

MARSO

COIII
magic components

彼岸 PEI PORT

RST
THE RADAR COMPANY

Trixy Aviation



Four best-in-class companies have joined their knowledge and experience to create an efficient and affordable

Manned
Airborne
Rreal-time
Surveillance &
Observation

System

The system is , therefore , simply called:

MARSO

The four best-in-class companies welcoming you to this presentation are:

in alphabetic order



The German company M4COM
is a software company involved in the development of challenging solutions for geo-data visualisation, distribution and processing in dispersed environments.



The Hong Kong based company PEI PORT
with its large manufacturing facilities in China is a developer and manufacturer of optical surveillance and observation equipment.



The German/Swiss group RST
develops and manufactures radar technologies using synthetic aperture radar (SAR) and ground penetration radar (GPR) for space missions, aviation and flight safety.



The Austrian/Slovene company Trixy Aviation
is an innovative developer and manufacturer of light aircrafts (gyrocopters).

The MARSO System is a versatile surveillance system for a wide range of missions covering anything ...

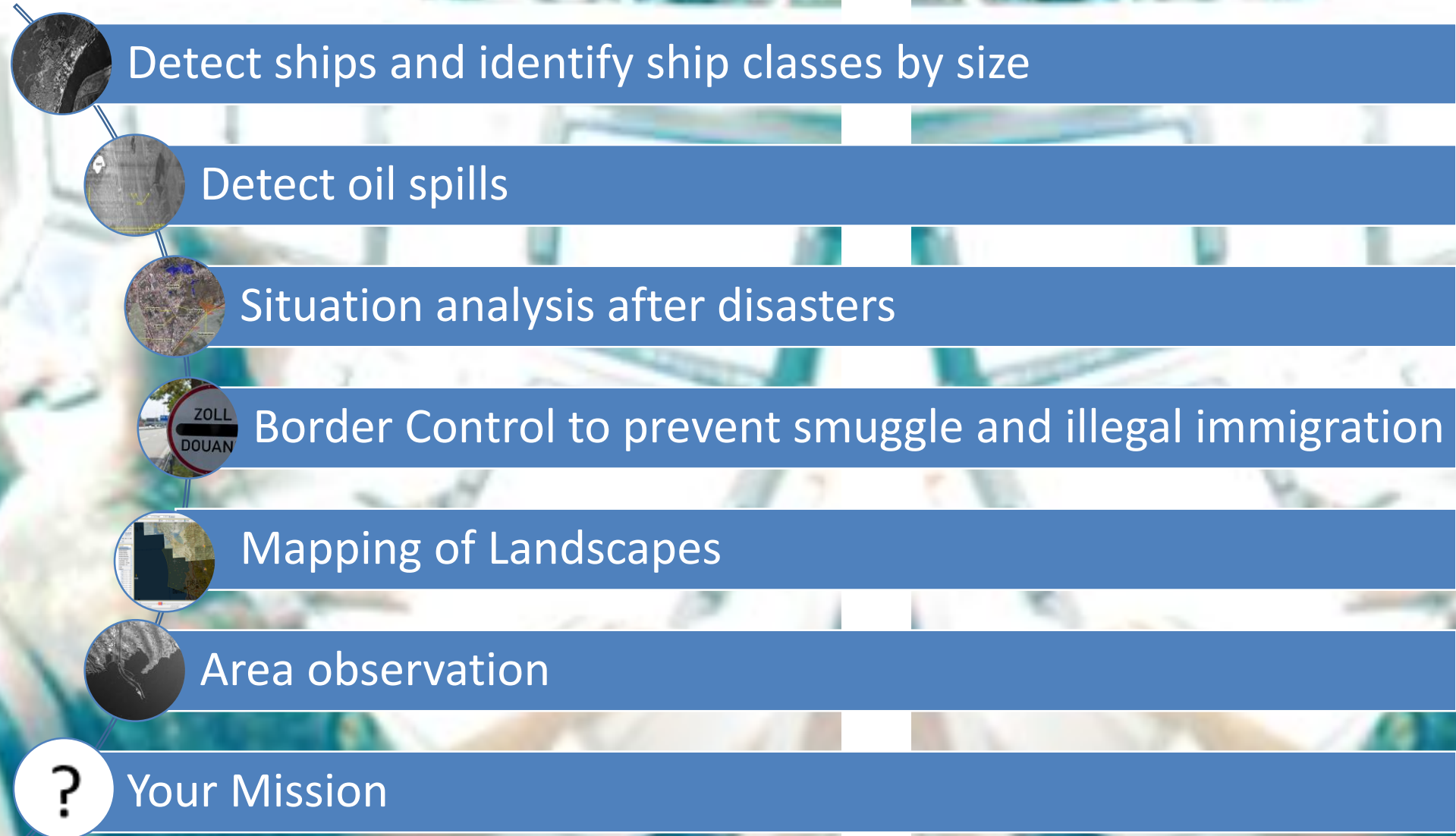
... from large area ship detection via side-looking radar to vehicle tracking via optical and infrared video stream.

