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NATIONAL DEFENSE UNIVERSITY
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JOINT ADVANCED WARFIGHTING SCHOOL



SUPPLY CHAIN:

WAKE UP; IT IS CRITICAL TO MILITARY SUCCESS

by

Christopher E. Dexter
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**SUPPLY CHAIN:
WAKE UP; IT IS CRITICAL TO MILITARY SUCCESS**


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Colonel, USA


A paper submitted to the Faculty of the Joint Advanced Warfighting School in partial satisfaction of the requirements of a Master of Science Degree in Joint Campaign Planning and Strategy. The contents of this paper reflect my own personal views and are not necessarily endorsed by the Joint Forces Staff College or the Department of Defense.


This paper is entirely my own work except as documented in footnotes.

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Abstract

In the near and long term future, the Joint Force faces two significant challenges: first, a complex and competitive security environment; and second, significantly constrained resources. Regardless of these two challenges, joint warfighters will continue to require robust logistical support to accomplish their missions around the world. The DOD needs to maintain the viability of its global supply chain in order to provide the best support possible, operate within fiscal constraints, and maintain system effectiveness within the complexity and uncertainty of the future strategic environment.

This thesis is an investigation of the governance, management of execution, and processes and procedures of the DOD supply chain to shed light on what may be the more optimal approach to organization and management to provide end-to-end logistical support to future joint warfighters. This paper enlists best practices from successful civilian supply chains and considers them to inform DOD thinking on the subject. A detailed analysis of the governing documents of the supply chain reveals ambiguous legislation, directives, and instructions that lead to inefficiency. By providing clear well-defined roles and responsibilities, the DOD would strengthen the governance of its supply chain. Designating a single process owner would streamline execution management and the implementation of an integrated single information technology system under a process owner would optimize the supply chains processes and procedures. Best practices from industry point to these three adjustments to reduce cost, increase agility, maintain visibility, and ultimately—provide a most effective and efficient end-to-end process.

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Dedication

This thesis would not have been possible without the support of my wife Mona and our three wonderful sons. Their steadfast love, devotion, and support are the reason this project was completed. Thank you. I love you.

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I would like to express my sincere gratitude to several individuals, without whom, this project would not be complete. My primary thesis advisor, Col (USAF) JJ Torres, I would like to thank you for your many hours of mentorship and feedback. Your passion and enthusiasm are amazing and set a high standard for your students to emulate. COL (USA) Chris Rogers and Dr. Rodearmal, your candor and sound advice made a difficult task much easier. Mr. Jeff Turner, thank you for the many hours of tutoring, sound counsel, and leading this amateur on a journey of the English language. Your commitment to excellence is unparalleled. Ms. Jeannemarie Spurlin, Joint Forces Staff College Librarian, your constant assistance and advice are without equal. You are a true professional and a wizard on how to research. Any success related to this project is a direct result of the above-mentioned individuals. All shortcomings are solely mine. Finally, to my JAWS classmates, Col (USAF) Pat Cobb, LTC (USMC) Charlie Cassidy, and LTC (UK Army) Tom Salberg, your steadfast friendship, sense of humor, and presence made a difficult task palatable.

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Chapter 1: Introduction

“The line between disorder and order lies in logistics...”

--*Sun Tzu*

Nature of the Problem

The Budget Control Act (BCA) of 2011 mandates a \$487 billion, ten-year cut in defense spending. Acknowledging the significant fiscal impact on the Department of Defense (DOD), the Secretary of Defense (SECDEF) in the 2014 Quadrennial Defense Review (QDR) directs a rebalancing of defense.¹ This rebalance includes restructuring and reductions while remaining responsive to the changing and unpredictable security environment. The federal government is one of the world’s largest and most complex organizations, obligating over \$3.5 trillion in 2012. Without relief, severe fiscal constraints under sequestration will affect all branches of the government through at least 2022.

The Chairman of the Joint Chiefs of Staff (CJCS), General (GEN) Martin Dempsey, acknowledging impending fiscal constraints addresses strategic realities in his first Strategic Direction to the Joint Force, where he challenged the United States (U.S.) Military Departments to develop the Joint Force for 2020. GEN Dempsey’s vision of the Joint Force for 2020 is one that remains ready to answer the Nation’s call—anytime, anywhere. In the near and long term future, the Joint Force faces two significant challenges: first, a complex and competitive security environment; and second,

¹ Office of the Secretary of Defense, *Quadrennial Defense Review* (Washington DC: Department of Defense 4 March 2014), VIII, XIV.

significantly constrained resources.² Continuing his message in his second Strategic Direction to the Joint Force, GEN Dempsey recognizes that constrained resources will force the military to get smaller and require more agility.³

Acknowledging current fiscal realities and accepting the challenges posed by both the SECDEF and the CJCS, change is unavoidable. The U.S. military is at a crossroads and has an exceptional opportunity to shape the future force if it is willing to embrace change. By embracing fiscal realities now, the U.S. military can lead in shaping a future force structure that meets the Chairman's vision. The logistics enterprise is a critical component to the success of the U.S. Military. This enterprise also needs to evolve to generate greater logistical efficiencies in the future to enable the military machine to remain postured to protect the security interests of the United States.

The Government Accountability Office (GAO) provides a biennial report to the United States Congress that identifies high-risk areas.⁴ Within the studies, the GAO added the Department of Defense (DOD) Global Supply Chain management to the high-risk list in 1990. The DOD global supply chain remains assessed at high risk today.⁵ In reports ranging from 2005-2015, the GAO noted significant shortcomings of the global supply chain not only in Operation Iraqi Freedom (OIF) but in steady state operations as well. One report identified problems that included backlogs of hundreds of pallets and

² Chairman of the U.S. Joint Chiefs of Staff, *Chairman's Strategic Direction to the Joint Force* (Washington DC: Joint Chiefs of Staff, February 6, 2014), 2-5.

³ Chairman of the U.S. Joint Chiefs of Staff, *Chairman's 2nd term Strategic Direction to the Joint Force* (Washington DC: Joint Chiefs of Staff), 7.

⁴ Government Accountability Office, *Report to Congressional Committees: High-Risk Series, An Update*, U.S. Congress (Washington DC, 2013), 2.

⁵ Government Accountability Office, *Report to Congressional Committees: High-Risk Series, An Update*, GAO-15-290, U.S. Congress (Washington DC, February 11, 2013), 8, 19.

containers at distribution points (slowing delivery to the joint warfighter) and shortages of critical high usage items such as tires and batteries.⁶

A second report described a disjointed distribution management structure that did not support timely delivery of supplies to the warfighter.⁷ While similar challenges existed in Afghanistan, additional difficulties included one of the harshest logistics environments on earth, an inadequate information system, an inability to provide in-transit visibility, and a lack of visibility of critical supplies.⁸ As recently as February 2015, the GAO identified three areas for improvement within the DOD global supply chain, not related to austere environments. They include inventory management, materiel distribution, and asset visibility.⁹ The DOD must address its global supply chain shortcomings sooner than later.

The optimal organization for the Department of Defense (DOD) global supply chain to best support the Joint Warfighter is undecided. There is a range of arguments in the current literature regarding the inefficiencies inherent in the current DOD global supply chain. Yet there appears to be a lack of consensus on how best to address these inefficiencies. Some of the relevant options include maintaining the status quo, more extensively integrating and synchronizing the logistics enterprise processes and activities, and a wholesale fusing of the capabilities.

The Department of Defense needs to improve its global supply chain in order to provide the best possible support to the Joint Warfighter; thus, maintaining the status quo

⁶ Government Accountability Office, *DOD's High Risk Areas: Challenges Remain to Achieving and Demonstrating Progress in Supply Chain Management*, U.S. Congress, (Washington DC, 2006), 6.

⁷ Government Accountability Office, *Defense Logistics: Actions Need to Improve the Availability of Critical Items during Current and Future Operations*, U.S. Congress, (Washington DC, 2005), 140.

⁸ Government Accountability Office, *Warfighter Support: DOD Has Made Progress, but Supply and Distribution Challenges Remain in Afghanistan*, U.S. Congress, (Washington DC, 2011), 1, 28.

⁹ GAO-15-290, 184.

is not an acceptable option. An investigation of the governance, management of execution, and process and procedures sheds light on what may be the more optimal reorganization for the DOD global supply chain to best support the joint warfighter in the future. A study of the governance provides insight into the redundant and ambiguous governing structure. While a review of the management of execution discovers an opportunity to more closely align roles and responsibilities, potentially combine activities, processes, and procedures, and even fuse organizations.

While the Department of Defense global supply chain is not broken, in light of future fiscal and other environmental constraints, the current structure requires evolutionary change in order to achieve efficiency in business practices in steady state activities and effectiveness to surge to warfighter requirements during contingency or wartime operations. Therefore, this thesis will investigate changes to the governance and management of execution of the DOD's global supply chain. The thesis will also study civilian supply chains to identify opportunities and lessons for DOD consideration. Changes considered will include the potential impact of a more extensive integration of processes and activities and the potential of a wholesale fusion of organizations. The goal of the research is to shed light on what may be the potential, viable approaches for DOD global supply chain improvement going forward.

