

Defense Features Demo

INTELLIGENT TERRAIN INFORMATION SYSTEM

MARCH 2024

Company Overview

RSI SOFTECH, ITS ACTIVITIES...



To provide solutions in the field of

- Remote Sensing & GIS
- Digital Photogrammetric
 - Drone Mapping
- Drone Manufacturing
- LIDAR, GPR Surveys



System Integration

To design, develop, install and train the personnel in the application of different software systems in the field of Geomatics.



Geospatial Portals

To design, develop OGC compliant and interoperable GIS solutions, and GIS web portals with service-oriented architecture.

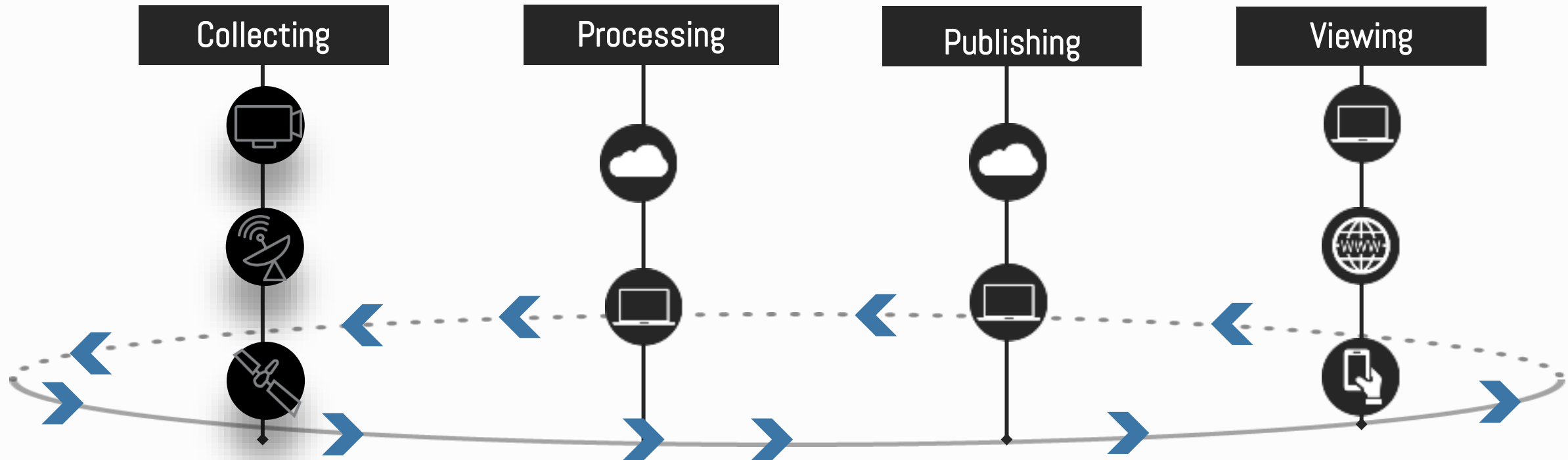


Defense and Security

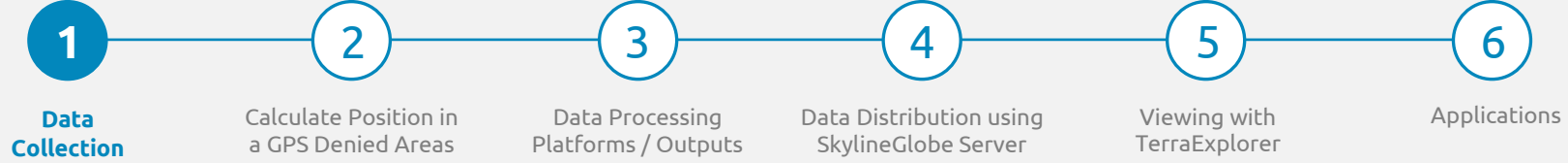
To design develop, customize, integrate hardware and software for DEFENSE and SECURITY applications.

