

Protect
FAST

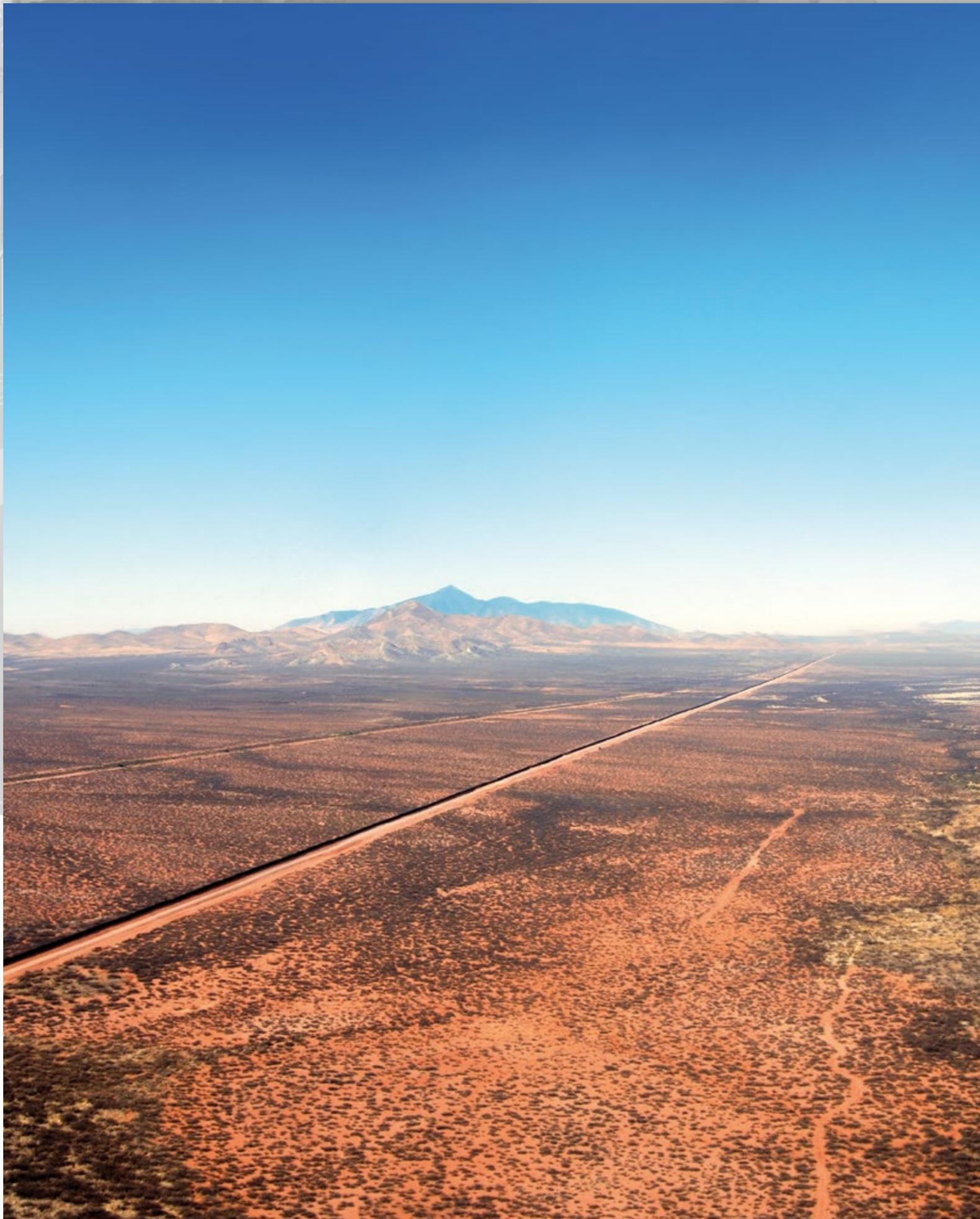
augmen+ed

ISTAR – Border Protection

extend your view **4+**

T E R R A





ISTAR solutions for Police, Special Forces, Intelligence & Secret Services, Army, Navy and Air Force.