Regardless of fiscal constraints in the future, joint warfighters will continue to require robust logistical support for their varied missions around the world. The challenge for military logisticians is to ensure the global supply chain is agilely postured with the right capabilities to respond to emerging joint warfighter requirements. In the future, fiscal restrictions and warfighting requirements will demand the global supply

chain demonstrate efficacy in business practices in steady state operations as well as the ability to surge effectively into extremely austere environments.

Scope

The fundamental premise of the DOD global supply chain is an end-to-end process from customer order and procurement to transportation and delivery. Due to the limitations on the size of this research project, this paper will limit its analysis of the DOD's global supply chain to the operational/strategic level. For the purposes of this research, this paper will consider two elements of the global supply chain. First, the research will consider the governance of the DOD's global supply chain. Second, the research will focus on the two primary organizations that are responsible for the management of the execution of the DOD's global supply chain: the Defense Logistics Agency for procurement and the U.S. Transportation Command for distribution. Additional limitations on this project precluded the study of a few areas that may inform further research: First, other procurement organizations (such as GSA and the services) and their roles in the global supply chain. Second, the challenge of change management and how to ensure the DOD is postured to successfully institute change in its global supply chain. Finally, a cost benefit analysis of the recommended changes to the DOD supply chain would be valuable in future study.

Chapter 2: Department of Defense Global Supply Chain

“Gentlemen, the officer who doesn’t know his communication and supply as well as his tactics is totally useless.”

--General George S. Patton, US Army

Starting in the early 1800s, Baron Antoine Henri de Jomini began experiencing events that helped shape his thoughts that led to his book *The Art of War*. Jomini believed that successful military leaders are concerned with logistics and the significant impact of logistics on strategy. Jomini even discusses some tenets of a supply chain (although he does not use that term) when detailing the establishment of depots along an army’s route of march from home base.¹

Over two hundred years ago, Jomini deemed military logistics and supply chains important enough for discussion in his seminal military book. Logistics continue to be critical to the success of military operations. Whether conducting training in steady state operations or while deployed in combat to an austere environment, without logistics military operations are at risk of failure. Joint Publication 4-0 defines the Department of Defense (DOD) global supply chain as:

A global network that provides materiel, services, and equipment to the joint force. The fundamental goal of the supply chain is to understand the requirements, maximize the force readiness and optimize the allocation of joint resources. The functional capabilities that contribute to the DOD supply chain include management of supplies and equipment, inventory management, management of global supplier networks, and assessment of global requirements, resources, capabilities, and risks. The DOD’s supply chain responsiveness and reliability affects the readiness and capabilities of U.S. military forces and is critical to the overall success of joint operations.²

¹ Baron Antoine Henri de Jomini, *The Art of War* (London, Greenhill Books, 1996), 69, 262.

² U.S. Joint Chiefs of Staff, *Joint Logistics*, Joint Publication 4-0, Joint Chiefs of Staff (Washington DC, 2013)

The Principal Deputy Assistant Secretary of Defense for Logistics and Materiel Readiness, Mr. Alan F. Estevez, testified in front of a Senate Committee in 2010. In his statement, Mr. Estevez defined the DOD supply chain as, "...unparalleled in its scope and operations and the complexity of its mission. Over one million uniformed, civilian, and contract employees support all aspects of the Department's supply chain...managing \$90 billion in inventory and processing over 117,000 orders for materiel daily...often in harm's way."³ Clearly, the DOD global supply chain is a complex and large organization. This chapter discusses the governance, management of the execution, and processes and procedures of the DOD global supply chain.

Governance

In its 2012 report, the Government Accountability Office (GAO) identified two organizations within the DOD that serve important oversight roles and responsibilities for the global supply chain and materiel distribution—the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD (AT&L)) and United States Transportation Command (USTRANSCOM).⁴ While this is true, several other organizations within the DOD also serve important roles in the governance and management of execution over the DOD global supply chain. With regard to governance, three primary organizations bear responsibility for the DOD global supply chain. They are the USD AT&L, the Assistant

³ Alan F. Estevez testimony to US Congress, Senate, Committee on Homeland Security and Governmental Affairs. 2010, *High-Risk Logistics Planning: Progress on Improving Department of Defense Supply Chain Management*, 111th Cong., 2nd sess., July 27, 2010.

⁴ Government Accountability Office, *GAO-12-883R Defense Logistics* (Washington DC: GAO, 3 August 2012) 7-8.

Secretary of Defense, Logistics and Materiel Readiness (ASD (L&MR)), and the Deputy Assistant Secretary of Defense for Supply Chain Integration (DASD (SCI)).

Both U.S. law and strategic directives assign roles and responsibilities to the USD (AT&L). USC, Title 10, Subtitle A, Part I, Chap 4, sec 133 empowers the USD (AT&L) to establish policies for logistics, maintenance, and sustainment support; however, it does not specifically use the term global supply chain.⁵ Department of Defense Directive (DODD) 5134.01 assigns many responsibilities to the USD (AT&L). The USD (AT&L) serves as the principal staff assistant and advisor to the SECDEF for all matters related to logistics and is designated the Defense Logistics Executive (DLE) with overall responsibility for improving and maintaining defense logistics and the global supply chain.⁶

DODD 5134.01 allows the USD (AT&L) to promulgate DOD policy through DOD Instructions (DODI). While the directive authorizes the USD (AT&L) to synchronize strategic plans, policies, and programs to ensure the supply chain is attentive and responsive, it does not specify the authority to establish policy for the global supply chain. This shortcoming limits the USD (AT&L)'s ability to exercise the authority required to improve and maintain the global supply chain.

Finally, the directive grants the USD (AT&L) the ability to exercise authority, direction, and control over the ASD (L&MR) and the Director, Defense Logistics Agency (DLA) (through the ASD (L&MR)).⁷ However, in somewhat more vague language,

⁵ United States Code, Title 10, Subtitle A, Part I, Chap 4, sec 133, <http://uscode.house.gov/browse.xhtml> (accessed December 10, 2014).

⁶ U.S. Department of Defense, *DOD Directive 5134.01: Under Secretary of Defense for Acquisition, Technology, and Logistics (USD (AT&L))*, Department of Defense (Washington DC, April 1, 2008).

⁷ DODD 3000.06, Combat Support Agencies, establishes (USD AT&L) as the OSD component head with authority, direction and control over the DLA.

paragraph 3.33 of the directive specifically states that the DLE provides advice to the Director, DLA, on global supply chain decisions.⁸ Notably, none of the implementing documents discusses a relationship between the USD (AT&L) and the USTRANSCOM.

Similarly, the roles and responsibilities of the Assistant Secretary of Defense for Logistics and Materiel Readiness (ASD (L&MR)) are defined in USC, Title 10, Subtitle A, Part I, Chap 4, sec 138a and DODD 5134.12. Both documents designate the ASD (L&MR) as the principal advisor and logistics official to the USD (AT&L), and places the ASD (L&MR) within the senior management of the Department of Defense. Additionally, both USC and DODD 5134.12 further assign responsibility to prescribe policies and procedures for the conduct of logistics and sustainment support across the DOD (specifically includes supply and transportation).⁹

However, the ASD (L&MR) is limited to providing guidance and consulting with the secretaries of the military departments on logistics and sustainment support. The directive empowers the ASD (L&MR) to exercise authority, direction, and control over the DLA.¹⁰ Of note, neither the USC nor the directive mention or discuss any responsibility for the DOD global supply chain nor a command and control relationship with USTRANSCOM.

The Deputy Assistant Secretary of Defense for Supply Chain Integration (DASD (SCI)) is subordinate to the ASD (L&MR). There are no assigned roles or responsibilities to the DASD (SCI) in USC, DOD directives, or instructions. However,

⁸ U.S. Department of Defense, *DOD Directive 5134.01: Under Secretary of Defense for Acquisition, Technology, and Logistics (USD (AT&L))*, Department of Defense (Washington DC, April 1, 2008).

⁹ United States Code, Title 10, Subtitle A, Part I, Chap 4, sec 138a, <http://uscode.house.gov/browse.xhtml> (accessed December 10, 2014).

¹⁰ U.S. Department of Defense, *DOD Directive 5134.12, Assistant Secretary of Defense for Logistics and Materiel Readiness (ASD(L&MR))*, Department of Defense (Washington DC: October 1, 2010), 2-3.

the ASD (L&MR) empowers the DASD (SCI) to serve as the most senior level executive responsible for the orchestration, synchronization, and integration of the defense wide global supply chain on behalf of the ASD (L&MR). Most importantly, the ASD (L&MR) charges the DASD (SCI) with leading the development of global supply chain policy and guidance across the Department of Defense, and overseeing integration of end-to-end global logistics and supply chain performance in partnership but with no prescribed relationship with supply chain management organizations.¹¹

There are two essential concerns for the governance of the DOD global supply chain. First, the language in directives, instructions, and other strategic and implementing documents lacks clarity. They do not clearly articulate specific roles and responsibilities for the various governance structures. In accordance with DODD, the USD (AT&L) as the DLE is responsible to synchronize but not establish policy for the global supply chain. The ASD (L&MR), the principal advisor for logistics, has no prescribed authority for the global supply chain and the DASD (SCI) is not empowered through any documents. Second, command and control relationships between governance and execution management organizations are limited and may not provide the specificity vital to foster success. These reasons suggest there are areas of inefficiency within the DOD supply chain due to the disaggregated nature of the governance structure.

