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MBA PROFESSIONAL REPORT

**The Joint Effects-based Contracting Execution System:
A Proposed Enabling Concept for Future Joint Expeditionary
Contracting Execution**

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December 2008**

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**JOINT EFFECTS-BASED CONTRACTING EXECUTION SYSTEM: A PROPOSED
ENABLING CONCEPT FOR FUTURE JOINT EXPEDITIONARY CONTRACTING
EXECUTION**

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Submitted in partial fulfillment
of the requirements for the degree of

MASTER OF BUSINESS ADMINISTRATION

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THE JOINT EFFECTS-BASED CONTRACTING EXECUTION SYSTEM: A PROPOSED ENABLING CONCEPT FOR FUTURE JOINT EXPEDITIONARY CONTRACTING EXECUTION

ABSTRACT

The purpose of this Masters of Business Administration Professional Report is to deliver an enabling concept future joint expeditionary contracting execution. The Commanding General of the Joint Contracting Command-Iraq/Afghanistan (JCC-I/A) pioneered Effects-Based Contracting (EBC) during the *Enable Civil Authority* phase of Operation Iraqi Freedom to align tactical contracting efforts with the strategic objectives of the Combatant Commander's Campaign Plan. JCC-I/A accomplished this by integrating contingency contracting officers into the warfighters' operational planning cycles, linking contracting efforts with desired strategic operational effects, and prioritizing contracting work based on the warfighters' main effort.

This report applies components of EBC and the Systems Engineering Process (SEP), and with them, introduces the general framework for the Joint Effects-based Contracting Execution System (JEBCES), and a researcher proposed Phase-based Acquisition Capability (PBAC) to enable forward-leaning, responsive expeditionary contract support. This framework emphasizes providing the future Joint Expeditionary Contracting Force with a rapidly deployable, pre-awarded acquisition capability, creating greater efficiency and effectiveness.

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LIST OF ACRONYMS

ALT	Acquisition, Logistics, and Technology
AOR	Area of Responsibility
BSP	Baghdad Security Plan
CCO	Contingency Contracting Officer
CCSP	Contract Support Plan
CCDR	Combatant Commander
CLIN	Contract Line Item Number
CP	Campaign Plan
CPA	Coalition Provisional Authority
DART	Defense Adaptive Red Team
DOD	Department of Defense
DOS	Department of State
EBC	Effects-based Contracting
EBO	Effects Based Operations
ECF	Expeditionary Contracting Force
FM	Field Manual
FRAGO	Fragmentation Order
GOI	Government of Iraq
HCA	Head of Contracting Activity
IRMO	Iraq Reconstruction Management Office
IRRF	Iraqi Relief and Reconstruction Fund
ISF	Iraqi Security Forces
JCC-I/A	Joint Contracting Command-Iraq/Afghanistan
JEBCES	Joint Effects-based Contracting Execution System
JP	Joint Publications
JROC	Joint Reconstruction Operations Center
LOGCAP	Logistics Civilian Augmentation Program
MNF-I	Multi-National Forces – Iraq

MNSTC-I	Multi-National Security Transitions Corps Iraq
MSC	Major Subordinate Command
NGO	Non-Governmental Organization
NSSVI	National Military Security Strategy for Victory in Iraq
ODCSLOG	Office of the Deputy Chief of Staff for Logistics
OIF	Operation Iraqi Freedom
ORHA	Office of Reconstruction and Humanitarian Assistance
OTF	Operation Together Forward
PBAC	Phased-based Acquisition Capability
PCO	Project and Contracting Office
PMO	Program Management Office
PRT	Provincial Reconstruction Teams
SIGIR	Special Inspector General for Iraq Reconstruction
USACE GRD	U. S. Army Corps of Engineers Gulf Region Division
USAID	U.S. Agency for International Development
USCENTCOM	U.S. Central Command

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EXECUTIVE SUMMARY

The Joint Effects-based Contracting Execution System (JEBCES) provides the general framework for an integrated composite of people, products and processes to deliver an acquisition capability. Within this framework, the researchers proposed a Phase-based Acquisition Capability (PBAC) as an enabling concept. PBAC absorbs variations in both warfighter requirements definitions and contingency contracting officer execution methodologies by standardizing the contracting methodology and a percentage of kinetic, post-kinetic operational requirements.

The researchers based PBAC on their experiences with the Department of Army's contracting model for the Logistics Civilian Augmentation Program, the United States Special Operations Command's Integrated Weapon System Support contract, wherein a single umbrella contract is capable of supporting multiple stages of an operation, as well as modifications and sustainment of the Special Operation Forces AC-130 and MC-130H weapon systems platforms, through the use of a discrete Contract Line Item Number (CLIN) structures. In similar fashion, PBAC supports the CCDR's strategic objectives through time-definite delivery of supplies and services through out all phases of the Campaign Plan: *Shaping, Deterring, Dominating, Stabilizing, and Enabling*; phases 0-V, respectively.

Through discrete-event modeling and simulation of the current contingency contracting process and the proposed, the researchers assessed cycle-time reductions the FY 07 Joint Contingency Contracting System requirements data and the implications these reductions have on Contingency Contracting Officer utilization rates. Specific recommendations include: design a deployable IT solution to integrate contacting at the theater Level, conduct a spend analysis on contingencies, decide contracts to pre-compete based on spend analysis; determine utilization of contingency contracting officers relative to the specific contingency.

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I. INTRODUCTION

A. BACKGROUND

Initial efforts to integrate and synchronize tactical joint expeditionary contracting support with the Campaign Plan (CP) phases for Operation Iraqi Freedom (OIF) were delayed by variations in contingency contracting officer experience, procurement methodologies, and business processes. As a result, in the *Stabilize Phase* (Phase IV) of the CP, the Department of Defense established the Joint Contracting Command-Iraq (JCC-I) to integrate warfighter campaign plans and synchronize the contracting effort. During Phase V, *Enable Civil Authority* DoD aligned contracting for Afghanistan under JCC-I to form the Joint Contracting Command-Iraq/Afghanistan (JCC-I/A). Under this phase JCC-I/A implemented the use of Effects-based Contracting (EBC) as an innovative method to integrate contingency contracting officers (CCOs) into warfighter operational planning cycles to align tactical contracting efforts with the warfighter's main effort (FRAGO 09-1117,2006).

Although the EBC methodology has significant implications for improved joint expeditionary contracting execution, recent reports such as the *Gansler Commission Report: Urgent Reform Required Army Expeditionary Contracting* underscore systemic variations in requirements definitions and service-specific approaches to CCO training and development, which directly determines and influences execution. Against this backdrop, the researchers introduce the general framework for JEBCES and propose a Phase-based Acquisition Capability (PBAC) as an enabling concept. Through discrete-event simulation and simulation, examines the extent a PBAC can reduce cumulative variations in warfighter requirements definitions and CCO execution methodologies, thereby minimizing administrative burden on CCOs and creating efficiency and uniformity in joint contingency contracting execution.

B. OBJECTIVES OF THE RESEARCH

The objective of this research is to analyze the application of Phased-Based Acquisition Capability (PBAC) within the EBC methodology framework. Through discrete event modeling and simulation, the researchers will assess the value of equipping the joint expeditionary contracting force with a rapidly deployable pre-warded PBAC.

C. RESEARCH QUESTIONS

The primary research question is: Does transforming a baseline of common kinetic and post-kinetic operational requirements into a standard PBAC improve joint expeditionary contracting execution?

To aid in addressing the primary research question, four secondary questions will also be addressed:

1. How can a PBAC provide for efficient use of limited contracting officer resources?
2. What conclusions and recommendations can be drawn from applying systems engineering modeling to recent contingency contracting data under a researcher designed PBAC model?
3. Can a model be developed which can validate efficiencies to be gained by using the PBAC model developed by the researchers?
4. Would there be measurable benefits to be gained by introducing contracting into Phase 0 of the joint planning process?

D. METHODOLOGY

Research for this project includes a literature review of Government reports, joint publications, and academic research papers such as but not limited to previous Naval Postgraduate School Contingency Contracting theses and academic research papers. Additionally, this project provides discrete-event

simulation modeling of both the current joint expeditionary contracting execution process and our proposed model for execution. Modeling and simulation is the process of building a logical model and using computers to simulate and gain insight to the conversion of inputs to outputs; specifically, how they impact the model's behavior. Our project team used *Arena 10.0 Forward Business Solutions* by Rockwell Software, Inc. The information used to develop models and FY07 requirements data were obtained from the Joint Contingency Contracting System. Finally, this project incorporates input from the personal experiences of the authors, a Contingency Contracting Officer/Aide-de-Camp to the Commanding General of the Joint Contracting Command, JCC-I/A Commanding Generals Staff Operations Officer (J3), and Administrative Contracting Officers for Logistics Civil Augmentation Program (LOGCAP) in Iraq and Afghanistan.

E. ASSUMPTIONS

The authors assume readers will peruse this project with a fundamental understanding that, "the President is responsible for national security. The National Security Council helps the President determine how best to employ the instruments of power to achieve national goals. The National Security Council coordinates the efforts of all governmental agencies to execute a synchronized strategy that most effectively uses all the instruments. The Department of Defense—under the leadership of the Secretary of Defense—Prepares the National Defense Strategy. It synchronizes Defense Department support of the National Security Strategy. The Chairman of the Joint Chiefs of Staff is the principle military advisor to the President, National Security Council, and Secretary of Defense, Joint Chiefs of Staff and combatant commanders. The National Military Strategy contains the advice of the Chairman of the Joints Chiefs of Staff on the role of the Armed Forces implementing the National Security and National Defense Strategies. The chairman, on behalf of the Secretary of Defense, directs combatant commanders (CCDRs) to develop

theater security cooperation plans as well as war and contingency plans[Campaign Plans]" (FM-1, US Army Future Force Capstone, 2005, p. 4 and 5).

F. DEFINITIONS AND TERMS

The following definitions are provided to establish the joint effects-based contracting execution framework:

Effects – “an effect is a physical and/or behavioral state of s systems that results from an action, set of actions, or another effect. A desired effect can also be thought of as condition that can support achieving an associated objective, while an undesired effect is a condition that can inhibit progress toward and object” (JP 5-0, 2006, p. III-12).

Effects-Based Operations – “vital part of the new approach to warfare is the emerging arena of effects-based operations (EBO). A further step away from annihilation or attrition warfare, EBO, explicitly and logically links the effects of individual tactical actions directly to desired military and political outcomes” (Joint Publication 5-0, 2006, p. III-28).

Enabling Concept – “is a description of how a particular task or procedure is performed, within the context of a broader functional area, using a particular capability, such as a specific technology, training education program, organization, facility, etc. An enabling concept describes the accomplishment of a particular task that makes possible military function or sub-function” (Defense Adaptive Red Team, 2002, p.10).

Acquisition – “Definitions for Words and Terms, defines acquisition as acquiring by contract with appropriated funds of supplies or services (including construction) by and for the use of the Federal Government through purchase or lease, whether the supplies or serves are already in existence or must be created, developed, or demonstrated, and evaluated. Acquisition begins at the point when agency needs are established and

includes the description of requirements to satisfy agency needs, solicitation and selection of sources, award of contracts, contracting financing, contract performance, contract administration, and those technical and management functions directly related to the process of fulfilling agency needs by contract” (FAR 2.101).

Contract Types – Contract types are grouped into two broad categories: fixed price and cost reimbursement contracts, in which the contractor has full responsibility for the performance costs and resulting profit (or loss), to cost-plus-fixed fee, in which the contractor has minimal responsibility for the performance cost and the negotiated fee (profit) is fixed. In between there are various incentive contracts in which the contractor’s responsibility for the performance costs and the profit or fee incentives offered are tailored to the uncertainties involved in contract performance (FAR 16.1(b)).

Delivery Order Contracts – Contract for a supply that does not procure or specify a firm quantity of supplies (other than a minimum and maximum quantity) and that provides for issuance of orders for the delivery of supplies during the period of the contract.

Task Order Contracts – Contract for services that does not procure or specify a firm quantity of service (other than a minimum and a maximum quantity) and that provides for the issuance of orders for the performance of tasks during the period of the contract (*FAR 16.501*).

Theory of Constraints – The TOC proposes that in any multi-stage processing system, one stage will be slower than the others.

The theory of constraints has 5 steps.

1. Identify the system constraints (no improvement is possible unless the constraint or weakest link is found)

2. Decide how to exploit the system constraints (Make the constraints as effective as possible)
3. Subordinate everything else to that decision (align every other part of the system to support the constraints even if this reduces the efficiency of non-constraint resources)
4. Evaluate the system constraints (if output is still inadequate, acquire more of this resource so it no longer is a constraint)
5. If in the previous steps, the constraints have been broken, go back to step 1, but do not let inertia become the system constraint. (After this constraint problem is solved, go back to the beginning and start over. This is a continuous process of improvement: identifying constraints, breaking them, and then identifying the new ones that result) (Apte et al., 2006, p. 103).

Little's Law - Little's Law states the following fundamental relation always holds true among the average flow rate (throughput), R , the average cycle time, T , and the average inventory, I : $I = R \times T$ (Apte et al., 2006, p. 20)

G. ORGANIZATION OF RESEARCH

The following chapters capture the initial study on a conceptual JEBCES. Chapter I, Introduction, introduces the research project by providing background, objectives of the research, research questions, methodology and assumptions; key definitions and terms. Chapter II, Overview of operation Iraqi Freedom Campaign Plan, Lines of Operations and Effects-Based Contracting, presents the warfighter's operational framework and explores the effectiveness of EBC

methodologies under the *Enable Civil Authority Phase* (phase V) of the OIF CP. Chapter III, Identification and Analysis of Problems, reviews the evolution of the joint expeditionary contracting experience in Iraq from the *Deter Phase* (phase I) through the *Stabilize Phase* (Phase IV) of the CP and highlights systemic variations in such areas as requirements definition and service-specific joint expeditionary contracting execution. Chapter IV, JEBCES Systems Engineering, introduces the general framework for JEBCES, and presents the enabling concept of a Phase-based Acquisition Capability (PBAC). Chapter V, PBAC Modeling and Simulation, introduces discrete-event simulation of the current joint expeditionary contracting execution process and our conceptual model. Chapter VI, Analysis and Results, presents the simulation results, analysis, and, implications for future joint expeditionary contracting execution. Chapter VII presents the conclusions and recommendations for future research.

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II. OVERVIEW OF OPERATION IRAQI FREEDOM CAMPAIGN PLAN, LINES OF OPERATIONS AND EFFECTS-BASED CONTRACTING

A. INTRODUCTION

Before analyzing Effects-based Contracting (EBC) methodologies, it is essential to establish a basic understanding of the warfighter's operational framework for OIF. The first section of this chapter provides a general background on the phases of the CP and related activities under each phase. The second section describes the Lines of Operations (LOOs) within the CP and highlights the importance of their synchronization to deliver effects. The third section analyzes EBC methodologies during Operation Together Forward I (OTFI), construction of the Rusafa Law and Order Facility, and Iraqi Date Palm Spraying Operations as these represent some of the earliest and latest examples of EBC execution. As such, they illustrate the importance of synchronized, time-definite delivery of supplies and services to support the Combatant Commander's (CCDR's) strategic objectives. The authors thought it prudent to begin this discussion at the point at which joint expeditionary contract support and the CCDR's strategic objectives converge, the CCDR's campaign plan; followed by a discussion of the broader, national strategic framework that the CP supports.

B. OIF CAMPAIGN PLAN PHASES

A campaign plan embodies the theater combatant commander's strategic vision for the arrangement of operations needed to attain the strategic objectives assigned by a higher authority. It achieves unity of effort with unified action (joint, combined, or coalition, an interagency); clearly defines what constitutes success; and serves as the basis for subordinate planning. A campaign plan is the operational extension of the combatant commander's theater strategy.

(Kidder, 2004, p.1)

Figure 1 identifies OIF Phasing and related activities to arrange capabilities in time, space and purpose to accomplish strategic objectives.

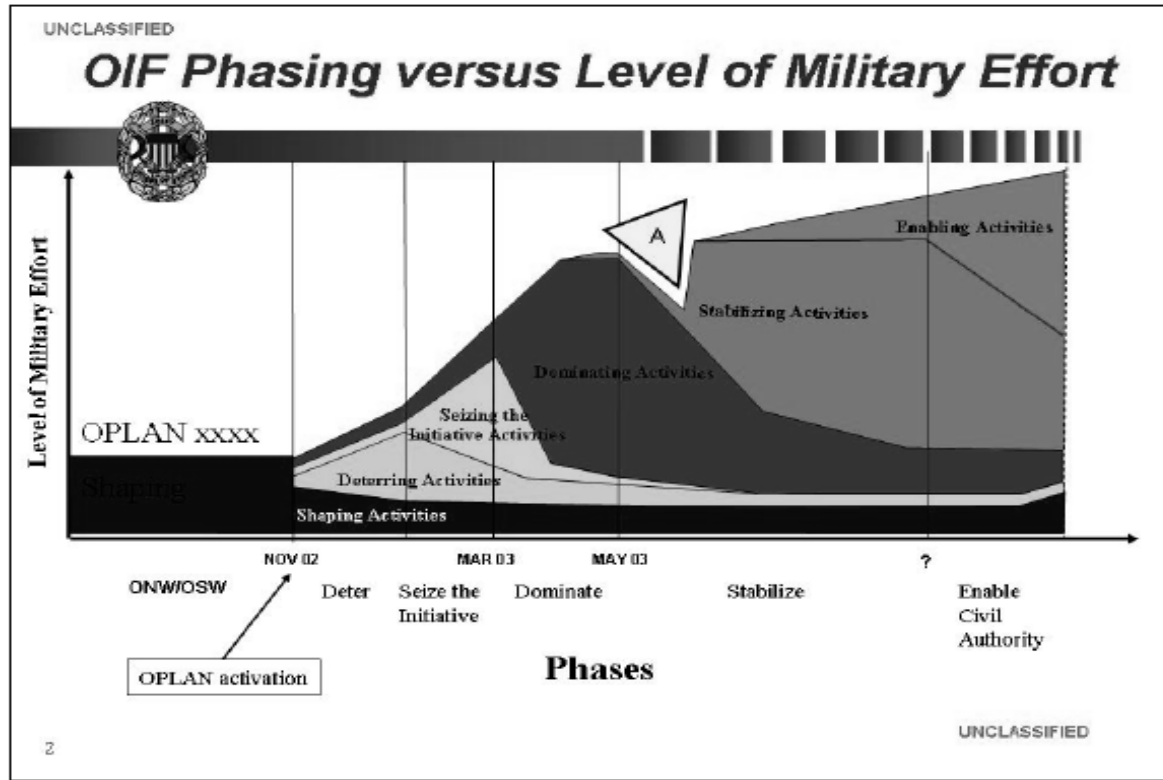


Figure 1. Campaign Plan Phases and Related Activities (Johnson, 2008)

Although the phase-specific activities of the OIF CP are classified, Joint Publication 5-0, Joint Operation Planning, provides a broad overview of the intent of each phase and generic phase-related activities:

1. Phase I: Deter Phase (November 2002): "The intent of this phase is to deter undesirable adversary action by demonstrating the capabilities and resolve of the joint force. It differs from deterrence that occurs in the *shape* phase [Phase 0] in that it is largely characterized by preparatory actions that specifically support or facilitate the execution of subsequent phases of the operation/campaign. Once the crisis is defined, these actions include mobilization, tailoring of forces and other pre-deployment activities; initial

deployments into a theater; employment of ISR [Intelligence, Surveillance, and Reconnaissance] assets to provide real-time and near real-time situational awareness; setting up of transfer operations at enroute locations to support aerial ports of debarkation in post-chemical, biological, radiological, nuclear, and high-yield explosive attack configurations; and development of mission-tailored C2 [command and control], intelligence, force protection, transportation, and logistic requirements to support the JFC's [Joint Force Commander's] concepts of operations. CCDRs continue to engage multinational partners, thereby providing a basis further crisis response. Liaison teams and coordination with other agencies assist in setting the conditions for execution of subsequent phases of the campaign or operation. Many actions under the *deter* phase build on security cooperation activities from the previous phase [Phase 0—*shaping*] and are conducted as part of security cooperation plans and activities. They can also be a part of stand-alone operations" (JP 5-0, 2006 p. IV-36).

2. Phase II: Seize the Initiative Phase (January 2003): "JFCs seek to seize the initiative in combat and noncombat situations through the application of appropriate joint force capabilities. In combat operations this involves executing offensive operations at the earliest possible time, forcing the adversary to offensive culmination and setting the conditions for decisive operations. Rapid application of joint combat power may be required to delay, impede, or halt the adversary's initial aggression to deny the initial objectives. If an adversary has achieved its initial objectives, the early and rapid application of offensive combat power can dislodge adversary forces from their positions, creating conditions for exploitation, pursuit, and ultimate destruction of both those forces and their will to fight during the *dominate* phase. During this phase, operations to gain access to the infrastructure and to expand friendly freedom of action continue while the JFC seeks to degrade adversary capabilities with the intent of resolving the crisis at the earliest opportunity. In all operations, the JFC establishes conditions for stability by providing immediate assistance to relieve conditions that precipitated the crisis" (JP 5-0, 2006 p. IV-36).

3. Phase III: Dominate Phase (April 2003): “The dominate phase focuses on breaking the enemy’s will for organized resistance or, in noncombat situations, control of the operational environment. Success in this phase depends upon overmatching joint force capability at the critical time and place. This phase includes full employment joint force capabilities and continues the appropriate sequencing of forces into the OA [operational area] as quickly as possible. When a campaign or operation is focused on conventional enemy forces, and the *dominate* phase normally concludes with decisive operations that drive and adversary to culmination and achieve the JFC’s operational objectives. Against unconventional adversaries, decisive operations are characterized by dominating and controlling the operational environment through a combination of conventional, unconventional, information and stability operations. Stability operations are conducted as needed to ensure a smooth transition to the next phase and relieve suffering. In noncombat situations, the joint force’s activities seek to control the situation or operational environment. *Dominate* phase activities may establish the conditions for an early favorable conclusion or operations or set the conditions for transition to the next phase” (JP 5-0, 2006 p. IV-37).

4. Phase IV: Stabilize Phase (Jan 2004 – December 2005): “The *stabilize* phase is required when there is no fully functional, legitimate civil governing authority present. The joint force may be required to perform limited local governance, integrating the efforts of other supporting/contributing multinational, IGO [intergovernmental organizations], NGO [nongovernmental organizations], or USG [US Government] agency participants until legitimate local entities are functioning. This includes providing or assisting in the provision of basic services to the population. The *stabilize* phase is typically characterized by a change from sustained combat operations to stability operations. Stability operations are necessary to ensure that the threat (military and/or political) is reduced to a manageable level that can be controlled by the potential civil authority or, in noncombat situations, to ensure that the situation leading to the

original crisis does not reoccur and/or its effects are mitigated. Redeployment operations may begin during this phase and should be as early as possible. Throughout this segment, the JFC continuously assesses the impact of current operations on the ability to transfer overall regional authority to a legitimate civil entity, which marks the end of this phase” (JP 5-0, 2006 p. IV-37).

5. Phase V: Enable Civil Authority (Jan 2006 – Present): “This phase is predominantly characterized by joint force support to legitimate civil governance in theater. Depending upon the level of indigenous state capacity, joint force activities during phase V may be at the behest of that authority or they may be under its direction. The goal for the joint forces is to enable the viability of the civil authority and its provision of essential services to the largest number of people in the region. This includes coordination of joint force actions with supporting or supported multinational, agency, and other organization participants; establishment of MOEs [measures of effectiveness]; and influencing the attitude of the population favorably regarding the U.S. and local civil authority’s objectives. DOD policy is to support indigenous persons or groups promoting freedom, rule of law, and an entrepreneurial economy and opposing extremism and murder of civilians. The joint force will be in a supporting role to the legitimate civil authority in the region throughout the *enable civil authority* phase. Redeployment operations, particularly for combat units, will often begin during this phase and should be identified as early as possible. The military end state is achieved during this phase, signaling the end of the campaign or operation. Operations are complete when redeployment is complete. Combatant command involvement with other nations and agencies, beyond the termination of joint operations, may be required to achieve the national strategic end state” (JP 5-0, 2006 p. IV-37).

C. LINES OF OPERATION

As JFCs visualize the design of the operation, they may use several LOO [Lines of Operations] to help visualize the intended progress of the joint force toward achieving operational and

strategic objectives. LOOs define the orientation of the force in time, space and purpose in relation to and adversary or objective. Normally, joint operations require commanders to synchronize activities along multiple and complementary LOOs working through a series of strategic and operational objectives to attain the military end state. Figure 2. presents four notional logical LOOs from the CCDRs perspective based on an arrangement of tasks necessary to accomplish objectives (JP 5-0, 2006 p.IV-19).

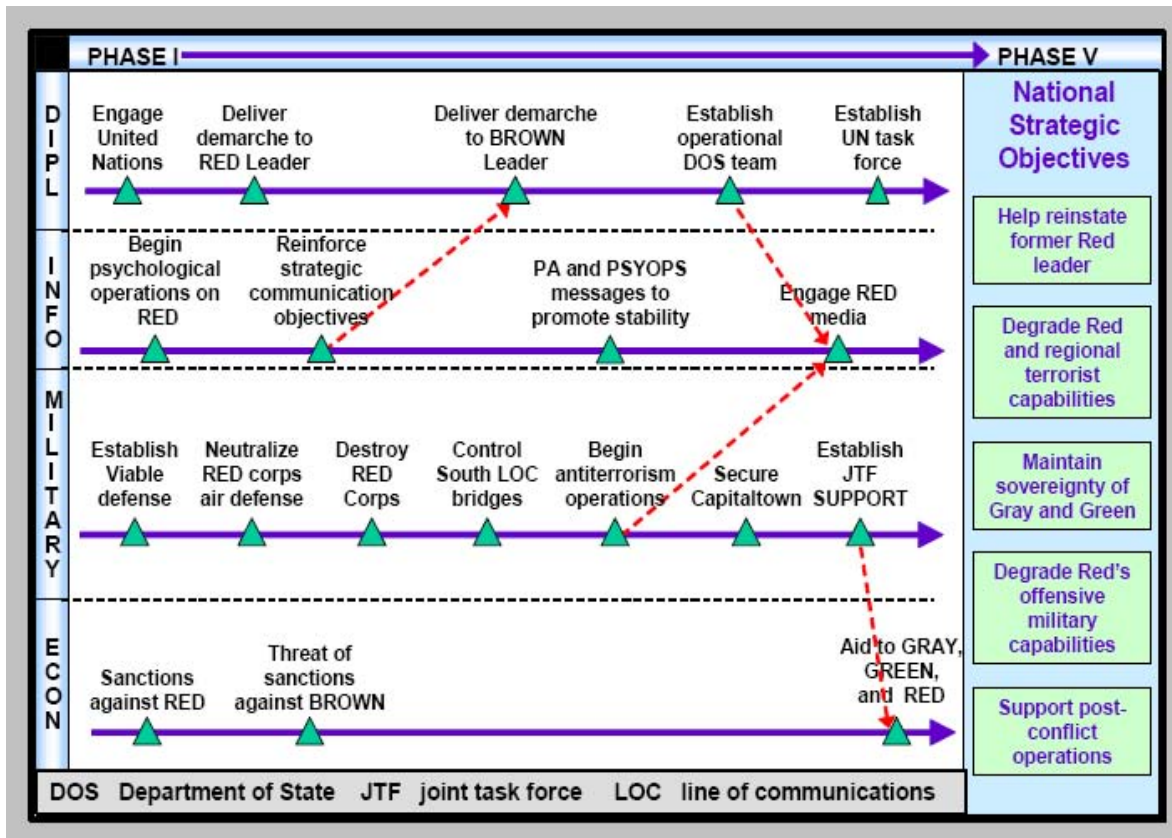


Figure 2. Sample Logical Lines of Operations (From: JP 5-0, Joint Operation Planning, 2006)

Of particular note in Figure 2 is that the United States Instruments of power: diplomatic, informational, military, and economic must be synchronized through out the CP to achieve National Strategic Objectives. According to former commanding general of the Multinational Corps-Iraq (MNC-I), Major General Peter W. Chiarelli,

operations maintained orientation on a well-founded campaign plan balanced along five integrated conceptual LOOs. Each LOO was tied to a robust Information Operations capability (a sixth LOO), moving incrementally and cumulatively toward decisively accomplishing the goal of shifting Baghdad away from instability and a recruiting ground for insurgents, to a thriving modern city encompassing one-third of Iraq's population (Chiarelli and Michaelis, 2005, p. 1).

The first LOO is the Military Line of Operation (MLO), where the MNC-I provides command and control of operations throughout Iraq (MNC-I Mission Statement, 2006). The second LOO is the Transitional Line of Operation (TLO). Along this LOO, the Multinational Security Transition Corps-Iraq (MNSTC-I commonly called "min-sticky"), is responsible for organizing, training, equipping and mentoring Iraqi Security Forces throughout the country of Iraq (MNSTC-I Mission Statement, 2006). The third LOO is the Reconstruction Line of Operation (RLO), where the United States Army Corps of Engineers Gulf Region Division (GRD) provides quality and sustainable, responsive, full spectrum engineering services to support civil and military construction in Iraq (GRD Mission Statement, 2006). The fourth LOO is the Economic Line of Operation (ELO), wherein the Joint Contracting Command-Iraq/Afghanistan (JCC-I/A) is charged with providing contract support warfighter as well as stimulating the Iraqi economy. The fifth is the Governance Line of Operation (GLO), where in the rest of the US interagency community such as the Department of Justice and Department of State shares the responsibility to assist in local and national governance.

The LOOs are linked into the three integrated strategic tracks of the 2005 National Security Strategy for Victory in Iraq (NSSVI)—political, security, and economic. According to the NSSVI,

the objective of the *Political Track* is to help the Iraqi people to forge a broadly supported national compact democratic government, thereby isolating enemy elements from the broader public. To achieve this objective the methodology is to: *Isolate* hardened enemy elements from those who can be one over to a

peaceful political process by countering false propaganda and demonstrating to the Iraqi people that they have a stake in a viable, democratic Iraq. *Engage* those outside the political process and invite in those willing to turn away from violence through ever-expanding avenues of peaceful participation. *Build* stable, pluralistic, and effective national institutions that can protect the interests of all Iraq's, and facilitate Iraq's full integration into the international community (National Security Strategy for Victory Iraq, 2005, p. 8).

The objective of the *Security Track* is to secure their country while carrying out a campaign to defeat the terrorists and neutralize the insurgency. The methodology is to: *Clear* areas of enemy control by remaining on the offensive, killing and capturing enemy fighters and denying them safe-haven. *Hold* areas freed from enemy control by ensuring that the enemy remain under the control of a peaceful Iraqi Government with adequate Iraqi security force presence. *Build* Iraqi Security Forces and capacity of local institutions to deliver services, advance the rule of law, and nurture civil society (NSSVI, 2005, p. 8).

The objective of the *Economic Track* is to assist the Iraq government in establishing the foundations for a sound economy with the capacity to deliver essential services. The methodology for this objective is to *Restore* Iraq's neglected infrastructure so it can meet the increasing demands of a growing economy. *Reform* Iraq's economy, which was shaped by war, dictatorship, and sanctions, so that it can be self-sustaining in the future. *Build* the capacity of Iraq's institutions to maintain infrastructure, rejoin the international economic community, and improve the well fare of all (NSSVI, 2005, p. 9).

D. JOINT CONTRACTING COMMAND IRAQ/AFGHANISTAN

In order to better support the national strategic objectives of the NSSVI and the ELO of the OIF CP, USCENTCOM issued FRAGO 09-1117 in November 2005. The FRAGO established JCC-I/A and the following three objectives: "1) Integrate warfighter campaign plans and strategy and achieve effects through contracting that further support the warfighters' objectives, 2) Achieve unity of effort and economies of scale that exemplify best business practices and serve as a model for commerce in Iraq and Afghanistan, and 3) Create synergy with

economic activities in local private and public sectors, serving as a catalyst for economic growth and the resulting peace” (United States Central Command, 2006).

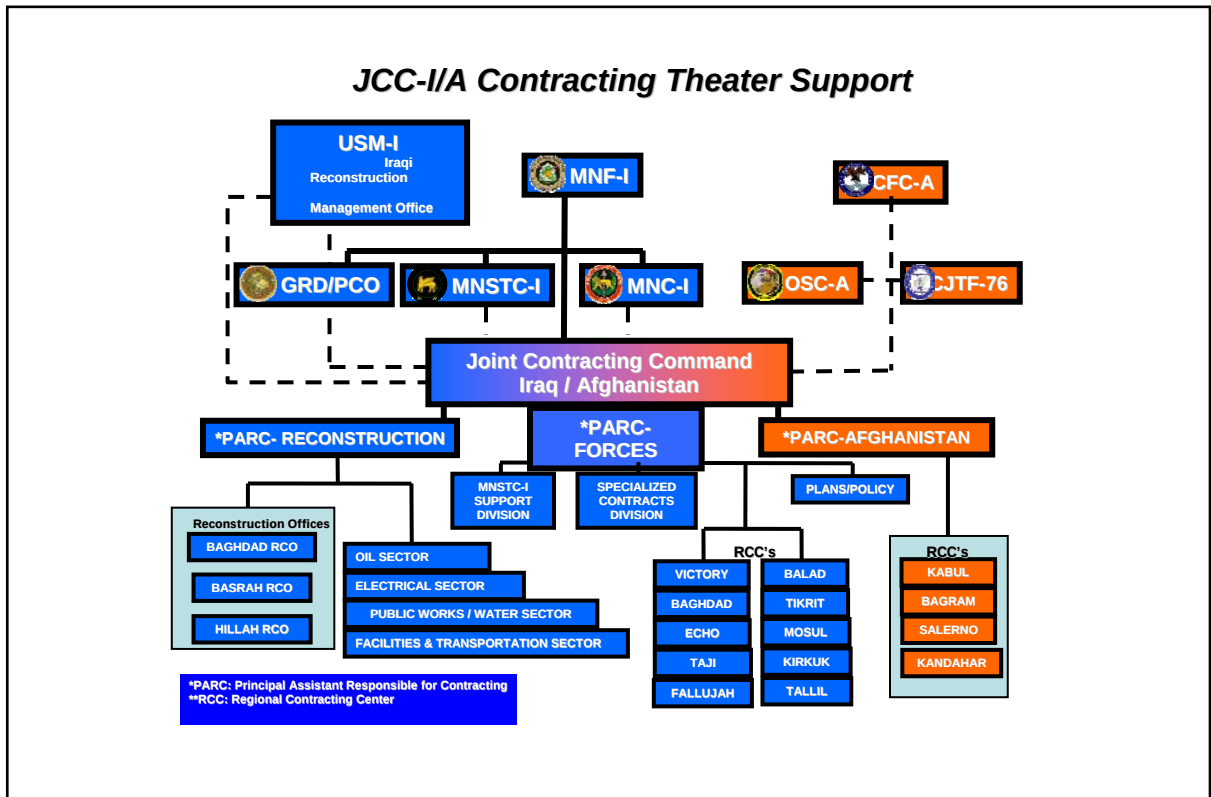


Figure 3. JCC-I/A Theater Contracting Support Structure (From: JCC-I/A, 2006)

1. Organizational Structure

Figure 3 presents the organizational relationships and highlights the dual mission of the JCC-I/A. JCC-I/A is a Major Subordinate Command (MSC) under the Multinational Force Iraq (MNF-I) and provides responsive operational contracting support to the Chiefs of Mission, MNF-I and Combined Forces Command – Afghanistan. Additionally, JCC-I/A provides capacity building to establish effective contracting and procurement processes within the Iraqi and Afghani Ministries (JCC-I/A Mission Statement, 2006). The command provides

reconstruction contract support through Reconstruction Offices and provided operational contract support through Regional Contracting Centers (RCCs).

2. Contingency Contracting Officer Resources

During this period, JCC-I/A had 165 Contingency Contracting Officers (CCOs) with varying degrees of experience and execution methodologies from the US Army, Navy, Air Force, and Marines. The experience levels ranged from Defense Acquisition Workforce Improvement Act (DAWIA) Acquisition Professional Development Program (APDP) Level I contracting officers to APDP Level III. Experience levels directly influenced contracting methodologies

E. EFFECTS-BASED CONTRACTING (EBC)

In order to align tactical contracting efforts of the ELO and RLO to support the *enable civil authority phase*, the commander of the Joint Contracting Command pioneered Effects-based Contracting (EBC). “EBC is getting synergistic effects through the coordination of contracting resources and capabilities in time, space and purpose, in order to support the warfighter” (DeLong and Gilbeau, 2007, p. 61). The key tenant of EBC is to insert the contracting officer early in the planning process, at appropriate locations within the unit’s battle rhythm, from the corps to the battalion level (DeLong and Gilbeau, 2007). JCC-I/A established five key components of the EBC methodology:

1. Developing a concept of support
2. Identifying key players
3. Knowing the war fighters’ battle rhythm
4. Ensuring visibility, by being in the right planning evolution
5. Having flexibility within the enterprise (DeLong, 2007)

Although not exhaustive, the following are examples of how JCC-I/A used the five components of EBC to support the CCDRs strategic objectives, which culminated in the summer of 2006 and spring of 2007:

1. EBC: Operation Together Forward

On June 14, 2006, Prime Minister Nouri al-Maliki announced the launch of Operation Together Forward I (OTFI). OTFI was one of the first operations in which Iraqi Security Forces (ISF) were in the lead and joint and coalition partners were in support. The desired effect of OTF I was to provide aid to its citizens and to increase security throughout Baghdad.

The first step in the EBC methodology was to develop a concept of support. As plans for kinetic operations began to unfold, contracting officers were integrated into the operational planning cycles to get a better understanding of post-kinetic and reconstruction contract requirements. With ISF clearing neighborhoods, mosques, and buildings along the TLO, post-kinetic reconstruction efforts had to be synchronized to deliver essential services to the residents of Baghdad. This required contracting officers to proactively integrate into the warfighter's operational planning evolutions; specifically; in sequencing and phasing. "Part of the art of planning is determining the sequence of activities that accomplish the mission most efficiently" (Army Field Manual 5-0, Army Planning and Order Production, 2005, p.I-16). Figure 4 captures the progression of kinetic operations and categorizes them in terms of those neighborhoods that *were completed, started, and not started*.

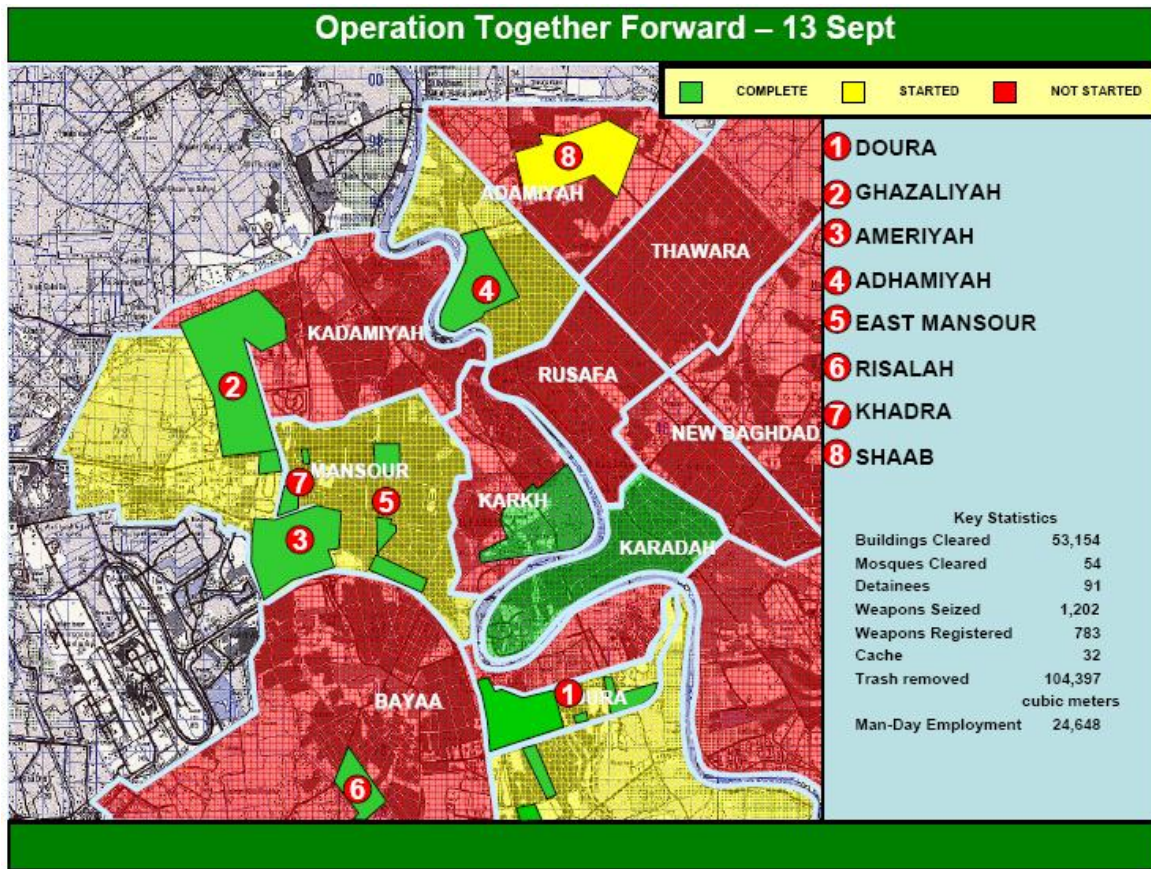


Figure 4. Multi-National Force Iraq Slide Operation Together Forward (From: The Long War Journal, 2006)

As a means to support the objectives of OTFI, once kinetic forces *completed* Mansour neighborhoods: E. Mansour, Ameriyah, and Khadra (numbers 3, 5, and 7 in Figure 4), post-kinetic operations had to immediately begin to relieve the suffering of noncombatants. From a strategic perspective, Figure 5 captures a Baghdad-wide project status of 994 *completed* projects, 532 *ongoing*, and 1,549 *planned*. Central to the success of the BSP was the speed at which post-kinetic reconstruction operations followed kinetic operations.

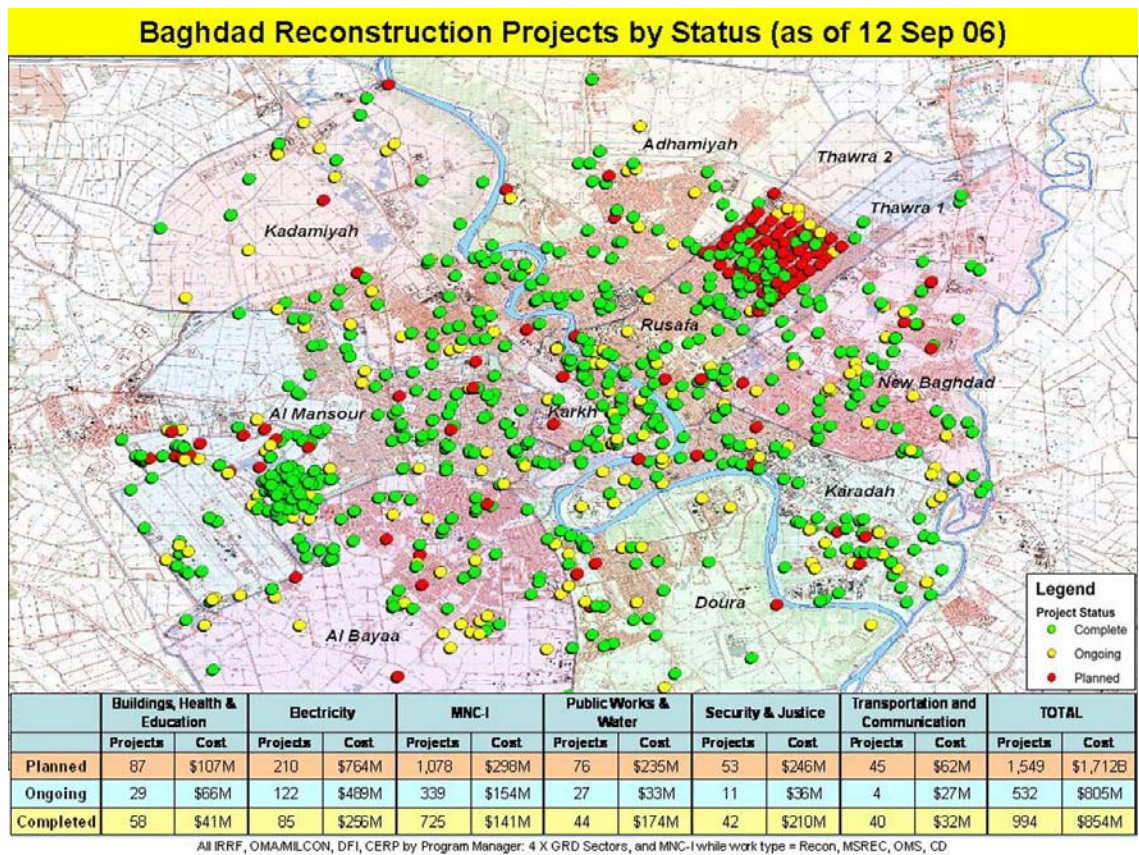


Figure 5. Baghdad Reconstruction Projects by Status (From: The Long War Journal, 2006)

As a part of alignment and synchronization of tactical contracting efforts to support RLO and ELO, JCC-I/A had to identify key players along their respective LOOs. From the operational level, MNC-I was responsible for the MLO, MNSTC-I was responsible for the TLO, and the United States Mission-Iraq and elements of the Department of Justice were responsible for the GLO. Key tactical players were the ground commanders, local provincial leaders and the Provincial Reconstruction Teams. Established by Secretary Rice on November 11, 2005, “the Iraq PRT initiative is a civilian-military interagency effort that provides the primary connection between U.S. and coalition partners and provincial and local governments in all of Iraq’s 18 provinces. The core PRT mission is helping the provincial governments with: developing a transparent and sustained capability

to giver, promoting increased security and rule of law, promoting political and economic development, and providing provincial administration as necessary to meet the basic needs of the population” (Department of State, Provincial Reconstruction Team Fact Sheet, 2008, p.1

The third component of EBC is knowing the warfighter’s battle rhythm. “Joint Battle Rhythm is the timing and scheduled presentation of situation reports, briefings, formal collaborative sessions and other required actions during planning and execution” (Duffy and Bordetsky, 2004, p.1). At the tactical and operational levels, CCOs from the Principle Assistant Responsible for Contracting-Forces (PAR-F) and other RCCs attended daily and weekly operational briefs in order to synchronize expeditionary contracting support with the warfighter’s main effort

The fourth component of EBC is ensuring visibility by being in the right planning evolution. At the strategic level, Major General Darryl Scott, the Commanding General of JCC-I/A attended MNF-I Commanding General's Battle Update Assessment (BUA). The BUA provided strategic situational awareness relative to the objectives of the CP and insight that would require JCC-I/A's involvement in major operational planning evolutions. This information was then shared with RCCs and PARC-F as they participated in collaborative and planning sessions with the warfighters Integrating expeditionary contracting at the strategic, operational, and tactical levels was innovative at this time in the sense that it put joint expeditionary contracting in a well-poised, *proactive* position, rather than a *reactive* one as experienced under previous CP phases.

The fifth component of EBC is having flexibility within the enterprise. Existing contract vehicles throughout the JCC-I/A were critical elements in the time-definite delivery of essential services to the neighborhoods of Baghdad. For example, after the kinetic operations to clear neighborhoods started, JCC-I/A, through existing theater-wide contracts, delivered essential services, water and electricity, one to three days after kinetic forces cleared neighborhoods.

2. EBC: Construction of Rusafa Law and Order Facility

Another example of EBC execution was the construction of the Rusafa Law and Order Facility.

On February 28, General David H. Petraeus, commanding general of MNF-I issued an order requiring the establishment of a law and order complex in the heart of Baghdad. The purpose of the complex was to help the Government of Iraq (GOI) improve the judiciary in Baghdad and foster an environment of reconciliation throughout Iraq. The GOI's visible exercise of the judicial system would be a key instrument in gaining the trust and confidence. As a condition, judges, witnesses, and other parties involved with the investigative hearings must be protected from anti-GOI attacks and threats. The desired result was the Central Criminal Court of Iraq's ability to hold public investigations and trials in a relatively safe environment. Gaining the capacity to fairly prosecute and house criminals in a key component to the Baghdad Security Plan (Operation Fardh Al-Qanoon) (Delong and Gilbeau, 2007, p. 62).

By using the five components of EBC, "the team constructed the [\$22 million dollar] facility faster [22 days] and better than the chief judge had hoped to imagine. As a result, the chief judge decided this complex would not be merely a criminal investigative court, but instead, officially designated the facility as the Central Criminal Court of Iraq. On April 7, 2007, the first arraignment took place as planned and a man held for torture, was remanded for trial" (Delong and Gilbeau, 2007, p. 63).

3. EBC: Date Palm Spraying Operations

The last example of EBC execution was pest control efforts for the Iraq's commercial date palm crop.

The date palm (*Phoenix dactylifera*) has provided a source of food and shelter throughout history and is linked culturally and spiritually with Iraq. Iraq dominated the world date market with 75 percent of the exported dates until the late 1970s. This dominance was lost to other competitors as Iraq became involved in wars and trade embargoes were imposed. Dates still remained the second largest industry in Iraq but production was threatened by a large number of

pests ranging from arthropods, fungi, nematodes, and phytoplasma. The Dubas bug (*Ommatissus lybicus*) is considered the number one arthropod pest of date palms in Iraq. The Iraqi Ministry of Agriculture (MOA) had controlled Dubas bugs through the aerial application of ULV pesticides prior to Operation Iraqi Freedom in 2003. Due to the loss of organic agricultural aircraft and security issues, aerial spraying was not done in 2004 and 2005. Infestation levels rose causing a significant decrease in date production. It was recognized that it was critical to implement control measures for the Dubas bug to improve the date production. In late 2005, the MOA in conjunction with Multi-National Forces - Iraq (MNF-I) began planning to conduct aerial spraying to control the Dubas bug in date palms in Iraq. This agricultural project was a joint effort lead by the MOA that took months to plan and execute. The result was over 77,000 hectares of date palms were aerielly sprayed to control Dubas bugs in Iraq (Blow, 2006).

This was significant in the sense that it provided equal distribution of assets to cover all date palm crops, not just the crops of a particular group.

F. JOINT RECONSTRUCTION OPERATIONS CENTER

The Joint Reconstruction Operations Center (JROC) was the information hub for unclassified information sharing and provided reconstruction transparency for the 18 provinces within Iraq. GOI actors could highlight icons within their province and obtain near real-time post-kinetic project status. JCC-I/A achieved a common-operating-sight-picture by integrating into the JROC. From the strategic, operational, and tactical perspectives, senior U.S. and GOI actors were finally in a forum where they could share unclassified operational information. Moreover, all actors had insight as to how their actions affected the others within the battle space, and how synchronized, individual actions helped to achieve the CCDR's strategic objectives

G. IMPACT ON OIF STRATEGIC OBJECTIVES

At the end of Fiscal Year 2006, JCC-I/A obligated \$5.7 billion dollars through 26,994 contracting actions. As presented in Figure 6, of the \$5.7 billion,

JCC-I/A infused \$1.8 billion into Iraq's economy (includes \$716 million of PARC-F and \$1,168.2 million from PARC-R).

UNCLASSIFIED

JCC-I/A FY 06 EOY Roll-Up

Contracting Activity & Economic Stimulus

JCC I/A	Total Contract Actions FY 2006				Total Contract Dollars (\$M) FY 2006				Host Nation Contract Actions FY 2006				Host Nation Contract Dollars (\$M) FY 2006			
	JUL	AUG	SEP	Σ FY	JUL	AUG	SEP	Σ FY	JUL	AUG	SEP	Σ FY	JUL	AUG	SEP	Σ FY
PARC-F (GRQ)	1,208	1,269	1,322	13,737	\$170.7	\$364.4	\$374.2	\$1,776.1	763	796	657	6,964	\$106.0	\$119.3	\$132.1	\$716.0
PARC-R (GRQ)	208	224	369	3,013	\$302.2	\$466.2	\$441.4	\$3,407.9	106	111	131	1,147	\$240.6	\$296.6	\$171.6	\$1,168.2
PARC-A (AFQ)	775	916	1,223	10,244	\$31.5	\$32.2	\$96.8	\$527.9	635	778	1,059	7,840	\$24.9	\$27.7	\$68.3	\$334.6
TOTAL JCC-I/A	2,191	2,409	2,914	26,994	\$504.4	\$862.8	\$912.4	\$5,711.9	1,504	1,685	1,847	15,951	\$371.5	\$443.6	\$372.0	\$2,218.8

Figure 6. JCC-I/A FY06 End of Year Economic Stimulus Roll-Up (From: JCC-I/A, 2006)

As of December 4 2007, and still under the *enable civil authority* phase of the CP, 447 electrical sector projects were *completed* with 124 *on-going*; 75 oil sector projects completed with 18 *on-going*; 3,204 water sector projects were complete with 337 *on-going*. Moreover, GRD reported 1,047 village road projects; 437 Primary Health Care Facilities, and 282 boarder posts were completed during this same period. JCC-I/A also reported a significant increase in the number of Host Nation prime contractors and subcontractors. JCC-I/A along with GRD directly supported the ELO RLO within the CCDR's CP and the national strategic objectives of the NSSVI *Economic Track*.

H. SUMMARY

This chapter discussed the warfighter's operational framework along with the impact of EBC on the CCDR's strategic objectives under the *Enable Civil Authority Phase* of the OIF. Components of EBC execution were then analyzed

through OTFI, the construction of the Rusafa Law and Order Facility and Date Palm Spaying Operations in terms of:

1. Developing a concept of support
2. Identifying key players
3. Knowing the war fighters' battle rhythm
4. Ensuring visibility, by being in the right planning evolution
5. Having flexibility [existing contracts] within the enterprise (DeLong, 2007)

Finally, an FY 2006 roll-up of the contracting activity and economic stimulus that supported the CCDR strategic objectives. Although CCOs with varying degrees of experience, using EBC methodologies under a Joint Contracting Command have proved successful, DoD and CCDRs alike did not realize these successes until almost four years after OIF CP activation in November 2002.

The next chapter presents the researchers' observations of joint expeditionary contracting execution under previous CP phases through a review of the 2006 Special Inspector General Report: Lessons Learned in Procurement and Contracting and the 2007 Gansler Commission Report: Urgent Reform Required: Army Expeditionary Contracting. Specifically, this chapter will further detail the variations in service-unique approaches to CCO training and development as highlighted under Contracting Officer Resources of this section, and variations in kinetic and post-kinetic requirements definitions, which cumulatively provided numerous undesired effects under previous CP phases.

II. IDENTIFICATION AND ANALYSIS OF PROBLEMS

A. INTRODUCTION

The previous chapter presented the warfighter's operational framework and how through innovative EBC methodologies, JCCI-A managed to synchronize tactical contracting efforts to support strategic objectives under the *Enabling Civil Authority* phase of OIF. This chapter presents the researchers' observations of joint expeditionary contracting execution under previous CP phases through a review of the 2006 Special Inspector General Report: Lessons Learned in Procurement and Contracting, the 2007 Gansler Commission Report: Urgent Reform Required: Army Expeditionary Contracting. Additionally, the authors provide insight based upon personal experiences. Specifically, this chapter will further detail the variations in service-unique approaches to CCO training, development and deployment as well as variations in kinetic and post-kinetic requirements definitions thereby exposing the fertile ground for both warfighter and CCO to deliver effects: time-definite contracting of supplies services through out all phases of future CPs.

B. PHASE-PROCUREMENT-FUNDING TIMELINE ANALYSIS

1. SIGIR 2006 Lessons Learned Report with Researchers' Observations

SIGIR is the successor to the Coalition Provisional Authority Office of Inspector General (CPA-IG). The organization was created in October 2004 by a Congressional amendment to US Public Law 108-106; the amendment provided authority for SIGIR to continue the oversight that CPA-IG had established for Iraq reconstruction programs and operations. Specifically, SIGIR is mandated with the oversight responsibility of the use, and potential misuse, of the Iraq Relief and Reconstruction Fund (IRRF) and all obligations, expenditures, and revenues associated with reconstruction and rehabilitation activities in Iraq. Stuart W.

Bowen, Jr., who served as the CPA-IG since January 20, 2004, continues as the Special Inspector General for Iraq Reconstruction. SIGIR reports administratively to the Secretaries of State and Defense. In addition, SIGIR provides quarterly and semi-annual reports directly to the U.S. Congress. (SIGIR Mission Statement, 2006).

Figure, 7 CP Phasing/Major Procurement Authority/Funding Time Analysis, provides the evolution of the contracting experience in Iraq and highlights the misalignment of major procurement authorities, funding streams and CP phases. For example, during the *Dominant Phase* of OIF, Congress established the Iraq Relief and Reconstruction Fund under Public Law 108-11 to support the rebuilding effort. However, the major contracting authority, the Organization for Reconstruction and Humanitarian Assistance (ORHA) “suffered from a lack of qualified contracting personnel in theater as it prepared to provide post-war relief and reconstruction services in Iraq” (SIGIR, p. 21). During this period, *dominant phase-related activities* were centered on gaining access to the infrastructure and expanding friendly freedom of action (JP 5-0, 2006).

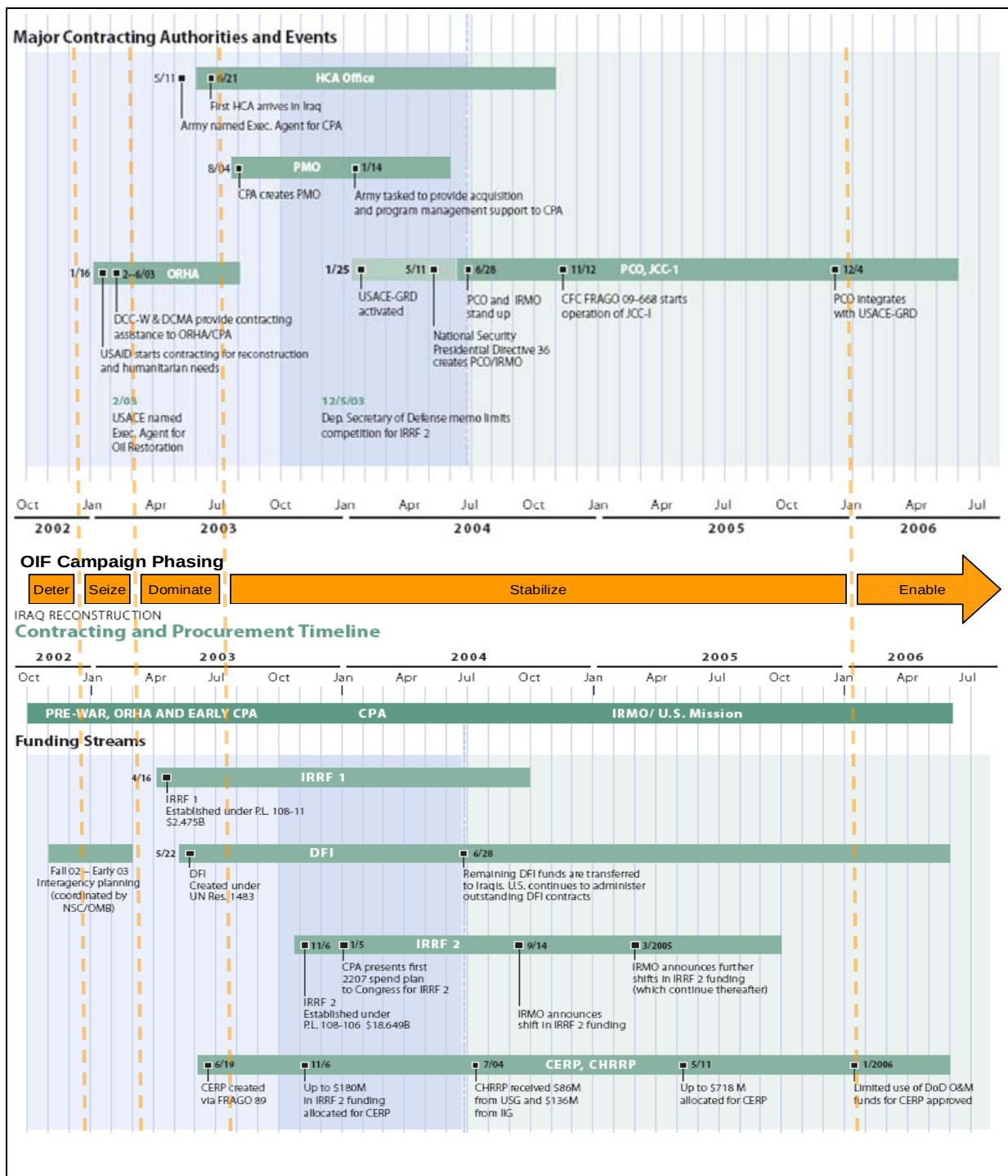


Figure 7. OIF Phasing/Procurement/Funding Timeline Alignment (After: SIGIR Lessons Learned Report, 2006)

a. Phase I: Deter/Closed- Planning/November 2002

Deter Phase related activities centered on requirements for “initial deployments into theater, force protection and logistics requirements to support the concept of operations” (JP 5-0, 2006, IV-37). Unfortunately, during this same period, “[contracting] agencies were individually directed to initiate planning for relief and reconstruction activities in Iraq [and with] limited coordination of contracting and procurement among these organizations” (SIGIR, 2006, p. 14). SIGIR goes on to explain, “The lack of coordination was attributable, in part, to the fact that most of the activities were classified” (SIGIR, 2006, p.14).

The authors contend that another “part” the lack of coordination is based upon the capabilities-based framework from which the warfighter plans contingency operations.

The Joint Strategic Capabilities Plan (JSCP) provides strategic guidance, including apportionment of resources (for planning purposes) to the [CCDR] and the Chiefs of the Services, to accomplish assigned strategic planning tasks, based on current military *capabilities*, for the next 18 to 24 months. The JSCP provides a coherent framework for capabilities-based operations planning (Defense Acquisition University, 2005a).

It is from within this framework OIF planners develop operational plans.

For example, 1st Calvary Division, from the operational planner’s perspective, brings an inherent “capabilities”: tanks, aviation, infantry and the like, into operational planning cycles particularly as it relates to the logistics of phasing in the Infantry Division into the CCDR’s AOR. Of particular note is that the warfighter organizes, trains, and equips around the capability, hence the terms “tanker,” “aviator” and “infantryman”. Another, significant capability that possess this characteristic is the Fighter Wing, hence the term fighter pilot. Unfortunately, for contracting no such capability exists. Much like the F-15 or MA1 Abrams related TTPs, the authors propose reframing and developing joint expeditionary contracting support into a capability that way the contracting can

enter as a capability in the capabilities based operational framework—JSCP. This would be the first opportunity for warfighters and CCOs to collectively delivery future effects.

b. Phase II: Seize/Early CPA/January 2003

During this phase, “operations to gain access to the infrastructure and to expand friendly freedom of action continue while the JFC seems to degrade adversary capabilities with the intent of resolving the crisis at the earliest opportunity. Operations, the JFC establishes conditions for stability by providing immediate assistance to relieve conditions that precipitated the crisis” (JP 5-0, 2006, p. IV-37).

According to SIGIR during this period, the DoD established the Organization for Reconstruction and Humanitarian Assistance (ORHA).

Between January and March 2003, the U.S. relaxed confidentiality restrictions on pre-war relief and reconstruction planning. More agencies then became more openly involved in planning for post-war Iraq. Financial and acquisition personnel, however, were largely still not included in the interagency planning process (SIGIR, 2006, p. 19).

Given the phase-related activities of setting the conditions to relieve suffering and the fact that financial and acquisition personnel were not included in interagency planning during this period, both warfighter and CCOs could benefit from well-defined requirements and standard expeditionary contract support execution methodologies to deliver essential services and supplies.

c. Phase III: Dominate/ORHA/April 2003

This phase includes full employment joint force capabilities and continues the appropriate sequencing of forces into the operational area as quickly as possible” (JP 5-0, 2006, p.IV-36). During this period, contracting efforts focused on the award and allocations of funds appropriated by Congress and Public Law 108-106. This Law provided \$18.4 billion in grants through the Iraq Relief and Reconstruction Fund 2 (IRRF2) (SIGIR, 2006).

The effort to design and implement IRRF 2 program became the central feature of the CPA's contracting during this period" (SIGIR, 2006, p. 34).

The U.S. did not have sufficient oversight capacity in country to supervise such an enormous Iraqi-led program (SIGIR, 2006, p. 38).

There was disagreement over the decision to create a new organization to manage the Iraq reconstruction program (SIGIR, 2006). United States Agency for International Development already managed a wide range of reconstruction programs in Iraq under IRRF 1 and was ready to have the lead under IRRF 2. USACE was in country managing Task Forces Restore Iraqi Oil and Restore Iraqi Energy and could have been expanded to manage the IRRF 2 program, but senior USACE officials did not believe they had sufficient existing capacity to manage the reconstruction endeavor (SIGIR, 2006).

Significant financial and administrative burdens accompanied the creation of a new large construction oversight organization in post-war Iraq. Among other things, "the lack of early funding and sufficient personnel to support Project Management Office's structure and operations inhibited the organization's start-up (SIGIR, 2006, p. 38).

d. Phase IV: Stabilize/Later CPA/July 2004

The *stabilize* phase is required when there is no fully functional, legitimate civil governing authority present. This required the joint force to perform limited local governments, integrating the efforts of other supporting/contributing multinational, intergovernmental organizations, nongovernmental organizations, or USG agency participants until legitimate local entities are functioning. Stability operations are necessary to "ensure the threat (military and/or political) is reduced to a manageable level that can be controlled by the potential civil authority or, in non combat situations, to ensure that the situation leading to the original crisis does not reoccur and/or its effects are mitigated" (JP 5-0, 2006, p. IV-39). During the period, there were significant

consternations in contracting authorities and funding streams management. “In late summer of 2003, the CPA’s reconstruction contracting emphasis moved from humanitarian relief to the restoration of essential services, funded chiefly by IRRF 1 and Development Funds for Iraq (DFI), to large-scale infrastructure project” (SIGIR, 2006 p. 34)

2. 2007 Gansler Commission Report with Researchers’ Observations

The Secretary of the Army established an independent Commission headed by Dr. Jacques Gansler, former Under Secretary of Defense (Acquisition Technology & Logistics), to assess Army Acquisition and Program Management in Expeditionary Operations (Gansler, 2007). The reports focused on four major areas affecting expeditionary contracting operations: Education and Training, Tools, Policy, and Organization.

a. Education and Training

The Gansler Commission Report outlined several deficiencies in the education and training of contracting personnel. The findings of the Gansler Commission were: “the Army does not recognize importance of contracting” (Gansler, 2007, p. 29). The Army segments of financial management, civilian and military personnel, contracting and contract management, training and education, and doctrine, regulations and processes have not enabled responsive acquisitions and sustainment for expeditionary operations. According to the report, this has contributed to the fraud, waste and abuse occurring in-theater by Army personnel (See Figure 8).

The Gansler commission found that the “expeditionary environment requires more trained and experienced military officers and non-commissioned officers. Only 56 percent of the military officers and 53 percent of the civilians in the contracting career field are certified for current positions” (Gansler, 2007, p. 2). According to the 2008 RAND Report: Project Air Force,

Anecdotes from our interview indicate a number of factors make contracting challenging, including differences in the nature of CCO duties of a contracting officer at nondeployed locations, variation in the contracting environments among countries within the AOR, the short duration of most deployments for contracting personnel, and differences in contracting culture among military operating in a joint environment (RAND, 2008, p. 48).

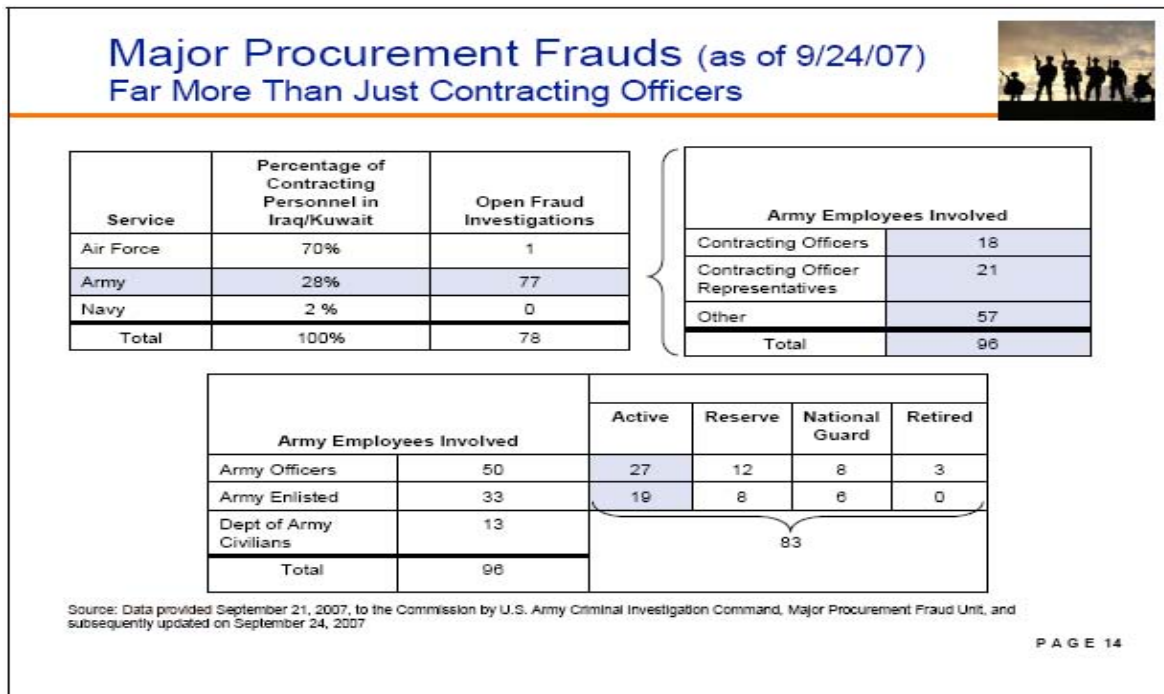


Figure 8. Major Procurement Fraud (From: Gansler, 2007)

The lack of sufficient education and training is leading to inefficient contracting and waste of taxpayer's dollars in contingency environments, where there is no time to get every action approved before it's awarded. Defense Acquisition University (DAU) needs to focus on training the civilian and military acquisition, logistics and contracting workforce as needed for expeditionary operations (Gansler, 2007). We should train as we fight: "JFCOM and Army training exercises must stress rapid acquisition, logistics, and contracting in expeditionary operations" (Gansler, 2007, p. 54).

b. Tools

Tools and training need to be provided to overall contracting activities in expeditionary operations (Gansler, 2007). The tools should be provided for “overall contracting activities in expeditionary operations so we do not repeat mistakes of Operations Iraqi Freedom/Operation Enduring Freedom” (Gansler, 2007, p. 103). An internal, automated contract documentation system needs to be created (SIGIR, 2006). Because of not having a standardized documentation system a series of ad-hoc systems were developed and these systems proved inconsistent (SIGIR, 2006). Audits of contracts in country found numerous occurrences of missing contracts (SIGIR, 2006). A deployable contracting and procurement system should be developed before deploying and should be tested to ensure it can be used effectively in contingency environments (SIGIR, 2006).

The DoD needs to develop an acquisition information system that will enable geographic COCOMs to integrate and coordinate the essential acquisition information from all contracting organizations throughout its respective AOR. Through the integration of this information within an AOR, COCOMs can conduct spend analyses to better understand what is actually procured in their respective geographical areas (D’Angelo, Houghan, & Ruckwardt, 2007, p. 89).

There needs to be a system put in place to capture the contracting lessons learned from both OIF and OEF. The Lessons learned should be incorporated into military leadership schools and the Center for Army Lessons Learned and other branch equivalents (Gansler, 2007). In order for the military to learn from past mistakes they need to know what those mistakes are and use them in current training before they deploy to the battlefield. By failing to capture lessons learned we are destined to continue making the same mistakes over and over again.

c. Policy

A key element for future success as outlined in the Gansler commission report is to obtain legislative, regulatory, and policy assistance to enable contracting effectiveness in expeditionary operations (Gansler, 2007). The lack of a common policy or regulation for contingency operations presents many problems. “Throughout the Iraq experience there has been debate about whether the FAR provides appropriate flexibilities for the fast-paced contracting required in conflict/post-conflict environments like Iraq” (SIGIR, 2006, p. 102). An Expeditionary FAR (EFAR) is needed to define allowable expedient actions, to be used in training and provided to field (Gansler, 2007). A standard policy would allow all agencies to execute contracting with a common rulebook. Currently each agency in country is performing contracting functions in accordance with its own policies and individual forms and terms. This causes confusion among those administering the contracts from different agencies and the contractors have to learn a new contracting system each time they get a contract with a different agency.

“A single set of simple contracting regulations and procedures that provide uniform direction to all contracting personnel in contingency environments” needs to be established (SIGIR, 2006, p. 95). “The contracting process in Iraq reconstructions suffered from the variety of regulations applied by diverse agencies, which caused inconsistencies and inefficiencies that inhibited management and oversight” (SIGIR, 2006, p. 95). The lack of clarity among the U.S. Army procurement organizations as to the applicability of Defense Federal Acquisition Regulation Supplement (DFARS) definitization requirements for task order issued under IDIQ contracts diminishes visibility and cost control over contractor costs by the government. The incomplete nature of the content in the contract clauses database does not support the Defense Federal Acquisition Regulations requirement for ensuring that definitization occurs in a timely manner and thus implementing cost controls.

Current contingency contracts have been incrementally funded, causing a greater workload and inefficient operations. The LOGCAP contract had 141 incremental funding contract modifications in FY06. “Funds metered out incrementally cause unnecessary and non-value-added workload to an already overloaded contracting workforce” (Gansler, 2007, p. 25). If a more efficient funding stream were available JCC-I/A could be able to negotiate better deals on contracts (Gansler, 2007).

Cost containment is essential for contract administration relating to funds control over the IRRF appropriation (SIGIR, 2006). The U.S. interagency community and private industry did not have adequate prewar planning. Contracting and procurement personnel should be included in all planning stages for operations (SIGIR, 2006). There were no contracting personnel involved in the initial stages for OIF or OEF.

Contracting plays a central role in the execution of contingency operations, and thus it must be part of the pre-deployment planning process. Whether for stabilization or reconstruction operations, contracting officials help provide an accurate picture of the resources necessary to carry out the mission (SIGIR, 2006, p. 98).

d. Organization

As outlined by the Gansler Commission, a key element to future success is to restructure organization and restore responsibility to facilitate contracting and contract management in expeditionary and Continental United States operations (Gansler, 2007). The Army currently does not treat contracting as a core capability; it is treated as an operational and institutional side issue (Gansler, 2007). “Viewing contingency contracting as a tactical function can inundate the battlefield with excessive contracting units” (D’Angelo et al., 2007, p. 2). This can lead to the inefficient use of contracting resources, supply disruptions, ineffective support to the strategic objectives and several policy and contract accountability chains (D’Angelo et al., 2007).

The Army needs a single Army contracting command responsible for making contracting an “Army, high quality, and core competence” (Gansler, 2007, p. 101). Currently there are multiple commands that have responsibility for contracting, none of which have the responsibility to synchronize contracting below the Army Secretariat Level (Gansler, 2007). In the current environment, commanders and contractors have to deal with multiple HCA’s/PARCs on policy issues (Gansler, 2007). A DoD-wide agency needs to be developed to be a center-of excellence for expeditionary contract management. The agency should have the responsibility for all contract management for expeditionary contracting (Gansler, 2007).

There needs to be a

uniformed, rapidly-deployable expeditionary contracting force and standing Joint Contracting Command (Gansler, 2007, p. 105).

Essential contracting and procurement roles and responsibilities need to be clearly defined and communicated to all participating agencies (SIGIR, 2006)

The failure to define contracting and procurement roles and responsibilities at the outset of the Iraq endeavor resulted in a subsequently fragmented system, thus foreclosing opportunities for collaborations and coordination on contracting and procurement strategies (SIGIR, 2006, p. 94).

C. SUMMARY

This chapter reviewed two recent and relevant reports that traced the evolution of the United States Government’s contracting experience in Iraq, and underscored systemic variations in the joint expeditionary contracting process. In summary, both the 2006 SIGIR Report and the 2007 Gansler Report provided major recommendations to improve joint expeditionary contracting execution are provided in Table 1.

2006 SIGIR Recommendations:
1. Explore the creation of an enhanced Contingency FAR
2. Pursue the institutionalization of special contracting programs
3. Include contracting staff at all phases of planning for contingency operations.
4. Create a deployable reserve corps of contracting personnel who are trained to execute rapid relief and reconstruction contracting during contingency operations.
5. Develop and implement information systems for managing contracting and procurement in contingency operations.
6. Pre-compete and pre-qualify a diverse pool of contractors with specialized reconstruction areas
2007 Gansler Commission Recommendations:
1. Increase stature, quantity, and career development of contracting personnel, military and civilian (especially for expeditionary operations)
2. Restructure organization and restore responsibility to facilitate contracting and contract management in expeditionary and CONUS operations.
3. Provide training and tools for overall contracting activities in expeditionary contracting operations.
4. Obtain legislative, regulatory, and policy assistance to enable contracting effectiveness in expeditionary operations

Table 1. 2006 SIGIR and 2007 Gansler Report Recommendations.

In the next chapter the researchers will incorporate selected recommendations in bold (Table 1) from the 2006 SIGIR Report and the 2007 Gansler Commission Report into an iterative, problem-solving approach called the , Systems Engineering Process (SEP). Through the SEP, the authors will establish the general framework for the Joint Effects-based Contracting Execution System and, within JEBCES, present a Phase-based Acquisition Capability (PBAC) as an enabling concept for future joint expeditionary contracting execution.

IV. JOINT EFFETS-BASED CONTRACTING EXECUTION SYSTEM (JEBCES)

A. INTRODUCTION

Chapter II highlighted the strategic significance of a Joint Contracting Command (JCC), using innovative EBC methodologies to support the warfighters' main effort. For example, after kinetic forces cleared entrenched neighborhoods in Baghdad, EBC methodologies enabled post-kinetic operations to follow shortly after forces cleared neighborhoods. Conversely, Chapter III identified the negative impacts of caused by variations in requirements definitions and service-unique tactics, techniques, and procedures (TTPs) regarding contingency contracting execution. Against the backdrop of Chapters II and III, this chapter presents general framework for the Joint Effects-based Contracting Execution System, (JEBCES) and within JEBCES a specific enabling concept, proposed by the researchers, Phased Based Acquisition Capability (PBAC). Before presenting PBAC, it is essential to understand the desired effects of each joint expeditionary contracting execution stakeholder. The authors used the Department of Defense's Fundamentals of Systems Engineering to accomplish this, thereby establishing the general framework for JEBCES.

B. OVERVIEW OF JEBCES SYSTEMS ENGINEERING

Defense Systems Management College defines a system "as an integrated composite of people, products, and processes to deliver a capability to meet the customer's need" and further defines, the Systems Engineering Process (SEP) as a comprehensive iterative and recursive problem-solving process, applied sequentially top-down by integrated teams. "It transforms needs and requirements into a set of system products and process descriptions, generates information for decision makers, and provides input for the next level of development" (DSMC, 2001, p. 31).

Figure 9 presents the Systems Engineering Process. The Framework consists of Process inputs, Requirements Analysis, Functional Analysis, Synthesis, Systems Analysis and Control, and finally Process Outputs.

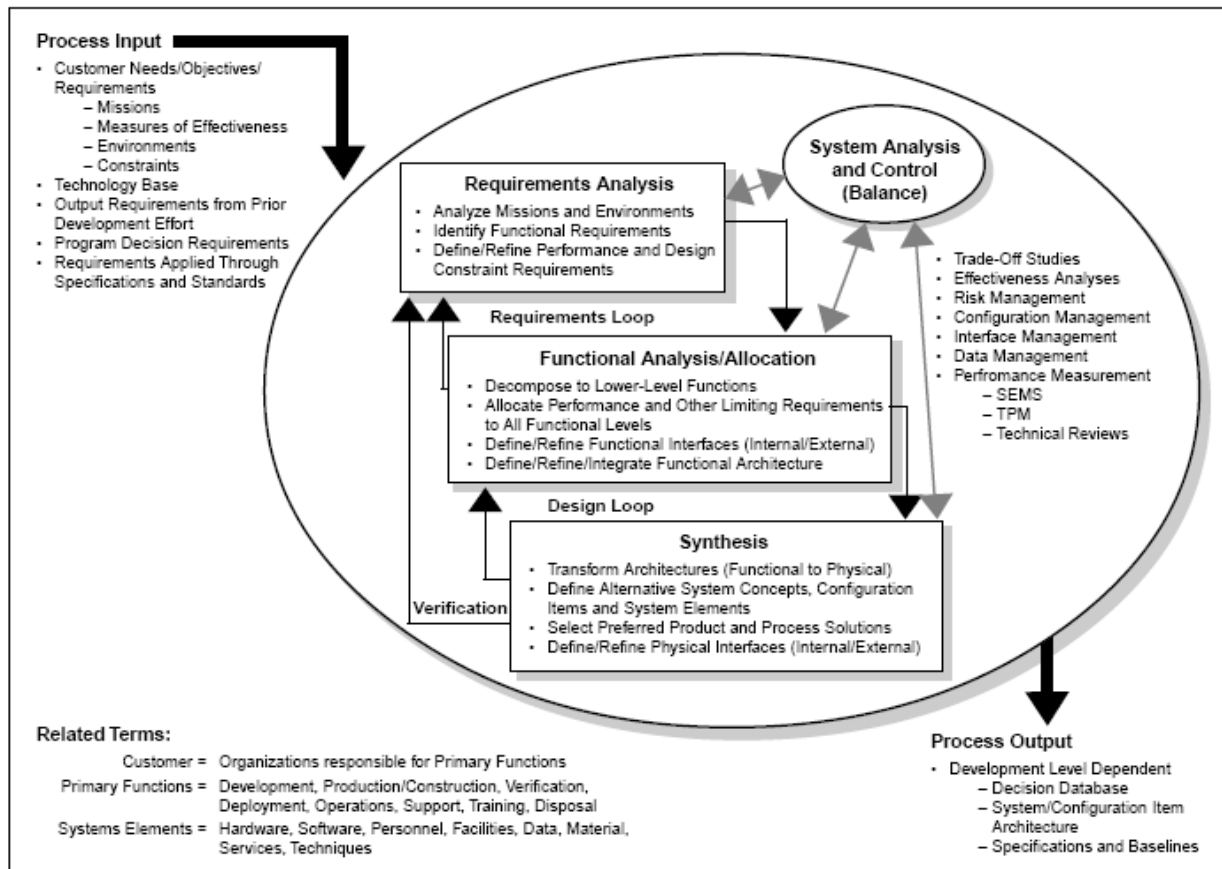


Figure 9. Systems Engineering Processes (From: Defense Systems Management College, 2001)

C. PROCESS INPUTS (JEBCES STAKEHOLDER DESIRED EFFECTS)

Under SEP “Inputs consist primarily of customer’s needs [desired effects], objectives, requirements, and project constraints” (DSMC, 2001, p.31). From CCO with variations in TTPs, to offices like SIGIR in chapter III, that audit procurement processes, there are numerous stakeholders within the joint expeditionary contracting environment and all have different needs. Although not

exhaustive, Figure 2 presents the authors' JEBCES stakeholder analysis and a list of desired effects—conditions to facilitate stakeholders' direct support of CP strategic objectives.

Stakeholder	Desired Effects
CCDR	Time-definite contracting to support strategic objectives of CP and visibility of CAF within CJOA
Warfighter	Menu of defined requirements and SOWs during contingencies
JCC Commander	Trained and equipped joint expeditionary contracting force
Contingency Contracting Officers	Standard tools, techniques and procedures
Comptrollers	Effective budget execution
Contracting Officer Representatives	Standard tools, techniques and procedures to enable responsive operational contract support
Contractors Assisting the Force	Payment for goods and services
Host Nation	Transparent and transferable procurement processes
Defense Contract Management Agency	Complete contract files to conduct contract administration
Non-Governmental Organizations	Coordination and synchronization of contracting activities
U.S. Interagency Community	Interoperability
Congress	Appropriations Transparency and Accountability

Table 2. JEBCES Stakeholders and Desired Effects. (Source: Poree, Curtis, Morrill and Sherwood)

1. Combatant Commander

The CCDR requires time-definite delivery of supplies and services to support the kinetic and post-kinetic operations. Additionally, the CCDR needs visibility of CAF within the Area of Operation. According to GAO,

the DoDs use of contractors to provide supplies and services to deployed U.S. Forces has grown significantly to the extent the force in Iraq is composed of approximately 143,000 military personnel and 149,000 contractor personnel (GAO, 2008, p.1).

The presence of contractor personnel—hired by various government agencies, and business—has created significant challenges for the United States in overseeing contractors and managing the combat zone (CBO, 2008, p.15).

2. Warfighter

For the warfighter, the greatest need during joint expeditionary operations is requirements definition. Given the high operations tempo during the *dominate phase* of the CP, and the supporting role requirements in subsequent phases, the last thing the warfighter needs is another process to *maneuver* through while *maneuvering* through the battle space. Moreover, events such as Reliefs in Place and Transfers of Authority (RIP/TOA) further exacerbate the requirements definition process; specifically, when incoming units attempt to identify when service contracts expire. RIP/TOA is the process in which one military unit replaces another.

3. JCC Commander

The JCC Commander needs a trained and equipped joint expeditionary contracting force to deliver efficient and effective contract support during both kinetic and post-kinetic operations. Gansler highlights the fact that some joint CCO do not have the required training and skills when they arrive in theatre. This shortfall is exacerbated by the fact that members within the joint community tend to focus on simplified acquisitions—low dollar threshold items and minor construction. These are not the types of contracts that are needed by the warfighter in-theater (Gansler Commission Report, 2007).

4. Contingency Contracting Officers

Given the level of contracting within the CJOA, CCOs need standard tools, techniques, and procedures (TTPs) to absorb variations in U.S. interagency-specific and inter-service approaches to training, contracting methodologies, and business processes.

5. Comptrollers

Comptrollers need effective budget execution as they

manage the Planning, Programming, Budgeting, and Execution System (PPBES) at all levels. They provide resource advice and guidance to commanders, activity chiefs, and other Army leaders. Comptrollers issue instructions for, develop, and prepare the program and budget. They also monitor execution of the program/budget at all resource management echelons (Functional Area 45 Comptroller's Development Guide, 2003, p.1-1).

6. Contracting Officer Representatives

Contracting Officer Representatives (CORs) serve as the CCO's eyes and ears within the CJOA and need standard TTPs to ensure effective contracting oversight. This is further highlighted under a recent

amendment to section 2333 of Title 10 U.S.C, where in it directed joint policies for contingency contracting provide for training of military personnel outside the acquisition workforce who are expected to have acquisition responsibilities including contracts or contractors during combat operations, post-conflict operations, and contingency operations (GAO, 2008 p. 2).

7. Contractors Assisting the Force

CAF need better payment processes, mechanisms to quantify risk, and well-defined requirements. According to a group of contractors interviewed by the Gansler Commission,

because of uncertainties that exist in high threat environments like Iraq, they are pressured to price their risk into firm-fixed price contracts rather than being permitted to propose under cost-reimbursement terms and conditions that would make it easier to factor risk into the price. Government contracting officials who believe traditional practices in requirements planning, contract award, and contract management processes have often found, after it is too late to recover, that a traditional approach is ill-suited for the non-traditional environment (Gansler, 2007, p. 38).

8. Host Nation

Based on the existing model within JCC-I/A, selected CCO are embedded into executing GOI Ministries to coach, mentor, and teach fundamental procurement processes. This is particularly important under both the *Stabilize Phase* and the *Enable Civil Authority Phase* of future CP, when the Joint Force is in a supporting role to newly established democratic governments.

9. Defense Contract Management Agency

DCMA provides joint contingency contracting officers for administrative support for large dollar, complex contracts. This includes the Air Force's Air Force Civilian Augmentation Program and the Army's LOGCAP contract, which provide base operations support and construction services during the initial phases of a deployment. In light of the significant logistical role DCMA has in administering theater-wide logistical support, is imperative that they be involved in requirements definition and operational planning at the beginning of the process.

10. Non-Governmental Organizations

NGOs require the ability to synchronize efforts within the CJOA, while maintaining their independence. However, under unique circumstances NGOs may have to rely on the CAF to assist in relief operations. For example, as

kinetic forces move throughout the stabilize phase and post-kinetic operations begin, NGOs may have to use existing transportation services to bring in humanitarian relief.

11. U.S. Interagency Community/International Community

According to SIGIR, there were over 20 agencies providing contract support during the initial stages of OIF. As a result, many of those agencies possessed conflicting procurement methodologies. In light of this, the USIC and the international community needs standard TTPs for contracting execution. For example, during the 2006 International Security Assistance Force TOA in Afghanistan, ISAF had difficulties integrating their funding streams into existing systems.

12. Congress

The United States Congress requires transparency and accountability of appropriated funds for contingency operations. For example, “when the U.S. Congress appropriated funds for Iraq relief and reconstruction, it also passed legislation to create a specialized Inspector General to provide accountability for the use of these funds. Public Law 108-106, the Emergency Supplemental Appropriations Act for Defense and for the Reconstruction of Iraq and Afghanistan, 2004, appropriated \$18 billion for the Iraq Relief and Reconstruction Fund (IRRF). To oversee the handling and treatment of these funds by the Coalition Provisional Authority (CPA), this law also established the Inspector General of the Coalition Provisional Authority (CPA-IG) to provide for the independent and objective conduct and supervision of audits and investigations relating to the CPA's programs and operations” (SIGIR, 2006).

D. REQUIREMENTS ANALYSIS

The first step of the SEP, as seen in Figure 9, is to analyze the process inputs. “Requirements analysis is used to develop functional and performance

requirements; that is, customer requirements are translated into a set of requirements that define what the system must do and how well it must perform” (DSCM, 2001, p.31). From a policy standpoint, requirements flow from “Section 2333 of title 10 U.S. Code, where in Congress directed the Secretary of Defense in consultation with the Chairman of the Joint Chiefs of Staff to develop joint policies by April 2008 for requirements definition, contingency program management, and contingency contracting during combat and post-combat operations.

Additionally, in January 2008, the

National Authorization Act for Fiscal Year 2008, amended section 2333 to add a new subparagraph directing that these joint policies provide training of personnel outside of the acquisition workforce who are expected to have acquisition responsibilities including oversight of contract or contractors during combat operations and post-conflict operations and contingency operations (GAO, 2008, p. 2).

At the operational level and the tactical level, the system must address the JEBCEs stakeholders’ desired effects identified in Table 2 and must, within definable parameters:

- Standardize a percentage of kinetic post-kinetic requirements
- Provide the framework for contingency program management
- Optimize CAF’s supply chain
- Utilize contracting resources efficiently
- Manage contracting knowledge through out all phases of CP
- Absorb variations requirements definitions and contracting methodologies.

E. FUNCTIONAL ANALYSIS

The next step in the SEP, after identifying the needs of the stakeholders, is to standardize kinetic and post-kinetic operational requirements; optimize the CAF's supply chain, to enable efficient utilization of limited CCO resources in order to provide produce the desired effects for each stakeholder before, during, and after joint contingency operations Figure 10 presents the functional analysis of JEBCES.

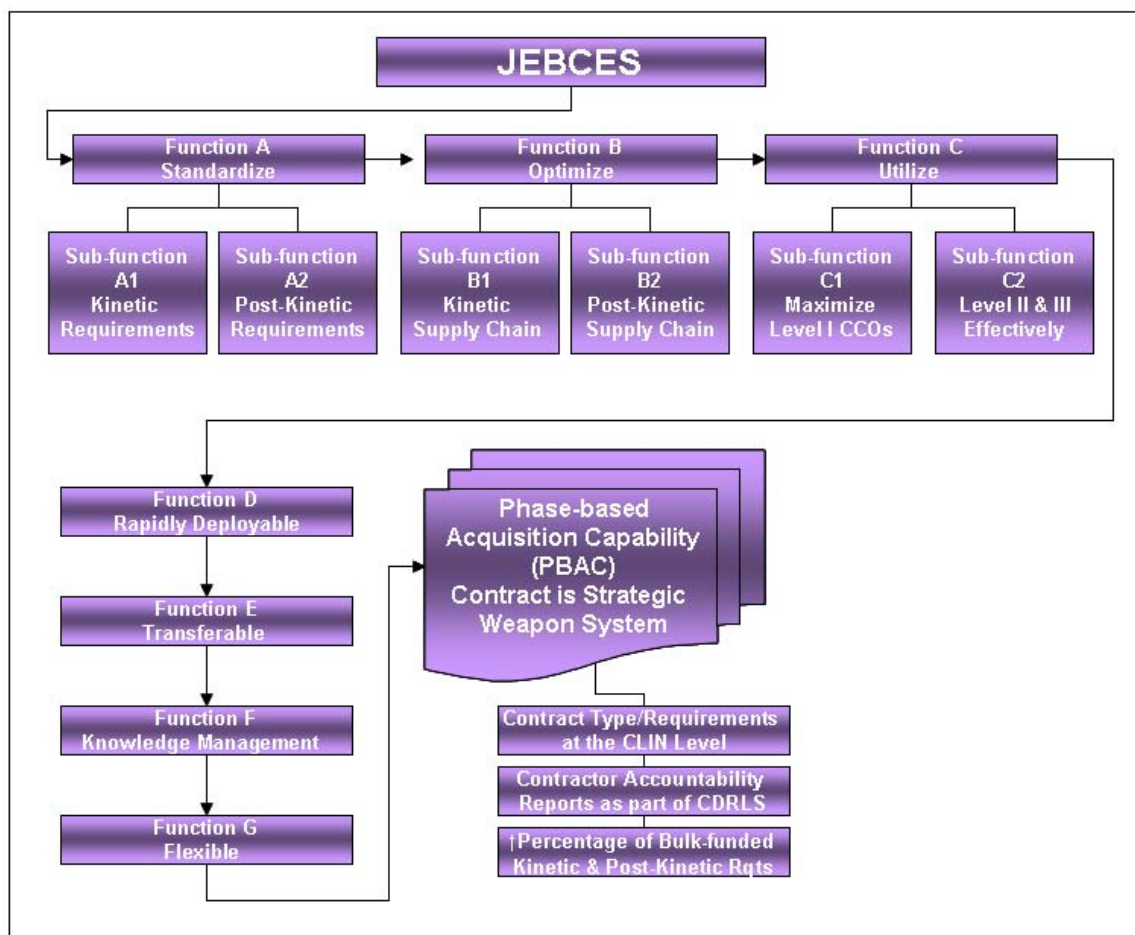


Figure 10. JEBCES Functional Analysis (Source: Authors, Poree, Curtis, Morrill and Sherwood)

1. Function A: Standardize

Based on the requirements of both the warfighter and CCOs JEBCES must standardize a high percentage of both kinetic and post-kinetic requirements. This provides a common set of requirements through out all phases of future CPs. This was highlighted in the 2006 JCC-I/A Commander's Conference when a senior operational commander commented about needing contracting to help us Figure out requirements.

2. Function B: Optimize

In order to optimize the CAF's supply chain, JEBCES must provide CAF with phase-based demand data. CAF can use this to forecast demand and that can provide DoD with significant savings through economies of scale. In their thesis D'Angelo et al., 2007, propose a strategic approach to contingency contracting, wherein DoD can identify strategic sourcing opportunities.

3. Function C: Utilize

According to Yoder, the current acquisition and contracting community is providing the [CCDR] sub-optimized, ad-hoc contracted theater support (Yoder, 2005). In Figure 11, Yoder explains his model this way:

The Yoder three-tier calls for the cultivation and utilization of senior officers and civilians with sufficient education, joint qualification, multi-discipline DAWIA certifications and other professional qualifications to perform at the highest integrative-planning and execution levels. At the highest level, the Integrative Planner and Executor (IPE) is the essential and critical lynch-pin allowing for the development of a comprehensive Contingency Contracting Support Plan that integrates contracting with the broader theater objectives in the Operation Plan (Yoder, 2004, p. 20).

The Yoder three-tier model recommends employment for contingency contracting officers as listed in Figure 11 below. As described in the "Yoder three-tier model each tier performs unique functions, requires specific

education, developed skill sets, and unique personnel and manpower characteristics” (Yoder, 2004, p. 24). This model maximizes effectiveness and efficiency of theater contingency contracting by assigning the appropriate level of training and experience to the position assigned and will be the catalyst for the CCO utilization rates in Chapter V.

Model Tier Level & Model Title	Functions/Education/Rank	Highlights and Drawbacks
Ordering Officer – Tier One	• Basic Ordering • Some simplified acquisitions • Training: DAU CON 234 • DAWIA Certified CON Level I or II • Junior to mid-enlisted, junior officers, GS-7 to GS-9 1102 series civilians	• Simple buys • Little integration • No operational planning • No broad liaison functions
Leveraging Contracting Officer – Tier Two	• Leverages to local economy • Reduces “pushed” material support • Training/education: DAU CON 234, recommended higher education • DAWIA Certified CON Level II or III • Senior enlisted, junior to mid-grade officers, GS-11+ 1102 series civilians	• Better local operational planning • Some integration • More capability for the operational commander • No planned theater integration • No broad liaison functions • May perform to optimize local operations at the detriment to theater ops
Integrated Planner and Executor (IPE) – Tier Three	• Highest level of planning and integration – joint • Linked/integrated with J-4 and J-5 • Creates and executes OPLAN CCO strategy • Provides direction to tier two and one • Links operations strategically to Theater objectives of COCOM • Education: Master’s degree or higher and, JPME Phase I and II • DAWIA Certified CON Level III and other DAWIA disciplines (LOG, ACQ, FIN, etc) • Senior officers (O-6+), senior civilians, GS-13+ or SES	• Performs operational and theater analysis, integrates results into OPLAN • Link between COCOM and OPLAN to all theater contracting operations • Coordinates theater objectives with best approach to contracted support • Can achieve broader national security goals through effective distribution of national assets • Includes planning, communication, coordination, and exercising with NGO and PVO in theater

Figure 11. Yoder Three-tier Model for Contingency Contracting Operations
(From: Yoder, 2004)

4. Function D: Rapidly Deployable

Another function of JEBCES is to be rapidly deployable. A major recommendation of the SIGIR Report is to

develop deployable contracting and procurement systems before mobilizing for post-conflict efforts and test that they can effectively be implemented in contingency situations. After reconstruction operations began in Iraq, contracting entities developed ad-hoc operating systems and procedures for monitoring contracts and maintaining contracting and procurement histories; this limited contracting efficiency and led to inconsistent documentation of contracting actions (SIGIR, 2006, p.95).

5. Function E: Transferable

Under the Enable Civil Authority Phase of OIF, JCC-I/A CCOs are embedded with the host nation to coach, mentor, and teach procurement processes. The authors contend a transferable procurement capability would be a viable solution to previous experiences during the 2004 transition to the Interim Iraq Government. Of grave concern for CAF during this period, was the ability of the Interim Iraqi Government to receive and administer contracts under DoD procurement processes.

6. Function F: Knowledge Management

Institutional knowledge of the pre, during, and post operational contracting environment is often lost during CCO turnovers, and is further exacerbated by the service unique dwell-time requirements. For example, U.S. Army CCO have up to a one-year dwell-time requirement, while the AF standard deployment time is six-months. JEBCES must provide a common repository of corporate knowledge regarding market conditions and after action reports.

7. Function G: Flexible

Given the dynamic nature of the operational environment as it relates to kinetic and post-kinetic requirements, JEBCES must absorb variations on the requirements side and the execution side. Moreover, it should expand and contract through out all phases of the CP.

F. DESIGN SYNTHESIS FOR PHASED-BASED ACQUISITION CAPABILITY (PBAC)

“Design synthesis is the process of defining the product item in terms of the physical and software elements, which together make up and define the item” (DSMC, 2001, p. 32). For our concept, we adopted DA’s contracting methodology for LOGCAP and USSOCOM IWSSP wherein a single contract with multiple contract line items (CLINs) “types” (cost and fixed price) supports the warfighter through out the contingency and the weapon system for the remainder of its life cycle. Instead of establishing separate contracts for each modification of the major weapon system, multiple CLINs within the existing sustainment contract allows the business arrangement to expand and contract based on requirements definition and program risk. Moreover, it provides transparency into funding streams. Similarly, a PBAC with multiple CLIN types to expand and contract from the initial mobilization efforts during the deter phase to the transition of procurement processes in the enable civil authority phase—conceptually, the life-cycle of the operation.

1. Rapid Acquisition Capability

As a means of standardizing the future Expeditionary Contracting Force’s execution methodologies,

Section 811 of the FY 2005 National Defense Authorization Act grants the Secretary of Defense limited rapid acquisition authority to acquire goods and services during combat emergencies. Also Title 10, Section 2304 outlines the use of Indefinite Delivery/Indefinite Quantity task orders, sealed bidding, certain

actions, and set aside procurements under section 8(a) of the Small Business Act as examples of ways to expedite the delivery of goods and services during combat operations (Congressional Research Service Report, 2008, p.7).

2. OIF FY07 Demand Data

In order to establish a standard baseline of kinetic and post kinetic operational requirements for the PBAC, the researchers grouped the data from the current Joint Contingency Contracting System (JCCS) into 45 categories using the guide of the RAND Corporation report *Analyzing Contingency Contracting Purchases for Operation Iraqi Freedom*. (Table 1, Appendix 1). This research was part of a broader study titled *Contracting to Support Agencies: Lessons Learned from Recent Operations* sponsored by Air Force Deputy Assistant Secretary for Contracting and Deputy Chiefs of Staff of Logistics, Installations, and Mission Support, Resource Integration (AF/A4/7P) and Logistics Readiness (AF/AFR). The study is designed to “assist contracting and logistics policy makers in their efforts to improve future contingency contracting activities” (RAND, Project Air Force, 2008, p. iii).

The data from the JCCS was categorized according to the definitions and breakdowns of the RAND report categories in Appendix 2. Included in the Table is a sampling of the types of descriptions that were used by contracting officers in the description field of JCCS. Once the JCCS data was categorized, it was then narrowed to four basic categories: Major construction, minor construction, commodities, and services.

3. Bulk Funded Approach

In an effort to align funding with the phase-related activities, the Federal Acquisition Regulation provides for bulk funding whereby the Contracting Officer (CO) receives authorization from a fiscal and accounting officer to obligate funds on purchase documents against a specified lump sum of funds received for a specified period of time rather than obligating individual authority on each

purchase using the same funds that are to be made during a given period. If kinetic and post-kinetic requirements were baselined, the DoD could bulk fund a high degree of common kinetic and post-kinetic requirements.

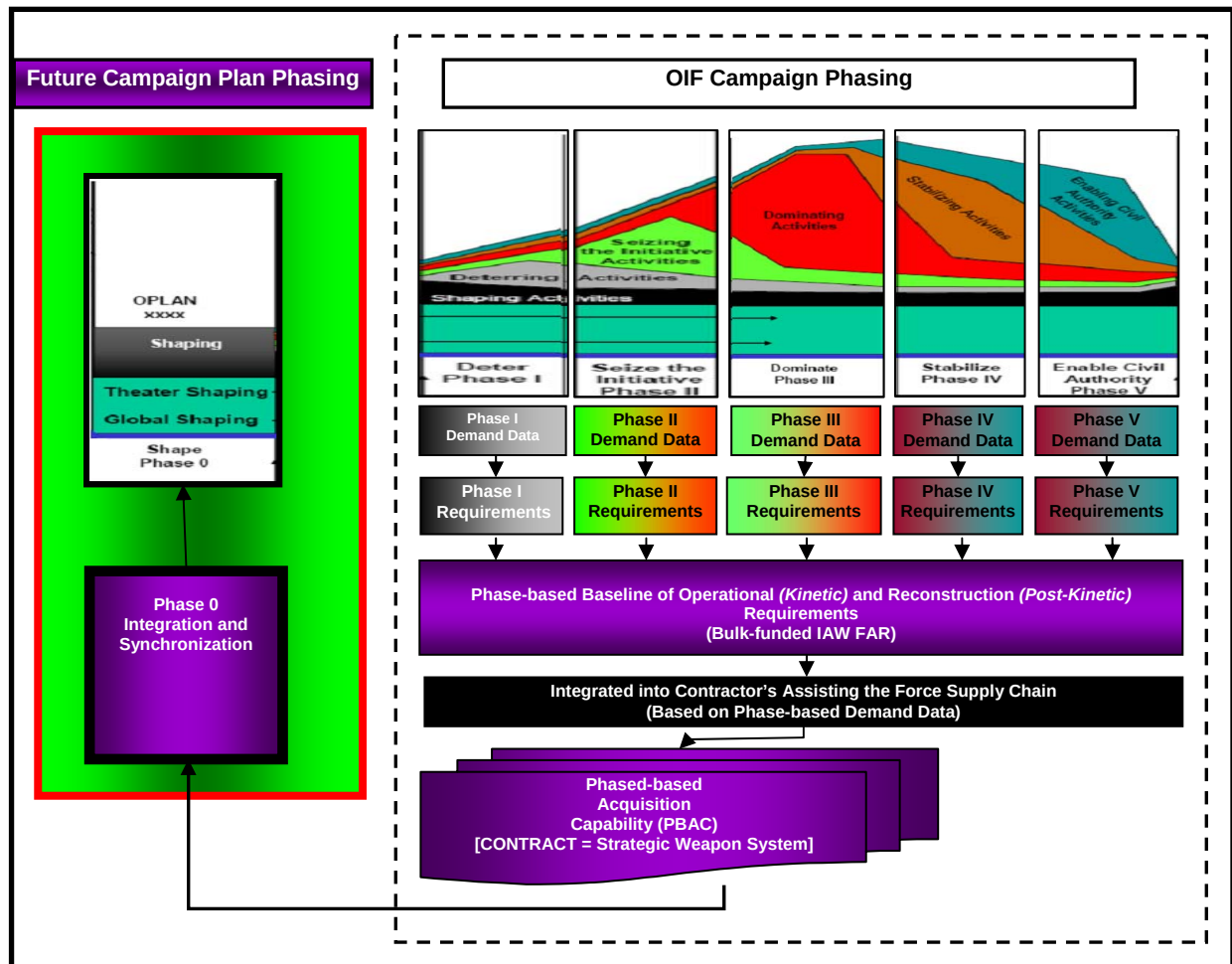


Figure 12. Phased-based Acquisition Capability (Adapted from JP, 5-0, Operations, 2006)

As identified in Section F, PBAC Design Synthesis, Figure 12 illustrates the PBAC. Armed with the demand OIF phase-related activities demand data for phases I - V, CAF can optimize their supply chain to enable agile expeditionary contract support to the warfighter. For example, during future *deter* phase-related activities such as initial deployment into theater, CCO's, based on

standard kinetic and post-kinetic operational requirement, that are optimized with in the CAF's supply chain, could be bulk-funded to enable time definite delivery off supplies and services to the warfighter.

G. SUMMARY

In this chapter, our team applied the fundamentals of the SEP to develop the intellectual framework for JEBCES and the enabling capability, PBAC. Requirements analysis provided the reader insight as to how many stakeholders have different requirements from the same effects-based execution system. After the requirements analysis, functional analysis identified how JEBCES must function relative to the complex needs of each stakeholder, and still provide effects within the CJOA. The next chapter will model and simulate PBAC under the conditions of phase IV *Enable Civil Authority phase* of the OIF CP.

V. PBAC MODELING AND SIMULATION

A. INTRODUCTION

The previous chapter introduced the general framework for the JEBCES and within the system proposed a Phased Based Acquisition Capability (PBAC). This chapter presents simulation and modeling of a PBAC by modeling the framework in which computer software replicates a real system to allow users the ability to analyze changes to current operations without having to make actual changes to the real system. The use of simulation and modeling provides flexibility to the user by allowing statistical analysis of alternative scenarios in real time thus saving time and money. Manufacturers successfully use simulation and modeling software to identify potential efficiencies hidden in undiscovered bottlenecks and wasteful processes (Model Performance, 2003). In this chapter, we use ARENA simulation and modeling software to demonstrate how a PBAC improves efficiencies within the contingency contracting environment.

The model developed for this research project illustrates how total time-in-system and contracting officer utilization can be improved through the use of the PBAC framework. At the beginning of the PBAC development phase, phase 0, and through future CP phases Tier III contracting officers provide strategic theater wide contracting support planning. As a result of early involvement in strategic planning by Tier III contracting officer, the PBAC framework provides efficiencies in purchase request processing and contracting officer utilization rates.

To demonstrate the efficiencies gained through the use of the PBAC the authors focused on two key elements in the contingency contracting environment; the total time in system for a Purchase Request (PR) and utilization rates of Contingency Contracting Officers. Total time in system represents the amount of time it takes from the time the Purchase Request enters the acquisition process (through the Field Ordering Officer, Finance, The Joint

Acquisition Review Board or Contracting Office) through the time of contract award. The Utilization rates measures how efficiently different tiers of contracting officer's time is spent in the procurement process. As indicated in Table 2

B. ASSUMPTIONS

The following assumptions were made for the PBAC model:

- Staffing levels of all resources used in the model will remain constant during the period of conflict.
- All contracting functions will be standard IAW the JCC construct.
- PR's within a category will be uniform in processing times, be correct and accepted when they arrive and all actions under \$250K will be funded.
- High percentage of kinetic and post-kinetic requirements are bulk-funded
- There is a sufficient vendor base to satisfy all the contractual requirements
- Contracting officers will be proficient at the skill level assigned within the Yoder Three Tier Model.
- Number of contracting officers is based current number of contracting officers deployed to JCC-I/A as of October 2008. Due to the fact that the model does not take into account a resource handling more than one contract at a time, the number of contracts one contracting officer can handle at a time multiplied by the number of contracting officers. For example, there are 56 level 1s who can handle 15 contracts each, which gives us 840 level 1 contracting resources in our model.

C. DATA ANALYSIS

1. Data Origin

The data that used for generating the distribution for use in the model is from the Joint Contracting Center Iraq/Afghanistan contract database. The Joint Contingency Contracting System (JCCS) was developed to meet the needs of tracking contracting action and a management tool to allocate command resources. The original tool was a Microsoft access database that was distributed to each of the contracting centers throughout the theater. This was then modified by each of the contracting centers to meet their individual needs. These contracting centers then sent copies of the data at the end of each month which was modified to a standard format from which the data was mined for reports as necessary. The basic structure was used to develop an SQL database in conjunction the Business Transformation Agency (BTA) which used a standard format for all contracting centers. The JCCS required that all data fields to be completed and JCC I/A set command policies requiring time frames for data entry.

2. Timeframe and Data

The JCCS was first implemented in Iraq in December 2006. Fiscal year 2007 contact information was taken from the JCCS. The system that was first initiated was a best fit solution to meet the needs of JCC I/A at that time. Over the next six months JCCS used a spiral development to better address the information that needed to be captured but was not initially anticipated. There was a learning curve on what fields were to be required to ensure complete and accurate data. The first complete fiscal year that was captured in one location for contingency contracting in Iraq was 2007. The data from the JCCS was categorized according to the definitions and breakdowns of the 2008-RAND *Report: Analysis of Contingency Contracting for the United States Air Force* categories in Appendix 2. Included in the Table is a sampling of the types of

descriptions that were used by contracting officers in the description field of JCCS. For the purpose of this research, those categories were further reduced to represent the standard procurement categories in DoD acquisitions. Those four basic categories are:

a. Commodities: a contract that engages a contractor whose primary purpose is to furnish an end item of supply.

b. Services: “Service contract” means a contract that directly engages the time and effort of a contractor whose primary purpose is to perform an identifiable task rather than to furnish an end item of supply

c. Major Construction: \$550,000 or greater as defined as construction, alteration, or repair (including dredging, excavating, and painting) of buildings, structures, or other real property. For purposes of this definition, the terms “buildings, structures, or other real property” include, but are not limited to, improvements of all types, such as bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, power lines, cemeteries, pumping stations, railways, airport facilities, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, canals, and channels. Construction does not include the manufacture, production, furnishing, construction, alteration, repair, processing, or assembling of vessels, aircraft, or other kinds of personal property

d. Minor Construction: Construction as defined in major construction except less than \$550,000.

3. Format of Data

There was no essential change to the format of the data. JCCS offers a download of the SQL database into excel for a given time period. The database was queried for the fiscal year 2007 and this data was used to generate the distribution used in the model. The data was placed into a pivot table that

allowed the information to be used. The date was used to combine purchase requests (PRs) for each category for the fiscal year. The distribution was computed using the information distribution of the quantity.

D. CURRENT PROCUREMENT MODEL

Purchase Requests (PR's) are submitted by units to the contracting office for the purpose of acquiring construction, commodities and/or serviced. Each PR that is submitted goes through a series of reviews. The first step is to determine the dollar value of the PR. PR's with a dollar value less than \$2500 are ordered by the unit using a Field Ordering Officer (FOO). PR's with a dollar value from \$2500 to \$200K are routed for funding and then proceed to the contracting office to be put on contract. PR's exceeding \$200K go through a validation process for approval and funding. Those that are approved are forwarded to the contracting office to be put on contract. Depending on contract type the contract may go through administration or is directly delivered to the unit. The Current Process is shown in Figure 13 below.

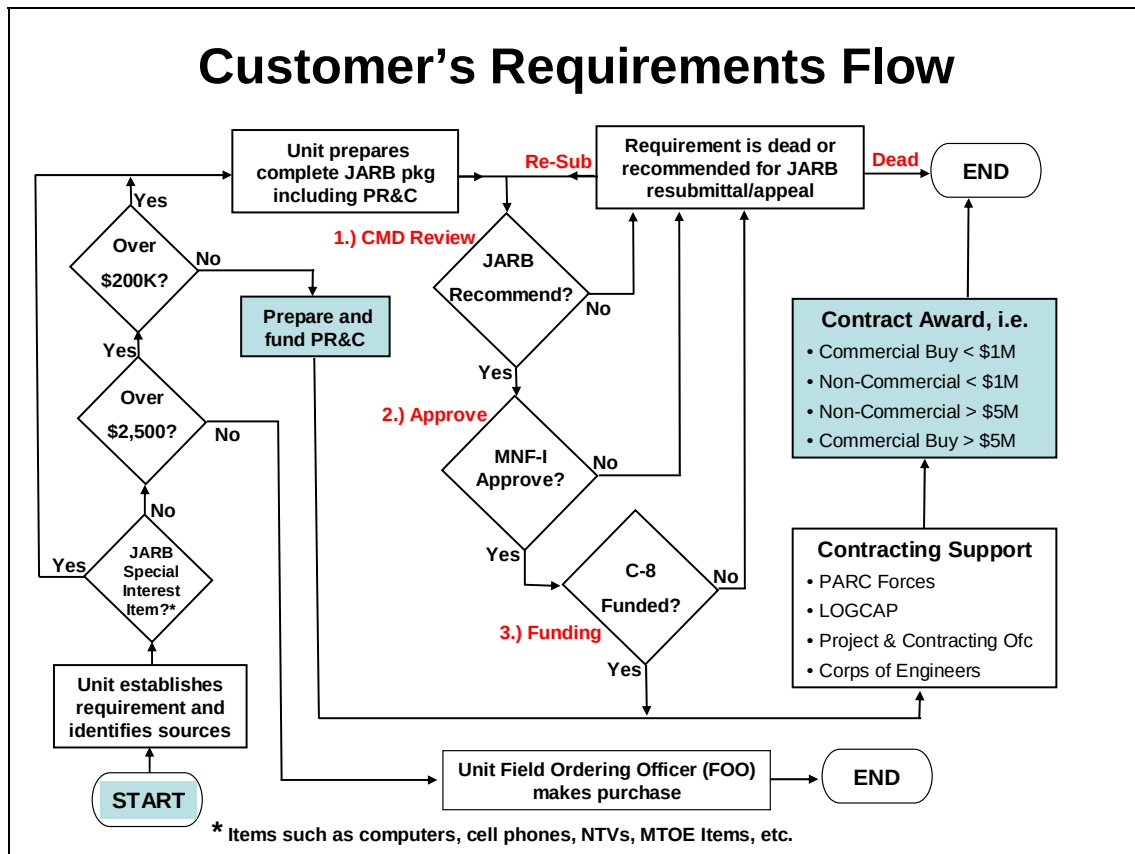


Figure 13. Current Operational Customer Requirements Flow (From: Camp Victory RCC New Comers Brief JCC-I/A, 2006)

E. PROPOSED PBAC MODEL UNDER JEBCEs

Each PR that is submitted goes through a series of reviews. For requirements over \$2500 the first step is to determine if the item requested is on the proposed standardized menu contract. If the requirement is ordered from the menu using a Level one contracting officer and the items are delivered to the unit. Requirements not on the menu follow the existing process and are handled by contracting officers according to their dollar value. The Model is shown in Exhibit 1. Processing time distribution for Field Ordering Officers, Purchase Request and &Commitment , Joint Acquisition Review Board , administration and menu contracting were based on the authors experience in contingency environments as no data is currently collected in theater for these processes.

Processing time distribution for the contracting office is based on FY2007 data collected by the Joint Contracting Command Iraq/Afghanistan.

Processes: The time for each process is based on the entity type.

- PR's under \$2500 are ordered by a unit Field Ordering Officer (FOO). The ordering time is dependent on the purchase category; construction, commodities or service. Processing time distribution for PR's under this category were based on the author's contingency experience.
- A purchase request that is on the menu is ordered by a Level I CO. The ordering time is dependent on the purchase category; construction, commodities or service.
- A Finance Officer through the PR&C process funds orders over \$2500 but less than \$200k.
- PR's requiring Joint Acquisition Review Board (JARB) approval and funding go through an application process that requires unit request and leadership approval. This process requires a board of officers that approves or disapproves requirements.
- Funded PR's are given to the contracting office for award. The PR's are assigned to an appropriate Contracting officer depending on dollar amount for award.
- PR's requiring administration are assigned to the appropriate Contracting Officer for administration.

The Proposed models were run under different experiments. A separate simulation was run to test the resource utilization and cycle times with a different percentage of contracts being handled through a menu contract.

F. TOOLS FOR ANALYSIS

Analysis of system performance was done using the Theory of Constraints (TOC) and Little's Law, described in Chapter I. The TOC proposes that in any multi-stage processing system, one stage will be slower than the others (McMullen, 1998).

TOC capitalizes on the concept of the critical chain of a processing system. A critical chain spotlights the importance of timely delivery, as opposed to the achievement of individual tasks or milestones within a processing system (New, Davenport, Smith, p. 13).

Applying the five steps of TOC can reduce the effects of a constraint by guiding the manager to continually evaluate the system to determine bottlenecks and to synchronize the system to that constraint (New et al., 2007, p.14).

Our model will focus on decreasing the overall time it takes to get a PR through the entire process by utilizing Little's Law. By decreasing the overall system time the more PR's can be processed.

Cycle time is the time it takes a unit to go through the system. Throughput is the average number of jobs that pass through the system per unit of time. Inventory is the number of jobs within the system boundaries at a particular point in time (Apte et al., 2006).

Little's Law generally is best understood when it is used to reduce cycle-times (flow-times), while TOC leads quickly to being able to identify and elevate a physical constraint (bottleneck) to increase throughput (flow rates) (Brandy, 2005, p 37).

Through the use of Little's Law and the TOC, we can satisfy the customer in terms of cost, quality, timeliness of the delivered product or service and minimize the administrative operating costs.

G. SUMMARY

The Simulation Model was created using Arena 10.0 software. Two models were created. One included the new menu contract and one that modeled the current contracting process. For the purpose of analysis, the current contracting process will serve as the base model for all comparison. The next chapter will discuss and analyze the results from the different experiments run on the models.

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VI. ANALYSIS AND RESULTS

A. INTRODUCTION

The PBAC model outlined in Chapter V allowed for comparative analysis between the proposed and existing contracting processes. The results were then compared and analyzed with an emphasis towards meeting the intent outlined in FAR Part 1.102-2 (a) Satisfy the customer in terms of cost, quality, and timeliness of the delivered product or service, and (b) Minimize administrative operating costs. To improve the four measurements of cost, quality, timeliness and minimizing administrative operating costs we used a combination of Little's law and the Theory of constraints in the model. The measurements are defined for use herein as:

Cost: Cost for customer satisfaction will be comparable to market conditions comparable to the quantities ordered.

Quality: Acceptable for use by the customer for the intended purpose.

Timeliness: Meets or is before the customers required delivery date. The comparison for timeliness to be gauged by the model is a delivery time less than actually measured delivery time.

Minimizing Administrative Operating Cost: Provide uniformity to contribute to efficiency that ensures fairness and predictability in the procurement system.

The purpose of our proposed model is to demonstrate that the PBAC can satisfy the customer in terms of cost, quality and timeliness and minimize administrative cost, and burden on personnel by creating efficiency and uniformity in the contingency contracting process.

The data presented in this chapter shows, through the implementation of the PBAC framework, significant savings in the time it takes to process PR's. This results in quicker delivery of good and services to meet the warfighters operational requirements. The data also shows an increase in the utilization of tier 1 contracting officers, which in turn lowers the utilization of tier II and III contracting officer. This results in more experienced contracting officers focusing on theater-wide strategic planning for kinetic and post-kinetic operations.

B. RESULTS

The Base Model represents the current contracting process utilized in a contingency environment. The four experiments were run changing the percentage of contracts going through the phased based procurement capability system (PBAC) (Phase 0, pre-awarded contract). The percent of utilization of PBAC for each experiment were incrementally changed to 10%, 25%, 50% and 75% respectively. The data was then analyzed to determine total time in system for each entity and utilization rates for each of the CCO types described in Yoder's Three-Tier Model pictured in Chapter III.

C. TOTAL TIME IN SYSTEM

The total time-in-system was expressed in days. Each experiment is compared to the base model. The model gives a total time in system for each type of entity. When standardizing requirements and utilizing the PBAC, average total time in system *decreases* for each entity type. For example, standardizing 10% of the Commodity PR's into the PBAC the total time in system decreased by 12.2%. At the 75% level total time in system decreased by an average of 76% across all categories with the highest decrease realized in commodities at 84%. The complete results for total time in system are depicted in Table 1 below. The steady reduction in the total time in system directly represents the efficiencies of the PBAC structure and is largely explained by the increased use of the PBAC

model. One of the keys to this research was to illustrate how the PBAC model can improve efficiency in the contingency contracting process and in-turn reduce cost, administrative burden, and increase support to the war fighter.

Total time in system for commodities is shown in column one by each simulation run. The total time in system of commodities for the base model is 44.5 days. With 10% of PR's going to the PBAC the total time in system decreases to 39.07 showing an decrease in total time in system of commodities of 12% (column 2). This format is the same for the total time in system for Major Construction in column 3 and 4, for the total time in system for Minor Construction in column 5 and 6, and for the total time in system for Services in column 7 and 8. Major Construction's total time in system was decreased by 21%, minor construction's total time in system was decreased by 9% and services total time in system was decreased by 11% with the same change of 10% of PRs going to the PBAC.

Table 3. Total Time in System.

Model	Total time in system Commodity (in days)	% Decrease in cycle time compared to Base Model	Total time in system Major Construction (in days)	% Decrease in cycle time compared to Base model	Total time in system Minor Construction (in days)	% Decrease in cycle time compared to base model	Total time in system Service (in days)	% Decrease in cycle time compared to base model
Base	44.50		136.40		35.20		48.80	
10% on PBAC	39.07	0.12	107.90	0.21	32.10	0.09	43.30	0.11
25% on PBAC	31.60	0.29	81.60	0.40	27.50	0.22	36.10	0.26
50% on PBAC	18.24	0.59	49.50	0.64	18.60	0.47	23.01	0.53
75% on PBAC	6.90	0.84	33.30	0.76	10.90	0.69	11.80	0.76

(Source: Arena Model Data developed by Poree, Curtis, Morrill and Sherwood)

D. CONTINGENCY CONTRACTING OFFICER UTILIZATION RATES

Utilization rates represent the percentage of time a contracting officer is busy processing and awarding PRs. The base model is restrained by the number of CCO available for the dollar amount of the contracts. Under the base model structure tier 2 and 3 CCOs carry the highest burden for awarding and managing PR's regardless of dollar value or complexity. Under the PBAC structure lower dollar value and less complex requirement are standardized which allows greater utilization of Tier 1 CCOs. As the data shows, when greater percentages of standardized requirements flow through the PBAC the greater the utilization of Tier 1 CCOs which decreases utilization of tier 2 and 3 CCOs. The complete results for utilization rates for tier 1, 2 and 3 CCOs are depicted in Table 2 below.

Utilization rates for tier 1 CCOs are shown in column one by each simulation run. The utilization of tier 1 CCOs for the base model is .8%. With 10% of PR's going to the PBAC the utilization rate increases to 2.9% showing an increase in utilization of tier 1 CCOs of 2.1% (column 2). This format is the same for the utilization of tier 2 CCOs in column 3 and 4, and for the utilization of tier 3 CCOs in column 5 and 6. Tier 2 CCO's utilization rate decreased by 6.7% and tier 3 CCO's utilization decreased by .9% with the same change of 10% of PRs going to the PBAC.

Table 4. CCO Utilization Rates

Model	Utilization Rates for YTTM Tier 1 CCOs	% Change compared to Base Model	Utilization Rates for YTTM Tier 2 CCOs	% Change compared to Base model	Utilization Rates for YTTM Tier 3 CCOs)	% Change compared to base model
Base	0.008		0.878		0.882	
10% on PBAC	0.029	0.021	0.811	-0.067	0.873	-0.009
25% on PBAC	0.066	0.058	0.709	-0.102	0.872	-0.001
50% on PBAC	0.148	0.140	0.536	-0.173	0.871	-0.001
75% on PBAC	0.223	0.215	0.294	-0.242	0.651	-0.220

(Source: Arena Model Data developed by Poree, Curtis, Morrill and Sherwood)

Table 2 demonstrates the effects of the PBAC model on the utilization rates of the most experienced CCOs. The PBAC model is designed to shift the workload to the tier-1 CCOs thus freeing up Tier-2 and 3 CCOs to focus on strategic contracting objectives.

E. SUMMARY

This chapter demonstrated that when utilizing the PBAC framework the data shows that significant efficiencies in processing time and resource utilization can be achieved. With the ability to group items under more theater wide contracts the efficiency of the procurement system will result in lower cost and administrative burden while increasing support to the warfighter. In the next chapter we will present our conclusions and make recommendations for further research.

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VII. SUMMARY, CONCLUSIONS AND AREAS FOR FURTHER RESEARCH

This chapter provides an overview of effectiveness of EBC methodologies within OIF, systemic variations within the DoD joint expeditionary contracting execution processes, and the intellectual foundation an enabling concept for future joint expeditionary contracting execution —PBAC. This chapter ends with areas for future study under joint expeditionary contract execution.

A. SUMMARY

Chapter II introduced and explored EBC methodologies in Phase V *Enable Civil Authority* of the Operation Iraq Freedom (OIF) Campaign Plan (CP). Within the framework of: 1. developing a concept of support, identifying key players, knowing the warfighter's battle rhythm, ensuring visibility by being the right planning evolution, and having flexibility with the enterprise, JCC-I/A integrated warfighter campaigns to synchronize tactical contracting efforts to support the CCDR's strategic objectives. For example, by using EBC methodologies, JCC-I/A enabled time-definite delivery of essential supplies 1 to 3 days after kinetic forces cleared the neighborhoods of Baghdad.

Chapter III reviewed SIGIR's 2006 account of the experience in Iraq from the *Deter Phase* (phase I) of the CP through the *Stabilize Phase* (Phase IV), and conducted a phase-funding stream-major procurement authority analysis to highlight undesired effects relative to phase-related activities. For example, during the dominate phase, ORHA did not have the capacity to provide contract support. Additionally, the authors reviewed 2007 Gansler Commission Report and highlighted systemic variations such as each services' CCO training and development. The authors then capture selected recommendations as inputs into an iterative, problem-solving process, Systems Engineering Process (SEP), in Chapter IV.

Chapter IV introduced SEP fundamentals such process inputs, stakeholder analysis, functional analysis, and design synthesis, and with them, proposed the general framework for JEBCES and a PBAC enabling concept for future joint expeditionary contracting. Given that stakeholders from warfighters to Congress have different needs from JEBCES, the researchers proposed transforming a baseline of kinetic and post-kinetic operational requirements into a PBAC, thereby, providing defined requirements in the battle space, and appropriations transparency through bulk-funding, to Congress.

Chapter V simulated the cycle time of processing FY 07 JCC-I/A contracting requirements data through the current process to establish a baseline, and then through the proposed PBAC, to identify efficiencies. We conducted four experiments based on to the extent to which requirements were standardized. For example, if 25 percent of kinetic and post-kinetic requirements were defined, forecasted and bulk-funded, what would it mean to level I CCO utilization? Could standardized requirements under PBAC decrease the level of contracting complexity, thereby enabling efficient utilization of limited CCO resources?

Chapter VI analyzed the results of the simulation revealed to the extent kinetic and post-kinetic operational requirements are standardized, DoD will gain, greater efficiencies in utilization of limited CCO resources, satisfying the customer [warfighter] in terms of cost, quality, and timeliness of the delivered product or service, as well as minimize administrative operating costs.

B. CONCLUSIONS

This Master's of Business Administration Professional Report presented a the general framework for JEBCES and proposed a PBAC to reduce cycle-time to improve efficiency and effectiveness. Given the fact that stakeholders require different effects from the same system, JEBCES provides the framework to

absorb variations in both the requirements side and the execution side, and provides the PBAC enabling concept to provide effects through out all phases of future campaign plans.

Conclusion 1:

Transforming a baseline of kinetic and post-kinetic requirements into a PBAC improves joint expeditionary execution. Analysis of the process outputs in Chapter VI—revealed a significant reduction in the total time using (PBAC) system. Under the system, standardizing 10 percent of the commodity purchase requests, decreased total system time by 12.2 percent. Additionally, if operational customers are willing to standardize requirements at 75 percent level, they can realize a 76 percent reduction in cycle time.

Conclusion 2:

JEBCES provides the framework for DoD to better align funding to enable responsive contract support

In an effort to align funding with the phase-related activities, the Federal Acquisition Regulation provides for bulk funding, whereby the CO receives authorization from a fiscal and accounting officer to obligate funds on purchase documents against a specified lump sum of funds. If a high percentage of standardized kinetic and post-kinetic requirements are standardized, CAF could then utilize phase-based demand data to effectively deliver supplies and services to the warfighter. Funding, aligned with forecasted requirements, can provide for transparency and funds accountability.

Conclusion 3:

JEBCES enables efficient and effective use of limited CCO resources. Simulation of the current process produced a utilization rate of tier 1 CCOs for the base model of .8 percent. With 10 percent of PRs

going to the PBAC, the utilization rate increases to 2.9 percent showing an increase in utilization of YTTM tier 1 CCOs of 2.1, YTTM tier 2 CCO's utilization rate decreased by 6.7 percent and tier 3 CCO's utilization decreased by .9 percent with the same change of 10 percent of PRs going to the PBAC.

C. RECOMMENDATIONS

Specific recommendations to implement and realize the efficiencies that are described will be detailed in this section are prescribed herein. The items listed must all be completed to integrate a functional plan that would be initiated prior to a build up phase of any contingency that might arise. Depending on the foreseeable nature of a particular contingency would lead to a greater detail and benefit from the model that was validated through this research.

Recommendation 1:

Design a deployable information technology (IT) solution to integrate contracting at the theater tier. Along with a PBAC, the IT system would be used at all tiers to perform the various functions that would be required in a contingency arena. It should enable central contracts to be utilized at the remote locations which in turn would empower the strategic tier to analyze and make command decisions on capabilities to make available. A byproduct of a centralized IT system would be to make the contracting activities more transparent and accountable. This can be conducted concurrently with a spend analysis (recommendation 2).

Recommendation 2:

Conduct a spend analysis on past contingencies that are appropriate for the area, size, and type of contingency that planning is being conducted for. The area should be delegated and defined by the appropriate CCDR. The CCDR would be responsible for determining what would be available

in theater and what reach back capabilities would be needed appropriate to the phase. The size of the contingency should be compared to past events that are similar in size and type as appropriate.

Recommendation 3:

Develop a pre-awarded rapid acquisition capability such as a Multiple Award Indefinite Delivery based on the CP spend analysis thereby providing future CCOs the means to enter into Phase 0 Shaping, with rapidly executable capability. Additionally, at the operational level, further improve EBC methodologies.

Recommendation 4:

Once a spend analysis and a concept of operations are developed a strategic contracting plan would need to be drawn up. This would be the time when theater wide contracts could be competed. Per the CCDR's analysis the needed reach back contracting could be put into place to have the appropriate resources available when needed. Tier III Contracting Officers are appropriate for this tier of contracting and these contracts would be placed into the deployable IT solution for use in a contingency environment.

When a contingency does occur based upon the magnitude, an appropriate manning plan would be developed based upon the existing available theater contracts. This is when the true benefit of the PBAC would be realized. Currently there is a low utilization of lower tier contracting officers and an over use of higher tier contracting officers. The deployment of contracting officers would be appropriate to the tier of contracting needs for an area instead of what is available at the time. More experienced contracting officers would be relieved of high volume routine items that are available on theater wide contracts. This would then enable them to be able to meet specific complex requirements that are experienced once kinetic operations commence.

Research questions addressed:

The primary research question is: Does transforming a baseline of common kinetic and post-kinetic operational requirements into a standard PBAC improve joint expeditionary contracting execution?

Transforming a baseline of common kinetic and post-kinetic operational requirements into a standard PBAC for joint expeditionary contracting execution would improve the contracting support of a contingency operation. The model that was developed by the researchers shows conclusively that through its implementation, labor would reduce and response times could be improved.

The secondary research questions are addressed below:

1. How can a PBAC provide for efficient use of limited contracting officer resources?

The efficient use of limited contracting resources was modeled in Chapter V of this research paper and the results were analyzed in Chapter VI. Chapter VI demonstrated that when utilizing the PBAC framework, the data shows that significant efficiencies in processing time and resource utilization can be achieved. With the ability to group items under more theater wide contracts the efficiency of the procurement system will result in lower cost and administrative burden while increasing support to the warfighter.

2. What conclusions and recommendations can be drawn from applying systems engineering modeling to recent contingency contracting data under a researcher designed PBAC model?

The conclusions and recommendations for the PBAC Model are addressed in the conclusion and recommendation portion of this Chapter.

3. Can a model be developed which can validate efficiencies to be gained by using the PBAC model developed by the researchers?

A model was developed that validated efficiencies to be gained by using the PBAC model developed by the researchers. The researchers developed a model using the Arena software package. This model was validated by using actual process times of recorded transactions of JCC I/A for the fiscal year of 2007. Once the Arena model was validated the PBAC model developed by the researchers showed significant positive improvements that would be gained.

4. Would there be measurable benefits to be gained by introducing contracting to Phase Zero of the joint planning process?

There was a measurable benefit to be gained by introducing contracting to Phase Zero of the joint planning process. This measurement was that there would be less utilization of level III Contracting Officers in daily operations of a contingency. There would be fewer contracts and more orders on existing theater wide contracts placed by level I Contracting Officers that would need a reduced oversight at the Command level.

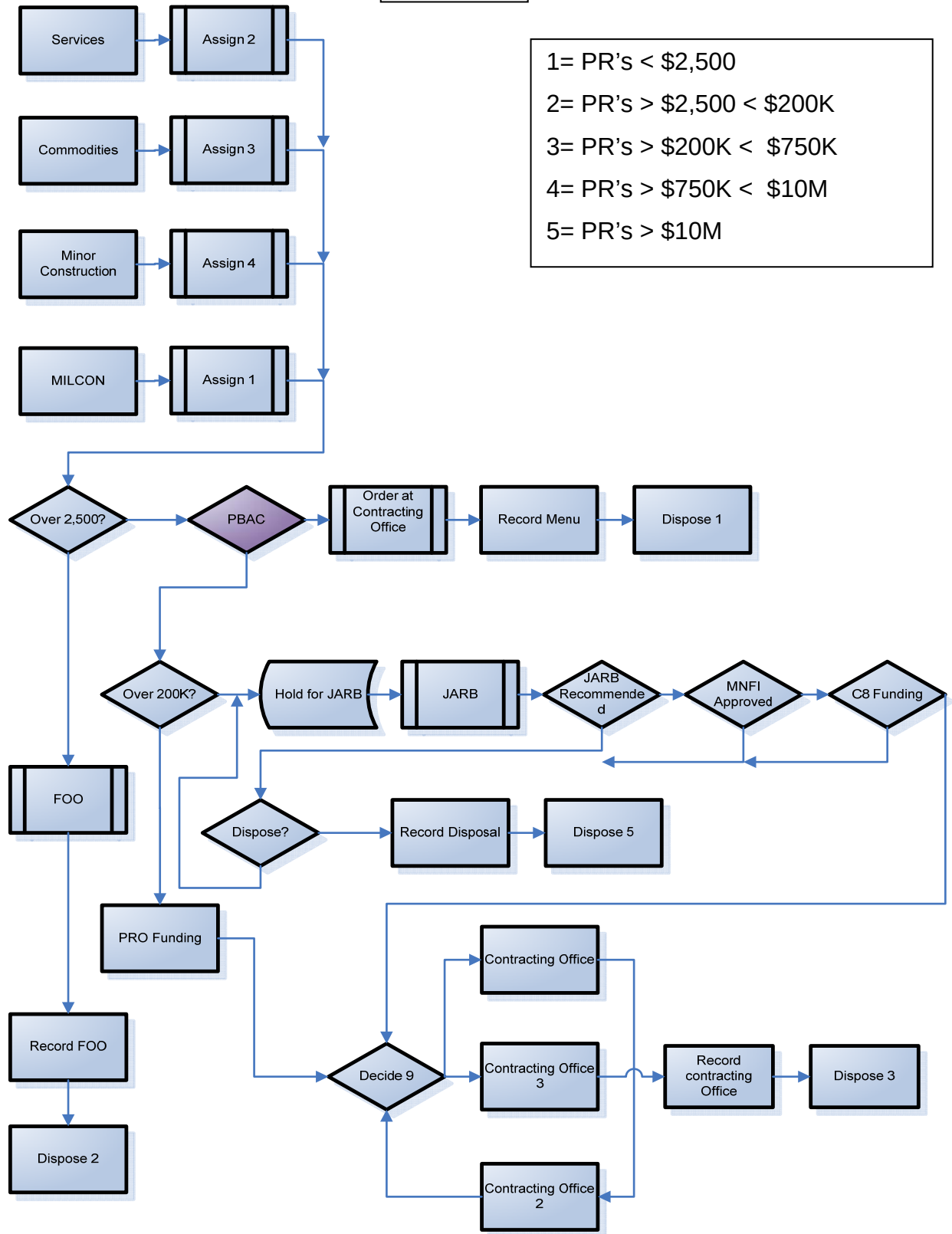
D. AREAS FOR FURTHER RESEARCH

During the course of this research and analysis, the authors identified areas that needed further research that were outside the scope of this project. The following areas are:

1. To conduct a full spend analysis of all phases of OIF to establish a baseline for strategic sourcing opportunities in the contingency environment. An analysis of this data will provide the foundation for standardizing commodities and services through the full spectrum of contingency phases.

2. Provide an analysis of the impacts of present and future policy and guidance on the joint contingency contracting process. For example, what effects will the new Joint Doctrine 4-10 “Operational Contract Support” have on the current contingency contracting process.
3. Evaluate the interoperability of a PBAC during disaster relief and humanitarian operations. Disaster relief and humanitarian operations such as Hurricane Katrina provide significant demand data during all phases of relief operations. Could PBAC enable time-definite delivery of supplies and services during these critical times?
4. Evaluate CAF’s supportability of PBAC. Can CAFs use phased based demand data to better forecast time definite delivery of supplies and services throughout all phases of the campaign plan.

Exhibit 1



Modeling and Simulation of a Phased-based Acquisition Capability

(Source: Researchers: Poree, Curtis, Morrill, and Sherwood)

Exhibit 2

Categories Used in our Analyses

Category	Examples
Appliances	Laundry (washers and dryers) Kitchen (refrigerators, kitchen ranges, microwave ovens, dish washers) Miscellaneous (water heaters, air conditioners, ceramic heaters, ice machines)
Billeting services	Billeting (apartment rental, leasing of rooms) downtown stays (hotel lodging, room bills)
Buildings and shelters prefabricated showers,	Residential buildings (living quarters, trailers) Structures (clamshell buildings, dome structures, Facilities (storage buildings, shower trailers, field Water-treatment plants)
Cleaning supplies soap, glass brooms, mops)	Cleansers (detergents, dishwashing liquid, laundry Cleaner) Cleaning supplies (rags, brushes, rubber gloves,
Communication equipment network equipment switches, switches, power	Local area network equipment (server, high-speed Equipment Ethernet catalyst switches [Ethernet Other than cards], coaxial cable, data cable, Cisco Fiber optic items, routers, Linksys boxes, X-port Secret Internet Protocol Router Network [SIPRNET] Equipment) Communication systems (news dishes, uninterruptible Supply systems, videoconference equipment) Personal devices (radio equipment, handsets)
Computer equipment and computer	Computers (desktops, laptops, keyboards, mice,

Software	monitors, computer speakers)
scanners, CD	Computer drives (hard drives, memory sticks)
cards,	Computer accessories (personal digital assistants,
licenses)	Burners, DVD burners, computer power supply)
	Server connections 9USB hubs and cables, Ethernet
	Modems)
	Software (Adobe Acrobat, Microsoft Windows
Construction, heavy excavators,	Backhoes, loaders, bulldozers, dump trucks,
Equipment	graders, trenchers

Exhibit 2 Continued

Category	Examples
Construction services surveys)	Preparation (soil stabilization, clearing, digging, soil
construction	Building (construction work, road construction, ramp
	Clearing (demolition/teardown, tree removal)
	Miscellaneous (airfield marking, sandbag services, various renovations and upgrades, installation of equipment, connect/install generators)
Construction supplies	Hardware (nails, screws, nuts, bolts, washers)
asphalt, wood,	Construction material (steel, concrete, cement,
crossbeams)	Plywood, sand rock, gravel, 2x4s, planks,
cable)	Electrical material (circuit boards, grounding material,
stains,	Plumbing material (pipe, toilets)
	Finishing material (carpet, floor covering, tile, sealant,
	Paint, painting equipment, bathroom fixtures)
	Runway construction and repair material

heating,	Miscellaneous (ladders; culverts; manhole covers; Ventilation, and air conditioning)
Custodial and latrine Services	Cleaning (latrine trailers, hangars) Custodial services Janitorial services
Dining supplies openers, utensils, salad bars)	Cooking utensils (spatulas, spaghetti tongs, can Cooking thermometers) Kitchen supplies (coffee pots, mixers, canisters, pans Aluminum foil, salt and pepper shakers) Serving supplies (dining trays, paper products, plastic Food containers) Large equipment (pastry cases, beverage dispensers, Other (aprons, tablecloths)
Financial charges, currency	Fees (account maintenance fees, transaction Exchange, electronic funds transfer fees) Checkbooks
Authorization Card	Rebates (International Merchant Purchase [IMPAC]/GPC rebates)

Exhibit 2– Continued

Category	Examples
Fire Protection retardant hoods,	Equipment (fire extinguishers, fire bottles, flame- Smoke alarms, smoke detectors, fire helmets firefighter equipment)
Food (not catering)	Food (break, cake popcorn) Drinks (sports beverages) Cooking ingredients (cooking oil, salt)
Force Protection barbed wire, detectors, metal detection meters,	Barricades (concrete barriers, roadblock spikes, Concertina wire, chain-link fencing, cones, sandbags) Dog-related equipment (kennels, food, supplies) Surveillance (motion detector, walk-through metal Gas detectors, search pit equipment, guard towers, Detectors, floodlights) Miscellaneous (badge-activated locks, reflective belts Reflective tape, bio detection/protection equipment) Police-related items (light bars, blood-alcohol Handcuffs)
Fuel and fuel-related Items (not jet fuel)	Fuels (diesel, acetylene, propane) Fuel-storage equipment (fuel tanks, fuel bladders) Fuel-dispensing equipment
Furniture cabinets, chairs,	Office (desks, chairs, couches, bookcases, filing Workstations) Residential (beds, mattresses, dressers, footlockers) Other (stools, rugs, seats, cabinets, tables, folding Paintings)
Generators	Various power generators

Grounds maintenance
Services

Grounds keeping services

Heavy equipment
trucks,
(not construction)
freezer

Large vehicles (refrigerated trucks, fire trucks, flatbed
sewage-removal trucks, water trucks, fuel trucks,
Trucks)
Cranes, forklifts, bucket loaders, aircraft stairways

Exhibit 2 – Continued

Category	Examples
Interpreter services	Interpreters, linguists, and translator services
Latrine supplies cleanser,	Shower and bathroom supplies (soap, waterless hand Paper towels) Chemicals for portable toilets
Laundry services	Laundry and dry cleaning Linen exchange Alterations embroidery Self-serve laundry centers
Medical Services	Doctor, dental, optometry, and chiropractic services Hospital charges Magnetic resonance imaging, X-ray consultation Biohazard disposal
Medical Supplies water, equipment,	Medical supplies (bandages, thermometers, sterile Medication, insulin, vaccines, syringes) Medical equipment (X-ray equipment, dental Respirators, lab equipment, monitors) Medical reference books Mortuary-affairs items

Miscellaneous commodities activities [not MWR, duffel bags, baby heaters, cameras, voltage mats, categories],	Items for personnel (T-shirts for various Not mission [, backpacks, gloves, knives, towels, Irons, duct tape, keys, bed linens, window treatments, Wipes, sunscreen) Non potable water (bulk water, dry ice) Small containers (hard-sided cases) Small equipment (locks, coolers/ice chests, small Scales, batteries [not for cars], cigarette butt cans, Video recorders, ear protectors, flashlights, irons, Converters/adapters, absorbent mats, air filters) Other miscellaneous items (insect bait, week killer, Mousetraps, flags, etiquette books, signs, anti fatigue Spill kits, lamps, mirrors [not specific to other Filters [generic], wastepaper baskets)
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Exhibit 2-Continued

Category	Examples
Miscellaneous equipment pumps, trimmers, monitors and trash salmonella	Small equipment (mortar mixer, wet and dry vacuums, Refrigeration units, air compressors, blowers, hedge Coleman products, portable vacuums, fans, plasma [not TVs]) Large containers (shipping containers, tanks, food Containers, steel drums, intermodal containers) Food/water screening (water-detection equipment, Screening kits) Hard-to-categorize items (cash counters, bullhorns,

accessories, equipment,	Megaphones, hand-washing stations, photo lab Turbidimeters, pallets, trolley jacks, locksmith Adapters [not specific to other categories])
Miscellaneous services photo picking up airfield traps])	Miscellaneous (vehicle registration and licensing, Developing, locksmith services, Internet services, Litter, photocopying, engraving, storage handling, Sweeping, grease removal [including cleaning grease traps]) Professional services (consultant services)
Refuse and garbage services	Refuse and garbage services Trash/waste collection and removal
Repair/maintenance Services generators,	Service contracts Item repair and maintenance (bicycles, vehicles, Calibration
Tools clamps)	Basic tools (hammers, screwdrivers, drills, drill bits, Other tools (multipurpose tools, pressure sprayers) Welding and soldering equipment
Transporting Cargo charges	Express mail fees and other shipping charges, delivery Custom fees
Transporting people	Airfare Emergency leave Taxi and limousine charges

Exhibit 2-Continued

Category	Examples
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Uniforms desert	Honor guard T-shirts, military boots, brassards Insignias and patches (enlisted rank, CENTAF patches, Patches)
Utility services	Electricity charges
Vehicle repair parts absorbers,	Equipment (tow vehicle equipment, battery charges) Parts (tires, radiators, starters, belts, clutches, shock Radiator hoses, wiper blades, oil filters, pumps, switches) Fluids (transmission fluid, motor oil)
Vehicles for transportation	Passenger vehicles (autos, buses, sedans, light trucks, Sport-utility vehicles) Other small vehicles (pickup trucks, all-terrain vehicles, John Deere Gator utility vehicles)
Water	Potable water Potable ice

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LIST OF REFERENCES

- Anderson, M.S. and Flaherty G.P. (2003) *Analysis of the Contingency Contracting Support Plan within the Joint Planning Process framework*. Professional Report, Master of Business Administration, Naval Postgraduate School, Monterey CA.
- Apte, U. M., Aquilano, N. J., Jacobs, R., Cohen, M. A., Chase, R. B., Schroeder, R. G., Fitzsimmons, J. A. & Fitzsimmons, M. J. (2006). *Operations management*. Boston: McGraw Hill Custom Publishing.
- Baldwin, L.H., Ausinik, J.A., Campbell, N. F., Drew, J. D., & Roll, R.R., Analyzing Contingency Contracting Purchases for Operation Iraqi Freedom (Unrestricted Version). Rand Corporation. Retrieved October 9, 2008 from <http://www.rand.org/pubs/monographs/MG559>
- Brandy, D., & Godfrey, M. (2005, February). Applying little's law and the theory of constraints. *ASQ six Sigma Forum Magazine*, 4(2), 37-41.
- Blow, J. (2006). Agricultural aerial spraying in a combat zone: control the dubas Bug (*Ommatissuslybicus*) in date palms in Iraq. Retrieved November 20, 2007, from: http://esa.confex.com/esa/2006/techprogram/paper_23771.htm
- Butkus, J.J, and Howes, M.F. (2006). *A Critical Analysis of the Coordination, Command and Control of Contractors in Iraq*. Professional Report, Master of Business Administration. Naval Postgraduate School, Monterey, CA.
- Chiarelli, P.W. and Michaelis, P.R. Winning the Peace: the requirement for full-spectrum operations *Military Review* (July-August 2005: 5).
- Congressional Research Service (CRS) (2008, January) *Defense Contracting in Iraq: Issues and Options for Congress* (CRS-RL33834). Washington DC: Grasso, V.B. Retrieved August 18, 2008, from: <http://www.fas.org/sgp/crs/natsec/RL33834.pdf>
- D'Angelo, A.F., Houglan, D.H. and Ruckwardt, E. (2007). *The Need for a Strategic Approach to Contingency Contracting* Professional Report, Master of Business Administration, Naval Postgraduate School, Monterey, CA.
- Defense Systems Management College (2001). *Systems Engineering Fundamentals*. Retrieved June 22, 2008 from: http://www.dau.mil/pubs/gdbks/sys_eng_fund.asp

- Delong, D., and Gilbeau, B. (October, 2007) Effects-based contracting: a case study of multinational force Iraq. *Contract Management*. pp 60 - 63.
- Department of the Army. (2005, June 14). Field Manual 1, the United States Army Future Force Capstone. Washington, DC: US Government Printing Office.
- Department of the Army. (2005, January 20). Field Manual 5-0, Army Planning and Order Production. Washington, DC: The US Government Printing Office.
- Department of the Army (2003). Functional Area 45 Comptroller's Development Guide, Retrieved on October 22, 2008 from <http://www.asafm.army.mil/proponency/POWBT/careerdevelopment/FA45Guide/frames.html>
- Department of Defense Systems Management College. (2001) Systems Engineering Fundamentals.
- Duffy, L., Bordetsky, A. Bach, E., Blazeovich R., and Oros, C. (2004). A Model of Tactical Battle Rhythm. Command and Control Research and Technology Symposium. Retrieved June 15 2008, from <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA466128&Location=U2&doc=GetTRDoc.pdf>
- FAR (2007). *Federal acquisition regulation*. Retrieved April 15, 2008 from <http://www.arnet.gov/far/>
- General Accounting Office (GAO). (2008, November). Contract Management: *DOD Developed Draft Guidance for Operational Support but Has Not Met All Legislative Requirements* (GAO-09-0230). Washington, DC: Kohn, L. and Hutton, J.
- JCC-I/A. (2006), End of Year Roll-up: Presentation from the Joint Contracting Command-Iraq/Afghanistan.
- Johnson Lynard T.(2008). *Reforming the Interagency Coordination Process in Support of Contingency Operations*. Report, Master of Strategic Studies, United States Army War College, Carlisle Barracks, PA
- Kelton, W. D., Sadowski, R. P., & Sturrock, D. T. (2007). *Simulation with arena* (4th ed.). New York: McGraw-Hill.
- Kidder, S. D. (2004). Campaign Plan Primer. Department of Military Strategy Planning and Operations, United States Army War College 2004.

- Chiarelli, P.W. and MAJ Michaelis, P.R. Winning the Peace: the requirement for full-spectrum operations *Military Review* (July-August 2005: 5). Retrieved
- Model Performance. (2003, November). *Works Management*, 56 (11), 36-37. Retrieved September 9, 2008, from ABI/INFORM Global database. (Document ID: 501089271).
- National Security Council. (2005), National Strategy for Victory in Iraq. Washington, DC: The US Government Printing Office.
- Neu, C.R., Davenport, J. and Smith, W.R. (2007) *U.S. Marine Corps Communication-Electronics School Training Process: Discrete-Event Simulation and Lean Operations*. Professional Report, Master of Business Administration, Naval Postgraduate School, Monterey, CA.
- Provincial Reconstruction Team. (2006). Fact Sheet. Retrieved Jun 2, 2008, from <http://iraq.usembassy.gov/root/pdfs/factsheetapril2008.pdf>
- Report of the "Commission on Army Acquisition and Program Management in Expeditionary Operations". (*Gansler Report*), October 2007
- Roggio, B. (2006). *Battle for Baghdad Update*. Retrieved September 1, 2007, http://www.longwarjournal.org/archives/2006/09/battle_for_baghdad_u.ph
- RAND Corporation. (2008). Analyzing Contingency Contracting Purchases for Operation Iraqi Freedom (Unrestricted Version). Retrieved October 9, 2008 from <http://www.rand.org/pubs/monographs/MG559.1/>
- Schmitt, J. (2002). A Practical Guide for Developing and Writing Military Concepts. Defense Adaptive Red Team Working Paper # 02-4
- Special Inspector General for Iraq Reconstruction. (2006). *Iraq reconstruction: Lessons in contracting and procurement* (No. 2). Arlington, VA: Special Inspector General for Iraq Reconstruction. Retrieved August 10, 2007 from <http://www.sigir.mil/reports/lessons.aspx>
- United States Central Command. (2006). *FRAGO 09-1117*.
- United States Code. (2006). Title 10, Chapter 137, Sec.2333. Washington, DC: The US Government Printing Office.
- United States Joint Forces Command. (2008, February 13). Joint Publication 3-0, Joint Operations. Washington, DC: The US Government Printing Office

United States Joint Forces Command. (2006, December 26). Joint Publication 5-0, Joint Operation Planning. Washington, DC: The US Government Printing Office.

Yoder, E. C., (2004). The Yoder Three-Tier Model for Optimizing Contingency

Contracting Planning and Execution. (Working Paper NPS-AM-05-2002, Naval Postgraduate School)

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