COVER SHEET

Effects-Based Planning: An Empirical Examination of the Process

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Effects-Based Planning: An Empirical Examination of the Process*

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Abstract

Recent world events have demonstrated that future conflicts will not necessarily be between nation states. Transnational threats to U.S. national security include drug cartels and international criminal and terrorist organizations. In response, the U.S. Joint Forces Command is leading a transition toward a new approach to warfare. A cornerstone of this new approach is the concept of Rapid Decisive Operations, which integrate knowledge, command and control, and Effects-Based Operations to achieve the desired strategic outcome or "effect" on the enemy through the synergistic application of the full range of military and nonmilitary capabilities at all levels of conflict. In preparing for and conducting a RDO, the military acts in concert with and leverages the other instruments of national power to understand and reduce the adversary's critical capabilities and coherence. Focusing on effects, rather than attrition, enables a highly coordinated level of inter-service, interagency, and international cooperation. An experiment was conducted to examine aspects of EBO, and to specifically assess and refine the effects-based planning process. This paper describes the results of a survey on the effects-based planning and assessment process, and is a companion paper to two other papers that discuss results of the other two surveys that were administered.

1. Introduction

The world and operating environment for the U.S. military are changing. Recent world events have demonstrated that future conflicts will not necessarily be between nation states. Transnational threats to U.S. national security include drug cartels and international criminal and terrorist organizations. Additionally, the end of the cold war has led to reductions in U.S. forces and loss of overseas bases, while at the same time, Congress has expressed a desire for a more rapid resolution of future conflicts. In response, the U.S. Joint Forces Command (JFCOM), J9, is leading a transition toward a new approach to warfare.

A cornerstone of this new approach is the concept of Rapid Decisive Operations (RDO), which integrate knowledge, command and control, and Effects-based Operations (EBO) to achieve the desired strategic outcome or "effect" on the enemy through the synergistic and cumulative application of the full range of

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military and nonmilitary capabilities at all levels of conflict.[1,2] In preparing for and conducting a RDO, the military acts in concert with and leverages the other instruments of national power to understand and reduce the adversary's critical capabilities and coherence. Focusing on effects, rather than attrition, enables a highly coordinated level of inter-service, interagency, and international cooperation.

This new approach to warfare requires a highly knowledgeable understanding of the direct, indirect, intended, and unintended consequences, or *effects,* of our actions. To provide an example, a traditional attack on a weapons manufacturing plant, or an industrial target, may be less effective than in the past if the equipment that was destroyed and the lost production can be quickly and easily replaced in the international marketplace.[3] Moreover, because the industrial facility in a hostile country may be owned by a firm in a friendly country, this decision to attack is further complicated. The decision to attack a particular target requires a much more elaborate understanding and forecasting of collateral, indirect, and unintended consequences than was used in planning attacks in previous adversarial situations.

The shift to EBO effects both planning and assessment. Traditionally, military planners would focus on consideration of factors such as the number and type of aircraft to be employed, types and quantity of weapons to be used, and the number of sorties to be flown. Now the goal is to emphasize what all these weapons and platforms will accomplish, that is, what overall *outcomes* will be achieved.[3] Similarly, the effects assessment (EA) process goes beyond traditional attrition-related and performance-related assessments included in today's combat assessment process. EA must be a continuous feedback process that can collect, process, exploit, and disseminate information to the appropriate level (strategic, operational, or tactical) in time spans that allow commanders to make decisions in an intensely dynamic situation. The EA perspective includes "determination of whether some, or all of, the desired effects were produced and, if so, to what level, what unintended effects were produced, their overall impact on the joint effort, and how the tactical actions taken either contributed or failed to contribute to obtaining the desired outcome." [2] The experiment reported on in this paper is part of a sequence of experiments and events planned to test and refine new concepts being developed at JFCOM, J9.

2. Effects-Based Operations Planning Process

The effects-based operations (EBO) process is conceptualized as a continuous and iterative planning and execution cycle. This cycle comprises the following five phases. Developing a comprehensive knowledge, or insight, into the nature of the adversary, the environment, and our own capabilities; this is accomplished by conducting an operational net assessment (this process is described below). The second phase entails articulating the desired effects necessary to break the adversary's cohesion and to cause the adversary to change his behavior—these effects are articulated via an Effects Tasking Order (ETO). The third phase involves determining and applying those elements of national power, i.e., diplomatic, informational, military, and economic, that will be most effective in achieving the desired effects, and assessing the application of capabilities in terms of the desired effects. The forth phase includes conducting an integrated and continuous assessment process to measure and assess the impact of the effects created. The fifth phase involves making decisions regarding ways the commander can adapt and adjust the current course of action to more effectively reach the desired end state.

Characteristics that distinguish effects-based planning from traditional objectives-based planning include development of a broader and deeper insight into the adversary through the fusion of information from a broad spectrum of sources, including national and international, government and non-governmental. Insight into the adversary is developed through conducting a complex "system of systems analysis" (SoSA) of the adversary. Planners conduct this systems analysis collaboratively with a

networked and distributed team of experts (cultural, behavioral, technical, economic, political, and military) and centers of excellence.[2] EBO planning goes a step further than consideration of which actions will produce an objective (i.e., the traditional approach) to consider the full range of potential results of our actions (including direct and indirect effects, desired and undesired effects).

