REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From - To)*
23-04-2010	FINAL	

4. TITLE AND SUBTITLE

Addiction to Joint Logistics – The Dangers of Over Dependence on a Joint Logistics Concept

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)

Ryan P. Anderson, LT, SC, USN

Paper Advisor: Professor Jerry Duffy

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Joint Military Operations Department
Naval War College
686 Cushing Road
Newport, RI 02841-1207

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT

Distribution Statement A: Approved for public release; Distribution is unlimited.

13. SUPPLEMENTARY NOTES A paper submitted to the Naval War College faculty in partial satisfaction of the requirements of the Joint Military Operations Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.

14. ABSTRACT

While it is a U.S. strategic interest to maximize global cooperation in the quest to maintain worldwide security, it is also vitally important to maintain the organic capacity and institutional skill to act unilaterally in defense of national sovereignty. Uninhibited exposure of logistics sourcing and processes to coalition-controlled free market efficiencies will lead to over-dependence on non-organic commodity supply, atrophied internal process capability, and diminished means for unilateral U.S. force employment. The potential absence of coalition buy-in to US force employment desires would restrict options available to the Geographic Combatant Commander (GCC), preventing him from acting in support of U.S. interests and unduly influencing theater strategic policy.

15. SUBJECT TERMS

Joint Logistics Concept, Dependence, Efficiency, Unilateral Force Employment, JxDS, Focused Logistics Joint Functional Concept, JOpsC, Economics, Supply & Demand

16. SECURITY CLASSIFICATION OF: UNCLASSIFIED			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			Chairman, JMO Department
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED		**29**	19b. TELEPHONE NUMBER *(include area code)* 401-841-3414

Standard Form 298 (Rev. 8-98)

NAVAL WAR COLLEGE
Newport, R.I.

"Addiction to Joint Logistics"
The Dangers of Over Dependence on a Joint Logistics Concept

By

Ryan P. Anderson

LT, SC, USN

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: _____

23 April 2010

Distribution Statement A: Approved for public release; Distribution is unlimited.

Contents

ABSTRACT

While it is a U.S. strategic interest to maximize global cooperation in the quest to maintain worldwide security, it is also vitally important to maintain the organic capacity and institutional skill to act unilaterally in defense of national sovereignty. Uninhibited exposure of logistics sourcing and processes to coalition-controlled free market efficiencies will lead to over-dependence on non-organic commodity supply, atrophied internal process capability, and diminished means for unilateral U.S. force employment. The potential absence of coalition buy-in to US force employment desires would restrict options available to the Geographic Combatant Commander (GCC), preventing him from acting in support of U.S. interests and unduly influencing theater strategic policy.

While the operating environment constantly changes, the outcome the joint force commander expects will not. The Joint Force Commander expects joint logistics to give him sustained logistic readiness which will provide freedom of action to effectively execute operations in support of national objectives.

– ADM Michael Mullen, Chairman of the Joint Chiefs of Staff, 2008

INTRODUCTION & FRAMING

This paper examines the Focused Logistics Joint Functional Concept as it relates to, and potentially impacts, the Geographic Combatant Commander (GCC). Specifically, this paper demonstrates that uninhibited exposure of logistics sourcing and processes to coalition-controlled free market efficiencies will lead to over-dependence on non-organic commodity supply, atrophied internal process capability, and diminished means for unilateral U.S. force employment. This hypothesis is tested first by exploring the seven tenets of the Focused Logistics paradigm, paying particular attention to those termed "Agile Sustainment," "Multinational Logistics," and "Joint Theater Logistics Management." As an illustrative example, the Joint (experimental) Deployment and Support (JxDS) architecture of the Joint Deployment Distribution Enterprise (JDDE) is examined to illustrate a potentially excessive degree of Joint Logistics integration into theater operations. This example demonstrates how the fundamental tenets of Focused Logistics call for the leveraging of coalition partnerships to generate cost savings and logistical efficiencies. This paper then argues that these savings and efficiencies are critically reliant on uninhibited macro- and micro-economic laws of circulation and demand respectively. Intermediate analysis of microeconomic principles suggests that any violation of, or undue influence (i.e. veto or sanction) on, these rules ultimately leads to reduced or eliminated organic capacity to fulfill logistical requirements, with subsequent corrosion of institutional knowledge. Any of these synthetic interferences carry the potential to operationally cripple source diversification infrastructure and shared logistical processes (i.e., Commodity Availability, Tracking Methodology, Logistics C^2, and

Information Fusion). Ultimately, this would restrict GCC unilateral force employment options and unduly influence national policy. Finally, this paper offers recommendations and solutions to avoid adverse outcomes of excessive Joint Logistics integration. It concludes that the best option would not necessarily be to dissuade realization of coalition logistical efficiencies. Rather, it would be wise to develop a commodity and process valuation methodology for coalition efficiencies. The GCC could then use these valuations to establish upper and lower coalition dependency limits, thereby ensuring sufficient commodity capacity and process infrastructure. On the theater strategic level where the GCC operates, these valuations could also be utilized to develop contingency protocols to be enacted in the event of sudden joint infrastructure denial. Lastly, though beyond the purview of this analysis, such data could be used at a strategic level to maintain minimal infrastructure for critical portions of the affected domestic industrial base.

The term "Joint Logistics" doctrinally refers to both inter-service and multi-national integration. There are admittedly diverse implications to logistical integration between both entities. For the purposes of this paper, however, all references to "Joint Logistics" and analysis thereof will be considered solely for multi-national interactions by the GCC. In addition, all references and implications pertaining to the GCC should be considered equally applicable to his/her principal subordinate – the Combined Joint Task Force (CJTF) Commander.

