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Knowledge Support for Effect-Based Operations

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Abstract

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This paper discusses the relationship of knowledge management to effects based operations or EBO. The paper treats EBO as a business process and builds the case for structuring knowledge support, the creation and distribution of knowledge, as a complementary process in support of EBO. The paper presents a model and rationale for coupling knowledge support elements with the principal elements of EBO planning, execution, and assessment. The model is based on a series of preparatory workshops and limited objective experiments for JFCOM Multinational Experiment 4 and the main experiment itself.

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Introduction

This paper is a discussion on how best to support a topic of recent interest in military circles, Effects-Based Operations or EBO¹. The intent here is not to defend EBO but rather assume it is an accepted "business" process and focus on the key element that supports EBO, *knowledge* that enables action.²

The US Joint Forces Command (JFCOM) uses the following working definition of EBO: "Operations that are planned, executed, assessed, and adapted based on a holistic understanding of the operational environment in order to influence or change system behavior or capabilities using the integrated application of selected instruments of power to achieve directed policy aims."³ Figure 1 is an adaptation of an EBO depiction in a JFCOM Joint Warfighting Center Joint Doctrine Series Pamphlet on the operational implications of EBO.⁴



Figure 1. Effects-Based Operations Elements

The idea behind EBO is straightforward. An operation is planned and executed to achieve a desired effect. An effect can be a vague term. The EBO process is designed to achieve a directed effect. For example, a military effect can be anything from combat operations in a region to stabilizing a region to reconstructing the government or infrastructure in a region. To achieve a directed effect, questions to consider are what nodes or points are significant, what actions are needed, what resources are needed, and what is the criteria for success. To answer these questions, thorough knowledge of the situation is necessary.

EBO is composed of three parts, a planning element, an execution element, and an assessment element that supports planning and execution. I prefer not to go any deeper into the EBO processes because it is an agile business process that considers a variety of conditions and approaches that could change to achieve a directed outcome. The important point is that all three EBO elements need *knowledge* so ultimately the commander makes informed decisions and operators take effective actions that bring about the highest probability of mission success. So knowledge is important not only to the decision maker at headquarters but also to supporting actions in the field.

Discussion

Let's assume that the three basic elements of EBO are interdependent and require the staffs doing the EBO processes to work together, or collaborate, to produce products such as courses of action, tasking orders and the like. Let's also assume that knowledge is collected and processed from a variety of sources and *incorporated* into the EBO process. Lastly, let's assume that all necessary knowledge for EBO is *not* at hand and must be *found and incorporated* into the EBO process. The challenge to the knowledge manager, the individual responsible for the supporting process that finds and incorporates knowledge, is to put in place a knowledge support mechanism that complements the EBO process. Figure 2 shows the relationships where knowledge is *socialized* within the EBO elements that make recommendations to the commander who makes the final decision.

Before we discuss how to provide knowledge support to EBO, we need to take a moment and define a few terms. Knowledge Management is a common term used to describe knowledge support to a business process. Just what is knowledge management? It is not managing knowledge, but rather using knowledge to gain a competitive advantage.⁵ The competitive advantage in the case of EBO is planning, executing, and assessing an operation to achieve an intended effect proficiently and to avoid unintended effects.

US Joint Forces Command Joint Futures Lab staff working with an international group of contributors from a number of professional disciplines developed a working definition of Knowledge Management: the governing and facilitating of knowledge activities.⁶

In a military headquarters conducting EBO, knowledge activities are the catalyst for the *organizational learning* necessary to produce actionable knowledge and accomplish a mission successfully. Headquarters staff traditionally treats knowledge as something people possess. Cook and Brown⁷ refer to this as *epistemology of possession*. The

problem with this epistemology is that it does not account for knowing found in individual and group practice. It also places more importance on explicit rather than tacit knowledge and knowledge of individuals over knowledge of groups. Knowledge and knowing as mutually enabling and are what Cook and Brown call *epistemology of practice*. The idea is that knowledge is a tool of knowing and knowing is a part of interaction with the social and physical world. This knowledge and knowing interplay can generate new knowledge and ways of knowing. Enabling this interplay of knowledge and knowing calls for knowledge organization, process, and technology that promote knowledge and knowing for effects-based planning, execution, and assessment. So for the EBO elements to be effective in a headquarters there needs to be a fourth element that is equally effective. That element is the *Knowledge Support* element.



Figure 2. Relationship of Knowledge Support to EBO Decision Making

The Knowledge Support element is a blend of three key ingredients in proportions right for the EBO process: process, organization, and technology. Too much of one ingredient produces Knowledge Support that is "out of kilter" as shown in figure 3. Too much focus on process or organization produces a rigid "form over function" condition. Heavy reliance on technology can produce a situation where staff is conforming to a hardware or software configuration that is either unresponsive or produces unintentional results. A balance of process, organization and technology will result in Knowledge Support that is stable and provides a good foundation for EBO where knowledge and knowing increase.



Figure 3. KM Support is a balance of process, organization and technology

Knowledge Support needs to be "on par" with its EBO counterparts and responsible to the commander for providing the right knowledge support to the EBO elements as shown in figure 4. When Knowledge Support is an equal with EBO Planning, Execution and Assessment, it has the stature to provide the proper level of support, able to *govern* and more importantly *facilitate* knowledge activities. It becomes an integral part of EBO organization, supporting all three EBO elements and is not a separate self-serving entity where knowledge is possessed. Knowledge Support being on par with EBO planning, execution and assessment is central to forming an integrated "EBO Knowledge Team." The Knowledge Team idea reinforces the interdependence of the EBO elements through the mutual use of knowledge processes, products, and services.



Figure 4. Knowledge Support as the fourth EBO element.

