



Battle Resource Optimization System

The Innovative Solution for Operational
Mission Success Maximization

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The operational mission challenges of the 21st century battlefield are greater than ever before - complex environment, unpredictable developing conflict conditions, rapidly evolving threats as well as multiple missions, systems, sensors and users

Our innovative solution provides extensive tools that meet these challenges by maximizing operational success of tactical and strategic missions

Omnisys BRO is a real-time decision-support system that maximizes operational success through real-time asset optimization. Featuring real-time mission performance monitoring and prediction,

Omnisys BRO ensures improved mission planning and performance.

Versions of BRO are already operational and combat proven in the Israeli Defence Forces



Figure No 1: Optimized System Performance using **BRO**

The Challenge

- Operational mission requirements have changed dramatically over the last decade. Today's missions, such as Active Defence, Air Surveillance, Intelligence, Communication, Weapon Location, EW and so forth, are much more complex, dynamic and unpredictable thus effectively handling them necessitates the collective capabilities of complex systems.
- In order to achieve the operational objectives, multiple systems should thus operate synchronously within relatively short timeframes.
- Moreover, the economic climate causes significant reduction in the defense budget, forcing the armed forces to do more with less.
- Many advanced systems used by the armed forces include sensors such as radars, electro-optic systems, SIGINT systems, and the like. In some cases, these systems are operated in unison, employing Network Centric Warfare (NCW) concepts.
- Assessing the performance of such multi-layered systems in any given scenario, or tailoring advanced systems towards the developing threat, as the basis for determining how to efficiently exploit the maximum performance of these systems, is a difficult challenge.

The Solution

- In order to overcome this challenge, as defined with the Israeli Defence Forces, Omnisys suggests a novel decision support system concept, providing an end-to-end techno-operational solution for mission performance optimization.
- The system allows operational users to maximize the potential of their sensors and systems, achieving optimal mission performance, as well as conduct efficient semi-automatic operational research for decision making purposes.

BRO supports the following missions:

- Air surveillance
- Electronic warfare (EW)
- Spectrum Management
- Weapon location
- Wireless Communication
- SIGINT and ISR
- Active Defense
- Maritime security



Main benefits / contribution of our solution:

- Improvement of operational mission performance and effectiveness
- Optimization of operational mission resource utilization, so as to do more with less
- Reduction of operational team work load

BRO system provides:

- **Planning the optimal operational resource allocation**, taking into consideration system performance, deployment, current system status, intelligence data, physical environment effects, terrain conditions (DTM/DSM) and available infrastructure, as well as issues such as mutual interference, redundancy, survivability and safety.
 - Deployment and path optimization.
 - Optimal assignment of missions, mission priorities and operational parameters settings to each system.
- **Online mission performance monitoring, estimation and gap analysis**
 - Performance estimation.
 - Performance degradation alerts.
 - Enemy CONOPS change alerts.
- **Online operational recommendations for performance maximization**
 - Policy updates.
 - Missions and operational modes priority update.
 - Update of significant systems parameters, such as system deployment, spatial coverage and transmission frequencies.



BRO system can function either as a stand-alone system (direct interface with operational systems) or in conjunction with command and control (C2) systems

A Possible system configuration is presented in Figure 2.