With the platform operating up to 200 km away from a ground station, data can be downlinked in real-time.

The system is operated efficiently from a relocatable/mobile ground station with minimum infrastructure requirements.

Integration in existing surveillance solutions is supported by modular, standardized architecture.

The Missions

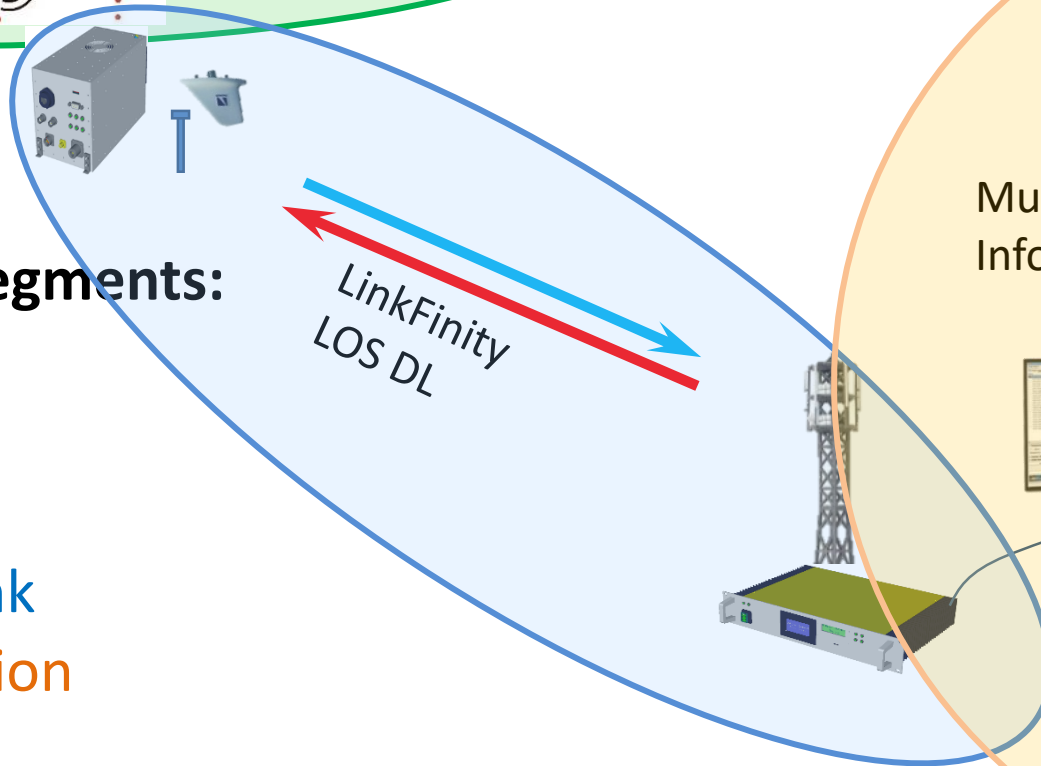


Demonstrator Configuration



Key System Segments:

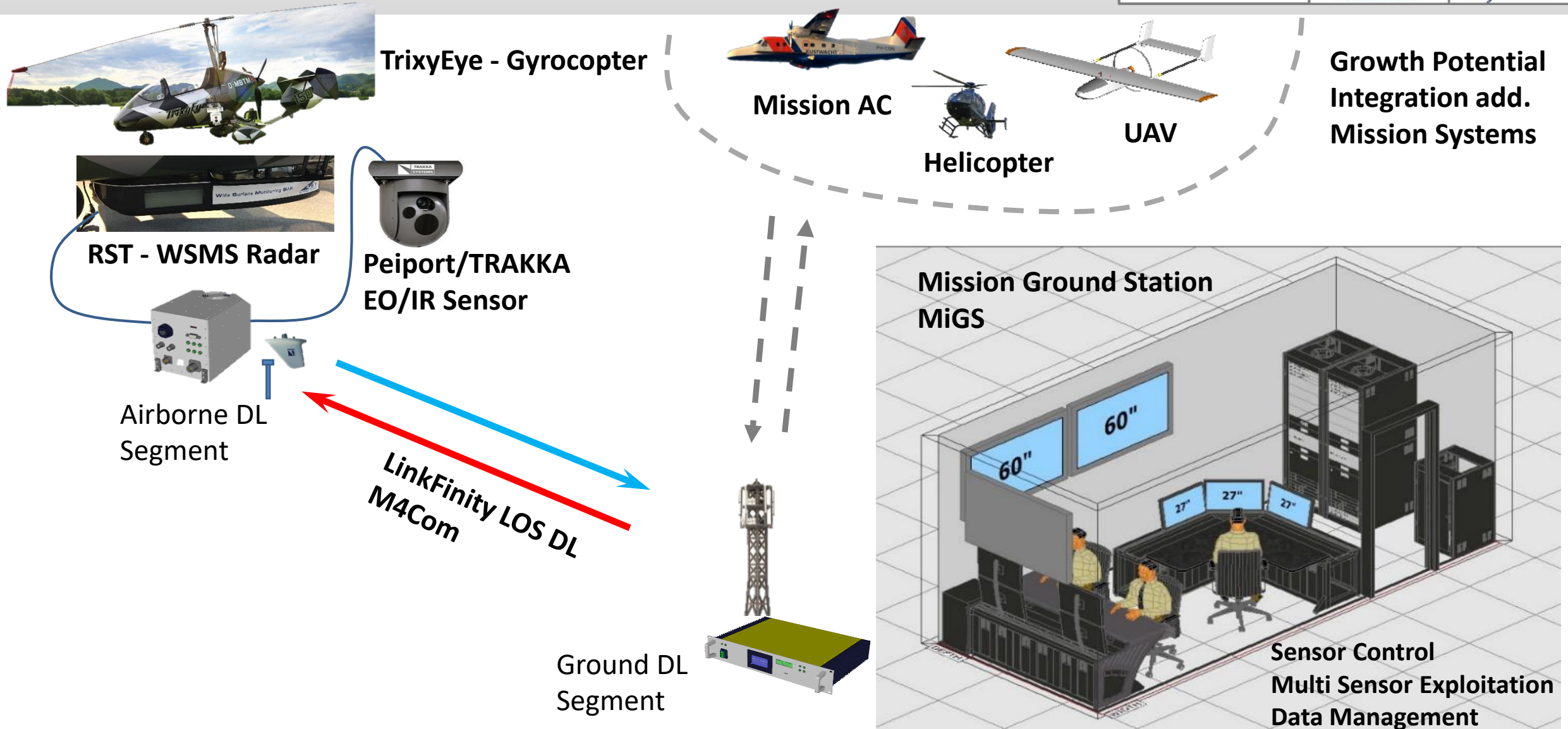
- Platform
- Radar
- EO/IR
- Up-/Downlink
- Ground Station



Multi-Sensor Exploitation and Information Management Station



Operational Configuration



The Platform: Trixy EYE™ – Gyrocopter



Certified two-seat very light gyrocopter developed by Trixy Aviation for professional use

Trixy Aviation is a certified aviation company based on EASA guide rules.