BACKGROUND

In today's complex geo-political environment, the military lever of national power is increasingly utilized to pursue strategic policy objectives. In contrast to the increased demand on military power, however, the resources allocated to the Department of Defense (DoD) have slowly ebbed to a fraction of historical budget allocation percentages. Since 1987, national defense spending has dropped ~11.3 percent to a scantly projected 16.8 percent of total federal outlays.[1] This funding drop is inconsistent with the surges in military operations during that same timeframe. Due to this disparity, the DoD has been forced to explore sources of process and cost efficiency in order to maintain legally mandated readiness levels. One such instance of this exploration was a U.S. Air Force sponsored RAND survey to explore efficiency potential in a Coalition Logistics concept. In this survey it was deemed that "economic and political trends tend to make the prospect of coalition logistics more attractive than before."[2] That same survey speculated that "it will be taken for granted that the first purpose of mutual support is to enhance fighting capability in war… [but] this is not to shun any economic and political benefits that may accompany or be designed into mutual support arrangements".[3] Assuming this to be correct, it is fully understandable why a key DoD move to realize internal efficiencies came in the form of a paradigm shift from unilateral force employment to Joint Military Operations. This shift manifested as models in the Joint Operating Concepts (JOpsC) family, all aimed to shape development of the future joint force. These models were adapted to "broadly describe how

---

[1] U.S. Office of Management and Budget. *FY2009 Federal Budget*. Pages 52-55. [Note: Projected figures consider budget estimates for 2008-2013]. http://www.whitehouse.gov/omb/budget/fy2009/pdf/hist.pdf (Accessed 14 February 2010)

[2] The Rand Corporation. "A RAND Note – A survey of Coalition Logistics Issues, Options, and Opportunities for Research". August 1990. Report Code N-3086-AF, v.

[3] Ibid., 46

the joint force is expected to operate 10-20 years in the future in all domains across the range of military operations within a multilateral environment and in collaboration with interagency and multinational partners."[4] The overarching framework, termed the Capstone Concept for Joint Operations (CCJO), called for the establishment of a Focused Logistics Joint Functional Concept to recognize efficiencies through the pooling of resources and logistics functions from all players in the U.S. defense and multinational arenas. This Focused Logistics Concept was so promising that the experimentation arm of U.S. Joint Forces Command (USJFCOM) established a Joint (experimental) Deployment and Support (JxDS) model in which GCCs could custom tailor the level of "logistical jointness" in their areas of responsibility (AORs). The JxDS model maximized efficiencies by building synergy among the Services (U.S. Army, U.S. Navy, and so on) and then making the leap toward commodity and process sharing with multinational partners. In short, those partners who could supply a commodity or perform a process better, faster, and cheaper would perform the correspondingly relevant logistics functions of the joint mission. The U.S. military in turn would save money and resources by delegating those logistical functions for which it did not exercise a comparative advantage. The JxDS concept appeared to be a perfectly executed reaction to the resource and efficiency constraints facing the U.S. military. So, are there any dangers or concerns with long-term buy-in and integration of the Joint Logistics concept? In short, yes.

[4] Defense Acquisition University. *Definition of JOpsC*. Website can be found at https://acc.dau.mil/CommunityBrowser.aspx?id=28950 (Accessed 27 February 2010)

DISCUSSION / ANALYSIS

The Focused Logistics concept, upon which the JxDS model is based, seeks to provide systematic solutions to seven generic GCC logistical challenges:

- Joint Deployment and Rapid Distribution
- Operational Engineering
- Force Health Protection
- Information Fusion
- *Agile Sustainment*
- *Multinational Logistics*
- *Joint Theater Logistics Management*

Review of these challenges and the proposed broad stroke solutions offered by the Focused Logistics Concept spawn appealing proposals from the GCC's point of view. However, a serious concern arises in the projected solutions to the challenges of "Agile Sustainment," "Multinational Logistics," and "Joint Theater Logistics Management" (see Figure #1 for visual depiction of selected GCC Challenges and corresponding Focused Logistics solutions). Each Focused Logistics Concept solution fundamentally relies on one or more of the following presumed coalition efficiencies:

- Established and Developed Distribution Processes,
- Economies of Scale in Commodity Production and Availability, and
- Locally Controlled Logistics Processes and Asset Visibility Schemes.

While it may be true that these presumed efficiencies afford the GCC significant degrees of Maneuver, Unity of Command, and Economy of Force, the natures and sources of those efficiencies make dependence on them a dangerous proposition. The reason for this rests with a triad of influences that, if not carefully considered, will lead to over-dependence on coalition logistical efficiencies, atrophied organic logistical capacity, and diminished

capability for autonomous U.S. force employment. These influences are the economic principles at work, shifts in institutional behavior, and GCC well-intentioned actions.

Economic Principles at Work

The prime enablers of coalition and host-nation efficiency in commodity production and process control rests within the macro-economic Principles of Circulation coupled with the micro-economic Principles of Demand. Conversely, the economic principle affecting U.S. organic commodity capacity (and process knowledge given that knowledge is a commodity) is the micro-economic Principle of Supply as it relates to a decrease in demand. Understanding how these economic principles apply to a GCC's decision to integrate logistical functions does not require an overly technical understanding of the economic science behind market force analysis. It does however require general comprehension of economic reactions to consumer decisions. Accordingly, one can observe how a seemingly frugal decision to shift commodity consumption from a domestic source to a more efficient and cheaper foreign source can impact future domestic capability and capacity. To begin, the Law of Demand states that the quantity demanded will fall as the price of the respective commodity rises. It then follows that the quantity demanded rises as the price of the respective commodity falls (to a point determined by saturation and the economic Law of Diminishing Returns). Using a dual-use commodity as an example, Figure #2 offers a visual depiction of how a coalition partner or foreign host-nation can provide the GCC with commodities and processes cheaper and faster than organic sources. The decreasing cost of coalition commodities and services leads to a *de facto* increase in demand for those commodities and services, therefore causing an equal decrease in demand for the corresponding U.S. domestic product. Regardless that the GCC is making the integration

decision for the sole purposes of expediency and efficiency, the resulting drop in demand for U.S. domestic commodities remains and carries a profound long-term effect. Specifically, the relative positioning of market entities depicted in Figure #2 suggests that the resulting drop in domestic demand for the commodity has a compounding affect. Figure #3 exemplifies this supply/demand relationship by proving that the economic principles at work not only cause a shift to the left for the demand curve, but also the supply curve. This is a result of domestic producers adjusting production levels to more closely match the decreased demand. This new construct illustrates how a sudden necessitation to revert to the original commodity-sourcing plan could be troublesome. In the best case, the commodity would be slightly delayed (while domestic producers ramped up production schemes) and extremely expensive. In a worst case, made more likely if the commodity is technologically advanced or not dual-use in nature, domestic producers would be entirely unable to meet the newly generated demand in a practical period of time.