Management of Execution

Within management of execution, two organizations serve extremely important roles for the global supply chain and supporting the joint warfighter. They are

¹¹ DASD (SCI), http://www.acq.osd.mil/log/sci/n_index.htm, (accessed January 2, 2015) and phone interview with Ms. Emily Richonne, Executive Assistant to the DASD (SCI), conducted January 5, 2015).

USTRANSCOM—primary role in the global supply chain is distribution, and the Defense Logistics Agency (DLA)—primary role in the global supply chain is procurement.

In 2003, after significant study and analysis identified challenges to the overall efficiency and interoperability of distribution related activities, the SECDEF assigned the role of Distribution Process Owner (DPO) to the USTRANSCOM.¹² The DPO is responsible to achieve effectiveness, efficiency, and alignment of DOD-wide distribution activities in accordance with DOD policy. This is especially important when distribution issues involve more than one Military Department. The establishment of the DPO addresses cross-department/component distribution issues; however, a similar process owner does not exist for the entire global supply chain.

In the Unified Command Plan (UCP), the President establishes USTRANSCOM as a Functional Combatant Command¹³ (FCC) and further reaffirms the previous designation of USTRANSCOM as the Distribution Process Owner (DPO), responsible for “...distribution process improvements that enhance Defense Logistics and Global Supply Chain Management.”¹⁴ DODD 5158.04 also designates USTRANSCOM as the DPO and gives USTRANSCOM combatant command¹⁵ (COCOM) authorities over the following services components: The Military Surface Deployment and Distribution

¹² U.S. Department of Defense, Secretary of Defense, *Memorandum: Actions to Improve Logistics and Global Supply Chain Management*, Department of Defense (Washington DC, September 16 2003).

¹³ JP 1 defines an FCC as a command normally, but not necessarily, composed of forces of two or more Military Departments which may be established across the range of military operations to perform particular operational missions that may be of a short duration or may extend over a period of time.

¹⁴ President, *Unified Command Plan*, Federal Register (6 April 2011, with Change-1 dated 12 September 2011), 1, 29-31.

¹⁵ According to Title 10 of the U.S. Code (USC) 164(c), COCOM authority includes giving authoritative direction, organizing, and employment of subordinate commands and forces, necessary to carry out missions assigned to the command, including authoritative direction over all aspects of military operations, joint training, and logistics.

Command (SDDC) of the Army, the Military Sealift Command (MSC) of the Navy, and the Air Mobility Command (AMC) of the Air Force. However, DODD 5158.04 only establishes a collaborative relationship between USTRANSCOM and DLA to support distribution process improvement efforts.¹⁶ USTRANSCOM, as an FCC, works for and reports through the SECDEF to the President. Furthermore, DODD 5158.04 does not specifically mention global supply chain and directs the DPO to establish a compliant relationship with the ASD (L&MR).

While the role of Distribution Process Owner broadly assigns distribution responsibility to the TRANSCOM, it does not include end-to-end responsibility or authority for the global supply chain. Both the GAO and DOD identified weaknesses across the entire global supply chain including distribution, visibility, management, excess inventory, lack of an integrated information management system, and a failure to apply lessons-learned.¹⁷ In 2005, the GAO reported that joint forces in Operation Iraqi Freedom encountered supply backlogs, losses, delays, shortages of critical parts, cannibalized equipment, and accounting discrepancies totaling over \$1.2B.¹⁸ The GAO in subsequent and more recent publications from 2013 and 2015 report that the DOD has made moderate progress but that several long-standing problems remain. Ultimately, the GAO continues to maintain the DOD supply chain on the high-risk area report.¹⁹ The

¹⁶ U.S. Department of Defense, *DOD Directive 5158-04: United States Transportation Command*, Department of Defense (Washington DC, 2007).

¹⁷ Christine Brim, *Logistics Transformation: Next Steps to Agile Supply Chain Integration* (Arlington: Lexington Institute, July 2005), 3-4.

¹⁸ Government Accountability Office, *GAO-05-207 High Risk Series, an Update* (Washington DC: GAO, 1 January 2005) 66.

¹⁹ Government Accountability Office, *Report to Congressional Committees: High Risk Series, an Update* (Washington DC: GAO, February 2013) 142; and Government Accountability Office, *Report to Congressional Committees: Defense Logistics* (Washington DC: GAO, February 2015) 66.

lack of a single structure responsible for operational level end-to-end execution management may exacerbate these weaknesses.

DLA is a critical element of military logistics and supports the USD (AT&L), in his/her role as the DLE to integrate and improve the global supply chain through collaboration with the military departments and USTRANSCOM.²⁰ However, the directive also instructs the DLA to report directly to the ASD (L&MR), who reports to the USD (AT&L) but has no specified role in the DOD global supply chain. The scope and scale of DLA responsibilities includes management of nine different supply chains, and procurement of nearly six million items annually to include nearly 100% of the consumable items and more than 85% of spare parts the joint force requires.²¹ DODD 3000.06 establishes the DLA as a Combat Support Agency (CSA) and places the DLA in a supporting relationship to the Combatant Commands.²² The language in DODD 3000.06 indicates a supporting role of all the combatant commands through the provision of supplies and services (global supply chain). This does not, however, establish a unique command and control relationship between the DLA and USTRANSCOM regarding the global supply chain.

There are two observations from the analysis of execution management for the DOD global supply chain. First, the global supply chain does not have a designated process owner. Second, the two primary organizations responsible for critical functions within the global supply chain only have a collaborative relationship. The DOD lacks a

²⁰ U.S. Department of Defense, *DOD Directive 5105.22: Defense Logistics Agency*, Department of Defense (Washington DC, 2006).

²¹ Defense Logistics Agency, <http://www.dla.mil/> (accessed on December 19, 2014).

²² U.S. Department of Defense, *DOD Directive 3000.06, Combat Support Agencies (CSAs)* (Washington DC: Department of Defense, June 27, 2013), 8 & 10.

single execution management structure: a single organization that provides operational-level management of execution for the DOD global supply chain. Such a lack of organizational structure may exacerbate current shortfalls. These points might proffer explanations of the inefficiencies within the DOD global supply chain, because of a lack of unified effort.

Processes and procedures

There is a library of DOD directives, instructions, and manuals that govern the processes and procedures of the global supply chain. Particularly important for supply chain management is DODI 4140.01, which establishes the DOD Supply Chain Material Management Policy. The instruction assigns policy responsibility to the USD (AT&L) and the ASD (L&MR). The instruction also directs that the supply chain provide best value in support of rapid power projection and operational sustainment, while mitigating risk to supply chain operations. The policy instructs the consideration of cost; however, not at the expense of an inability to fulfill joint warfighter requirements. Finally, the DODI directs DLA to comply with all supply chain issuances, and to, “provide for an integrated, synchronized, end-to-end materiel distribution system...consistent with DODD 5158.04 (USTRANSCOM) and DODI 5158.06 (DPO).”²³ While DODI 4140.01 clearly establishes a lead for global supply chain policy, it misses an opportunity to clearly designate one lead organization for the execution management portion of the global supply chain.

²³ U.S. Department of Defense, *DOD Instruction 4140.01 DOD Supply Chain Material Management Policy*, Department of Defense (Washington DC, December 14, 2011), 8-9.

Department of Defense Manual (DODM) 4140.01v1 provides an extensive and insightful list of supply chain strategies, processes, and business practices. It also provides definitions that standardize supply chain terminology for use in the DOD global supply chain. However, the DODM broadly assigns the supply chain strategies, processes, and business practices to the *DOD Components* versus designating one lead organization for the supply chain and directing all other organizations to serve in a supporting role.²⁴ By broadly assigning strategies, processes, and business practices to the DOD components, the DOD risks having multiple disjointed strategies, processes and/or business practices.

Complicating the process is the use of multiple information systems with limited interoperability.²⁵ DOD customers place orders through a multitude of information technology (IT) systems, while DLA procures writ large through its Enterprise Business System (EBS), and TRANSCOM utilizes the Global Transportation Network (GTN) to monitor distribution. Additionally, DLA monitors global distribution data in two additional information systems: first, is the Logistics Metric Analysis Reporting System (LMARS); and second, the Strategic Distribution Database. DLA transmits data from these systems to USTRANSCOM on a monthly basis.²⁶ Month old data may create information gaps that facilitate untimely and unformed decisions. While the myriad

²⁴ U.S. Department of Defense, *DOD Manual 4140.01, Vol 1 DOD Supply Chain Material Management Procedures: Operational Requirements*, Department of Defense (Washington DC, February 10, 2014), 5-8.

²⁵ Defense Business Board, *Global Logistics Management*, Global Logistics Management Task Group (Washington DC, 2011), 2.

²⁶ Government Accountability Office, *Report to Congressional Committees: Defense Logistics* (Washington DC: GAO, February 2015), 9.

systems interface, a single information system that enables global supply chain visibility from order, through procurement, to distribution may eliminate information gaps.

