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OPERATIONAL CONTRACT SUPPORT: ECONOMIC IMPACT EVALUATION AND MEASURES OF EFFECTIVENESS

December 2017

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**OPERATIONAL CONTRACT SUPPORT: ECONOMIC IMPACT
EVALUATION AND MEASURES OF EFFECTIVENESS**

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ABSTRACT

In this MBA report, we develop a framework for planning, executing, and measuring the impact of operational contract support (OCS) on a contingency environment. Additionally, this framework assists in structuring and measuring the effectiveness of a particular OCS solution. Planning for, and shaping regions for, future contingencies is an ongoing and iterative process that requires accurate forecasting with functional inputs from all aspects of the operational military landscape. Effective and reliable OCS has been identified as a fundamental key to future joint contingency operation success and continues to build upon the lessons learned throughout overseas contingency operations. Comprehensive plans that are properly designed, including incorporation of an impact evaluation framework, act as direct force multipliers to contingency operations. Based on our research, we recommend that (1) the developed OCS Impact Evaluation Tool be disseminated to Operational Contract Support Integration Cell (OCSIC) planners to gain feedback for further development, (2) senior leaders create/enforce a policy that mandates OCS planning regardless of the existence of an organic capability, and (3) trained economists with regional and subject expertise are placed on OCSIC planning staffs to assist in OCS planning and execution, and measurement of OCS solutions.

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TABLE OF CONTENTS

I.	INTRODUCTION.....	1
II.	LITERATURE REVIEW	5
A.	WHY DO WE NEED OCS?.....	5
B.	TECHNICAL DISCUSSION OF OCS.....	6
	1. OCS Planning Phases and Structures.....	8
	2. OCS Integration in OPLANs.....	10
C.	DEVELOPMENT OF OCS	12
D.	OCS AND ECONOMIC IMPACT.....	15
	1. Expeditionary Economics.....	16
	2. Economic Impact Evaluation.....	17
	3. Results Chain, MOPs, and MOEs	20
	4. Causal Effect.....	23
E.	COLLECTION, ANALYSIS, AND DISSEMINATION OF DATA	25
III.	THE OCS IMPACT EVALUATION TOOL	29
A.	CONTINGENCY IDENTIFICATION.....	30
B.	UNDERSTANDING THE ECONOMIC ENVIRONMENT	31
C.	CONSIDERATIONS OF ACTION.....	33
D.	EXECUTION	37
E.	MEASUREMENT.....	39
IV.	APPLICATION OF OCS IMPACT EVALUATION TOOL.....	43
A.	APPLICATION OF OCS IMPACT EVALUATION TOOL ON HA/DR CONTINGENCY	43
	1. Planning	44
	2. Execution	46
	3. Measurement.....	51
B.	APPLICATION OF OCS IMPACT EVALUATION TOOL ON TRADITIONAL MILITARY CONFLICT	54
	1. Planning	55
	2. Execution	58
	3. Measurement.....	63
V.	SUMMARY, CONCLUSION, AND AREAS FOR FURTHER RESEARCH	67

A.	SUMMARY	67
B.	CONCLUSION	67
C.	AREAS FOR FURTHER RESEARCH.....	69
	LIST OF REFERENCES	71
	INITIAL DISTRIBUTION LIST	73

LIST OF FIGURES

Figure 1.	Operational Contract Support Description and Subordinate Functions. Source: Chairman of the Joint Chiefs of Staff (CJCS; 2014, p. I-3).....	7
Figure 2.	Notional Operational Contract Support Actions by Phase of Operation. Source: CJCS (2014, p. I-12).....	8
Figure 3.	Lead Contracting Activity Primary Tasks and Phasing Model. Source: CJCS (2014, p. IV-1).....	9
Figure 4.	Common Operational Contract Support Integration Cell Tasks. Source: CJCS (2014, p. D-4).	11
Figure 5.	Evolving Participation of Contractors in the U.S. Military. Adapted from DPAP (2015).....	13
Figure 6.	Roadmap for Implementing an Impact Evaluation. Source: Gertler et al. (2011, p. 141).	18
Figure 7.	Results Chain. Source: Gertler et al. (2011, p. 25).	21
Figure 8.	MOP/MOE/Overall Impact Analysis. Adapted from Air Land Seas Application Center (2013, p. 37).	22
Figure 9.	Analysis of the Operational Contract Support Aspects of the Operational Environment Process. Source: CJCS (2014, p. G-4).	25
Figure 10.	OCS Impact Evaluation Tool.....	29
Figure 11.	Conventional versus Unconventional Warfare. Adapted from Larson, Eaton, Nichiporuk, and Szayna (2008).....	30
Figure 12.	PMESII-PT Variables. Source: Department of the Army (2013, p. 2-12).	34
Figure 13.	PMESII-PT Sub-variables. Source: Department of the Army (2013, p. 2-13).....	35
Figure 14.	Projected Damage of Hurricane. Source: State Library of Louisiana (2016).....	43
Figure 15.	HA/DR Scenario LOE and Commander’s Intent.....	44
Figure 16.	HA/DR Scenario PMESII-PT Analysis.....	45

Figure 17.	Traditional Military Conflict Scenario LOE and Commander's Intent	56
Figure 18.	Traditional Military Conflict Scenario PMESII-PT Analysis	57

LIST OF ACRONYMS AND ABBREVIATIONS

AFCAP	Air Force Civil Augmentation Program
AFICA	Air Force Installation Contracting Agency
AOR	Area of Responsibility
CAAF	Contractors Authorized to Accompany the Force
CLSPB	Commander Logistics Procurement Support Board
CM	Contractor Management
COA	Course of Action
COIN	Counter Insurgency
CONPLAN	Concept Plan
CONUS	Continental United States
COR	Contracting Officer's Representative
CS	Contracted Support
CSI	Contract Support Integration
DIME	Diplomatic, Information, Military, Economic
DLA	Defense Logistics Agency
DOD	Department of Defense
DOS	Department of State
FEMA	Federal Emergency Management Agency
GCC	Geographic Combatant Command
HA/DR	Humanitarian Aid/Disaster Relief
IDIQ	Indefinite Delivery–Indefinite Quantity
IMF	International Monetary Fund
IMSO	Integrated Money Shaping Operations
ISIS	Islamic State of Iraq and Syria
JCASO	Joint Contingency Acquisition Support Office
JCC-I/A	Joint Contracting Command–Iraq/Afghanistan
JFC	Joint Force Commander
JIPOE	Joint Intelligence Preparation of the Operational Environment
JOPP	Joint Operation Planning Process
JP	Joint Publication

JRRB	Joint Requirements Review Board
JTSCC	Joint Theater Support Contracting Command
J-4	Joint Staff Logistics
LOE	Line of Effort
LSC	Lead Service for Contracting
LSCC	Lead Service for Contracting Coordination
MAAWS	Money as a Weapon System
MOE	Measure of Effectiveness
MOP	Measure of Performance
NEO	Noncombatant Evacuation Operation
NGO	Non-Governmental Organization
OCONUS	Outside the Continental United States
OCS	Operational Contract Support
OCSIC	Operational Contract Support Integration Cell
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
OPLAN	Operation Plans
PMESII-PT	Political, Military, Economic, Social, Information, Infrastructure, Physical Environment, and Time
USAID	United States Agency for International Development

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I. INTRODUCTION

Operational contract support (OCS), as defined in Department of Defense Instruction 3020.41, *Operational Contract Support*, is “the ability to orchestrate and synchronize the provision of integrated contract support and management of contractor personnel supporting the joint force in a designated operational area” (Kendall, 2011, p. 50). OCS is built upon years of implementation, refinement, improvement, and innovation. It is one of the most important tools that the United States can take to any contingency situation because of its force multiplier effect. This notion has been demonstrated through the increased use of contracted support in recent conflicts throughout the world in response to the steady decrease of available organic support solutions. The lack of integration of OCS into operation plans (OPLANs) has created gaps in planning, executing, and measuring the OCS impact, particularly the economic impact. Our research focuses on the strategic economic effects that OCS has in contingency operations and how to better implement impact evaluation in these operations.

OCS is not a contracting-only function. It requires the full integration of the diplomatic, information, military, and economic (DIME) instruments of power to achieve the desired results. It is important to establish that the military—with its size, power, and money—creates its own DIME influences. For the purposes of this project, the focus is on the military’s “e” portion of DIME. Said differently, we do not address the federal government’s economic instrument of power (the big *E*), which involves support payments, sanctions, and other government-to-government economic instruments. Instead, we focus on the military’s economic power (the little *e*) that is brought to every contingency.

Our research produces a tool for the planning, execution, and measurement of OCS and the economic impact it has on shaping operations before, during, and after a contingency. While OCS is gaining momentum, the second- and third-order effects of OCS need more development at the strategic planning level. Specific areas that need improvement include developing metrics to measure OCS effectiveness and identifying

when an OCS solution is achieving the desired effects within the contingency's economic environment. The purpose of this project is to (1) assist Operational Contract Support Integration Cell (OCSIC) planners in integrating OCS elements into their command's OPLANs, (2) discuss how OCS can be used to shape the battlespace of a contingency, and (3) create a framework for commanders and planners to quantify the effectiveness of their OCS solutions.

The primary audiences for our research are the Department of Defense (DOD) planning communities that are attempting to integrate OCS into existing OPLANs for contingency situations, both domestically and abroad. Secondary audiences include (1) other federal agencies, such as the Department of State (DOS), United States Agency for International Development (USAID), and Federal Emergency Management Agency (FEMA); (2) research organizations; (3) academics, specifically, developmental economists; and (4) the industry partners that assist in the deployment of military forces.

Planners are vital to the long-term sustainability and success of any military operation. Planners must be flexible in their preparation understanding large scale combat, while also appreciating the increased frequency of small scale contingency operations and their importance to future operations as seen in this section.

Today, the strategic calculus behind foreign assistance appears to have shifted, encompassing the prevention of state failure, thwarting terrorism, and humanitarian imperative. Yet these shifts have yet to lead to any comprehensive review of how American development capabilities should be structured and how they fit into larger questions of strategy and national security. (Patterson & Stangler, 2010, p. 8).

Planners must understand OCS and the economic impact that OCS has in a number of contingency situations—from shaping operations, disaster relief responses, combat operations, and even transition operations. The operational communities' understanding of OCS capabilities is vital to demonstrating to commanders how OCS assists in achieving desired lines of effort (LOEs).

Based on our research, we recommend (1) the developed OCS Impact Evaluation Tool be disseminated to OCSIC planners to gain feedback for further development, (2) senior leaders create/enforce a policy that mandates OCS planning regardless of the

existence of an organic capability, and (3) trained economists with regional and subject expertise are placed on OCSIC planning staffs to assist in OCS planning, execution, and measurement of OCS solutions.

Our paper is organized as follows. Chapter II presents a review of pertinent OCS literature, including the economic impact that OCS can have during contingencies. Following the literature review, in Chapter III, we discuss the methods and briefly describe the tactics and procedures used to attain the research objectives. In Chapter IV, we discuss the OCS Impact Evaluation Tool and apply the tool to two types of contingencies. Chapter V provides recommendations and concludes the research.

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II. LITERATURE REVIEW

In this chapter, we briefly discuss the pertinent OCS literature. We begin with an overview of the technical components of OCS, and then move to more recent developments of OCS. Finally, we discuss the literature on impact evaluation and how it could be useful in future contingencies.

A. WHY DO WE NEED OCS?

Failure to implement proper OCS principles can create unintended consequences in the local economies that may not align with the commander's LOEs. For example, "On March 31, 2004, four men working for Blackwater USA as security guards were ambushed by insurgents in Fallujah. They were killed, their bodies burned and mutilated, and two were strung up on a bridge over the Euphrates" (Frontline, 2005). A group of Marines stationed nearby were tasked with providing stability operations and ensuring counterinsurgency (COIN) operations occurred within Fallujah and the surrounding area. Their mission was to "win the hearts and minds" of the local populace. Frontline (2005) reported that "the Marines in charge of the area didn't know the Blackwater team would be traveling that day into the dangerous city of Fallujah, but four days later they were ordered to invade the city and find the killers; this was not the original plan they had had for quelling the insurgency in the area." This is an example of a real, unintended consequence of using contractors in the area of responsibility (AOR).

Although the DOD was the primary responder in the Fallujah example, the consequences resulting from improper OCS application extended far beyond the military. The DOS had to increase "the number of personnel in Iraq assigned to provide oversight, but the increase came at the expense of staffing elsewhere—it happened by shifting existing oversight personnel from other locations in Iraq" (Dunning, 2010, p. 11). Ultimately, this incident damaged the perception of contracted support as well as damaged the COIN mission in Afghanistan. This example illustrates the need for OCS improvement and demonstrates why reforms should not be limited to just DOD

contracting. This is a federal issue that affects many of the largest and farthest-reaching federal agencies.

As a result of costly contingencies in Afghanistan and Iraq, a doctrinal shift within the DOD is being directed by both the Pentagon and Congress. The Gansler Report calls for acquisition and contracting reform following the gross misuse of taxpayer dollars. This abuse can be traced directly to contracting officers' inexperience with basic contracting theory and competency. "Contracting personnel sent into a theater of operations need to be highly skilled, adequately trained, and prepared for the challenging, fast-paced demands of expeditionary operations" (Gansler, 2007, p. 14).

Throughout history, contracted solutions have been used during military, humanitarian, and natural disaster relief contingencies. Napoleon Bonaparte, for example, used contractors to supply his military with much-needed grain during grain shortages in the early 1800s (Bourrienne, 2009, p. 304). During the Revolutionary War, "contractors were hired as wagon drivers, and suppliers of beef, clothing, weapons, and basic engineering services" (Defense Procurement and Acquisition Policy [DPAP], 2015). Although the traditional military force has been concerned with large-scale conflicts and has drawn on experiences in WWI and WWII, there has been a shift in the way warfare is conducted since those wars were fought. Vietnam provided a precursor to the types of military conflicts that have become mainstream in today's battlespace. Violent extremist groups like ISIS require a nimbler and more logistically agile force—a requirement the current military structure is less familiar with. These changes necessitate a change to the way that the DOD is supported by contracted personnel. Ensuring that the large external contracts like Logistics Civil Augmentation Program are properly tailored to the size and scope of operations is vital to combatting a very flexible enemy.

B. TECHNICAL DISCUSSION OF OCS

Operational Contract Support attempts to integrate planning, execution and measurement of contracted support. Joint OCS doctrine divides OCS into three functions: contract support integration (CSI), contracting support (CS), and contractor management (CM). The first function, CSI, involves planning for contracted support. CSI ensures that

contracted support requirements are seamlessly integrated into the commander’s OPLAN. The second function, CS, involves the execution of contracting. This includes the awarding and administration of contracts in support of joint operations. The third function, CM, involves all the actions necessary to ensure contractors are properly managed and sustained within the contingency environment. As shown in Figure 1, each function has its own set of distinct characteristics and desired objectives. However, the lines separating functions are blurred in virtually all contingency environments, and decisions in one function have significant impacts on other functions.