Institutional Behavior Shifts

Contrary to concerns with commodity availability, which would grow worse as a function of dependence levels, institutional behaviors would shift for the worse as a function of time. As U.S. forces became more dependent on logistical processes now performed by coalition partners and host-nations, organizational or tribal knowledge would slowly erode and eventually atrophy. Using the example above, assume that the host-nation providing a commodity in a mature overseas theater maintains a unique process (relative to existing U.S. Force processes) for internally tracking said commodity. The Focused Logistics concept does call for "logistics systems to interoperate and provide visualization and decision support tools that the combatant commander or JTF commander can use for managing logistics assets

and processes in the area of operations."[5] However, while a host-nation's logistics tracking system may be required to *interface* with those systems used by U.S. forces, there is no requirement for such a system to have *joint utility*. Therefore, a host nation's decision to break the interface would have a compounded effect on U.S. forces. Even if an organic reserve of the commodity were to be available, there would be a problematic learning curve associated with the intangible knowledge and physical processes required to move the commodity into theater, transfer it from the SPOD/APOD, track and integrate it with forward deployed forces. As mentioned above, this problem would compound with time due to proficiency deterioration and personnel turnover.

The GCC

While the decision to actuate force employment in conjunction with coalition effort is made at the strategic level, the degree of operational logistics integration resides primarily with the GCC per U.S. joint doctrine. To complicate this issue, U.S. national strategic leadership expects to achieve a certain degree of multi-national and/or host-nation integration for both political and cost-saving purposes. While it may not be the GCC's immediate concern to align logistical integration levels for the purposes of political capital or cost savings, his propensity to act in a manner that maximizes application of the principles of war will always be his concern. Since Joint Logistics affords him enhanced Maneuver, Unity of Command, and Economy of Force, the GCC's desire for logistical integration must be considered as given in this equation. Additional pressure acting upon the GCC's decision cycle is the enticement of immediate logistical efficiency potential in theater operations. These benefits make logistical integration a tempting objective in the GCC's logistics concept of operations

[5] U.S. Office of the Chairman of the Joint Chiefs of Staff. *Joint Logistics (Distribution) **Joint Integrating Concept*. **Washington, DC: CJCS, 7 February 2006. Available at: http://www.dtic.mil/futurejointwarfare/concepts/jld_jic.pdf (Accessed 12 February 2010).**

(Log-CONOPS). In addition, the Joint Staff (J4) would undoubtedly push the GCC staff for superior levels of readiness and increased asset availability through fusion of effort. Unfortunately, there are costs if the GCC does not consider long-term implications of his decision on unilateral force employment options down the road. Once the GCC decides to integrate logistical processes fully, the option to revert back to prior processes becomes extremely difficult. In addition to challenges associated with the institutional behavior shifts discussed earlier, the GCC would now face force, commodities, and funding requests in excess of what was historically (originally) needed. Further, the longer the integration collaboration with a multinational partner, the greater will be the delta between what is needed for U.S. engagement with multinational support and that which is needed to execute a contingent unilateral engagement.

Joint (experimental) Deployment and Support (JxDS) in Korea

As an illustrative example, it is useful to consider actionable Joint Logistics as it conforms to the tenets of the Focused Logistics paradigm. The JDDE as supported by the JxDS construct is ideal for this consideration. "The JDDE consists of Combatant Commanders, the Military Services, Defense Agencies, Office of the Secretary of Defense, the Joint Staff, and commercial industry. The JDDE partners are professional colleagues, expert in specific distribution-related segments of the DOD supply chain. Leveraging and aligning their expertise is critically important to meaningful supply chain improvements."[6] "The JxDS concept is a family of organizational options designed to enhance the coordination, integration and synchronization of operational logistics to increase force employment opportunities and alternatives. JxDS is a building-block, scalable approach that allows

[6] **U.S. Transportation Command – *Command Guidance*. 1 January 2006. Available at: http://www.sddc.army.mil/sddc/Content/Intranet/36267/USTC%20Command%20Guidance%20-%20CY06.pdf (Accessed 24 February 2010)**

combatant commanders to tailor their organizations."[7] This concept directly supports the JDDE by nesting with the Focused Logistics Joint Functional Concept, which in turn is nested with the Capstone Concept of Joint Operations and the JOpsC. Given the doctrinal elements of the JOpsC, upon which the JxDS is based, it is feasible to use its experimental implementation as a realistic example of Joint Logistics integration within a joint area of responsibility (AOR). The JxDS construct offers the GCC or JTF Commander four scalable options regarding the degree of logistics integration within the AOR. It further implies that the degree of integration should be linked loosely with the intensity of operations, workload capability of staff, and complexity of the problem.[8] The four levels of integration are:

- Deployment Distribution Operations Center (DDOC)
- Enabled J4 Construct (EJ4)
- Joint Force Support Component Command (JFSCC)
- Combined Logistics Command Center (CLC)

The four levels correspond with the degree of cross-Service and host-nation/coalition integration desired with DDOC being the minimum and CLC being the maximum integration level. With each level comes a new logistical function aimed at achieving greater synergy between processes and cooperation. These functions are listed below in order of complexity starting with "1" being least complex:

- (1) Distribution Management
- (2) Fusion
- (3) Plans
- (4) Commodity Management
- (5) Coalition Logistics Integration.

[7] Mark Akin and George L. Topic. "Joint (experimental) Deployment and Support (JxDS)". Chips Magazine. March 2008. Available at: http://www.chips.navy.mil/PDF/JxDS.pdf (Accessed 16 February 2010)
[8] Ibid.

