

An Exploration of Leadership and Organizational Theories for Consideration to Improve Effectiveness and Efficiency as the Army Acquisition Community Adapts to Change

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April 2021

DAU-Senior Service College Fellowship Research Paper

Abstract

Army Acquisition is an institutional element that supports the Army's Operational force by providing and sustaining materiel to enable capabilities. The successful balance of requirements, resources, and the acquisition process leads to the delivery of new materiel to the Army. In 2017, the Army initiated a series of actions that led to the formation of the Army Futures Command (AFC) and altered both the ways and means for how the Army establishes requirements and the acquisition processes. The initiation of AFC addressed the Army's current highest modernization priorities with a focus on supporting technology development and prototyping to inform the system requirements for follow-on 'programs of record'.

The prior, current, and future organizational and process changes to the ways and means of conducting Army Acquisition has one common goal; provide effective capabilities to the combat commands as efficiently as possible to support the needs of our Nation. The goal of this paper is to provide evidence on the continuous change within the Army Acquisition activity, and to provide an exploration of theories and different frames of thought as related to organizational behavior, thinking, and change from within and outside of the Department of Defense (DoD).

Knowledge, resilience, adaptability, and experience are important attributes when working within the acquisition community. In addition, continuous self-inspection, learning, and formulating actions to achieve goals offers all participants the opportunity to learn from failure and success, expand their own and their team's capabilities, improve for the next opportunity, and in a word, change.

Forward

This research paper supported participation in the Army's Senior Service College Fellowship (SSCF) program. The Army Director, Acquisition Career Management (DACM) sponsored our SSCF training opportunity with support from the Defense Acquisition University, (DAU). This research paper relied upon my years of acquisition experience within the Armaments Center and the Joint Program Office Armaments & Ammunition, a considerable amount of mentoring throughout the SSCF journey from a multitude of instructors from DAU, other government agencies, Army and private industry leadership and affiliated universities, and the conduct of deep discussions with my fellow SSCF attendees. Of particular importance are: Tom Conroy and Darren Rhyne (from DAU) who provided research paper guidance, editorial support, and inspiration, along with sagely support from Dr. Brett Grosshans; the exceptional management of the Picatinny SSCF experience provided by Keith Gooding, Elizabeth Philips and Joanna Chase. I have also been fortunate to have a long list of exceptional civilian and military members of the Army Acquisition community along with representation from the US defense industry, and a number of representatives from our nation's allies who have greatly contributed to my professional and personal development. By name, I recognize a number of my civilian leaders who have supported and nurtured my career and provided inspiration through their demonstration of leadership and professionalism to include, the late Jim Shields, Chris Grassano, Joe Pelino, Ken Heider, Pete DeMasi, Ray Sicignano, Paul Granger, Jim Ashworth, and my brother Pete Burke. Of most significance, I want to thank my wonderful wife Cheryl and incredible children Hayley and Brittany for their support, inspiration, and patience throughout my career and in particular during my participation in the SSCF journey.

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“Change is the only constant in life. One’s ability to adapt to those changes will determine your success in life.” Benjamin Franklin 1706-1790

Introduction

This paper is about change. The initial concept for this paper was to explore a recent organizational restructure within one of the Army’s institutional missions, Acquisition. As the research proceeded, the summary finding was more so about change. Moreover, this current focus is on a wide range of topics to recognize, interpret, and adjust to the change.

The stand-up of a new 4-star Army Command is a topic of interest for the ~40,000 members of the Army Acquisition workforce, (US Army Acquisition Support Center, 2020), the Operational Army Commands, members of the other services and OSD Acquisition communities, and the defense industrial base.

The majority of Army Acquisition programs and members of the acquisition community will directly receive an impact in one way or another by this reorganization. This realigned a number of leadership and subordinate organizations, modified the process used by the Army to establish capability requirements pursued in acquisition programs, and established a number of high priority modernization acquisition efforts funded from within the existing budget by either cancelling or delaying in-process acquisition programs.

The initial concept for this paper was to gain a better understanding of the rationalization behind the need for this change, along with the premise the gained

knowledge would help me (and others) understand the new approach to best support the current revision of the Army Acquisition enterprise.

As my research progressed, I found myself in a repetitive pattern of identifying key data, recognizing how it was a change from a previous status, and then conducting additional research to gain an understanding of the preceding situation. Each step back into the history of the acquisition process led to identifying another preceding change, followed by another step back, and then another, and another. This applied consistently to a wide range of the topics to include mission focus, prioritization of resources, and relationships of the organizations. Throughout time, the overarching statutory, regulatory, and policy documents are also on a perpetual state of change.

It should not be surprising to the reader that the DoD, is the executor of one of the world's largest military budgets (Silva, 2020), is the nation's largest employer (The Office of Management and Budget (OMB), 2021), and produces an incredible amount of governance and policy artifacts as an exceptional operating bureaucracy. These are generated from a wide range of sources to include Congress, the Office of the Secretary of Defense (OSD) or from within the Army in the form of Presidential Executive Orders, Congressional Public Law, OSD/DA Doctrine, Strategies, General Orders, Directives, Instructions, Regulations, and memorandums that define policy, direction, authorizations, decisions and guidance. Research on acquisition reform as related to the DoD and the Army identified over forty thousand articles and over four-hundred Doctoral Dissertations published in the United States, (ProQuest, 2020).

Just to re-emphasis the theme of “change”

Change is inevitable and it is not always a bad thing. Based on the review of acquisition history and current trends, I expect that continued change to both the ways and the means of conducting acquisition will occur. Change offers the ability to better adapt to opportunities, such as an exploitation of technologies that do not fall within the construct of existing policies. Change also is required for proactive management of evolving world threats and challenging situations resultant from political discourse or economic conditions. Change with understandable purpose is more readily accepted; continuous change without purpose or making change simply for the sake of making change can be ineffective, cause friction and become disruptive.

The Army’s acquisition activity has been under continuous adjustment, refinement, reformed, streamlined, expanded, re-organized, and in a single word “improved” since the foundation of the Army. My research identified that one of the apparent foundations of acquisition is indeed the need and ability to change. The workforce should benefit from a greater understanding its source, how to make sense of it, and potentially how to best adjust to it.

Some evidence to quantify the extent of change applied to the acquisition process:

- The Army War College’s bi-annual publication of “How the Army Runs, A Senior Leader Reference Handbook” begins with an initial paragraph titled “Changing How We Manage Change.” This acknowledgement highlights the intent to maintain pace with the current environment.
- The last 15+ years of Congressional National Defense Authorization Acts (NDAA) has included directed public law language to change or shape the acquisition process within the DoD.
- Since 2018, and throughout the generation of this paper, OSD has released:
 - Seven revised overarching Acquisition Policies
 - Six new Acquisition “pathways” Policies

- Nine revised Acquisition Functional Policies (three additional ones are currently still in-process)
- Released a plan to revise the DoD Acquisition Workforce career fields (from thirteen to six)

In accordance with the directed changes from Congress and OSD, the Army in turn will develop Army specific implementation regulations, policies, and guidance. These products are incredibly important to the Acquisition community, as compliance is mandatory to staff requirements and obtain acquisition decisions.

“It is not the strongest of the species that survives, nor the most intelligent, but rather the one most responsive to change” (Darwin, 1809-1882).

People

Another key element identified throughout the research was on the Army’s support for its personnel. The Army home page has a 14 Oct 2020 article on a speech from the Chief of Staff of the Army (CSA), titled, “The time is now to transform America’s Army” (McConville G. , 2020), at the Association of the U.S. Army Annual Meeting and Exposition (Brading, 2020).

My take away from this speech was that although the Army was transforming the organizational and processes of acquisition to address threats in a future multi-domain environment with new technologies, new systems, new doctrine, new training...and new organizations, people is the focused enabler to achieve force capabilities and organizational modernization, transformation. The future of the Army depends upon its personnel, not the technologies, the doctrine, the systems or the organizations (i.e., the primary focus on my initial research).

The topic of people appears in numerous speeches from GEN McConville and in fact, in Oct of 2019, Michael A. Grinston, (Sergeant Major of the Army), GEN McConville, (Chief of Staff, Army), and Ryan D. McCarthy, (Secretary of the Army) released a publication titled “The Army’s People Strategy.”

The opening statement is from GEN McConville, and states,

“Winning matters, and People are my number one priority. People are our Soldiers – Regular Army, National Guard and Reserve - their Families, Civilians, and Soldiers for Life – Retirees and Veterans. We win through our people, and people will drive success in our Readiness, Modernization and Reform priorities. We must take care of our people...” (Ginston, McCarthy, & McConville, 2019).

The introduction to “The Army’s People Strategy” is also of particular importance:

The Total Army must remain ready as the world’s premier combat force. That readiness relies upon people. After all, equipment does not learn, understand, innovate, build cohesive teams, or exercise judgment – people do. Human capabilities such as resiliency, critical thinking, comfort with ambiguity, and the ability to accept prudent risk and adjust rapidly all define our profession.

The Army’s People Strategy describes how we will shift from simply “distributing personnel” to more deliberately managing the talents of our Soldiers and Civilians. This means creating a 21st century talent management system with policies, programs, and processes that recognize and capitalize the unique knowledge, skills, and behaviors possessed by every member of the Army team, allowing us to employ each to maximum effect (Ginston, McCarthy, & McConville, 2019).

One phrase that I often repeat to my family and co-workers is, “you can learn something from anyone.” This allows for learning through observation of both positive and negative behaviors, actions, decisions, etc. The positive practices are worthy of incorporation or at least strong consideration. However, even negative practices are important “teachable moments” as they offer observers an opportunity to potentially avoid repeating, or at least mitigate the experience in your own future.

A common visualization of the act of “learning” invokes following a pre-established curriculum or pursuing a self-guided exploration. Ideally, either one contributes towards an understanding of the information or experience to form knowledge. Within the Acquisition community in which the overall processes are under perpetual change, programmatic conditions, challenges, opportunities, and perceptions are often unique and not readily repeatable. Both the technology and the capabilities of the team are on a continuous ebb and flow of growth and potentially compression, making it a challenge to achieve “perfection” through “practice.” Fortunately, through continuous engagement within the process and by applying perseverance we are able to achieve the fielding of capabilities on nearly a daily basis, but only due the achievement of the required incremental goals such as development of program budget requirements, making contract awards, generation and achieving approval of key inter-agency documents, and gaining approval of acquisition milestones (MS). Julius Cesar potentially said it best with, “Ut est rerum omnium magister usus”, which accessible translations into English offer two primary options; as more commonly quoted, “Experience is the teacher of all things” (Braineyquotes, 2021), or with more precision; “as experience is the best master in everything on which the wit of man is employed” (Caesar, 2021).

The conduct of acquisition is all about learning through either pre-set curriculum or exploration of experience by obtaining and applying knowledge, then adapting to change in order to persevere towards success. Programmatic success is often the result of this focus, perseverance, and the lack of external influence that override all skills executed within the program.

It has been said, “you manage things, you lead people” (Hopper, 1906-1992). People conduct the acquisition activity through the interactions with, and execution of, processes with other people in different organizations. The research within this paper of the Army Acquisition process led to collecting a number of relevant narratives that may help the reader expand their thinking on some basic leadership and people skills. Of prominence, I have found the following: understanding and adjusting to change, addressing problems, making decisions, and the understanding between commitment and conformance. All of these elements (including the last two) are a part of today’s and tomorrow’s acquisition process.

Whereas poorly executed acquisition provides gainful work for the Government Accountability Office (GAO), and draws justifiable Congressional and taxpayer ire, successful acquisition executed within the allowable processes of the moment typically does not draw much research and analysis to provide guidance to the workforce. The services and OSD leadership recognize exceptionally “good” acquisition. However, the Army does not need a list of top five or even ten well performing programs. It requires a significant majority of the active programs to be both effective and efficient to best serve the Army’s needs.

A review of previously published research on Army Acquisition and its mission to support the Operational Army identified two general themes: (1) identification of problems and lessons learned or (2) in terms of advisement, what could, (or should) have been done. My intent of this research was to identify means to pursue the latter category. The exploration of “change” also seemed to identify two primary themes with the first being the identification of the means to recognize when behavior, actions, and

decisions are indicators of unintended outcomes. There are many methods to track progress of a team's intended plan. Examples include Earned Value Management (EVM), financial obligation and disbursement rates, Acquisition Program Baseline (APB) monitoring, risk management, and critical path schedule analysis. The second theme identified is for means to expand self and team awareness, inspiration and/or to foster conditions for enabling innovative opportunities. Examples include opportunity identification, human factors analysis, brainstorming, lean and/or agile practices.

Change to the acquisition community comes on an annual cyclic schedule from the top down, but the workforce can perpetually identify and drive change up the leadership chain. Numerous Army doctrine and leadership training materials highlight the importance of the individual making sound judgement and decisive action. As a member of the Army Acquisition Corps, I perceive that our leadership expects the workforce to drive innovation up from our working experience rather than wait for Congressional, OSD, or even HQDA directives from above. The acquisition workforce has the opportunity to make things better and those who are the closest to the day-to-day execution should offer such.

Summary points

Our Nation depends upon maintaining our current capable Army. Through the continuous evolution and proactive planning, the Army has an opportunity to avoid becoming reactive to the ultimate member of the acquisition environment, namely the future threat to our Nation. The Army's current focus on modernization to adapt for a multi-domain environment mitigates the future undefined enemy threats to our nation's

interests. Future threats are likely to be unencumbered to conform to any identified doctrine. Generally acceptable standards of the current civilization may not bind their decision making process. The future threat's unique approach may breach the expected and demonstrate a competitive advantage to counter or defeat our capabilities and potentially prevent our Army's ability to dominate and exercise partial to full control in international situations of interest.

The adjusted plan of this paper is not to focus on the current organizational construct and processes within Army acquisition. These current artifacts will become outdated, some potentially prior to or soon after the publication of this paper. The final rendition of this paper will provide an informative narrative that may encourage the reader to conduct their own internal reflection and identify the means to improve their own current organization and approach to the future.

An important aspect of change is the recognition of it. The establishment of the Army Futures Command has altered the organization and the processes the organization followed. The people who either execute or support the Acquisition activity will continue to make changes in the future to adapt to the conditions on hand and head forward on a continuous strive towards becoming more effective and efficient.

Figure 1 below is a mind map of the numerous topics addressed in this paper. The summary areas of interest consist of the historical and organizational behavior topics.

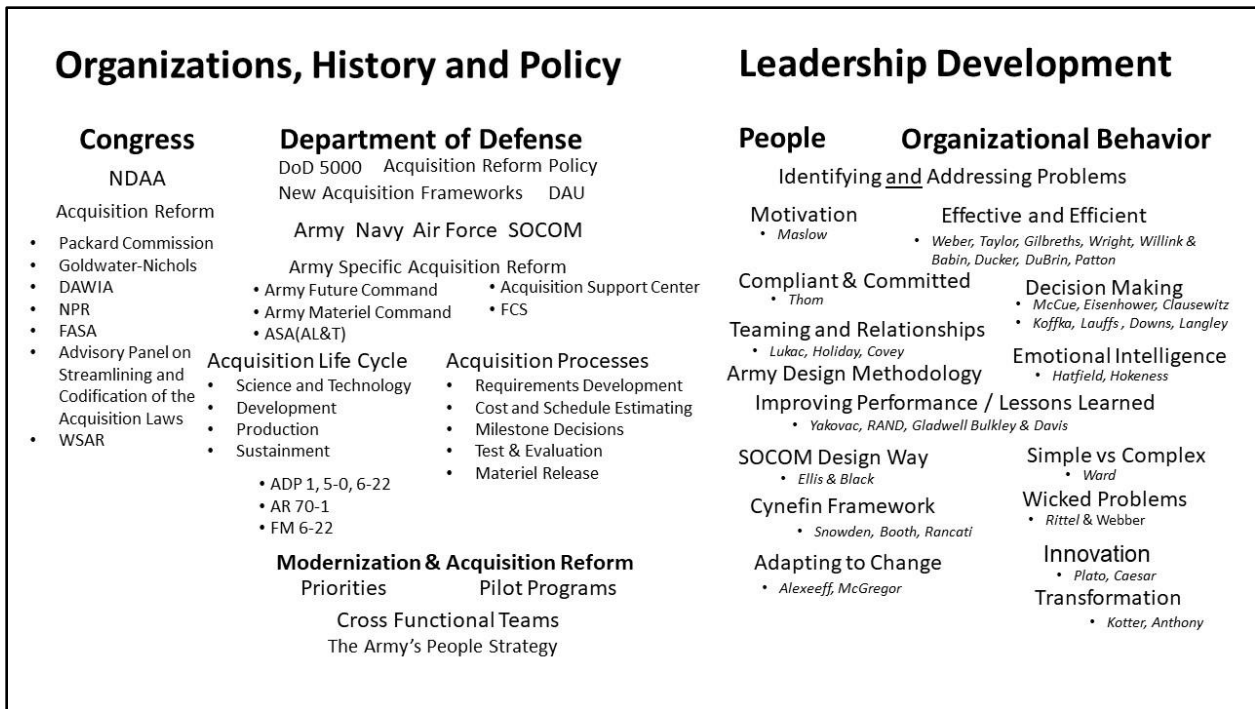


Figure 1 Topics Discussed in This Paper (Burke, Mind map of SSCF research paper topics, 2021)

Chapter 1 – Background

“Last year, the Army made its most significant organization restructuring in over 40 years by establishing the Army Futures Command.”

Hon. Bruce D. Jette, Assistant Secretary of the Army for Acquisition, Logistics and Technology, and Army Acquisition Executive (AAE), Department of the Army's testimony to the United States Congress House of Representative's Armed Service Committee, 9 May 2019 (Congress, 2020, p. 9)

Army Acquisition from the beginning to today

The United States (U.S.) Army has been supporting our Nation prior to its founding with an act from the Second Continental Congress on 14 June 1775, (U.S. Army Center of Military History, 2020). The US Army Center of Military History (CMH) maintains the history of the Army in both peace and war, through both maintaining historical records and the conduct of Army historical research. One such CHS publication, “Supplying Washington’s Army” identified some relevant acquisition

challenges involving the delicate balance of requirements, resources, and processes that occurred in the initial year of our Nation's (and the Army's) birth, and continue to this day. The Continental Congress created the new Army's first evolution of acquisition responsibilities on 16 June 1775, through the establishment of the positions of Quartermaster General and Commissary General of Stores and Purchases, (Risch, 1981, p. 9). Both were required to provide reports directly to Congress, as the ultimate stewards of the young nation. The initial years of our nation were full of challenges and opportunities. Amidst the challenges while supporting the war were addressing the instability in the economy, inconsistent budgets, and very little growth of the industrial base.

In 1777, one of our country's founding fathers, Robert Henry Lee, used the phrase "*rage of reformation*" to describe Congress' development of the new nation's governance in terms of direction and oversight. Lee's letter to George Washington was written in November 1777, (Ballagh, 1911), in reference to a recent Congressional Act which provided 41 additive elements of direction to the Army's commissioners, to include the need for their oaths of allegiance to the Army, and to be co-located with Congress.

For over 245 years, amid the evolution of society and external oversight, the Army continues to have a need to procure goods and services while maintaining and improving capabilities to support its mission, (Stark & Follett, 2014). The Army's current vision statement identifies the essentialness of Army Acquisition as it is the enabler for the, "employment of modern manned and unmanned ground combat vehicles, aircraft, sustainment systems, and weapons...." (U.S. Army, 2020).

The acquisition lifecycle has broad phases of activities from the development of science and technology, the generation of requirements, system design, development and qualification, transition into production and fielding, sustainment throughout its operational life, and finally eventual divestment of the capability. Each phase has a unique complexity of its own, and one can spend an entire career working within one or potentially two of these phases. The overall process involves the evolution of User initial thoughts of needed capability to the fielding of supportable systems.

No two programs are every conducted in the exact same manner due to the program's intent, the identified technology, the acquisition process in place, and the external environment including the perpetual churn of statutory, regulatory requirements, and other direction and guidance from a wide range of external sources. Regardless, there are broad similarities of understanding which aid in addressing the challenges that benefit from the experience and knowledge adding to the probability of a successful program.

Acquisition is both a Complicated Team Sport and a Business of Relationships

The overall Army is an exceptionally large organization with a reported 2019 workforce of just below 1.2 million personnel within the Regular Army, the National Guard, Reserves and civilians (Cancian, 2019). The Army is comprised of two primary elements: the Operational Army and the supporting Institutional elements. The Operational Army's mission is to "conduct full spectrum operations around the world" (U.S. Army, 2020). The Institutional elements support the Operational Army through

providing “the infrastructure necessary to raise, train, equip, deploy, and ensure the readiness of all Army forces” (U.S. Army, 2020).

Within the Army’s Institutional elements is the Army Acquisition Workforce, (AAW). The AAW has approximately 40,000 personnel: 5% are Military and 95% are Civilian (US Army Acquisition Support Center, 2020). There are currently thirteen acquisition career fields¹ assigned to over 20 commands stationed around the globe in the AAW.