3. Operational Net Assessment

The challenge inherent in the EBO process is to accurately identify the causal linkages that determine whether or not the action taken will achieve the desired effect. [ibid] This challenge is addressed through the Operational Net Assessment (ONA). The ONA is a product of collaboration among analysts at strategic, operational, and tactical levels. It provides a common knowledge base available to all customers from the national strategic level to the tactical level. Contributions of potential customers impact each element of the ONA, since the ONA views a potential adversary as an interdependent system of systems, all of which contribute to some degree toward his societal coherence, will, and capability to pursue a course of action inimical to friendly interests. The ONA goes far beyond traditional intelligence assessments. It is an action-oriented process that provides a continuous stream of knowledge from adversary vulnerabilities to effects to tasks. The ONA process helps develop situational awareness and understanding.

4. Concept Experiment on the Effects-Based Planning Process

An experiment entitled Effects Tasking Order-to-Actions Limited Objective Experiment (ETO-to-Actions LOE), was conducted at the JFCOM, Joint Experimentation Center, Suffolk, VA, 3-14 December, 2001, to examine aspects of EBO, and to specifically assess and refine the effects-based planning and assessment (EBP&A) processes. This experiment was designed and conducted by a partnership of the Naval Postgraduate School, JFCOM, J9, and the Navy Warfare Development Command. The previous experiments and events focused primarily on the Joint Force Headquarters (JFHQ) level of command, with the majority of effort directed at refining the process down to producing an ETO (which effectively issues effects-based orders to the subordinate functional components). The ETO-to-Actions LOE focused within and below the JFHQ to examine the required coordination and collaboration processes (both vertically and horizontally) between the JFHQ and the functional components HQs, which is needed to collaboratively develop the ETO and translate the effects directed in it into tactical actions on the battlefield.

The experimental participants included representatives from all services, organized into a Joint Task Force HQ staff and functional component HQ staffs (air, maritime, land, special operations force, and political). Thirty-nine percent were active duty, forty-two percent were retired military personnel, and the rest were civilian concept developers at JFCOM. Three days of training on the new processes and collaboration tools were provided to familiarize participants with the new concepts. Five days of game execution consisted of the collaborative planning between the Joint Task Force staff and the subordinate functional component staffs, culminating in the JTFC issuing an ETO to the Joint Force.

5. Survey Administration

Three surveys were administered during the experiment to gather data on the effectiveness of (1) the collaborative tools and the training provided to the participants for this experiment, (2) knowledge management and collaboration as critical aspects of effects-based planning, and (3) the effects-based planning and assessment process. This paper describes the results of the survey on the effects-based

planning and assessment process, and is a companion paper to two other papers that discuss results of the other two surveys.[4, 5]

Forty-three items were presented as statements about the effects-based planning and assessment process. This paper will present results of a sub-set of these items due to space limitations. (These items are listed in Table 1.) Participants were asked to rate the extent to which they agreed with each statement by using a five-point Lickert scale that ranged from "strongly disagree" to "strongly agree" (where 1 = strongly disagree, 2 = somewhat disagree, 3 = neither disagree nor agree, 4 = somewhat agree, and 5 = strongly agree). Nine of the items were open-ended questions and asked participants to indicate ways in which various aspects of the process could be improved. The survey was administered to all 99 experimental participants; 88 completed surveys were returned and analyzed. Comments on the survey were reviewed and are summarized in this paper.

6. Results

Table 1 presents the survey items, the mean ratings given by the participants, and the standard deviation for each rating. Overall, the participants' ratings for the survey items varied considerably depending on the survey question. The goal for this experiment was to help define and further refine aspects of the EBP&A process. In most cases, items that received a low mean rating reflect the fact that parts of the EBP&A process need additional development. Each of the items will be discussed in the order in which they are listed in the table.

Table 1. Effects-Based Planning and Assessment Survey Questions and Results.

Item Num.	Question	Mean	Std. Dev.
1	The procedures for effects-based planning were clear and complete.	2.9	1.1
2	JTF/Component responsibilities for EBP&A were clearly defined.	3.0	1.0
3	I experienced uncertainty regarding desired effects passed down from more senior commanders when developing plans at my level.	2.8	1.1
4	The EBP&A process was more challenging than traditional objectives-based planning.	3.6	1.2
5	During effects-based planning, the process of updating the ONA for a new potential effect (nodes, links, tasks) was timely.	2.6	1.1
6	What data/information/assessments should the components provide in the ETO to better enable effects-based planning and assessment (EBP&A)?	*	*
7	The effects-based planning process facilitates the development of more complete/ robust courses of action.	3.2	1.1
8	The development of only one COA provided sufficiently in-depth planning to properly develop branches and sequels in anticipation of adversary actions, reactions, and counteractions.	2.8	1.1
9	Daily staff briefings contained aspects of effects-based operations.	3.8	.98
10	JTF planners were able to develop Measures of Effectiveness (MOEs) for the desired effects that were meaningful and observable.	3.0	.93
11	Use of the Prioritized Effects List (PEL) supports JTF level decisionmaking.	3.5	.99
12	There are too many participants involved in the EBP process.	2.7	1.1
13	It is easy to know when the Effects-Tasking Order (ETO) is being updated.	2.6	1.1
14	Effects-Based Assessments were completed and posted to the CROP in a timely	2.6	.94

