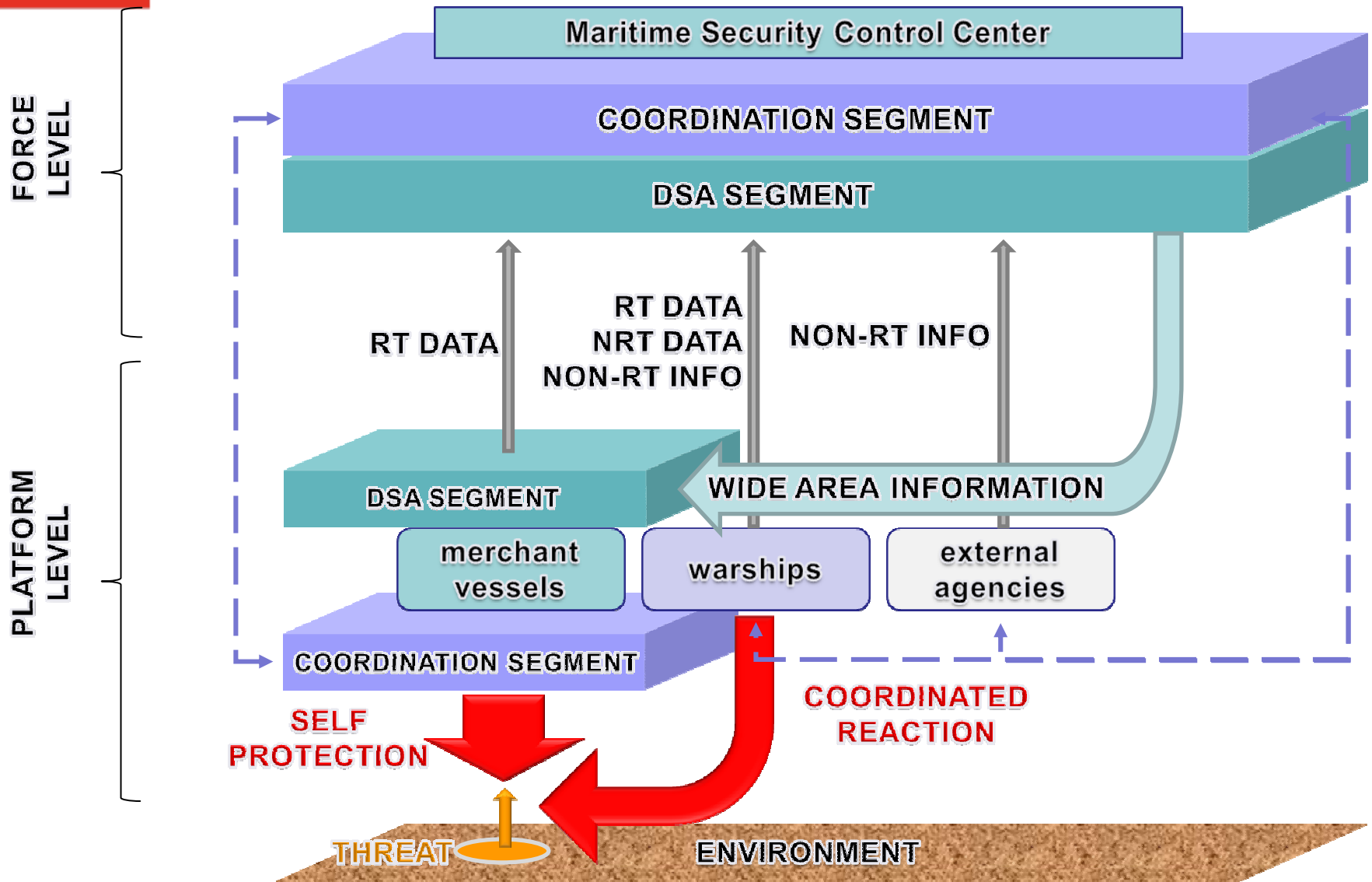


## Maritime Security Control Center

- **wide area picture**
- **early warning**
- **coordination of  
intervening forces**