The construct provides the GCC with the opportunity to tailor the degree of logistical integration with the specific needs and capabilities posed within his AOR (see Figure #4 for visual depiction of JxDS Construct). The levels of integration that pose the most concern are the two to the far right in Figure #4 (JFSCC and CLC). The JFSCC calls for the integration of an *International Programs and Contracting Element* into the Fusion Cell. Within this element reside subsidiary divisions covering contracting/procurement and host-nation support (see Figure #5 for JFSCC command structure in Exercise *Ulchi Focus Lens 2007*). This is a real-world example of how foreign commodity efficiencies gain direct and advisory access to the command structure, impacting joint operations at the tactical and operational levels. In the next level of logistics integration, the CLC concept is observed adopting every aspect of the JFSCC construct with the added incorporation of coalition logistical processes. Herein the host-nation/coalition logistical processes are synchronized with U.S. logistical processes to track and prioritize foreign-sourced commodity movement by a joint force. This is an excellent capability in theory, but just as troubling if coalition relationships break down due to internal disagreements or external political influence. Unity of command and effort concerns that have historically arisen make this potentiality more likely than not (for example, the MNF in Iraq and ISAF in Afghanistan). However, the JxDS construct provides more than a real-life practicum in which to game the dangers associated with over-integration. It serves as an excellent "decision point" to legitimize the hypothesis concerning susceptibility of the Commander's decision process to opt for over-integration of the joint logistics concept. For example, the feedback from the initial JxDS trial in South Korea yielded enormous praise from the U.S. Forces Korea (USFK) Commander, General Leon LaPorte, USA. Less than four years later, the new USFKC, General B. B. Bell, had not only

fully adopted the DDOC and EJ4 constructs of JxDS, but had declared the JFSCC construct "fully operationally capable" in USFK.[9] In less than four years, the JxDS concept had not only been embraced, but adopted in its near entirety -- a staggering rate of adoption for an unproven concept. This outcome illustrates the addictive qualities of Joint Logistics.

CONCLUSION

For the purposes of summation, let us assume a hypothetical scenario. There is long-term, 30-year integration of a Joint Logistics concept (JxDS) in USFK. In the year 2040, a strategic directive is issued for the invasion and removal of regime in North Korea. Of note, South Korea does not agree with this U.S. strategic direction. Based on the hypothesized economic and behavioral analysis in the preceding sections of this paper, the destructive impact to unilateral force employment capability could certainly be postulated. Would the U.S. domestic industrial base be able to meet the immediate and exponentially larger demand of USFK? Would USTRANSCOM and USFK have the distribution assets and institutional knowledge necessary to achieve effective RSOI (Receipt, Staging, Onward Movement, and Integration) in theater? What would be the availability of prepositioned assets by the Strategic Mobility Triad? Would these contingency assets have remained at C-1 readiness in light of the joint logistic efficiencies embraced by GCC and JTF Commanders? While the possibility of decreasing or eliminating pre-positioned war materials would be decried by most in today's logistics community, the pressures that can be placed on defense spending plans by budget ax-wielders should not be underestimated. More importantly, the economic science behind market efficiencies will not be denied and cannot be ignored.

[9] **Ibid.**

If the answers to any of the questions posed above are qualified by the relatively small size of USFK's AOR, would the answers be the same for fully integrated logistics in an exponentially larger AOR like CENTCOM or EUCOM? It is a valid consideration given that Army COL Mark Akin, USJFCOM Joint Logistics Director during the JxDS integration in USFK, admitted to completing similar implementation assessment visits to SOUTHCOM, CENTCOM, and EUCOM during his tenure. It is reasonable to project that similar adoption rates could yield from permanent GCCs in the future. While it is a U.S. strategic interest to maximize global cooperation in the quest to maximize global security, it is also vitally important to maintain the organic capacity and institutional skill necessary to enable unilateral defense of national sovereignty. Unregulated buy-in to an overly multinational logistics paradigm will lead to an institutional shift characterized by the inability to support unilateral force employment. The potential absence of coalition agreement with U.S. employment desires would severely restrict GCC force employment options, preventing him from acting in support of U.S. interests and unduly influencing theater strategic policy. This puts an enormous responsibility upon the GCC to balance joint logistics efficiency reliance with the obligation to maintain a capacity to act unilaterally in execution of U.S. policy.

COUNTER ARGUMENTS AND REBUTTALS

Many Joint Logistics proponents argue vehemently for the concept's adoption on grounds ranging from evident capital efficiency to less-obvious intangible advantage. Some of the most common and plausible arguments are addressed below, along with corresponding counter-points.

Impacts on Coalition Cohesion

Many argue that the requirement to outsource commodities and integrate processes leads to increased coalition cohesion. It is not surprising then to conclude that the decision to limit outsourcing and integration could adversely affect the cohesion that is necessary for a multi-national force to perform effectively. While this may be true to a point, it is necessary to consider that cohesion is realized through integration in *all* facets of the multi-national operations spectrum, including Training, Capabilities, Equipment Interoperability, Intelligence, and so on. It follows that there are similar concerns with degree of integration for each facet. However, some facets are more susceptible to excessive amalgamation than others. For example, there remains strong debate over the proper amount of intelligence sharing between the U.S. and its coalition partners. If there is too little sharing, cohesion is either not achieved or adversely affected. If there is too much sharing, the value of the intelligence can become diluted or force security can be compromised. Logistics suffers a similar vulnerability. Free market efficiencies gained at the hands of multi-national cooperation are not easily regained in the absence of that cooperation. Cohesion is much like a commodity in that it is gained at a price and its supply is finite. The decision regarding what price is acceptable to achieve unit cohesion in a multi-national force needs to be carefully weighed so as not to surrender one's own unique or limited capabilities.

Extinction of the Unilateral Force Paradigm

Given the globalized nature of military operations in a resource constrained environment, the prospect of unilateral U.S. force employment has been deemed archaic by a large cross section of military and civilian leadership. In essence, today's world can be characterized as

a technologically-enabled planet with fading borders. It is plausible to conclude that we should realize all possible joint logistics efficiencies with minimal concern for the resulting impact on unilateral force employment capability. However, the inherently unstable nature of the geo-political environment does not provide sufficiently reliable partnerships to preclude future need for unilateral U.S. force employment capability. Notwithstanding the dangers associated with an actual U.S. inability to act alone, there is an intangible price associated with affording our enemies and allies presumptive knowledge that the U.S. cannot employ forces *sans* coalition approval. The negative impacts to diplomatic and military levers of national power would be unavoidable and crippling regardless of actual need for U.S. unilateral force employment. The art of preventing conflict would be critically debilitated by inhibiting our ability to threaten action independent of popular opinion.