To synchronize the global supply chain, the USTRANSCOM and DLA currently exchange Liaison Officers (LNO).²⁷ The primary role of an LNO is to facilitate communications between organizations to ensure a common understanding and unity of purpose and action. LNOs perform four critical functions: they monitor, coordinate, advise, and assist their respective organizations to accomplish their mission.²⁸

In its role as the DPO, USTRANSCOM hosts three regularly occurring boards. The boards are the quarterly distribution Steering Group, the semi-annual Distribution Oversight Council, and the annual Distribution Executive Board. These boards are collaborative bodies, include all relevant supply chain organizations, and often discuss policy, doctrine changes, and provide distribution information briefings.²⁹ While USTRANSCOM leads these efforts in its role as the DPO, each organization serves its own independent role in the global supply chain.

The directives and instructions reviewed in this research project broadly direct the DLA and other procurement organizations to provide for an integrated, synchronized, end-to-end materiel distribution system, consistent with USTRANSCOM as the DPO. However, there are no directives and instructions that designate a single entity responsible for the end-to-end execution of the global supply chain; instead, the directives instruct the organizations to collaborate to improve the global supply chain.

²⁷ Dr. Mark Cyr, US TRANSCOM J4, Branch Chief, Distribution Process Owner Strategic Opportunities, interview by Christopher E. Dexter, December 3, 2014.

²⁸ JTF LNO Integration, *Multiservice Tactics, Techniques, and Procedures for Joint Task Force (JTF) Liaison Officer Integration*, January 2003, retrieved from www.adtdl.army.mil, I3-I4.

²⁹ Dr. Mark Cyr.

This informal relationship and lack of a command and control structure potentially leads organizations to focus on internal priorities and may inhibit unity of purpose and action in the global supply chain.

This review identifies two points of focus for analysis with regard to the processes and procedures for the DOD global supply chain. First, a single IT system that provides end-to-end visibility of the supply chain may enable both the governing and managing bodies to make informed and timely decisions. Second, similarly to the review of the management of execution, a single process owner with clear relationships with supporting organizations may be better postured to control processes and procedures that enable efficiency.

Chapter 3: Civilian Global Supply Chains, Can they inform the DOD?

“Mobility is the true test of a supply system.”
--Captain Sir Basil Liddell Hart: *Thoughts on War*, (1944)

Context

Every year just in the United States, companies spend over one trillion dollars on supply chain efforts.¹ Companies often find significant savings by increasing the efficiency of their supply chains, and there are literally hundreds of books and even more articles written about supply chain management best practices. This chapter identifies the best practices of civilian supply chains, shares how three companies succeeded in supply chain management, and identifies lessons for the Department of Defense.

The concept of working with suppliers and customers is as old as trade itself. However, the term supply chain is a more recent concept. While one of the earliest mentions of logistics or the concept of a supply chain was by Jomini in the early 1800s, serious study of the relationship between customers and suppliers began in the 1950s at the Massachusetts Institute of Technology.² In the 1980s, the term *supply chain management* was coined to encompass transportation, distribution, and materiel management.³ Today the cost and impact of supply chains can make or break a company because of the fiscal savings and/or cost involved.

David Taylor offers that supply chain management is no longer a support function, but in fact is now a core competency that affects an entire company.⁴

¹ David Blanchard, *Supply Chain Management: Best Practices* (Hoboken, John Wiley & Sons, 2007), xi.

² *Ibid.*, 8.

³ *Ibid.*, 9.

⁴ David Taylor, *Supply Chains: A Manager's Guide* (Boston MA, Addison-Wesley, 2004), xvi.

Companies that relegate supply chain management to a low priority will ultimately pay a significant price. It is imperative that supply chain considerations reach the highest levels of management in order to succeed.

When thinking about supply chains, one must be aware of two things. First, they are everywhere. Every company is subject to the quirks of a supply chain and its management. Second, not all supply chains are the same. When attempting to improve supply chains, supply chain professionals must proceed with caution. Supply chain best practices that work for one company may not work for another. Supply chain professionals must truly understand the mission of their company and then determine which best practices from other organizations to utilize in their business.⁵

Successful Supply Chains

Government and private company supply chains have many similar challenges. There are numerous examples of well-known companies that have experienced significant supply chains difficulties. However, many companies do successfully manage extensive supply chains with characteristics similar to that of the Department of Defense.

There are many supply chain lessons organizations can learn from these leading companies. Gartner, Inc. a leading information technology research and advisory company identifies three key trends that the best companies follow that separate them from the rest of the pack. The first trend is having a clear understanding of the customer. Companies that identified their customers as the starting point tended to succeed. The second trend was a convergence of digital and physical supply chains delivering total

⁵ John Gattorna, *Living Supply Chains: how to mobilize the enterprise around delivering what your customers want* (Edinburgh Gate, U.K., Pearson Education, 2006), 2-3.

customer solutions. Leading companies are delivering more than just supplies, they are delivering solutions and in some cases participating in the planning with their customers. The final new trend for 2014 was establishing the supply chain as a trusted and integrated partner.⁶ Successful corporate CEOs clearly understand that supply chains contribute to future growth.

Gartner, Inc. publishes an annual Supply Chain Top 25 ranking. The intent of Gartner’s Top 25 list is to share best business practices and the importance of supply chain management with supply chain professionals and corporate executives alike. To rate the top supply chains, Gartner used the following five criteria: peer opinions (25%); supply chain expert opinions (25%); return on assets (ROA) (25%); inventory turns (15%); and revenue growth (10%). When combined the five criteria generated a total composite score. Gartner’s 25 top supply chains are included at figure 3-1.

1	Apple	10	The Coca Cola Co.	19	Qualcomm
2	McDonald’s	11	Inditex	20	Seagate Tech
3	Amazon	12	Nike	21	Kimberly-Clark
4	Unilever	13	H&M	22	Johnson&Johnson
5	P&G	14	Walmart	23	Caterpillar
6	Samsung Electric	15	PepsiCo	24	Cummins
7	Cisco Systems	16	Lenovo Group	25	Nestlé
8	Intel	17	Starbucks		
9	Colgate-Palmolive	18	3M		

Figure 3-1⁷

⁶ Stan Aronow, et al, *The Gartner Supply Chain Top 25 for 2014*, 15-17, <http://www.gartner.com/doc/2746917?refval=&pcp=mpe#a1230436674> (accessed on October 15, 2014).

⁷ Ibid., 10.

Apple topped the chart for the seventh straight year. Amazon was number three, while Walmart, at number 14, marks its 10th consecutive year (in 10 years of reporting) on the list as a top supply chain company.

Another professional supply chain group, the American Production and Inventory Control Society (APICS) merged with the Supply Chain Council (SCC) in 2014 and formed the organization APICS SCC. The APICS SCC is a nonprofit supply chain organization dedicated to advancing supply chains. The APICS SCC maintains the Supply Chain Operations Reference (SCOR) model, represented at figure 3.2, which is widely accepted by both civilian corporations and the DOD as the framework for planning, assessing, and comparing supply chains.⁸ The use of the SCOR model typically transforms organizations into top performers in their industry.

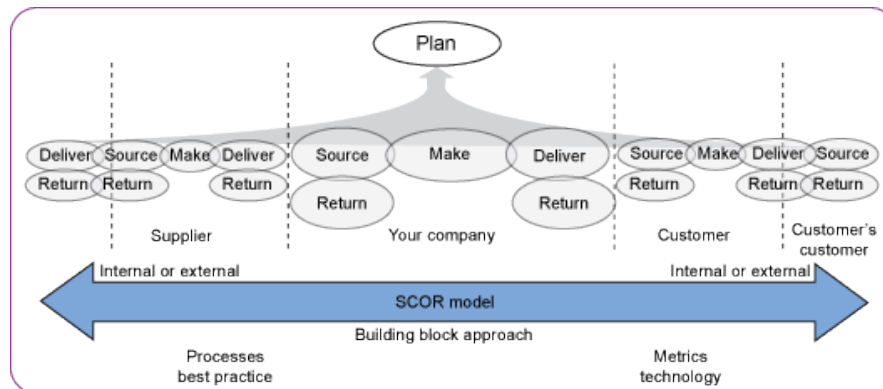


Figure 3-2⁹

According to Siegl and Blanchard, the SCOR model provides an industry-wide approach to analyze and improve the performance of supply chains. DOD 4140.1-R directs the components to use the SCOR model as a framework for developing,

⁸ APICS Supply Chain Council, <http://www.apics.org/sites/apics-supply-chain-council/about-apics-scc> (accessed on December 10, 2014).

⁹ MAJ Michael B. Siegl, "Understanding the Supply Chain Operations Reference Model," *Army Logistician*, May-June 2008, <http://www.alu.army.mil/alog/issues/MayJun08/> (accessed on Oct 15, 2014).

improving, and conducting materiel management activities to satisfy customer requirements in coordination with support providers.¹⁰ The SCOR model introduces a way to plan supply chains. The model is a management tool that explains supply chain processes and provides a foundation to improve them.

A third professional supply chain group, the Peerless Research Group, identifies supply chain segmentation as a principal that successful companies employ.¹¹ Supply chain segmentation is a dynamic and responsive linkage between customer demands and a specific type of supply. Segmentation allows for independent management, policy, and rules that may be unique from other segments of the supply chain.