Analyze – Command – Control – Document.

What is TERRA 4D ISTAR?

TERRA 4D Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) solutions facilitates detection of security and safety related incidents, presenting complex information in a simplified geographical 3D context and providing operators with superior situational awareness.

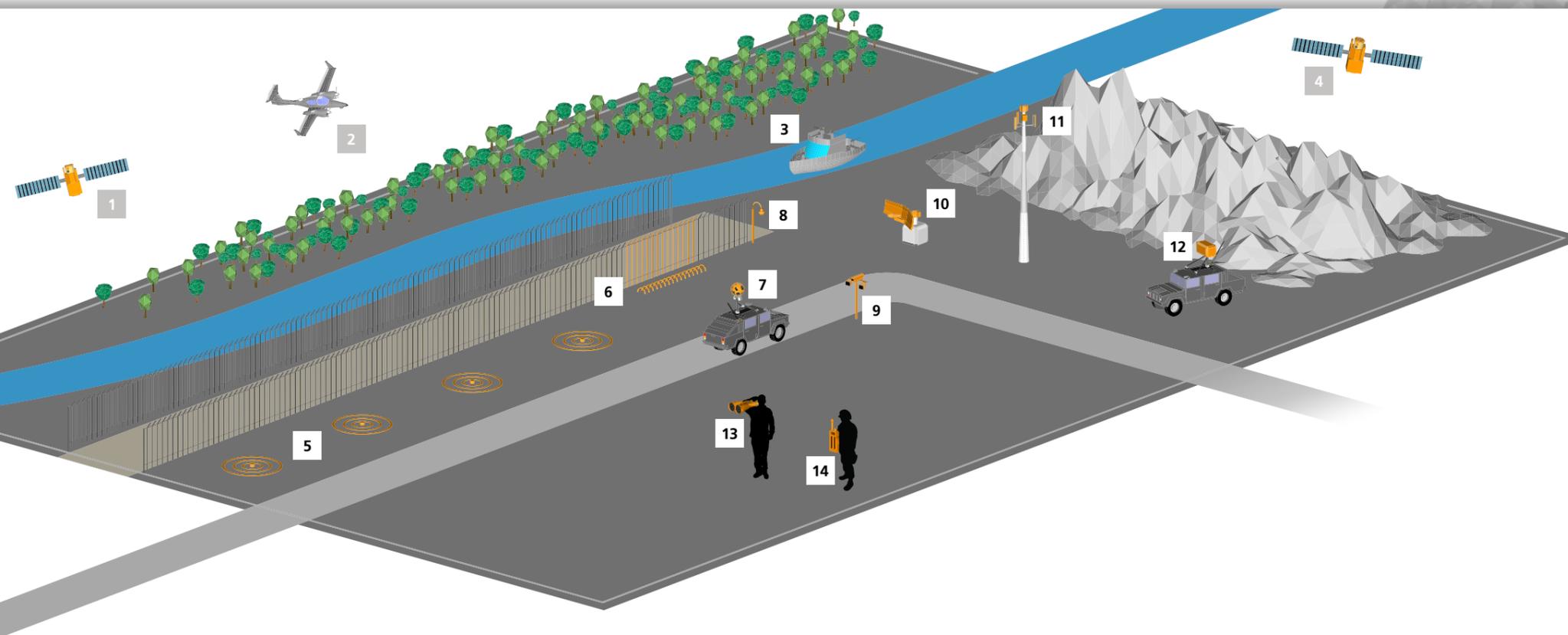
Protecting people and critical assets in today's global economy requires a new approach to security and defense! TERRA 4D ISTAR is revolutionizing the way government agencies operate and increase safety and security. The TERRA 4D solution helps to increase safety and security applying geospatial information management to „big data“ for disaster management, intelligence, law enforcement and defense.