RECOMMENDATIONS

As mentioned earlier, the potential dangers associated with joint logistics over-integration should not justify dismissal of the concept or ignore its efficiencies. To the contrary, the concept should be embraced and developed to the greatest extent practical and prudent. However, as with any uncertain endeavor there is requisite risk with desired reward. This paper's analysis serves only to inform the GCC of the risks to be considered when pursuing joint logistics efficiencies and offers functional precautions to hedge those risks. Such precautions could be instituted in their entirety or commensurate to the degree of logistical integration. For example, consideration of precautionary measures could be directly tied to the different levels of the JxDS construct (for example, JFSCC and CLC would demand

greater precautionary consideration than DDOC and EJ4). Regardless, the following precautionary concepts would broadly address the most troubling concerns.

Commodity and Process Valuation Methodology

One of the underlying issues with adoption of the Joint Logistics concept is the tendency to lose track of the commodity and process efficiencies it provides. It is non-problematic to accept logistical integration as a generic source of efficiency. However, placing an exact value on that efficiency is not so easy because of the mixed tangible and intangible natures of those efficiencies (i.e., money vs. knowledge). Unfortunately it is in accurately defining and determining these values that preventive knowledge is afforded to the GCC. The exact nature of such a methodology would be complex to say the least, and no doubt the product of business operations and source balancing analysis. Although such analysis exceeds the space limits of this paper, it can be hypothesized that the methodology would consider logistics estimates of the battle space as viewed through space-time-force constraints associated with multilateral versus unilateral force employment. For example, commodity efficiency could be defined as the delta between logistic estimates of unilateral *versus* coalition invasion of country X. Of course, this delta would be derived considering the confines of each course of action's respective space, time, and force factors. Commodity requirements as projected and submitted by the GCC would then be a function of that delta, customized according to the GCC's assessment of his theater. By developing a commodity and process valuation methodology for coalition efficiencies, the GCC could ensure sufficient commodity capacity and process infrastructure by establishing upper and lower coalition dependency limits.

Capacity and Capability Reserves

Maintaining sufficient commodity capacity and process capability is a key preventive measure because both are easily eroded by reliance on joint efficiency. It will be assumed that the reserve level would be determined by the valuation methodology discussed above or something similar to it. To address the need for a commodity capacity reserve, reserve levels of all organic supply class procurements and corresponding lift capability should remain commensurate to a hypothetical need for initial surge of unilateral force employment. This should have a compounded hedging affect on the force and the industrial base. Securing internal force capacities would buffer the left-ward shift in demand and lessen the impact to the industrial base, resulting in a shallower shift in domestic supply. In addition, there should be a set level of internal process capability within and among the U.S. Services to safeguard against lost corporate knowledge and atrophied processes. To take this precaution a step further, it may be in the GCC's interest to develop a set of contingency logistics protocols to be instituted in the event of a breakdown in joint logistics infrastructure. As U.S. forces become more adept at interoperability doctrine within their respective theaters, internal and independent capabilities will become more elusive and vulnerable to dismissal. The same will be true of contingency protocol development and revision. However, both are a critical part of maintaining a force capable of unilateral employment.

Continuing consolidation and globalization within the economy may adversely affect the ability of the U.S. industrial base to surge or otherwise respond to emergency requirements.

- Focused Logistics Joint Functional Concept

BIBLIOGRAPHY

Akin, Mark (COL, USA) and Topic, George. "Joint (experimental) Deployment and Support (JxDS): An Approach for Managing Joint, Coalition and Nongovernment Logistics Support." *CHIPS Magazine*. January-March 2008. http://www.chips.navy.mil/PDF/JxDS.pdf (Accessed 16 February 2010)

Best, Roger J. *Market-based Management – Strategies for Growing Customer Value and Profitability.* 4th Edition. Upper Saddle River, NJ. Prentice Hall. 2005.

Grant, Robert M. *Cases to Accompany Contemporary Strategy Analysis.* 5th Edition. Malden, MA. Blackwell Publishing. 2005.

Laseter, Timothy M. *Balanced Sourcing – Cooperation and Competition in Supplier Relationships.* San Francisco, CA. Jossey-Bass. 1998.

U.S. Office of the Chairman of the Joint Chiefs of Staff. "Joint Warfighting Capabilities Assessment". CJCSI 3137.01A. Washington DC: CJCS, 22 January 1999.

U.S. Department of Defense. *Focused Logistics Joint Functional Concept – Version 1.0*. www.dtic.mil/futurejointwarfare/concepts/jroc_fl_jfc.doc (Accessed 26 February 2010).

_____. *Logistics Transformation Strategy: Achieving Knowledge-Enabled Logistics.* Undersecretary of Defense (AT&L). Washington, DC, 10 December 2004.

_____. *Quadrennial Defense Review Report: 2006.* Secretary of Defense. Washington, DC, 6 February 2006.

_____. *Quadrennial Defense Review Report: 2006.* Secretary of Defense. Washington, DC, 1 February 2010.

U.S. Government Accountability Office. *Defense Logistics: Strategic Planning Weaknesses Leave Economy, Efficiency, and Effectiveness of Future Support Systems at Risk.* Washington, DC: GAO, 2001.

_____. *Defense Inventory: DOD Could Improve Total Asset Visibility Initiative With Results Act Framework.* Washington, DC: GAO, 1999.

U.S. Joint Chiefs of Staff. *J4 - Logistics*. http://www.jcs.mil/page.aspx?id=19 (Accessed 14 February 2010).

U.S. Joint Forces Command. "Joint Experimental Deployment and Support (JxDS)**".** http://www.jfcom.mil/about/fact_jxds.html (Accessed 16 February 2010).

_____. *Joint Logistics Department***.** http://www.jfcom.mil/about/fact_jltc.htm (Accessed 16 February 2010).

_____. *Joint Logistics Strategic Plan 2010-2014*. http://www.jcs.mil/content/files/2010-02/021810133805_J4_StrategicPlan_vFINAL.pdf (Accessed on 22 February 2010)

U.S. Office of the Chairman of the Joint Chiefs of Staff. *Joint Vision 2010*. Washington, DC: CJCS, July 1996.

_____. *Joint Vision 2020*. Washington, DC: CJCS, May 2000.

_____. *Joint Warfare of the Armed Forces of the United States.* Joint Publication 1-0. Washington, DC: CJCS, 14 November 2000.