	enough fashion to support current and future planning efforts.		
15	**CONOPs/TTPs used during the ETO-to-Actions LOE clearly describe how the EBP&A process and the JISR management process complement each other.**	**2.7**	**1.0**
16	**Component participation is required for effects-based planning.**	**4.6**	**.79**
17	**Component participation in the JTF mission analysis process facilitated component-level and cross-component planning efforts.**	**4.1**	**.89**
18	**Component participation in the JTF course of action development process facilitated component-level and cross-component planning efforts.**	**4.2**	**.86**

Notes. * Indicates a text only response.

6.1 Procedures for EBP&A were clear and complete.

The assertion that the procedures for EBP&A were clearly defined received a mean rating of 2.9, slightly below the midpoint. This equivalency most likely reflects that the assessment portion of EBP&A was not included in this LOE, and was reflected in the varying degree of agreement or disagreement with the assertion in the player comments. One participant who agreed, commented that effects-based planning is not new, the procedures have been clear for years (i.e., they are taught at the War College and practiced on warfighting CINC staffs and at the Joint Warfare Analysis Center). This player further stated that the main value added during the LOE was the greater emphasis on formal interagency participation, and that on the intelligence, surveillance, and reconnaissance (ISR) side, things like naval intelligence support teams would become even more important. Another expressed uncertainty about what was new, and asked whether, "in the past we didn't understand the final effect was more important than the number of tons of ordnance we dropped?" Several players who disagreed stated that the basics are there, but exactly what happens, who talks to who, what empowering products are produced, and posted, where…are still a work in progress, e.g., the terminology is not universally accepted yet.

Several problems were noted with the process or its implementation. One player stated that ONA use has not been linked very well to tactical level planning, and noted that the joint force maritime component commander (JFMCC) had aggressively used the ONA to do tactical level planning, but this had been an "a la carte" approach to the analysis. This player further commented that the ONA analysts need an online collaboration forum to clarify the connection between the system of systems analysis (SoSA) and tactical actions. Another stated that the concepts are not difficult themselves, but they compete with existing ideas of how planning, production and communication of orders should be conducted. Yet another participant noted that it is still not clear how elements of effects-based planning dovetail with existing procedures. This player asked if the procedures were designed to replace, or add to, the current process; specifically, for the targeting process and the collection process. Do nodes replace targets? Is the target list built from data stored in the ONA?

6.2 JTF/Component responsibilities for EBP&A were clearly defined.

The question that asked whether JTF and component responsibilities for EBP&A were clearly defined received a mean rating of 3.0, accordingly, the comments fell on both sides of the issue. Some participants felt that the responsibilities were clearly defined at some levels of the force, but not at others. Others stated that they were well defined at the macro level, but the details need to be filled in, such as the meaning of these responsibilities, in terms of planning, execution, and synchronization functions, is not defined. Commenting on the relationships between components, one participant observed that a delineated organizational matrix, which shows interactions and periodicity, is needed. Another stated that there was confusion as to the degree of authority that the supported component

commander has, questioning whether he actually develops the entire plan himself and then turns it over to the JTF. Yet another stated that while many responsibilities were well defined, the requirement for synchronization among services, vice the JTF leading the effort was not.

Another player emphasized that this was an experiment, and the objective was to work through the issues to determine what worked well and what did not. Moreover, some degree of "fog" is inherent to this process. One player stated that the JFMCC, in an effort to incorporate lessons learned, critiqued and modified a process model that had been developed prior to the LOE. This was followed by a suggestion that the JTFC staff similarly modify its process model to show how interactions between components and the JTF, and between the service components, are expected to work. Effects assess-ment was noted as a weakness. One player stated that responsibilities had been refined considerably over the course of the LOE, but assessment is needed. Another commented that the assessment part was in particular a problem, further stating that the ability to assess a smoking hole is much easier than assessing an 'effect', and noted that the methods and tools to conduct effects-based operations will require much more thought. Reflecting on EBP&A, one participant commented that stating an effect (to be achieved) is easy, determining how to achieve that effect, is, and has always been, the challenge.

Some players thought the actual processes for developing an effects-based campaign, which in turn is translated into an ETO for conducting synchronized simultaneous joint tactical actions, with supporting collection mechanisms to assess effects, are not well defined or articulated. Therefore, only the macro component responsibilities (e.g., plan and execute joint tactical actions (JTAs), or supporting actions, for other component JTAs are well defined). What these responsibilities mean, in terms of planning, and execution of synchronized functions, is not defined.

6.3 I experienced uncertainty regarding desired effects passed down from more senior commanders when developing plans at my level.