For reference, the Army Acquisition Enterprise is referring to the organizations that share a primary responsibility for the planning and execution of materiel development and the production and sustainment, which provides the Army Combat commands with the means to exhibit new capabilities. There are numerous supportive organizations.

Acquisition programs follow a “phased lifecycle” approach, meaning that the overall activity is broken down into individual phases separated by decision reviews. The acquisition process allows a new materiel solution to enter the lifecycle in accordance with its level of technology and manufacturing maturity, but a new/unique activity would begin with the development of new technology and the formulation of system requirements. The final stage of acquisition ends with the materiel’s withdraw from use by our forces, identified as demilitarization or divestiture, which is phased to

¹ As of the time of the writing of this paper, the Office of the Secretary of Defense for Acquisition has revised the current count of thirteen career fields down to six.

coincide with either a replacement materiel or an alternate capability as determined by strategic analysis.

Between the beginning and end of a materiel's life cycle, we have the development, production and sustainment phases. Each lifecycle phase is resourced in the budgeting process through the allocation of specifically defined sources of funding, such as Research, Development, Test and Evaluation (RDT&E); Procurement; or Operations and Maintenance (O&M), (Martin, 2018), all of which are authorized and appropriated by Congress on an annual basis.

Acquisition involves many challenging activities. The development and allocation of combatant capability needs into requirements can take years of activity to include identifying multiple conceptual materiel solutions and conducting analysis of alternatives studies to identify viable materiel solutions. The system and design engineering effort allocates the overall system requirements into sub-system and component designs within the available technology and manufacturing readiness maturity. The system design requires the coordination and leveraging of knowledge from a wide spectrum of subject matter experts to achieve integration of the system and typically with external interfacing systems. The external interfacing systems are operating on their own life-cycle activity and may be under revision or, even in their initial stages of development, in an un-synchronous condition. The decision to proceed from development into production requires demonstration under harsh environmental, logistical, and operational assessment conditions. The current force structure affects the delivery of the capability, which may have changes since the initial capability requirements effort. There is a high likelihood of receiving revisions to the system requirements throughout

development or production or the intended required delivery quantity may change. Both have an incredible capability to affect program and end item unit costs. Program offices, services, and OSD leadership closely monitor program and unit cost. Congress also monitors programs and have the ability to alter annual budgets or direct legislative guidance based on their perspectives.

A program transitions from one phase of the lifecycle to another by conducting an Acquisition review. A Milestone Decision Authority, (MDA) chairs a panel that represents the various aspects of the full acquisition activity. The size of the program and priority within DoD or the Service determines the identified Acquisition Category (ACAT), and the appointment of the MDA.

The MDA for ACAT I programs is typically either the OSD Acquisition Executive or the Service Acquisition Executive. Whereas smaller programs, (identified as ACAT III or IV), are initially delegated to the Program Executive Officer (PEO) level who then has the authority to delegate the MDA to the Project Managers or Product Directors, (Bold & Ostrowski, 2018).

The MDA takes into account a number of identified artifacts, to include an appendix of statutory and regulatory documents, an assessment on program risk, and a review of the program's cost, schedule, and performance baseline. The User, Test and Evaluation Communities and the MDA's legal support also weigh heavily in on the decision.

The Defense Acquisition University (DAU) maintains a "Milestone Document Identification (MDID) registry" (Defense Acquisition University, 2021) to assist

acquisition personnel to identify and review information related to the numerous documents in accordance with the ACAT level and identified decision review. The number of statutory and regulatory documents varies in accordance with the ACAT level and type of acquisition method and the type of materiel.

A decision review for the highest-level ACAT programs requires approximately 80 documents. Every document has a corresponding, or in some cases multiple sources, of either statutory and/or regulatory DoD or service level directives or instructions. Each one of these source references is subject to perpetual revision to maintain compliance with new direction from Congress, OSD, and Service level policy. “Feeder” documents and/or supportive decision reviews of their own are required for a significant number of Milestone Decision Review documents. The approval of some documents may need to begin 1-2 years prior to the Milestone Decision Review.

Multiple organizations beyond the program’s management office have either shared contribution responsibilities or sole ownership of these important documents. The generation and staffing require a significant amount of labor and time preceding the decision review. Documents requires awareness of the current policy and implementation processes, as well as a solid understanding of the responsibilities for the numerous organizations that approve sections of the document. The effort to define the sequence of predecessor/successor activities to generate the required document is complex. Many documents intertwine together and thus have the interdependencies of different organizational responsibilities and require staffing back and forth between commands. The initial pass will be at the working level and the final pass will be at the senior command level.

Depending upon the materiel type, the ACAT level, the Service or organization's "prioritization" or "interest" in the program, some documents require approval beyond the materiel service, such as within another service, or at OSD. Programs stand up a dedicated management structure to coordinate this effort, concurrent to the in-process development or production of the item.

The complexity and resources to support a milestone decision is a frequent acquisition reform topic, commonly referred to "streamlining" the process. In 2018, the then Principal Military Deputy to the Army Acquisition Executive, LTG Paul Ostrowski, traveled throughout the Army Acquisition Enterprise to discuss plans to streamline acquisition. His message was clear on the need to "get engaged in changing the culture" (Bold & Ostrowski, 2018), through focus on the product being fielded, not only the process to achieve a milestone decision. Topics raised include delegation of program decision responsibilities downwards in the chain of management control closer to the program office, which is managing the execution, using alternate acquisition and contracting means, and addressing risk early in the acquisition lifecycle.

Acquisition has often been described as a "Team Sport" (Lukac, 2008), or as "being in the Relationship Business" (Holiday, 2021). Both statements refer to the wide collection of individuals and organizations who work with great commitment to contribute their knowledge and skills in synchronized collaboration. Some organizations have a mission to seek and identify deficiencies in areas such as how the delivered materiel needs to perform after long storage, the current and future transportation systems, and delivery of the intended capability in worldwide environmental conditions in an operational engagement. From a cursory view, these organizations may appear

to be representing an opposing team. They are actually performing in a role to exercise operational, environmental, and logistical challenges, as it is critical to identify these challenges prior to the need in time of conflict. Other organizations provide supportive referee-like roles to over watch and verify compliance. These groups are also a part of “Team Acquisition,” as compliance is one means for suspending program execution.

Highly referenced throughout the doctrine publications of the Army are the basic principles of Trust and Teamwork. Army Doctrine Publication (ADP) 6-22 “Army Leadership and the Profession” is a seminal publication used in leadership instruction and offered for individual self-development. Forms of the word “trust” occur 180 times within this document. As stated in the introduction of ADP 6-22, “Army leaders recognize that organizations, built on mutual trust and confidence, accomplish missions” (U.S. Army, 2012). ADP 6-0 “Mission Command; Command and Control of Army Forces” states, “Mission command requires tactically and technically competent commanders, staffs, and subordinates operating in an environment of mutual trust and shared understanding” (U.S. Army, 2012).

Congressional engagement with the budget and control over the acquisition process through legislation too are part of the team, as Congress’s intent is to provide the resources and authorizations to enable our Nation’s military capability. Throughout the Acquisition community and the many layers of associated organizations, teamwork is critical to successfully plan, communicate, execute, deliver, and sustain a materiel solution that fulfills a combat command’s capability gap. Successful relationships that enhance teaming support and are critical to establish trust, communicate effectively,

and find a common ground between the Service's needs, the program's abilities, and the mission of the supporting organizations.

The equivalent rules of sport analogies within acquisition are subject to perpetual cyclic evolution: the distance to the goal post, the size of the net, or the location of the foul ball pole...; (statutory, regulatory, and policy); the number of allowable players (constrained by annual budgets to staff personnel on either the development or evaluation staffs, included system contractors), etc.

The current Army Acquisition organization and methods are the result of a long history of published direction, guidance, and execution. Congressional influence includes statutory direction, audits, budget controls, and testimonies. The Army continuously adapts its strategies and regulations by releasing updates to directives, general orders, instructions, and other related policy memorandums to support its mission to the Nation. An unbounded source exists for the reception of relevant studies and findings. Evidence of program successes or failures enable both program oversight organizations and the public media to shape the direction and guidance. The source of change comes from everywhere. To simplify the rationale and purpose behind the continuous change, it is all about improving the acquisition process and performance.

“One must change one's tactics every ten years if one wishes to maintain one's superiority.” (Bonaparte, 1769-1821)

[Leading up to the establishment of Army Futures Command](#)

On 25 November 2015, the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2016 became Law. Section 808 directed the services to “report on efforts to

link and streamline its requirements, acquisition, and budget processes” (United States Congress, 2015, p. 888).

The Army’s response was to expand awareness of a new modernization strategy supported with a number of improvements to Acquisition. The planning led to the release of a number of wide reaching artifacts that have transformed Army Acquisition, including the initiation of the Cross-Functional Teams (CFTs) and the stand-up of the Army Futures Command.

In 2015, the Army Materiel Command (AMC) and the Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA (AL&T)) were the primary Army organizations that managed the Army Acquisition Enterprise.

AMC’s web site offers the following description:

“...develops and delivers materiel readiness solutions to ensure globally dominant land force capabilities. AMC synchronizes and integrates the Army’s total capabilities in support of the Chief of Staff of the Army’s priorities and Combatant Command requirements. As the Army’s Lead Materiel Integrator, Army Materiel Command manages the global supply chain, synchronizing logistics and sustainment activities across the Army.” (AMC, 2020).

ASA (AL&T)’s web site offers the following description:

“...ensuring the Soldiers are the decisive edge by fielding of the best equipment and services, enabled by technology, to the Warfighters serving our Nation.” (ASA(AL&T), 2020).

Currently, AFC, AMC, and ASA (AL&T) manage the Army Acquisition enterprise through the implementation of a number of Army Directives and General Orders released since 2017. AFC's web site identifies its mission as:

"...leads a continuous transformation of Army modernization in order to provide future warfighters with the concepts, capabilities and organizational structures they need to dominate a future battlefield" (AFC, 2020).

There are numerous supporting commands critically engaged in the acquisition process, such as the Army Test and Evaluation Command (ATEC), the Deputy Assistant Secretary of the Army for Cost and Economics, (DASA(CE)), etc., with trained, certified, and experienced acquisition corps members. These supportive organizations have responsibilities within the acquisition process and to some degree support the CFT's, to support to the transitioning to program of records.

The FY16 NDAA also included "Section 809 Advisory Panel on Streamlining and Codifying Acquisition Regulations" (United States Congress, 2015, p. 889). This directed the Secretary of Defense to establish a panel of "recognized experts in acquisition and procurement policy" with direction to research and deliver recommendations, "toward streamlining and improving the efficiency and effectiveness of the defense acquisition process and maintaining defense technology advantage." The panel published 98 recommendations in multiple reports between May 2017 and Feb 2019 (Defense Technical Information Center, 2020) and included recommendations to either scale back or eliminate prior legislation, to identify new legislation to add clarification or to provide relief. Congressional legislation, (as of Dec 2019) has

addressed 23 recommendations. It is expected that OSD and Congress will address additional recommendations.

The hierarchical organization above the program includes the Army, OSD and Congress. All have governance control over the acquisition process, and are interested in its continuous improvement. Change is a seemingly perpetual part of acquisition.

The turbulent dynamic environment surrounding the acquisition activity is in many regards the status quo. Since its formation, the acquisition process has continuously been refined, improved, and streamlined to improve efficiency and effectivity. The internal and external oversight has swayed from more to less and back again in accordance with the conditions of the environment. External influences such as variability in budgets, statutory language, or even the progress of inter-related systems, affect the time to deliver capability.

The Army has maintained agility throughout its history to adapt to the Nation's needs to include organizational changes. The last major force restructure was initiated in 2005 pivoting from a division orientation to brigade-centric, which also brought about changes to the theater-level commands (Emmons, 2013). The formulation of AFC is a demonstration of the Army's ability and willingness to be agile in an effort to address challenges identified within the acquisition process and initiate a number of key capabilities. AFC is unique in several ways in that it is a four-star billeted command with a goal to address a key aspect of the current Army Mission and Vision statements. AFC is both managing a number of high priority technology demonstrators and managing the overall requirements process for all Army Acquisition programs. A more detailed description of this topic is in a later section.

Intent of this paper

The initial intent of this research paper was to develop and obtain an understanding of the three organizations intertwined together to execute the current Army's Acquisition enterprise, namely AFC, (ASA (AL&T)), and AMC. The current intent of this research paper is to explore the current Army Acquisition enterprise, with a focused inspection on change and adapting to the change. One of the significant challenges encountered while researching this topic is that a significant number of the source materiel identified is highly subject to change. AFC is a relatively new organization and through its own construct, it has identified the need to learn from mistakes and continue to grow and adapt in order to achieve success. The establishment of AFC brought with it a need to update a number of regulations and policies to incorporate the new organization into the standards of operations.

There are two identified changes to the acquisition process under development and external to the Army. The first is from OSD and actively employs an acquisition innovation activity to address four categories: "one, restructuring acquisition, policy and governance; two, contracting at the speed of relevance; three, strengthening and securing the defense industrial base; and four, effective training of the acquisition workforce" (Ellen M. Lord, 2019). The second external dynamic effect is the continued Congressional actions. This included monitoring progress from prior legislation, such as the recommendations from the previously delivered Section 809 panel report, and new legislation based on Congress's perspectives for the acquisition community as it evaluates the current global and national environment.

This evolving environment will result in a situation where some organizational and acquisition processes are guaranteed to change in the future. This may occur years from now or potentially prior to this paper's publication. My goal for this paper is to identify themes and principles based on current documented facts and maintain adaptability to future conditions, thus outlasting the current details. It is a much-desired goal to identify situations and recommendations applicable to the acquisition community of the future.

Research Problem Statement

Now that the reader has a summary understanding of how change is an integral part of the foundation of the Army Acquisition enterprise and its operating environment, the intent of this research paper will explore the following problem statement: where does change come from, and how to potentially best proactively avoid and/or embrace change.

Purpose and Significance of this research

This research paper will address two primary intents:

1. Identify sources of change directed to the Army Acquisition activity.
2. A discussion on collaboration, challenges, conflict, and perceptions that offer an opportunity to improve the Army Acquisition enterprise. This paper identifies areas where a more insightful understanding of people, development of thought, and engagement may help improve the reader's organization and activities.

Anticipated Findings

- Obtain a better understanding of the source of change, along with the means to gain a better understanding of the intent of the change.

- The exploration of theories related to organizational behavior, decision-making, and transformation will offer the workforce an opportunity to obtain a further understanding of organizational behavior.
- An organization that has a better understanding of change may lead to an increase in workforce engagement and passion to grow, improve, collaborate, and execute identified means to enhance their day-to-day operations.

Overview of the Research Methodology

The research methodology will examine relevant and public accessible Army/DoD material such as General Orders, Directives, Regulations, and policy memoranda. Other Government information from Congress will include NDAA language, congressional records, reports from the Government Accountability Office, and Congressional Research Services. Peer Reviewed publications, media, and other information found from the internet will add towards the body of information feeding the research. The review of multiple sources will confirm validity of the information.

Potential bias or “blindness” (Ellis & Black, 2018) are a matter of concern. The research will maintain a perspective on the sources under inspection to attempt to recognize and ideally negate bias from my perspectives.

Research Questions:

The following research questions deconstruct the problem statement and provide a focus for the research:

1. How prevalent is change in Army Acquisition, and where does change come from?
2. What are some aspects of thought on the elements related to adapting to change?

Objectives and Outcomes

Given the dynamic process of acquisition and the evolution of a new organization, this paper offers an opportunity to define both challenges and opportunities the Acquisition community should pursue for continued improvement of the Army acquisition enterprise.

As stated earlier, individuals, not an organizational structure or process, are where collaboration, cooperation, communication, and decision making occur. People will make the process work, not organizations.

Limitations

This research paper is a scheduled deliverable for the Senior Service College Fellowship and as such, the availability of time allowed is a primary limitation. This paper will be dependent upon the accessible published bodies of knowledge as of February 2021.

The accessible literature research will be the basis of this paper's research. The curriculum of the SSCF does not allow for detailed communications with the current community engaged on this topic. The paper will attempt to maintain an unbiased viewpoint and will make all provisions possible to obtain equivalent information for all sides on this topic.

One potential challenge to the intended purpose of this paper is that throughout the research process, emerging policies and regulations continue to be released which further evolve ASA (ALT), AMC, and AFC roles and responsibilities related to Army Acquisition.

Chapter 2 Literature Review

The initial planned intent of this paper was to explore the alignment and relationship between AFC, AMC, and ASA (ALT) in their support of Army Acquisition, and to identify ways for the workforce to better support the acquisition process. The literature search did not find peer reviewed published works pertaining to the alignment of AFC, AMC, and ASA(AL&T) responsibilities associated with providing materiel that enable warfighting capabilities for the Army's combat. The execution of the initial literature review along with the examination of the identified material, and subsequent additional associated material led to the decision to refocus the paper to its current state.

Sources

An initial literature review was conducted with support from the Defense Acquisition University (DAU) Library (Defense Acquisition University, 2020), which maintains an online Knowledge Repository, research information and a number of relevant DoD and Army acquisition focused publications.

The DAU Library also provides access to academia and journal search engines, such as Elton B. Stephens Company (EBSCO) host and ProQuest databases. The initial phase of the literature search focused on relevant topics offering multiple sources of published academia or peer-reviewed journal research.

The Army Publishing Directorate Web site, (U.S. Army Publishing Directorate (ADP), 2020) provides a long registry of Administrative (Directives, Regulations, General Orders, Memorandums, Policy notices, Pamphlets, and Principal Official Guidance), Doctrine and Training (Doctrine and Doctrine Reference, Techniques, Field

Manuals, Professional Bulletins, Training Circulars), and Miscellaneous (Center of Military History) documents.

Lastly, the common internet searching through either Google or Wikipedia provided definitions, and documents not found on the above sites. Wikipedia is a user-generated information website. It has an informal “Starfish” like, (Brafman & Beckstrom, 2006) decentralized and voluntary and unauthenticated editorial process. Some entries offer a significant number of cited reference material, but these are typically limited to news articles, and journal articles that are not fully peer-reviewed. Detailed review and tracing of the identified cited source material from within Wikipedia aided in gaining an understanding of the content and helped identify potential bias and verify suitability for this paper.

Categorization of Information assessed

The initial literature review of accessed information identified four general types of information:

- Current Authentic Positions: Approved Congressional Laws, published OSD/Army Orders, Directives, Regulations, Policies, and associated memorandums. The initial thought was to identify these items as “facts,” however due to the culture of perpetual improvement; “current authenticated positions” seemed to be more appropriate.
- Organizational information: Information that describes an organization’s construct, mission, responsibilities, processes, initiatives, leadership, and relationships with other organizations.

- Independent Assessments: Published academic papers and peer-reviewed journal articles.
- General Information: Journals and other related media publications, web sites that describe terminology or activities, definitions, etc.... i.e., everything else.

Identified Limited Research Materiel on AFC

Given the relatively short time since the stand-up of AFC, as of the generation of this paper no academic-based or peer-reviewed research on this organization as a stand-alone or on its relationship with ASA(ALT) and AMC has been published. There are a significant number of published academic-based and peer-reviewed research articles on the DoD and Army acquisition activity. There is a significant number of organizational descriptive documentation, journals and media articles, congressional documentation, academic-based, and peer-reviewed research publications on pertinent topics related to these three organizations. These articles, in part, can allude to the conditions that contributed towards the stand up of AFC. Related topics of interest include DoD/Army acquisition reform, acceleration of fielding new technologies and capabilities, and transformational organization initiatives.

Information Themes identified in Research

The focus of the literature research gathered information to conduct an assessment on organizational behavior related to change. The literature search included information related to applicable research on organizational restructuring, complexity, problem solving, and decision-making. Four primary themes shaped the literature search:

- Theme #1 Analysis on Recent Army Acquisition Modernization Efforts
- Theme #2 Acquisition Reform and Decision Making

- Theme #3 Army Organization Changes, as Related to the Initiation of AFC
- Theme #4 Organization Behavior to Foster Change Beyond U.S. Military Activities

I recommend the readers conduct their own inspection of the referenced materials, and the materials referenced within them, to gain an appreciation for the varying alternate perspectives or maybe an unexplored avenue of thought. This paper is not the compendium of knowledge on this wide range of topics.

Theme #1 Analysis on Recent Army Acquisition Modernization Efforts

To explore the current state and change within the Army Acquisition activity, I thought it would be important to explore a recent and significant Army modernization initiative, Future Combat Systems (FCS). FCS began as a collaborative Defense Advanced Research Projects Agency (DARPA) and Army program effort in the late 1990's and became a Program of Record (POR) with the approval of Acquisition Milestone B in 2003 to enter into Engineering & Manufacturing Development. FCS was a "Systems-of-Systems" program, with the intent to leverage new technologies to transform the Army's brigade force structure. OSD terminated FCS in 2009. The Army's Brigade Combat Team (BCT) Modernization initiative benefited by integrating some of the technologies and systems matured during the FCS program (Wikipedia, 2020). Two papers on the FCS activity provided a better understanding of the activity, one published during its execution and the second published after its termination.

