

UAV Warfare and Battle Management

The action within Syria and Iraq and now Ukraine is an oscillating adventure with first the incumbents and then the rebels advancing followed by a retreat to the status quo.

The impact of technology and budget constraints modifies the execution of tactics as practiced in large-scale warfare. Fundamentally five elements of conflict comprise events that a commander must address:

- a) Persistent surveillance and attack: Overhead sensors identify all high-value targets within Donetsk. Strike drones are assigned to each target and continue to deploy weapons until all objects of interest are reduced to a prescribed level of destruction.
- b) Resistance: An adversary consolidates and perhaps withdraws into safety zones that offset drone performance.
- c) Boots on the ground: Air attacks are a precursor to victory. They pave the way for armed rebels to root out and destroy concealed Resistance forces. Any serious resistance is met with additional drone strikes.
- d) Closing the net: Ukrainian armies perhaps supported by other nations overwhelm any remaining Resistance forces.
- e) Negotiations: The Ukrainian government negotiates peace with known adversaries.

No US forces; except SOCOM advisors, drone managers and maintenance personnel, and system planners; are engaged in conflict. Battles are swift. The tactics apply to multiple objectives such as the Yemen engagement, undertakings in the African continent, and Mexican drug interdictions.

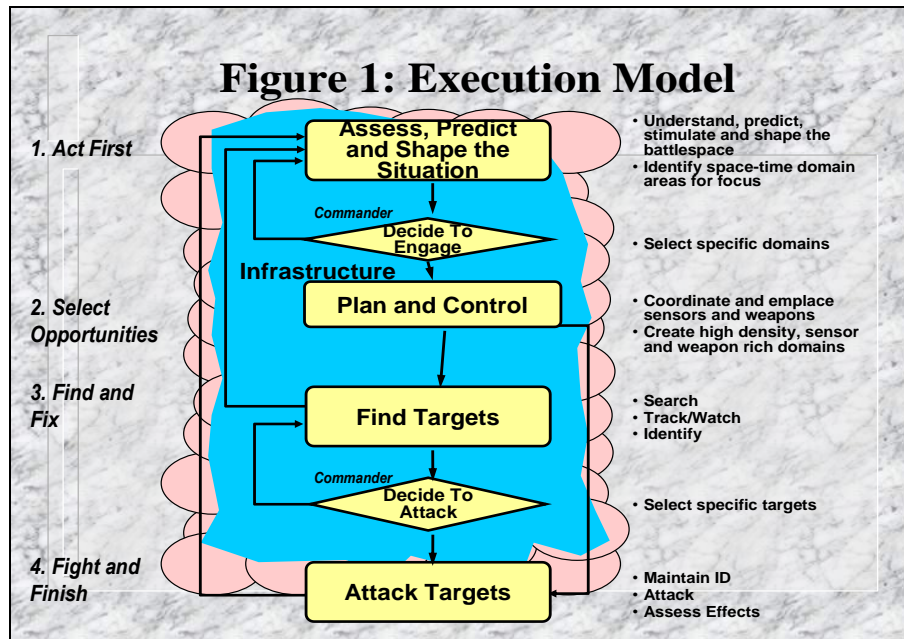
In order to respond to asynchronous events, a decision support system (DSS) is mandatory. UAVs are assigned to targets. Logistics are coordinated with tactics and appropriate sensors and weapons are selected for drone payloads. All functions are optimized and decisions are revised in near real-time to reckon solutions for a dynamically changing environment.

In response to mission requirements, NBS Enterprises (NBS) has developed a decision support system (DSS) for battlefield management.

The DSS is a software tool suite which assists with the selection of resources, development of courses of action and optimal allocations of resources from points of debarkation to areas of interest. Decision support is provided to commanders such that they are able to reduce planning time and costs, as well as to enhance the performance of operations.

The algorithms exist, have been tested and applied to resource allocation solutions both for the military and the commercial world.

Applications require domain specific data integration and business rule development. No research and development funds for algorithms are required.



To efficiently coordinate dynamic “sense and respond” operations and massed sensor employment, an optimized asset management scheme and a sensor data fusion capability are envisioned. The concept of operations embodies a structure for communications between a command and control center and all distributed assets, as well as among all assets in a battlefield or an area of interest (AOI). Support for planning and mission execution is provided by an automated exploitation system that embodies near real-time decision support and course of action development.

The principle components of the exploitation system are:

- An automated algorithmic suite to select and deploy multiple fixed and mobile sensors optimally
- A manager of communications
- An optimal disposition of platforms that effect persistent surveillance
- An automated algorithmic suite to allocate weapons to targets
- An integration of combat forces and logistical support
- A decision support system that assists with command and control, development of courses of action, and the planning and execution of military objectives

Fundamentally, a battlefield decision support system assists with the management of sensors, communications and other tactical assets that contribute to “sense and respond” mission applications.