The question that asked if participants experienced uncertainty regarding desired effects passed down from more senior commanders when developing plans at their level received a mean rating of 2.7. Comments indicate that the desired effects were for the most part understood, but how to translate them into plans at the lower level was less clear. Comments from players who had experienced uncertainty included that the expressed effects desired were too broad, and that a geographic representation of the CJTF plan with greater specificity regarding desired effects would be very helpful. Those who did not experience uncertainty regarding desired effects thought that the desired effects were clear and that the effects called for could be converted into plans. Others indicated that the difficulty was translating the high-level effects into actionable things to do. For example, the JTF Commander’s guidance was very clear, it was everyone else’s interpretation of this guidance that created uncertainty; others indicated that the desired effects were clear, but prioritization regarding desired effects was not.

Problems identified as contributing to uncertainty included that the totality of how to achieve effects was still not clearly understood. It was not clear, for example, whether the JTF staff could resolve different approaches to achieving effects that the components might develop since no functional process or tool for force deconfliction exists. A related view was that broad effects at the CINC level should be paired down by the components to develop effects that are achievable by their commands (as is done with commander’s intent today). An example of the latter was that a traditional item from commander's intent, e.g., "ensure freedom of navigation" would change to "confine enemy fleet to mainland ports."

6.4 The EBP&A process was more challenging than traditional objectives-based planning.

The question that asked whether the EBP&A process was more challenging than traditional objectives-based planning received a mean rating of 3.6. Players who thought that the EBP&A process is more difficult thought it was for the following reasons: EBP&A requires extensive collaboration to be successful; it is new, e.g., there is a good deal of new nomenclature (in addition to the fact that they were simultaneously working on refining the concepts in addition to developing the effects-based planning products); it is not as straightforward as simply targeting known enemies; and it represents a change in the way one thinks. A cogent comment was that while EBP&A is new, even after it matures it will still be more difficult than an objective-based approach to planning, e.g., "take that hill." Despite the inherent challenges associated with EBP&A, others felt that the benefits will outweigh the extra work entailed; the potential payoffs in precision and efficiency are enormous; however, the assessment part of the process will be much more difficult if EBP&A is going to be effective.

Players who did not think the EBP&A process was more challenging thought that there was no significant difference in the two processes: "There is a misperception that objectives-based planning discounts effects, and that effects-based planning discounts operational and strategic objectives." A similar perspective was that the basics are no more challenging: the challenge is understanding the concept and relationships. Others felt that using the tools and learning to navigate around inside the tools was difficult, but not the entire process; planning and execution in a joint operational environment has always been challenging; and that it is not more challenging than doing traditional objectives-based planning correctly. Problems identified included the integration of collaborative planning; balancing time vs. producing the planning products; and continuously thinking and expressing oneself in terms of "effects." Collaborative planning was difficult because doing things collaboratively is new, and in many cases, the players were not familiar with the other participants, so they were not sure who to collaborate with or how the collaboration process was to be conducted.

6.5 During effects-based planning, the process of updating the ONA for a new potential effect (node, links, tasks) was timely.

The question asserting that the process of updating the ONA was timely received a mean rating of 2.6, the second lowest rating of any item. Two participants, who observed that when the ONA was updated that it was timely, also noted that there was not much action to keep up with and cautioned not to interpret this as an indication that the process of updating the ONA will work well in a full-scale event. One added that in a live operation they would be busy fighting the war, and updating the ONA would probably not be the highest priority. Another, an experienced operations planner who added one effect to the ONA, was able to accomplish the entire process within 30 minutes, based on the use of pre-identified nodes. This participant thought that the process would have taken more time to accomplish, if the resources to be used were used collaboratively. [This is interpreted to mean there is an "overhead" cost associated with using asynchronous collaboration; this may be due to working in a multi-tasking environment to conduct planning.] One participant stated that as the process matures, and all operators and planners become familiar with the ONA, the process of updating the ONA will be able to be accomplished in less time. Another thought that once the process of using the ONA tool was learned, it was timely.

In contrast, a participant stated that the process of updating the ONA was not really tested or exercised. Another player indicated that he did not see any updates while using the ONA to develop the prioritized effects list (PEL); and another felt that the new process that was used, and the resultant changes that were produced, were not always timely. With respect to the components, one player did not notice any updates in the ONA at the component level; another noted that there was insufficient familiarity with the

ONA to allow for timely updating, but there was an increasing attempt by the components to do so. A player who thought the process of updating the ONA was not timely, questioned who was performing this task, and when, and also inquired about the validation process, such as, who is the central clearinghouse for changes? One participant noted that the R [rapid] in RDO appears to be difficult to obtain using the ONA tool to craft new effects during crisis action planning, but expected there to be no impact on deliberate planning. A player who did not use the ONA tool, because he did not find it useful, did not see how in real life it could possibly be updated correctly.

Several players noted the need for a more clearly defined process. One noted that there are too many steps to be accomplished in the ONA—it's not yet up to Napoleon's "Corporal standards" (i.e., simple and straightforward enough to be easily understood). In partial contrast, one participant commented that the mechanics are very straightforward for the SoSA and for the JTFHQ, but the process of identifying the need for a new effect to be developed, and determination of who would have the responsibility for executing it, were more difficult. A similar perspective was that technically, the process of updating the ONA was easy, and it could be accomplished in a timely way, but convincing people to do this (i.e., use these new tools and processes) was difficult. Several players stated that they were not familiar with the process for updating the ONA, and one was not aware that this was possible. One player noted that updating the ONA will require continuous intelligence assessment updates, with alerts to the appropriate planners, and the lack of these updates significantly affected the value of the LOE.