In 2007, U.S. Army Lieutenant General (since retired) Joseph Yakovac published a paper at the US Naval Postgraduate School (NPS) titled "Early Lessons Learned from the Army's Future Combat Systems Program (FCS): Developing an Appropriate

Contractual Arrangement with Industry, Establishing an Enabling Program Management Structure and Test Organization” (Yakovac, 2007). Prior to the NPS, LTG (R) Yakovac served as the Director, Army Acquisition Corps, and Military Deputy to the ASA (ALT).

During the fifth year of development, LTG (R) Yakovac generated a paper while the program was still progressing to plan, on-cost and on-schedule. His paper identified “lessons learned from the FCS program that may be useful to acquisition professionals facing the challenges of managing the complexity inherent in 21st-century Department of Defense programs” (Yakovac, 2007). The Yakovac paper identifies a significant number of relevant topics applicable to the current state of Army acquisition even over a decade after its publication. His paper also identified a number of challenges associated with complex programs leveraging new technology to support transforming the Army and the challenge of fielding new technology on an expedited schedule. This paper offers a number of relevant perspectives to the current Army acquisition enterprise.

In 1945, leadership from the United States War Department initiated a contract with the Douglas Aircraft Company to conduct “Project RAND.” The name “RAND” was a contraction of the phrase “research and development.” The contract scope was to “connect of military planning with research and development decisions” (RAND, 2021). In 1948, the project transitioned from Douglas out as an independent, nonprofit organization, with a mission “to furthering and promoting scientific, educational, and charitable purposes for the public welfare and security of the United States” (RAND, 2021). After the program’s termination, the Army funded RAND to conduct a study that produced a report titled “Lessons Learned from Future Combat Systems” (RAND, 2010). The report stated the “Future Combat Systems (FCS) program was the largest

and most ambitious planned acquisition program in the Army's history." The goal was to not only field one product, "but an entire brigade: a system of systems developed from scratch and integrated by means of an advanced, wireless network" the new brigade would have "novel doctrine that was being developed and tested along with the materiel components of the unit. To paraphrase the Army at the time, FCS was Army modernization."

The RAND paper described a number of key aspects of the intent for FCS, its execution, and post termination reflection. The RAND report identified a number of challenges and lessons learned from their perspective of independent evaluators of the information provided by the Army and Industry relevant to the topic of this paper.

Theme # 2 Acquisition Reform and Decision Making Analysis

The history of the growth and transformation of the Army demonstrates the need for and execution of change and adaptability. Acquisition addresses the need for new capabilities through use of new technologies and the delivery of new materiel for the warfighter.

A very visible and well-documented programmatic event all acquisition programs experience is the transition between lifecycle phases, as identified at Milestone Decisions (AcqNotes, 2020).

A paper written by Joseph McCue titled "The Impact of Decision-Making Theory on the Department of Defense Acquisition Process for the Procurement of Major Weapon Systems" (McCue, 2003), explores the DoD acquisition decision-making process. McCue's paper gathered a significant number of academic research on decision-making and identified the challenge of applying such to the complexity of

decisions for DoD acquisition programs. His paper details how DoD acquisition offers a unique environment in which three concurrent themes compete for priority with the associated stakeholders in an unstable budget environment. First, we have the incorporating of innovative technologies to adapt to forecasted emerging threats. Next is generating essential materiel for a forecasted future capability need at a minimal cost. Finally, we are maintaining a sufficiently resourced specialty industrial base. The annual budgeting process allows for considerable program instability. McCue's paper identifies a cyclic nature of budget trends. The overall budget retracts following conflict, whereas in times of strife, the budget constraints open up. The political pressure from industry applies varying influences as necessary for supportive decisions whether budget cycles are lean or large. The paper identified internal and external influences on the acquisition decision-making process. Additionally, it identified potential opportunities to utilize "classical decision making theory" by providing insight into the history of DoD Acquisition organizational structures, commercial researched (non-DoD) decision theories, and practices (to include decision making process) in the DoD.

McCue identified specific academic research on "decision making" that includes an enormous volume of material and the effort to find applicable research for this paper utilized the additional terms of "bureaucracy," "military," and obviously "acquisition." The topic of "people" as identified as a key focus for Army leadership came from this material.

McCue's paper addressed a number of historical aspects from President Eisenhower's term; however, it seems fair to include in this paper a segment from his Presidential farewell speech:

“Until the latest of our world conflicts, the United States had no armaments industry. American makers of plowshares could, with time and as required, make swords as well. But now we can no longer risk emergency improvisation of national defense; we have been compelled to create a permanent armaments industry of vast proportions.... In the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military industrial complex. The potential for the disastrous rise of misplaced power exists and will persist.” (Dwight D. Eisenhower, 1961)

Theme #3 Organization Changes Related to the Initiation of AFC

The Army publishes Army Directives (AD) and General Orders (GO) to make key announcements on strategies, the change of direction, or a change to organizational responsibilities. A number of these items provide a perspective of the Army leadership actions and intent to address modernization between 2017 and 2018. The initial list of relevant documentation reviewed in the initial literature search is:

- AD 2017-22: Implementation of Acquisition Reform Initiatives 1 and 2, 12 Sept 2017 (McCarthy, 2017)
- AD 2017-24: Cross-Functional Team Pilot in Support of Materiel Development, 06 Oct 2017, (McCarthy, 2017)
- AD 2017-33: Enabling the Army Modernization Task Force, 07 Nov 2017 (McCarthy, 2017)
- GO 2018-20 Establishment of the United States Army Futures Command, 4 June 2018, (Esper M. , 2018)

The review of additional Army and OSD documentation will continue in order to conduct this research. Examples include strategies, doctrine, policies, regulations, as well as related publications and research.

Theme # 4 Organization Behavior to Foster Change Beyond U.S. Military Activities

Organizational change is the subject of a large number of published research and analysis. Given the perspective the re-organization of the Army acquisition enterprise was to stand up a new organization with the ability to operate outside the

established standards and incorporate organizational re-structuring, in particular was identified as a “spin-out” provided numerous research and analysis publications. This form of re-organization is often for the expressed purpose of addressing a key focus goal of the parent organization to pursue a focused initiative with an alternative form of governance. The creation of a new organization allows for the establishment of new policies and standards to expedite execution towards achieving the focused goal.

In some regard, the stand-up of AFC resembles a corporate restructure such as a “spin-out” in that the Army re-allocated existing budget resources and personnel to pursue a focused purpose under a new reporting structure. Common addressed elements are aspects of measuring success and “friction” encountered.

The word “friction” appears in a number of recent organizational focused publications from the last number of years. A typical friction relation is the capacity of two organizations or groups within an organization to move together in a synchronous and supportive manner. High school level physics instruction describes friction as a parameter to define the interrelationship of two objects in their ease of movement across each other. The higher the “coefficient of friction” between either items requires more force to start the movement and slightly less to maintain the movement. Reducing the force will result in the slowing of movement, to an eventual stop. Identified, friction is a cause for the loss of energy efficiency in moving objects, such as engines. When apparent it also converts the applied force into heat. Whereas physics identifies a fixed number for the “coefficient of friction” that is not the case when applied in discussion of organizations; it is not a quantifiable number. Organizational or interpersonal friction either exists or does not. When apparent, more force is required to start organizational

change, and this applied force may produce the equivalent of the term from physics heat in the form of resistance. The lack of organizational friction is evidence of successful team spirit and cooperative relationships.

The corporate world has a comparable focus relative to the Army acquisition enterprise. Both focus on making the most efficient and effective use of resources.

One technique used to change an organization is a “Spin-out.” As defined by the investor information website Investopedia, “A spinout is a type of corporate realignment involving the separation of a division to form a new independent corporation. The spinout company takes with it the operations of the segment and associated assets and liabilities” (Kenton, 2019).

Financial profit is the primary intent of corporate restructuring. A primary method is to streamline the organization to be more agile, flexible and focused as compared to when operated under the full corporate governance and its broader mission. Although the Government does not operate with an eye on profit, the opportunity to become more streamlined and agile is a desire of most acquisition programs. Two aspects proposed interest for application to this research. First, there was a large number of published research on this topic and secondary, they appeared to have some extensive content about adapting to change.

An identified publication “Leaving the Corporate Fold” (Semadeni, 2003) offered an interesting discussion on organizational change. Semadeni provided a model to identify the relationship between managerial actions and performance while exploring the challenges to the creation and operation of a new organization from a focus

perspective from within the entity that had been “spin’ed-out.” Also discussed are the attributes associated with the organizational theories of “Agency,” “Transactional Cost,” and “Upper Echelon” which offer comparable perspectives between corporate and Government / Military organizational behavior.

Another reviewed paper, “Corporate Spin-outs: Three empirical essays on CEO Compensation, Earnings Predictability, and Implied Volatility” (Bliss, 1997), offered relevant knowledge concerning an organizational change that provides elements of comparison to an Army re-organization. A key element of the paper included an assessment on the intended increase of performance and efficiencies resultant from the streamlining of corporate governance.

Bliss’ research includes a significant number of analysis on the resultant performance of the new organization. The analysis of financial reporting and publicly traded stock is an indicator of measured or perceived performance. An upward trend in stock value is external acknowledgement of the reorganization’s success.

Corporation divisions are held accountable by their board of directors, stockholders, business analysts, and the media; Army Acquisitions programs are held accountable by organizational and HQDA leadership, Government accountability analysts, the media, the legislative branch (Congress), and occasionally the Executive branch of our Government. Publicly owned, corporate accountability has measurable financial terms (profit, sales, market share, stock price, Return on Investment...etc.). Government accountability also has measurable terms such as successfully operating within the baselined cost and schedule while demonstrating performance.

Both corporate and acquisition programs face the potential challenge of external competitors who test the progress, performance, relevancy of the investment, long after the organizational restructure has been implemented. The paper identified corporate restructure is not always successful.

One benefit of exploring this topic through use of non-DoD/Army acquisition specific research identified a number of other important topics that, although not based solely from the Acquisition Community, offer the potential to help the workforce address performing in the complexity and turbulence of a consistently evolving environment.

Literature Search Conclusion:

Given the relatively short time since the stand-up of the AFC, three key findings from the literature review emerged:

- First, although there is a significant number of organizational documentation and media articles to draw upon, there are no academic-based or peer-reviewed research products on AFC as of November 2020. The relevance of this finding is that the analysis in this paper will not have the ability to draw conclusions from multiple sources of published peer-reviewed research on AFC.
- Second, the Army and other service acquisition organizations (Air Force, Navy, USMC), have a long history of re-invention, implementation of acquisition reform initiatives, etc., that align closely with several of the foundations behind standing up AFC. The Army published a number of publications to support leadership development and addressed complexity, as did the other services.

- Third, there is a significant number of published theories and analysis from outside the U.S. military environment. The competitive commercial environment has a strong stake in pursuing innovation and acceleration of the delivery of technology to the market. Methods to achieve this include pursuing challenging new opportunities and/or increasing efficiencies through significant organizational transformation. The research on non-DoD/Army acquisition identified a number of relevant topics that apply to the day-to-day acquisition workforce lexicon, including changing or transforming organizations and applying novel techniques to address time sensitive complex situations.

The continued research will expand on this initial literature review. The selected artifacts include a wide range of reference source material that requires further examination. The continued exploration will fill the current gap in research towards a better understanding of organizational change and improving the effectiveness and efficiency of the Army Acquisition enterprise.

Chapter 3 Research Methodology

The DAU Library, to include access to academia and journal search engines such as EBSCO host and ProQuest databases, supported the research in this paper. The initial phase of literature research identified relevant topics offering multiple sources of published academia or peer-reviewed journal research.

Further research extended into the public forum of public accessible information, such as publications of articles and briefings, and congressional related materiel.

Given the wide range of potential materiel, the multiple sources helped negate potential bias. The initial prioritization concept is as follows: US Code Title 10 citations, approved Army General Orders, doctrine, directives, regulations and instructions, independent assessments, joint memorandums of agreement, followed by individual organization memorandums, peer-reviewed journal articles, followed by media articles (trade publication or internet based articles).

Key search terms – Organizations:

Army Futures Command (AFC)	Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA(AL&T))	Army Materiel Command (AMC)
Future Combat System (FCS)	Cross Functional Teams (CFT)	Headquarters Department of the Army (HQDA)
Government Accounting Organization (GAO)	Congress	Army Acquisition
Navy Acquisition	Air Force Acquisition	SOCOM Acquisition

Key search terms - Topics of Consideration / Major Processes:

Acquisition reform	Joint Capabilities Integration Development System (JCIDS)	Accelerated fielding
Military technology	Problem Solving	Materiel release
Modernization	Prototyping	
DoD 5000	Planning, Programming, Budget and Execution (PPBE)	AR 70-1 Army Acquisition
National Defense Authorization Acts (NDAA)	Packard Commission	Weapons System Acquisition Reform Act

Key search terms – Topics of consideration from the public domain:

Corporate restructure; Spin-out	Organizational Behavior and Development	Transformation
Problem solving	Decision making	Complexity

Chapter 4 – Discussion

Ye Olde Acquisition at the Speed of Relevance

The call for change has been a part of the acquisition process since the beginning of the Army. Change comes in many forms and these include the establishment of new authorizations, new or revised direction, or guidance to shape the detailed procedures used for the implementation of the change. Based on a review of multiple NDAA, released policy memorandums, and revisions to regulations, inspection of the implementation process seems to be the primary cause for the subsequent cycle of directed change.

The 13 Colonies declared independence from Great Britain following unrest resultant from the imposition of taxes and other means of control, (The U.S. National Archives and Records Administration, 2021), (History.com, 2021). Britain needed to address a significant debt developed while resourcing the Seven Years War (Land, 2010), the conflict with the French for control of territories in North America from 1756-1763, (History.com, 2021). The colonies' economy centered on agriculture and trade, with very little manufacturing (Rosenbloom, 2018). Control of the colonies enabled a dependable source of supply of natural resources and a source of financial contributions to offset the price for maintaining governance with a military presence in the colonies. Taxing the colonies' growing economy was the means to address the doubled national British debt during the war, (Land, 2010).

The Continental Congress established the Army through an act on 14 June 1775. Congress then appointed George Washington as the "General and Commander in chief

of the Army of the United Colonies” on the following day. His authority included to command, “... all the forces now raised, or to be raised by them, and of all others who shall voluntarily offer their services, and join the Defense of American liberty” (U.S. Army Center of Military History, 2020).

Congress established the initial positions of Army leadership to include roles that have evolved into the current acquisition activity of equipping and sustaining the “Commissary-General of Stores and Provisions” on 16 June (Barringer, 1877).

By 10 July 1775, correspondence from General Washington to Congress records a request to make appointment to assign people into these positions. Congress responded with appointments starting on 17 July. This reading reinforced a future topic found throughout this paper on the importance of both authorization followed by implementation.

Further research on the formation of the Army Acquisition process identified what may be one of the first Congressional reforms of how the Army conducts acquisition. On 14 March 1777, Congress called for a committee of three people to be formed to “inquire into the activities on the conduct of the Commissaries” (Barringer, 1877). Within 30 days, the committee delivered a report and on 10 June Congress enacted 41 elements of direction, to include that “*the Commissary and Deputy Commissaries-General of Purchases, in each department, and every purchaser employed under them, shall take the oath of fidelity to the United States*” (Barringer, 1877). Congress added another stipulation that the Commissary General of Purchases “*keep his office in the place where Congress shall sit*” (Barringer, 1877).

Summary Point on This Brief Acquisition History Lesson

- Complete the action through Implementation:
 - Authorization is important, but the purpose is fulfilled after implementation, execution, and verification the intent has been met
- Responsiveness is possible:
 - Government organizations can be very responsive
 - Timelines measured in days can be and should be achievable
- Do it right the first and every time or you will get overloaded with direction and compliance requirements:
 - Being effective and efficient requires some internal planning, consideration of the intent, and use of standards in ethical practices
 - Attempt to avoid perceived uncertainty from above or expect requirements of compliance that will likely exceed the need to be as effective and efficient as possible
 - Establishing self-governance and monitor execution internally
- Trust but Verify
 - It is an ageless approach: when challenged - pursue with vigor, when embraced – focus on the findings

Although a significant amount of time was spent reviewing the history of acquisition activity for this paper, my findings were that any attempt to identify, organize, and conduct comprehensive analysis would be beyond the scope of this project. Attempting to identify the most important changes even in the last decade puts one in the situation of trying to identify the most important strike that your favorite baseball team's pitcher threw in a game, being that (1) they are all important, and (2) the last one is probably of overriding importance, until the following game.

Some changes within the acquisition process stand out for their scope and resultant impact and remain to this day in the public recognized narrative of the acquisition community. A sample will be included later in this paper.

There is a continuous cycle in the acquisition “reform” movement to either provide latitude and widen control limits to allow for potential innovation, or to tighten up the control means in an attempt to become more prescriptive with standard processes and/or to increase program reporting and oversight to be more proactive to under-performance.

Acquisition Costs are Too High and It Takes Too Long

A common agreement displayed from Congress, Army leadership, the media, and the support staff responsible for executing the acquisition programs is the acquisition process takes too long and costs too much.

The entirety description of the acquisition process is contained further in this report, but in summary, it is the synchronized balance of requirements, budgeting, and the OSD/DA acquisition processes. The three most common metrics used to both define and monitor programs is cost, schedule, and performance. Cost and schedule have a strong interdependency and together they resource the program’s ability to deliver on performance.

Acquisition programs develop an Acquisition Program Baseline (APB) when started. The program manager responsible for the execution and the acquisition Milestone Decision Authority sign the APB. The APB serves as a “contract” for the expected program management and execution. The initial APB approval occurs at either MS B or MS C Acquisition Decision Review, contingent upon when the program enters the lifecycle.

The acquisition system also holds programs accountable for delivering a product to a schedule and budget established very early in the development stage. This can be before receipt of a proposal from a system contractor responsible to deliver the item through development. The initial baseline must also support the development and execution of a test and evaluation program with the User communities' understanding of the system's materiel solution, as awarded on contract or demonstrated during testing. External influences may change the system requirements. Under these conditions, the program manager is "allowed" to re-baseline the program, but still has some limited accountability to the original baseline.

The current Planning, Programming, Budget, and Execution (PPBE) process, the formulation of requirements and the acquisition system require a combination of intuitiveness and imagination to keep them concurrently coordinated over an extended period.

Achieving modernization implies venturing into the unknown and the drive to accelerate technology adds an additional level of uncertainty to the forecasted program's cost, schedule, and even performance estimate. Numerous layers of leadership perform external evaluation of a proposed program cost, schedule, and performance. Each individual's (and their staff's) experience, perspectives and awareness of comparable efforts not clearly tracked by the offering program shapes their view and guides them to what they consider to be rational decisions.

Programs can typically fit into two primary categories. They can both be overly accepting of risk and portray what may seem to be a more affordable and faster solution, or they can take an overly conservative view of risk and portray a more

expensive and longer solution. It has been my experience that when reviewed by leadership, both cost and schedule are typically judged to be in excess for either condition. In retrospect, analysis of most large programs finds a large tendency to show growth in both schedule and cost. The research gathered in this paper does not identify a singular common cause but as documented in numerous years of GAO reports the typical contributors are:

- Underestimation of the effort needed to design, integrate, qualify and/or transition into production
- Interoperability with systems that are also in a development or evolution cycle
- The need to incorporate new requirements over the duration of the program execution
- Requested optimal funding profiles are not provided

The program management office has some responsibility over these elements but not all. Although control of most of these elements is external to the program office, the primary focus on Acquisition reform is too focus on the program management responsibilities.

Before continuing further into acquisition reform activities, I think that it would be best to familiarize the reader with some perspectives and analysis conducted on the Army's previous significant effort to transform, the FCS. Many documented lessons learned demonstrate the effectivity and challenge of a number of acquisition reform techniques.

Information and Knowledge Learned from Future Combat Systems

The Army FCS effort began in the 1990s to address post-cold-war global conditions and to integrate digital technologies (RAND, 2010). The initial contracted activities began in 2000 as a collaborative Science and Technology effort co-managed by DARPA and the Army. The FCS program was a very ambitious goal with 18 primary systems networked together to transform the Army's force through the fielding of a FCS BCT.

The FCS effort involved the development of new technologies and new systems. It required the integration of the new systems with new and legacy capabilities outside of the FCS program.

FCS became a POR with an MS B in 2003; OSD cancelled the program in 2009. A number of individual PORs / capabilities transitioned out of the FCS effort. Some aspects of the envisioned capabilities pursued in FCS continue now within the modernization priorities of AFC. The examination of FCS began with two papers, one written during the execution of the program by LTG(R) Yakovac and the other by RAND after its termination.