- TERRA 4D ISTAR offers integrated geospatial information management and exploitation capabilities for mission support and planning of operations in various MoI and MoD organizations
- TERRA 4D ISTAR offers superior situational awareness across these organizations and agencies
- TERRA 4D ISTAR is an operationally proven system that securely delivers mission critical information to fixed and deployed sites

TERRA 4D ISTAR is a designated real-time 3D graphical information system (GIS) which comes with its own “toolbox”, a unique feature enabling you to build application specific intelligence, surveillance, target acquisition and reconnaissance solutions.

TERRA 4D platform provides customized solutions for exploitation and analysis of imagery and geospatial sensor meta data information to describe, assess and visually depict geographically referenced activities on the Earth. Advanced geospatial methods are used to control remote EO/IR, radar and other sensors to gather real-time information about suspicious activities.

Globally, national governments have identified critical infrastructure sectors that are the focus of security and resilience efforts. TERRA 4D ISTAR is assisting government agencies and enterprise organizations to improve security, reduce risk and increase efficiency.



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|---------------------|-----------------------|
| 1 Sat. Interception | 8 CCTV |
| 2 ADS-B | 9 ANPR |
| 3 AIS | 10 Radar |
| 4 Communication | 11 3GPP Interception |
| 5 Seismic Sensors | 12 Radar |
| 6 Perimeter | 13 Laser Range Finder |
| 7 EO/IR | 14 Digital Radio |



Screenshots TERRA 4D Interface

Imaging

Electro-optical and infrared systems (EO/IR), forward looking infrared (FLIR), charge coupled devices (CCD), low light TV (LLTV) and image intensifier TV (I2TV)

Radar

Synthetic aperture radar (SAR), maritime patrol radar (MPR), ground and maritime moving target indicator (G&MMTI), 3D- and N-Radar

CCTV

Daylight, infrared, thermal, passive infrared cameras including pan, tilt and zoom mechanism control (PTZ)

Further systems

- Seismic, acoustic, magnetic, tripwire, laser range finders (LRF)
- Chemical and radioactive sensors
- Terrestrial radio (Tetra)
- Joint Tactical Radio System (JTRS)
- Sniper detection system
- Electronic support measures (ESM) systems
- Radar and laser warning receivers (RWR, LWR)
- CCTV, intruder alarm, access control, fire alarm, perimeter control systems, etc.
- UAV (Drone)
- Lawful interception (LI) systems

Platform interoperability and common unified user interface

FAST delivers a combination of ISTAR capabilities to domestic and export customers, which range from integrated systems, through to the provision of specific technologies, products and subsystems. TERRA 4D ISTAR is vendor independent supporting cross-platform interoperability. The common unified user interface allows remote control of platforms, sensors and subsystems including air, land, maritime and space-based platforms.

Architecture and secure data sharing

- TERRA 4D ISTAR is designed to receive, analyze, visualize in 3D, retrieve and securely share data across multiple agencies and users
- The reliable and secure architecture consists of management server, acquisition server and operator's client workstation
- The management server hosts all system wide information and controls the whole installation
- The acquisition server manages the configuration of the peripheral devices and controls the device status permanently

- Centralized user access management, cross client chatting and selective data exchange across all users is supported

Turn-Key-Solutions – Professional Services

FAST is committed to deliver entire ISTAR capabilities offering a modular suite of tailored services including the analysis of existing infrastructure, specific operation requirements, comprehensive risk analysis and threat and vulnerability assessments.

Our comprehensive service ensures efficient operations and continuity, permitting our customers to focus on their core missions while we implement and upgrade their ISTAR capabilities.

We offer designated critical imagery intelligence (IMINT) solutions including mini satellite observation, airborne and ground-based platforms. We develop and implement training courses that range from forces training to systems operations, to maintenance and corrective actions. Our trainers use a wide range of teaching methods including classroom sessions, simulations and in the field training.