6.6 What data/information/assessments should the components provide in the ETO to better enable Effects-Based Planning and Assessment?

The question that asked what data/information/assessments should the components provide in the ETO to better enable EBP&A received the largest number of comments. One participant stated that the required inputs from the components depended on where you were in the planning to execution continuum. For campaign planning and ETO development, the components need to provide options and feasibility assessments from a component level. For developing actions and effects, at the point of joint tactical action planning and execution, components need to provide completed, synchronized plans. For the assessment process, components will contribute resources to perform assessment, and integrate assessment requirements into their other actions. Another noted that for information operations (IO), there will need to be a significant amount of detail provided because unlike other warfare domains, the IO plan directs specific actions to components, versus desired effects.

6.6.1. Feedback on actions and effects. One player stated that the components should provide a "reality check," and subsequent feedback, on the planned military actions using the Diplomatic, Information, Military, Economic (DIME) model (which is based on using a synergistic, comprehensive approach, that encompasses these four elements, to achieve the desired effects). Another agreed, stating that the components should provide their assessment of the effects they can support, even if the actions are not things they have traditionally done; others felt that the components should actually develop the actions in the plan. One player stated that the designated component mission commander should develop the course of action (COA), while another felt that all the components should be involved in development of the COA. Others indicated that the components should identify some enemy nodes to be attacked and provide component actions and tasks, that would be used to do so, and yet another that the components should convert the effects in the ETO to missions (i.e., who, what, where, when, why). Discussing the maritime component in particular, a player stated that the maritime component should provide detailed options for achieving the effects that pertain to maritime warfare. The example was given that in antisubmarine warfare, there are several ways to achieve dominance beyond those that are kinetic based.

6.6.2. *Measures of Effectiveness and Performance*. More than a dozen participants stated that they should provide measures of performance (MOP) and/or measures of effectiveness (MOE) (to assess own force performance on assigned actions, and the extent to which desired effects were achieved, respectively). Of these, approximately half focused on the planning phase, providing the measures to be used. Defining success (i.e., developing MOE and MOP) is the most challenging aspect of the EBO process, as it combines the art and science of war at the operational level. The other half focused on providing values for the measures during execution. A player discussed providing feedback, as input to the ONA, and another stated that there should be an intelligence-like effects assessment team and process at the CJTF HQs, and within the components, whose sole purpose is updating and maintaining the ONA and determining effectiveness. Another specifically stated that component-provided MOP should not be in the ETO; they should just provide feedback to the CJTF on progress of the ETO as it is executed. It was also pointed out that it is the assessment that will dictate whether we are in need of planning a new ETO. On the other side of the assessment coin, one participant stated that the components should provide feedback on the effects of the enemy on our forces.

6.6.3. *Joint Intelligence Preparation of the Battlespace*. Participants discussed the (Joint) Intelligence Preparation of the Battlespace (JIPB/IPB) in response to this item. One noted that processes are already in place to push combat assessment and IPB products up the chain of command, and that these are the data needed for EBO. Another stated that the components should provide their JIPB and updates, noting anything that is different from what is in the ONA. He also noted the need to update the who, how, why, and contact information for the person doing the updating. Yet another stated that the components should provide the IPB, and noted that it was something they didn't have (in the LOE). Also in the intelligence domain, one player stated that the components should provide human intelligence, and another felt that they should provide a draft intelligence, surveillance and reconnaissance (ISR) collection plan for publication in the ETO.

6.6.4. *Force capabilities*. Several players discussed the need for the components to provide information on, and recommendations for, employment of their assets. One stated that the components should provide the asset allocation and apportionment for the ETO. Another participant stated that the components should provide information on current and future resources, capabilities and ISR assets available; another stated that they should provide situational awareness of force and resource capabilities. One player noted that the components bring more fidelity to the actions planned and resources allocated, another stated that they should provide specific service capabilities, yet another commented that they should provide real-time status of force capabilities and risk analysis, and still another that they should provide logistical needs.

6.6.5. *Resolve conflicting tasking*. Participants also discussed the role of the components in planning for the integration and deconfliction of forces and actions. One participant stated that the components should provide information on deconfliction and coordination in attacking cross-component nodes, two others noted that the components should be participants in the prioritized effects list (PEL) and synchronization matrix development, and yet another felt that they should help resolve conflicting tasking. Another player stated that the components should provide the attack guidance matrix, high payoff target list, and the commander's concept for fire support/supporting arms. Yet another summarized his thoughts as, "the low point of the performance curve is in the assessment and feedback area: How can we better depict what has been done and by whom?"

6.6.6. *Input for ONA*. Additional collaboration between the components, JFHQ planners, and the SoSA analysts will be required to determine what additional information is needed, beyond what was initially

included in the ONA database. A process, and the associated procedures, to determine what additional information is required, needs to be developed and promulgated. Yet another player stated that most of this should be done during collaboration, prior to the ETO development, since the ETO is the product of planning. Another player stated that during peacetime, as the standing joint command and control element and the SoSA analysts collaborate to develop the ONA, the components should be building target folders. Although these target folders will not be complete, but by doing this, the components will at least have a working knowledge of the topics and issues. When developing the ETO, the components should then be more efficient, as much of the information will already be validated and agreed upon.