[FCS paper #1 - Early Lessons Learned from the Army's Future Combat Systems Program \(FCS\): Developing an Appropriate Contractual Arrangement with Industry, Establishing an Enabling Program Management Structure and Test Organization, \(Yakovac, 2007\)](#)

Yakovac focused on lessons learned from three critical elements, management relationships, contract design, and establishing a cohesive test and evaluation approach. A general theme across all lessons learned is the focus on collaborative and cooperative teamwork throughout the associated stakeholders. Collaboration and

cooperation imply working together for a common purpose, (Dictionary.com, 2021) and implies an established degree of trust between the organizations.

FCS was a complicated activity; the FCS requirements structure as of the time of MS B is depicted in Figure 2.

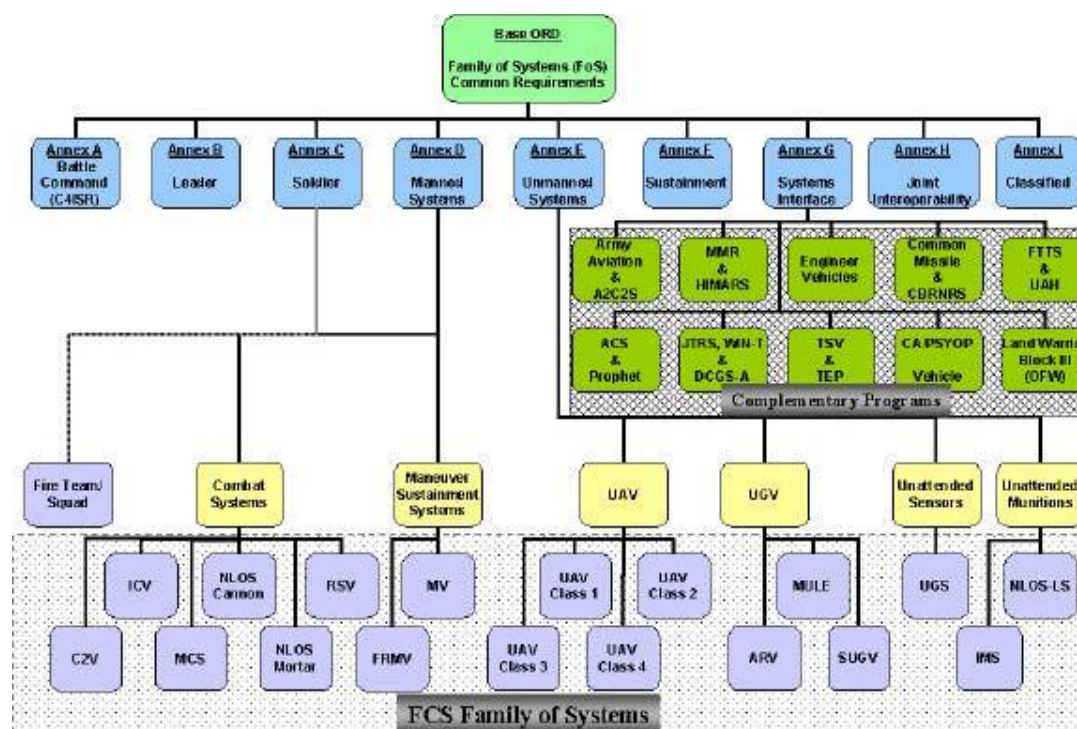


Figure 2 Future Combat Systems Requirements Tree, (Yakovac, 2007)

Yakovac (2007) identified “requirements annexes had approximately 535 specified requirements.

The execution of the FCS program was a very close collaborative effort between several Government organizations, Industries Lead Systems Integrator (LSI) and Integrated Product Teams (IPT) during the requirements development process, the design and system development activity and in development and execution of the Test and Evaluation (T&E) program. The FCS collaboration effort contained groups more

typically associated with large acquisition program oversight, such as the OSD's Director, Operational Test & Evaluation (DOT&E), OSD's Cost Assessment and Program Evaluation (CAPE), and even the Government Accountability Office (GAO).

- DOT&E is chartered under U.S. Public Law Title 10 U.S. Code, Section 139, to prescribe policies and procedures for the conduct of operational test and evaluation in the Department of Defense, (DOT&E, 2021).
- Cost Assessment and Program Evaluation (CAPE) was established in the Weapon Systems Acquisition Reform Act of 2009. CAPE provides "timely, insightful and unbiased analysis on resource allocation and cost estimation problems to deliver the optimum portfolio of military capabilities through efficient and effective use of each taxpayer dollar" (Office of the Secretary of Defense, Cost Assessment and Program Evaluation, 2021)
- GAO serves as a Congressional evaluation and analysis organization and publishes reports on the progress and challenges faced by acquisition programs. The GAO mission is to provide "Congress, the heads of executive agencies, and the public with timely, fact-based, non-partisan information that can be used to improve government and save taxpayers billions of dollars." (U.S. Government Accountability Office, 2021)

FCS Lessons learned:

a. Requirement's formulation: Establishing a good working relationship between the requirements and acquisition organizations is paramount. The materiel solution needs to identify technology of sufficient maturity given the limited time and budget allocated. A delicate balance is required to define an achievable requirement that addresses the warfighter's needs. This requires a well-informed, and trusting / collaborative partnership from a wide range of organizations within the acquisition community.

b. Contract design: The program's complexity and contract structure are interdependent and led to the decision to utilize an LSI. Congressional restrictions on their use have increased in recent NDAA's since the cancellation of FCS. The general principle behind

use of an LSI is to place the primary responsibility of managing the coordination of efforts to develop a complex system-of-systems capability. The decision on FCS to pursue an LSI took into account discussions held with the Missile Defense Agency and International Space Station who use such a partnership. FCS required “the complex integration of required new technologies for manned and unmanned aerial and ground vehicles, as well as the integration of advanced networking capabilities” (Yakovac, 2007). FCS involved the incorporation of both legacy and new development, which added to the complexity, described as “developing a new train track as the existing train was hurtling forward” (unknown, n.d.).

c. Identification of Government-Industry tenets for program management: One major artifact developed by FCS was to establish a listing of key “tenets” to clearly document the relationship and responsibilities.

The FCS program tenants are in a 2007 GAO report titled, “Role of Lead Systems Integrator on Future Combat Systems Program Poses Oversight Challenges”

(Government Accountability Office, 2007):

- Create opportunity for best of industry to participate
- Leverage government technology base to the maximum extent
- Associate ongoing enabling efforts with LSI-led activity
- Maintain a collaborative environment from design through life-cycle
- As a minimum, achieve commonality at subsystem / component level
- Design / plan for technology integration and insertion
- Maintain and shape the industrial base for the future
- Retain competition throughout future force acquisition
- Have appropriate government involvement in the procurement processes
- Achieve consistent and continuous definition of requirements
- Maintain and shape the government acquisition community
- Achieve program affordability—balance performance and sustainment

- Have a “one team” concept operating with partnership and teamwork

From this author’s perspective, the majority of these “tenets” are accepted standards for good government-industry collaborating on any type of contractual relationship.

Whereas this referenced GAO report identifies the advantageous perspectives of utilizing an LSI, it also reports concern with the Army’s ability to maintain oversight over the program execution. The acquisition process by its design has established checks and balances that address a number of needs. They ensure that the program’s execution is progressing as planned and/or reported. There are means to ensure that the program is addressing the current needs of the service and a means to check for compliance with a litany of statutory and regulatory requirements. FCS was identified as an ACAT 1D program, which includes appointment of the OSD Defense Acquisition Executive as the MDA. Another requirement is statutory oversight from organizations such as DOT&E, CAPE and GAO.

d. Use of a Lead System Integrator (LSI): The use of an LSI, also identified as a “Design Agent” or “Total System Performance Responsibility,” received special note in two specific papers: the Jan 2010 Volume 17 DAU Acquisition Review Journal, “Lead Systems Integrators: A Post-Acquisition Reform Retrospective” (Loudin, 2010), and “The Role of Lead System Integrator” (Gansler, Lucyshyn, & Spiers, 2009). The Loudin paper identifies that although there are a number of qualitative benefits of an LSI, attempting to identify a quantitative benefit is challenging due to the complexity and uniqueness of a System-of-System (S-o-S) program. Concern over the use of an LSI includes perceptions the LSI will have an internal stake in establishing supplier

contracts within their own corporation and the LSI will control the management leading to a downplay of risks in reporting to maintain revenue (Novak & Smith, 2015).

e. Test and Evaluation: FCS established a very robust and integrated test and evaluation effort by forming a Combined Test Organization (CTO). The CTO was a chartered organization, initially formed during the DARPA Science and Technology phase prior to MS B. The complexity of FCS and the systems-of-systems approach required a unique test and evaluation approach. The FCS CTO leveraged the already recognized and successful process developed during the Army Stryker program.

f. Post termination Spinout of capabilities: After the termination of FCS, a number of technologies and prototype concepts were continued and fielded. The Stryker program encompassed a family of vehicles that integrated mature subsystems onto a non-developmental vehicle to conduct a rapid acquisition and fielding to address an immediate requirement for a strategically deployable (C-130/C-17/C-5) brigade capable of rapid movement worldwide in a combat-ready configuration, (U.S. Army Acquisition Support Center, 2021).

FCS paper #2 - RAND Report on FCS, (RAND, 2010)

In 2010, (post FCS cancellation), the Army contracted RAND to generate a study and subsequent paper on “Lessons from the Army’s Future Combat Systems Program” as an after-action analysis. The RAND paper documents a very thorough history of the program and identifies a number of lessons learned for future acquisition programs. I

highly recommend the reader review this paper as it provides numerous examples of conditions, decisions, and outcomes relevant today and likely into the future.

The RAND FCS paper addressed the topic through an exploration of the following elements:

- The background situation that led to the formation of the program
- A review of the cost, schedule, and performance metrics; from initial formulation through restructuring, up to the point of program termination
- A review of the system-of-system requirements; from initial formulation through evolution throughout execution
- Program management approach
- Contract strategies
- Technology maturation

The RAND report is vast and very detailed, with 330 pages of content on the program history, challenges and lessons learned. It contains a lot of pertinent information for the acquisition professional that, like the Yakovac paper, remains applicable to current day operations. A number of the identified lessons learned offer applicability to associated topics in this paper follow. The identified section of the paper supports the reader's further examination of the RAND report.

Background

- Analytic capabilities are important to the success of large, complex acquisition programs.
- Testing technical and other key assumptions underpinning new Army concepts can identify issues crucial to program success.
- Concept generation and exploration would benefit from increased deliberation, input, and consideration from across the Army.

Changes in Costs, Schedule, and Performance over Time

- Senior-level involvement can significantly motivate an acquisition effort.
- Major program shifts can cause significant turbulence and erode support for an acquisition program.
- Cost estimations can be highly uncertain in large, novel programs and are subject to various interpretations that can undermine program support.
- Large, system-of-systems acquisition programs take time.

Requirements Generation and Evolution

- A successful program requires a sound technical feasibility analysis.
- Insufficient analysis and mismanagement of expectations can lead to unrealistically ambitious requirements.
- Complex system-of-systems acquisitions may require sub-optimization of systems to achieve optimized higher-level unit optimization.
- Designing smaller integrated units could facilitate the development of requirements for large systems of systems.

Requirements Evolution

- Revalidating operational concepts periodically will ensure that the acquired capability remains relevant.
- Any operational force optimized for one type of warfare will have relative strengths and weaknesses.
- Immature technologies and insufficient understanding of requirements can lead to instability and significant changes later.

Program Management

- Up-front system engineering and architecture are critical.
- Concurrent development of the system-of-systems can complicate acquisition.
- A strong acquisition capability will enable the services to assess industry performance in complex programs.
- Top-level organizations can ensure senior leader involvement in important decisions.
- Oversight and independent review by technically qualified personnel can provide crucial assessments of performance and risk.
- Complementary programs can identify problems and enable mitigation strategies when they are considered and coordinated.

Contracts

- Government control over significant elements of the system of systems may make incentive fees inappropriate.
- Performance incentives not tied to actual product performance may not result in effective outcomes.

Technology

- Significant technology development should not occur late in acquisition programs.
- Documentation of the state-of-the-art critical technology elements will identify risk and areas for increased investment.
- Alternative technology assessment metrics can supplement technology readiness levels (TRLs), which may be inadequate for some aspect of S-o-S acquisitions.

- Using S-o-S requirements to identify complementary programs (CPs) can help schedule synchronization issues.
- Outside program dependencies can lead to significant risk when there are too many connections or are too highly dependent.
- Risk mitigation strategies that incorporate S-o-S engineering practices will facilitate risk mitigation across systems.
- Influencing Science and Technology (S&T) priorities by the AAE will help ensure their relevance to current threats and future missions.

The lessons learned from the two papers on FCS, written during its execution and post cancellation appear to focus on a singular theme: FCS was an incredibly complex effort. The complexity is evident in not only its mission objective to transform the Army, but also in both its acquisition and organizational approach.

The effort to transform an entire brigade level S-o-S was challenging due to a number of reasons. The S-o-S approach required a significant amount of concurrent engineering efforts to keep all of the dependent efforts to remain in sync. Many activities were both maturing technologies, attempting to the best of their ability to maintain the required interdependencies while also being managed interdependently on a very time sensitive schedules. The success of FCS also depended upon the success and synchronization of the complementary programs not managed by the FCS program. The complementary efforts were “numbering over a hundred at times during the program” (RAND, 2010, p. 29). Minor challenges within some of the smaller efforts, led to an escalation of overall FCS growth of schedule and cost, due to the escalation if its dependency with integration into the complexity of the full S-o-S. Theories on pursuing transformation and managing complexity continue later in this paper.

It is advisable for acquisition professionals to review both the Yakovac and RAND papers on FCS, as they offer a glimpse into the execution of a number of significant and

complex acquisition activities. A number of aspects from the FCS program deserve consideration for use as recognized as attributes for future programs: a unique management structure, a contract approach, and cross-army user community requirements coordination.

It is important for the program leadership and oversight organizations to share a sound understanding on complex programs, such as FCS. It is advantageous to have all engaged organizations to have a shared understanding of the intended capability, program concept while also having effective communications and work in a collaboration and cooperative teamwork. This is not a common environment. Perfection throughout a programs planning, execution, and test and evaluation is not typically experienced. Maintaining effective lines of communication required leadership focus, but even that may not achieve aligned perspectives. At times it may appear that the acquisition reporting and oversight's primary intent is to challenge the program more so than to support it. The challenge is to persevere under conditions where processes, organizations, and people change throughout a program's execution. The intent of the overall acquisition activity is to provide the right materiel, in sufficient quantities, with acceptable performance to support the combatant commanders as required.

Key Acquisition Reform Actions

The next section describes some of the key acquisition reform actions to provide further background on the evolution of the acquisition process. Only a few examples are included in this paper, there are many more and all are impactful in their own ways.

When President Reagan took office in 1981, his administration began a build-up of the military, with approximately a 43% increase in the budget (Geneva College, 2021) which resourced an increase in troops, weapon systems, and new technologies to counter the military buildup of the Soviet Union. The rapid expansion of spending led to an identification of the need for acquisition reform evidenced by examples like “the \$435 hammer” (The Free Library, 2021) and the “\$600 toilet seat” (Hiatt, 1985). The services were challenged on how to ramp up their programs with the increase in resources that “by then end of the first Reagan term, there was a backlog of more than \$200 billion appropriated that had not been spent, more than \$50 billion not obligated” (Meyer, 1990)

In 1986 during President Reagan’s second term in office, he released Executive Order 12526 which established a “President's Blue Ribbon Commission on Defense Management... to study the issues surrounding defense management and organization” (Reagan, 1985). “A Quest for Excellence,” or more commonly identified as the “Packard Commission,” (named after the Chair, David Packard) was delivered. The report, incorporated into President Reagan’s second term State of the Union message in 1987, was included in numerous legislative actions. Some key points identified in this report:

- *“The nation’s defense programs lose more to inefficient procedures than to fraud and dishonesty. The truly costly problems are those of overcomplicated organization and rigid procedure, not avarice or connivance.*
- *Chances for meaningful improvements will come not from more regulation but only with major institutional change.*
- *Common sense must be made to prevail alike in the enactments of Congress and the operations of the Department.*

- *We must give acquisition personnel more authority to do their jobs. If we make it possible for people to do the right thing the first time and allow them to use their common sense*
- *Our study of acquisition reveals, and in our collective experience fully confirms, that there are certain common characteristics of successful commercial and government projects. Short, unambiguous lines of communications among levels of management, small staffs of highly competent professionals, an emphasis on innovation and productivity, smart buying practices, and, most importantly, a stable environment of planning and funding – all are characteristic of efficient and successful management. These characteristics should be the hallmark of defense acquisition” (Packard Commission, 1986)*

The Goldwater-Nichols Department of Defense (DoD) Reorganization Act

The Goldwater-Nichols Department of Defense (DoD) Reorganization Act, (House Armed Service / Senate Armed Services, 2021), was signed into law in 1986 by President Reagan. This Act addressed a number of findings from the Packard Commission and significantly altered the DoD and military command structure to include at the Joint Chiefs level and across the individual services. This act also established the United States Special Operations Command (USSOCOM).

In 1989, Secretary of Defense Dick Cheney conducted a “Defense Management Review” to implement the recommendations of the Packard commissions and establish a framework for continued improvements.

Establishment of the Army Acquisition Corps

In 1989, Gen Carl E. Vuono, CSA, established the Army Acquisition Corps, described as “a cadre of elite acquisition professionals, both military and civilian, that would serve as the training ground for critical acquisition positions at the top levels of Army acquisition professional acquisition workforce” (Stark & Follett, 2014). This action

coincided with the 1990 Defense Acquisition Workforce Improvement Act (DAWIA), (U.S. Congress, 1990). DAWIA replaced an entire section of US Code Title 10, and identified a number of requirements including education and training for the acquisition workforce. The implementation developed three tiers of certification for a number of workforce proficiencies and is required to be pursued by both civilians and military assigned to the acquisition workforce.

Streamlining Laws, the National Performance Review (NPR) and the Federal Acquisition Streamlining Act (FASA)

The 1991 NDAA included an “Advisory Panel on Streamlining and Codification of the Acquisition Laws. This type of activity continued over the next several years. Two elements highlighted are the Presidential National Performance Review (NPR), and the Federal Acquisition Streamlining Act (FASA).

President Clinton initiated the NPR in 1993, with the intent to “reform the way the federal government works...to create a government that works better and costs less” (National Public Radio, 2021), with Vice President Gore as lead for the review. The activity examined the operations in the majority of agencies and common processes exercised throughout the Government, (procurement, budget planning and execution and personal actions). This initiative continued throughout the Clinton administration with the publication of a final report that identified 384 recommendations, and 38 accompanying reports which defined “1,250 specific actions intended to save \$108 billion, reduce the number of overhead positions, and improve government operations” (National Public Radio, 2021). Under the NPR initiative, the Department of Defense

conducted a Defense Performance Review to identify and pursue opportunities to streamline operations and initiated seven prototypes to “reinvent” the department (National Performance Review, 1993).

1. Identify steps needed to deploy a quality culture throughout the DOD
2. Develop a process for reviewing internal policy with a view toward eliminating prescriptive process requirements and focusing on performance metrics that will measure success
3. Pursue competitively outsourcing non-core functions when doing so makes operational and economic sense
4. Enabling purchases through “best-value” common services and supplies
5. Focus on defense bases as installations of excellence, where commanders and their people are empowered to manage while being held accountable for results
6. Enable the defense bases to demonstrate national leadership in environmental cleanup, conservation, compliance, and pollution prevention
7. Expand the use of technology in the DOD medical system to manage and deliver the highest quality health care at the lowest possible price.

President Clinton approved the FASA, (Congress, 2021) in 1994. FASA contains 167 pages of reform affecting a number of acquisition activities. It modified the manner of soliciting, the auditing types and reporting of contract efforts (to include allowing micro purchasing), simplified acquisition procedures, and the procurement of commercial items with a revision to small business and socioeconomic laws. The final reform was the establishment of the Federal Acquisition Computer Network (FACNET), a single system for use throughout all federal agencies to replace paper with an electronic commerce capability. It altered the required planning for major systems, added requirements to the independent assessment, testing and reporting, data rights, and logistics. This act cancelled and changed a number of previously approved legislation. It identified a need for more focus on performance-based management and established a number of pilot programs further defined as “whistleblower” protections.

