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The Ministry of Defense (MOD) in any country gathers data on routing, filtering, analysing and presenting information for decision-making. The regional conflicts, rapid deployment and flexible response imposes heavy burden on military commanders, their staff and supporting system to keep up-to-date situation on the ground about enemy activities. Visualizing raw tabular data within a spatial framework has many benefits.

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Defence System

GIS Solutions in Defense and Safety

GeoInformation system (GIS)

Geographic Information Systems (GIS) play a pivotal role in military operations. The concept of Command, Control, Communication and Coordination in military operations is largely dependent on the availability of accurate, spatial information to arrive at quick decisions for operational orders. In the present digital era, GIS is an excellent tool for military commanders in the operations. The use of GIS applications in military forces has revolutionised the way in which these forces operate and function. Military forces use GIS in a variety of applications including cartography, intelligence, battle field management, terrain analysis, remote sensing, military installation management and monitoring of possible terrorist activity.

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Military applications of GIS

GIS can be applied to a wide range of military applications.
These can be broken into three overlapping categories of Base-plant, Barrack, and Battlefield

Classification of major military applications:

Base-plant
Defence organisations require mapping and related products in order to support operations, planning, and training.

Digial Geographic Information (DGI) management	DGI production
Mapping production	Map catalogue production
The management of geographical requirements	map stock control

Barrack
Encompass a wide range of asset management, training, and infrastructure activities that are required to support the military in their peacetime locations.

Range management	Range control systems
Natural resource management	Facilities management
Environmental management	Hydrology
Barrack reorganisation and closure	Emergency response
Wildlife management	Airfield damage repair

Battlefield
Specific use of GIS in the battlefield

Situation mapping	Terrain analysis
Air space management	Track management
Command, control, and communications	Simulation
map distribution and supply	Terrain visualisation
The producion of military situation overlays	Targeting
Maintaning battle records	War gaming

Geofoto Group asspire to remove any differentiation between base-plant, barrack, and battelefield GIS. Although the applications will be different and tailored to the specific requirements of each area, they will be based on a common view of the world, using a common GIS interface.

GIS solutions in Defence

The ability to exchange military geospatial information is the basis for the interoperability of a military Command, Control and Communication C3 systems at national and international level of military cooperation. Military standards and specifications are widely used for development of an information context of a digital products with a need for integrated operations and a need for a common spatial data formats. The NATO data exchange between nations is defined in the standard STANAG 7074, the military application of the DIGEST standard. At the present time, the increase in demand for a digital C3 systems has further increased challenges in the management and selection of spatial data. Modern military systems incorporate its spatial data that are made in the standardized way and thus provide essential information for a planning and conduct of tactical, operational and strategic operations important for the national security.

Geofoto Group provides the solution for security and defense called "Military Geoinformation System, m-GIS". For the needs of a Ministry of Defense and Armed Forces, Geofoto Group makes a tailored Geographic information system that is compliant with national and international standards in the field of geoinformation, and in conformity with the NATO standards.

The m-GIS is a unique and centralized system and a basis for the development and use of all other activities in domain of a military geospatial information, from planning to analysis.

Military Geoinformation Systems have various purposes and are used in the BMS systems for management of a battlefield, in a simulation exercises, navigation and radar systems, armored combat vehicles, automatic fire control systems, logistics systems, in operational centers or as a basis for management of a military property.

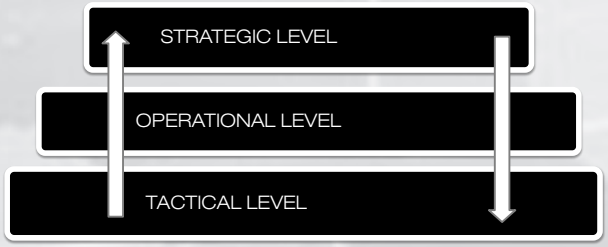
With respect to the production of military GIS systems Geofoto Group actively collaborates with eminent international and national institutions like the U.S. National Geospatial Intelligence Agency, the British Defense Geographic Centre and the Italian Military Geographic Institute. So far we have presented our services for security and defense of the states in our region and beyond.

Our success is a result of the clear business vision, continuous training and professional technical staff. To our clients we are offering only high quality products and solutions and professional support for their applications, concepts, consulting and training.

NATO TASK LIST

promotes essential operational capabilities

1. **Timely Force Availability**
   - To rotate forces at the right time
2. **Effective Intelligence**
   - To collect and disseminate reliable information
3. **Deployability and Mobility**
   - To concentrate forces at the right place and to move quickly
4. **Effective Engagement**
   - To be able to operate forces, particularly weapons systems
5. **Effective Command, Control and Communications**
   - To direct Allied forces and HQs for the accomplishment of Alliance missions or tasks



6. **Logistics Sustainability**
   - To provide timely and effective logistic support for any operations
7. **Survivability and Force Protection**
   - To minimize the effects of any adversarial action, to include the effects of CBRN weapons.