The ETO is an order issued by the operational headquarters to the components, and the components may provide input to the collaboratively developed ETO, or develop annexes to support the base ETO, for functional areas. Another stated that the components do not provide any data in the ETO. Yet another disagreed with the ETO concept completely.

6.7 The effects-based planning process facilitates the development of more complete/robust courses of action (COA).

6.7.1. Collaboration provides the synergy. The assertion that the EBP process facilitates the development of more complete or robust courses of action received a mean score of 3.2, slightly above the midpoint. A player who agreed, stated that effects-based planning, when combined with input from the wide array of subject matter experts involved, worked well to help the players rapidly develop a common understanding of the best COA. Several others also agreed, but with caveats. One participant stated that the EBP process facilitates development of more complete/robust courses of action only when there is a robust war-gaming process and a real advocate for RED involved. Another observed that including the ONA and Blue-Red Cell analysis were big improvements in effects-based planning; another stated that it is only true if DIME actions are conducted in a synchronized way.

6.7.2. Collaboration is essential. Another player thought that the EBP process facilitates the development of more complete/robust courses of action if planners and operators focus on the *effect*, and not default to using the closest traditional action that seems to support what is desired. Several others felt that this statement about the COA was true, but due in large part to collaboration: "The EBP process will not facilitate development of more complete or robust courses of action without synchronization and visibility across the components." The collaboration entailed in building the COA, and the review process, make the whole process more complete and timely. Others thought collaboration makes the COA development process work better; the collaborative processes, with all the players who are available, really provides the ability to facilitate development of more complete or robust courses of action.

6.7.3. Developing one COA is limited. Among those who disagreed with this statement, one participant thought that developing the COA using the new EBP&A process is accomplished in a way that is similar to the way planning has traditionally been done, just using a different tool. Another observed that he was not sure about EBP being more complete, but it was certainly more complex. Another observed that he never saw more than one COA generated or discussed, and felt that the COA that was developed was less complete than plans he had seen generated in the same time frame for other events. One player believed planners would reach the same conclusions regarding development of COAs using current planning processes. Another observed that the idea that developing only one COA will permit more time to be spent on developing a more detailed COA has not proved true. This player noted that since there was no comparison with alternate COAs, a good argument can be made that the COA developed

does not have as much critical thought as one would find in using the process that examines multiple COAs. Another participant disagreed with the assertion, but did not necessarily see this as a negative. He noted that the process could, or should, do the reverse: The commander can tailor the package, and it therefore may be less robust while still fulfilling the effect (i.e., because it has such precise effects).

6.7.4. COA development belongs at higher echelons. Three participants disagreed with the EBP concept itself. One stated that the thinking process associated with COA development is best suited to the higher echelons of command, i.e., that EBP belongs at the CINC level and above. This player further stated that the desired effects can then be translated into objectives by lower echelons. The second noted that in the DIME paradigm, the JTF Commander generally will only have control over the M(ilitary element), thus achieving the integrated, synergistic effects of all the DIME elements may present a challenge.

6.7.5. More comprehensive is not necessarily more robust. Several participants both agreed and disagreed with this statement. One noted that EBP includes all elements of national power, but noted that it could be difficult to coordinate these various elements to achieve the desired effects. Another agreed with the assertion intuitively, but stated that he was not sure that this had been demonstrated. He further stated that we may have demonstrated more comprehensiveness in the ETO development, but not in turning that into actionable combat power. Another player expressed the belief that the more comprehensive approach used in EBP—to cause an adversary to change behavior—forces planners to adopt a larger perspective. While this more comprehensive perspective produces a COA that is more effective at achieving the objectives, that does not necessarily mean it is more complete or more robust. Another player observed that only one COA was developed. His belief was that a concept of operations (CONOP) had been collaboratively developed, not a COA, noting that two or three COAs are typically developed, which enables a commander to decide which one he or she wants to select. This player felt that during this LOE one COA was developed which became a CONOP.

6.8 Development of only one course of action provided sufficiently in-depth planning to properly develop branches and sequels.

The item asserting that development of only one COA provided sufficiently in-depth planning to properly develop branches and sequels received a mean score of 2.8. Several comments focused more on the concept of a single COA than on developing branches and sequels. One commented that too much time was spent developing "throw away" COAs, and that it is better to develop one fully developed COA that can be tweaked to make it work. Still another stated, “Everything that I saw was PowerPoint deep. A more innovative, aggressive adversary would pose a real threat of getting inside our OODA (observe, orient, decide, act) loop. One COA does not contain sufficient diversity of actions to defeat a thinking, proactive adversary.” One participant stated that we will always develop only one COA—the one the commander selects, but that we should evaluate more than one in order to select the best of alternative approaches. Another commented that normally, the Commander selects bits and pieces from several courses of actions to develop the COA he wants. Yet another stated that part of good staff work is providing commanders with good choices. One player stated the belief that two COAs should be developed, and another observed that there weren’t enough unintended effects indentified, so that alternate COAs could be developed based on those secondary, or unintended, effects.