_____. *Joint Operations.* Joint Publication 3-0. Washington, DC: CJCS, 17 September 2006.

_____. *Joint Logistics.* Joint Publication 4-0. Washington, DC: CJCS, 18 July 2008.

_____. *Focused Logistics: A Joint Logistics Roadmap*. Washington, DC: CJCS, 01 August 1997. https://acc.dau.mil/GetAttachment.aspx?id=142585&pname=file&aid=27720&lang=en-US (Accessed 10 February 2010).

_____. *Joint Logistics (Distribution) Joint Integrating Concept*. Washington, DC: CJCS, 7 February 2006. Available at: http://www.dtic.mil/futurejointwarfare/concepts/jld_jic.pdf (Accessed 12 February 2010).

U.S. Transportation Command. *Command Guidance–JDDE*. Washington DC: 1 JAN 2006. http://www.sddc.army.mil/sddc/Content/Intranet/36267/USTC%20Command%20Guidance%20-%20CY06.pdf (Accessed 20 February 2010)

APPENDIX A

Figure #1

Select COCOM Challenges and Focused Logistics Solutions

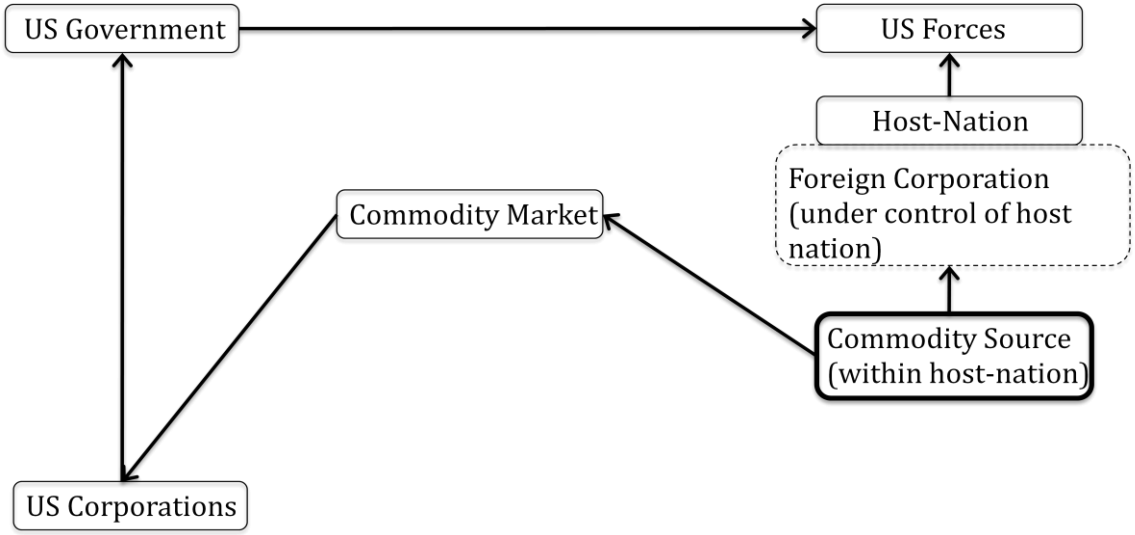
	COCOM CHALLANGES	FOCUSED LOGISTICS SOLUTIONS
Agile Sustainment	Transform sustainment policies, processes, and capabilities to improve the flexibility, agility, and precision with which we sustain the warfighter	-A robust, ready industrial base -Agile, responsive, sustaining organizations -Flexible, tailored sustainment -Precision tactical resupply -Common metrics, standards, and processes -Collaboration with the civilian sector -Integrated and synched contract log support -Remote monitoring -Diagnostic and prognostic devices to report and anticipate failures -Supported weapons systems with designed-in deployability, reliability, maintainability, availability, sustainability, and interoperability
Multinational Logistics	Strengthen the support relationship between the U.S., its allies and coalition partners	-Improved multinational interoperability -Optimized logistics operations across and between all echelons, alliances, coalitions, and host nations -Improved interoperability among agencies, industry, and non-governmental organizations (particularly in foreign disaster relief and stability operations) -Improved contracting for contingency, humanitarian, or peacekeeping operations to provide for facilities, supplies, and services, including maintenance, transportation, quality of life support, and real estate mgt.
Joint Theater Logistics Management	Develop tools that give the joint force commander the capability to effectively oversee the management of logistics throughout the range of military operations	-Ability to synchronize, prioritize, direct, redirect, integrate, and coordinate common-user and cross-Service logistics commodities and functions -Interoperable systems with visualization and decision support tools that the combatant commander or JTF commander can use for managing logistics assets and processes in the area of operations -Fully collaborative capability that links logisticians and operators at the supporting and supported combatant commander or JTF level with their counterparts at the component level, and with interagency and coalition partners.

(Source: Department of Defense. *Logistics transformation Strategy – Achieving Knowledge-enabled Logistics.* Logistics Transformation Roadmap Steering Group. Washington, D.C. 10 December 2004.)