Key Features:

- Flying capabilities in stormy winds of 55 knots (100 km/h)
- Operation temperature range from -20° to + 50° C
- Night flying capability with modern instruments and IR screen
- Take-off roll less than 75 meters (250 ft) unpaved
- Landing roll less than 30 meters (100 ft) unpaved
- Endurance of up to 6 hours with anti-explosion auxiliary fuel tank
- Slow flying capability for observation at 22 knots (40 km/h)
- Maximum altitude of 15,000 ft (4,500 m)
- Payload of 280 kg (620 lb)
- Optional skids, floats and bush wheels available



The Radar: RST WSMS-S–Radar

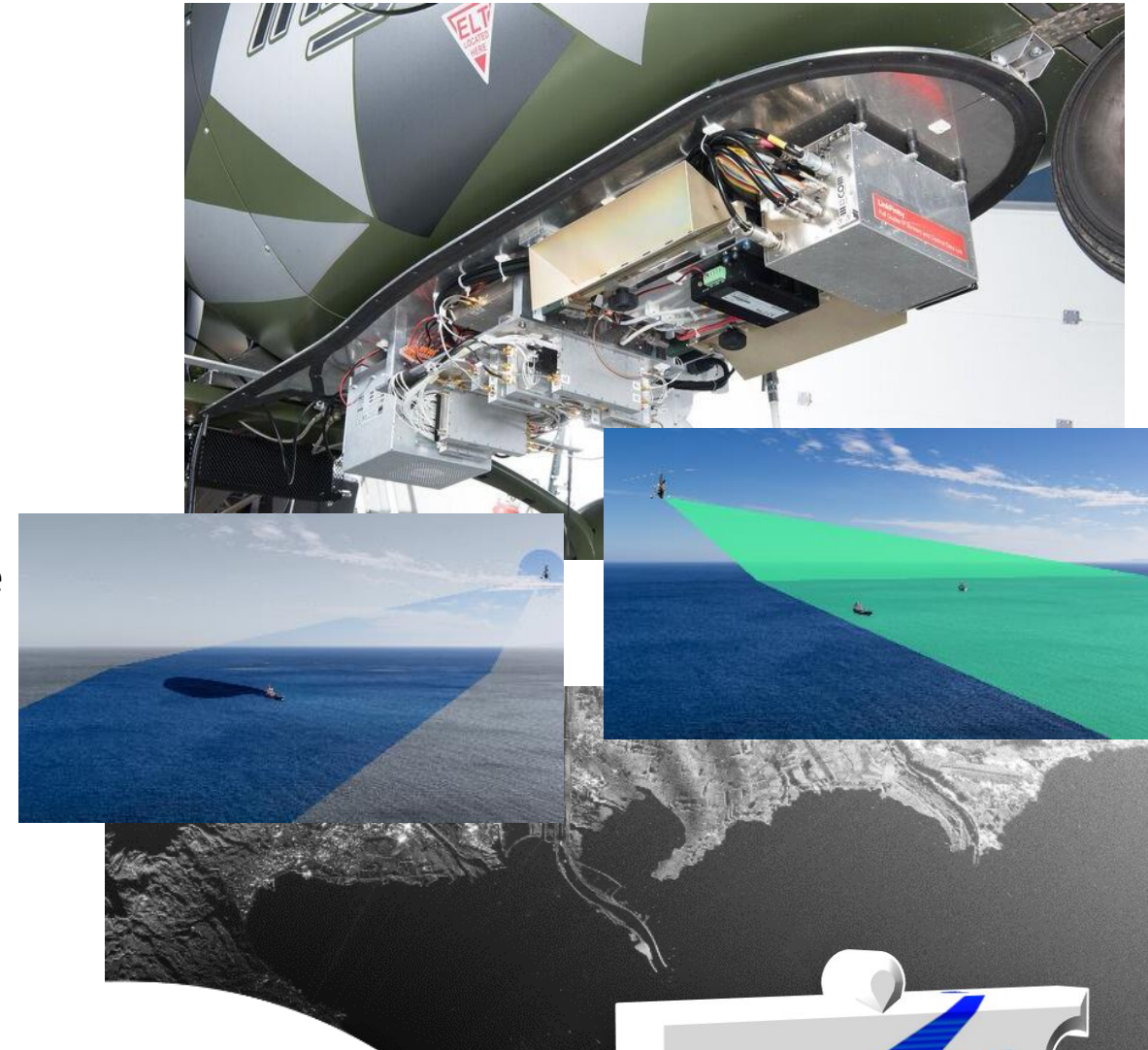


The **WSMS-S** is an **All-Time-** and **All-Weather- Airborne- Imaging-Radar** featuring small antenna and low output power with unique combination of features:

The **RST WSMS-S** is a Side-looking Imaging Radar designed for **fast coverage of huge areas**. It allows operation in **Day/Night-** and mostly **All-Weather/Fog-conditions**.

Key Features

- Single Side looking SAR imaging - selectable left or right side
- Oil detection mode (detecting oil on water surface)
- Ship detection mode (high resolution)
- Provision of real time SAR online images for down-link operation
- Real-time SAR image Display in aircraft and on ground
- Data recording for high-end post-Processing
- Fast coverage of large areas (up to 4000 sq. km/hour)
- small antenna and low output power



The Gimbal: Peiport SkyEye 2X-2 / 2X-3



4-axis Gyro-stabilized SkyEye 2X-3 gimbal successfully developed for standard integration by Peiport.

key features are:

HD Daylight Camera – SONY, Japan

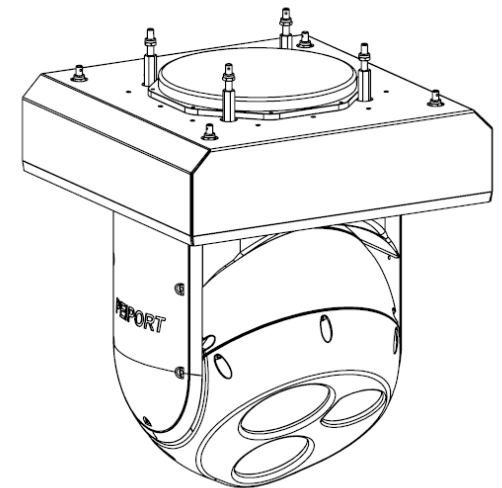
- Image sensor: 1 / 2.8" CMOS HD
- Resolution: 1920 x 1080
- Effective pixels: 3.27 Megapixels
- Sensitivity: 0.5 Lux (Color), 0.095 Lux (B&W)
- Optical zoom: 30x continuous
- Wide FoV (H): 40.6°
- Narrow FoV (H): 1.4°
- Focal length – zoom: 129 - 4.3 mm

Uncooled Thermal Camera – FLIR, USA

- System Type: LWIR Thermal Imager
- Resolution: 640x512
- Zoom: 3x (Opt) 2/4/8x (Dig)
- FoV: 18° x 14° ~ 6° x 4.5°

Laser Range Finder

- Detection range: 4.5 km



The Drone Option



Very slow flying capability of the gyrocopter, no “down-wash”

→ carry and deploy drones during a mission flight far away from the operation base or the ground station.

→ Up to four *Satellite Drones*.

→ Mounted underneath the gyrocopter

→ Can be deployed one at a time in special missions to obtain close-up images.

Operation:

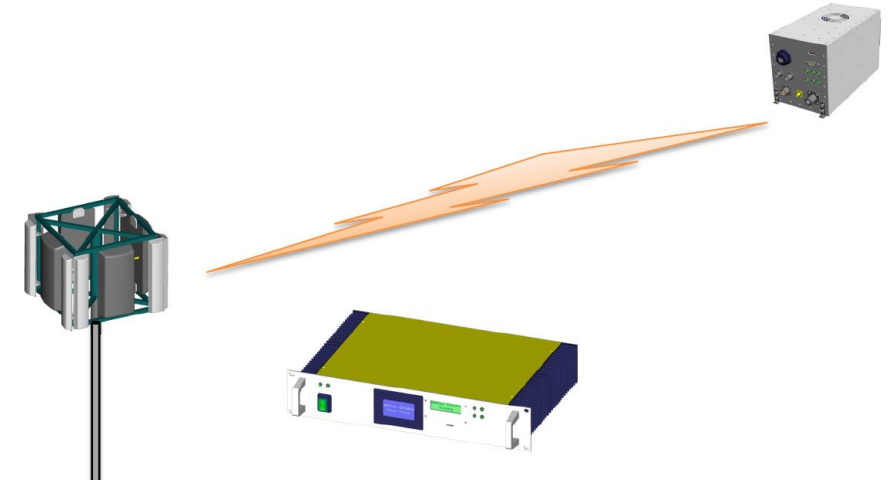
- Operated by drone-pilot from rear seat
- Gyrocopter circles in save distance
- visual contact (up to 2 km) allows legal operation in most civil air space
- Drone image recording and transmission to ground station
- Drones are not recovered in flight but can be landed safely