Others did discuss branches and sequels, either explicitly or implicitly. One participant noted that the plan has to be flexible enough to accommodate changes in the enemy’s COA. One player did think that the planning process used to develop a single COA helped in developing a set of options and plans for

exploitation. This player said, "However, there are lots of COAs for every major effect, and so the branches at the lower levels tangle with each other over time." Another commented that this single COA was produced collaboratively so consensus was attained during its formulation. Still another stated that he agreed in concept that pursuing one COA collaboratively would negate the requirement for multiple COA development, but noted that we still need personnel and time to do branch and sequel planning, which was not done.

6.9 Daily staff briefings contained aspects of effects-based operations.

The assertion that daily staff briefings contained aspects of EBO received a relatively high mean score of 3.8. One player stated that they did not usually conduct daily staff briefings, but when they did, aspects of EBO were included in the effects assessment and Blue-Red cell briefs. Yet another noted that the concept was imbedded in all of their discussions up and down the process. Two participants disagreed with the concept of daily staff briefings. One stated; “Hopefully daily staff briefings will be history as a result of tailored CROPs and collaboration.” The other commented that briefings are not good, collaboration is, and further noted that true collaboration reduces the requirement for “dog and pony shows,” but senior commanders must be open to new ways of doing things. Another participant made the general comment that EBO do not absolve the CJTF from accomplishing normal and fully developed CJTF planning requirements, such as JIPB, daily updates of intelligence, and commander’s actions, force disposition, etc.

6.10 JTF planners were able to develop Measures of Effectiveness (MOEs) for the desired effects that were meaningful and observable.

The assertion that JFT planners were able to develop measures of effectiveness (MOEs) for the desired effects that were meaningful and observable received a mean score of 3.0, indicating some agreed and some disagreed with this statement. Those who agreed noted that there is still discussion on whether planners should be limited to what is in the ONA, or whether additional MOEs should be developed apart from the ONA. Another who agreed noted that it remains to be seen if the assertion will stand up in real life. Another player commented that the process worked, but they didn’t get far enough in the wargame to know whether the MOEs were observable, noting that this takes a long time.

Two participants did not comment on the assertion with respect to the qualities of the MOEs, but did comment on collaboration. One noted that the MOEs were primarily developed by the effects assessment analysts with minimal input from JTF or component planners, and that there was very little successful collaboration in developing the MOEs. Two other participants commented on the process itself. One stated that the process is not fully developed yet, commenting that this area requires much more detailed experimentation and analysis with linkage to JISR planning. The other felt that the process used in the LOE was not right, commenting that the majority should be developed during ONA development by the team with the most experience and time and not during execution. He further noted that there should be a fully developed nodal analysis of the country red (since it is real and has been a potential adversary for over two decades), and recommended direct linkage to JWAC/NSA/CIA databases and processes.

6.11 Use of the Prioritized Effects List (PEL) supports JTF level decision making.

The question that asked if use of the PEL supports JTF-level decisionmaking received a mean rating of 3.5, which indicates that the majority of the experimental audience found the PEL useful in supporting command-level decision making. However, there were mixed reviews on whether effects should be

prioritized at all. Some compared it to today's process of prioritized target lists. Regardless of this debate, it was noted that the PEL is a powerful tool in conveying the intent of the commander. The utility of the PEL, recognized by some to have a great potential for the future, hinges on the quality of the ONA. The responsibility for developing the processes for maintaining and updating both the ONA and PEL must be clearly delineated. Some noted that the processes for building the PEL were compartmentalized, "the PEL seemed to be running in parallel, but not necessarily coordinated with other planning activities." It was also noted that the PEL process explored in this event did not include the analytical assessment and verification process associated with the joint prioritized target list (JPTL).

6.12 There are too many participants in the EBP process.

The question that asked if there were too many participants in the EBP process received a mean rating of 2.7 (indicating people did not think there were too many participants in the EBP process). Responses to this question were all over the board but the common theme that permeated all the responses was that the number of participants in a virtual collaboration session must include the absolute minimum that contains the necessary/key personnel to deal with the special requirements of that session. The second theme that echoed throughout the responses was the need for a detailed and disciplined process to facilitate the session. And lastly, it was recognized that collaboration with key essential planners is necessary to develop a fully fleshed out ETO.

As the joint force expands their focus to include all the elements included in the DIME concept (i.e., the synergistic use of diplomatic, informational, military, and economic approaches to deal with an adversary), and their ability to effect our adversary's PMESII (political, military, economic, social, information, and infrastructure), the input of more and more players will be required. It is difficult to engage this number of people and not support some level of consensus building which likely will lengthen, not shorten, our OODA (observe, orient, decide, act) loop. The challenge will be to find the right mix between consensus building and decisionmaking necessary to provide our commanders with the best information, at the right time, to support critical decisionmaking.