Figure #2

Macroeconomic Circulation of Global Commodity

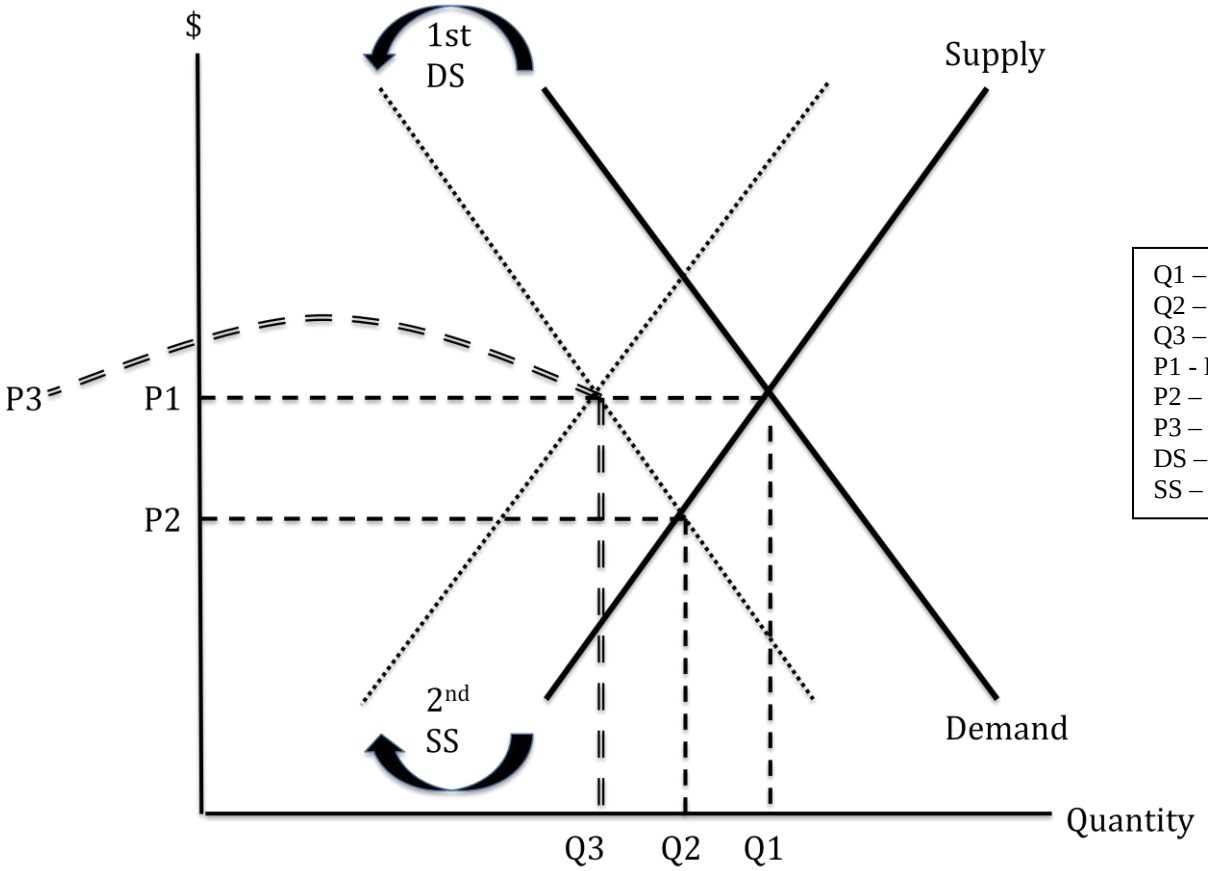
Visual depiction of how a coalition partner or foreign host-nation can provide commodities and processes cheaper and faster than the COCOM could realize if relying solely on organic logistics



Note: Visual depictions of market elements in the macro-economic circulation above are placed in accordance with their physical and tangible relationships. It should therefore be assumed that the distance between the elements translate into physical distances and costs associated thereof. Directional arrows are to be taken as trade-related transactions consisting of the numerous trade and cost of business expenses associated with competitive interactions in the international commodity market and government acquisition infrastructure, respectively.

Figure #3

Economic Principles at Work



Q1 – Quantity 1
Q2 – Quantity 2
Q3 – Quantity 3
P1 - Price 1
P2 – Price 2
P3 – Price 3
DS – Demand Shift
SS – Supply Shift

Event 0: Intersection of solid supply and demand curves for commodity X before the commodity is impacted by a market reaction to cheaper coalition commodity availability. Notice Q1 is Quantity of X demanded at P1, or price of X set at demand of Q1.

Event 1: Ceteris paribus, full adoption of the JxDS concept up to and including the CLC construct leads to a shift in commodity X demand from domestic U.S. sources to host-nation sources. This causes a shift in the demand curve to the left (represented by "1st DS"). Such a shift leads to a lower quantity demanded (Q2) of U.S. domestic suppliers and a resulting drop in price (P2)

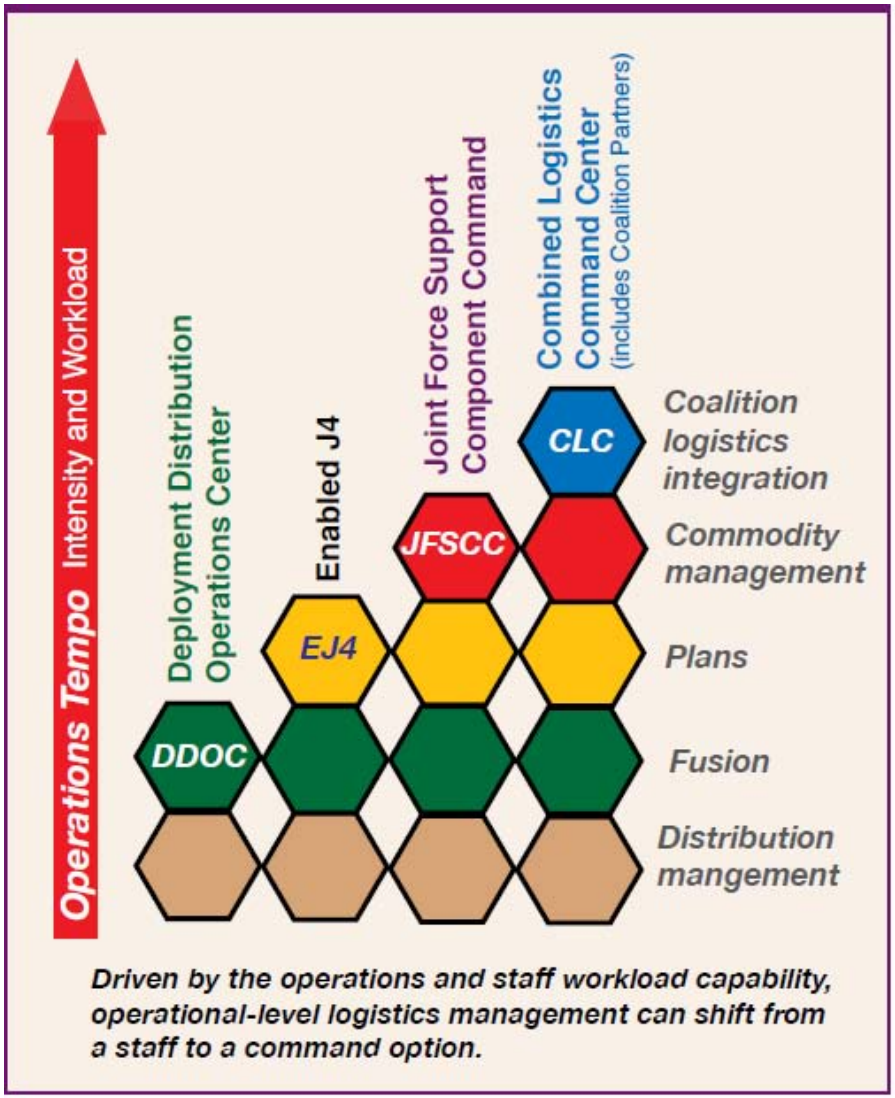
forced on U.S. suppliers to remain competitive. Unfortunately, due to the efficiencies with which host-nation commodity providers operate, the new P2 is too low for domestic U.S. suppliers to profitably compete.