J2 J3 J4 J5 J6

Manpower and Personnel J1

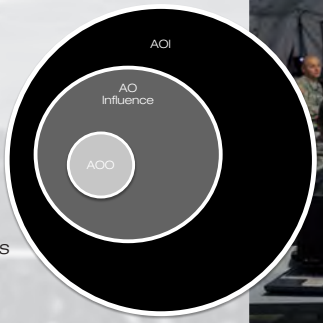
Functions of joint manpower and management of military personnel:

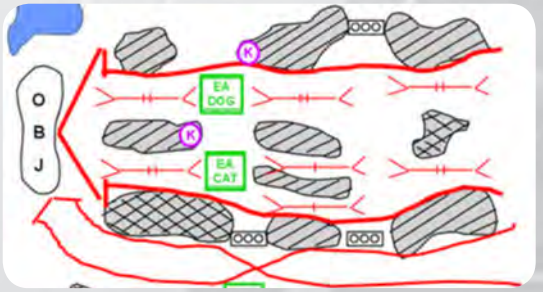
- theatre boundaries and restrictions
- size and structure of the forces
- mobilization, deploying, sustaining of personnel
- personnel services and health services
- promotions, assignments, motivation, retention…
- coordinate training, education and exercise programmes
- sustaining of moral, welfare, recreation, rest and relaxation from combat activities
- coordination of force rotatio management and accommodation of wounded, prisoners of war …

J J3 J4 J5 J6

Inteligence J2

1. To define the battlefield
   - *Battlefield study versus focus of operation*
2. To describe the effects of the battlefield
   - **Terrain impact**
   - *Weather impact*
   - *Civilian factors*
3. To asses the threats
   - *The enemy doct rine*
   - *The enemy equipment*
   - *Weaknesses and trengths of the enemy, capabilities*
4. To make the courses of actions
   - **Possible directions of enemy attack**





Terrain impact

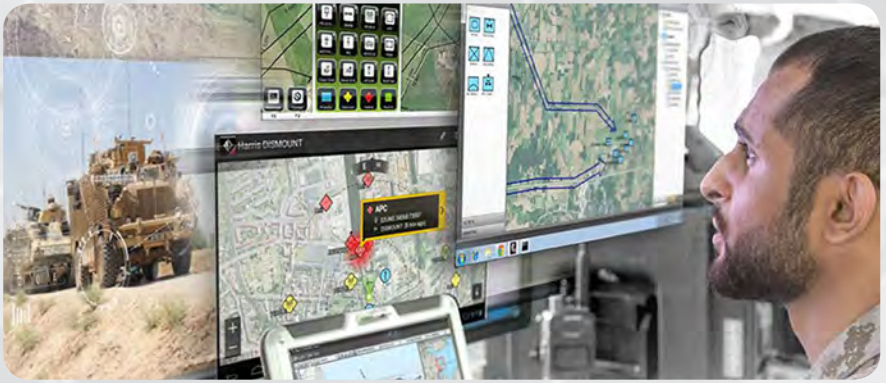
- Hydrology - breadth and depth of the riverbed, stream velocity, the slope of riverbeds …
- Heights - slope as it affects the mobility of forces …
- Soil composition - soil type and conditions be cause they affect the mobility of forces …
- Vegetation - spacing of trees, trunk diameter, type of forest …
- Demography - number of inhabitants
- Infrastructure - transport systems, carrying capacity of bridges, road width
- Natural barriers - buildings, slopes, rivers, lakes, wetlands, forests, deserts, rainforests, cities, minefield, trenches, wire obstacles
- Avenues of approach - a key terrain, the use of camouflage and concealment, the use of location reconnaissance and surveillance

J1 J2 **Operations J3** J4 **Planning J5** J6

- deployment, transfer or redeployment of troops within the AOO
- plan strategic deployability, mobility and movement
- estimate and determine possible closure time
- determine Impact of environmental conditions on Deployment
- Integrate Deployment Systems
- plan, coordinate and provide tactical maneuvers

1) Attributes in the DB

2) Generated and interpreted data DTM, DOP,...

