REPLY
RED SCIENTIFIC

The science behind improved decision making

REPLY RED Scientific (RED)

RED is a broad-based consultancy supporting our customers' domain and technical specialist requirements. RED's current Digitally Enabled Engineering capabilities include:

- Wargaming
- Data Science
- Modelling & Simulation
- Operational Analysis
- AI/ML
- Software Development
- Mathematical Modelling and Digital Twins
- Integrated Product/ Logistics Support & Analysis
- Safety and Environmental Management & Consultancy
- Equipment Maintenance Analytics
- Systems Engineering

RED Analytical Wargame (RAW)

RED Scientific develop RAW, a sophisticated wargaming platform used by UK Land Warfare Centre and HQ ARRC. The game was created and validated with input from our database of over 200 historical engagements and supported by extensive data collection.

RAW is intended for Operational Planning and to support headquarters' exercises. Specific tasks include force on force analysis of outcomes, options assessment, and identification of the demand for combat service support, including logistics and medical support.

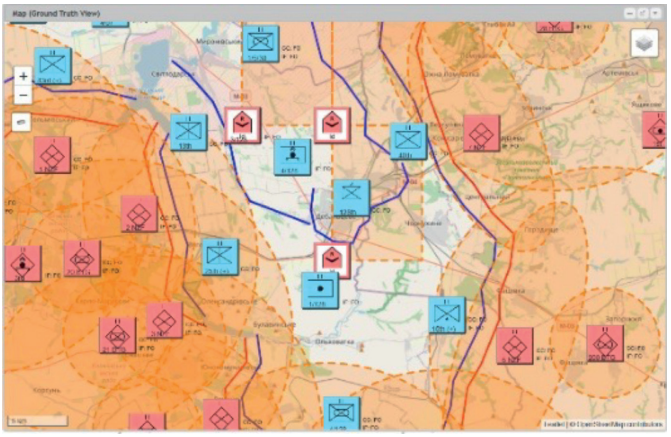
Engagements at Corps and Divisional level are modelled. RAW is designed to run in a few hours with teams of 1-3 players yet still have a high level of realism.

WAR models all aspects of operational-level land warfare, including ISTAR, manoeuvre, fires, and close combat, with a user-friendly, map-based interface, NATO symbology and Flexible Hosting. Features also include:

- Terrain based speed of movement
- Target acquisition sensors & intelligence
- Intelligence based views
- Realistic force movement
- Variable time step
- Orders of Battle
- Attrition
- Rotary & fixed wing
- Logistics
- Casualties

The game also includes a scenario development tool which allows games to be set up rapidly using a library of NATO and adversary formations. RAW represents the manoeuvre and engagement of land forces in major conventional warfighting operations. It includes algorithms for assessing:

- Speed of movement of forces, in opposed advances and administrative moves, dependent upon terrain.
- Target acquisition, using an array of sensors, and intelligence analysis.
- Electronic warfare, including radio direction finding and jamming.
- Attrition caused by fixed and rotary wing aircraft on land forces, and attrition of rotary wing aircraft by ground-based air defences.
- Attrition caused by long range fires, including cruise and ballistic missiles, and ballistic missile defence.
- The outcome of close combat engagements, in terms of the ability of forces in defensive positions to hold ground, and attrition.
- Transport and consumption of logistic stock, and the vulnerability of resupply routes and logistic stores to fires.
- Equipment support, including the repair of system failures and combat damage.



Screenshot from RAW showing sensor detection ranges

Algorithms have been derived from or validated against statistical analysis of the historical engagements or derived from physical principles e.g. artillery effects. The game is intended to represent a Corps-level operation with Brigade sized units or a Division-level operation with battalion sized units.

The game is played using a flexible turn-length, allowing complex interactions to be played in detail while speeding over operational pauses. This is achieved by an innovative visualisation of the phasing of activities in a synchronisation matrix. Moves can be scheduled in advance and there is a revert/replay function. RAW also supports a representation of intelligence; players give orders based on the intelligence available to them from their sensors, rather than having a ‘god’s eye view’ of the battlefield.

RAW uses a modular approach, enabling incremental capability growth to meet evolving operational needs of our customers. Our agile methodology allows us to rapidly integrate new modules and simulate emerging threats and technologies as they develop.

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