A review of supply chain professional organizations reveals several lessons that could benefit the DOD's supply chain. Supply chain segmentation offers the DOD an opportunity to successfully manage the wide array of products required by the joint warfighter. The SCOR model provides a building block approach to linking the supply chain from end-to-end. Finally, through their numerous studies, the professional organizations offer the characteristics and traits common to companies with successful supply chains. Application of this information could set the foundation when planning for change.

Leading Companies in Supply Chain Management

Gartner's Top 25 supply chains considers Apple Inc. the top company in America for its supply chain. Historically, Apple has succeeded through complete ownership of

¹⁰ U.S. Department of Defense, DOD 4140.1-R, *DoD Supply Chain Material Management* (Washington DC, 2003), 19.

¹¹ Peerless Research Group, *Realizing Business Productivity through Supply Chain Segmentation*, http://www.scmr.com/article/research_report_realizing_business_productivity_through_supply_chain_segmen (accessed on January 28, 2015).

the governance of its supply chain, from concept to policy control. However, in the past, various segments, such as distribution and storage were outsourced. Recently Apple began shifting its supply chain under internal control.¹² Apple also pays cash for the construction costs of the supplier factories in exchange for exclusive rights to the output production of the factory for a set period and then for a discounted rate thereafter. This does two things for Apple. First, Apple has access to the new product well before its peers. Second, when its peers eventually catch up, Apple has an arrangement to get the product at a lower cost.¹³ While the DOD may not want or be able to spend money to build infrastructure for its suppliers, it should leverage its volume to gain priority access or discounted rates for predictable or routine products.

However, Apple did not always have the best supply chain. In 1998, Steve Jobs hired Tim Cook to improve the supply chain. Cook determined that Apple's supply chain was overly complex and began a process to simplify it. Key areas of change that contributed to Apple's success are a higher inventory turnover rate, a reduced number of key suppliers, a small number of warehouse facilities to manage, a lower number of physical products to manage, and an outsourcing of manufacturing, all with centralized control.¹⁴

As the co-founder and former CEO of Apple, Steve Jobs shared his seven supply chain lessons that contribute to Apple's success. His first lesson is that the customer always comes first and cost cutting comes second. Second, companies need to set

¹² Aronow, 11.

¹³ Pascal-Emmanuel Gobry, *Apple's...Exclusive Supply Chain of Advanced Technology [is] Literally Years ahead of Anyone Else on the Planet*, <http://www.businessinsider.com/apple-supply-chain-2011-7> (accessed on December 10, 2014).

¹⁴ Supply Chain Opz, *Is Apple Supply Chain Really the No. 1? A Case Study*, <http://www.supplychainopz.com/2013/01/is-apple-supply-chain-really-no-1-case.html> and <http://www.supplychainopz.com/2014/06/supply-chain-case-study.html>, (accessed on December 10, 2014).

impossible targets. Third, companies should prioritize actions based on their importance. Fourth, they should adopt a process view throughout the organization such as the SCOR model.¹⁵ Fifth, simplify the product and the process. Sixth, make radical changes when necessary. Finally, Jobs stressed enhancing relationships through face-to-face meetings.¹⁶

Due to Apple's size and business model there are some attributes that the DOD cannot consider, such as reducing suppliers and number of products to manage. However, there are some lessons that the DOD can take from Apple. First, is to consider Apple's success in bringing supply chain in-house, under the control of a single management structure. Second, making radical changes when necessary. Finally, view the supply chain as one single process from end-to-end in order to improve efficiency and reduce costs.

Amazon finds itself ranked third on Gartner's Top 25 Supply Chains and in the top five since 2007. Its supply chain is one of the most sophisticated in the world. Amazon fully subscribes their success in business to the success of their supply chain.¹⁷ Amazon's experience and success in supply chain management is evident through other retailers outsourcing supply chain management to Amazon. Today, Amazon is exploring bringing the last remaining outsourced portion of their supply chain, the final leg of delivery, in house.¹⁸ Currently a number of companies are deciding to bring supply chain management back in house to not only increase profits and reduce costs, but also to re-

¹⁵ View the supply chain as one end-to-end process instead of in segments.

¹⁶ Supply Chain Opz, *7 Supply Chain Lessons from Steve Jobs*, <http://www.supplychainopz.com/2013/08/7-supply-chain-lessons-apple-steve-jobs.html>, (accessed on December 10, 2014).

¹⁷ Bachelidor, Beth, "From Scratch: Amazon Keeps Supply Chain Close to Home," *InformationWeek* no. 979, 40, <http://search.proquest.com.nduezproxy.idm.oclc.org/docview/229180916?accountid=12686> (accessed on December 19, 2014).

¹⁸ Aronow, 11.

establish internal control.¹⁹ Unlike Apple, Amazon manages numerous physical products and yet intensely manages them through their supply chain with ruthless precision and efficiency.

The study of this company reveals several things for the DOD to consider. First, Amazon equates supply chain success with business success—the DOD should acknowledge supply chain as a core competency vice a support function. Second, much like Apple, Amazon’s in-house supply chain beneath a sole management structure is the foundation for success and results in better oversight and internal controls.

When studying supply chains, most people consider Walmart the pinnacle because of Walmart’s size, ability to manage multiple complex supply chains, and their continual growth and success. Walmart’s supply chain management constantly evolves in response to current and future requirements and both internal and external influences. In its early days, Walmart stores acted independently and managed their own stocks. As Walmart contemplated opportunities to save money and rapidly deliver product to its customers, its leadership decided to remove a few ‘links’ from the supply chain.²⁰ Ultimately, Walmart decided it wanted constantly filled shelves, reduced costs, and to exercise more control and have visibility from end-to-end over its supply chain.²¹

Walmart accomplished this through three mechanisms. First was the establishment of distribution centers. These distribution centers service retail stores within a 250-mile radius, which provides rapid response to requirements. Furthermore,

¹⁹ Joseph Bonney, “Amazon’s Supply Chain: Delivering Clicks and Bricks,” *Journal of Commerce*, January 30 2012, <http://search.proquest.com.nduezproxy.idm.oclc.org/docview/918761913?accountid=12686> (Accessed on February 6, 2015).

²⁰ Clara Lu, *Incredibly Successful Supply Chain Management: How Does Walmart Do It?* <http://www.tradegecko.com/blog/incredibly-successful-supply-chain-management-walmart> (Accessed on January 6, 2015).

²¹ Lisa A. Roberts and V. Denise Yandle, “A Supply Chain Management Perspective of Wal-Mart and the Department of Defense,” *Logistics Spectrum*, April-June 2005, 4.

the distribution centers provide more control and visibility to Walmart headquarters, which enables informed decision-making. Second, Walmart's negotiating power increases as their volume grows. This increased influence results in driving costs down as well as the ability to demand and influence priority and timing of the delivery of supplies. Ultimately Walmart's negotiating power leads to an increased ability to respond to customer requirements.

Finally, innovative information technology and constant supplier collaboration enables Walmart to resolve issues and improve inventory. Through continuous evolution of its supply chain, Walmart now has complete and accurate visibility of its supply chain from end-to-end, resulting in cost-effective, efficient, and time saving operations.²² Walmart views its supply chain as extremely important and as such keeps ownership, governance, management, and visibility of it completely in-house; thereby, it ensures greater success.

This study found that Walmart most closely resembles the DOD supply chain due to its depth, breadth, and scale. One lesson Walmart exemplifies is the use of a single IT, which provides complete and accurate visibility that enables rapid and informed decisions.

Attributes of Successful Supply Chains

Gattorna believes that supply chain success balances cost and customer happiness, and that people drive supply chains to success.²³ Clear and simple strategic vision

²² University Alliance, University of San Francisco, *Walmart: Keys to Successful Supply Chain Management*. <http://www.usanfranonline.com/resources/supply-chain-management/walmart-keys-to-successful-supply-chain-management/#.VM-67jb9nIV> (accessed on January 6, 2015).

²³ Gattorna, xiii.

typically drives the supply chain of leading companies. Those same companies are also very customer focused as their first priority, and then concerned with cost cutting. Leading companies with the best supply chain personnel that monitor the chain from end-to-end typically succeed where others struggle.

Environmental factors such as natural disasters, terrorism, or war affect both civilian and the DOD's supply chains. However, Gattorna contends that, "internal resistance can slow down, or worse, stop...a very successful [supply chain] change for the good."²⁴ As such, buy-in from relevant stakeholders is required throughout an organization to implement change.

Change can come in many forms, from organizational to process-oriented; often cases of successful change start at the top. David Smith, the Head of Knowledge Management for Unilever, argues that while information technology is important for business processes, it is secondary to "[organizational] alignment [which] is 50% of the game."²⁵ Anecdotally, the DOD resistant to organizational change in the 1980s required legislation to institute joint organizational change.

A trend over the last few decades is for companies to outsource some supply chain functions. In the past, outsourcing has realized some cost savings. However, some of the world's largest companies are starting to realize the, "real costs and risks associated with outsourcing [supply chain functions]."²⁶ Furthermore, when governance of supply chains is distributed and supply chain responsibilities are outsourced, there are

²⁴ Ibid., 5.

²⁵ Tony Jackson, "Melding of minds to master the intangibles: MANAGEMENT SHARING KNOWLEDGE: A growing number of companies are learning the value of invisible assets using knowledge management," *Financial Times*, June 15, 1998.