6.13 It is easy to know when the ETO is being updated.

The question that asked if it was easy to know when the ETO was being updated received a mean score of 2.6, indicating that participants tended to disagree with this statement. The majority of the comments focused on shortfalls in the area of knowledge management in terms of providing users with better tools and systems. The comments highlighted difficulties in knowing which ETOs (or any other documents for that matter) were updated. The tool used to support the EBP process did not include an automatic updating feature, so it did not automatically highlight changes to the various versions of the documents that were being produced. Many ETOs and PELs were posted in the collaborative information environment that were authoritative, however, it was not clear which were drafts, outdated, updated or current. One specific comment suggested that a geographic representation of the CJTF plan with more detail included would be very helpful. Some comments that suggested that tracking changes and being aware of the latest changes were not problems. This might suggest that the tools are capable but not all users were properly trained or experienced. Obviously this is an area that needs continued attention.

6.14 Effects-based assessments were completed and posted to the CROP (common relevant operational picture) in a timely enough fashion to support current and future planning efforts.

The question of whether effects-based assessments were completed and posted to the common relevant operational picture (CROP) in a timely enough fashion to support current and future planning efforts

received a score of 2.6. Comments indicated that the effects assessment process was one of the weakest areas of the LOE. A player recommended that the area of effects assessment should be the subject of an entire LOE. Effects assessment was highlighted in the quicklook report as one of three key areas that need significant refinement prior to Millennium Challenge 02.

6.15 CONOPs/TTP used during the ETO-to-Actions LOE clearly describe how the EBP&A process and the JISR management process complement each other.

The question on how well the concept of operations (CONOPs) and tactics, techniques, and procedures (TTP) described how the EBP&A process and the JISR (joint intelligence, surveillance, and reconnaissance) management process complemented each other received a score of 2.7. This indicates that the relationship between the EBP and JISR processes were not well defined. One observation stated that the initial TTP changed dramatically, based on what was being discovered during event execution. That particular participant saw this as a positive thing. Different areas in the process received different levels of scrutiny during the event. Additionally, there were areas of activity that were identified that needed to be added to the TTP. The single clear observation is that synchronizing the EBP&A process with the JISR concept is a must.

6.16 Component participation is required for effects-based planning.

The question that asked whether component participation is required for EBP received a score of 4.6. As the high score for this question indicates, there was literally no disagreement with regard to the importance of including the components collaboratively into the EBP process.

6.17 Component participation in the JTF mission analysis process facilitated component-level and cross-component planning efforts.

The question of whether component participation in the JTF mission analysis process facilitated component-level and cross-component planning efforts received a mean rating of 4.1, indicating nearly everyone agreed that component participation is critical to the mission analysis portion of the EBP process. Some of the comments indicated that the horizontal collaboration piece was limited during this LOE. It was also pointed out that greater familiarity with the tools included in the collaborative information environment (CIE) would improve the cross-component planning efforts. One observation suggested that as the “new” functional components mature, there will be even more issues to coordinate and develop between the components and the JTF HQ. There may be a downside to this collaboration in terms of an "overhead cost," as far as the additional time required to reach a consensus. It was suggested that component participation in mission analysis takes time, which may be better spent reading the JTFC’s assessments and collaborating horizontally to deconflict and prioritize.

6.18 Component participation in the JTF course of action development process facilitated component-level and cross-component planning efforts.

The question of whether component participation in the JTF COA development process facilitated component-level and cross-component planning efforts received a score of 4.2. Despite the recognition that component participation is a critical requirement in the EBP process, a common theme of the written comments was that the process must be accomplished in less time than it took during the LOE. One participant thought a more refined collaborative process and better facilitated sessions would aid in speeding up this process.

7. Conclusions

The concepts entailed in the EBP&A process were refined considerably during this LOE. This was the first exposure to the EBP&A process for many of the participants and the associated concepts and processes presented a novel and complex planning environment. Participants saw a huge benefit in conducting planning collaboratively because this allows the expertise of people representing a wide range of knowledge to be incorporated. Additional positive responses to the new EBP&A process were that it results in "out-of-the-box" thinking because all the players are concentrating on the effect desired as opposed to obtaining a specific objective. Another player observed that it is a more thoughtful approach, which should be done, for the most part, before the crisis begins.

Several consistent themes emerged across the participants' comments to the survey items. The first theme is that the assessment process will be critical to the success of EBP&A and this part presents a challenge. The second theme is the far greater complexity entailed in the planning process, and in coordinating all the elements of the overall planning process (e.g., using the ONA to develop the ETO, etc.). The third theme was the need for clarification regarding how the new processes and procedures dovetail with existing procedures. The forth theme was the need for articulation of the relationship between the various players and the responsibilities involved in planning and conducting EBP&A. Finally, players noted that defining success (i.e., developing MOEs and MOPs) is the most challenging aspect of the EBO process, stating that it combines the art and science of war at the operational level.

The objective for this LOE was to experiment with the various issues involved in planning and conducting an effects-based operation to determine what worked well and what aspects need further development. Participants thought that as the processes mature and all operators and planners become familiar with the ONA, and the other products, the processes will be able to be accomplished in less time. Despite the inherent challenges associated with EBP&A, participants felt that the benefits will outweigh the additional work entailed; the potential payoffs in terms of precision and efficiency are enormous.

8. References

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