Identified as simply the WSAR within the acquisition community, this act has 31 pages of reform signed into law by President Obama. This act focused on the following elements:

- *“Improving the Department’s ability to conduct cost analysis through the establishment of the ‘Cost Assessment and Program Evaluation (CAPE) office’*
- *Established a ‘Director of Developmental Test and Evaluation’ to increase the focus on testing prior to entering production*
- *Required assessment of technological maturity and integration risk*
- *Increased the coordination between the combatant commands and the Joint Requirements Oversight Council*
- *Expanded numerous policy areas within the acquisition process in regard to*
 - o *‘Consideration’ for tradeoff between cost, schedule, and performance*
 - o *Supporting continued competition throughout the lifecycle*
 - o *Expanding the use of prototyping*
 - o *Identification of ‘systematic problems’ prior to MS B*
 - o *Provisions that programs are required to support in the event of a ‘critical cost growth’ to include ‘the presumption of termination’ unless the Secretary of Defense provides Congress with the findings of a conclusive review of the program.*
- *Additional provisions that call for the recognition of ‘Excellence in Acquisition,’ and further refinement of cost reporting identified in previously enacted laws.” (Congress, 2021)*

NDAA Title VIII - Acquisition Policy, Acquisition Management and Related Matters

Title VIII within the annual NDAA identifies direction to the Acquisition activities. The format within this section changes occasionally but in summary, it has typically addressed the following major categories: actions focused on Major Defense Acquisition Programs, Policy, the Workforce, Contracting, Wartime operations, and the Industrial Base. A cursory review of this section for the last few years identified three summary categories: (1) additive direction (which contains both a mix of new and clarification to

prior legislation), (2) relief to prior legislation, and (3) tasking to DoD or the Services to conduct studies or delivery reports, which presumably will provide information that may influence future legislation. Figure 3 identifies the number of individual sections within the annual NDAA's Title VIII.

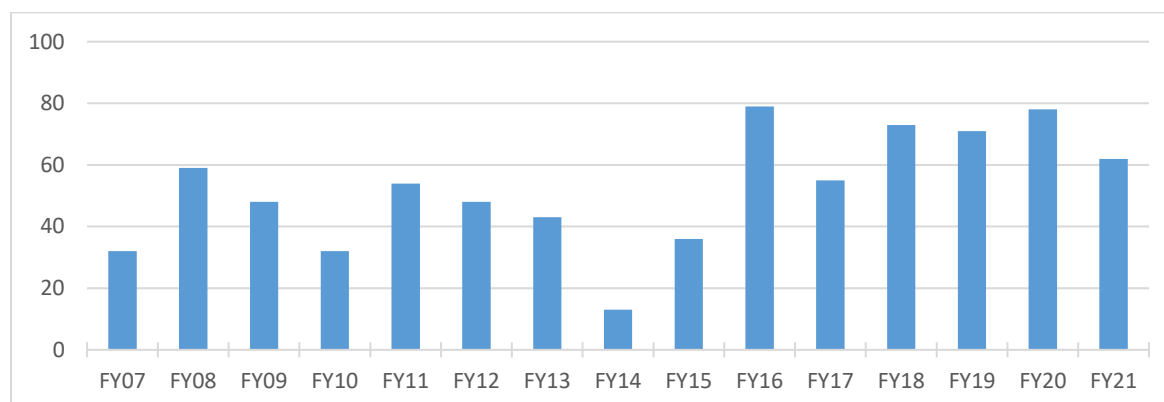


Figure 3 NDAA Title VIII (Burke, Count of NDAA Acquisition related elements FY07-FY21, 2021)

The number of sections is an indicator of direction, relief or tasking to the acquisition community. Over the last fifteen years, there has been an average of 52 sections identified in Title VIII, with a maximum of 78 added in FY16 and the low of 13 in FY14.

Throughout the years, there is a trend of Congress requesting reports within a short allotment of time. Although the request for reports can be identified as an additive task, I felt it was important to separate it from the standard other additive passages as it is often addressed with a hearing where the tasked organization(s) have the opportunity to testify to Congress. This enables Congress to gather data and analysis from the product delivered by OSD or the services or through the reflection of the products, questions, and answers from the testimony. It permits the source agency to conduct

their own internal analysis and thus has the potential for collecting un-planned information.

FY16's NDAA Title VIII included the highest number of elements in the last 15 years. Section 808 directing the services to "Report on linking and streamlining requirements, acquisition, and budget processes within Armed Forces" (United States Congress, 2015). The Army response addressed a number of new initiatives being refined for implementation, including the following publications describing the Army's implementation plans to improve acquisition, leading to the activation of the Army Futures Command.

[Army Directives and General Orders to Support the Generation of Army Futures Command](#)

The initial literature search for this paper identified four key documents from Army leadership. A summary of their content follows:

- AD 2017-22: Implementation of Acquisition Reform Initiatives 1 and 2, 12 Sept 2017 (McCarthy, 2017)
 - This document was in response to Congressional actions included in an NDAA to, "report on efforts to link and streamline its requirements, acquisition, and budget processes."
 - The document identified several significant changes to the Army Acquisition activity to include generation of requirements, improving the workforce through a focused "talent management" activity, improving the conduct of science and technology efforts, streamline test and evaluation,

modify supporting policies, and activities related to costing, resourcing, contracting, synchronizing planning and monitoring performance.

- This AD also identified follow-on Directives will be released to address the full scope of this intent.
- AD 2017-24: Cross-Functional Team Pilot In Support of Materiel Development, 06 Oct 2017, (McCarthy, 2017)
 - This document expanded the activity identified in AD 2017-22 through the stand up of Cross-Functional Team (CFT) pilot activities with an intent to have all key stakeholders involved with the acquisition activity for more integration and synchronization.
 - Modify the way requirements are established.
 - Initiation of pilot programs to conduct technical demonstrations while gaining operational input early to field relevant capabilities faster.
 - The document identified the organizations engaged within the CFT process, providing a list of candidate CFT pilot activities to support the Army's modernization priorities that are to follow a three-phase approach to transition to an Army Acquisition POR.
- AD 2017-33: Enabling the Army Modernization Task Force, 07 Nov 2017 (McCarthy, 2017)

- This document identified the standup of a task force to evaluate and identify options to revise the manner in which the Army conducts modernization through the establishment of a new command.
- It included an attachment defining the identified problem, objective, limits timeframe, assumptions, essential elements of analysis and deliverables for the task force.
- GO 2018-10 Establishment of the United States Army Futures Command, 4 June 2018, (Esper M., 2018)
 - This GO identified that AFC is to be the lead for the modernization enterprise, establishing authority, responsibilities, and associated organizational reporting changes to support its mission. Further, it identified the intent of the new organization, its hierarchy within the Army leadership, and affected organizations.
 - “AFC assesses and integrates the future operational environment, emerging threats, and technologies to develop and deliver concepts, requirements, future force designs, and supports the delivery of modernization solutions. AFC postures the Army for the future by setting strategic direction, integrating the Army's future force modernization enterprise, aligning resources to priorities, and maintaining accountability for modernization solutions.”
 - The new command reports through the CSA to the Secretary of the Army.

Table 1 identifies the organizations in GO 2018-10 that will report to AFC.

Organization	Prior Reporting Command
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Army Capabilities Integration Center (ARCIC)	United States Army Training and Doctrine Command (TRADOC)
Capability Development and Integration Directorates (CDIDs) and associated battle labs	United States Army Materiel Command (AMC)
TRADOC Analysis Center (TRAC)	Army Materiel Systems Analysis Activity (AMSAA)
Research, Development, and Engineering Command (RDECOM)	AMC

The document also states, "... the Commanding General, AFC will coordinate..." (with ASA (AL&T)), "...on all matters pertaining to research, development, and acquisition."

Acquisition with the inclusion of AFC

"Understanding Acquisition" was the primary topic of the January 2020 edition of the U.S. Army Acquisition Support Center (USAASC) publication "Army AL&T Magazine." One article of significant relevance for this paper tackled the description of how Army Acquisition works in an article titled "What Understanding Looks Like" (Stark S. , 2020). The article provides a linear depiction of the acquisition timeline in Figure 4. On the far left side of the timeline is the identification of capabilities (aka Need). On the right side of the timeline is the eventual materiel divestment. Between these two points is the dynamic part.

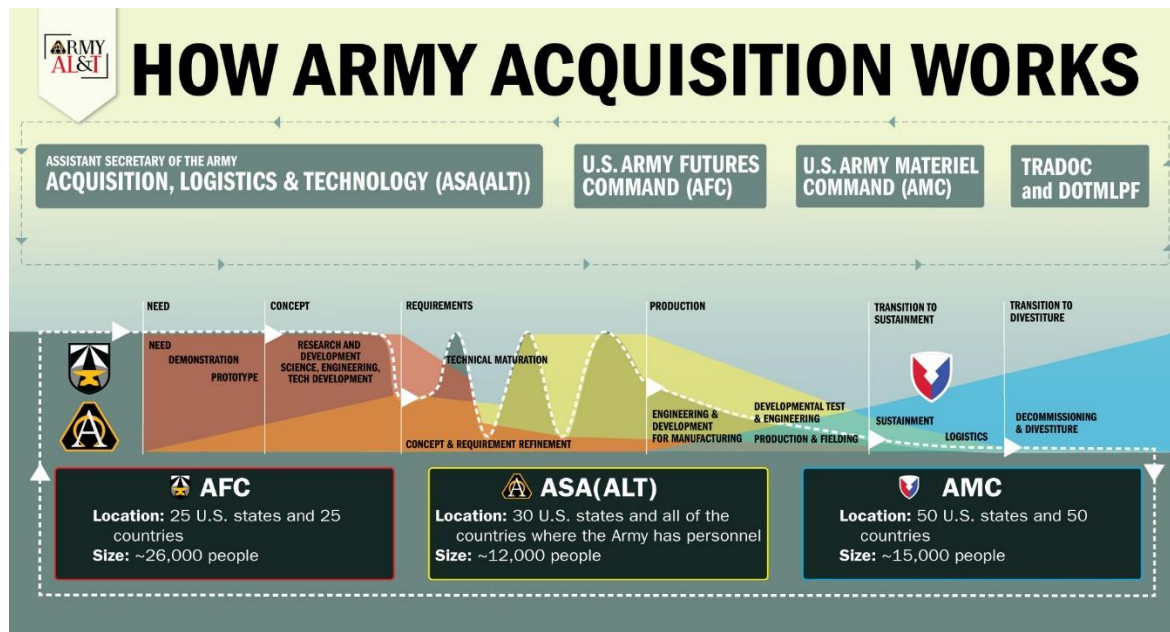


Figure 4 How Army Acquisition Works, Army AL&T Magazine (Stark S., 2020)

AFC manages and assumes a significant amount of responsibility previously managed by ASA (AL&T) and AMC.

The article provides a very well crafted analogy about the acquisition process, stating “is no more linear than a coastline, nor is it as simple as the graphic that follows would make it appear.... the closer you try to measure a coastline, the longer it gets.” As most members of DoD or the Army Acquisition community can attest, there is a nearly continuous cycle of effort focused on improving the overall acquisition activity to reach more effectiveness, more efficiency, and maintain relevance to best support the Army’s needs.

Acquisition is a means to an end; an activity to provide the combatant commands with materiel that when operated by trained Soldiers, generates the capability to support our Nation’s needs.

Continuous change is the one dependable aspect of Army acquisition as documented in “Defense Acquisition Reform, 1960–2009 An Elusive Goal” (Fox, 2011). Fox identified that “Defense acquisition reform initiatives have been Department of Defense perennials over the past fifty years... from 1960 through 2009, more than twenty-seven major studies of defense acquisition were commissioned by presidents, Congress, secretaries of defense, government agencies, studies and analyses organizations, and universities.”

Army Modernization

Modernization strategies identified a desired future state for planning organizational priorities and resources. The current priorities are in the 2019 Army Modernization Strategy (AMS): Investing in the Future (United States Army, 2019). The AMS identified a strategy to modernize “how we fight,” “what we fight with,” and “who we are.”

“The Army Modernization Strategy describes how the Total Army – Regular Army, National Guard, Army Reserve, and Army Civilians – will transform into a multi-domain force by 2035, meet its enduring responsibility as part of the Joint Force to provide for the defense of the United States, and retain its position as the globally dominant land power.... The primary end state ... is a modernized Army capable of conducting Multi-Domain Operations (MDO) as part of an integrated Joint Force in a single theater by 2028, and ready to conduct MDO across an array of scenarios in multiple theaters by 2035.

Concerning the need to address modernization priorities through the improvement of materiel acquisition, in 2017 and 2018 Army leadership published a number of governance edits with a reorganization General Order, a number of Army Directives, revisions to Regulations, etc.

Cross-Functional Teams

The current Army Modernization Strategies of 2018 and 2019 (Milley & McCarthy, 2017) identified the initiation of several Cross-Functional Teams to address high priority mission capabilities. AD 2017-24 described the CFT as a scalable pilot with “personnel from the following domains: Requirements, Acquisition, Science and Technology, Test and Evaluation, Resourcing, Contracting, Costing, Acquisition Logisticians, and U.S. Army Forces Command (as well as Army Service Component Commands as applicable)” (McCarthy, 2017). The collaboration of the identified domains had the intent to enable “warfighters and developers working together to prepare sound capability documents that enable the rapid and frequent delivery of capabilities to the warfighter to inform a potential program of record.” Integrated product teams share the intent to gather people from different organizations to work on a particular focused activity. The referenced design of the CFT is to address a larger scaled activity, with the inclusion of all required participants.

The FY20 Army Budget Request identified that ~ 20% of the Army’s budget is allocated to acquisition-related budget activities to include Research, Development, Test and Evaluation (RDT&E), and Procurement, (Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, 2019). The current modernization effort

requires ~\$30B over the Future Years' Defense Program budget planning, (Congress, 2020, p. 12). The resources came from a combination of "\$8 billion in cost avoidance, and about \$22 billion in cuts or terminations" remarked Under Secretary of the Army Ryan D. McCarthy, (Suits, 2019).

The Army has two primary efforts competing for resources, maintaining readiness of the current force through acquisition sustainment activities, and striving towards future readiness through acquisition modernization efforts. Acquisition needs to be both effective and efficient to accomplish.

Although the Army Acquisition enterprise is derived from several U.S. Code Title 10 legislation and Policies, Directives and Instructions, etc., managed by OSD, this paper will primarily focus on the current Army Policies, Doctrine, General Orders, Directives, Regulations, etc.

[Summary point on the history of Acquisition Reform](#)

Although the history of acquisition, reform, and change could continue for several hundred more pages, here is a summary point; change has happened, change always has great intent, and change will continue into the future.

[Let's Step Back and Focus on People](#)

The research in this paper identified numerous related topics from outside the Army Acquisition community. In reflection, these topics help explain exactly where acquisition is today, and where it could, (or should) focus on to help continue the path of continuous improvement in effectiveness and efficiency. The key topics:

- Learning and Experience
- Complexity, Goodness, and Modernization

- Organizational Transformation
- Decision Making
- The Army Design Methodology
- Expeditious Acquisition

The summary part is to focus on the people aspect of acquisition. This includes how we think, how we process information, and how we approach making decisions.

Improving Efficiency, Effectiveness, and Predictability with Taylor, the Gilbreths Ford and Wright

Frederick Winslow Taylor was a manufacturing manager, mechanical engineer, and a management consultant in the early 1900's. "The Principles of Scientific Management" (Taylor, 1919) is one of the earliest publications on industrial organizational management. Taylor refers to the multitude of natural conservation initiatives implemented by President Theodore Roosevelt as the means to preserve "national efficiency" and applied his principles to improve the efficiency of labor to stop the "waste of human effort." Whereas the initiative of President Roosevelt was to create national parks, forest reserves, national monuments, and game preserves, Taylor's "remedies" were to put an end to inefficient labor practices through the application of scientific management principles. Through the conservation of human labor and improved efficiencies, both the prosperity of the employer and the employee would be improved by addressing, "Personal ambition is a more powerful incentive than a desire for the general welfare" (Taylor, 1919). Taylor also identified the practicality of improving the efficiency of family homes, farms, churches, businesses, and government departments. Several of the Taylor principles are identifiable frequently as new initiatives to this day including:

- It is in the best interest of management and the labor workforce to mitigate the habit and intent of employees who purposefully underperform their responsibilities. When employees underperform with the intent to ensure continuous employment, the company will be impacted, and in turn a potential exists for a need to lay off employees
- All employees should seek and eliminate unnecessary and inefficient motions in performing tasks
- Empower employees by making them responsible “for doing his job practically as he thinks best, with comparatively little help from the management”
- Management is responsible for all preparatory work to support worker efficiency
- It is in the best interest of both parties to develop a “universally friendly cooperation” between the workers and management
- Employees should be paid incentives for reward of good work
- Employees from the workforce should be selected and trained for specific responsibilities (vs maintaining a generic labor pool tasked out each day regardless of skill)
- It is management’s responsibility to plan the tasks out in advance of asking the labor workforce to begin work. Planning is described as, “not only what is to be done but how it is to be done and the exact time allowed for doing it. With opportunity for incentives if completed under the allocated time.”

In the same period as Taylor, Frank and Lillian Gilbreth were developing industrial management techniques based on time motion studies and development of techniques to make the most efficient use of the worker, such as reducing fatigue (Britannica, 2021). Frank Gilbreth worked for Taylor and broke off to pursue his own approach in improving the efficiency of worker motions. Lillian Gilbreth was interested in studying the human aspects and identified the effects of fatigue and stress on efficiency and effectiveness. Their study on bricklaying resulted in developing techniques that included adjusting the worker’s position and motions, then preparing the work area producing a nearly 3-x improvement of effectiveness. The standard bricklayer could lay 120 bricks in an hour; through implementation of the Gilbreth processes, they were able to lay 350 bricks while experiencing less fatigue (Britannica, 2021). The Gilbreth family included 12

children that served as a real-life demonstration lab to explore and demonstrate process improvements within their household. The Gilbreths' family life was the subject of the novel "Cheaper by the Dozen" written by two of the Gilbreths' children.

Henry Ford visited local slaughterhouses and reflected on their use of rails, carts, and individualized workstations to "disassemble" animal carcasses into individual meat products for sale and consumption. He made a determination that the same process in reverse could form an automotive "assembly" line. His processes resulted in a reduction of labor to assemble a car chassis from 12.5 hours to 93 minutes, an improvement of ~8 times (Encyclopedia Britannica , 2021).

Theodore Paul Wright was an Aeronautical Engineer at Curtiss-Wright, an early manufacturer of aircraft, in the 1930's. An important aspect of selling items is to be able to sell them at a price higher than the cost spent to manufacture them. To keep up with the market interested in buying aircraft, the company often needed to sell aircraft before a new design was completely through the initial manufacturing cycle or potentially before the design was completed. Wright studied different ways to predict the cost to manufacturing. He identified that when the production quantity doubled, the required manual labor fell in a predictable manner.

Wright published his theories and formulas "Factors Affecting the Cost of Airplanes", now identified as the Wright Learning Curve (Wright, 1936). His formula identifies the opportunity of a reduced unit cost as a factor of the cumulative number of items produced. The foundation for this efficiency is that once a production line has been established and run at a continuous rate, the workforce's experience builds habits that makes the process more efficient.

Wright's paper also addressed the complexity and interaction of the various "M's" of manufacturing (Allred, 2021) (Hessing, 2021), such as Manpower, Methods, Machines, Material, Measurements, Mother Nature.... etc. The manufacturing environment has many quantifiable and qualitative factors that affect the efficiency of the process. Tooling has an effect to reduce labor needs and required engineering changes; implementation of new processes will increase the required labor and result in an increase in costs.

Wright's paper also identified Cost Estimating Relationships (CER) to predict the total cost for an airplane based on a limited number of options, such as the total design weight, with variation if the structure was to be made of wood or metal. CER's allow for the estimate of activities based on a minimal amount of information. The acquisition workforce use of CER continues to this day. CER's support initial planning stage for a materiel acquisition, when there is limited information available about the design. CER's also support the generation of an independent cost estimate required by the acquisition system to support entry into production. One additional feature of interest from this 1936 paper was the identified additional cost factors for manufacturing to "Government Specifications" and "under Government supervision." Presumably the efficiencies of industry with the addition of Government involvement leads to a measurable cost effect.

The acquisition community is responsible for reporting program cost data to feed analysis conducted by organizations like the CAPE and the Office of the Deputy Assistant Secretary of the Army - Cost and Economics (ODASA-CE). The Army publishes summary guidance and data in the Army Cost Analysis Manual, (DASA-CE, 2021). The analysis from a wide range of acquisition programs over decades of activity

develops learning curves and CERs to support the estimating of current and future programs' cost.

This section identifies that the means to predict and make activities more effective and efficient used today came from the beginning of the last century. As we continue to exercise and explore the acquisition process, I propose to the reader that they reflect back on these identified pioneers to conduct analysis and make adjustments to:

- Improve the efficiency and effectiveness of the workforce
- Improve the predictability of achieving schedules, and identify ways to reduce low value elements and increase speed of the activity
- Mitigate growth in program cost and reduce the amount of uncertainty in cost estimating.