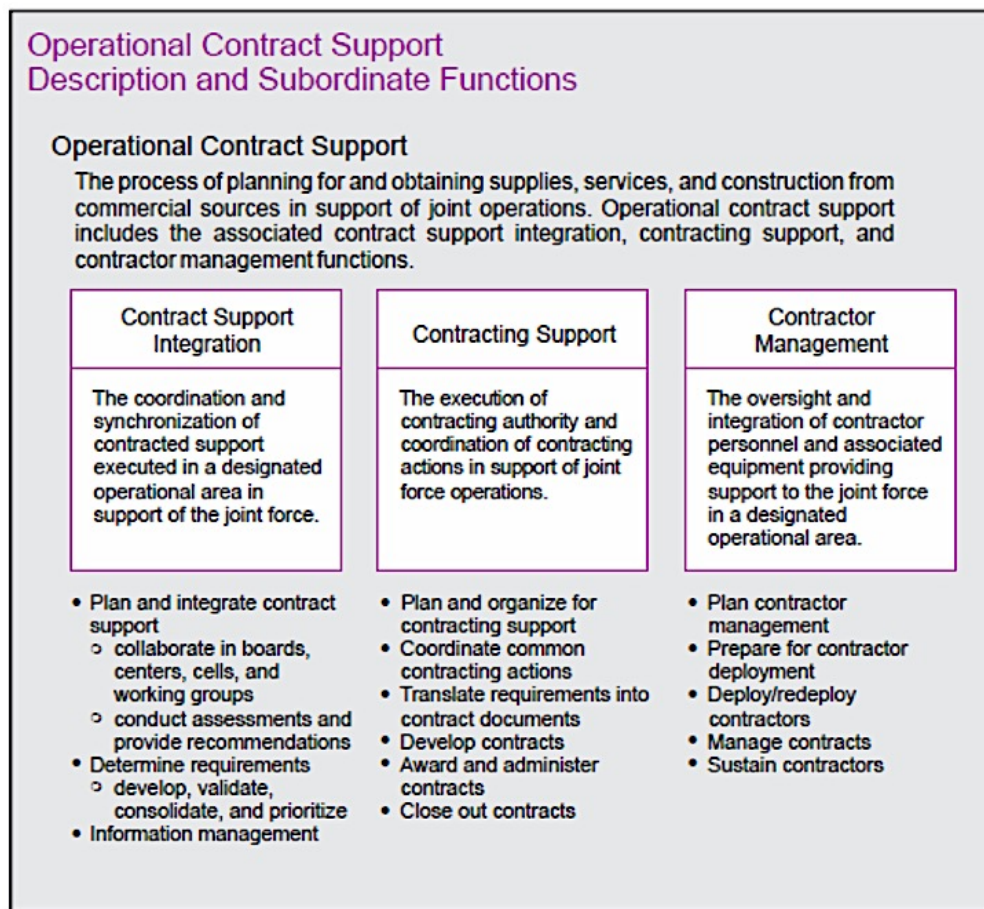


Figure 1. Operational Contract Support Description and Subordinate Functions.
Source: Chairman of the Joint Chiefs of Staff (CJCS; 2014, p. I-3).

1. OCS Planning Phases and Structures

Joint Publication (JP) 3-0, *Joint Operations*, and JP 5-0, *Joint Operation Planning*, describe six operation phases: Phase 0 (Shape), Phase 1 (Deter), Phase 2 (Seize Initiative), Phase 3 (Dominate), Phase 4 (Stabilize), and Phase 5 (Enable Civil Authorities; CJCS, 2014, p. I-11). JP 4-10 incorporates OCS principles into each of the operational phases and goes into depth on the roles, responsibilities, and actions required of OCS planners. Each combatant command has an OCSIC whose primary purpose is to integrate OCS into the OPLANs. Figure 2 summarizes the phases described in JP 3-0 and overlays OCS actions that may occur during each phase.

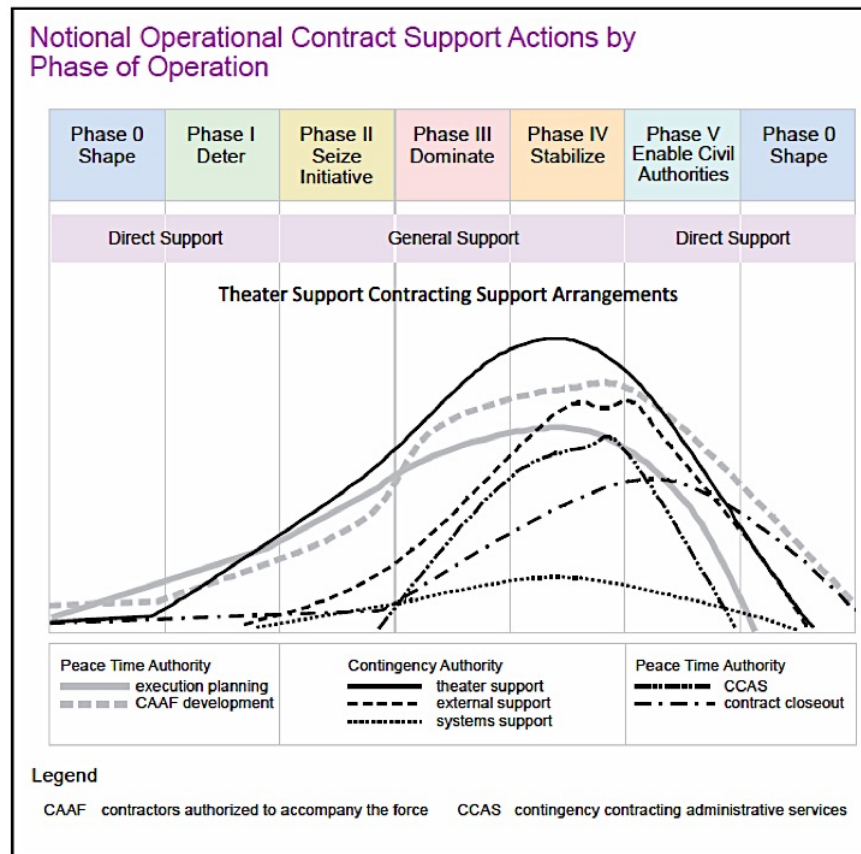


Figure 2. Notional Operational Contract Support Actions by Phase of Operation.
Source: CJCS (2014, p. I-12).

Phase 0 is particularly important; the objective of this phase is to “dissuade or deter adversaries, develop relationships with, and assure multinational partners, as well as to set conditions for the successful execution of contingency plans and are generally conducted through security cooperation activities” (CJCS, 2014, p. I-11). Stated differently, the goal of Phase 0 is to prevent the need to deploy kinetic resources to a given contingency. The use of OCS in Phase 0 can be particularly powerful. During Phase 0, access to areas can be acquired by using contracts to build up a target area—specifically, establishing business relationships and prepositioning contracted support.

JP 4-10 formalizes different contracting structures based on the scope, size, and level of complexity of the contingency operation. The three major contract support structures, listed from least complex to most complex, are as follows: Lead Service for Contracting Coordination (LSCC), Lead Service for Contracting (LSC), and Joint Theater Support Contracting Command (JTSCC). Figure 3 provides a brief overview of these structures.

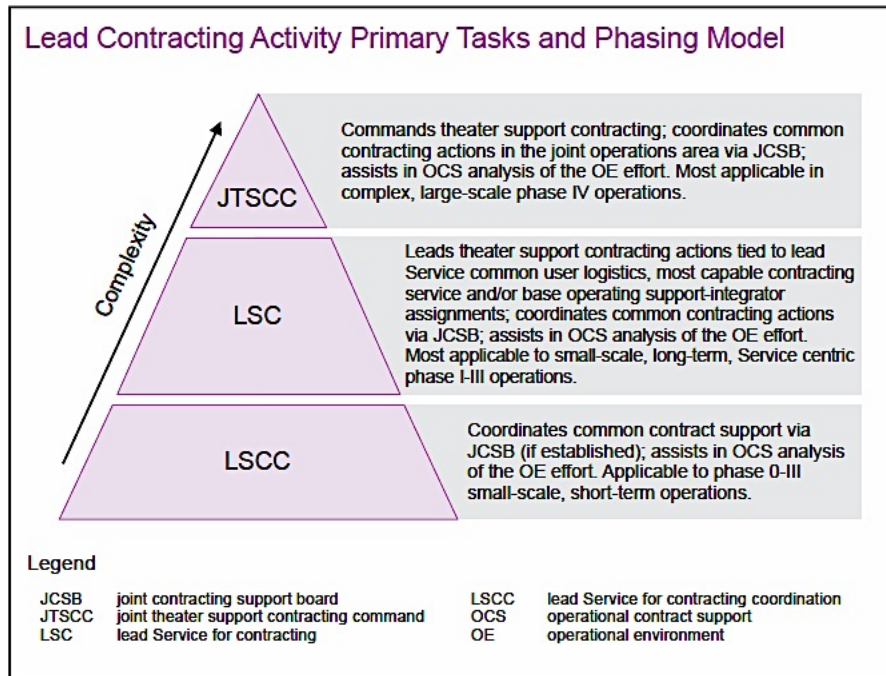


Figure 3. Lead Contracting Activity Primary Tasks and Phasing Model. Source: CJCS (2014, p. IV-1).

Discussions with various boards, bureaus, centers, cells, and working groups (B2C2WGs) during the CSI process helps commanders choose a structure that is tailored to the contingency. Organizations like the Joint Contingency Acquisition Support Office (JCASO) that operates out of the Defense Logistics Agency (DLA), the Joint Requirements Review Board (JRRB), and the Combatant Commander Logistics Procurement Support Board (CLPSB) facilitate the execution of OCS depending on the structure chosen for a given contingency. The goal of these working groups and boards is to create a standard operating site picture and a set of standard operating procedures that all services can understand and be ready to implement. Finally, even after a commander chooses a structure, it may change (i.e., increase or reduce in complexity) to fit the developing contingency.

2. OCS Integration in OPLANs

The GAO (2011) states “an operational plan describes how the DOD will respond to a potential event that might require the use of military force” (p. 7). The planning process separated OPLANs into four categories, with Level 1 plans containing little detail and Level 4 plans containing detailed operational information. At the highest levels of planning, the Joint Strategic Capabilities Plan (JSCP) “directs OCS planning for all plan levels and types to include commanders’ estimate, base plan, concept plan (CONPLAN), OPLAN, and campaign plan” (CJCS, 2014, p. III-8). To facilitate this planning, JP 4-10 establishes multiple planning and integration working groups, policies, and procedures. The OCSIC is a vital group whose purpose is to “perform phase 0/steady-state contract support integration functions and to provide oversight of any subordinate joint force command OCSIC (when formed)” (CJCS, 2014, p. III-3). Figure 4 provides a list of the primary tasks that the OCSIC is required to perform.

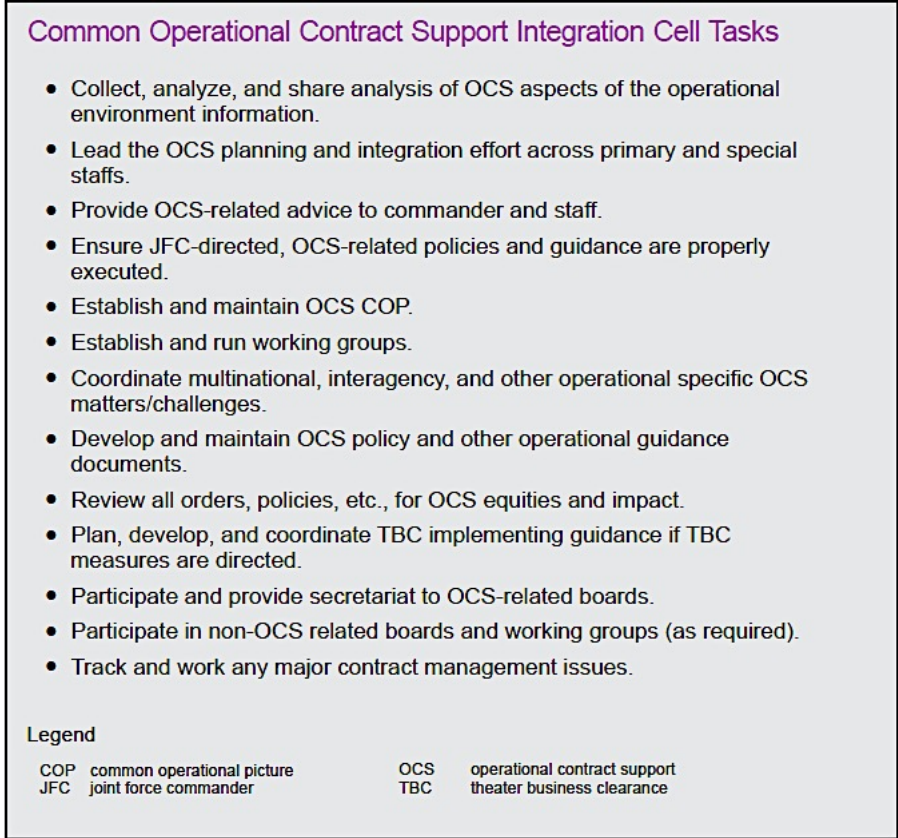


Figure 4. Common Operational Contract Support Integration Cell Tasks.
 Source: CJCS (2014, p. D-4).

The DOD has declared, with the release of JP 4-10, that OCS must be properly planned for as it will have a major role in future contingency operations. Annex W is the contracting annex to the OPLAN and is mandatory to account for all the contracted support required throughout all phases of the operation. Many current OPLANS contain Annex Ws, but fall short of adequately describing how a commander can use contracted support to for their LOEs. In many cases, current Annex Ws describe the procedures to stand up LSCC, LSC, or JTSCC structures but fail to provide traceable OCS solutions that relate to a commander’s LOEs. The Government Accountability Office (GAO) asserts, “Most draft Annex Ws developed to date restate broad language from existing DOD guidance on the use of contractors to support deployed forces but included few details on the type of contractors needed to execute a given plan” (GAO, 2010, p. 4).

To enhance the effectiveness of the Annex W, it is imperative that planners are trained to link OCS solutions to the commander's objectives.

Planners encounter many issues preparing Annex Ws, a significant issue being the lack of sufficient detail provided in the OPLANs. This includes the number of personnel supported, the duration of the contingency, the area's economic maturity, and the commander's intent. Describing the contracted support required in an unknown contingency is a very complex and difficult process. Planners must assess each contingency's unique prevailing economic, business, and cultural differences. This necessary information is not completely known prior to conflicts, but close interaction between the multifunctional planning staffs assists OCS planners in identifying requirements, force size, resources required, and other necessary OCS planning information. Integrating OCS into OPLANs provides value by ensuring contracted solutions align with the commander's intent, thus potentially shrinking operational timelines.

C. DEVELOPMENT OF OCS

The U.S. military is undergoing a significant transformation. Throughout its history, the DOD has moved to an all-volunteer force, Congress has imposed troop constraints, and resources are becoming increasingly scarce. Many of the support functions are evolving from organic to inorganic or contracted support solutions in order to maintain mission essential capability. Additionally, the level of contracted support is increasing in complexity, moving from basic transportation services to complex security contracts. The degree of contractors' integration into the traditional military force is also increasing, especially in recent operations, such as Operation Enduring Freedom. Previously, military commanders relied on forms of logistical contract support (e.g., supply of grain, weapons, armor, etc.) to support their troops. In 2017, operational communities rely on major external contracted solutions, like the U.S. Army's Logistics Civil Augmentation Program, to provide everything from dining facility services and laundry services to aircraft and vehicle refueling. These more complex contracts provide a significant force multiplier capability to commanders but come with both a major price

tag and the added complexity of integrating contractors into military operating locations. This integration requires that the commanders plan for contractor deployment, sustainment, and redeployment in almost the exact same way they plan for their troops. Figure 5 shows the increased complexity of and U.S. reliance on contracted support from the American Revolution to Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). It also depicts the decreasing ratio of service member to contracted support, with the ratio eventually settling at 1:1 during OEF and OIF. The GAO asserts,

At the height of Operation Iraqi Freedom, the number of contractors exceeded the number of military personnel, and a similar situation is occurring in support of Operation Enduring Freedom. According to the DOD, in 2012, the number of contracted in Afghanistan exceeded 109,000 compared to the approximately 84,200 military personnel present at that same time. (GAO, 2013, p. 1)



Figure 5. Evolving Participation of Contractors in the U.S. Military. Adapted from DPAP (2015).

The conflicts in Iraq and Afghanistan reflect the growth of violent extremist groups. A major weapon against violent extremist groups and other non-state actors is the use of COIN operations, which, in part, rely on the strategic execution of money. In COIN operations, money is used for economic stimulation, sustainable job creation, and the increase of entrepreneurial ventures. Schramm (2010) states,

There is a proven model for just such economic growth right in front of U.S. policymakers' eyes: the entrepreneurial model practiced in the United States and elsewhere. ... Washington's recent engagements have made it appreciate that post-conflict economic reconstruction must become a core competence of the U.S. military. (pp. 89–90)

Clearly, there is a strategic use of funds to provide commanders with non-kinetic options to affect the COIN lines of effort.

Personnel must employ effective measurement tools to accurately demonstrate that OCS solutions are executing funds in accordance with commanders' strategic goals. In addition, personnel must create methods of collection in order to provide timely, accurate, and useful information to implement effective impact evaluation. The challenge lies in identifying the economic indicators that the OCS solution is attempting to shape, and in determining how to measure and collect such information. Further, parsing out OCS-related effects from effects that happen by chance (i.e., unplanned, non-OCS-related effects) is difficult.

Future U.S. military operations will be a mix of contingencies ranging from traditional military conflict to humanitarian assistance. OCS concepts are not tied to any particular type of military operation, rather, they are tailorable to meet the type, scale, location, and complexity of any military operation, kinetic or non-kinetic. The following excerpt from a Kauffman Foundation Research Series report highlights the tension between kinetic military action and non-kinetic stability operations:

In an ideal world, economic development in post-conflict situations lies within the purview of civilian organizations such as the World Bank, the International Monetary Fund (IMF), U.S. Agency for International Development (USAID), and the Department of State. This "ideal world" relies on the assumption that war and peace are discrete conditions, a paradigm that looks increasingly anachronistic. Instead, there is a

continuum of conflict which may be dramatically different from one part of a country to another. This compounds the problem of “turning over” the economic development functions to a civilian agency. (Patterson & Stangler, 2010, pp. 8–9)

For OCS effects to be sustained, the U.S. military must team with pertinent other governmental agencies (OGAs) and non-governmental organizations (NGOs) that also have a vested interest in the coordinated use of money to affect economic development in developing regions. Roles and responsibilities for economic development continue to remain points of contention. The military’s primary role is to serve and protect U.S. interests at home and abroad. This mission has economic effects, which—if not properly thought through or accounted for in planning phases—can have significant consequences as seen with the massive expenditures in OEF and OIF.

D. OCS AND ECONOMIC IMPACT

While the idea of OCS has been around for hundreds of years, albeit by different names, the idea of “money as a weapon system” (MAAWS)—or as it is known now, “integrated money shaping operations” (IMSO)—became an important weapon during OEF and OIF. General Petraeus, then a major general in charge of the 101st Airborne Division Air Assault, indicated during OIF and OEF, “Money is my most important ammunition in this war” (Center for Army Lessons Learned, 2009, p. 1). Effectively and strategically using money is essential to carrying out military operations.

In today’s DOD military engagements, the lines between economic development and military combat operations are blurred. Economics is a part of the political, military, economic, social, information, infrastructure, physical environment, and time (PMESII-PT) analysis that is usually left to the agencies primarily involved with stability operations. There is an ongoing debate over who is responsible for economic development within disaster ridden states. It is the job of organizations such as the USAID, the DOS, United Nations (UN), the World Bank, and many other NGOs, to stabilize and rebuild contingency areas. As an institution, the military’s primary mission is not economic development; however, the amount of economic power the military wields makes it one important entity in the overall cooperative for economic

development, and the military's post-conflict missions rely heavily on achieving economic stability.

Understanding the use of money, its effect on the local economy, and the impact of economic growth for a contingency has dramatic impacts on the successful and sustainable transition from Phase IV, Stabilize, to Phase V, Enable Civil Authorities. Since WWII, the U.S. military has found itself playing a much larger role in nation building, infrastructure repair, economic growth, and winning the hearts and minds of the local populace. "It is a well-accepted adage that military success without strategic success is not success, and sustainable peace after conflict has been a much more elusive goal than military victory over the past two decades" (Patterson & Stangler, 2010, p. 6).

Recently, funds execution has failed to produce sustainable economic activity for the local populace. Patterson & Stangler (2010) comment, "In a post-conflict setting, money can create as many problems as it can solve. Overreliance on grants and aid actually creates disincentives for entrepreneurship" (p. 12). Instead of tactical spending, the Kaufmann Institute recommends a more strategic execution of funds "to help the local population's small businesses get over the barriers of entry and to create more small businesses that will promote economic growth" (Patterson & Stangler, 2010, p. 12). Of course, not all money can be utilized strategically.

1. Expeditionary Economics

Expeditionary economics is a relatively new subset of economics that targets economic reconstruction in post-conflict or post-disaster nations (Patterson & Stangler, 2010, p. 7). The main premise of Expeditionary Economics is that external state actors focus on revitalizing free-market capitalism in war-torn or disaster-struck economies. Schramm (2010, p. 93) asserts that these actors should attempt to set up the country in such a manner that circumstances enable the right variety of people and ideas to flourish so as to gain long-term economic growth and stability.

2. Economic Impact Evaluation

In this section, we cite *Impact Evaluation in Practice* by Gertler, Martinez, Premand, Rawlings, and Vermeersch (2011) a great deal as we walk through the steps of designing an impact evaluation. Impact evaluations assess how a planned program or action has or has not changed an outcome. Conducting this analysis properly includes “ensuring proper accountability of inputs, outputs and results or accurately identifying the causal relationship” (Gertler et al., 2011, p. 4). This assists planners and commanders to identify which actions and programs are directly or indirectly contributing to mission objectives and which are not. Figure 6 demonstrates the key steps to implementing an impact evaluation.

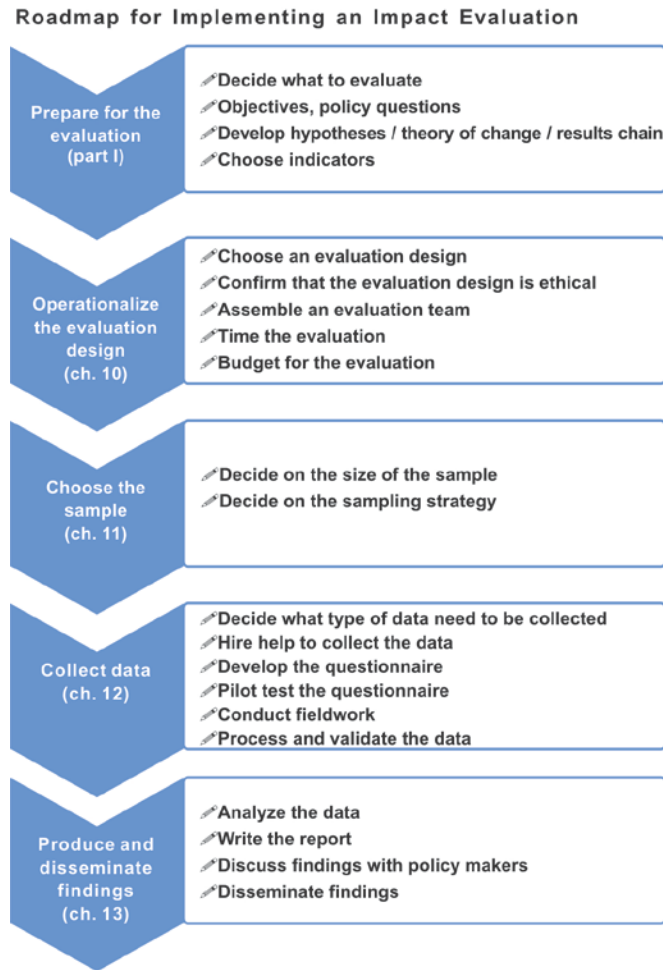


Figure 6. Roadmap for Implementing an Impact Evaluation. Source: Gertler et al. (2011, p. 141).

Gertler et al. (2011) define *monitoring* as “a continuous process that tracks what is happening within a program and use the data collected to inform program implementation and day-to-day management and decisions” (p. 7). This takes collected outcomes and measures them against the ultimate objectives of the program or policy. In the case of OCS, it takes the measures of performance (MOPs) of the contracted solution and assesses the degree of effectiveness with the measures of effectiveness (MOEs).

Evaluations are discrete, timed assessments during certain periods of the program that measure specific metrics against baseline data. Gertler et al. (2011) state that evaluations should examine the outcomes and try to assess whether or not an intervention is making a difference (p. 7). This type of analysis is especially important with military

conflicts and the application of OCS. The “fog and friction” of war makes it difficult to make decisions with all the information necessary so decision makers must facilitate constant evaluation with how current actions are meeting desired outcomes. The goal of impact evaluation is to look for any changes in the outcome that can be tied directly to the planned intervention. In its most basic form, impact evaluation will reveal whether, “a given program [was] effective compared to the absence of the program” (Gertler et al., 2011, p. 8) and, specifically related to OCS, whether a specific OCS solution is effective compared to the solution not being implemented. A more complex impact evaluation can measure the differential effectiveness of two different programs to see which one is more effective in achieving program or mission objectives, relative to no program.

Impact evaluation can be expensive for an organization to implement, therefore, analysis of whether a program requires impact evaluation must be considered before implementation. The program’s potential benefits must outweigh the estimated costs, and implementation can leverage lessons learned from previous evaluations. In short, factors to be considered are whether or not a program is innovative, replicable, strategically relevant, untested, and potentially influential (Gertler et al., 2011, pp. 10–11). Impact evaluations are difficult even in a controlled environment. These evaluations are even more complicated in the constantly shifting environment in which the military typically operates. While the need for impact evaluation can be easily justified in terms of number of lives saved, dollars saved, or campaign days saved, the complexity of the analytical environment is a major concern.

Gertler et al. (2011) assert that there are two main categories of impact evaluations. The first is *prospective* evaluations, which are designed in sync with the program development and formed into the program implementation. The second type of impact evaluation is *retrospective* evaluations, which “assess program impact after the program has been implemented, generating treatment and comparison groups ex-post” (p. 13). Prospective impact evaluations usually result in stronger and more reliable solutions because of the development of proper baseline data. OCS planning groups are working on establishing these baselines for prospective contingency areas. Planners could leverage the expertise of institutions like the World Bank and the IMF to assist in

gathering this baseline data. The authors also state that with prospective evaluations, more comprehensive definitions of measurement success are established and treatment and comparison groups are established before the implementation of the program, which can validate counterfactuals (p. 13). Retrospective evaluations provide necessary information to commanders to make data-driven decisions when the proper statistics are monitored and evaluated correctly.

As Patterson and Stangler (2010) state, “After nearly ten years at war, the United States still lacks any real evidence of the impact of its spending in most economic sectors” (p. 13). Impact evaluation provides results for measuring program effectiveness and whether these results have external validity. That is, can these results be replicated for populations other than those that were initially involved in the study? If we want to extrapolate the results of an impact analysis to other settings, the analysis should not be performed in a vacuum; considerations for external factors must always be examined (Gertler et al., 2011, p. 16).

3. Results Chain, MOPs, and MOEs

Gertler et al. (2011) state that the theories of change are the “description of how an intervention is supposed to deliver the desired results” (p. 22). The Results Chain walks users through the logical progression of how to get their desired results. This is best started at the origin of the program, where all stakeholders can form a collective understanding of the program’s functionality and its goals, as well as any key assumptions. The results chain is a model employed to monitor impact. “A results chain sets out a logical, plausible outline of how a sequence of inputs, activities, and outputs for which a project is directly responsible interacts with behavior to establish pathways through which impacts are achieved” (Gertler et al., 2011, pp. 23–24). The fundamental features of a results chain are inputs, activities, outputs, outcomes and final outcomes (or impact; see Figure 7).

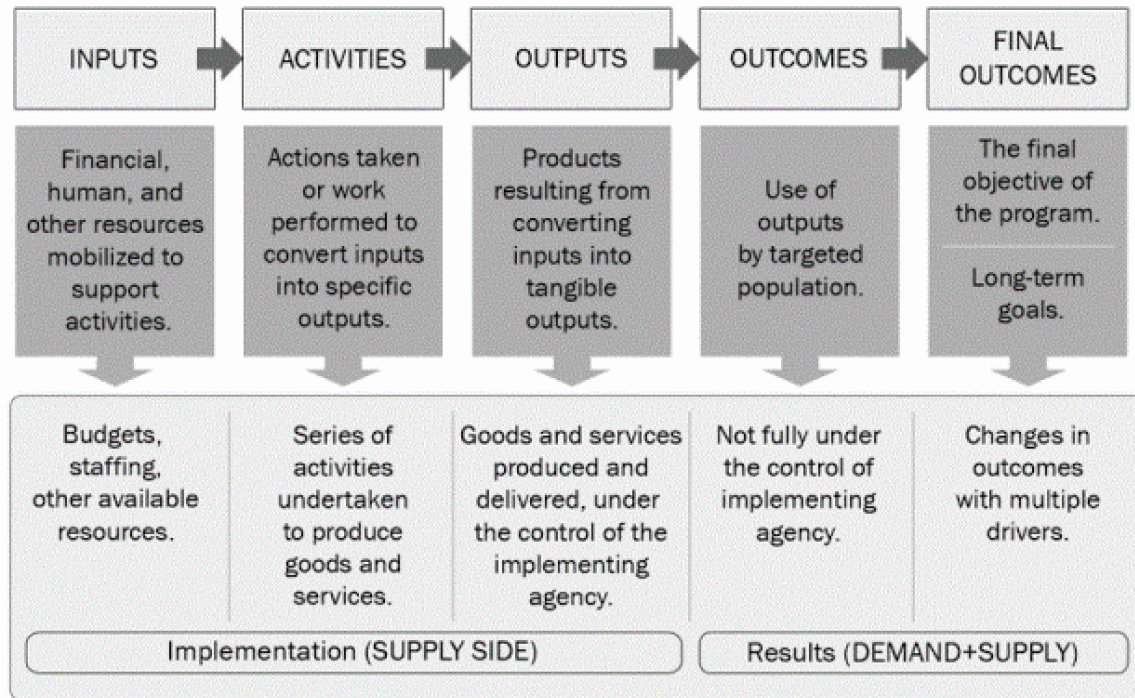


Figure 7. Results Chain. Source: Gertler et al. (2011, p. 25).

After the results chain is adequately outlined, users formulate hypotheses for evaluation. The hypotheses capture the desired effects gained from the program’s implementation. These evaluation hypotheses are similar to the desired end states in military planning doctrine, which planners use to develop MOEs. The performance indicators along the results chain need to be established for “monitoring program implementation and to evaluate results” (Gertler et al., 2011, p. 27). These indicators should be specific, measurable, attributable, realistic, and targeted (SMART). Performance indicators are created for final outcome stages as well as along the results chain. Gertler et al. (2011) specify, “Without these indicators all along the results chain, the impact evaluation will produce only a ‘black box’ that identifies whether or not the predicted results materialized; it will not be able to explain why that was the case” (pp. 27–28). The performance indicators are most like the measures of performance (MOPs) in military planning doctrine. Performance indicators are monitored throughout the course of the proposed OCS solutions’ result chain to ensure the solution is on the correct path.

Figure 8 summarizes the MOP, MOE, and Overall Impact analysis steps provided by the IMSO, and lists some generic questions that a planner or commander should be asking throughout an operation.

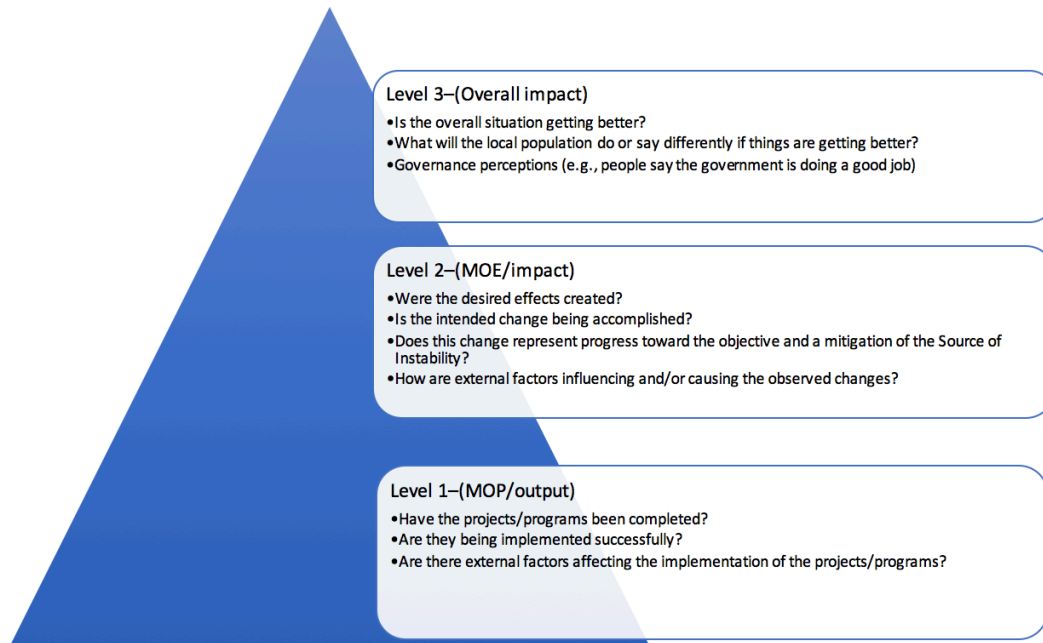


Figure 8. MOP/MOE/Overall Impact Analysis. Adapted from Air Land Seas Application Center (2013, p. 37).

The military consistently uses MOP and MOE to assess the effectiveness of its operations. OCS has yet to successfully adopt this method of assessment, and thus has had a difficult time in demonstrating the effectiveness of OCS solutions. This research aims to reverse that trend by helping planners understand potential OCS-related measures of performance and effectiveness. “Metrics and performance measures should be built into U.S. military information collection plans pre- and post-conflict” (Patterson & Stangler, 2010, p. 13). There is not a one-size-fits-all model because each contingency has unique characteristics that planners must address and measure during the operation. Schramm asserts, “International development researchers have often been perplexed by the fact that a program that produces good results in one country may not work in another. They should not be: every situation is different; formulaic approaches cannot work” (Schramm, 2010, p. 97). This issue of external validity means policymakers must

look at the context of each location and situation. Although lessons learned are applicable for evaluations, there is no universal plan that will work in every scenario.

The Joint Staff (2016) define an MOP as a “criterion used to assess friendly actions that are tied to measuring task accomplishment” (p. 149). Examples include dollars spent in a given region, number of contracts awards to local small businesses, and number of local personnel hired by contracts, among others. MOE is defined as “criterion used to assess changes in system behavior, capability, or Operational Environment that are tied to measuring the attainment of an end state, achievement of an objective, or creation of an effect” (Joint Staff, 2016, p. 149). Thus, MOEs, as they relate to this research project, assess the degree to which an OCS solution’s outcome is meeting the commander’s LOE.

4. Causal Effect

Properly and accurately tracking the impact of a program is the same as tracking the causal effect of that program. Impact evaluation provides a means for “establishing causality by empirically establishing to what extent a particular program ... contributed to the change in an outcome” (Gertler et al., 2011, p. 34). In the context of OCS, we are trying to empirically determine that the OCS solution implemented contributed to the resultant change in the operational environment. However, this presents a fundamental problem. The counterfactual problem is defined by Gertler et al. (2011) as the fact that a “person cannot be observed simultaneously in two different states” (p. 35). Causality conclusion compels the dismissal of other factors that could have affected the outcome to justify the impact of the program that was implemented. Planners must examine and offset potential counterfactuals, as this is vital for decision makers trying to decide whether to continue or deviate from a particular OCS solution. The most effective method to estimate or nullify counterfactuals is to establish valid comparison and treatment groups. Patterson and Stangler (2010) contend that “counterfactual analyses could be enormously useful to the military and civilian development apparatus in preparing for future contingencies and making adjustments” (p. 15). Having valid comparison groups means the groups “will have the same characteristics as the group of

participants in the program ... except for the fact that the units in the comparison group did not benefit from the program” (Gertler et al., 2011, p. 38). This comparison group, while useful in a controlled or sustainment environment, is difficult to execute during kinetic operations. It is important not to change the original intent of the intervention to suit the strategy of the evaluation. The evaluation must be designed to best suit the type of evaluation that is being implemented.

Proper evaluations require dynamic relationships between policy makers and the evaluators. Agencies have the option to contract out the evaluation function in whole or partially. By having an external party conduct the evaluation, the evaluation maintains objectivity and credibility. Impact evaluation teams should always include certain members. Gertler et al. (2011) suggest the inclusion of an evaluation manager, sampling expert, person responsible for designing data collection instruments and accompanying manuals and codebooks, field work team, data managers and processors, and data and policy analysts (pp. 156–157). The military must make up a part of this team as Patterson and Stanger indicate, “Regardless of whether or not the military should be responsible for building economies, the military will be a leading arm of the United States in post-conflict societies for an extended period of time” (Patterson & Stangler, 2010, p. 10). The military is taking ownership of this responsibility and is assessing how to evaluate the impact of OCS operations—whether the competency should be developed organically or should be contracted out to external organizations.

Gertler asserts, “Timing of an evaluation must also take into account when certain information is need to inform decision making and must synchronize evaluation and data collection activities to key decision-making points” (Gertler et al., 2011, p. 160). Baseline data is gathered at the onset of the evaluation, and many factors determine when follow-up data should be gathered. The program cycle, expected time needed for the program to affect outcomes, and policy-making cycles should all be considered when looking at timing of evaluations.

E. COLLECTION, ANALYSIS, AND DISSEMINATION OF DATA

Measurement of an implemented OCS solution requires accurate and relevant information, the expertise to analyze it, and a method by which to disseminate the results. Appendix G of JP 4-10 provides the current process of collection, analysis, and dissemination, which can be seen in Figure 9.

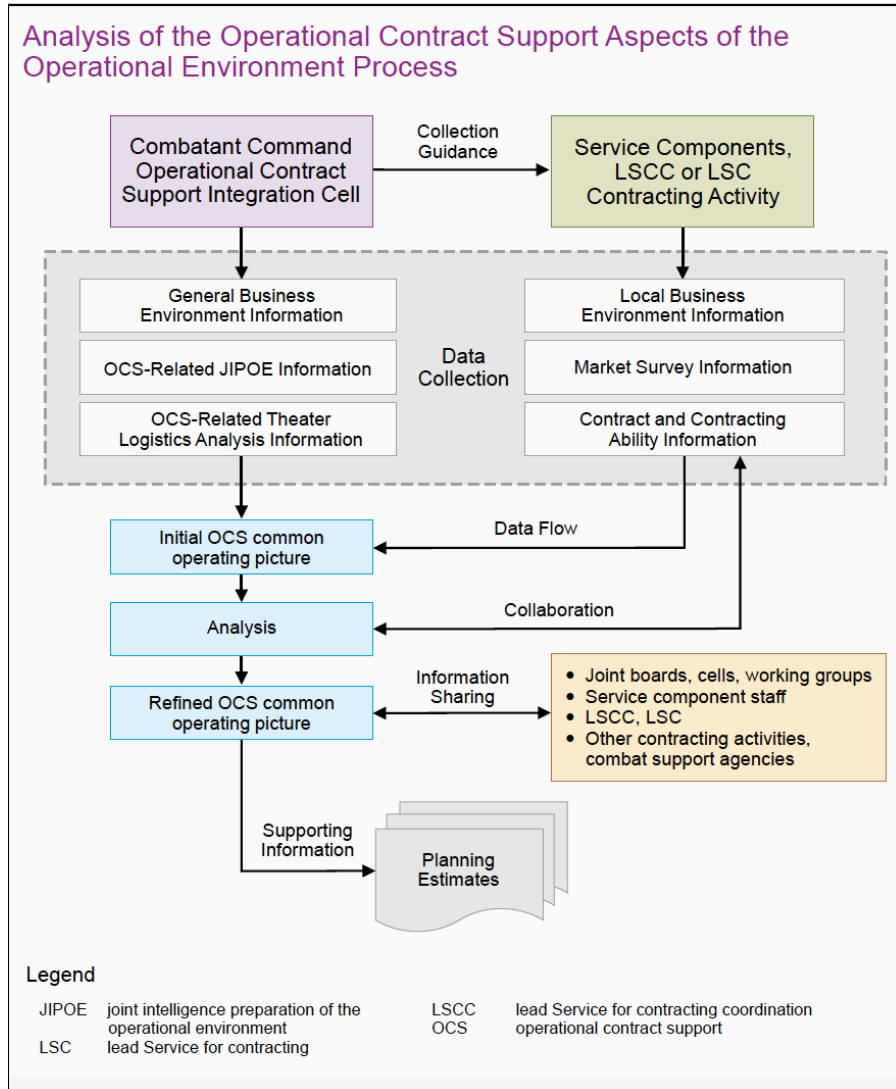


Figure 9. Analysis of the Operational Contract Support Aspects of the Operational Environment Process. Source: CJCS (2014, p. G-4).

The DOD method for baseline and comparison data collection is similar to the methods introduced by Gertler et al. (2011). Gertler et al.'s primary means of collecting the baseline data on a population is through surveys or randomized assignment. This is where OCS and traditional impact evaluation may not align effectively. In the military, it is unethical and inefficient to deny a person or business entry into a program for the purposes of impact evaluation. Also, the fast-paced nature of many contingency situations gives little time for in-depth data collection and analysis in the moment without proper personnel and processes in place. The DOD does not have an economist specialty code and as such relies on expertise from other federal agencies, academic institutions, think tanks, or other NGOs. One of the most important changes in the OCS planning process is the addition of, or increased use of, economists in the OCSIC. These experts can identify the correct information, request specific data from troops on the ground, analyze it, and disseminate it to the appropriate decision makers.

Quality data is vital to the assessment of the impact: "Data on outcome indicators that the program indirectly affects or indicators capturing unintended program impact will maximize the value of the information that the impact evaluation generates" (Gertler et al., 2011, p. 171). Personnel must collect quality baseline data for proper monitoring of intermediate and final outcomes. Collecting a broad range of data on characteristics of the treatment and comparison groups, administrative, and exogenous factors makes it possible to conduct multiple types of evaluations, further validating the program that is being evaluated. Existing data may be available for an evaluation and could greatly reduce the cost of the evaluation (Gertler et al., 2011, p. 173). If existing data is available, the evaluator still needs to ensure the data sets are large enough to expose changes. Also, ensure data exists for both the treatment and comparison group populations. The scope and frequency of the data sets must also be considered (Gertler et al., 2011, p. 174). However, if existing administrative data is not available or satisfactory for the evaluation, Gertler et al. (2011) assert that follow-up survey data will have to be collected; "Power calculations provide an indication of the smallest sample (and lowest budget) with which it is possible to measure the impact of the program" (p. 176). When evaluators take a larger sample from the target population we get a more accurate assessment for the

evaluation; however, this comes with a larger cost. If evaluators take too small of a sample, we risk getting an invalid evaluation. Type 1 and type 2 errors are two types of error experienced when equating the average results for the treatment and comparison groups. “A type 1 error is made when an evaluation concludes that a program has had impact, when in reality it had no impact” (Gertler et al., 2011, p. 179). A type 2 error “occurs when an evaluation concludes that the program has had no impact, when in fact it has had an impact” (p. 176). These types of errors are minimized through parameters called confidence intervals.

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III. THE OCS IMPACT EVALUATION TOOL

This research integrates OCS and impact evaluation and introduces the OCS Impact Evaluation Tool, which focuses planners on the planning, execution, and measurement of OCS while integrating the steps of the Impact Evaluation Results Chain. The tool arms planners with the right questions to ask to address potential desired and undesired economic impacts of military spending. Figure 10 presents the OCS Impact Evaluation Tool. We discuss the components of the tool in the following sections.

OCS Impact Evaluation Tool						
PLANNING			EXECUTION	MEASUREMENT		
Line of Effort	CC Intent	PMESII-PT Analysis	OCS Solution	MOP	MOE	Overall Outcome
LOE #1	Intent #1	Political:	Specific Task:	MOP 1	MOE 1	Impact 1
		Military:	When:	MOP 2	MOE 2	Impact 2
		Economic:	Who:	MOP 3	MOE 3	Impact 3
		Social:	How:			
		Information:	Where:			
		Infrastructure:	Objective:			
		Physical Environment:				
		Time:				
INPUTS			ACTIVITIES	OUTPUTS	OUTCOMES	FINAL OUTCOMES

Figure 10. OCS Impact Evaluation Tool

To demonstrate how a planner might use the OCS Impact Evaluation Tool, we evaluate two contingencies using the tool that are representative of contingencies faced by the DOD in recent years. The first contingency is a humanitarian aid/disaster relief (HA/DR) scenario involving a hurricane loosely based on Hurricane Katrina. The second example is a traditional military conflict focused on creating OCS solutions in an unfamiliar culture with the potential for a counterinsurgency environment. We identify

some considerations when collecting information for the planning phase of the OCS Impact Evaluation Tool. This is the first step to identifying LOEs, determining commander's intent (if not expressly stated), using a PMESII-PT analysis to assess the operational environment, and developing inputs as a result of the analysis. Inputs are the various resources and capabilities that are available to commanders as they begin to execute a program or operation. These inputs set the stage for the intervention and allows the planners to collect any baseline data that they will later compare to outputs.

A. CONTINGENCY IDENTIFICATION

The first step of the contingency planning process is to identify the type of contingency environment military forces might enter. The traditional military conflict requires the largest military footprint in terms of manpower and resources and is the most complex contingency environment that military forces encounter. Figure 11 depicts the two dominant types of warfare: conventional and non-conventional (asymmetric) warfare.

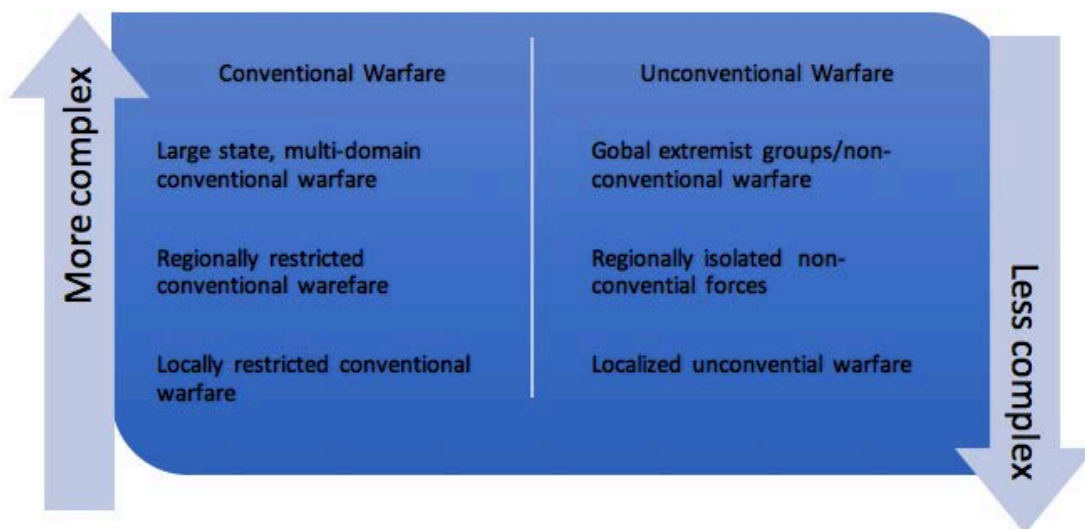


Figure 11. Conventional versus Unconventional Warfare. Adapted from Larson, Eaton, Nichiporuk, and Szayna (2008).

These two types of warfare represent the most likely and most dangerous scenarios for military forces. Understanding the type of enemy that the military is likely to encounter, the degree of economic activity in the region, and the types of tactics likely to be employed by the enemy provides planners with the tools they need to shape and influence the battlespace using OCS solutions. Traditional military conflicts leave bystanders fleeing for their safety, creating large-scale displacement of non-combatant refugees. Humanitarian assistance is not limited to outcomes from traditional military conflict; it also becomes a need following natural disasters, man-made contingencies like nuclear power plant failure, or widespread poverty and low standards of living. Natural disasters occur every year, in many different ways, all around the world and include hurricanes, earthquakes, floods, tsunamis, and so forth. The degree of disaster can range from tsunamis in the Philippines to hurricanes in the Gulf of Mexico. In fact, Hurricane Katrina is a prime example of how the lack of OCS planning and implementation led to prolonged economic stagnation and recovery efforts. The three types of contingencies described above do not represent the full range of contingencies possible, but they are familiar to military planners. Each type of contingency requires different planning considerations, and, potentially, different OCS solutions.

B. UNDERSTANDING THE ECONOMIC ENVIRONMENT

The military is one instrument of national power, and due to the amount of resources the U.S. military wields, it also brings with it its own massive economic influence (little e). Identification of the type of economy, as well as the motives, incentives, and driving economic engines of the contingency environment ensure the correct application of OCS solutions. Each contingency environment experiences a different level of economic maturity, ranging from a nuclear mishap in a mature economy like Japan to an Ebola outbreak in a far less mature economy in Western Africa. OCS solutions should be tailored to the economic maturity of the region. Three top-level descriptions of economic maturity are (1) under-developed, (2) nationally developed, and (3) globally developed.

Under-developed economies are typically localized, isolated, and reliant on labor-intensive economic activities. Agriculture tends to be the dominant economic driver in under-developed countries. The Kauffman Foundation creates an example in which the driving economic engine in a region is agriculture, specifically localized farming. According to their example, if OCS is applied to create jobs for building infrastructure or cleaning streets, personnel are pulled off the farms for employment. This yields a short-term win for economic growth and meets military objectives like removing military-aged men from the influence of violent extremist groups by offering employment opportunities. However, this type of work relies on the presence of military personnel in the region—sustained presence means sustained need for contracted support, which means sustained employment. However, once the military leaves, so do the contracts/jobs, and then the employees return to the farms. However, because of their absence, the farms are now underproductive, and the overall result is lower economic output for the region. Clearly, the intention to provide jobs in the region is good (i.e., to lower unemployment and improve quality of life, and to stave off influence from violent extremist groups); however, the overall effect counters the economic stability of the region. The goal is to apply OCS solutions in ways that produce sustainable, long-term economic improvements for contingency environments.

A developed (national) economy consists of connected regional or tribal economies that trade and interact at the national level. In many cases, this type of economy is developed and strong, but has not become a global player, or may not interact effectively in the global market. Such economies have more complex business sectors, like banking or finance, and are treated differently than the under-developed agricultural-based economy. A developed (global) economy is one that interacts in the global market. The economies of the United States, Japan, European Union member states, and China are all examples of developed (global) economies. These types of economies are already very interactive with other developed nations and have adequate infrastructure, social order, and baseline economic data that enhance the effects of OCS solutions.

Regardless of the economic maturity of a contingency environment, every economy or culture has different values, motives, and incentives. Understanding these

drivers helps derive appropriate OCS solutions. The use of OCS requires a rich understanding of the needs and motivations of the targeted demographic sectors. For example, in rural Afghanistan, the prime motivation might be to bring money home to support the family. In this instance, any type of sustainable employment brings about both positive economic growth and successful COIN operations. However, in a culture like Japan that values education and business, the rebuilding of schools and business mentorship after WWII played to Japanese economic motives and cultural values. Understanding the economic drivers for a target segment and what motivates them assists planners in providing tailored OCS support to achieve the commander's strategic objectives.

Incentives come in many forms: money, jobs, protection, and so forth. Impacting change in a local population and operating a successful initiative relies on understanding incentives. It is important to note that what incentivizes Western civilizations may not incentivize members of other cultures. Planners need to consult with the local populace and learn what assets would be most useful to them: "Poor and conflict laden countries need more education and skill training, but they also need an economic context where they can realize the economic returns from improved human capital" (Patterson & Stangler, 2010, p. 11). Understanding what incentivizes a person, culture, or nation assists the planner in providing the correct OCS recommendations to commanders and amplify the effects of those OCS solutions.

C. CONSIDERATIONS OF ACTION

Planners look at both the desired effect of the OCS solution and the potential second- and third-order effects. Planners must consider the effects that are outside the military and economic domains. In addition, even though the intended effects occur, there may be unintended consequences that were not anticipated that can negatively impact the commander's LOE even more than the intended positive effect may help. This is why MOEs are vital to OPLANs and corresponding annexes—at the first sign of an unintended negative consequence, the plan is reevaluated and a determination is made to continue or discontinue an OCS solution. The medical adage is appropriate here: First, do

no harm. To grasp a better idea of the micro-level environment that planners are going to operate in, they conduct an analysis of the operational environment.

Political, military, economic, social, information, infrastructure, physical environment, and time (PMESII-PT) analysis plays a role in every professional military analysis of the operational environment and is a driving force for planners' decision making. The OCS Impact Evaluation Tool assists planners in asking what impacts the potential OCS solution has on the "E" and "S" domains and whether or not those effects are desirable. Figure 12 presents a brief description of the PMESII-PT categories.

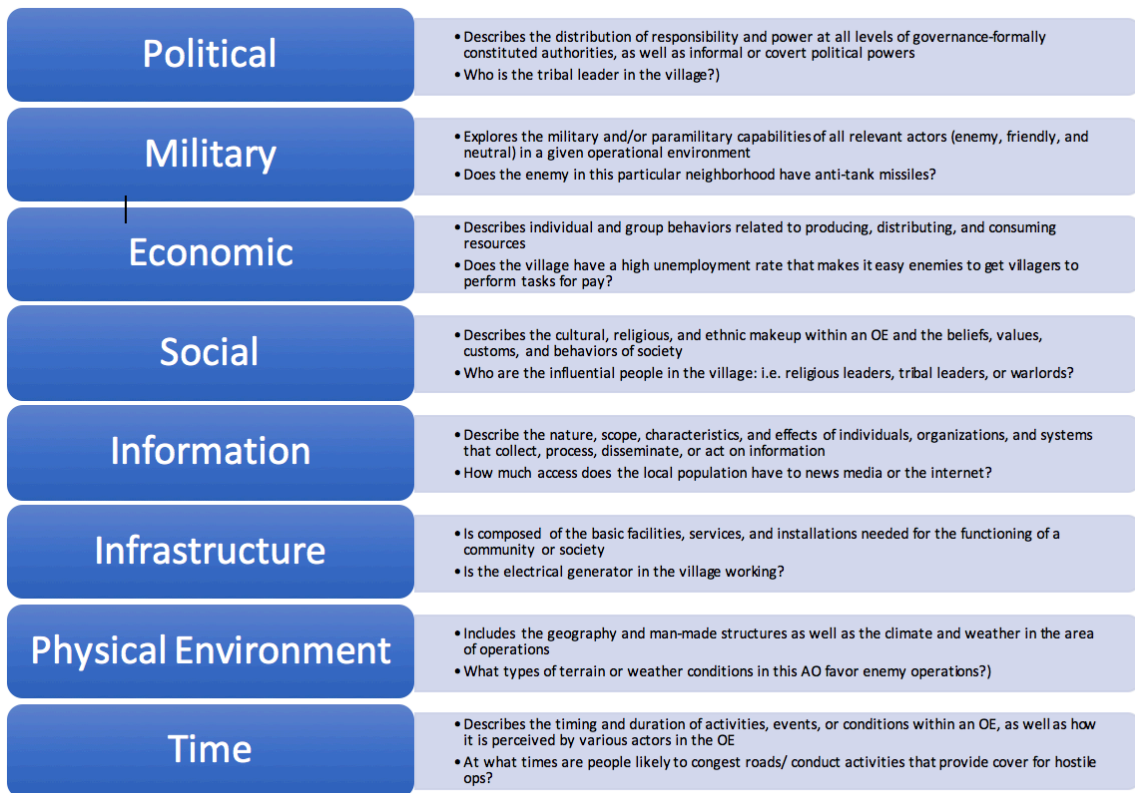


Figure 12. PMESII-PT Variables. Source: Department of the Army (2013, p. 2-12).

Planners must carefully consider each of these variables to determine how they affect the commander’s desired end state and the overall impact to the operational environment. Figure 13 depicts the sub-variables to consider in order to enhance understanding of the driving components of each PMESII-PT variable.

<p><u>Political Variable</u></p> <ul style="list-style-type: none"> • Attitude toward the United States • Centers of political power • Type of government • Government effectiveness and legitimacy • Influential political groups 	<p><u>Information Variable</u></p> <ul style="list-style-type: none"> • Public communications media • Information warfare • Intelligence • Information management 	<p><u>Time Variable</u></p> <ul style="list-style-type: none"> • Knowledge of the AO • Cultural perception of time • Key event resolution • Information offset • Tactical exploitation of time • Key dates, time periods, or events
<p><u>Military Variable</u></p> <ul style="list-style-type: none"> • Military forces • Government paramilitary forces • Non-state paramilitary forces • Unarmed combatants • Nonmilitary armed combatants • Military functions 	<p><u>Infrastructure Variable</u></p> <ul style="list-style-type: none"> • Construction pattern • Urban zones • Urbanized building density • Utilities present • Utility level • Transportation architecture 	
<p><u>Economic Variable</u></p> <ul style="list-style-type: none"> • Economic diversity • Employment status • Economic activity • Illegal economic activity • Banking and finance 	<p><u>Physical Environment Variable</u></p> <ul style="list-style-type: none"> • Terrain <ul style="list-style-type: none"> ▪ Observation and fields of fire ▪ Avenues of approach ▪ Key terrain ▪ Obstacles ▪ Cover and concealment ▪ Landforms ▪ Vegetation ▪ Terrain complexity ▪ Mobility classification • Natural hazards • Climate • Weather <ul style="list-style-type: none"> ▪ Precipitation ▪ High temperature—heat index ▪ Low temperature—wind chill index ▪ Wind ▪ Visibility ▪ Cloud cover ▪ Relative humidity 	
<p><u>Social Variable</u></p> <ul style="list-style-type: none"> • Demographic mix • Social volatility • Education level • Ethnic diversity • Religious diversity • Population movement • Common languages • Criminal activity • Human rights 		

Figure 13. PMESII-PT Sub-variables. Source: Department of the Army (2013, p. 2-13).

Aside from the operational environment analysis, there is an intent behind each purchase from the tactical level of spend to the strategic level of spend. For the most part, in the tactical level of spend, the intended consequences are identified pretty easily. Did the troops get their gear? Did the maintenance on the flight line get accomplished? At the strategic level, intended consequences are harder to assess. Did the country-wide indefinite delivery–indefinite quantity (IDIQ) contract enhance trucking capability in Iraq

while increasing relations with tribal leaders? How much did the government save on this IDIQ contract, and to what degree were logistics improved as a result? What is even more difficult than trying to assess the intended consequences of strategic spend is trying to predict the potential unintended consequences of a proposed contracted solution.

While the host nation trucking contract in Iraq was a great success, the same model proved to be an utter failure in Afghanistan. What was not accounted for were the cultural differences in Afghanistan and the way business occurred in the tribal regions. Since it is customary in Afghanistan to pay bribes to warlords to use their road networks, the U.S. military, through their host nation trucking contract, indirectly funded warlords and Taliban militants. “The [Host Nation Trucking] HNT contractors and their trucking subcontractors pay tens of millions of dollars annually to local warlords across Afghanistan in exchange for ‘protection’ for HNT supply convoys to support U.S. troops” (Tierney, 2010, p. 29). This proved to be a costly, unintended consequence that may have been avoided if cultural practices had been taken into consideration through the proper use of OCS and MOEs, which should have been in place to measure whether the desired effect was occurring.

OCS planners work to strike a balance between assisting commanders in meeting their short-term objectives and achieving sustainable long-term outcomes. The company commander’s mission is tactical: stabilize the city. The division commander’s mission is strategic: stabilize the country. A good planner can work OCS solutions such that a commander achieves their short-term objective while also achieving, or at least not hurting, their ability to achieve long-term objectives.

Is the OCS solution self-sustainable or does the action rely on the presence of U.S. or coalition personnel for the success or continued sustainment of the activity? Executing a contract for street sweeping meets a short-term objective of employing military-aged men. However, it does not meet the commander’s long term objective of creating sustainable growth in the economy. In this case, the commander achieves short-term success, potentially at the expense of prolonging sustained economic growth in the region. Instead of targeting the business activities that required U.S. or coalition presence and money for success, OCS solutions must focus on the development of small

businesses, entrepreneurial spirit, and removal of barriers to marketplace entry with an emphasis on the natural resources and competencies of the state. Such solutions create a much more sustainable economic environment that is not entirely dependent on the flow of foreign funds for success. It is important to note that long-term economic growth may not be a long-term objective for commanders and short-term success may be of more vital or strategic importance. The tool assists planners in asking the pertinent questions in regards to a commander's short-term or long-term objectives.

D. EXECUTION

During the execution phase of the OCS Impact Evaluation Tool, the planner, given the inputs from the planning phase, suggests a specific OCS solution and discusses the relevant components of the decision. This section addresses the *what, when, who, how, where, and why* (the objective) of the specific OCS solution.

Planners begin the execution phase by identifying an OCS solution that meets the commander's objectives. This specific OCS solution can be in the form of a new policy, contracted solution, coordination of funding with other agencies like USAID, or some combination of these possibilities. The OCS solution ties into the Impact Evaluation Results Chain "Activities" segment. After analyzing the input information, the planners can create a targeted OCS solution. This solution is specific and unique to the LOE/commander's intent that it is addressing.

After the planner selects an OCS solution, they identify the optimal timing for implementation of the solution. This could be immediate in the case of natural disasters or more long term in the case of a drawn-out military conflict. For example, fighting typically occurs with a seasonal trend, that is, less fighting occurs in the extreme temperature months of the year. Therefore, when trying to implement a trucking contract, implementation may be most optimal during periods of lower fighting. This provides a better opportunity for a smooth implementation and the ability to obtain better data for measurement. Timing-based considerations are taken into account to provide a more effective OCS solution.

Once the timing is identified, planners capture all relevant stakeholders impacted by the execution of the OCS solution. Stakeholders include those that are planning operations; those authorizing, obligating, and expending funds; those that are impacted by the funds (troops, local populace, refugees, etc.); and any others who experience a positive or negative effect from the OCS solution. Once identified, planners agree to the stakeholder's roles and responsibilities during the OCS solution. For example, the operations groups is responsible for requirements identification, the contracting squadron for contract execution, and the tactical military units on patrol for the data collection.

Once the timing and stakeholders are identified, planners need to assess how the OCS solution will be executed. The OCS solution can be a new policy (think Afghan-First), a new contract, or some other contracted solution. An OCS solution in itself provides the "what" to a commander, and the "how" incorporates the resources that a commander requires, something that is scarce in a contingency environment.

Understanding where to implement an OCS solution is paramount to the potential success of the solution. Knowing where to strategically execute funds means faster economic recovery in a natural disaster incident or faster stability or reconstruction efforts in the event of a military conflict. The famous real estate saying of "location, location, location" cannot be any more accurate when discussing where to implement an OCS solution. Hurricane Katrina is a prime example of how OCS execution in certain locations have positive or negative effects on an affected area. Hurricane Katrina displayed distinct rings of devastation. The most significant damage occurred in the devastation ring located in and around New Orleans. In the devastation ring, businesses were rendered inoperable and most economic activity ceased to produce outputs. The threat ring is the ring that immediately surrounds the devastation ring. While impacted and damaged, businesses were still operational and provided economic output. Outside the threat ring were the marginally and unaffected rings. This is where the damage was marginal and economic output dropped a little or remained somewhat constant.

It is important to know where businesses are in an operation, and where commanders receive the most economic stimulation per dollar spent. Funds spent in the devastation ring are optimal for quicker economic recovery but less feasible due to a lack

of businesses in operation. Execution of funds in the marginally and unaffected areas provides better service and more access to resources, but less of that money flows into the devastation and threat rings where it is needed most to revitalize economic activity. Execution of funds in the threat ring provides the most optimal mixture of resources and funds execution. The resources available may be of lower quality or be less available in this ring than in the marginally affected or unaffected areas. However, the funds go directly to the threat ring that surrounds the devastation ring, allowing for funds to be infused closer to where economic stimulation is needed the most.

The purpose of the “objective” section is to reiterate how the “what, when, who, how, and where” sections of the execution phase achieve a specific LOE. In essence, it is the “why” question that answers the question, “Why does this OCS solution benefit the commander?” The answer is, “This OCS solution helps the commander achieve LOE X by doing A, B, and C.” Demonstration of how effective the OCS solution is in helping a commander meet their desired end state is the topic of the next phase, the measurement phase.

E. MEASUREMENT

The OCS Impact Evaluation Tool offers a planner the ability to develop a structured planning and execution process for developing an adequate OCS solution for a given contingency. However, these two aspects alone only provide the means for an OCS solution to be implemented. Without the ability to understand if the OCS solution is implemented properly, if the solution is effective (in the way that it was intended to be), and what impact the solution has on the overall environment, the true range of support that OCS provides to commanders is unable to be demonstrated. Furthermore, without measurement capability, the DOD is primed to continue recent trends of ineffective spend in contingency environments. The measurement phase of the OCS Impact Evaluation Tool discusses measures of performance (if the solution is occurring), measures of effectiveness (if the solution is effective), and an overall impact analysis (how the change has impacted the overall environment).

The function of the MOP section is to address how relevant stakeholders know if personnel are executing the OCS solution. Planners should expand this section to include what information is collected and by whom. MOPs are specific and measurable; the following are some examples:

- number of indigenous military-age males employed
- number of hours employed
- number of IED attacks on specific route
- number of small-business contracts executed in a specific region

These MOPs or outputs measure whether an OCS solution/activities is producing anything at all. This is not a clear measure of whether an activity is contributing to the mission objective. These outputs are raw numbers that provide an indication of performance but are not in a form to assess the effectiveness of the impact.

Once the baseline data and MOPs have been gathered, planners are able to assess the effectiveness of the OCS solution and provide data-driven decisions of whether to continue or terminate a specific OCS solution. The point of the MOE section is to address how relevant stakeholders know how effective the OCS solution is helping to achieve the desired end state. While it is important to know whether the OCS solution is being executed, it is more meaningful to understand how effective the OCS solutions are at achieving a commander's desired end state. The following could be examples of MOEs:

- percentage change in IEDs found on target route compared to base data
- percentage decrease in idle time of selected demographic compared to base
- percentage decrease in military force killed/injured by IEDs on given route
- percentage increase in small-business creation from previous year

The MOE or outcome portion of the result chain is able to translate raw data into insightful information about the outputs' effects on LOEs/commander's intent.

The function of the Overall Impact Analysis section is to address how relevant stakeholders will know what impact the OCS solution has on the overall environment. Commanders have short- and long-term objectives, but typically the short-term objective requires the most immediate action and attention. Thus, many of the decisions made have a short-term focus.

A good example is the employment of military-age males for COIN objectives. One of the main objectives of this employment strategy is to keep the local military-age males busy and reduce their idle time and susceptibility to extremist recruitment. This is a short-term objective that is achieved through OCS tasks like contracts executed for the employment of the local population. This employment solution has short-term impacts that the MOPs indicate are being executed and the MOEs indicate are effective relative to its baseline. However, the increase of employment under government contracts may have resulted in reduced employment of the traditional economic driver sectors in the region. This OCS solution has achieved a short-term economic/military objective, but the overall impact on the economy and local population will likely turn negative once the military pulls out of the region.

The overall impact analysis seeks to address how the OCS solution impacts the contingency outside of the LOEs and other commander-desired end states. Final outcomes are able to objectively measure whether the proposed OCS solution has had the intended effect on the LOE/commander's intent. This needs to be carefully manifested as to not create an embedded bias or disregard unintended consequences.

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IV. APPLICATION OF OCS IMPACT EVALUATION TOOL

A. APPLICATION OF OCS IMPACT EVALUATION TOOL ON HA/DR CONTINGENCY

Hurricane Tabitha is a Category 5 hurricane that is set to make landfall in the Gulf Coast area, specifically, New Orleans, in approximately 48 hours. You are recommended as an expert in the field of OCS and are attached to United States Northern Command. You are assigned OPLAN 2017-02, the plan for hurricanes striking the Gulf Coast and are asked to review the plan for sufficient incorporation of OCS principles. The hurricane is a declared a contingency and FEMA and other federal agencies are calling for DOD assistance. Figure 14 indicates the projected damage assessment for the state of Louisiana and acts as a starting point for contingency response planning.

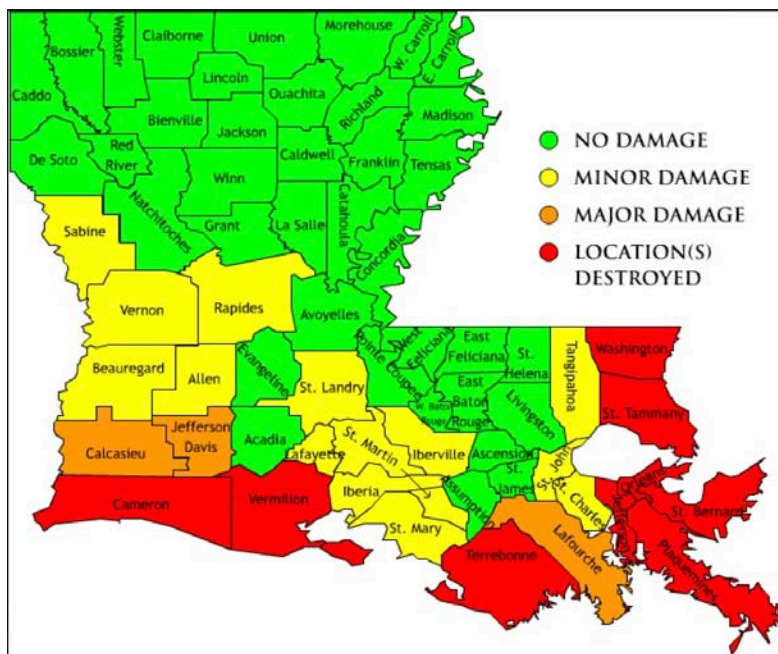


Figure 14. Projected Damage of Hurricane. Source: State Library of Louisiana (2016).

1. Planning

The OCS Impact Evaluation Tool begins with the planning phase, consisting of a statement of the commander's lines of effort (end state), the commander's intents for a given area, and the execution of a PMESII-PT analysis on the operational environment. These components serve as inputs into the execution phase of the OCS Impact Evaluation Tool.

a. *LOE and Commander's Intent*

The planner assesses the big picture and determines the overarching strategy for a given contingency. In this case, the LOE is to "respond efficiently to maximize preservation of life, infrastructure and capital." More specifically, the commander's intent is to preserve life and thus "ensure all non-essential personnel are evacuated before, during, and after the contingency." Another intent that is derived is to "maximize the promotion of economic growth to support infrastructure and capital recovery in the affected region." In Figure 15, the planner has developed the desired end state and the two intents that the commander must achieve in order to successfully fulfill the desired end state.

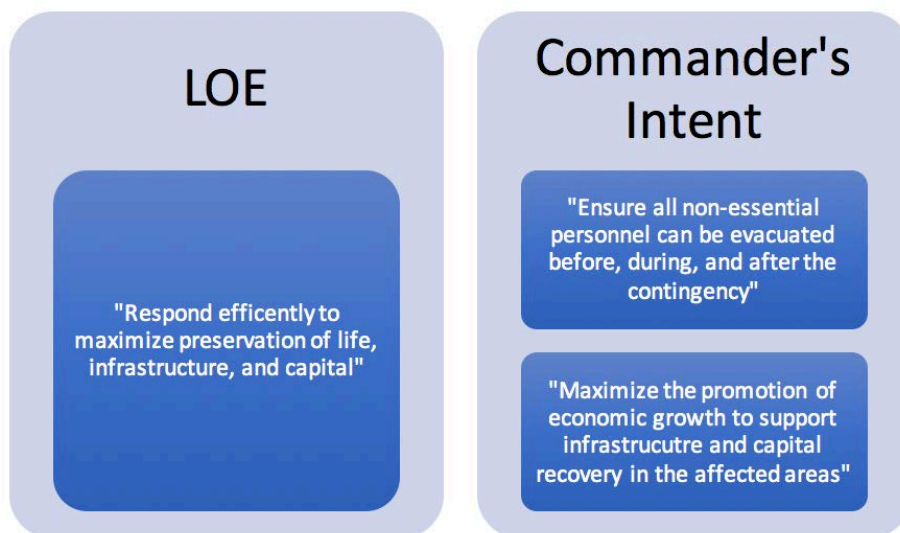


Figure 15. HA/DR Scenario LOE and Commander's Intent

b. PMESII-PT Analysis

The next step in the planning phase requires the planner to conduct a PMESII-PT analysis for the given contingency environment to better understand the various characteristics of the AOR. Figure 16 provides a brief analysis of the operational environment.

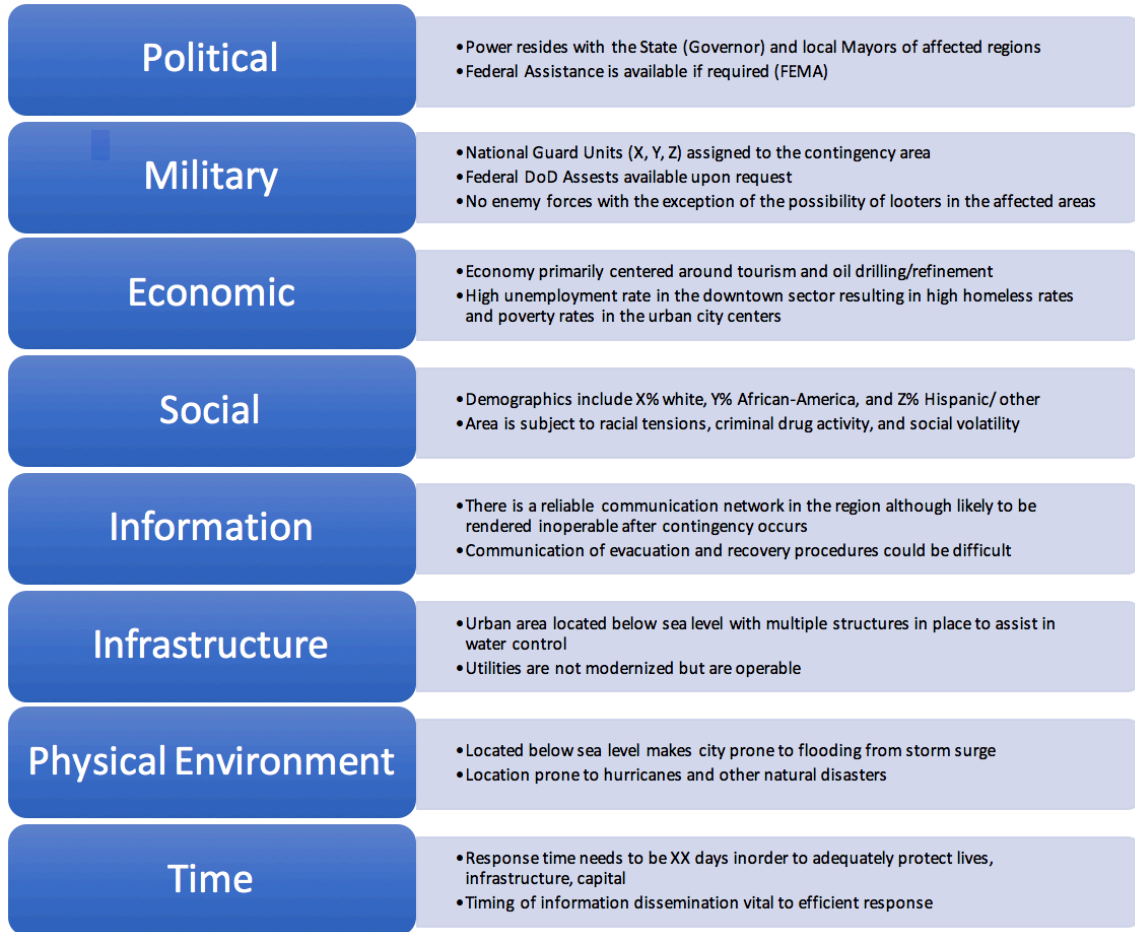


Figure 16. HA/DR Scenario PMESII-PT Analysis

c. Planning Inputs

From the planning phase accomplishments, we are able to understand our fiscal, time, and political capabilities and constraints. While the DOD is providing assistance, they are at the direction of the state and FEMA oversight. The physical environment is

understood, and areas that are under sea level are identified. The economic factors are understood and are considered when crafting OCS solutions so that the area is revitalized as quickly as possible. The socioeconomic status of much of the inner-city population is a concern because they may not have a means to exit the city prior to the storm's landfall. There are vast amounts of data on the population and the area, and the declaration of contingency improves the power of the inputs in terms of contracting capabilities and resources. Examples of input statistics are the number of commercial bus companies and lodging facilities in the various rings (devastation, threat, marginal, unaffected), the estimated number of citizens who require evacuation and lodging, and the budget for emergency funds to support disaster relief.

2. Execution

The execution phase begins with the selection of an OCS solution given the inputs acquired from the planning phase. The first OCS solution selected is the strategic application of lodging—focusing mainly on hotels—for displaced residents in order to more efficiently stabilize and rebuild the economic productivity of the region. The second specific OCS solution is the emergency evacuation of displaced residents in the impacted areas, with an emphasis on busing as the primary mode of transportation.

a. Lodging Selection for Response and Evacuation

Contracting within a certain location provides a significant improvement to a suddenly depressed economic region. Typically, there are areas of devastation where there are no operable business or hotels. This is the devastation ring. Outside the devastation ring are those areas that are affected by the contingency, but have not suffered the same degree of destruction and contain businesses and hotels that remain operational. For purposes of analysis, this is the threat ring. Lastly, there are the marginally affected and unaffected rings, which include all areas surrounding the threat ring that have had little to no damage or loss from the contingency. Regardless of the physical damage, all areas are affected economically by the contingency and thus the primary concern of responders cannot just be the physical response, but must also focus on the short- and long-term economic response and recovery of the region. In reference to

Figure 14 illustrating the affected regions, the red and orange areas refer to the devastation ring, the yellow is the threat ring, and the green are the marginally or unaffected rings. The following discussion represents the development of a specific task as it relates to the OCS Impact Evaluation Tool.

After choosing a specific task, contracting for hotel services, the planner assesses how that solution will impact the local area and link the solution back to a commander's intent. The government, as a part of its relief packages, provides vouchers for these hotel services that they have contracted. Matters to consider when looking at mass lodging requirements in a contingency environment include shortages of supply of hotels, prioritization of accommodations, and the ability of hotels to support internal operations throughout the contingency.

As stated previously, timing is critical in HA/DR environments. In this scenario, the OCS recommendation needs to be made immediately. The goal is to have the local population that does not have the means to pay for temporary accommodations be provided hotel vouchers as quickly as possible in order to stay to stay at reserved rooms at contracted hotels and to complete the movement prior to landfall.

The first priority-targeted populations are those who are unable to use their own means to pay for accommodations, including the homeless, elderly in nursing homes, or medically disabled. The secondary group of personnel are relief responders. This is important because this group of people will be able to provide relief in the form of physical support but also in terms of dollar spend in the area. They will be effectively increasing the cash flow to the hotels, the suppliers of the hotels, and the local area, which again supports economic regrowth.

This solution is accomplished through the execution of a multiple-award IDIQ contract vehicle or multiple blanket purchase agreements allowing as many businesses as possible to participate. Vouchers are provided to those who are unable to pay for their own accommodations. Risks are considered when vetting the participation of hotels. For instance, the hotels closest to the devastation ring provide the greatest economic return on investment; however, they come with the greatest level of risk, specifically, the risk of

the hotel being destroyed or otherwise unable to support the displaced citizens. This means that hotels may have the ability to put people in rooms, but they do not have electricity, sanitary water, food, or other basic life support that is of adequate contract standards. Contract terms and conditions govern whether a basic room is sufficient for participation in the program or if all basic life support functions are required.

As mentioned previously, the closer to the devastation ring, the better, but also the riskier. The threat ring provides the ideal opportunity for accommodations with proximity to the devastation ring. The goal is to create situations in which hotels are constantly at capacity in order to maximize funds spent in the region. Once hotels in the threat ring are at capacity, then it is time to expand to the marginally affected regions, and finally the unaffected regions. The mixture of relief personnel to displaced citizens is important. Placing relief responders who have the ability to spend relief dollars in the affected region closer to the affected region enhances the effectiveness of that responder. Placing a homeless member of the devastation ring in the closest hotel to the devastation ring meets the intent on safely housing the member, but it does not provide as much of a return on investment as the previous example of a relief responder.

Instead of busing displaced residents to far away government installations or building tent cities, the objective is to use the remaining local lodging facilities outside the devastation ring to spur economic activity and jumpstart economic recovery. This objective relates back to the commander's intent to "maximize the promotion of economic growth to support infrastructure and capital recovery in the affected region." The government has the organic capability to house displaced personnel whether in brick and mortar government installations or in constructed tent cities. However, "other than cost" factors need to be addressed. Some of these factors include response time, supportability, and ability to promote economic growth in the region. Although remote, external tent cities or government installations might be more sustainable in the short term due to access to resources and an unaffected supplier base, they do not provide as effective economic stimulation to the affected region. The dollars spent will go to businesses that have been marginally or unaffected by the devastation rather than the

businesses that have been significantly impacted, and thus will not have the economic impact desired on the affected region that is consistent with the commander's intent.

b. Emergency Evacuation of Displaced Residents

Lessons learned from previous disaster relief contingency operations indicate the need for improved planning for primary contingency evacuation routes, methods, and timelines. For purposes of analysis, busing for evacuation is considered the primary method of evacuation. For many planners, tasks like transportation of displaced residents are covered by an organic capability of the federal, state, or municipal governmental organization that may be heading the operation. OCS may not have been involved in the planning process. This results in inadequate preparation for the requirement of additional transportation. Just because an organic capability exists does not mean it will be the best alternative to achieving the desired end state for a given AOR. Thus, regardless of whether an organic capability exists, the OCS solutions must be, at the very least, thought through in case the organic capability is no longer operational or able to meet necessary timelines.

After choosing a specific task, contracting for bus services, the planner assesses how that solution will impact the local area and link the solution back to a commander's intent. By focusing on one variable, the analysis can become more streamlined and controlled in an often-chaotic environment. Matters to consider when looking at mass transportation are congestion of the evacuation routes, gas shortages, and excess demand for busses.

Timing is especially important in a HA/DR environment. The OCS recommendation needs to be made immediately in this case to allow those responsible for execution the ability to choose between their organic capabilities or the OCS solution, or some combination of the two. In addition, it takes time for either the organic capability to mobilize or for contractors to position their assets. The evacuations need to occur prior to landfall of the hurricane and after the all-clear has been signaled. These buses are used as much as possible for as long as possible after a hurricane to continue providing productive cash flow to local business entities.

There are many options for contracting for bus transportation; however, the funds used for buses would have the most significant impact if used to contract with local tourism, school, and other business entities that have buses within the threat ring. This directly impacts, in a positive way, stimulation of the economy in a region that is negatively impacted economically after the hurricane.

The primary contract vehicle is a multiple-award IDIQ contract. This provides the government with flexibility to surge requirements if necessary, but more importantly, allows for increased participation by more business entities, thus promoting economic growth. Other considerations include how to increase the effectiveness of the contractors in terms of helping them succeed in a contingency environment. For example, can we guarantee contractors consistent access to gasoline? Furthermore, can we procure gasoline from companies within the threat ring prior to landfall of the hurricane to provide to contractors? Just because a contractor can provide a bus does not mean they can support the operation of a bus in a resource-constrained contingency environment.

As already mentioned, the contract vehicle is a multiple-award IDIQ, which provides the flexibility to contract where the most impact could be felt. The threat ring provides the most significant impact to the local community. This area is significantly affected but not damaged as much as those businesses in the devastation ring. Contracting within the devastation ring is preferred but carries much more risk because the businesses there are not guaranteed to make it through the storm. Contracting within the threat ring allows the cash to flow back into the devastation ring quicker than it would if contracted in the marginally affected, unaffected, or even remote external contractors or organic options.

The objective section relates how this OCS solution helps achieve the commander's intent, thus the LOE. In this respect, the objective of this contract is to "ensure all non-essential personnel can be evacuated before, during, and after the contingency" with a secondary objective to effectively execute funds in areas that promote quicker economic regrowth. What is important to note is that the military has an organic capability of buses, Humvees, trucks, and so forth. However, having an organic solution available does not alleviate the planner of the responsibility to consider the OCS

solution. Planners evaluate cost when choosing organic capability over contracted solutions but must also evaluate other factors such as response time, bandwidth, and increased cash flow to the economy. The OCS solution may be more expensive in the short run but is an option that will bring long-term strategic value. If this long-run benefit is demonstrated and validated, it is easier to justify the heightened short-term cost. Lastly, while the ideal solution is to contract all funds through the affected regions, that is simply not feasible. Thus, planners must consider some responsible mixture of contracting within the affected region and contracting externally.

3. Measurement

Measurement of the OCS solution is vital to assessing the effectiveness that the proposed solution has on the mission objectives and enabling decision makers to continue or deviate from that solution. In this section of the OCS Impact Analysis Tool, we provide a brief discussion of the measurement considerations for the selected OCS solutions discussed previously.

a. Lodging (Hotels)

The steps taken during the input stages determine whether there was adequate baseline data to begin the assessment. Larger nearby cities outside the devastation ring are analyzed for potential use of their lodging facilities. Data points such as number of potential hotels, average rates per night, and their maximum occupancy rates are some of the inputs that make up the baseline data.

The MOP is a raw number data point that tells us about the output of the solution or task. This information is insightful but mostly tells us whether or not the solution or task is producing anything at all. Examples of MOPs are

- number of hotel rooms filled
- number of citizens lodged
- number of dollars spent on lodging program

For this OCS task, our MOP/Output is the number of hotel rooms filled with evacuated personnel. For the purpose of this scenario, we estimate 8,500 personnel received hotel rooms. This data point is not insightful because it provides no context to how many people attempted to get a room or needed a room. However, it is a good starting point.

We now incorporate the base line data to demonstrate the impact this output had on the targeted population through the use of MOEs. Some examples of MOEs are

- percentage of evacuated citizens lodged
- percentage of vacant hotel rooms filled
- percentage of relief dollars spent in hotel sector

For this OCS solution, we focus on the MOE of percentage of evacuated citizens lodged. We estimate that 10,000 people require evacuation and need lodging for 3–4 days until the storm passed. The OCS solution is to find local lodging facilities and provide vouchers to the evacuated personnel to stay there. With 8,500 personnel being lodged, we have an effectiveness rate of 85%. This information lets us see the impact of our policy and quantify how successful we were at lodging the displaced residents. From this data, we understand that organic solutions need to augment the available OCS solution in order to achieve closer to the 100% solution.

The final step in the measurement process is to assess how the increased rate of lodged citizens affects or will affect the overall sight picture. Were all the personnel that used the hotels actual in need of them? After the storm, were these hotels that were contracted able to rebuild their infrastructure better than those who did not? Here we can analyze intended and unintended consequences and help planners assess the second- and third-order effects of OCS solutions. Was placing relief workers in hotels closer to the impact more beneficial for economic recovery? How effective was this solution at shortening the recovery timeline? Here, we assess whether the outcome matches the commander's intent by an established causal relationship and identify the other outcomes the program or solution may have. We are able to demonstrate the effect on the threat

ring lodging facilities and the ability to jumpstart their economic recovery from the use of the local businesses.

b. Transportation (Busing)

The steps taken during the input stages determine whether there was adequate baseline data collected. These data points are the number of bus companies who are eligible to participate, the number of people eligible to be evacuated, the economic indicators like amount of dollars going into certain industries prior to the hurricane, or number of people employed by those industries.

Next, we establish the MOPs. The MOP is a raw number data point that tells us about the output of the solution or task. This information is insightful but mostly tells us whether or not the solution or task is producing anything at all. The following are examples of MOPs:

- How many buses were contracted?
- How many different companies provided buses?
- How many people were evacuated by these buses?

Our specific MOP for this OCS solution is “how many busses were contracted for?” The result of the OCS solution is the provision of 30 buses.

Next, we establish MOEs and assess the effectiveness of the implemented OCS solution. Some possible MOEs are

- percentage of evacuated citizens
- percentage of relief dollars spent on affected busing companies
- percentage of organic transportation returned to the commander

For this scenario, the MOE is the percentage of evacuated citizens. We estimate given the baseline data that 10,000 people require evacuation assistance. The MOP is 30 buses, which were contracted out with a capacity of 25 seats per bus. Thus, if these

busses are able to complete 10 trips, we are able to evacuate 7,500/10,000, or 75% of the personnel. This is consistent with the commander's intent. However, from this data, a course of action change is required to meet the goal of all 10,000 personnel evacuated. Thus, either organic capabilities need to be implemented, or more busses need to be contracted to meet the overall desired end state.

Lastly, the overall impact measures the effect that the increased evacuation rate has on the larger picture outcomes. Were all the personnel evacuated in a timely manner? After the storm, were these businesses that were contracted with for buses able to rebuild their infrastructure better than those who did not? Here we can analyze intended and unintended consequences and help planners see the second- and third-order effects of the OCS solution. Did the successful evacuation of American citizens strengthen public support and instruments of national power? Was the area that was targeted for relief funding able to infuse money into the devastation ring faster than marginal or unaffected areas? We assess whether the outcome matches the commander's intent by an established causal relationship and identify the other outcomes the program or solution may have.

B. APPLICATION OF OCS IMPACT EVALUATION TOOL ON TRADITIONAL MILITARY CONFLICT

The Pacific Command (PACOM) OCSIC personnel have received word that new operations are going to commence in the Zamundan¹ Peninsula (Belzberg & Landis, 1988) in order to support allied interests against a sudden movement of North Zamundan Forces against South Zamunda, a United Nations (UN) ally. The Joint Task Force (JTF) is contemplating multiple solutions to evacuate non-essential personnel from major cities like Zeoul, while trying to decide how best to get his troops and cargo North to meet the advancing threat. In addition, the North Zamundan indigenous population presents a unique threat to the JTF commander. Years of relative isolation from the global environment has created uncertainty in the motives and incentives of the local population. As such, the JTF is wondering what some possible OCS recommendations for the region might be, and how they could help the commander achieve his desired end state in the

¹ Zamunda is a fictional country from the motion picture *Coming to America*

region. The commander has asked to be briefed on two possible contracted solutions that he could have in his arsenal of options.

1. Planning

The OCS Impact Evaluation Tool begins with the planning phase, consisting of a statement of the commander's line of effort (end state), a statement of the commander's intent for a given scenario, and the execution of a PMESII-PT analysis of the operational environment. These serve as inputs into the Impact Evaluation portion of the OCS Impact Evaluation Tool.

a. LOE and Commander's Intent

The planners assess the big picture and determine the overarching strategy for a given contingency. In this case, the line of effort is to “respond efficiently to maximize preservation of life and create stable and secure region.” More specifically, a portion of the commander's intent is to preserve life and thus “ensure all non-essential personnel can be evacuated before North Zamundan aggression can impact the local population.” Another intent is to “maximize the likelihood of a non-insurgent region.” The planner has now developed the desired end state, along with two intents that the commander must achieve in order to successfully fulfill the desired end state (see Figure 17).

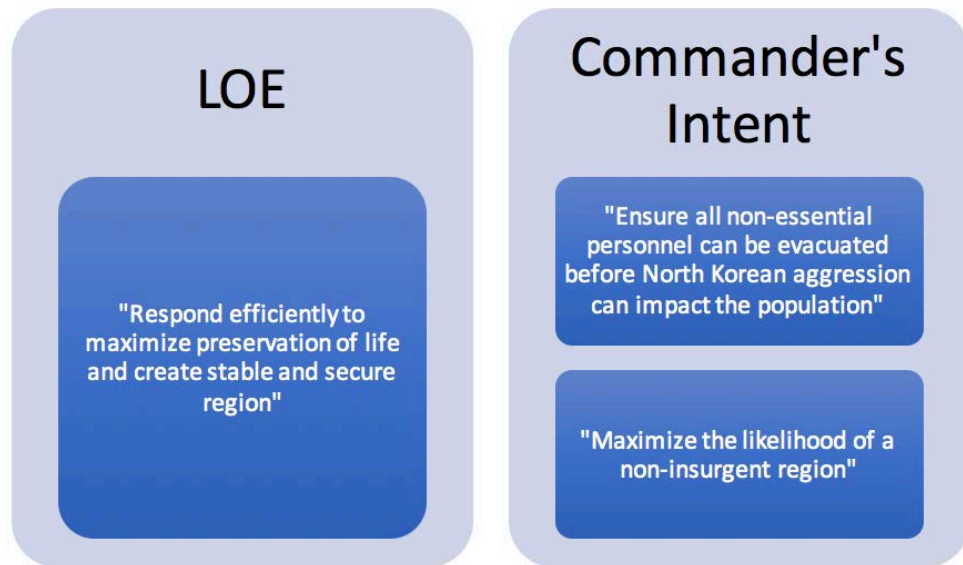


Figure 17. Traditional Military Conflict Scenario LOE and Commander's Intent

b. PMESII-PT Analysis

The planner now conducts a PMESII-PT analysis for the given contingency environment to better understand the various characteristics of the AOR. The Figure 18 provides a brief analysis of the operational environment.

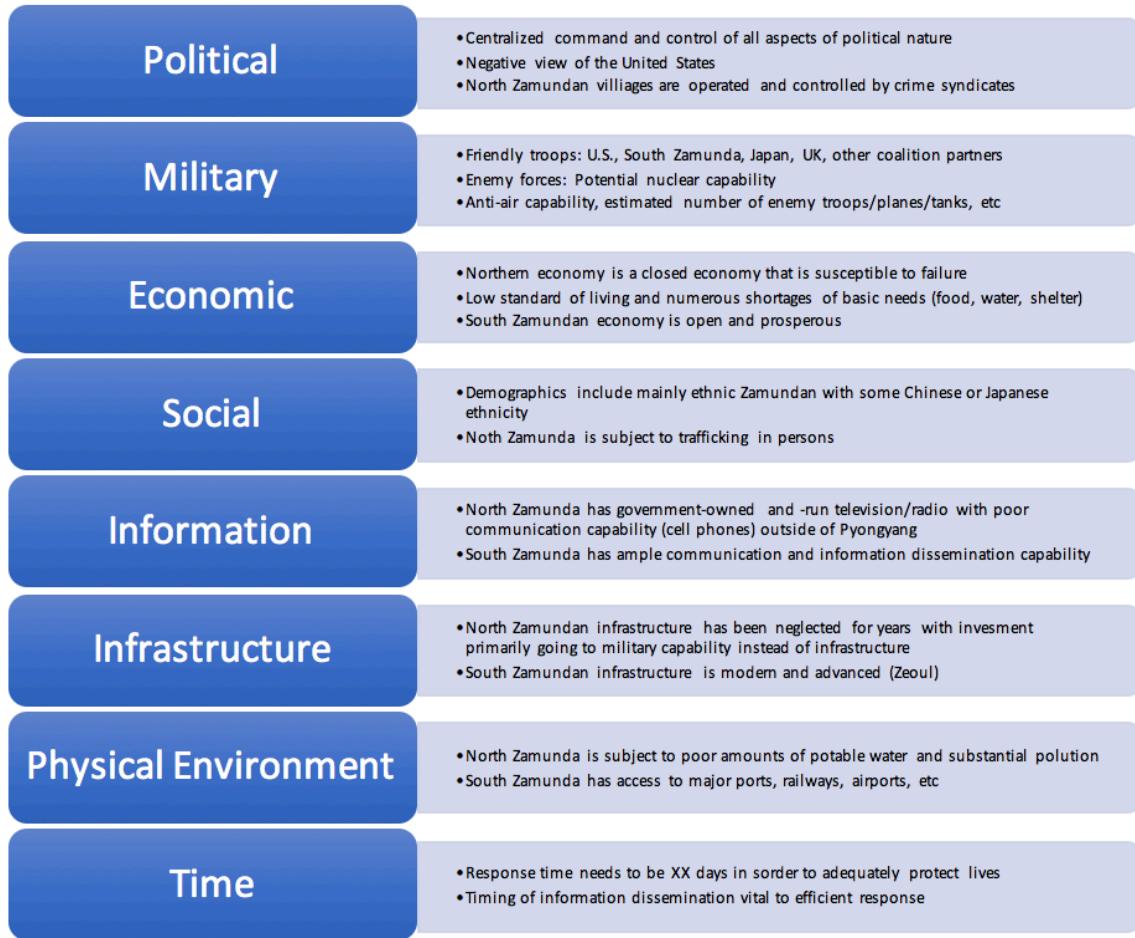


Figure 18. Traditional Military Conflict Scenario PMESII-PT Analysis

c. Planning Inputs

From the planning phase accomplishments, we understand our fiscal, time and political capabilities and constraints. The economic factors are understood and are considered when crafting OCS solutions to maximize their effectiveness. The distance between North Zamunda and Zeoul is of great concern. Time is a major factor to consider in the evacuation of noncombatants. While the South Zamundans in Zeoul may possess the resources to evacuation, the sheer number of individuals evacuating at the same time will cause mass congestion. In addition, South Zamundan and U.S. forces will subsequently be unable to advance North due to the road congestion. The socioeconomic status of much of the North Zamundan population is a concern because they may not have the ability to access information and resources, or be able to form self-sustaining

villages post occupation of U.S./South Zamunda forces. There are vast amounts of data for the South Zamundan population and economy, but equally lacking data on the population and true economic status of North Zamunda. This will improve the power of the inputs in terms of contracting capabilities and resources able to be provided in the evacuation efforts in South Zamundan, while acting as a detriment to the employment opportunities executed in North Zamunda.

Examples of input statistics for the evacuation portion of this analysis are the number of commercial plane companies in the region, number of aircraft, amount of fuel availability, estimated number of citizens who will require evacuation, number of airports in the region, and round-trip time of the commercial aircraft from Zeoul to a designated safe area. Examples of input statistics for the employment portion of this analysis are the number of businesses in the village region, the number of unemployed workers, and the average wage of the worker.

2. Execution

The planner begins by selecting an OCS solution given the inputs from the planning phase. The first OCS solution is a contracted solution for a Non-Combatant Evacuation Operations (NEO) Plan within the impacted areas, with an emphasis on the strategic application of employment, focusing on the development of a Department of Transportation in North Zamunda to help displaced residents more efficiently stabilize and rebuild the economic productivity of the region as well as to deter the onset of insurgent behavior.

a. OCS NEO Plan

OCS is not just a gap filler or support function but is an important option for delivering the commander's desired effect. As such, a contracted solution provides the commander the ability to achieve the same end state using a contracted solution as they could with organic force deployment. The OCS solution recommends contracting for commercial transportation, specifically focusing on airlines, in order to replace or significantly augment the use of organic aircraft assigned to evacuation missions. The airlines operate out of Zeoul, South Zamunda, and an assumption exists that the various

Zamundan and regional airlines will agree to assume the risk of flying in potentially hostile environments. For purposes of this analysis, airlines are the primary mode of transportation.

After choosing a specific task, contracting for airline services, the planner assesses how that solution will impact the local area and link the solution back to a commander's intent. By focusing on one variable, the analysis can become more streamlined and better controlled in an often-chaotic environment. Matters to consider when looking at mass transportation are congestion of the evacuation routes, speed of transportation versus cost, and excess demand for airlines.

The recommendation is made, immediately in this case, to allow those responsible for execution the ability to choose between their organic capabilities or the OCS solution, or some combination of the two. In addition, it takes time for either organic capability to mobilize or for contractors to position their assets. The evacuations need to occur prior to aggression from North Zamunda. As previously stated, the proximity of North Zamunda allows for near instantaneous artillery strikes against Zeoul.

There are many options for contracting for air transportation; however, the funds used to contract with local airlines and airlines with direct economic ties to Zeoul and other Northern-based airlines would have the most significant impact on the region. These contracts would directly impact, in a positive way, stimulation of the economy in a region that is negatively impacted economically after Northern aggression is displayed. Other stakeholders, including the organic airline community, are addressed to see what implications things like increased air traffic or runway congestion have on military operations.

The primary contract vehicle is a multiple-award IDIQ contract. This provides the government with flexibility to surge requirements if necessary, but more importantly, allows for increased participation by more business entities, thus promoting economic growth. Other considerations are how to increase the effectiveness of the contractors in terms of helping them succeed in a contingency environment. Just because a contractor can provide air transportation doesn't mean they can support the operation of a plane in a

resource-constrained contingency environment. Will they have enough gasoline? Will their maintenance personnel remain behind to provide service?

As stated previously, the contract vehicle is a multiple-award IDIQ, which provides the flexibility to contract where the most impact could be felt. The Zeoul region provides the most significant impact to the local economy and since it is such a large economic driver, to the rest of the country as well. This area is significantly affected by Northern aggression due to the proximity of Zeoul to the North. Contracting airlines to operate in Zeoul for evacuations is preferred since the majority of the populace unable to evacuate would be located in the urban Zeoul environment. However, the assumption is made that the airlines would fly in hostile environments. While the South and the United States would likely maintain air superiority, there will be other risks like artillery attacks that may cause the contracted airline to back out of its contract.

The objective is consistent with how this OCS solution will help achieve the commander's intent and thus the LOE. In this respect, the objective of this contract is to "ensure all non-essential personnel can be evacuated before North Zamundan aggression can impact the population," with a secondary objective to effectively execute funds in areas that will promote quicker economic regrowth. What is important to note is that the military has an organic capability of aircraft, buses, and trucks that are likely earmarked for the NEO plan. We have already thought about the discussion between organic and inorganic capability and the trade-off between the two. The objective of this OCS solution isn't necessarily to be faster or to increase the rate of evacuations, but to return capacity to the military. While cost may be the primary factor for choosing the organic capability over contracted solutions, cost may pale in comparison to gaining additional military airlift or truck capacity. In addition, contracting out aircraft assists in alleviating some of the road congestion, thus increasing the rate of travel for military assets from the South to North. The OCS solution may be more expensive in the short run but is an option that will bring long-term strategic value in terms of increased troops and equipment to halt advancing Northern troops. If this long-run benefit is demonstrated and validated, it is easier to justify the heightened short-term cost. Lastly, while the ideal solution is to contract all funds through the affected regions, that is simply not feasible.

Thus, planners must consider some responsible mixture of contracting within the affected region and contracting externally.

b. Employment of Military-Age Males

OIF is an example of the substantial risk associated with disbanding an indigenous military without properly providing alternative employment opportunities. In addition, not understanding the local norms, customs, culture, economy, and incentive structures results in negative impacts and the creation of insurgent populations. Regardless of how it occurs, war creates a pool of excess indigenous labor that is motivated and incentivized to provide for their families. Thus, in the absence of legitimate employment opportunities, these members become susceptible to recruitment by various extremist groups in need of increased military capability and capacity. The assumption is that the North Zamundans will eventually adopt tactics similar to those presented in Iraq and Afghanistan, using insurgency to protract the conflict and erode the allied public support. The goal of this OCS solution is to provide alternative forms of employment that meet a military mission objective while also contributing to positive and sustainable economic growth in the targeted region. For purposes of this analysis, the creation of a Department of Transportation is the focus of job employment.

After choosing a specific task, contracting for Department of Transportation services, the planner assesses how that solution will impact the local area and link that solution back to a commander's intent. The goal is to hire a contractor from an affected region like Zeoul, and require them to hire labor from the local North Zamundan villages to create and maintain traversable roads that allow for free movement of transportation. Matters to consider when looking at transportation employment requirements in a contingency environment are possible shortage of supply of skilled workers, shortage of expertise, and lack of resources to implement transportation improvements.

Timing the execution of this OCS solution is coordinated with various stakeholders. However, prior to military victory, a contract is executed with a contractor in Zeoul for the creation and execution of a Department of Transportation-like service.

Once a major military victory is achieved, or once the level of risk is suitable for contracted personnel, the hired contractor begins operations and reconstruction.

There are stakeholders from multiple agencies, including the DOD and DOS. In addition, there are two targeted groups in this analysis: the contractor and the laborer. The contractor is hired from a region that has been affected by this conflict. This provides an economic return and stimulates growth. A requirement in the contract states that the contractor shall use local village labor capacity when it exists. Thus, the second targeted group is that of military-age men in the Northern villages. This group is the most susceptible group to insurgent North Zamundan or incoming extremist group propaganda and recruitment for insurgency. If employed, paid, and able to take care of their families, however, the likelihood of recruitment decreases. The military-age male is also, typically, the most capable of performing military action in an insurgent state.

This solution is accomplished through the execution of a single-award IDIQ contract vehicle allowing for a prime contractor to manage task orders for each of the various villages. The contract is for street repair, maintenance, construction, and other various requirements for the successful implementation of a transportation network. The task orders can be regionally based or on a “by-village” basis. Some risk associated with this solution is the lack of construction expertise or resources of the target demographic. Traditionally, North Zamundan infrastructure lacks any significant investment and maintains a poor infrastructure with even less expertise. Finding the expertise to assist local village military-aged men is a prime contractor responsibility and vital to the success of the solution. Provisions in the contract could allow for a mentor type program to be put in place such that the North Zamundan companies that form as a result of the work being done can eventually take over the contract, providing sustainable jobs for the local populace. This decreases reliance of North Zamunda on U.S. contracts and allows for an easier exit of U.S. troops from the region.

The prime contractor implements a focused approach on transportation networks. The transportation system focuses first on transportation routes linking the South to the North and along vital supply lines. Once major combat has concluded, transportation within major cities is the primary focus followed by the development of a highway

system to connect them. Starting the transportation creation and maintenance in the larger cities, where most businesses are likely to reside, provides a larger economic impact to the region than starting off in remote villages where the economic activity is much more isolated, if present at all.

This objective relates back to the commander's intent to "maximize the likelihood of a non-insurgent region." However, this OCS solution really has many more objectives than promoting counterinsurgency. Economic growth in both South and North Zamunda are vital to increasing the stability in the region and creating an increased likelihood for long-term security in the region. The objective is to decrease the susceptibility of military-age males to recruitment for insurgent purposes. Keeping them employed, understanding what motivates them, and creating jobs that are sustainable are the first steps to achieving that goal. The military learned from OEF and OIF that creating jobs for the local population does allow for decreased susceptibility for recruitment of military-age men by extremist groups. The employment met the military objective of decreasing their idle time and it was done through employment. However, we also learned that when the U.S. military left those regions, so did the jobs, and the unemployment spiked, and the number of susceptible recruits skyrocketed. By looking at the sustainability of this solution, we can see that not only is there work to be done at the tactical level (i.e., road construction), but there is a sustainable future of work with the development of a highway system and maintenance of roads for years to come. This provides for a short-term military objective to be met while troops are on the ground, and for long-term economic and stability objectives to be met long after the U.S. troops have left.

3. Measurement

The measurement of OCS solution is about assessing the effectiveness of the proposed solution on the mission objectives and enabling decision makers to continue or deviate from that solution. The following measurement section of the OCS Impact Analysis Tool provides a brief discussion of the measurement considerations for the selected OCS solutions.

a. NEO Plan

The steps taken during the input stages determine whether there was adequate baseline data. Some questions to consider when collecting baseline data include the following: How many personnel require evacuation? How quickly should these personnel be evacuated? How can we maximize the most number of people evacuated as quickly as possible? What mix of commercial and military aircraft will be required to adequately evacuate all personnel? Collecting or establishing this baseline data is best performed by a team of economists or a certified evaluation team. Currently, this is not a function that can be adequately accomplished by a military entity. In this scenario, we establish baseline data that states 52 aircraft will be utilized for evacuation assistance. The OCS solution is to contract with local and regional airline companies.

The MOP/outputs for this scenario are raw data numbers and are not descriptive of the impact of the proposed OCS solutions on the mission. This scenario focuses on the MOP of number of personnel that were evacuated. The following are some possible alternative examples of MOPs:

- How many commercial airlines were utilized?
- How many personnel were evacuated?
- What were the timelines of the evacuations?

The next step is to assess the effectiveness of the OCS solution through the use of MOEs. The MOEs measure whether the OCS solution was effective for its intended purpose. Some example MOEs for this scenario are

- percentage of airlift returned to commander
- percentage of cargo space returned to commander
- percentage of flight time returned to commander

This scenario focuses on the percent of airlift returned to commanders. In this scenario, we were able to contract with four separate airline companies for 38 aircraft for

a 73% effectiveness rating. Thus, 73% of the planned organic capability is effectively returned to the commander for alternate missions. To drive the impact home, the commander now has an increase of 73% aircraft capacity to move troops, gear, and equipment North to halt North Zamundan aggression faster and with increased force.

The overall impact/final outcome measures the returned airlift percentage against the larger picture outcomes of the commander's objectives. Were all the personnel evacuated in a timely manner? Were commercial contracts effectively utilized to free up military aircraft for military operations? Here we can analyze intended and unintended consequences and help planners see the second- and third-order effects of OCS solutions. What was the percentage increase in troops or equipment that was able to be advanced North due to the increased capacity? What effect did that have on the length of the conflict? Planners assess whether the outcome matches the commander's intent by an established causal relationship and identify what other outcomes the program or solution may have.

b. Employment of Military-Age Males

The steps taken during the input stages determine whether there was adequate baseline data collected. Data points such as number of military-age males, amount of existing infrastructure and the current state of that infrastructure, and the current level of technical expertise of the target population make up the inputs for this scenario. We estimate 5,000 military-age males would be eligible for this program.

The MOP/outputs for this scenario are raw data numbers and are not descriptive of the impact of the proposed OCS solutions on the mission. Some possible examples of MOPs are

- number of military-age males receiving employment
- number of roads constructed/repaired
- number of insurgent actions against friendly troops

For this scenario, we focus on the number of military-age men employed as the specific MOP. This number itself provides a data point to show whether or not the employment function has occurred. In order to see how effective the OCS solution is, planners now develop MOEs. The development of MOEs to measure the impact of this solution is vital to understanding whether the OCS solution is having the intended impact on the desired end state. In this scenario, possible MOEs are

- percentage change in insurgent actions
- percentage change in military-age men responsible for insurgent actions
- percentage increase in transportation sector of North Zamundan economy

We focus on the MOE of percentage change in military-age men responsible for insurgent attacks for this scenario. If we were able to contract with 3,800 of these males, the result is a 76% effectiveness rating. Depending on the collection of data, we could infer that the 76% increase in employment of that target demographic had a positive economic impact and decrease in insurgent activity for that particular demographic.

The overall impact analyzes where the decrease in insurgent activity is assessed against the larger picture outcomes. How does this affect the post-war terrorism recruitment levels? What would have happened if this program were not executed? What is happening with the military-age males who we were not able to employ? Here we can analyze intended and unintended consequences and help planners see the second- and third-order effects of OCS solutions. Were the jobs created in the transportation industry sustainable? Was the pay provided enough to deter recruitment? Was the OCS solution effective in reducing reconstruction or stability operations? Planners assess whether the outcome matches the commander's intent by an established causal relationship and identify the other outcomes the program or solution may have.

V. SUMMARY, CONCLUSION, AND AREAS FOR FURTHER RESEARCH

This chapter provides a brief summary of Chapter II, Chapter III, and Chapter IV. In addition, we provide a conclusion in this chapter that contains recommendations derived over the course of this research. Lastly, we suggest areas for future or more in-depth research.

A. SUMMARY

In Chapter II, we discuss the various elements of OCS and impact evaluations and dive into the literature that focuses on these subjects. The chapter begins with a technical discussion of OCS, and then moves to the evolution of OCS through the years. The focus turns next to the economic impact analysis and the collection and dissemination of data.

In Chapter III, we discuss the methodology that planners should take when addressing the planning, execution, and measurement of contingencies. Chapter III introduces the OCS Impact Analysis Tool and briefly describes the components of that tool.

Chapter IV provides the analysis of the hypothetical contingency through the use of the OCS Impact Evaluation Tool. The chapter begins with an assessment of the various components of the planning process, including the LOE and commander's intent identification and the PMESII-PT analysis for the operational environment. Next, planners identify, develop, and link two specific OCS solutions back to a specific commander's intent. Lastly, the OCS solutions are measured through the application of MOPs, MOE, and an overall impact analysis.

B. CONCLUSION

In this paper, we present a brief synopsis of OCS and Economic Impact Evaluations. We develop the OCS Impact Evaluation Tool and provide a hypothetical scenario for application of the tool. Our analysis has led to three recommendations.

This project represents an attempt to develop a more structured approach, not just to planning for OCS or performing impact evaluations, but to assist planners in better integrating OCS into plans of all level of detail. Annex Ws serve commanders better if OCS is not only integrated into the plan, but if OCS solutions are also linked back to a commander's desired end state. While not everyone understands the contracting process or the value of OCS, being able to link solutions to end states provides a common sight picture for commanders to understand. Being able to plan for, develop solutions for, and then measure the impact of, a specific OCS solution provides planners and commanders with data to make data-informed decisions in order to achieve a desired end state.

Recommendation 1: Disseminate the OCS Impact Evaluation Tool to OCSIC planners to gain feedback to better help planners link OCS solutions to a commander's desired end state.

An organic capability means that the military has the resources to perform a task, while an inorganic capability means the military does not possess the ability to perform a task and thus must outsource or contract for the task. It is important to note that just because an organic solution exists does not mean it is the best value alternative. Conversely, just because a contracted solution may result in nearly immediate results does not mean the cost associated with it is palatable. Understanding how those trade-offs affect the mission outcome is essential when making the organic versus inorganic solution decision.

Recommendation 2: Create/enforce a policy that mandates OCS planning regardless of the existence of an organic capability.

Lastly, we developed a tool that integrated impact evaluation and OCS as a way to assist planners in demonstrating the impact that OCS can have in the planning process and show the effectiveness of OCS solutions through the use of MOPs, MOEs, and Economic Impact Evaluations. Although developing a list of MOPs and MOEs might be helpful as a starting point for planners, the more value-added function is to gain a better understanding of the baseline data, the collection of the data, and the meaning behind the data. In addition, the Impact Evaluation process is complicated, complex, and difficult to

complete, even in a controlled environment. The fog and friction of war does nothing to help ease the difficulty of this process.

Recommendation 3: Put trained economists with regional and subject matter expertise on OCSIC planning staffs to assist in OCS planning, execution, and measurement in order to develop value-added impact evaluations for data-driven decision making.

C. AREAS FOR FURTHER RESEARCH

There are multiple approaches we could have taken for this research and we had many questions arise during our research. We present the following potential areas for further research in the remainder of this section.

First, we recommend further research and an in-depth analysis of how well the DOD teaches, learns, and understands OCS with specific consideration given to active duty and National Guard components—and additionally, for active duty personnel, an analysis of the levels of understanding at various Professional Military Education stages. Having the junior level officers really understand and promote the principles of OCS builds a foundation for tomorrow’s leaders to build upon.

A second area for potential further research is the additional development of the OCS Impact Evaluation Tool to categorize contingencies and enable planners to assess a standardized first-tier response matrix in Annex Ws. Different types of contingencies call for different assets and varying utilization of those assets. While no two Annex Ws are the same, there could be templates created for each of the specific type of contingencies as starting points for planners.

A third and final area for further research is to look at other federal agencies’ planning processes and identify the best practices from those plans. USAID, FEMA, and the Department of State all take part, in some fashion, in contingency operations. The DOD can use their lessons learned and implement some of their impact evaluation practices into its planning processes.

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