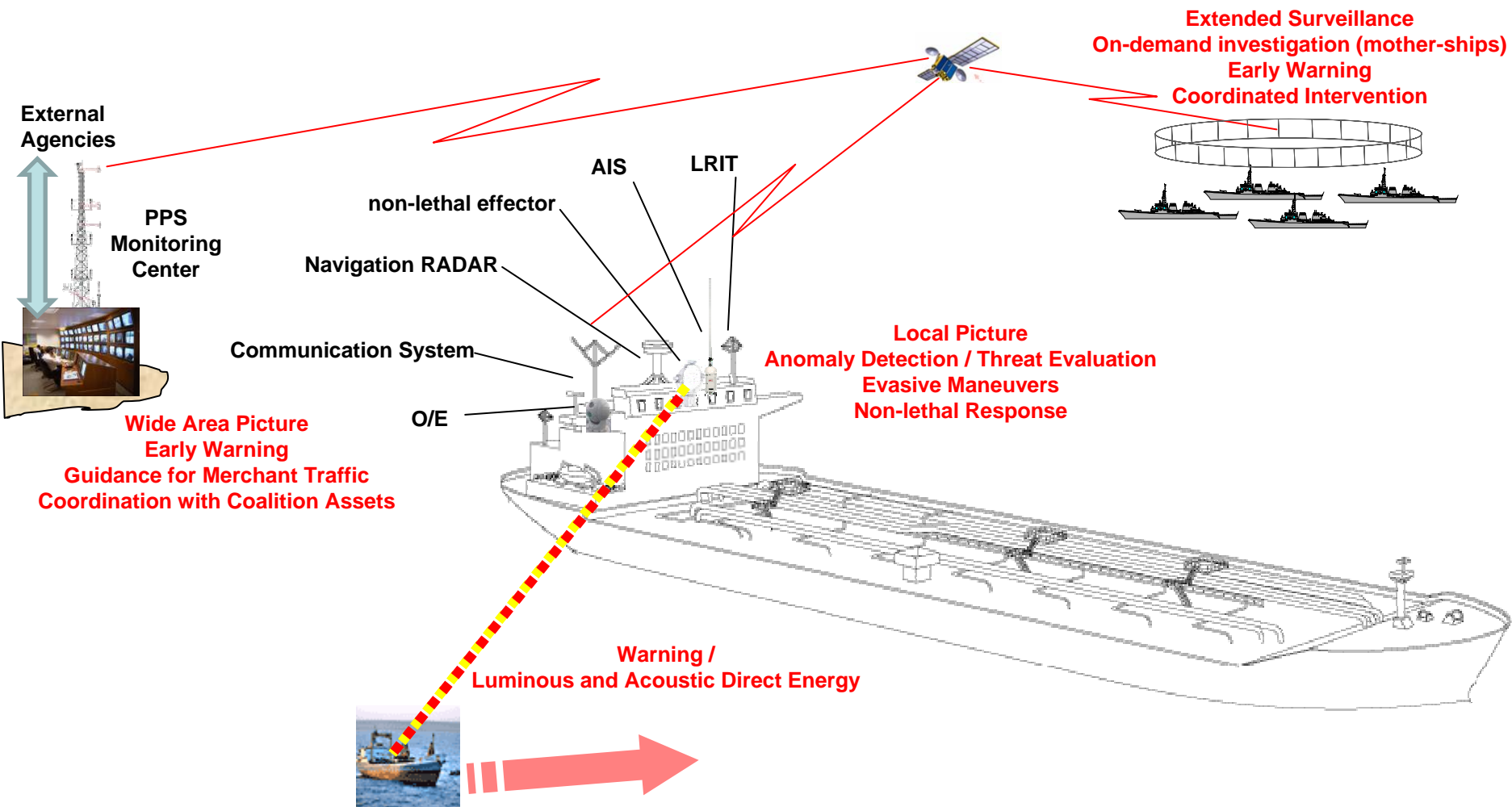
# Distributed Situation Awareness

## distributed cognition and coordination



# the counter piracy solution

## Piracy Protection System concept



- Harmonisation of existing initiatives
- Networking Infrastructure:
  - Architecture
  - Connectivity
  - Coverage
  - Classification level
- Investment:
  - System
  - Communications
- Changes to the legal frameworks
- Diplomatic issues related to building up the System operational environment

- awareness of the issue of Maritime Security
- openness and availability to any form of collaboration in support of Maritime Security
- experience and available technologies:
  - Sensors and Situation Awareness systems
  - proven architectural backbone for system integration
  - openness of architectures
  - flexible customization

**worldwide qualified Company with respect  
to Maritime Security**



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