I suggest that the reader dedicate time to reflect on their current operations. Identify assessment criteria to measure operation. Operations extend beyond the manufacturing environment; consider basic functions of modern-day offices such as preparing and conducting reviews, staff calls, producing and staffing documents, etc. It is a safe assumption that even office procedures can become more effective and efficient.

Larger labor intense efforts may yield significant savings if the organization changes the paradigm for effort required. Minor savings across numerous multiple activities will save resources in terms of budget and time, examples:

- Developing and amending requirements
- Planning, requesting, executing and reporting resources
- The activity required to not only generate but also staff documentation
- The review cycle to obtain approval to fielding an item
- The need for numerous specialists to sustain capabilities

Whereas the prior examples focused on the primary labor skills utilized in that period, (namely manual labor), how can the activity of generating and staffing of documentations and reviews become more efficient and effective? Can the process be

made faster, or improve the synergy to conduct some steps concurrently, or potentially how can we make the entire process become less complex?

Complexity, Goodness and Modernization

Dan Ward has been exploring, documenting, experiencing and consulting about improving the effectiveness and efficiency of acquisition with publications going back to 2004. Ward served in the Air Force as an Acquisition Officer and as “Chief of Acquisition Innovation” under the Air Force staff Acquisition Directorate, and currently has a title of “Innovation Catalyst” in the MITRE Corporation, (Ward D. , 2021).

The AcqNotes web page, (www.acqnotes.com), is a frequently reached site found by “Googling” research matters related to DoD acquisition. AcqNotes is a commercial web site with the “principle of providing the Aerospace community with an easy source of Department of Defense (DoD) acquisition related information, guides, templates, instructions, news, resources and community interaction.” (AcqNotes, 2021). Ward has over 70 articles, essays, illustrations and other materials in the “Tools and Resources” link. The artifacts span from 2004 through 2013, have withstood the test of time for anyone interested in improving effectiveness and efficiency in the acquisition activity, or basically in anything. Ward not only believes that a program can pursue “Better, Faster, and Cheaper” (FBC), but also delivers examples and guidelines to achieve it.

FBC was an initiative that NASA pursued in the 1990’s which initially resulted in nine successful missions and one failure. In 1999, NASA experienced four failed missions, and cancelled the FBC initiative. Ward’s research, (Ward L. D., 2010) of

NASA and publications from NASA employees identified that the failures were attributed to a drive to increase the engineering complexity required to claim success, removing too much engineering support which may have identified likely avoidable mistakes, along with ineffective organizational behaviors such as good communications, and sound decision making.

A common theme picked up from Ward's writings is that simple things are easier to accomplish than complex things. In the spirit of the writings, let me attempt to apply the principle in describing a collection of nearly 20 years' work as succinctly as possible; "keep things from getting complicated."

Ward "coined" the term F.I.S.T. (Fast, Inexpensive, Simple, Tiny), which he attributes to the Lockheed (now Lockheed Martin), "Skunkworks" (Lockheed Martin, 2021) efforts and agile software practices, (Rahija, 2011).

Ward's F.I.S.T. describes a "particular pattern of decision making that supports rapid, low-cost innovation", (Rahija, 2011). The key aspects of implementing this concept are:

- What can be accomplished on a short schedule (Fast)
- Force planning with a very small budget (Inexpensive)
- Minimize the requirements and concept solution, keep it uncomplicated (Simple)
- Accomplish the activity with a very small team (Tiny)

The Air Force MC-12 Liberty surveillance aircraft is an example of F.I.S.T. The program leveraged an existing commercial aircraft, and existing surveillance materiel to support combat missions in less than 8 months after the initial approval, (U.S. Air Force, 2016). The Army M1 Bazooka, (man-portable recoilless anti-tank rocket launcher weapon), entered combat 30 days after a concept was sketched out on a first drawing board, (Epic Militaria, 2018).

Following Ward's military career, his guidance continues in the form of consultation, authoring books and on his website (www.thedanward.com), which is where this paper's research found "The Simplicity Cycle Manifesto" (Ward D. , 2021). Ward's essay depicts the relationship between "Complexity" and "Goodness" in four graphic cells. This article led me to a better understanding and rationalization behind the Army's current modernization approach and rethink options for development strategies.



*Figure 5 Simplicity Cycle
Manifesto Cell #1*

Figure #5 shows the initial cell from Ward's Simplicity Cycle Manifesto. It represents the zone of conditions in which complexity has a linear relationship with goodness. Image that you have a need to impact a board with a rock. Your next action is simple; you pick up a rock and throw it at the board. The solution is low on a complexity axis, and given proper conditions (distance, size, environmental conditions...) you hit the board, this is good.

Your next step is to purchase more materiel, (string and cloth), and fabricate slings, or more descriptively identified as "shepherd's slings" (Wikipedia, 2021). There is a need to generate instructions and conduct training, which offers the opportunity to refine the instructions. Ideally resulting in a squad of accurate and forceful rock throwers.

The complexity growth is evident in needing more supplies, manufacturing the slings, but more so in specialized training and more limitations on the rocks to only select certain sizes that work with the produced sling.

Often we see the clear correlation between increasing complexity and increased goodness. Amateur golfers are often convinced to purchase high tech equipment that sponsored by professional golfers. You decide to go all in and jack up the complexity element significantly. You retrain your team and equip them with saws, hammers and rope, then direct them to chop down the neighborhood trees to fabricate a battery of 12th century Counterweight Trebuchets, as replicated at a medieval fortress in southern France or in the form of a sub-scale model constructed in a co-worker's creation lab, shown in Figure 6. The full-scale trebuchet on the left is from Château de Castelnaud in France (Viatour, 2005) can launch large rocks (8-12 kg) out to 450 meters, or a 100kg rock out to 183 meters. The Goetz Family smaller scale trebuchet (Goetz, 2021) can launch a small rock or golf ball to an indeterminate, but reportedly “some-what far.” Neither design offers detailed information on their accuracy. Reflection on these models brings into question on their ability to consistently land in a predictable area, training and practice is required.



Figure 6 Sample of Trebuchet Models

The trebuchet concept to meet the goal is significantly more complex. These are some indications that they may not produce impressive results for the intended purpose. The complexity is evident in the need for specialized tools, additional raw material resources, and skills to fabricate and operate the system. This approach will require training to instruct the operators and to find an appropriate size rock, there is a strong possibility that this solution may not be an efficient and effective for the intended goal. Bottom line, increasing the complexity of the solution decreased the anticipated “goodness.” Complexity and goodness no longer have a linear relationship.

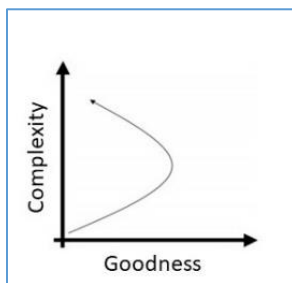


Figure 7 Simplicity Cycle Manifesto Cell #2

Figure 7 shows the Simplicity Cycle Manifesto cell #2, and depicts the condition when the increase of complexity goes from being an additive factor for increasing goodness, to the identifying of a peak, followed by a degradation. It is highly suspect that someone with leadership responsibilities over this activity may reach the conclusion that the decision to solve the goal through the formation of a battery of trebuchets is excessive, or for the purpose of this discussion, an overly complex solution. “The juice isn’t worth the squeeze,” (unknown, n.d.).

From an acquisition perspective, this discussion touches on a point that there are many ways to achieve a desired capability. The extraction of system requirements from the overall user capability need consider a number of aspects. Operational analysis help evaluate alternative solutions to lean towards feasible approaches. System engineering skills can disseminate and allocate sub-system and component requirements. Logistical aspects need to be considered for the effort to operate and sustain the system. The cost

and schedule resource to design, qualify and produce the appropriate quantity of systems, etc. is typically estimated very early in the formulation of a program. When presented to senior leadership, these estimates form expectations and constraints that will continue throughout the program execution regardless that a high degrees of design information has yet to be established .Cost and the prioritization of the systems capability determine program's ACAT level that also drives the amount of additional oversight. The example of deciding to make the investment to deploy a battery of Trebuchet's is an achievable option, but it may be reconsidered shortly after the activity is started when a team of oversight arrives to ask numerous well-founded questions on every aspect of the planning and progress to date.

Imagine if the people who initially asked you to achieve this goal of hitting a board with a rock decide that the board size, location and motion are variable conditions. The ability to align a design to address a user capability under expected conditions is a challenge, unfortunately is often is also a dynamic environment. Top-level operational analysis defines required User capabilities. "Analysis of Alternatives" is a process to refine the initial system requirement and acquisition approach through the assessment and comparison of a wide range of conceptual approaches.

After a program has been authorized and as the material solution matures, the acquisition community will find numerous occasions to expand or correct interpretations of requirements based on their inspection of the activity in process. Adding requirements to an activity in process challenges the programs ability to achieve success on the anticipated schedule and budget, yet is occurs frequently on all

programs. Unanticipated requirements growth out of the standard design cycle is often addressed by increasing the complexity of the design.

Occasionally, there is pressure for the program to address “desirements” which has both a formal and informal definition. This word’s formal definition is not found in traditional dictionaries such as Merriam-Webster, but is identified in a handful of on-line dictionaries, and in technology and software agility with the following description, “Something that is desired, but not absolutely required” (WordSense, 2021). This author’s perspective on them offers the following informal definition: “Desirements” are discussed frequently along with the program’s formal requirements. At times, the material developers’ wiliness to comply with incorporating a “desirement” may seem to be associated with the capability proponent or other leadership’s commitment for the continuation of the program. One critical attribute of a “desirements” is that they are also identified as not being important enough to be incorporated into the formal system requirements process.

As we identify that additional complexity degrades goodness, the Simplicity Cycle Manifesto recommends a means to manage the situation from an alternate approach by challenging the allowable amount of complexity.

Figure 8, depicts establishing a “not to exceed” upper limit constraint on complexity. The premise of this situation is that if unbounded growth in complexity can eventually reach a point of diminishing returns, then establishing a limit on the growth of

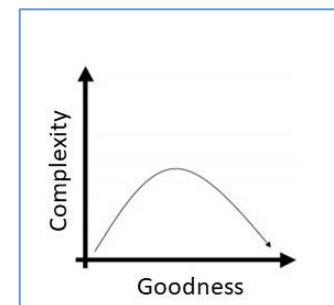


Figure 8 Simplicity Cycle
Manifesto Cell #3

complexity offers the potential to continue the advancement of goodness.

Imagine you maintained the previously identified squad of rock throwers and transformed them into Shepard sling'ers. The complexity has been "locked in" through the selection of a single design, easily manufactures and established training program.

After sufficient instructed training, the squad begins to hit the board more consistently. Continued practice of their skills with instructor-managed repetition will result in an increase in the probability of hitting the board. The "10,000 hour rule," (Gladwell, 2011) is identified by journalist and non-fiction writer Malcolm Gladwell in his book "Outliers." The rule refers to the number of hours required for a person reach a high level in a focused skill, such as computer programming, as a musician, or playing a sport. In addition to the time spend practicing, other important factors are the persons desire to excel and their instruction. The internet finds numerous social scientists that challenge this premise, but in principle, an attentive person can become proficient in a task if they like to practice and improve themselves. As your squad became more comfortable with performing the task, their experience and familiarity reduced the complexity of using the sling. You avoided needing large tools, obtaining significant materiel through the harvesting and processing of trees into dimensioned lumber, and manufacturing skills. Eventually through practice and developing tactics with the material they are equip, they increase their capabilities without having to incorporate more complexity.

This is akin to fielding a system that meets 80% of the initial desired requirements. Providing a system that is available, even without the initial desire additional 20% of capabilities, allows the personnel to gain familiarity and become

comfortable when employing the materiel in their possession. This allows them to provide a dependable capability. The current generally accepted opinion within the acquisition community is that holding off the fielding of a new system for a few more years to achieve an additional 20% of requirements may not be a worthy endeavor. The effort to achieve 80% of the system requirements alone may be extensive, the activity to achieve an additional 10% or the full 20% additional requirements may be equally in time and cost as the initial 80%.

With the solution in hand, the squad should be capable of consistently reaching the goal to hit a board with a high degree of precision while also accommodating some user variability for board and potentially even motion.

Figure 9 shows the fourth and final cell of the Simplicity cycle where external influences are brought into the engagement. The military and corporate environments include competitors that observe, reflect and react.

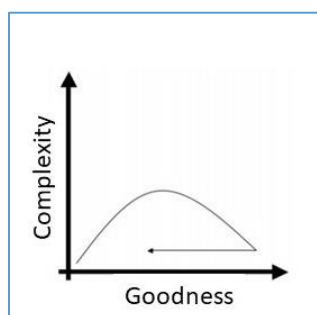


Figure 9 Simplicity Cycle
Manifesto Cell #4

At some point, our squad practices and gains closed loop feedback to perfect their skill; eventually the maximum goodness of this established system will reach their upper limit of capability. Unfortunately, at this point, the competitor, having observed your methods and capabilities through the release of information from within a free society, will show up. The

competitor will have studied your methods and training and applied a focused attention to exceed your capabilities. Perhaps they recruit Olympic level sheepherders who have been practicing this skill for decades. They likely have reverse engineered your initial prototypes (which you still are using), to modify the slings to accommodate larger

stones, or modify the string to hit the board with more force. They may have assessed your organization and decide to deploy twice as many sling'ers, and as they crowd into the area, they make noise and disrupt your squad's ability to concentrate.

The competitor will apply their highly formed skills and once calibrated to the conditions, they will quickly catch up to your team's capabilities and demonstrate a faster cadence, with additional force, tighter accuracy and better grouped precision, eventual overcoming your squad's capabilities. Your squad's performance will begin to show an increasing growing disparity. You have lost the competitive advantage, and the relative goodness of your squad begin to show a diminish standing as depicted in Figure 9, your degree of goodness begins to decrease.

Relevance to the Current Modernization

The Nation's and Army's focus on the scale and manner of conflict since 2001 have offered unengaged advisories to invest resources to mature and exploit new technologies that enable reshaped strategic and tactic planning. Figure 9 represents what happens when long established capabilities lose the competitive edge against adversaries. Reflection on this cell helped re-calibrated this author's mindset on the rationalization for prioritization of modernization to transform the Army as enabled by the activities conducted through the stand-up of AFC.

Managing the complexity of a program requires the continual focus on many aspects of an acquisition program. The below list identifies commonly experience elements of complexity.

- Identifying a very unique materiel or specification which leads to very limited source of supply, extended delivery times or and the need for unique workmanship processes beyond the current capability of industry
- Defining very finite mechanical tolerances that require very specialized manufacturing vendors
- Developing a unique threaded mechanical or electrical connector vs using an off-the shelf item
- Conducting a Business Case Analysis without sufficient exploration and affirming of cost, schedule or technology readiness assumptions, elements under-explored up front in the program planning process offers the opportunity of needed complexity management during the program execution
- Selecting an “off-the-shelf” system without consideration of potential design changes needed to accommodate all of the current system needs or integrate with another system. Unanticipated design changes offer the potential to invalidate the previously conducted system qualification and increases the systems challenge to enter into production. This brings into question the rational for making the initial “off-the-shelf” decision
- Banking the success of a particular system upon a number of related systems that are also in development. The inter-dependency of multiple systems in development is a challenge
- Not planning for critical test instrumentation required to verify system performance (including reliability), or to support failure analysis encountered in system demonstration of qualification
- Not planning for logistical considerations early in the system design

Embracing complexity is asking the workforce to accomplish operations typically beyond their experience without providing access of training, lessons learned, clearly communicating the intent, adding unwarranted constraints of time and resources, etc. Ward’s publication “Simplicity and the National Security”, (Ward L. D., 2021) identified important statements from defense analyst Frank Spinney (Spinney, 1980)

- *“...do the positive attributes of high complexity weapons outweigh their negative qualities*
- *...the benefits of increasing complexity are clearly neither self-evident nor clear-cut*
- *...reliability is more difficult to predict for complex systems than for simple systems, because complexity increases the uncertainty surrounding interactions between components*
- *...as the complexity of a weapon increases, its number of failure modes increases.”*

I will close out this section with the conclusion from Ward's paper:

"Recent and distant history alike show that high levels of complexity are neither inevitable nor unavoidable. Further, the data clearly shows that complexity reduces reliability, maintainability and operational relevance. Simplicity on the other hand helps constrain cost and schedule while still delivering systems that put "a smile of joy on the face of any fighter pilot."

Since complexity has such a significant negative impact on operations and technology, a serious effort ought to be made to prevent and remove unnecessary complexity. Project leaders could hold up simplicity as an enduring value and use it to guide their decision-making and problem solving. Academic instructors could emphasize the importance of simplicity, and source selection activities could place a premium on simpler approaches as well as simpler technologies. Technology development programs should track and analyze metrics that assess the complexity of their processes and technologies alike, with the purpose of identifying opportunities to simplify." (Ward L. D., 2021)

Our Need Will be the Real Creator

The last ~20 years of the Global War on Terrorism (GWOt) have imposed an irreplaceable loss of life, and levied harm on many brave members of the military service and their families. The Army's two decades of war required a strong focus on readiness to mitigate wear on the individuals and materiel resultant from an unprecedented cycle of deployments.

Predictably, conflict also identifies the need for new capabilities. The increased sense of urgency spawns' opportunities to become more innovative, accelerate the maturation and application of new technologies. Potential unanticipated capabilities or the opportunities of the synergy of new and legacy systems offers the potential to pursue new adaptations of tactics and strategies.

Plato stated in ~375 B.C. "our need will be the real creator ", (Jowett, 2021) or as more commonly stated in current times; "necessity is the mother of invention" (unknown, n.d.). Capabilities identified during the GWOt led to the fielding of numerous new

technologies and systems. The need to maintain security over large areas of land paired with the maturation of unmanned aircraft and secure communications and control fostered the fielding of a number of unmanned aircraft systems, many piloted from far beyond the local region. The identified the need to address the danger to troops from improvised explosive devices (IED's) led to the fielding of a number of urgent material solutions fielded integrated high technology mine detectors for operation by hand, vehicle and robots. The Mine Resistant Ambush Protected (MRAP) family of vehicles approached the challenge by increasing personnel protection. The MRAP program demonstrated in the DoD's and Army's ability to conduct rapid acquisition of a large program with the fielding of initial systems within 18 months from the initial needs statement, (Bulkley & Davis, 2013).

Material Release

The Army modernization effort includes activity to capabilities systems faster. Given the establishment of a requirement, and the execution of a materiel development, the Army's Materiel commands, to include AMC, A critical acquisition activity to enable this are the procedures to authorization to release new materiel to troops, identified as the Materiel Release. AR 70-1, Acquisition Policy, identifies AR 700-142, Type Classification, Materiel Release, Fielding, and Transfer for the procedures to field of capabilities. AR 700-142 defines the material release process.

"The MR process ensures that Army materiel is safe, suitable, and supportable. The materiel fielding and transfer processes ensure the orderly and effective deployment and transfer of Army equipment, including all necessary logistics support requirements." (Army, 2020).

Four types of materiel releases are identified, Full Materiel Release (FMR), Conditional Materiel Release (CMR), Urgent Materiel Release (UMR) and Training Materiel Release (TMR). The Commanding General, AMC has the authority for the majority of the Army programs' Materiel Releases. The other Materiel Release Authorities (MRA) include the Army Surgeon General, U.S. Army Joint Munitions Command Joint Program Executive Office for Chemical and Biological Defense, Program Executive Office for Simulation, Training, and Instrumentation, and U.S. Army Materiel Command life cycle management commands and other supporting commands. The type of materiel and decision to pursue an Urgent acquisition determines the MRA.

Prior to the materiel developer's request for a MRA, a Material Release Risk Management Board (MRRMB) meets to conduct a thorough review of the systems readiness. The MRRMB process involves subject matter experts from the associated technologies incorporated into the system, as well as input from safety, the test and evaluation, and the user community to identify the risk of expediting or modifying the standard materiel release process from the aspects of safety, suitability, or supportability.

FMR indicates that a MRRMB approved the system without restriction or limitations. CMR identifies that the materiel has identified limitations or restrictions. A CMR requires approval of a fully resourced get-well plan to achieve the FMR. UMR is in response to a combatant near term mission need. UMRs have expedited process and limited documentation.

A review of the number and types of Materiel Releases submitted for approval as managed by the Army's Armaments Center Materiel Release Coordinator (Gustafson,

2021) was conducted. The records show that 554 Materiel Releases were processed between 1996 and 2020; however, 479 of these were processed from 2001-2020 during the GWoT. Figure 10 shows the Materiel Release activity. During a six-year period from 1996-2002, a total of 32 UMRs were approved, and during an equivalent six-year period from 2003-2009, a total of 107 UMRs were approved. During the same period, the number of CMR and FMR show a significant increase as well, from 71 to 113. The overall count and number of UMRs shows the need and execution of providing new capabilities during the GWoT as compared to the previous six-year period.

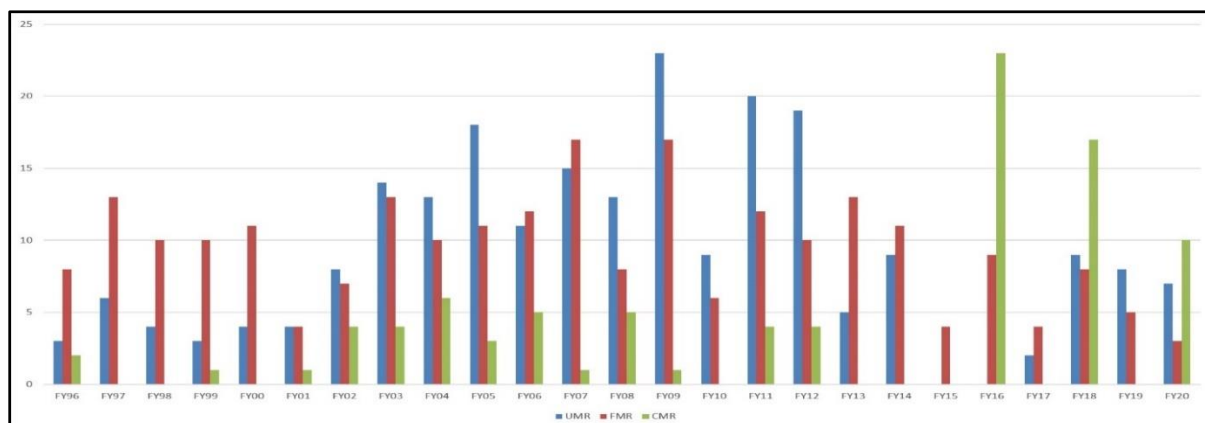


Figure 10 Materiel Release activity 1996-2020 (Gustafson, 2021)

Leading Change with Transformation

The need to contemplate transformation of an organization begins when leadership identifies the potential benefit to leverage evolving technological opportunities, respond to external predicaments, improve competitive positions, or in summary to better prepare the organization for a strategy focused the future. The implementation of transformation can affect one segment within an organization or throughout its entirety. Transformation requires focus on the desired future end state, a

tremendous amount of planning on many aspects throughout the organization, and continuous leadership and management inspection and refinement of the plan throughout its execution.

There are three typical means for the implementation of organizational transformation, (Anthony, 2016)

- Make changes to the organization's operations, such as focusing on aspects to become better on a focused area, deliver products or services faster, and/or find efficiencies to deliver the product or service cheaper
- Make changes to the operational model, such as approaching the core mission in a fundamentally different manner
- Implement a strategic approach, which involves changing the very essence of the organization

Netflix is an example of an organization, which successfully accomplished all three of these aspects, is. Netflix started out in the late 1990's as one of the first on-line movie rental service that mailed Digital Video Disks (DVD). (Funding Universe, 2021). The initial mission of Netflix was to be a transformational approach to the commercial home entertainment market, previously supplied through neighborhood brick and mortar video rental stores, such as Blockbuster or smaller independent business. As Netflix grew as an organization, and was still losing money, in 2000 they met with the corporate leadership of Blockbuster and offered to sell their business for \$50M. Blockbuster chose not to negotiate, as the CEO perceived that, "The dot-com hysteria is completely overblown" (Zetlin, 2021). Blockbuster eventually went out of business.

Since then, Netflix has since executed a significant transformation in operations and its operational model. Rather than delivering their entertainment service on DVD through the mail, customers use their own internet access to control their search and viewing through use of the on-line catalog and streaming of content directly to their home televisions or computers. The growth of the home high-speed internet technology enabled this transformation. Today Netflix has significantly more customers than Blockbuster, with +151 million paid subscribers as of 2020, and their service consumes ~15% of the world's daily internet bandwidth (McFadden, 2020). Netflix then conducted a strategic transformation to expand into the production of their own content to stream to its customer base. Netflix's productions have been recognized by winning high honors in all categories of film, music, and television, (Wikipedia, 2021)

Compliance and Commitment

The vast amount of reviewed organizational material addresses both compliance and commitment as related to employee behavior. Optimum performance requires compliance and commitment on the employee's own accord. When forced, commitment may not be achievable. Compliance may be, but without much passion or earnest, with a need to follow-up and correct some elements.

Compliance is defined as the act or process to conform, submit, adapt, or yield to as required or requested from another, either to satisfy their directed course of action, proposal, demand or desire, (Merriam-Webster, 2021). To be "in compliance" infers that direction or instruction or has either been provided or been made available.

Instruction through direct communication is the most effective delivery method; however, this requires time and focus of both the supervisor and the employees. Instruction provided through implied communication, such as the presentation of a new employee handbook on the first day in a new job, or mandatory organizational training is less effective. Inferred is very prominent, and very important to the employee's performance assessment. This may include long develop organization habits and standards that may not be known or even apparent until the employee becomes integrated within the organization.

Compliance is often associated with financial operations, as these are auditable by third parties and potentially legal authorities. Financial processes for requesting, allocating, disbursing and reporting can vary throughout different organizations, but there are common standards that auditors, accountants, planners and legal support require as "generally accepted principles" to support sharing the information across organizations. Compliance with the Federal Acquisition Regulations (FAR), DoD and Service level Financial Management Regulations, and Statutory requirements as defined by Congress require organizations to have well-educated, knowledgeable and engages staff. Higher acquisition category programs have additions requirements than smaller programs, which in turn drives a segment of overall program and service resource needs.

Commitment is defined as the act of agreement or pledge of an individual to do something in the near term or future with self-motivated and deliberate course of action, (Merriam-Webster, 2021). Direct communication is the most effective manner to provide

commitment instruction, but it too often is implied or inferred as “standard required knowledge” for the organization.

Compliance can be audited and measured and can be regarded in terms of a quantitative measures. Commitment towards an activity in process is evident through inspection of “perceived qualitative measures” in terms of the focus and energy of the personal action performed, rigor of planning and supportive feedback on progress. Commitment does not guarantee achievement of goals, but it greatly improved the probability of success given that the planning can accommodate internal and external conditions.

Many publications define the difference between the commitment and compliance. To honor and recognize the members of the U.S. Army’s Operational element, I chose an explanation of commitment and compliance from an Army publication: “Army Aviation Magazine.com”, as written in 2015 by the then Sergeant Major Eric C. Thom, Command Sergeant Major of the Aviation Branch and the U.S. Army Aviation Center of Excellence, Fort Rucker, AL.

“Being committed means you willingly act for a higher purpose, something greater than yourself. Being compliant means you act based on the leader’s positional power. Let’s face it: in a low-threat environment, either one will work. The problem we run into is, by the nature of our profession we do not always live and work in a low-threat environment, and compliance will only get us so far. Commitment by the members of the organization is what will give us the advantage in a high-threat environment. Your willingness to act for a higher purpose does not come naturally. That commitment comes through belief and trust, and that has to be earned.” (Thom, 2015)

Whether the instruction of compliance or commitment comes from direct, implied or inferred means, the individual will benefit from developing and exercising both professional acumen and social skills. Training, experience, coaching, mentoring,

exercising critical and creating thinking and studying theories as described in the report will assist in develop professional skills. Social skills include training and practice of items such as emotional intelligence, situational awareness and conducting numerous available behavior and personality self-assessments tools and organizational 360 surveys. Individual's values, behaviors and judgements reflect the condition and growth of these skills.

Maslow: Needs and Motivation

Leadership and managerial motivation support improvement to both compliance and commitment. Maslow's theory on the hierarchy of needs is a common topic addressed within the instruction of leadership, organizational behavior and psychology. In 2002, Abraham Maslow was identified as the tenth most cited psychologist of the 20th century, (Haggbloom, et al., 2002). There an overwhelming amount of associated research involving Maslow's theories as related to organizational behavior, transformation, and leadership in all forms of publication. Maslow's "A Theory of Human Motivation," (Maslow, 1943) provided his viewpoints as based on the interpretation of prior research and analysis. Maslow's work is a common topic of inspection in academia with the varied perspective of either refutation, refinement, or expansion. The summary product of his theory and subsequent theory is a simplified graphic that may be familiar to the reader as a pyramid shape.

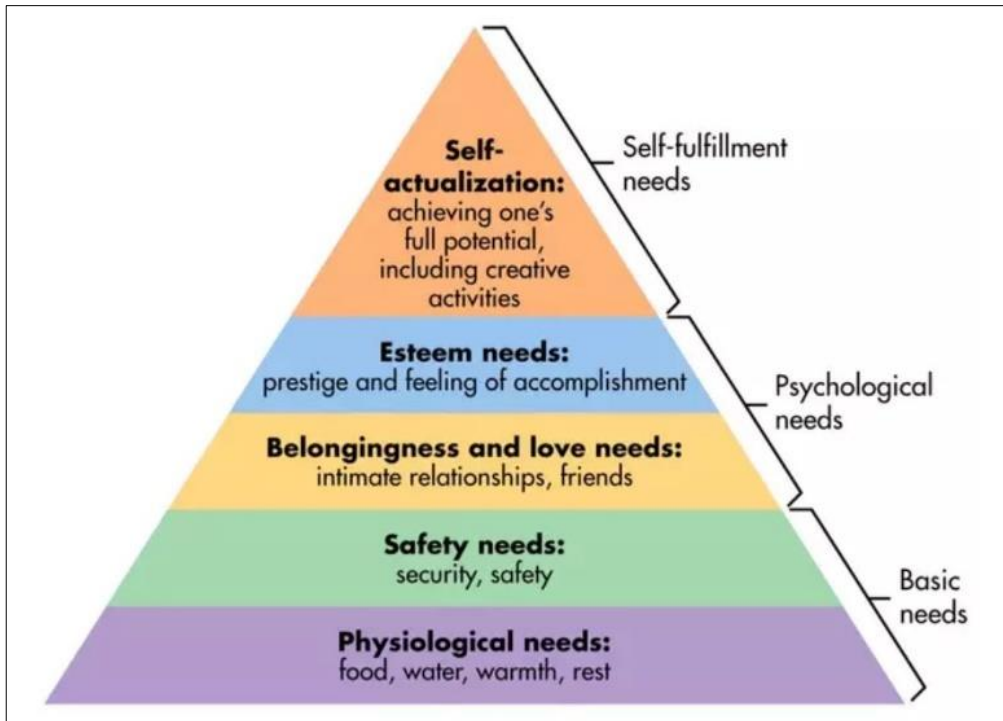


Figure 11 Maslow's Hierarchy of Needs (McLeod, 2020)

One interesting point is that this source paper did not depict the needs in a pyramid shape, but as a “hierarchy of prepotency,” as defined to be a graded or ranked series, in which those that are greater than others in power or influence are identified, (Merriam-Webster, 2021). Maslow’s 1943 published “theory” identify the order as depicted in Figure 11, with further identification that it is not a perfectly ordered system. I selected five highlighted sections of thought from Maslow’s Theory (Maslow, 1943) for its potential relevance to this paper, as pertained to the “people” aspect of organizational transformation, adapting to change and motivation.

Relevant Maslow Theory #1:

- The hierarchy order “is not nearly as rigid as we may have implied...we are motivated by the desire to achieve or maintain the various conditions upon which these basic satisfactions rest and by certain more intellectual desires.”

My Understanding:

- There is a tremendous number of foundations behind an individual's current state. Many have different prioritization of needs. Throughout an individual's life, as they grow from dependent, to independent, then revert to a dependency stage, the prioritization and interconnection may ebb and flow without a clear visual announcement to either the exterior world, or potentially within themselves.
- As written within the Temple of Apollo, built in the 4th century B.C, destroyed in the year 390 A.D. “Know Thyself”, or as Socrates practice on this phrase led to his “An unexamined life not worth living“, (The Philosophy, 2021).
- The Army supports individual training goals and provides a large amount of mandated training throughout the military and civilian career development. This includes incorporating numerous “self- assessment” tools to include 360 evaluations, Myers-Briggs Type Indicator, Emergenetics, the Thomas-Kilmann Conflict Mode Instrument... and many, many more. The acquisition community benefits from the individuals, supervisors, management and leadership interest and practice of these activities to grow the workforce, expand individual's capabilities, and even align the employee's capabilities to work assignments.

Relevant Maslow Theory #2:

- Unconscious motivations, which prioritize the “basic needs”, are of a higher influence than the conscious motivations.

My Understanding:

- Commitment vs compliance. Emotions produced in relation to the individual’s basic, psychological, or even self-fulfillment needs are a powerful motivational drive behind an individual’s commitment, in comparison with compliance expectations to follow organizational procedural processes.

Relevant Maslow Theory #3:

- Gratification has a significant role in motivation theory, however once needs are met, they are no longer an active motivator.

My Understanding:

- The self-directed passion applied towards a personal or professional initiative is feeding off the psychological and self-fulfillment needs, as such the activity can be rewarding.
- Once the activity is successful, and the novelty of the accomplishment becomes a standard and eventually an overly redundant process, the initial motivation and emotional investment (commitment to achieve, aka passion) may become stagnate and transition to standard operational procedures compliance. The initial gratification is over.
- Tailor the assignment to the individual construct. Organizational staff assignments may consider identifying individuals whose internal development

and current career and life environment better support a natural tendency to persevere with requirement compliance. Others may have the current natural tendency to thrive in the innovation stage, thus assign such tasking to maintain their engagement.

- I feel that the Army's training and assignment of tasking supports attempting to best align individual's capabilities in accordance with a wide range of their current environmental conditions, to include financial stability, desire for career growth opportunities, maturation of their family construct, etc.

Relevant Maslow Theory #4:

- There is a strong distinction between being "determined" and being "motivated."

My Understanding:

- This point resided within a footnote in the Maslow publication, with reference to correcting a theory proposed by Sigmund Freud.
- Secondary research has identified an unattributed, but often repeated phrase: *Motivation is what gets you started. Determination is what helps you finish what you started.* (unknown, n.d.).
- A common theme found in a review of applicable source material is associated with abilities in perseverance and/or resilience. Both are enormously powerful tools to support an individual's basic, psychological and self-fulfillment needs.
- Most reviewed material identified the loss of motivation to proceed slacking off on determination. This reinforces Maslow's identification of motivation in relationship to the individual's needs. I interpret that determination can only occur after

reaching an emotional drive of the motivation. Maintaining the individual's motivation will lead to a determination to complete, accomplish, persevere and/or stay resilience.

- The activity to conduct Army Acquisition deeply depends upon motivation, determination as well as commitment and compliance. I think both the individual and leadership ability to find identifiable means of motivation leads to pursuing the activity without much determination. Motivation for standard operating processes (SOP) are also critically important to maintain safe, effective and continuance of operations.
- I recommend the reader explore Freud's theory on these words, as it falls beyond the scope of this report and may offer a new perspective on some observed behaviors in and out of the workplace.

Maslow Theory #5:

- Multiple statements on thinking, information, comprehension, knowledge, and self-awareness.
 - o Humans have a "basic desire to know, to be aware of reality, to get the facts, to satisfy curiosity.
 - o "the desire to know is prepotent over the desire to understand"
 - o There is a "sharp dichotomy between 'cognitive' and 'conative' needs."
 - o Maslow also identifies a description of cognitive capacities as "perceptual, intellectual, learning" in comparison to the conative needs which include the individual's desire to know and understand.

My Understanding:

- This last point had a particular resonance within my analysis. My assessment of these elements is supportive to the discussion of an individual's ability to react, respond or at least recognize the situation that they are experiencing.
- Later discussion on the SOCOM Decision Way starts with the "Understand the context," with a high emphasis on the blaring warning siren that your collected information and the sources that have provided information are subject to blinders established through their cognitive development, perception, field of view experience, and countless other aspects.
- Another later section on the Cynefin Framework provides a means to categorize the state of the situation, or context, which offers a means to gain more awareness and potentially course of action to address or at least mitigate situations.

Further review of analysis on Maslow's theories from additional publications allowed for exploration of additional researchers' perspectives. Maslow is a frequent subject of analysis, and the reception varies from acceptance of his work, acceptance and expansion, to either partial or complete refutation. "Monitoring Public Employee Response to Change: Use of Organizational Commitment and Job Satisfaction Measures," (Alexeeff, 2001), is a good example of covering this full spectrum through the development of a case study of operations within a county government organization. The finding identified the ability of management to "enhance" commitment through incorporation of assistance and support.

Of particular interest was the analysis of Cognitive Dissonance theory from Festinger in 1958, and the “Theory X and Theory Y” developed by McGregor in 1957. Alexeeff also identified several associated bodies of research as related to the interaction between evolving attitudes of commitment and fostering growth of behaviors that identify with commitment to include Salancik and Mowday et al.

Cognitive Dissonance theory identifies that “individuals will shift their behavior or beliefs” to minimize the dissonance in their environment. For this topic, the dissonance is resultant of conflicting attitudes, beliefs and behaviors. As such, management has an opportunity to initiate actions to control the environment providing the dissonance and in reaction, shape motivation, (Alexeeff, 2001). Alexeeff identified studies conducted that identified ways to restore equity as a means of mitigating dissonance. This too offers application of organizational culture examination, and learning “what not to do” may be of equal importance of “what to do.”

Theory X and Theory Y prescribe to a grouping of motivations means identified as attitudinal commitment. Alexeeff describes the theories; accordingly, “Theory X assumes workers must be coerced, controlled, directed and threatened to achieve organizational objectives. Theory Y assumes that if individuals are committed to organizational objectives and understand how those objectives can be advanced, they will seek to do so.,” (Alexeeff, 2001). An alternate definition identifies “Theory X is the traditional view of direction and control. Theory Y is the integration of individual and organizational goals.” (Adair, 2006).

McGregor’s publication entitled; “The Human Side of Enterprise,” (McGregor, 1997) identifies that whereas the study of physical sciences and technology has

provided “material benefit for mankind... we must now learn how to utilize the social sciences to make our human organizations truly effective.” The practical application of these theories is for the identification of the applicable situations that have corresponding motivational opportunities. Motivation leads to determination and “ownership” of the activity at hand, which results in a more attuned deliverable than one driven by compliance alone. This is more effective than posting office signs with a pirate flag and the phrase “the flogging will continue until the moral improves,” (unknown, n.d.).

[Leading and Accelerating Change](#)

In conducting the research for this paper, the search for publications related to organization transformation yielded a significant amount of applicable sources. My interpretation of the current “corporate culture” of the Army Acquisition enterprise is that there is tremendous pressure for organizational transformation and the pursuit of innovation, agility, in a word, change. My research came across a number of insightful remarks from President Eisenhower, leader of the US Forces in WW2, then the global coalition force that beat back global tyranny, re-built and transformed the post-war nations and economies, then choose to run for President to take on a greater responsibility to continue such. Concerning this section, the quote attributed to him says, “Change based on principle is progress. Constant change without principle becomes chaos.” (Eisenhower, 1890-1969).

John Kotter is the Harvard Business School Konosuke Matsushita Professor of Leadership, Emeritus, and a recognized “thought leader” in business, leadership, and

change (Harvard Business School, 2021). In addition to his lengthy career as an instructor, he has published 27 books and 50 cases / teaching material based on his research on organizations, change and leadership. Several of his books address the topic of making organizational change; *A Force for Change* (1990), *Leading Change* (1996), *The Heart of Change* (2002), *Our Iceberg is Melting* (2006), *A Sense of Urgency* (2008), and most recently *Accelerate: Building Strategic Agility for a Factor Moving World* (2014). The basic goal of these organizations' changes is to; "make fundamental changes in how business is conducted in order to help cope with a new, more challenging market environment." (Kotter J. P., 1995)

The barrier to recognize the potential benefits of initiating organizational transformation is low. However, overly complex and unfocused planning and poor implementation often thwart successful achievement of the intended benefits.

The challenge proposed by Kotter in his "accelerate" theory, (Kotter, 2014) is to maintain focus on the importance of balancing the intent, courses of action for the implementation and the capabilities of the organization to understand, enact, reform, and eventually transform. Planning needs to consider aspects of identifying how to best interface, integrate, collaborate, and cooperate within the hierarchy elements of the organization. Independent start up organizations have much less structure and established norms than long standing mature organizations. The startups are more adaptable to support significant transformation, as the smaller community can see a direct correlation between "cause and effect," and the employees' self-investment should have a well-vested understanding of both commitment and compliance of the transformational initiative to pursuing improvement. Both compliance and commitment

are required to ensure that the agreed to changes are not undermined by the desire to revert to the status-quo. Larger organizations have a significant higher challenge to achieve transformation, as the established norms of behavior are typically formed by the current management, reinforced in required training, and compliance of them are commonly used in their employee performance evaluations.

Kotter recognizes that, counter to public discord, hierarchical organizations offer a tremendous benefit to sustain the overall organizational operations with "efficiency, predictability, and effectiveness", (Kotter J. P., Accelerate!, 2012). The standards, practices and stability of bureaucracy benefits the overall organization by dependably performing basic organic operations such as providing employee benefits, keeping the lights on, and having additional resources to invest within the organization. Kotter's "dual-organization" approach highlights that the stability of core organizational operations maintains the infrastructure and income to resource and sustain the exploration of innovation and agile initiatives.

