

## What need is the MATREX C3Grid addressing?

The real world Army is organized into well defined hierarchies with roles and responsibilities articulated and understood.

Communication in the real world occurs over real equipment. It is well defined with a purpose and an intended effect.

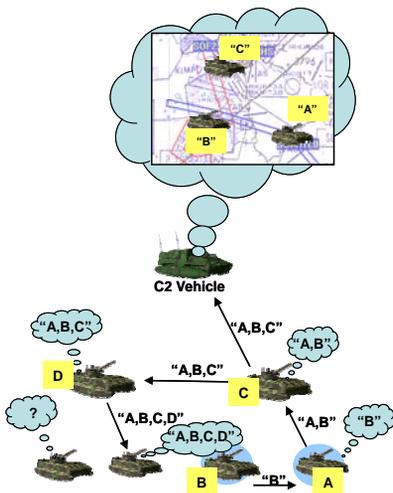
Decisions are made based on information and understanding – situational awareness.

The degree to which the real world and the simulated world can interoperate depends on the ability of each to impact the other; i.e., their ability to communicate with each other.

The C3Grid enables MATREX to simulate information age operational realities – the force structure and information flows that are the challenges of the future Army concept and/or doctrine.

## How is the MATREX C3Grid addressing this need?

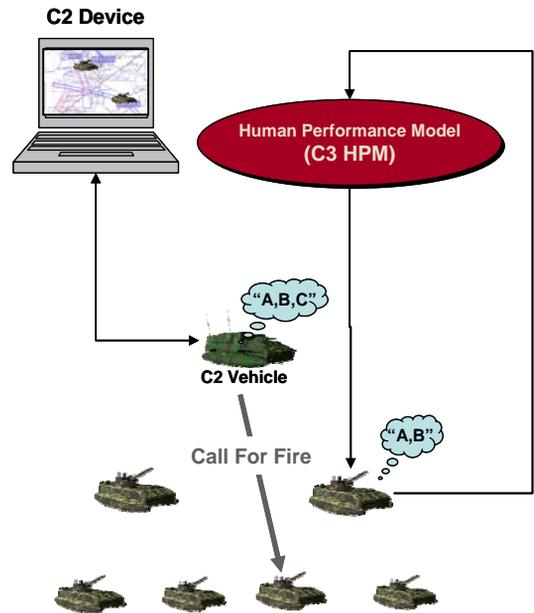
The C3Grid manages the Common Operating Picture (COP) and Local Operating Picture (LOP) for the force structure according to the information flow. It also provides interfaces for integration of external services including communication effects, fusion, human performance modeling and Command & Control devices; these services are highly configurable or replaceable according to information topologies and higher fidelity model availability.



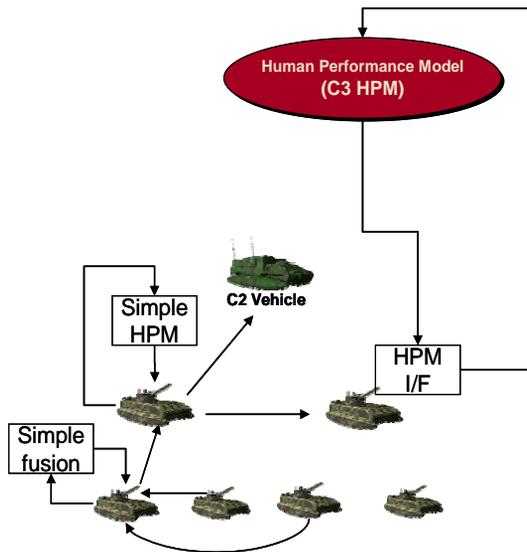
The C3Grid enables the modeling of the propagation and maintenance of friendly and enemy situational awareness (SA) as it originates from the simulated battlefield:

- Converts data from battlefield simulations into reported/detected information
- Models the reporting of that information from the detecting/reporting platform to other platforms via defined reporting hierarchies
- Maintains information about known entities (friendly & enemy) on behalf of the simulation(s) modeling the battlefield entities

Command and Control (C2) devices with human operators and C2 simulation models with constructive behaviors are conveyed SA information via the interface to the COP/LOP provided by the C3Grid.



The C3Grid can interface with higher fidelity fusion and human performance models and can act as a surrogate in the absence of those models.



Often the network is modeled by simulation applications sharing data without communicated messages being generated and network load affecting successful transmission. The C3Grid provides an interface to higher fidelity Communication Effects Server (CES) that effects message transmission based on network load, special factors, weather, terrain, etc. The C3Grid can also act as a surrogate CES by providing simple message delays or no delays.

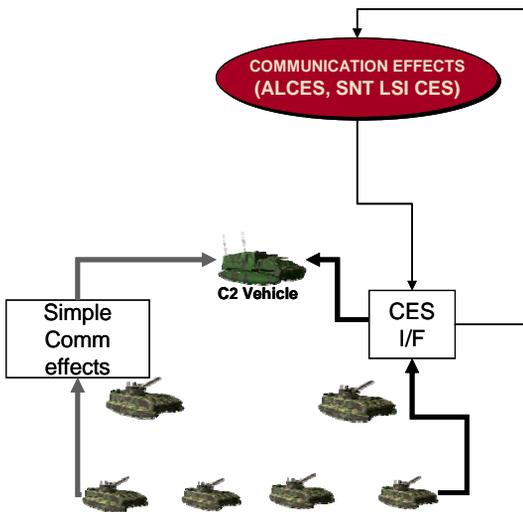
## Points of Contact

[www.rdecom.army.mil](http://www.rdecom.army.mil)

[www.matrex.rdecom.army.mil](http://www.matrex.rdecom.army.mil)

## Who is benefiting from the MATREX C3Grid?

- Research, Development and Engineering Command
  - AMRDEC
  - ARDEC
  - ARL
  - CERDEC (Fort Belvoir and Fort Monmouth)
  - NSRDEC
  - STTC
  - TARDEC
- Future Combat System Lead System Integrator
- Various Other TRADOC and ATEC Customers



## Acronyms List

- AMRDEC** = Aviation & Missile Research, Development and Engineering Center
- ARDEC** = Armament Research, Development and Engineering Center
- ARL** = Army Research Laboratory
- CERDEC** = Communications-Electronics Research, Development and Engineering Center
- CES** = Communications Effects Server
- COP** = Common Operational Picture
- C2** = Command & Control
- C3HPM** = Command and Control, Communications, Human Performance Modeling
- ECBC** = Edgewood Chemical and Biological Center
- FCS** = Future Combat System
- LOP** = Local Operational Picture
- LSI** = Lead System Integrator
- MATREX** = Modeling Architecture for Technology, Research and Experimentation
- NSRDEC** = Natick Soldier Research, Development and Engineering Center
- SA** = Situational Awareness
- STTC** = Simulation & Technology Training Center
- TARDEC** = Tank and Automotive Research, Development and Engineering Center
- TRADOC** = Training and Doctrine Command

**Get the right M&S technology to the right place, at the right time, for the Decision Maker and the Warfighter.**