²⁶ Gattorna, 244-245.

often difficulties resulting from differing priorities that have negative impacts.²⁷ These realizations result in companies' choosing to either bring more supply chain functions in-house, to partner with an organization to balance risk amongst all parties, or to be much more selective in choosing to outsource. The selection of a responsive organization for outsourcing or for a partnership is critical. If an organization gets it wrong, the entire supply chain is at risk.

Companies that believe one supply chain is best for all their products often struggle to succeed. Gattorna believes that companies with a one-dimensional supply chain will struggle or fail.²⁸ Blanchard concurs stating that, "a one supply chain fits all strategy [is a recipe for disaster]."²⁹ They both believe that companies increase their opportunities for success by dividing supply chains into 'efficient' and 'responsive' segments. The alignment of 'efficient' supply chains would best support known and predictable products, potentially best associated with DOD peacetime operations; while 'responsive' supply chains are best for innovative or unpredictable products, potentially associated with wartime or contingency operations.

Ineffective supply chains lack executive-level management support and oversight. Companies that do not view supply chain management as a core competency typically struggle.³⁰ Moreover, organizations that lack a unifying and strong leadership structure that controls the supply chain within strategic imperatives will also struggle.³¹

²⁷ Kate Vitasek, "Outsourcing Governance: Why Insight beats Oversight." *Supply Chain Management Review*, January/February 2012, http://www.scmr.com/plus/SCMR_JanFeb_2012_Outourcing_Governance_J501.pdf (accessed on 28 Jan 15).

²⁸ Gattorna, 33.

²⁹ David Blanchard, *Supply Chain Management: Best Practices* (Hoboken, John Wiley & Sons, 2007), 7.

³⁰ *Ibid.*, 199, 274.

³¹ Gattorna, 90-91; Andrea Meyer and Dana Meyer, "Proceedings of the Supply Chain 2020 Project's Industry Advisory Council Kickoff Meeting," *The MIT Center for Transportation & Logistics*, May 24, 2004, 2-6.

A lack of visibility of product throughout an organization's supply chain creates problems for managers.³² Lacking an effective Information Technology (IT) system, supply chains will lack the agility and ability to rapidly identify or procure and deliver product to customers.³³ This lack of visibility and agility stymie the efficiency and effectiveness of supply chains. Companies that incorporate enabling technologies and provide unifying strategic guidance and management are far more likely to have success.³⁴ The challenges facing organizations' supply chains require close and continuous monitoring in order to mitigate perturbations, which will facilitate rapid and accurate responses to evolving customer requirements.

The study of successful supply chains can inform the DOD. Gattorna contends that clear and simple strategic guidance from a singularly focused governance structure empowers success. Stakeholder buy-in predicates successful change. A single IT capability enables visibility, informed decisions, and ultimately the ability to balance risk. The lessons identified from the study of successful supply chains suggest that a clear, focused governance and management structure benefits from rapid and accurate information that results from effective processes and procedures. Similarly, timely and accurate processes and procedures inform good governance and management of execution.

³² Andreas Reichhart and Matthias Holweg, "Closing the Circle: Developing Successful Supply Chain Strategies," *Supply Chain Europe*, (November/December 2006): <http://connection.ebscohost.com/c/articles/67026577/closing-circle-developing-successful-supply-chain-strategies>. (Accessed on November 19, 2014), 28, 30-31.

³³ Beth Enslow, *Global Supply Chain Excellence*, Aberdeen Group, February 1, 2007.

³⁴ Supply Chain Management Review, *Failure to Embrace Digital Tech Can Have Negative Impact on Supply Chains*, December 29, 2011. http://www.scmr.com/article/failure_to_embrace_digital_tech_can_have_negative_impact_on_supply_chains (Accessed on January 28, 2015).

Chapter 4: Analysis and Recommendations

“During the last war, eighty percent of our problems were of a logistics nature.”
--*Field Marshall Montgomery*

Governance

A study of the DOD supply chain governance structure reveals two significant observations. First, the language contained within strategic and implementing documents of the supply chain governance lacks the clarity required to establish the foundation of a productive supply chain. Second, command and control relationships between governance and execution management organizations, while mentioned in implementing documents, are not clear enough to maximize proficiency.

While the laws, directives, and instructions assign some roles and responsibilities for the governance of the supply chain, they lack the specificity required to truly empower an organization to govern. The language within implementing documents is ambiguous and does not clearly articulate specific roles and responsibilities for the various governance structures, which potentially leads to a disaggregated governance structure.

The governance of the global supply chain resides with the USD (AT&L), ASD (L&MR), and the DASD (SCI). USC, Title 10 and DODD 5134.01 both assign myriad responsibilities for logistics as well as designating the USD (AT&L) as the Defense Logistics Executive (DLE) on behalf of the SecDef. However, USC, Title 10 does not use the term supply chain. Furthermore, while DODD 5134.01 authorizes the USD (AT&L) to synchronize plans, policies, and programs to ensure the supply chain is

attentive and responsive, it does not specifically empower the USD (AT&L) to establish policy for the supply chain.

Likewise, the ASD (L&MR) finds its litany of roles and responsibilities articulated in both USC, Title 10 and DODD 5134.12. While the DODD designates the ASD (L&MR) as the principal advisor and logistics official to the USD (AT&L), neither document makes any mention of responsibility for the governance of the supply chain.

Contrarily the DASD (SCI) has no roles or responsibilities assigned in either the USC or DOD directives. According to its website, the USD (L&MR) empowers the DASD (SCI) to serve as the most senior level executive responsible for the governance of the Defense wide supply chain.¹

The study of civilian supply chains provides some lessons for the DOD to contemplate when considering a new governance structure to oversee its supply chain. John Gattorna argues that clear and simple strategic vision that governs supply chains is an attribute for success. Clear and simple governing guidance originates from empowered governance structures. Additionally, David Taylor contends that successful companies are ones that view their supply chains as a core competency and not a support function. The review of civilian supply chains revealed that there is a common lesson amongst successful supply chains, such as Apple, Amazon and Walmart. That lesson is the return of supply chain responsibility to in-house governance; supply chains under the control of a single entity are increasingly garnering efficiency and fostering success.

¹ DASD (SCI), http://www.acq.osd.mil/log/sci/n_index.htm, (accessed January 2, 2015) and phone interview with Ms. Emily Richonne, Executive Assistant to the DASD (SCI), conducted January 5, 2015.

Currently, the implementing and empowering documents, from the USC to DODD 5134.01 and 5134.12 provide limited governing authorities to the USD (AT&L) and the ASD (L&MR). The US code does not discuss or assign any supply chain responsibilities to any of the governing structures. While DOD directives limit supply chain responsibility to the DLE as synchronizing, they confer no roles or responsibilities to the ASD (L&MR), nor do the documents even discuss the DASD (SCI).

This review leads one to believe that the DOD does not view its global supply chain as a core competency. This view may lead to less than optimal performance of the DOD's global supply chain. The DOD can address this shortcoming by clarifying the language within its supply chain implementing documents. Clearly articulating roles and responsibilities for the DOD supply chain's three governing structures may help transition the view of the supply chain from a support function to a core competency, thus enabling its successful operation in the future. Both the USD (AT&L) and ASD (L&MR) have myriad responsibilities. The DOD should consider, as is the common theme amongst successful supply chains that maintain governance of their supply chains in-house under one central governing organization, placing governance responsibility completely under the DASD (SCI) and assign those roles and responsibilities clearly in implementing documents.

The implementing documents, similar to roles and responsibilities for governing organizations, establishes the language that organizes supply chain command and control relationships between governing and execution management bodies. However, the language is not clear enough to maximize efficiency. Extremely important to the success of a supply chain is the relationship between governing and execution organizations.

The US code does not direct or establish any relationship between supply chain organizations. DODD 5134.01 empowers the USD (AT&L) to exercise authority, direction and control over the ASD (L&MR) and DLA through the ASD (L&MR). However, more vaguely paragraph 3.33 states that as the DLE, the USD (AT&L) provides advice to the director of DLA, on global supply chain resource allocation determinations. DODD 5134.12 enables the ASD (L&MR) to exercise authority, direction, and control over the DLA, but does not prescribe any relationship with either the DASD (SCI) or the TRANSCOM.

Civilian supply chains offer insight for the DOD regarding relationships amongst organizations within supply chains. In 2014, Gartner's identified a trend of highly successful companies whose supply chains are trusted and integrated from top to bottom. Those companies that establish relationships amongst supply chain entity's that are focused on strategic imperatives are garnering greater levels of success.² While Kate Vitasek contends that supply chains that have organizations with differing priorities are experiencing negative impacts.³

The review of implementing documents reveals that relationships between governing and execution management organizations are vague or in some cases non-existent. The DOD can learn from civilian supply chains and their study by integrating its supply chain from top to bottom. In order to avoid the pitfalls of differing priorities and increase opportunities for success, the DOD should clarify and clearly articulate

² Andrea Meyer and Dana Meyer, "Proceedings of the Supply Chain 2020 Project's Industry Advisory Council Kickoff Meeting," *The MIT Center for Transportation & Logistics*, May 24, 2004, 2-6.

³ Kate Vitasek, "Outsourcing Governance: Why Insight beats Oversight." *Supply Chain Management Review*, January/February 2012, http://www.scmr.com/plus/SCMR_JanFeb_2012_Outourcing_Governance_J501.pdf (accessed on 28 Jan 15).

authorities, roles, responsibilities, and the relationships between governing and execution management structures contained within the myriad implementing documents.

The combined effect of the lack of clarity, articulation, and prescribed relationships in the implementing documents leads to an overall disaggregated nature of the governance structure. By addressing the ambiguity contained within the USC and directives, the DOD global supply chain would be viewed as a core competency with clear roles, responsibilities, and relationships, and ultimately lead to a greater level of governance that drives increased proficiency and efficiency. The distinct organizations, with unclear relationships and differing priorities under the current structure is rife with inefficiencies. Clear delineation of roles, responsibilities, and relationships amongst implementing documents would simplify and clarify a solid governance structure that is prepared to administer proficient warfighter support.

Management of Execution

This study reveals the following two observations for analysis of the execution management of the DOD global supply chain. First, the two primary organizations responsible for critical functions within the global supply chain only have a collaborative relationship. Thus, the actions and activities of execution management organizations of the global supply chain are subject to disorder. Second, and directly related to the first, the global supply chain does not have a designated process owner.⁴ The DOD lacks a

⁴ The DOD defines a process owner as the head of a DOD Component assigned a responsibility by the SecDef when process improvement involves more than one military service or DOD component. The process owner has the responsibility for sustaining and improving processes, creating new processes where appropriate, and being accountable for outcomes. Process owners advocate improvements for and across all DOD components for effectiveness, efficiency, and alignment relevant to a particular process.

single execution management structure; it lacks a single organization that provides strategic/operational-level management of execution for the DOD global supply chain. The combined effect of a lack of a single organizational structure without prescriptive relationships between supporting organizations may exacerbate current shortfalls. These points offer explanations of the inefficiencies within the DOD global supply chain, because of a lack of unified effort.

The research and review of implementing documents reveals that DODD 5158.04 directs USTRANSCOM and DLA to collaborate to integrate, improve, and support distribution improvements, which is an important element of the supply chain, but it is not the entire supply chain. In fact, the directive does not discuss supply chain relationships. Meanwhile, DODD 5105.22 directs the DLA Director to support the USD (AT&L) in his or her role as the DLE to integrate and improve the global supply chain through collaboration with key stakeholders to include USTRANSCOM. Although the current collaborative relationship is working, there are numerous historical examples of failed relationships between organizations within the DOD when budgets are threatened.⁵

In 2003, there were enough concerns with the fragmented nature of the distribution process that the SECDEF designated a process owner for distribution. The SECDEF named USTRANSCOM as the Distribution Process Owner (DPO), assigning responsibility for sustaining and improving processes across the services and DOD components for distribution. The supply chain impacts joint warfighters across the services and DOD components; however, the research for this project reveals that no

⁵ James R. Lochner, III, *Victory on the Potomac* (College Station: Texas A&M University Press, 2002), 1-40.

process owner has been named for the global supply chain. The designation of a supply chain process owner would doubtlessly provide a first step towards eliminating the GAO concerns that keep the supply chain at high-risk as recently as 2015.⁶ The designation of a process owner with clear relationships amongst supporting organizations may unify efforts across multiple organizations enabling more efficient and effective support of joint warfighters. One way to potentially avoid these problems in the future would be to look towards successful civilian supply chains for lessons to consider.

The study of highly successful civilian supply chains reveals that they are increasingly consolidating control and execution management of their supply chains internally. This internal consolidation eliminates disjointed relationships and unmatched priorities found when companies outsourced segments of their supply chains. Apple has seen success through centralizing control and simplifying its supply chain. Amazon continues to bring more supply chain responsibilities in-house and ruthlessly monitors day-to-day operations. Walmart is reducing the number of external 'links' in its supply chain to exercise greater management control over its supply chain. These actions all reduce the risk associated with multiple distinct organizations, with limited relationships, exercising different priorities over their supply chains.

The DOD global supply chain must be agile and adapt quickly to changing requirements and environments. According to Gattorna, maintaining visibility throughout the entire supply chain is critical to meeting customer requirements. A supply chain with a single organization responsible for execution management can own the

⁶ Inventory management, materiel distribution, and asset visibility.

process from end-to-end, monitor and maintain constant visibility, and respond rapidly with a greater degree of control in a dynamic environment resulting in a greater opportunity to meet customer demands. A single management structure or process owner can provide unifying guidance within strategic imperatives, thereby ensuring an efficient, agile, and responsive supply chain from top to bottom.⁷

Within the DOD there is recognition of the benefits of consolidating management responsibilities to eliminate unclear relationships, gain efficiencies, and unify priorities all towards optimizing support to joint warfighters. The Director for Logistics for the Joint Staff (J4), in the Joint Concept for Logistics (JCL), characterizes the future operating environment as one of uncertainty and complexity requiring an enterprise solution. The JCL envisions that the complex challenges of the future will require an, “...unprecedented level of unity,” and may require a combining of “...capabilities to gain synergy and compensate for vulnerabilities.”⁸ Furthermore, the JCL stresses a requirement for “...the integration or synchronization” of enterprise partners (or supply chain organizations) otherwise optimization may not be realized.⁹ The DOD should consider the J4’s insight and remain amenable to re-codifying the roles, responsibilities, and relationships between supply chain execution management organizations.

Similarly, the United Kingdom’s (UK) Ministry of Defence (MOD) recognized the benefits of eliminating unclear relationships by assigning responsibility for a process to a single organization. In 2005, the UK MOD combined two organizations with supply

⁷ Andrea Meyer and Dana Meyer, “Proceedings of the Supply Chain 2020 Project’s Industry Advisory Council Kickoff Meeting,” *The MIT Center for Transportation & Logistics*, May 24, 2004, 2-6.

⁸ U.S. Department of Defense, *Joint Concept for Logistics* (Washington DC: 2010), 26-27.

⁹ *Ibid.*, 15.

chain responsibilities into the Defence Supply Chain Operations and Movements (DSCOM). The DSCOM is the single organization that provides an operational focus and execution management for joint supply chain responsibilities for the MOD.¹⁰ The MOD offers a lesson for the DOD to eliminate unclear relationships amongst supporting organizations and provide unifying efforts towards streamlining support of joint warfighters.

Meanwhile, individuals and groups outside of and committed to the study of the DOD, offer the following insight: The Defense Science Board proposes DOD logistics would benefit from a single accountable authority; if enabled it could eliminate waste, cut costs, and improve velocity of support to the joint force.¹¹ Similarly, the Defense Business Practice Implementation Board believes that a single logistics structure that is properly empowered with adequate authorities would achieve substantial and quantifiable cost savings while improving efficiency and effectiveness.¹² These concepts are correspondingly relevant to the global supply chain and would undoubtedly foster more efficient and effective support to joint warfighters.

The collective impact of limited relationships between execution management organizations and the lack of a process owner reveals some potential weaknesses of the current DOD global supply chain structure. These reasons, coupled with a study of civilian supply chains, the J4's JCL, and the UK's MOD should lead the DOD to

¹⁰ United Kingdom, *Logistics for Joint Operations, Joint Doctrine Publication 4-00, Third Edition* (United Kingdom, Ministry of Defence, Shrivenham, Wiltshire, 2007), 1-10.

¹¹ Defense Science Board, *2005 Summer Study on Transformation: A Progress Assessment, Vol II: Supporting Reports*, Office of the Under Secretary of Defense (AT&L) (Washington DC, April 2006), 3, 4, & 15.

¹² Defense Business Practice Implementation Board, *TRANSCOM-DLA Task Group*, Senior Executive Council, Department of Defense (Washington DC, 2003), 2.

consider establishing clear relationships between execution management organizations under a process owner that has the authorities, roles, and responsibilities to manage the execution of the supply chain from end-to-end. The process owner under the authority of a clear governance structure is then accountable to streamline the process to provide end-to-end support to joint warfighters worldwide.

Processes and Procedures

This review identifies two points of focus for analysis with regard to the processes and procedures for the DOD global supply chain. First, a single Information Technology (IT) system that provides end-to-end visibility of the supply chain enables both the governing and managing bodies to make informed and timely decisions. Second, similar to the review of the management of execution, a single process owner with clear relationships with supporting organizations is better postured to control processes and procedures that promote and enable efficiency.

Study of the global supply chain reveals a multitude of IT systems across its entirety from customers, to procurement, through distribution. Problematically, there are systems within the global supply chain that only share data on a monthly basis. Lacking an effective and timely IT system creates problems for the management of execution.¹³ Without an effective, real-time IT system, supply chains will lack visibility and thus agility and ability to respond quickly to customer requirements. This lack of visibility and agility may stymie the efficiency and effectiveness of supply chains. Companies that

¹³ Andreas Reichhart and Matthias Holweg, "Closing the Circle: Developing Successful Supply Chain Strategies," *Supply Chain Europe* (November/December 2006): <http://connection.ebscohost.com/c/articles/67026577/closing-circle-developing-successful-supply-chain-strategies>. (Accessed on November 19, 2014), 28, 30-31.

incorporate enabling technologies and provide unifying strategic guidance and management are far more likely to have success.¹⁴ Supply chains require close and continuous monitoring in order to mitigate perturbations, which will facilitate rapid and accurate responses to evolving customer requirements. A single IT capability enables visibility, informed decisions, and ultimately the ability to balance risk and to rapidly respond to customer requirements.

Comparable to the discussion of establishing a single process owner in the management of execution portion of this thesis, there are added benefits for process and procedures with the establishment of a process owner. The Defense Business Board argues that the achievement of effective and efficient support for warfighters is best enabled through a single structure, or process owner, that has real-time data and visibility.¹⁵ This accountable and well-informed structure will likely enable improvements across the supply chain. While collaboration is not a new concept, complete harmony probably is not possible.¹⁶ Processes and procedures under a single process owner are far more likely to focus disparate organizations on strategic imperatives.

The lessons identified from the study of successful supply chains suggests that a clear, focused management structure benefits from rapid and accurate information that

¹⁴ Supply Chain Management Review, *Failure to Embrace Digital Tech Can Have Negative Impact on Supply Chains*, December 29, 2011, http://www.scmr.com/article/failure_to_embrace_digital_tech_can_have_negative_impact_on_supply_chains (Accessed on January 28, 2015).

¹⁵ Defense Business Board, *Global Logistics Management*, Global Logistics Management Task Group (Washington DC, 2011), 3-4.

¹⁶ David Blanchard, *Supply Chain Management: Best Practices*, (Hoboken, John Wiley & Sons, Inc., 2007), 223.

results from effective processes and procedures. Similarly, timely and accurate processes and procedures inform good governance and management of execution.

A Holistic Analysis of the Supply Chain

In summary, the DOD global supply chain performed admirably over the last decade plus of war. However, impending severe fiscal constraints will force the military to become smaller and more agile. The review of strategic implementing documents for the DOD global supply chain as well as civilian supply chains reveals several observations for the Department of Defense to consider implementing in order to improve support to joint warfighters. This study acknowledges that change is difficult within the DOD and understands that fundamental change may be difficult to initiate. Thus, the DOD has the choice to consider large-scale change that may generate extensive resistance or it can institute small-scale changes progressively and generate the impetus for greater change through small victories over time.

Whichever strategic path the DOD chooses it will require a consolidated administrative structure. Such a structure would be enhanced by clarifying language within all implementing documents that clearly articulates roles, responsibilities, and specified command and control relationships between the governing and execution management organizations within the global supply chains. These recommendations for governance are predominately administrative and would likely receive little resistance. Furthermore, they would set the groundwork for an efficient and effective supply chain because clear governance would clarify roles, responsibilities, and relationships, without a loss of hierarchy or power. Clarity or reduced ambiguity translates into efficiency.

Execution management is where the DOD should consider implementing smaller scale changes over time to successfully navigate the difficulties associated with change in large bureaucratic organizations. Because the supply chain involves multiple services and DOD components, it is the perfect candidate for the designation of a process owner. A global supply chain process owner, with the responsibility and accountability for outcomes, would best serve not only the supply chain but more importantly its customers, the joint warfighters. In the face of impending force reductions, this process owner would be able to operate a leaner organization without a loss of operational capacity.

The first incremental step towards a single process owner would be to place the two primary execution management organizations in an Operational Control (OPCON) relationship (placing DLA under OPCON of USTRANSCOM).¹⁷ The OPCON relationship enables a single organization to decisively manage and control supply chain activities across the myriad DOD organizations.¹⁸ In a second step the DOD should assess the impact of this command and control realignment and from there decide if the impetus exists to politically convince all stakeholders of the benefits associated with a wholesale fusion of the two organizations. These incremental changes will certainly unify efforts under clear doctrinal lines of authority resulting in more efficient, effective, and timely support to joint warfighters. Regardless of which choice the DOD makes, the execution management organization must have a clear responsibility to work within the

¹⁷ JP 1.0 defines OPCON as the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations and joint training necessary to accomplish the mission.

¹⁸ There is precedence for this command and control relationship change. DODD 5158.04 places the services' (Army, Navy, and Air Force) transportation components under the combatant command of USTRANSCOM.

confines of a well-defined governance structure. From well-defined governance structures, with clear doctrinal lines of authority with a single process owner, it is inevitable that supply chain processes and procedures will become more focused and effective from end-to-end.

Chapter 5: Conclusion

“The history of war proves that nine out of ten times an army has been destroyed because its supply lines have been cut off...We shall land at Inchon...”

--General Douglas MacArthur

The SECDEF’s guidance to re-balance the force and the Chairman’s directive to develop the force of 2020 both provide the Department of Defense an excellent opportunity to lead change in its global supply chain. However, the Department of Defense historically resists change. In 1986, even with several historic examples of military failures, the United States Congress had to force change on the Department of Defense through the passage of the Goldwater-Nichols Department of Defense Reorganization Act of 1986.⁹¹ Fundamental organizational and procedural changes to the DOD global supply chain may require legislative direction to gain enough momentum to initiate change.

Both the TRANSCOM and the DLA serve extremely important roles in the DOD global supply chain—they form the foundation of the execution mechanism of the system. However, neither organization owns the entire process; in fact, there is not a single owner of the entire process. The relationship between the two organizations is a partnership based primarily on trust.⁹² Neither the USTRANSCOM nor DLA have any authorities over one another; their roles are primarily synchronizing and coordinating. Today, their relationship is not adversarial; however, its strength is subject to the personalities within each organization.

⁹¹ James R. Lochner, III, *Victory on the Potomac* (College Station: Texas A&M University Press, 2002), 11.

⁹² Dr. Mark Cyr, US TRANSCOM J4, Branch Chief, Distribution Process Owner Strategic Opportunities, interview by Christopher E. Dexter, December 3, 2014.

Ambiguous legislation, directives, instructions, and manuals lead to multiple approaches to the execution of the DOD global supply chain. Prior to TRANSCOM's designation as the DPO there was not one organization that had complete execution oversight of distribution for the DOD. Today, the lack of one organization with complete end-to-end execution oversight of the global supply chain presents similar concerns. The DOD's global supply chain would benefit from two significant changes: First, clarifying language regarding the DOD global supply chain within legislation, DOD instructions, directives, and manuals, thus enabling a stronger more empowered governance structure. Second, establishing a process owner with the requisite authorities and responsibilities held accountable for the complete end-to-end management of execution of the global supply chain. This study recommends that the DOD, incrementally over time, formalize the linkage of procurement and distribution under a single process owner with complete authority and accountability in order to enhance the efficiency and effectiveness of the global supply chain's support to joint warfighters.

Strategic Implications and Consideration of Risk

It is important for the DOD and its logisticians to remember that solutions are never permanent because the environment always changes. This requires constant monitoring of not only the daily performance of the global supply chain, but also the continuous study of best practices from civilian global supply chains. Additionally, fiscal austerity will continue to challenge the DOD in the foreseeable future. The DOD must remember that while civilian supply chains may offer considerable lessons, those lessons cannot affect the support requirements of joint warfighters in austere and unpredictable environments.

The DOD faces two risks by not considering fundamental change to its global supply chain. First, the global supply chain will continue to provide support to the Joint Warfighter. However, future fiscal constraints may force reductions across the DOD. By doing nothing, the DOD risks having external entities direct change that does not properly study, analyze, and address the problem. Second and alternatively, while any change may temporarily disrupt a current process, integrating small-scale deliberate changes reduces the long-term risk of loss of operational capability and supply chain disruption, and increases the probability of greater efficiency and effectiveness.

Managing the risk involves consideration of the strategic environment. By implementing small-scale changes the Department of Defense stands better prepared to adapt to the ever changing, complex, and unpredictable environment.

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Vita

COL Dexter was born overseas, the son of a Naval Officer. While in college, he served as an enlisted soldier in both the Army Reserve and National Guard. He was a distinguished military graduate from Fitchburg State College in 1992, and received his commission as a Second Lieutenant in the Ordnance Corps, with a two-year detail to the Infantry as part of the Army's Branch-Detail program.

His assignments include service as Rifle Platoon Leader, Company XO, Shop Officer, BN S4, Support Operations Officer (SPO) Maintenance Officer, Company Commander, BN S3, O/C, Small Group Instructor, BCT SPO, BN XO, Brigade S3, Sustainment Brigade Deputy SPO, Logistics Operations Officer and Logistics Current Operations Chief at United States Army Pacific Command, and Commander, Sierra Army Depot. These assignments include service both overseas and stateside.

COL Dexter deployed to Tirana, Albania with Task Force Hawk, in support of NATO's Operation Allied Force, and to Iraq in support of Operation Iraqi Freedom (OIF) II and OIF 07-09. His education includes a Bachelor's Degree from Fitchburg State College, a Master's Degree from Central Michigan, and a Master's Degree from King's College of London.

His military awards and decorations include the Valorous Unit Award, Meritorious Unit Citation (1 OLC), the Legion of Merit, the Bronze Star Medal (1 OLC), the Meritorious Service Medal (6 OLC), the Army Commendation Medal (1 OLC), the Joint Services Achievement Medal, and the Army Achievement Medal (5 OLC). Additionally, he earned the Expert Infantryman Badge, the Airborne Badge, the Air Assault Badge, the order of Samuel Sharpe Medal.

Colonel Dexter is married to Mona and they are the proud parents of three wonderful sons.