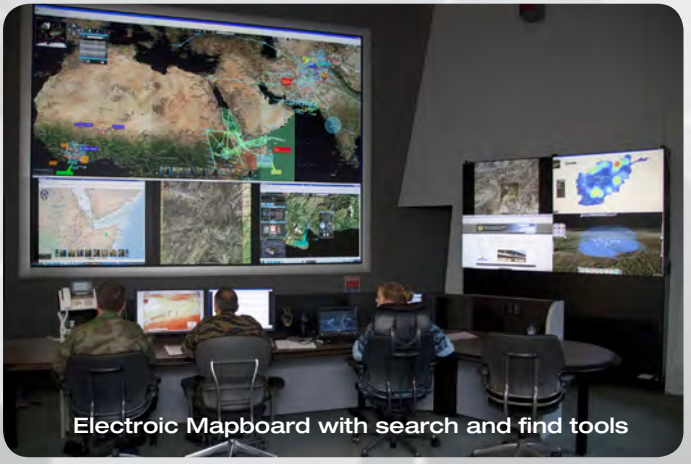


Breifing and Reporting

OPS Centre

- Access, view, analysis and presentation of spatial data
- 2D i 3D terrain analysis for locating troops and events
- Powerful tools for displaying and integrating
- Information about the terrain, locations, people and events
- Overlapping of essential spatial layers with images from different sources
- In order to make a common operational situation for faster orientation and visualization of AOO
- Creates a realistic, interactive scenario with a 4 dimensions area of operation
- Prepare the staff for the real case scenario.

Conventional OPS Room mapboard



Electroic Mapboard with search and find tools

J1 J2 J3 J5 J6

Logistic support J4

- Coordination of logistical support from allied countries to the area of operations
- Production and delivery of materials, supplies and equipment to the area of operations
- Organization of logistic bases
- Transport of forces into and from the AOO

1) **Attributes in the DB**
2) **Administrative boundaries, road network**

J1 J2 J3 J4

Communication & Information Systems J6

Visualisation of radar data

Radar systems

- for strategic installations of communication systems
- for the tactical communication equipment usage
- optical visibility
- radio visibility

1) **DTM**
2) **DOP**
3) **3D city models**

Data

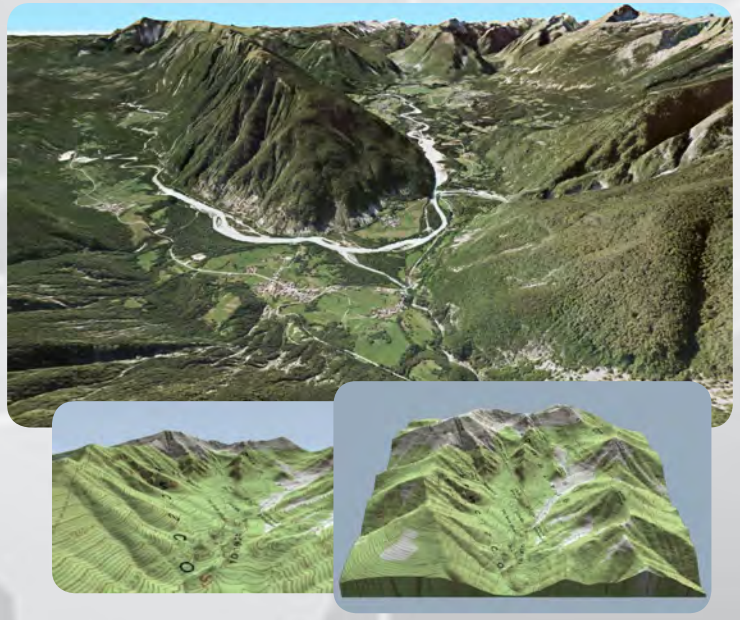
- 3D data of radars scanning
- 2D consoles at radar site
- Integrate data into a common operating picture

3D Radar Track Analysis

- 3D analysis of radar data after collection process
- radar data - big sets of data needs to be filtered
- to get the trajectories of target objects
- track targets with a 3D map viewer

3D Visualisation, Map viewer and Simulation

Data
Browsing and locating tools
Navigation tool
Support to the existing simulation system



SUPPORT

Precise information
Flexible communications
Virtual monitoring
Dynamic situational awareness

IMPROVES

Operational tempo
Coordination
Intelligence control and reconnaissance
Navigation
Logistic management

MINIMIZE

Operational purchase and cost of the support
Administrative time (automated processes)
costs of training and exercises

SIMPLIFIES

Maintenance
Overall support
Customizing
Operations

YOUR MISSION
OUR SOLUTION

Security does not happen by accident. If that's the plan, be prepared for failure.

A nation's primary security objective is to deter, first, and, in, the event deterrence fails, to respond successfully. Geofoto Group's core cadre of highly skilled, dedicated and exceptionally well qualified subject matter experts (SME) and trainers provide it a unique ability to design a comprehensive and wide ranging program that can assist nearly any client in the necessary planning, preparation and training necessary to meet its security requirements.

So, don't wait. Just as security does not happen by accident, it also does not happen overnight.

Contact Us to begin the approval process, now, to meet your security and training needs.

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