3GPP and satellite phone interception

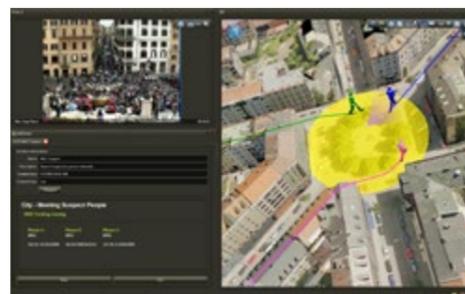
TERRA 4D ISTAR offers 3D visualization capabilities to passively obtain interception and location information of 3GPP enabled devices as well as satellite phones. Currently the service provides identity information for over 950 operators and location service for over 350 operators globally. It is being used in surveillance systems for national security, military intelligence and global law enforcement agencies.

Multi-sensor tracking solution

TERRA 4D ISTAR is a multi-sensor tracking system that is capable of providing fully discreet monitoring, capturing and tracking of mobile identities throughout various locations. The system can work in conjunction with existing subsystems by deploying multiple sensors to cover specific areas like airport complexes, public transportation and facilities, hotels and highways anywhere on earth.

Localization solution

Monitor and follow activity and detect suspicious behaviour of subscribers of interest once they have been identified and located to investigate visits to areas of high risk or gathering of multiple known subscribers.



ISTAR solutions

TERRA 4D ISTAR supports voice and internet probe based interception products for voice, SMS, chat, social media, email and financial transaction capture. It is designed for border protection and surveillance, coast guard surveillance in territorial waters, anti-piracy programs for the high sea and the fight against organized crime including drug trafficking.

3GPP Identity Information

Collect information of communication devices:

- IMSI
- Home Network
- MCC & MNC

Location Information

Localize mobile phones country- or world-wide:

- Cell Identity
- Latitude
- Longitude

Lawful Interception

Lawful interception of communication:

- Voice
- Text
- Data



Screenshots TERRA 4D Interface

Forensic and Biometric – FABINT

Fingerprint, DNA, ID/Passport, conviction, SIM card and other data bases



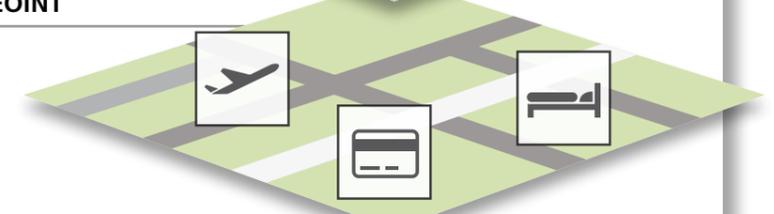
Open Source and Human – OSINT and HUMINT

News, TV, radio, social media content and events, interpersonal contact, information collection



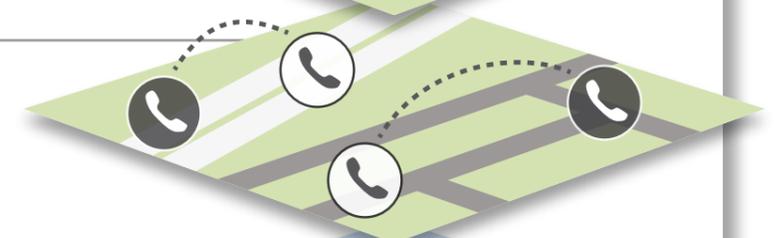
Financial and Geospatial – FININT and GEOINT

SWIFT transactions, car rental, accommodation, immigration, flight passenger manifest and other data bases



Signal – SIGINT

Legal interception (phone calls, SMS, data), 3GPP (GSM, EDGE, UMTS, HSxPA, LTE), iSAT