RSI SOFTECH Defense & Internal Security Customers

3D Globe/GIS Holistic Offering



Data Collection



Our Drones

Data Collection is done with our custom manufactured drones with high resolution single lens Nadir and 5 Lens (Nadir +4Oblique) Lens cameras and put them to use.



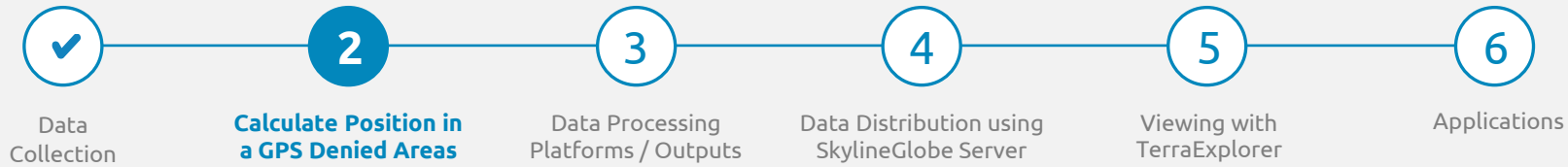
NADIR CAMERA



OBLIQUE/5 ANGLE CAMERA



Calculate Position in a GPS Denied Areas



PhotoMesh combines photos in a wide range of formats, PhotoMesh generates highly-detailed 3D meshes, orthophotos, point clouds, elevation models, and more. PhotoMesh's breakthrough 2D and 3D mapping technology is based on the highest-performance photogrammetry, computer vision, and computational geometry algorithms.

PhotoMesh Reference Project option provides a fully automated georeferencing of a photo collection in a GPS denied areas to a repository of georeferenced photo collections and models:



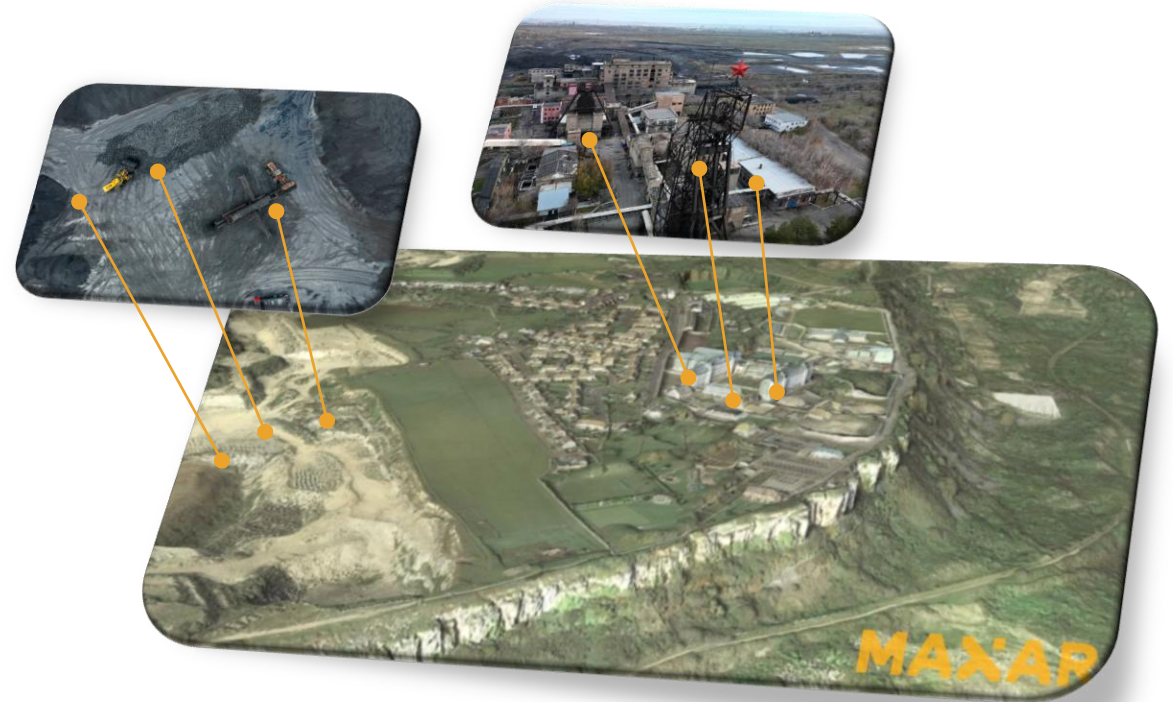
Registered PhotoMesh projects



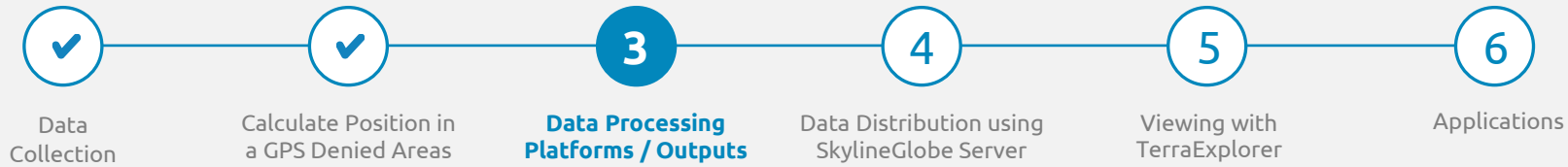
Satellite 3D models (Maxar)



Ortho/DSM 2.5D layers



Data Processing Platforms



PhotoMesh Cloud Processing Service



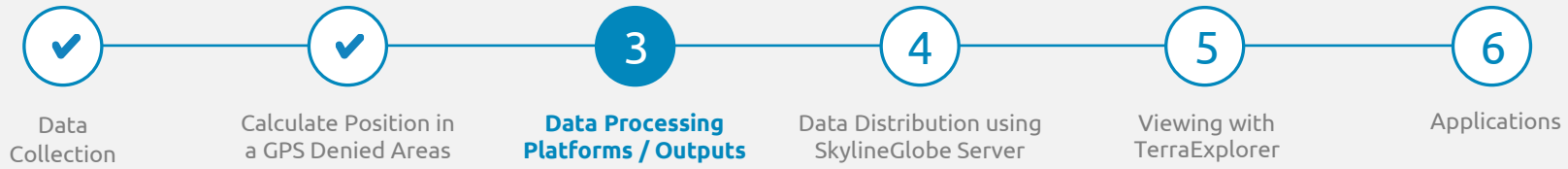
- Powered by ORACLE/AWS
- Utilized 500-700 fusers per project
- Processing time of 3-10 Hrs / Project
- Process multiple projects in parallel
- Battle day processing: ~3000 GP

PhotoMesh Mobile Processing Unit



- Tactical Van (Ford Transit)
- 80 computers / 320 fusers
- Self powered ~ 24 Hrs
- Processing time of 3-10 Hrs / Project
- Processing capability: 150 km² in 5cm/p

Data Processing Outputs

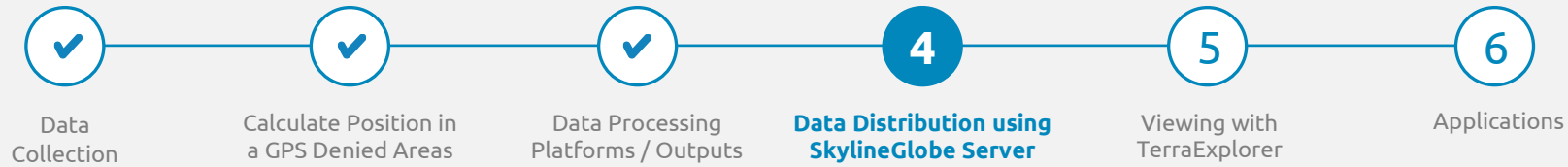


PhotoMesh processing outputs:

- Calculated photo positioning
- 3D Mesh
- Quick ortho-mosaic
- True-orthophoto
- Point Cloud
- DTM / DSM

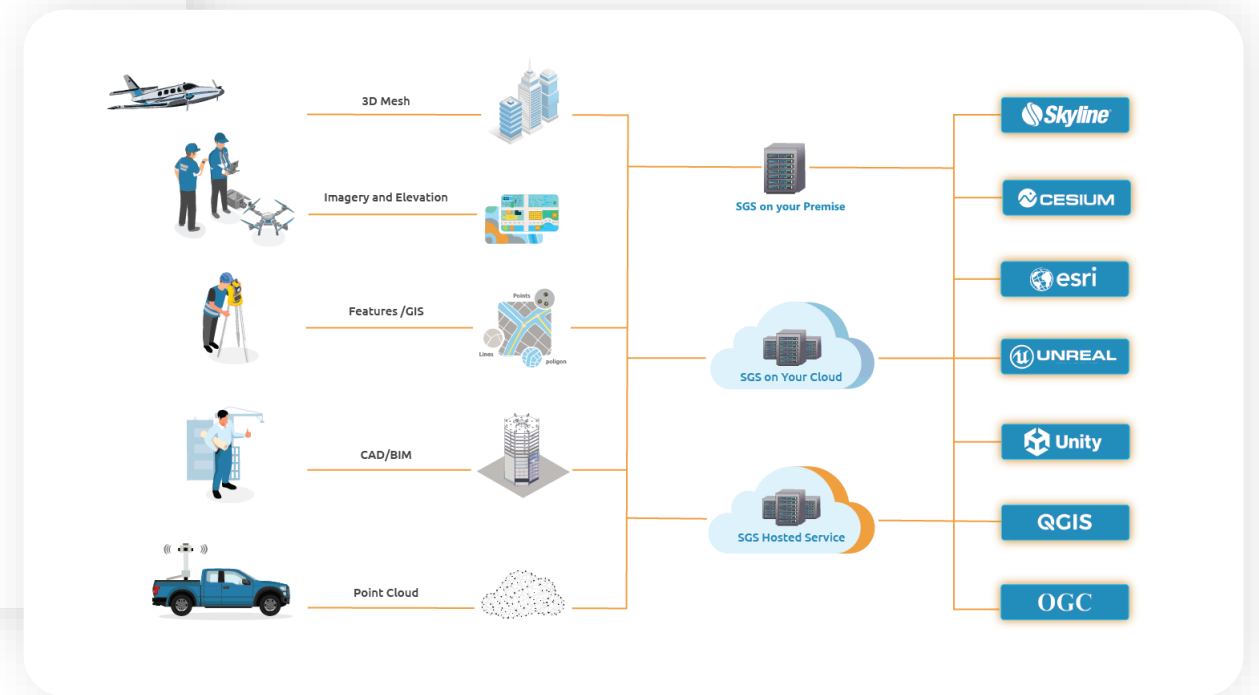


Data Distribution using Globe Web Server

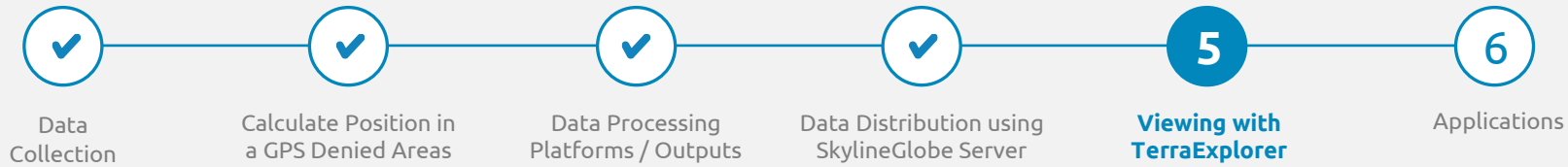


Globe Server

- Deployed on multiple Private (classified) and Public (AWS) networks
- Streams Imagery / Elevation / 3D Mesh / GIS / Point Cloud layers
- Support multiple standards and Viewers
- Secured (SSO / MFA)



Viewing with TerraExplorer



TerraExplorer viewers to support different use cases and platforms

- TerraExplorer Desktop
- TerraExplorer Fusion (Web)
- TerraExplorer Mobile App
- Tactical AR Advanced Solution
- Online (SkylineGlobe Server)
- Offline kits



Applications



Data Collection



Calculate Position in a GPS Denied Areas



Data Processing Platforms / Outputs



Data Distribution using SkylineGlobe Server



Viewing with TerraExplorer



Applications



Situation awareness



Troops training before entrance



Threat analysis (Viewshed)



Mission Planning



Command & Control

Tactical AR Application

1. Support Wide Range of Geospatial Data
2. Integrated GPS Sensor/Video Feed
3. Measurement Tools
4. Presentation Tools
5. Terrain Analysis Tools -
 - ✓ Contour Map ✓ 3D Viewshed
 - ✓ Slope Map ✓ 3D Viewshed on Route
 - ✓ Volume Analysis ✓ Threat Dome
 - ✓ Terrain Profile ✓ Shadow

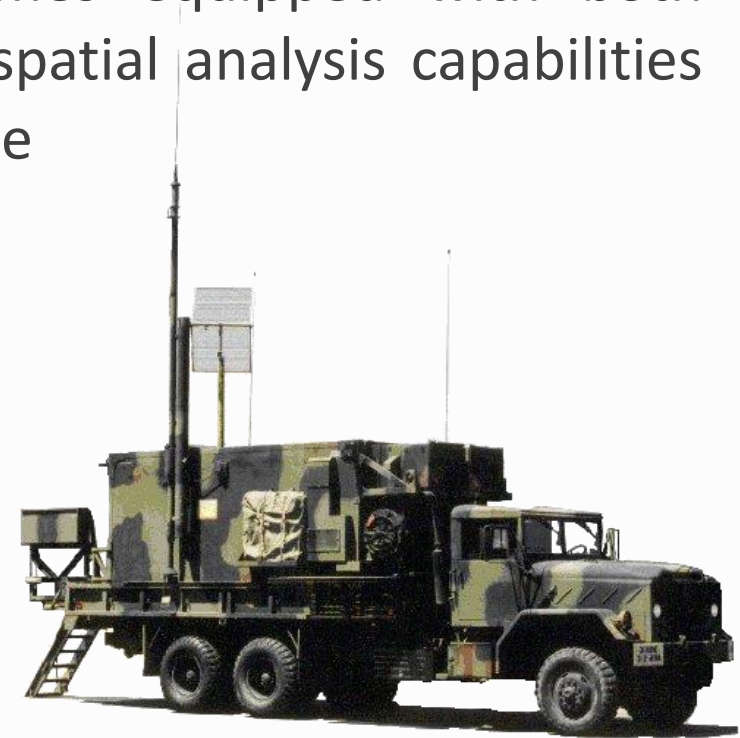


Main Defense and IS Applications

MISSION PLANNING, REHEARSAL AND DEBRIEFING

Evaluate **potential vectors** to a target based on surrounding terrain, possible choke points and other critical information. TerraExplorer comes equipped with both traditional terrain **analysis tools** and more **advanced** geospatial analysis capabilities including Line-of-Sight, View-shed Analysis and Threat Dome

Walk troops **step-by-step** through high-resolution 3D models of operational spaces, which provide a **unified** and detailed landscape. Create a terrain database on-the-fly, using the latest satellite pictures of a target area. Feature and **mesh layers** added to the **3D terrain**, such as mine fields, utility lines and communication infrastructure further increase **situational awareness**.



Main Defense and IS Applications

INTELLIGENCE ANALYSIS

Dynamically **combine & analyze large** amounts of data for swift, **accurate assessment** of an adversary's capabilities and **vulnerabilities**. TerraExplorer comes equipped with powerful **measurement**, terrain **analysis**, line of sight, change detection/comparison & spatial analysis tools that make it easy to extract **vital intelligence** from your geospatial data.

The systems Use **artificial intelligence (AI)** to solve complex spatial problems and to **increase** the chances of finding objects that are hard to see without the system

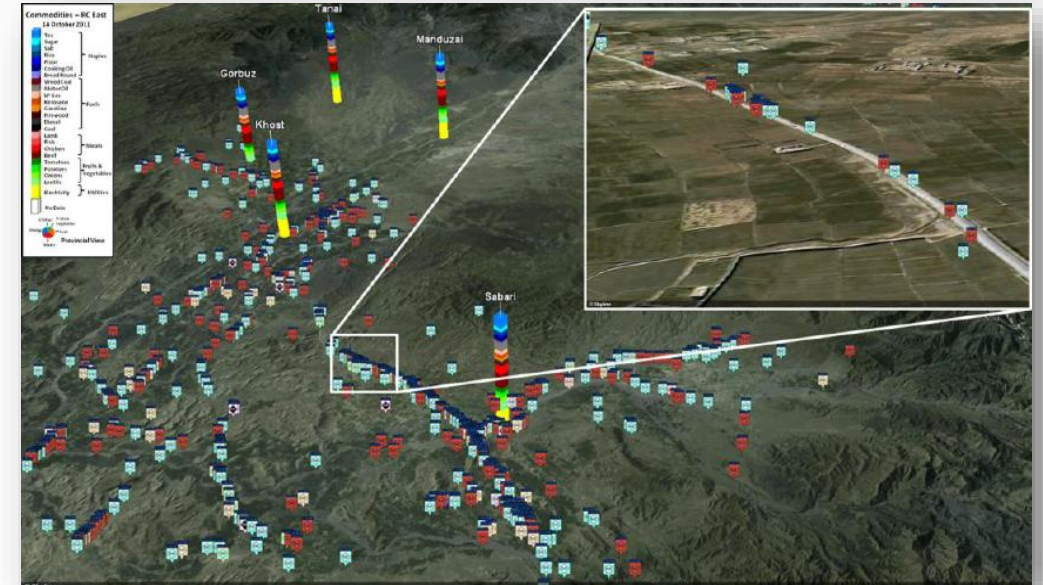


Main Defense and IS Applications

ASSET TRACKING

Analyze and track critical assets with advanced user-friendly tools, With TerraExplorer's **interfaces** to military-specific data feeds, Cursor-on-Target, standard GPS feeds, and specific UAV platforms, users can view **real-time** information from **multiple** sensor sources within the relevant **geospatial context**

The system enable the user to manage in **real time** all of the assets with advanced 3D tools



Main Defense and IS Applications

POLICE/PRESIDENTIAL GUARD

Geospatial analysis are mandatory for **law enforcements** agencies to understand **where** and **when** crime is occurring so that they can deploy resources more effectively.

Skyline system is designed to provide **support** to **security forces** handling large **gatherings** of individuals in a relatively small area by allowing the end user to **plan** , **execute** and **simulate** all security and emergency services



Main Defense and IS Applications

SENSOR TO SHOOTER -ACCURATE ARTILLERY

Cloud-based or on prem service that provides a **Reference Database** to accurately position new photos based on the result of previous **aero-triangulations** in the area for better **accuracy** for Army , Naval and Airforce

The system allows better **decisions making** regarding **online** and **predefined** targets allowing the end user to successfully plan and execute **artillery** missions.

Can reach accuracy of less than 5 Meter



Main Defense and IS Applications

BORDER SECURITY (NAVAL OR LAND)

The system provides **advanced GIS** and **analytics** specially for the **borders security** for monitoring an **area of interest** (AOI), such as a ground **border** or **naval** border.

You can view **live** updates to imagery, terrain, and **assets**, as well as friendly and enemy forces' location information, as **real-time** sensor data becomes available. Vast amounts of updated data can be made accessible within minutes so that deployment plans and lines of attack can be modified to reflect the latest **intelligence** and **tactical information**.



Main Defense and IS Applications

EMERGENCY – SEARCH & RESCUE

Extreme **weather** and **environmental** conditions have increased the impact of **emergency** incidents which claim lives, ruined thousands of structures, and impact everyone. Skyline software offers a **unique** set of **capabilities** for applying location analytics to your **emergency response** operations.



Skyline **high quality and near real** time outputs **helps** emergency response teams in judging where to **focus** their efforts and how to continue their **operations**.