Event 2: Since it is unprofitable for U.S. suppliers to drop their price to P2 to remain competitive, they are forced to decrease their production to match decreased demand levels. This results in a supply curve shift to the left (represented by 2nd SS). This new supply curve represents the price (P3) that can realistically be demanded given the delta between domestic and host-nation production efficiencies. [Note: The visual depiction of this SS is not entirely comprehensive since domestic suppliers could potentially cease production of commodity X if commodity X did not have a duel civilian use.] This shift of the supply curve is indicative of shrinkage in U.S. domestic capacity for commodity X production.

Event 3 (Hypothetical): A sudden surge in commodity X demand by U.S. forces from U.S. domestic sources is caused by a break-down of coalition partnership. Ceteris paribus, this would result in a shift of the demand curve to the right. As can be seen by the intersection of this reverted demand curve relative to the shifted supply curve (dotted supply curve in graph), the new demand is well above the supply levels that domestic U.S. producers are configured to provide. [Note: While it can be argued that a hypothetical increase in price (some value above P1 and P3) could persuade U.S. domestic producers to increase production levels, this does not address the short-term issue of capacity limitation. Even if domestic producers were willing to increase production levels to meet demand by U.S. Forces, the increased capacity would not be immediate. It is this fact that would deny the COCOM an option for immediate unilateral U.S. Force employment.

Figure #4

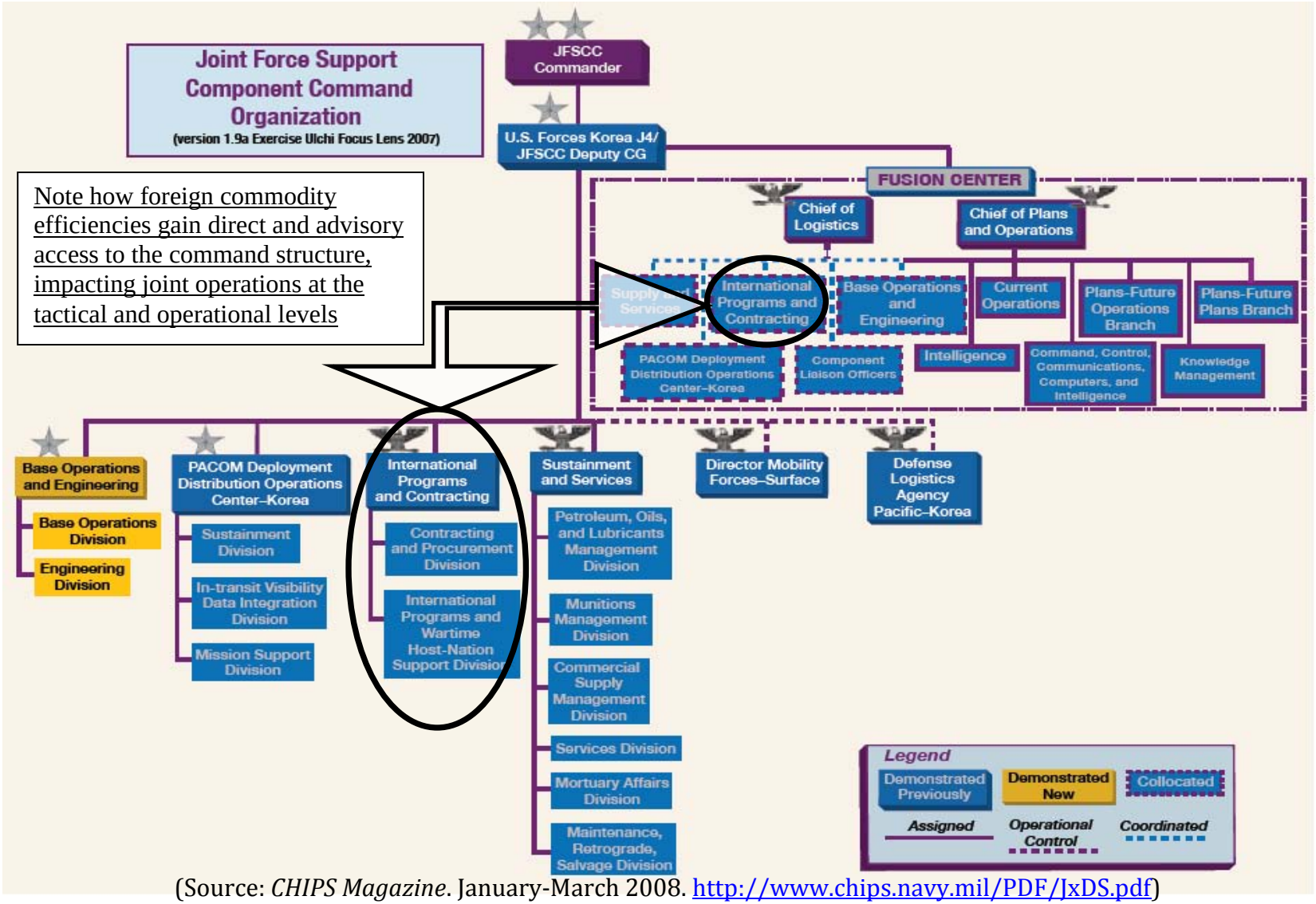
Visual depiction of JxDS Construct



(Source: *CHIPS Magazine*. January-March 2008. http://www.chips.navy.mil/PDF/JxDS.pdf)

Figure #5

JFSCC Command Structure in Exercise Ulchi Focus Lens 2007



(Source: *CHIPS Magazine*. January-March 2008. http://www.chips.navy.mil/PDF/JxDS.pdf)