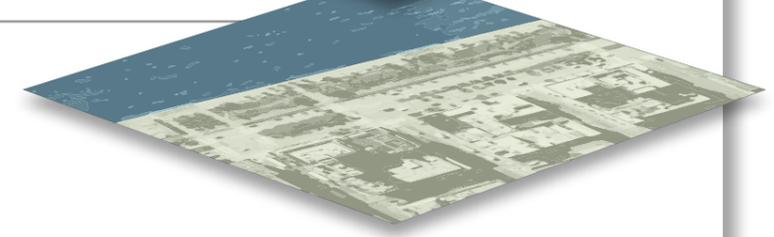
Measurement and Signature – MASINT

Various sensors including radar, EO/IR, AIS, ADS-B and other unattended devices



Image – IMINT

Ortho normalized static satellite or aerial photographs, dynamic imagery (always the latest available images are shown)



Command and Control

Video wall	Support of video walls and multiple screens per desk.
Time machine	Navigate through space and time and see all recorded data (video, tracked objects, PTZ positions,...) time-synchronized.
Flexible GUI layouts	GUI layouts changing automatically or driven by operator. User and situation specific layouts are possible.
Chat messenger	Operators exchange information quick and simple.

Geospatial Data Management

Geospatial rules engine	Define rules and methods to auto-respond to incidents.
Geospatial data correlation	Any sensor can be used to control other sensors. Alarm verification utilizing multiple sensors.
Geo fencing	Define geographical alarm or warning zones to receive alarms when tracked objects enter or leave such zones.

Event and Alarm Management

Workflow automation	Intuitive workflows remove operator randomness and reduce stress.
Incident reporting	Support of interactive incident forms. Videos, map views and resources can be linked. Customized design supported via HTML forms.
Escalation and delegation	Escalate alarms to super visor user groups or delegate alarms to other operators for work balancing.
Procedure enforcement	Workflows enforce company's or legal compliance guidelines.
Audit trail	Logging of all user actions for every workflow step for later analysis
Alarm notifications	Sends alarm notifications to remote systems via SMS or Email
Operator alarm	Operator can select alarm templates and fire alarms at specific locations on the map or directly in the video

3D Visualization

Multi Layer GIS with real-time rendering engine	Digital Terrain Model (DTM), Ortho imagery (aerial or satellite images), Street map, 3D buildings.
Geocoder	Address search, Forward: type address and GIS shows location, Backward: show address for any clicked location in GIS model.
Indoor visualization	3D indoor building structures with floors and rooms. 2D CAD floor plans can be imported to visualize indoor environments in 3D.
Geospatial document library	Organization of the document library (document is placed at geographical location) and access according to user privileges.
Object track visualization	Trace object's movement including historical track in 3D GIS model.
Video wall	Live or playback video is "projected" on virtual video walls in 3D GIS model. Camera orientation and view area is shown.
Avatar	Represents a detected object and its class in the 3D space.
AIS, ADS-B, GPS meta data	Shows meta data attached to an Avatar.

Video

Supported cameras	Analog (with encoder), IP, fixed, PTZ, 360, mobile or airborne.
Position dependent salvo	Shows closest cameras to a static or dynamic object location.
Direct PTZ control	Video latency compensating method to control any PTZ camera.
PTZ auto presets	Automatic configuration of all interesting locations in PTZ camera's field of view as PTZ preset positions.
Geo-referenced video	Determine object location (latitude, longitude, height), speed, direction and size directly from video image.
Meta data recording	PTZ head data are recorded.
Multi camera tracking	Follow a moving object even in crowded environments using one or more fix or PTZ cameras simultaneously.
Augmented reality	Augmented reality layer on top of video image display including context sensitive interactions.

Mobile Unit Dispatching

Android and iOS app	GPS tracker and target intervention application. Target waypoint navigation, instant messaging and alarm handling.
Dispatching	Get current positions of all units in the field, send units to target coordinates, keep track of ongoing interventions.

Localization & Lawful Interception

Communication device localization	3GPP (GSM, EDGE, UMTS, HSxPA, LTE), iSAT device localization.
Lawful interception	Voice, text and data.
3GPP Identity	Read data 3GPP devices (GSM, EDGE, UMTS, HSxPA, LTE) for profiling.

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