The Link: M4Com - *COFDM* Datalink



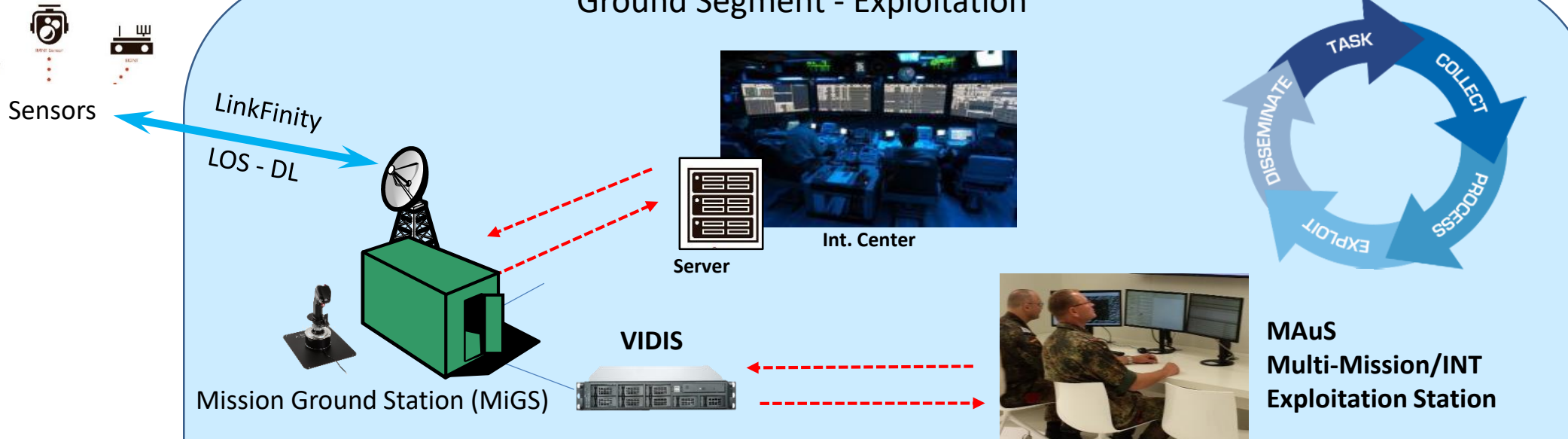
- Configurable transceiver solution for airborne and ground operations.
- Configurable broadband down- and uplink, to send and receive video, IP streams and control data.
- Data rate up to 31 Mbps.
- Ultra-low “glass-to-glass” delay with highly efficient low bandwidth encoding
- Automated link adaption: Bandwidth vs. range balancing.
- Software Defined Radio (SDR) for frequency change
- **Transmission range** under optimal conditions is **more than 200 km**



The Ground Station: M4Com MAuS/VIDIS



Ground Segment - Exploitation



VIDIS Functionalities:

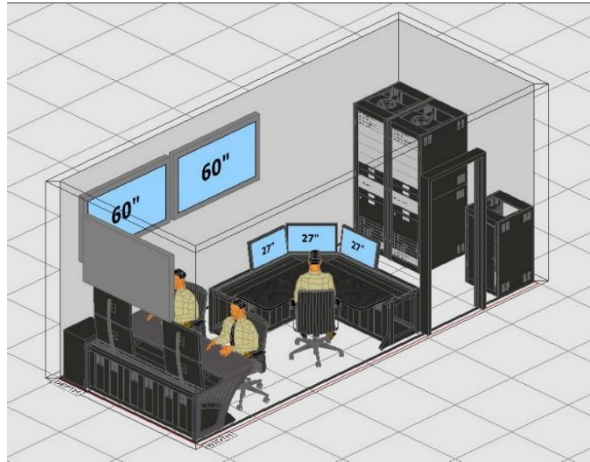
- Receiving of Multi-Sensor Streams
- Distribution to Clients
- Seamless access to Sensor- and Metadata
- Geospatial enabled Data Storage
- Transcoding to Standard Formats
- Online Storage, Backup and Archiving (> 30TB)
- IP-based interactive Network Solution

MAuS Functionalities:

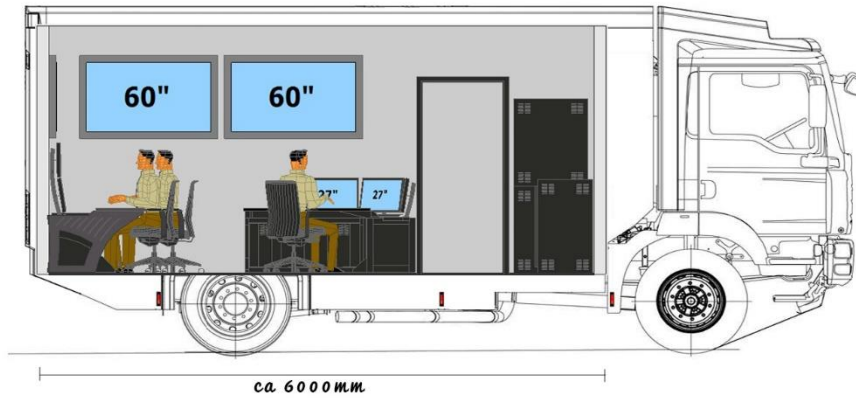
- Imagery and Video Exploitation
- Multi-Sensor Data Evaluation
- Dynamic Visualization
- Task Management
- Evaluation Supporting Tools (overlay, fusion..)
- Annotation
- Reporting/Message Generation
- Collaboration/Network capable



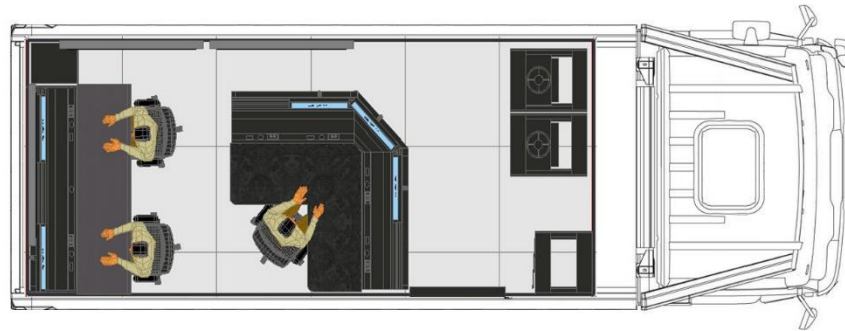
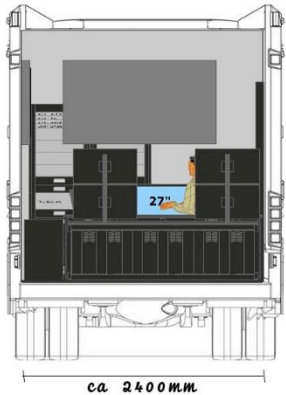
The Ground Station: Integration



Shelter - Integration



Building - Integration



The System



Mission adaptable = Comprehensive equipment for various missions

Affordable = Low initial cost + Low operation cost + Low maintenance cost + Minimum staff

Relocateable / Mobile = Compact + Transportable in trailer / container on land or water

Steadfast = Temperature and wind resistant + Full operation, day and night

Optimum flexibility = No fixed base required + Minimum ground staff + Single pilot operation



Business Contact: