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Management Analysis of Civil-Military Construction in Iraq and Afghanistan

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Topics

Approaches and Organizations
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Abstract

Top military leadership has identified problems with the timeliness and effectiveness of DoD contingency construction support in Iraq and Afghanistan. This paper provides justification on how and why the system is inefficient and analyzes the current process map from a multitude of perspectives. Interviews were conducted with personnel that experienced the construction process within the Iraq and Afghanistan Theater of operation. These personnel included Commanders, Engineers, Lawyers, Acquisition Attorneys, Staff Officers and Program Managers.

The analysis shows that Contingency Construction Authority (CCA) is technically meeting its intent for projects programmed through CCA, but not for large-scale infrastructure that have circumvented the CCA process. Additionally, the CCA process is not meeting the expectation of the war fighters. Furthermore, because it is not meeting the war fighter's expectation the system is being manipulated in order to, "accomplish the mission" which is creating unintended adverse consequences with regard to cost, health, safety, force protection, Anti-Deficiency Act violations, mission support and safety. This research clarifies the contingency construction process and provides a foundation for future research to address the problem.

Introduction

"Decision cycles for contingency or combat forces are often adversely affected by lengthy budget and approval processes for requirements originating at forward operating locations. It has become clear that rapid identification of requirements should be followed by an equally rapid resourcing and equipping response to yield substantial improvements in our ability to conduct operations." --General David H. Petreaus, September 2008

Infrastructure and logistics remain one of the most important aspects to a successful military operations. A classic example of this application was the Marshall plan implemented after World War II. This effort stabilized Western Europe after its destruction and NATO leadership knew that stabilization was critical to contain the new Soviet threat and stop potential threats such as terrorism.

In today's fight against extremism, the need for military infrastructure is just as important, however, navigating the political process of acquiring construction funds has become more complicated due to oversight that requires multiple approvals. Multiple approval levels equates to time, time that those operating in austere environments and in harm's way do not have. This paper discusses the contingency construction environment, describes the social pressures inherent to the environment, and evaluates the approval process using value stream mapping.

Military Contingency Construction Environment

The Department of Defense (DoD) is required to put boots on the ground in an effort to secure national objectives and this requires the bed down of manpower and equipment. This requirement in the short term is accomplished using deployment kits and in the long term through military construction (MILCON). In a protracted conflict, such as Iraq and Afghanistan,

the scale of facility requirements tends to increase, driving up the cost of any project which requires Congressional approval of the funding. The execution of these projects has been instrumental in providing force protection for coalition forces. However, the issue of time arises because the DoD has applied a peace time funding process to a contingency environment.

In peace time, Congress must approve large scale construction projects (defined as capital improvement projects that exceed $750K) and typically takes 3 – 5 years. Military programmers that interpret federal regulations and produce the appropriate documentation to support capital improvement projects initiate this process. In a contingency environment, this time line is not responsive to mission requirements. Recognizing this, Title 10 of the United States Code Section 2804: Contingency Construction Authority (CCA) was signed into law on July 12, 1982. The intent of this law was to grant the Secretary of Defense, rather than Congress, the authority to approve large scale construction projects that directly supported military operations during times of conflict. Congress, in turn, requires the Secretary of Defense to notify them within 60 days of approving such projects. This process was put in place with the goal of providing the appropriate oversight while expediting the approval and execution of these time-critical projects. Nonetheless, the data suggest that this process of approving construction projects is not being used by leaders. As of 2008, the DoD has spent approximately $6.7 billion to fund large-scale construction projects in support of the operations in Iraq and Afghanistan and only 1% of those funds were approved under CCA. Instead, it appears that leaders are using Operations and Maintenance (O&M) funds as there is a significant gap in spending between this account (i.e. $355 billion has been spent on O&M and $6.7B has been spent on construction (Belasco, 2009)). Why would leaders rely on these funds? The O&M process encourages project splitting or other mechanisms that circumvent the time consuming approval process such as embedding construction requirements within service contracts and constructing relocatable buildings rather than more enduring infrastructure.

Project splitting occurs when a project is split into smaller projects in order to get costs under the $750K threshold. Smaller projects under $750K can be approved by senior area engineers which shortens the project execution timeline. Smaller projects also require less oversight by outside agencies and higher headquarters. Often, outside agencies slow down project execution.

Judge Advocates and project programmers should determine whether the individual components of a project are interdependent or interrelated components. Interdependent facilities are mutually dependant in supporting the functions for which they were constructed and must be estimated as a single project. In contrast, interrelated facilities have a common support purpose but are not mutually dependent and are therefore funded as separate projects (Hughes, 2005).

Consider an airfield as an example of a set of interdependent projects. To be fully operational, the airfield needs a runway, taxiways, parking apron, and lighting; moreover, each piece can not be considered a separate, complete, and useable facility (i.e., constructing a set of taxiways serves no operational purpose). Thus, the runway requirement should be estimated to include each of these interdependent systems which clearly would drive up the cost of the project when compared to a project that is dedicated to each subsystem. In contrast, recreational facilities are examples of interrelated facilities.

Military installations, to include those in deployed locations, often have a community center, a movie theater, a library, and a fitness center. While each facility supports the morale of the soldiers, each can be constructed as seperate, complete and useable facilities. They can be funded as separate construction projects.

Service contracts provide commanders with comprehensive logistics, engineering, and construction support during a contingency operation anywhere in the world on a cost-plus-award-fee basis. Since December 2002, the military has contracted for more than $12 billion in service contracts in more than half a dozen countries, including $5.6 Billion in Iraq through May 2004. Logistics Capabilities Augmentation Program (LOGCAP) is an example of a service contract established by the US Army. Under LOGCAP an operational commander defines a service requirement (like providing meals) and provides that to the contractor. To fulfill the requirements of the defined service, the contractor is completely responsible for the delivery of that service which may include the construction of facilities, reducing the number of government approvals. For example, to work around military construction approvals, a commander can establish a service contract for waste disposal and can turn that over to a service contract. The contractor develops what it would cost to deliver that service which may include construction of support facilities and if funds are available, the commander can obligate funds to the service contract avoiding construction approval requirements.

Relocatable buildings are designed to be readily moved, erected, disassembled, stored, and reused. They are intended to fill short term, normally 3 years or less, requirements due to transitory military missions, deployments, military contingency operations, or disaster relief requirements; or urgent requirements, pending approval, and construction of facilities via normal military construction programs (Department of Air Force, 2003). Commanders should carefully consider the use of relocatable buildings as a means of satisfying a construction requirement, and not as a way to circumvent the construction approval process (through the traditional Congressional approval or the CCA approval process. Relocatable buildings may be used in two ways, either as a substitute for permanent construction or as an interim facility. Relocatable buildings can be used instead of conventional permanent construction, particularly overseas, when the requirement duration is unknown. These procurement processes (MILCON, project splitting, service contracts, and relocatable buildings), create a complex system that our commanders must navigate.

The process to approve large-scale contingency construction (either through Congress or the CCA) is an integral part of a larger interconnected system designed to project military power in order to achieve national objectives. For example, the decision is made to surge military forces into an area of operation to secure it from extremists. This surge of forces requires infrastructure such as, water, shelter, waste disposal, security, and electricity to operate efficiently. On one hand the decision to surge forces is time sensitive and the beddown of forces must occur quickly, typically in less than 60 days. While, on the other hand the support infrastructure often requires more than 60 days. This time conflict creates challenges for military commanders who are focused on obtaining objectives quickly. A commander's time spent navigating fiscal law and extensive programming regulations might perceived as wasteful. Therefore, they try to avoid the programming process if possible and look to other funding avenues as previously mentioned. The manipulation of projects to fit a funding avenue has negative consequences in the areas of cost, Antideficiency Act (ADA) violations, health, safety, force protection, and the project's ability to support the mission. We argue that the funding structure established has created unintended consequences and interviewed a series of deployed personnel to bring this situation to light.

Unintended Consequences

Participants were interviewed from a wide range of career fields and levels of command in order to capture the unintended consequences that emerge from the complex DoD system. Cost inflation, lack of force protection, and unhealthy conditions are results of project manipulation by several participants.

Often, the interviews centered around the term "temporary construction" which aims to control cost by limiting its design life. Concrete masonry unit (CMU) buildings are classified as permanent construction and contribute to the minor construction limit. A modest facility constructed with CMU exceeds the minor construction limit and therefore requires CCA or MILCON funds. Thus, it may take months or years to get such a project approved; accordingly, these facilities are discouraged under congressional guidance. In addition, CMU buildings are seen as "permanent construction" and are discouraged for contingency operations because of the short term presence of US forces. Therefore, it is seen as wasteful to construct facilities that will endure past the required use of our military forces. Because of this relocatable buildings are encouraged and those built with CMU are discouraged. Yet, in several parts of the world, CMU construction which is perceived to be more permanent construction is less expensive than relocatable buildings because it is within the experience of local contractors and the resources are more readily available. Moreover, it typically affords more force protection. For this reason, commanders rely on relocatable buildings, where approval can be obtained in weeks despite the increase in cost and lack of force protection. This concern was cited by several participants to include a senior army colonel, who stated:

"the law does two things, one, in my opinion it goes against the intent of Congress to do it in a cheaper, faster mode. It actually does it in a slower and more expensive mode number one. Number two, CMU... it's obviously a far better force protection measure than a Containerized Housing Unit (CHU)… Number one it frequently added to the cost when obviously, the intent of temporary construction is to do exactly the opposite. It is actually cheaper and faster to build CMU… CMU... it's obviously a far better force protection measure than a CHU. There have been a number of people who have been injured in trailers do to rockets and mortars where if they had been in a concrete unit that would not have occurred. (Pluger, Personal Communication, 2010)."

Judge Advocates (JAs) struggle to work with engineers and commanders to provide mission support in a timely and legal manner as cited by one participant:

"we try to find a way, you know, we try to make it happen, but, you know, I kept saying, "CCA." "CCA." "CCA." That was my answer. And it was always, "No." "No." "No." "We can do it this other way." "We can find a way." "It's too hard. It could take too long. Do it this other way." "O&M." "We've got the money. There's no reason we can't do it. People are gonna die… There was a big division between those who – who were trying to get things done, you know, don't stop the mission, and those who wanted to do it right under the law. I was told, you know, "Marines are gonna die because you are stalling this process (Pluger, Personal Communication, 2010)."

Unhealthy situations were cited as a result of project programming issues. For example, in Iraq an incinerator project was initiated to properly dispose of refuse, however, this project did not go well.

"In 2004 they were trying to put up incinerators all over because we had these burn pits and it's terrible for the health of the personnel working there. And it was an ADA violation, and

it got held up. And it was held up – I was there in '07 and it was still held up. So the result is all these people are breathing in this burn pit smoke we were trying, you know, to implement some sort of environmental regulation to keep the troops safe (Pluger, Personal Communication, 2010)."

This initiative was poorly executed and not completed due to litigation because the incinerators were classified as equipment instead of construction resulting in quick approval of the initial project. This initiative was in conflict with the Anti-Deficiency Act, however, and was stopped for several years while the issue of equipment versus construction was resolved. This example shows that individuals sought a quick execution avenue vice following the proper funding process. It was faster to award the project as an equipment item instead of a well defined construction project.

All of these examples have a critical time component in common, in which CCA and the MILCON processes were discouraged. This discouragement led the personnel to seek out other funding opportunities such as relocatable buildings, project splitting, and personal equipment. As we conducted the interviews, it became clear that the contingency construction process can be improved.

The first step in improving a process is to first establish a baseline of how the current process works. Figure 1 shows the current CCA approval process to include validating and funding the projects. (Note: This process emerged from the US Air Force. We believe the Army and Navy follow a similar funding process.)

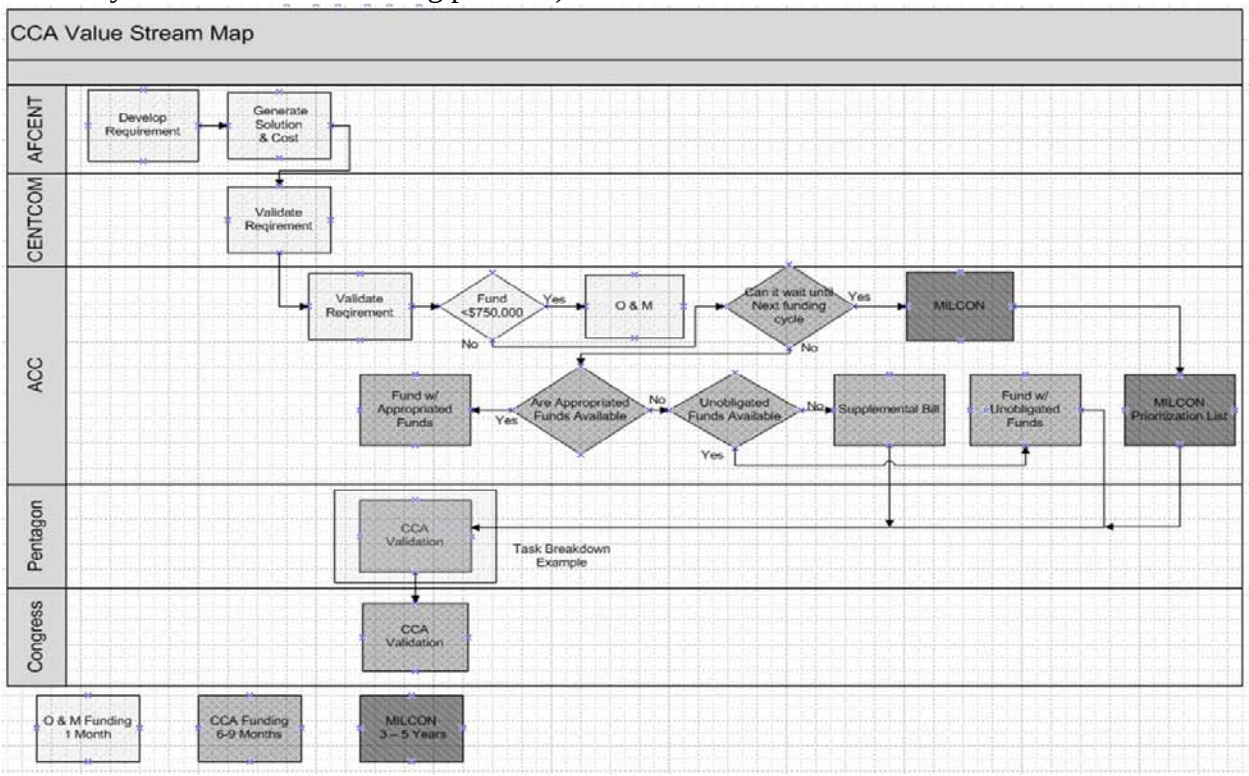

Figure 1: Baseline Approval Process

This value stream map starts at the AFCENT level, lower level processes exist before project requirements arrive at the AFCENT level, however, they were excluded from this analysis because they did not add significant time to the approval process. Figure 2 shows the approval process at the Pentagon level.

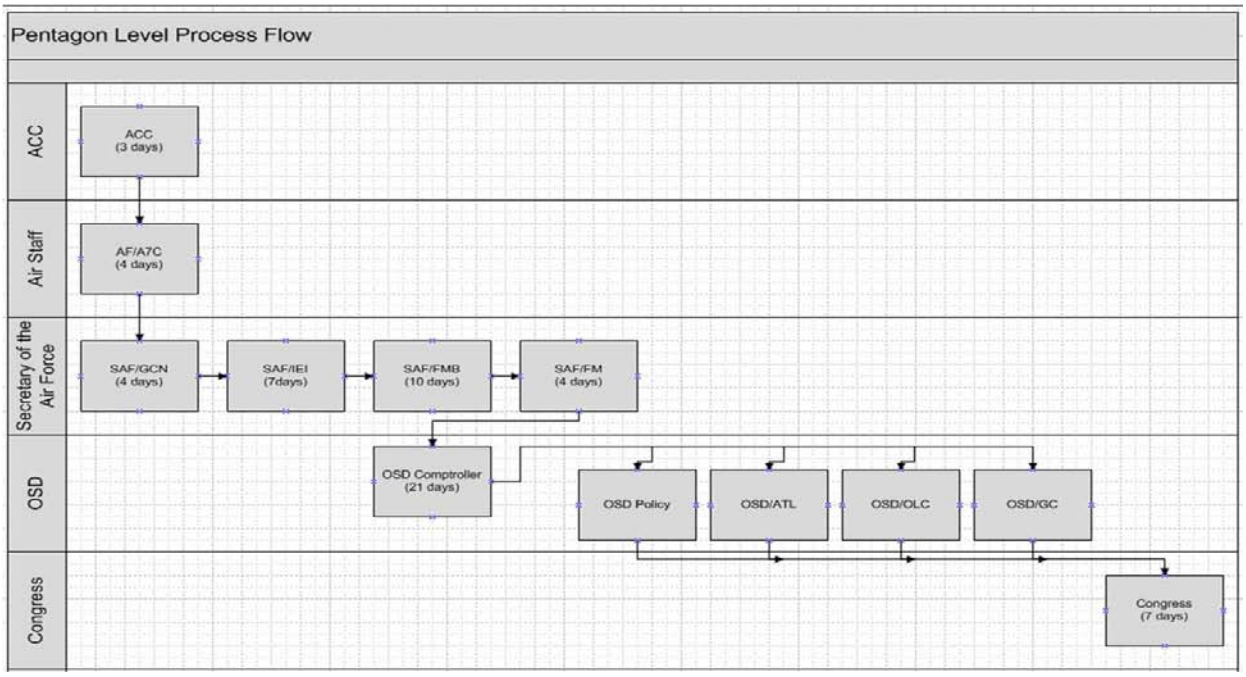

Figure 2: Pentagon Process Map

Along the vertical axis, we report organizational levels of those involved in approving a project. Within each of these levels, the process and the time to gain approval is detailed. The legend shows the time component for the process to occur. For example, the project development and proposed solution, takes around one month, while the MILCON prioritization can take five years.

Detailing the approval process within the Pentagon, reveals that it takes, on average, 60 working days (to exclude weekends and holidays) to gain the approval of a CCA project. The two value stream maps were created in an effort to clarify the CCA process and establish a baseline for evaluating and improving the process to reduce project approval and funding time. One proposed improvement to the Pentagon process is to send the information to the four SAF organizations at the same time so concurrent review can occur. This reduces the time from 25 days to 10 days, which is a 25% improvement over the baseline.

The construction approval process is being circumvented by deployed personnel, but why does this occur? We propose two theories that explain why deployed personnel circumvent the CCA and MILCON process. These two theories are structuration and adaptive structuration theory.

Structuration theory is used to explain the interaction between personnel and the structure they operate in (Giddens, 1984). For example, we form lines in stores as we wait to check out. In doing so, we operate according to a set of norms and rules. As we encounter this situation, we know what is expected, we go to the end of the line, letting those who arrived earliest go first. Another example, comes from our educational beginnings when we were taught to raise our hands in class and wait to be called upon. When the teacher calls on us as we raise our hands, the behavior is reinforced. As programmers encounter the contingency construction environment, it appears a set of norms and rules of behavior have emerged which are consistent with the objectives that are sought.

Adaptive Structuration Theory (AST) looks at how personnel within an organization adapt and transform based on interaction with personnel operating within the organization (Poole

& DeSanctis, 1990). Structuration Theory and AST provide theoretical concepts that reveal the applicability of allocative and authoritative resources and emergent outcomes of temporary structures as they apply to military organizational behavior in a contingency environment. Allocative resources are the personnel or organization that determine where the resources go, while authoritative resources are the personnel or organization that determine if the resources are provided. AST warns that the contingency construction programming structure could be dangerous in that it is temporary, emergent, and rapidly constructed making the structure vulnerable to breakdown and failure. This concept of personnel and organizations vulnerable to breakdown addresses the emergent outcomes of cost, schedule, performance, safety and mission salience of construction projects, which are subject to project splitting as peacetime programming structures are temporarily transported to a contingency environment.

Orlikowski and Yates (2002) describes the concept of a temporal structure which can be useful in understanding why personnel may resort to seeking alterative funding avenues in order to execute contingency construction. Personnel use temporal structuring in order to produce a process that is accepted by the organization. Time sensitive requirements can be a catalyst for temporal structuring. The role of a programmer or commander may create and shape the temporal conditions, because of economic or institutional pressure outside their immediate control. The personnel create workarounds and adaptations to speed up or manage time more effectively without fundamentally changing the old structure, "even while still believing they are enacting the old structure (Orlikowski and Yates, 2002)". In the CCA process, personnel find alternative funding avenues due to time constraints and organizational pressure. Personnel in the process manipulate the system to accelerate the approval process by using O&M funding, a locally regulated funding avenue with spending caps.

Conclusion -- The Future of Contingency Construction

Construction in a contingency environment offers challenges that peacetime construction does not. Specifically, cost of contingency construction far exceeds that of peacetime, for this reason the minor construction limit of $750,000 is quickly reached. With no consideration of local cost factors for construction or inflation over time, projects will continue to be slow and unresponsive in supporting the war fighter's needs.

For this reason, alternative means will continue to be sought in order to program mission support requirements more quickly. The minor construction threshold must be raised and the time required to process CCA projects must be shortened. This will shift focus away from inward bureaucratic processes, allowing the war fighter to focus on defeating an enemy.

We recommend that all commanding officers entering a contingency environment be well versed in the DoD programming rules. The construction programming process must be followed for facility requirements. We also recommend that the $750K O&M construction limit be raised. Construction costs are known to escalate every year and having a static limit will only push more projects above the $750K funding limit. This will cause commanders to search for alternatives to the construction process such as relocatable buildings and construction as a service. We propose an O&M limit that increases with inflation to keep pace with cost escalation.

The views expressed in this paper are those of the authors and do not reflect the official policy or position of the United States Air Force, The Department of Defense, or the United States Government.

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