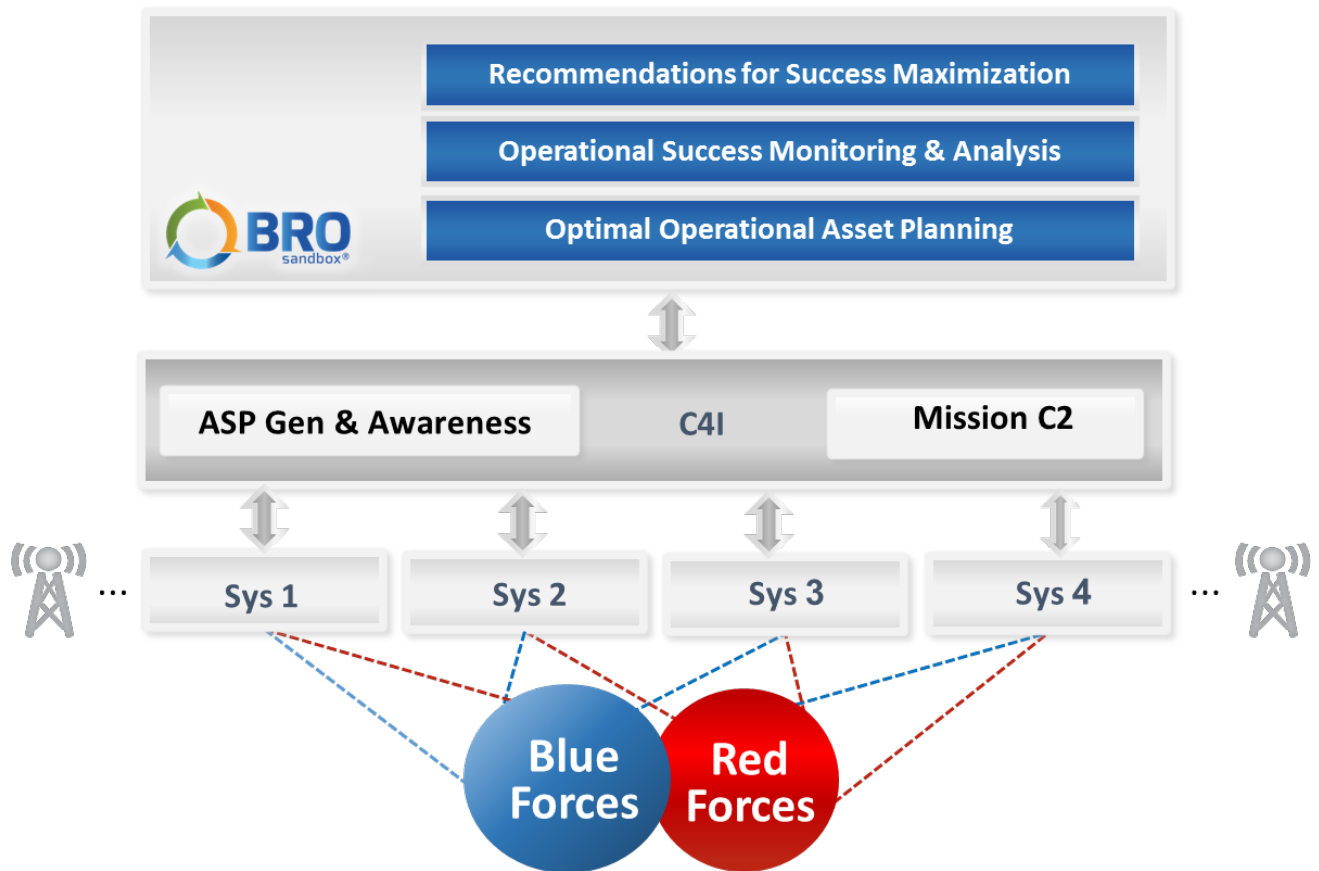


Figure No. 2 – A **BRO** system possible configuration

BRO was developed using Sandbox® techno-operational infrastructure, specially designed and developed by Omnisys LTD for the enhancement of operational mission performance. Sandbox® includes simulation, analysis and optimization engines running over a GIS infrastructure and user friendly HMI. The **BRO** system HMI example is presented in Figure 3.



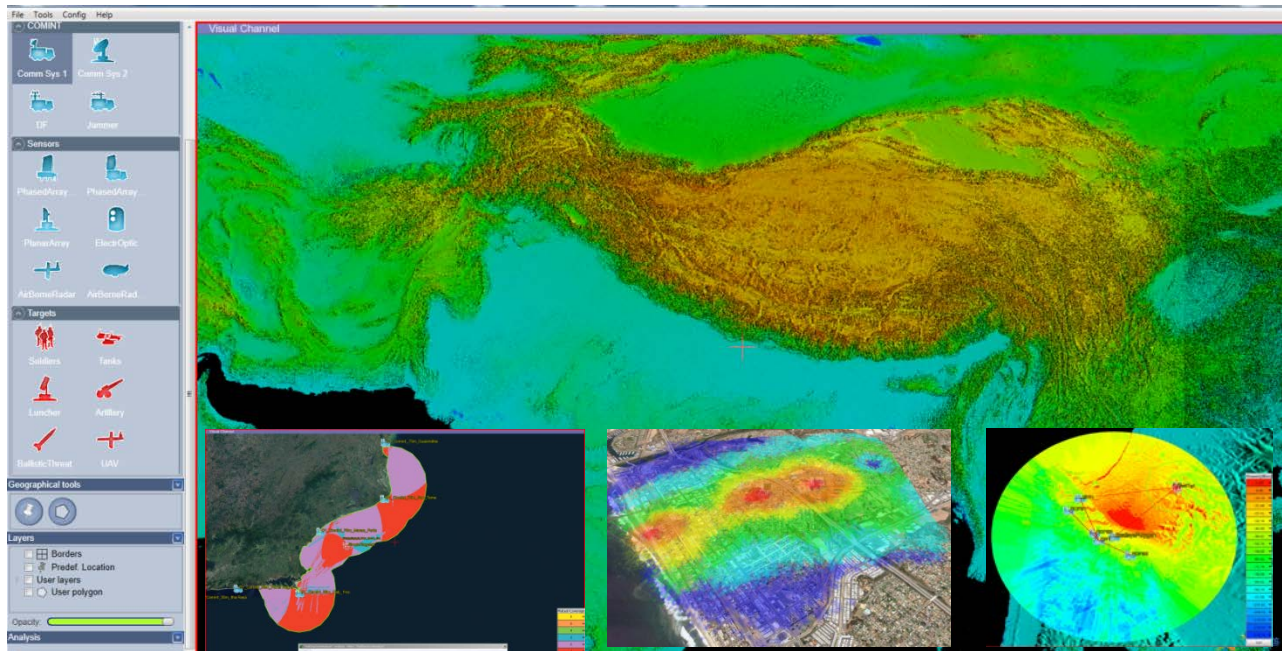


Figure No. 3 – The **BRO** system HMI Example

About Omnisys

Omnisys is an Israeli boutique firm, providing Real-time Decision Support Systems which are operational and combat proven in Israeli Defense Force. Omnisys solutions are used for Maximizing the Success of Operational Missions, facing the challenges of the modern battlefield.

Over the last 15 years, Omnisys has been providing solutions for maximizing the success of operational tactical and strategic missions by combination of deep understanding of operational needs, extensive experience in sensor systems and sensor networks, comprehensive knowledge of physical effects, development of advanced innovative algorithms and engines and development of generic software infrastructure (Sandbox®)

Omnisys' customers include the Israeli Defense Forces, the Israeli Ministry of Defense, as well as major Israeli defense industries.

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