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COMMAND/ CONTROL FUNCTION

HCBrown

1. OBJECTIVE

We are attempting to identify as *functions* relations between pairs of elements (or between units) which in some fashion alter the functional potential of at least one. Command is a relation between elements, but it alters potential only when certain types of *information* are passed between commander and commanded. Thus Command is not actually a function but a functional field including the three sub-functions: Order, Request, and Status Report. Each of these is a transmission of information having certain content and certain effects.

2. STATUS REPORTS provide information concerning the position and potential of the commanded unit. When this information is placed in the files of the recipient, it improves the estimation process and thus the potential for sound decision and orders.

Status reports are distinguished from intelligence reports, which deal with hostile elements. The distinction is made because the intelligence must be extracted from the enemy, whereas status reports are given voluntarily.

3. REQUESTS are actually suggested courses of action, either for the requesting element, or for some other element under the control of the element on whom the request is made. They are introduced into the planning matrix of the higher command, and may result in alteration of the decision. Having amplified the matrix, they result in a change of decision (command) potential.

4. ORDERS may be simple statements of what is to be done -- "Move from Point A to Point B" -- or, when issued to another command element, they may be mission-type orders. For Fire and Maneuver units, the mission-type orders include valuation of objectives (time dependent) and establishment of residual value of both friendly and enemy elements.

5. DISCUSSION

So far I am talking about a simple command element -- a commander. We may for some problems treat even a larger HQ (Head Quarters) as a simple element, ignoring its internal processes. On the other hand, we may desire to model the internal processes of the HQ, in which case we would specify different elements -- staff officers, file keepers, etc., and define their functional interrelation which would probably be more complex.

Also at this time we are talking about a combat headquarters controlling Fire and Maneuver units or elements, and possibly other type elements as well. We may later turn out attention to specialized headquarters such as those for the direction of logistic activities. These will probably be simpler in concept.

The description used by the U.S.Army is Command/Control/Communications (C^3). I have omitted the last two designators for the following reasons. The "signal channel" aspect of communications I have relegated to the Signal function; it is a "logistic" service similar to the others. The *semantic* aspect of communications is a characteristic of the Command elements. They are skilled in expressing and understanding orders, requests, and reports or they are not. This is a human factors sort of consideration which we may eventually get to.

Control, as I understand the term, is another human factors sort of consideration. With perfectly skilled and motivated subordinates and perfect communications in both the semantic and signal sense, there would be no real occasion for any control measures other than those embodied in the orders (phase-line, boundaries, etc.). Because the organization is an imperfect one operated by human beings, we resort to liaison officers, frequent reports, interference by higher HQ, centralization of authority, etc. How to balance control versus independent action for optimum results is a very challenging question, but it is still a question of technique of command and organization, not truly a separate function.

6. ALTERNATIVES

The following study alternatives suggest themselves as proposed packages of work:

For Army Missile Concepts Agency:

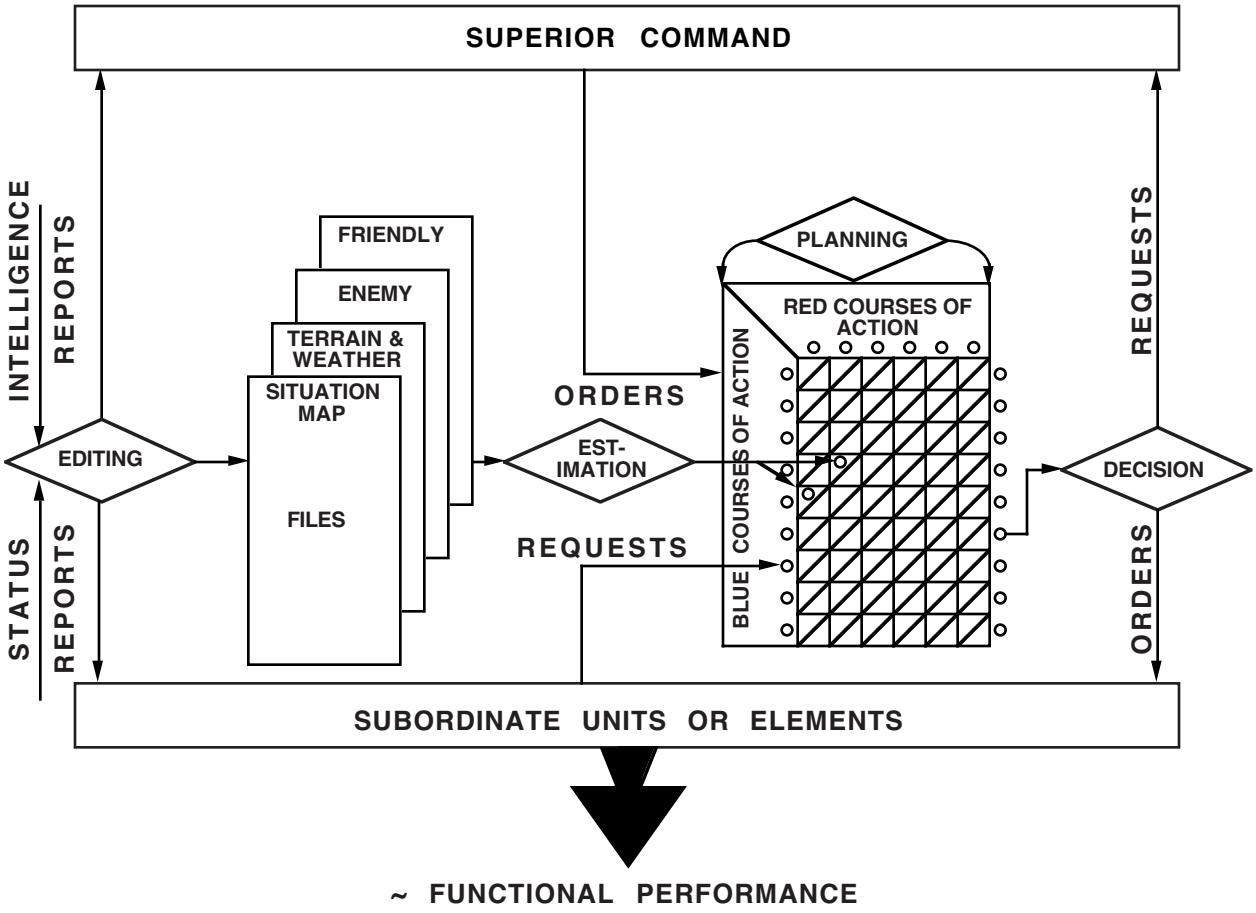
Force design based on functional analysis

Compatibility assessment

For Army Electronics Command

Analysis of the Command Function

Analysis of the Intelligence Function



Command Continuously Plans & Triggers Functional Performance.