Creating the Knowledge Team

Within an operational headquarters conducting EBO, the Knowledge Team is formed when staff members use common processes and services to produce mutually supportive products. Within each EBO element there are collections of tasks that require members to employ various knowledge activities and services to produce products facilitated by Knowledge Support. Knowledge Support, working with the Planning, Execution and Assessment elements, establishes appropriate processes that promote knowledge activities, namely *create, organize, formalize, distribute, apply and evolve*. Knowledge Support also establishes and maintains a Knowledge Base and ensures that the Knowledge Base is available to all members of the Knowledge Team. Lastly, Knowledge Support is responsible for providing a Collaborative Environment that provides the necessary functions for the EBO elements to work together even from distributed locations. Figure 5 shows the makeup of the Knowledge Team.

Knowledge Team Activities

Applying the definition of knowledge management, Knowledge Team activities are derived from the knowledge action verbs that make up our working definition of knowledge management: create, organize, formalize, distribute, apply, and evolve. Because the Knowledge Support element is responsible for the governing and facilitating knowledge activities, Knowledge Support staff focuses on the instantiation and monitoring of knowledge activities across the EBO elements, ensuring that the activities are relevant, productive, and enable EBO planning, execution, assessment, and decision making.

There is a human element that is crucial to Knowledge Support becoming a true enabler for the EBO process. As you recall in figure 1, as the EBO elements interact to each other and the surrounding conditions, the elements adapt. Knowledge Support must also interact with the EBO elements and adapt knowledge processes, products and services as necessary to support the EBO mission. This adaptive environment is only possible when there is open dialogue and consensus between all four elements staff members. There must be agreement on process and product so there is an epistemology of practice.

Knowledge Base

In an EBO staff, as with any staff, there are knowledge consumers and knowledge producers. Staff members can be one or both, sometimes at the same time. As the staff supplies or demands knowledge, a common location where knowledge resides and is readily accessible by all is needed regardless of location, most likely through a web-services portal. The process to produce and consume knowledge should complement this common knowledge base.

There are number of considerations when designing and building a knowledge base that normally take place well before placing the knowledge base in service. For our discussion, we will assume that the knowledge base was built using sound system engineering practices, performs as designed, and is readily available to all potential users.

With a viable knowledge base available to all users, Knowledge Support can take on the responsibility for administering the Knowledge Base. Administration would include access and privileges, functions, configuration, relevancy, archival, and the like. The Knowledge Base must conform to the EBO process, reinforcing the *right information to the right people at the right time* motto. Moreover, Knowledge Support needs to

empower the EBO staff to be *good stewards* of the knowledge that resides in the Knowledge Base. Knowledge Base stewardship is across all EBO elements, and all EBO staff members are part of the solution whether suppliers or consumers.

Collaborative Environment

Working together or collaboration goes hand in hand with open dialogue across the EBO staff. Being social by nature, humans prefer to dialogue face to face if possible. If participants in a conversation are physically separated, other methods of collaboration are needed. Since collaboration is a pervasive characteristic of the EBO process, Knowledge Support must give careful consideration to providing a robust environment to support collaboration, especially if the participants are in distributed locations.

The major contribution of a robust collaborative environment is the empowering of EBO staff as knowledge brokers. Knowledge brokering in turn enables organizational learning and raises the level of understanding across the EBO staff. Increased knowing across the staff yields better recommended courses of action for the decision maker.



Figure 5. The EBO Knowledge Team

USJFCOM Multinational Experiment 4

US Joint Forces Command (JFCOM) Joint Futures Lab (JFL) will examine an Effects-Based Approach (EBA) to multinational operations in Multinational Experiment 4 (MNE4), February-March 2006. This venue is an excellent opportunity to explore in detail the relationship of knowledge support to effects-based planning, execution, and assessment. MNE4 participating nations have drafted an EBA for Multinational Operations Concept of Operations (CONOPS) that will be exercised during the experiment. What makes this appealing is that it not only defines processes for effectsbased planning, execution, and assessment, but it also details a process for developing and integrating a knowledge base for EBA. The MNE4 staff planning the experiment has gone to great lengths to integrate knowledge activities into their EBA process. MNE4 should yield useful findings about how knowledge supports the planning, execution, and assessment of an EBA to operations.

Summary

Knowledge is the fuel of EBO. The EBO process is essentially a business process supported by knowledge. Effects-based planning, execution, and assessment cannot be successful without adequate relevant and actionable knowledge collected and integrated by Knowledge Support, the fourth element of EBO. Knowledge Support governs and facilitates the knowledge activities that create, organize, formalize, distribute, apply and evolve knowledge.

For EBO to be effective, it must be agile and able to adapt to changing operational conditions. An integral part of EBO is organizational learning that considers alternatives and options as plans are developed, assessed, and executed. Likewise the Knowledge Support needs to be agile when providing the complementary knowledge processes, products and services.

¹ EBO is now called Effects-Based Approach by some organizations.

² Nissen, M.E., *Harnessing Knowledge Dynamics: Principled Organizational Knowing & Learning* Hershey, PA: Idea Group (2006).

³ Standing Joint Force Headquarters (Core Element): SOP, 14 July 2004, G-2.

⁴ Joint Warfighting Center Pamphlet 7, *Operational Implications of Effects-based Operations (EBO), 17* November 2004.

⁵ Mark W. McElroy, *The New Knowledge Management: Complexity, Learning, and Sustainable Innovation* (Burlington: Elsevier Science, 2003).

⁶ Collaborative Information Environment Knowledge Management: Concept of Operations draft, 30 September 2004.

⁷ Cook, S.D.N. and Brown, J.S., "Bridging Epistemologies: The Generative Dance between Organizational Knowledge and Organizational Knowing," Organizational Science 10:4 (1999), pp.381-400.