Beginning in the mid-1980's, Kotter conducted research on hundreds of companies who attempted to make fundamental changes to address a challenging environment, (Kotter J. P., Leading Change: Why Transformation Efforts Fail, 1995). His analysis identified several behaviors that either led to the organizations' successful implementation of the intended change, or their failure to do so. The initial list of 8 elements: establishing a sense of urgency, creating a guiding coalition, developing a change vision, communicating the vision for buy-in, empowering broad-based action, generating short-term wins, never letting up, and incorporating changes into the culture, was identified in "Leading Change", (Kotter J. P., 1996). A follow-up deeper research

into the individuals that worked for the companies in that research was the subject of, “The Heart of Change”: Real Stories of How People Changed their Organization (Kotter & Cohen, The Heart of Change, 2002). This book provided additional insight to individual’s behaviors from personal narratives. Commitment is a key factor identified.

Kotter’s 2014 book on this topic “Accelerate: Building Strategic Agility for a Faster-Moving World”, (Kotter J. P., 2014) expands the concept. “The world is now changing at a rate at which the basic systems, structures, and culture built over the past century cannot keep up with the demands being placed on them”, (Kotter J. P., 2014, p. vii). Kotter provides a few graphics that show the exponential growth of several metrics that define the current society, to include patent applications, hard drive storage, and shares traded on the New York Stock Exchange. The number of patents infers the rate of technological discovery, the growth in hard drive storage indicated the amount of digital information generated, and the trading of stocks infers the activity of the financial systems.

Kotter explains that evolution of originations follows a pattern in which the start-up is “Network-like”, see figure 12, (Drexel University, 2021). In the beginning, someone

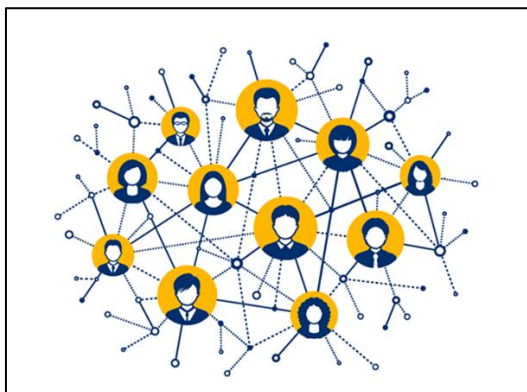


Figure 12 Network-like Connectivity

has an idea, communication and collaboration begins to spread between other individuals. Each center point conducts their specialty capability, but through the connectivity throughout the entire network, the capability is developed, produced and supplied into the marketplace.

As organizations thrive and mature, the independent cells of processes gather into a centralized element and the cells begin to form more established structure. The value of shared internal resources, leveraged operations, synergy and established common processes and behaviors support stable delivery of the capability. At this point, the organization is in the form of a hierarchy, with bureaucratic mannerisms.

A pyramid-like structure is the common form for hierarchies. This is the structure of choice of Governments and the internal agencies, and the far majority of large organizations. Leadership is located at the top and the structures chain of communication and control flow down through all levels of subordinates, as depicted in figure 13 (Millett, 1954).

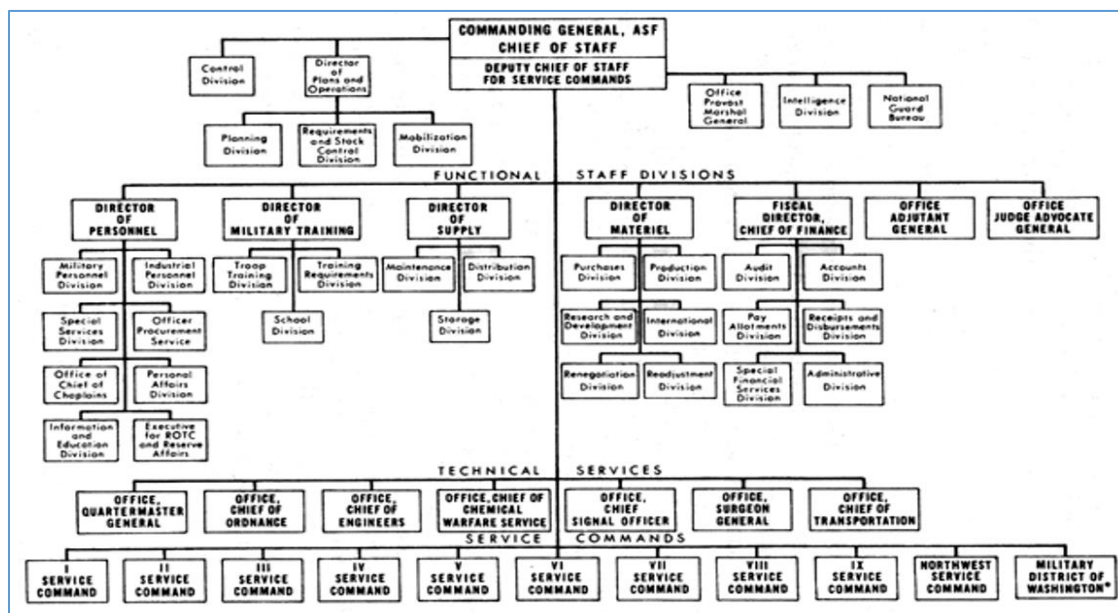


Figure 13 Hierarchy Organization Structure - U.S. Army Service Force Circa. 1944

Many publications on organizational change writings favor the dismantling of the hierarchy structure. Kotter does not align with this extreme view. Kotter identifies the benefits of doing “what we know how to do with efficiency, predictability, and effectiveness”, (Kotter J. P., 2012), as well as the limiting factors that inhibit great leaps

of innovation; “people cling to their habits and fear of loss of power and stature... complacency... resist change...” (Kotter J. P., 2014, p. 9)

Kotter’s current approach is to enable the means for a dual Hierarchy – Networked organization, see figure 14.

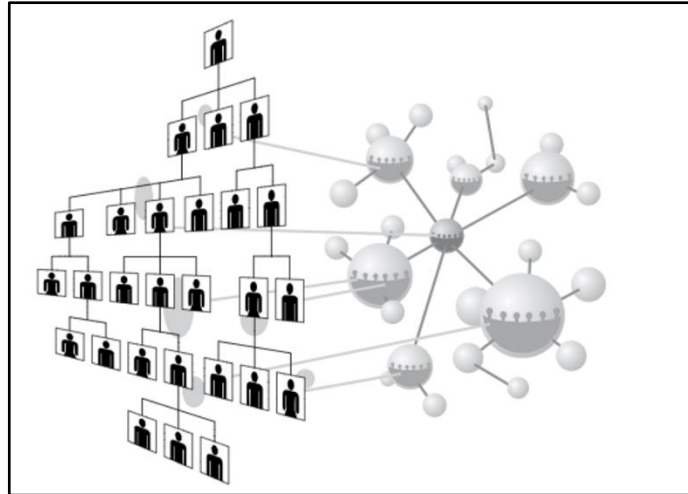


Figure 14 Kotter's Dual Hierarchy-Network Model

The intent is to develop conditions to leverage the strengths of both forms of organizational construct. Innovation activity with a Networking fashion, allowing for the agility, avoid the restrictive corporate policies, to both develop, and execute broad strategic pursuits. The hierarchy elements excel in standard corporate operations with “efficiency, predictability, and effectiveness.” The dual organization is required to operate as one entity. The interface between the two require leadership focus to facilitate the strengths and pursue opportunities without generating new weaknesses or perceived threats.

The DoD adopted the Integrated Product and Process Development procedures in 1996 (Office of the Under Secretary of Defense (Acquisition and Technology), 1996) to

follow the dissemination of a report titled “Rules of the Road.” That document identified the intent of the DoD to implement Integrated Product Teams (IPT’s):

“function in a spirit of teamwork with participants empowered and authorized, to the maximum extent possible, to make commitments for the organization or the functional area they represent. IPTs are composed of representatives from all appropriate functional disciplines working together to build successful programs and enabling decision-makers to make the right decisions at the right time.”, (The Office of the Under Secretary of Defense for Acquisition and Technology, 1995).

The current AFC team construct is a “Cross Functional Team”, (CFT). CFT’s are a collective of individuals of different organizational responsibilities working in an empowered and collaborative manner. As stated in Army Directive 2017-24 released on 6 Oct 2017:

“...to embrace horizontal and vertical integration and improve the quality and speed of materiel development activities. The CFTs will follow a Developmental Operations methodology defined as warfighters and developers working together to prepare sound capability documents that enable the rapid and frequent delivery of capabilities to the warfighter to inform a potential program of record....The concept for the CFT is to develop a requirement, informed in appropriate cases by experimentation and technical demonstrations, through teaming, agility, and rapid feedback to enable the development of a capability document and improve the decision making for a potential program of record. ... This approach will allow us to develop capabilities faster and in a less costly manner to enable our Soldiers to fight and win.” (McCarthy, Army Directive 2017-24 Cross-Functional Team Pilot In Support of Materiel, 2017)

In conjunction with the organization's desire to pursue innovation, also needs to be a strong acceptance to find a use for and develop techniques to enact and/or incorporate the identified discoveries into the sustaining or potentially new operations. Due to the complexity of aligning "to be determined" innovation within an infinite number

of organization operations, there is no standard "go to" process, however Kotter recommends conducting the internal analysis to do so.

Post analysis of the initial study and a series of extensive follow-up interviews finds that although transformation involves strategy, structure, culture and system, the most critical factor is "changing the behavior of people, and behavior change happens in highly successful situations mostly by speaking to people's feelings. In highly successful change efforts, people find ways to help others see problems or solutions in ways that influence emotions, not just thought." (Kotter & Cohen, 2002).

Although the extent and detail of planning and implementation is critically important, full organizational transformation occurs when the people involved become both compliant but most importantly also committed, (Kotter J. P., 2012). Leadership's intent and management's directives support the ways and means behind transformation, however when the vision and the mission of the transformation resonates deeply within the employees and their buy-in is enacted into what Kotter describes as a "growing volunteer army" that the transformation begins to take root. Successful transformation needs its people's commitment that accomplish the goals of successful transformation, (Kotter J. P., 2012).

Kotter's summary process for operating a successful transformation is clearly focused on the people aspect of the change; he describes the summary model to follow to support successful transformation as "See-Feel-Change." Kotter's writing provides a significant amount of additional depth on organizational transformation.

In review of the Army's stand up of the AFC, I identify numerous examples of adherence to the Kotter's guidance for successful transformation: Establishing a sense of urgency,

creating a guiding coalition, developing a change vision, communicating the vision for buy-in, empowering broad-based action, generating short-term wins, never letting up, and incorporating changes into the culture.

The transformation's effect on the acquisition community's behavior through a "See-Feel-Change" assessment requires employee-sensing surveys. A more comprehensive evaluation is required as the AFC managed new capabilities field. It is also worthy to note that DAU is incorporating use of the Kotter model as its transitions in accordance with on-going update to acquisition certification standards.

Culture eats Strategy for Breakfast and (fill in the blank) for Lunch

I would be remiss to explore organizational change without including a brief discussion on Peter Drucker (1909-2005). Drucker is a widely recognized source for his research and analysis on many aspects of management. Among his accolades is recognition for identifying the role of management as a discrete function, and the distinct responsibilities of a manager within an organization, (British Library, 2021).

Drucker is commonly associated with the initial use of the phrase "Culture eats Strategy for Breakfast," (Quote Investigator, 2021). Evermore, other researchers and writers have been expanding the phrase to align theory from Drucker to accommodate a current day organizational or social initiative. The value of this phrase is to strengthen the importance of the people within the organization. This draws on the "People" speech and publications from CSA McConville identified earlier in this paper.

Organizations have value systems to enable them to accomplish the organization's intent, also over defined organizational endeavors, such as strategy, transformation, etc. (Drucker, 1992).

All organizations' essence is the reflection of the norming of beliefs, values and behaviors of the individuals who actively collaborate and contribute to execute operations. In turn, the collective style, perspectives, and patterns of thought reflect onto the collective to form the organizational culture. The cultural identification supports collective understanding and support towards the goals and operations of the organizations. Transformation will be more successful if the planning for organizational change embraces the current culture. Most organizational researchers (such as Kotter), recommend not attempting to change both the organization and its culture.

A great strategy is destined to remain hidden in someone's journal unless it is discussed, gathers support and both captures the attention and is embraced by the organization. Leadership needs to keep the organization's focus throughout full implementation to achieve the goals of transformation.

[Corporate Re-organization through Spin-out](#)

When developing the literature search for this paper, the topic of corporate re-organization in the form of a "spin-out" showed potential to offer valuable research material for an evaluation of the Army's AFC. After combing through a number of papers, that premise was not upheld, as the review of the corporate Spin-out analysis idea was primarily focused on financial profit performance, as that is the primary

purpose of corporate business, (Semadeni, 2003, p. 22). The research did identify a number of relevant organizational behavior topics, incorporated throughout the paper.

Emotional Intelligence

The topic of Emotional Intelligence continues to grow in the public discussion on leadership training. This topic has a significant amount of behavior research that offers a number of perspectives that may help address the ability to communicate and operate more effectively and improve organization's ability to adapt to change and transformation.

The participants need to have a solid understanding of the intent and direction ahead. This includes the leadership and management staff responsible for its execution, who are also responsible for sharing this with the employees. The supporting organizations that interface on a frequent basis need to hear the message and understand as well. A recommended behavior to help communicate and receive this message is Emotional Intelligence.

Emotional Intelligence can be described as the shared awareness and understanding between people who are interacting together. It is practices and measured in terms of behaviors and habits. It is a learnable skill and has adaptations throughout a wide range of disciplines. Academia produces a significant amount of research and analysis. I will present the findings from two papers reviewed for this project.

- “Relationships between Emotional Intelligence Competencies and Transformational Leadership Skills: U.S. Government Civil Servant Leaders” (Hatfield, 2009). This paper discussed a challenge to identify and measure the relationships between Emotional Intelligence and Leadership.
 - The analysis from a survey of 309 participants and additional publication research led to a conclusion that emotional intelligence and leadership skills have a predictable relationship.
 - Another conclusion was that the ability to measure leadership skills is challenging, and how over the development of the current society over the last 150 years the definition of and needs for leadership has varied. The current conditions indicated the utility of transformational leadership skills.
 - Hatfield also identifies that Emotional Intelligence has many developing perspectives in terms of definition (are they abilities or traits?), and in the method and ability to measure. Three commonly accepted aspects of Emotional Intelligence are (1) the ability to anticipate or recognize emotions and emotional triggers in oneself and others, (2) the ability to control one’s own emotional responses, and (3) the ability to interact with others while maintaining awareness and understanding of their emotions and emotional responses.
 - An interesting perspective identified by Hatfield is “Theory informs practice, so there is still value in studying the theoretic aspects of leadership, but how to apply the theory is paramount to those attempting to lead.” This statement resonated deeply with me as I developed this

paper. The activity of conducting research and accumulating information (and hopefully knowledge) have raised my exposure to a wide range of theories and topics. My personal self-challenge will be to continue with gathering information on these topics to better understand them, but most importantly to seek opportunities to exercise them.

- The second paper, “The Relationship of Certified Flight Instructors' Emotional Intelligence Level on Flight Student Advancement, (Hokeness, 2012) identifies the value of emotional intelligence in an instructional application as it is found to be a contributor towards the student’s advancement.
 - The topic explored in this study is on the development of new pilots. The paper looks to identify the means to improve the reception and retention of the instructions to help produce pilots that are more capable.
 - The research identifies a number of themes to define Emotional Intelligence.
 - “how a person displays; emotional stability, self-awareness, sensitivity, and the ability to respond to the emotions of others”
 - “a person’s capacity to reason about emotions, including perceiving emotions, understanding of emotions, exercising emotions to support thought, and controlling emotions”
 - “is a key component of effective communication and leadership”
 - In addition to the shared awareness of emotions between the instructor and student, “empathy, positivity and self-control” support

the growth of the relationship that in turn makes the instruction more successful.

- A low assessment in Emotional Intelligence may be interpreted by the student as “lack of trust”, which in turn impeded the communication and relationship bond.
- “Emotional intelligence has an effect on how people interact.” This statement also resonated deeply within me. I have experienced numerous occasions as either the protagonist or the observer to see a success or failure in the communication of facts, positions, perspectives and attitude. I propose that the additive factor in the times of success and the regressive or missing factor that contributed to failure was Emotional Intelligence.
- The research utilized the Skills for Career and Life Effectiveness ® (SCALE) test, from Emotional Intelligence Learning Systems, Inc. (Emotional Intelligence Learning Systems, 2021).
 - Further research readily identifies a large number of assessment tools available to conduct a self-assessment of Emotional Intelligence.
 - Each proposes a unique perspective in terms of assessing and reporting Emotional Intelligence. Unlike standardize testing used for College entry (Standard Aptitude Test (SAT), Medical College Admission Test (MCAT) or Law School Admission Test (LSAT), measurement of Emotional Intelligence will not provide a singular, and comparable number.

- Emotional Intelligence measurements follow a few different approaches, ability-based, trait-based, competency-based and behavior-based (Craig, 2021).
- The assessment typically involves asking the candidate a large number of questions. The answers merge toward multiple categories, to include empathy, motivation, self-awareness, adaptability, influence....
- Scores are typically very general in nature, such as high, medium or low.
- I identify that the findings from this study may apply beyond the instructor-pilot, one-on-one environment. It offers relevance to other complex disciplines that require adherence to training, and individuals whose success requires being very engaged in matters involving technical and self-awareness.

Emotional intelligence offers the means to form better cohesive teams and relationships throughout the acquisition community, as well as help with you and your team's resilience when addressing challenging activities. Awareness is an important initial step to gather information, form knowledge, and potentially adjust your emotional intelligence.

Army Design Methodology

Army Doctrine Publications (ADP) 5-0 Operations, (U.S. Army, 2012) "describes fundamentals for effective planning, preparing, executing, and assessing operations. It

describes how commanders, supported by their staffs, employ the operations process to understand situations, make decisions, direct action, and lead forces to mission accomplishment.”

Although ADP 5-0 is focused on the Army's Operational element, it offers several significant relevancies with the Acquisition activity, such as military operations are defined as; (1) Human endeavors (2) Conducted in dynamic and uncertain environments (3) Expeditious Acquisition and (4) Designed to achieve a political purpose. The principles of mission command are (1) Competence (2) Shared understanding (3) Mutual trust (4) Mission orders.

ADP 5-0 also offers a few elements that address the complexity of acquisition. One important topic is in how the Army defines Critical and Creative thinking. The following extracts from ADP 5-0 are included for further reflection:

1-65. Thinking includes awareness, perception, reasoning, and intuition. Thinking is naturally influenced by emotion, experience, and bias. As such, commanders and staffs apply critical and creative thinking throughout the operations process to assist them with understanding situations, making decisions, directing actions, and assessing operations.

1-66. Critical thinking is purposeful and reflective thought about what to believe or what to do in response to observations, experiences, verbal or written expressions, or arguments. By thinking critically, individuals formulate judgments about whether the information they encounter is true or false, or if it falls somewhere along a scale of plausibility between true or false. Critical thinking involves questioning information, assumptions, conclusions, and points of view to evaluate evidence, develop understanding, and clarify goals. Critical thinking helps commanders and staffs identify causes of problems, arrive at justifiable conclusions, and make good judgments. Critical thinking helps commanders counter their biases and avoid logic errors.

1-67. Creative thinking examines problems from a fresh perspective to develop innovative solutions. Creative thinking creates new and useful ideas, and reevaluates or combines old ideas to solve problems. Leaders face unfamiliar problems that require new or original approaches to solve

them. This requires creativity and a willingness to accept change, newness, and a flexible outlook of new ideas and possibilities.

1-68. Breaking old habits of thought, questioning the status quo, visualizing a better future, and devising responses to new problems require creative thinking. During operations, leaders routinely face unfamiliar problems or old problems under new conditions. Leaders apply creative thinking to gain new insights, novel approaches, fresh perspectives, and new ways of understanding problems and conceiving ways to solve them. (See ATP 5-0.1 for creative thinking tools and techniques.)

1-69. Both critical and creative thinking must intentionally include ethical reasoning—the deliberate evaluation that decisions and actions conform to accepted standards of conduct. Ethical reasoning within critical and creative thinking helps commanders and staffs anticipate ethical hazards and consider options to prevent or mitigate the hazards within their proposed COAs. (See ADP 6-22 for a detailed discussion of ethical reasoning.)

Another useful technique is the Army Design Methodology (ADM). ADM is described as, “a methodology for applying critical and creative thinking to understand, visualize, and describe problems and approaches to solving them.” (U.S. Army, 2012). Figure 15 shows the basic construct of the ADM process.

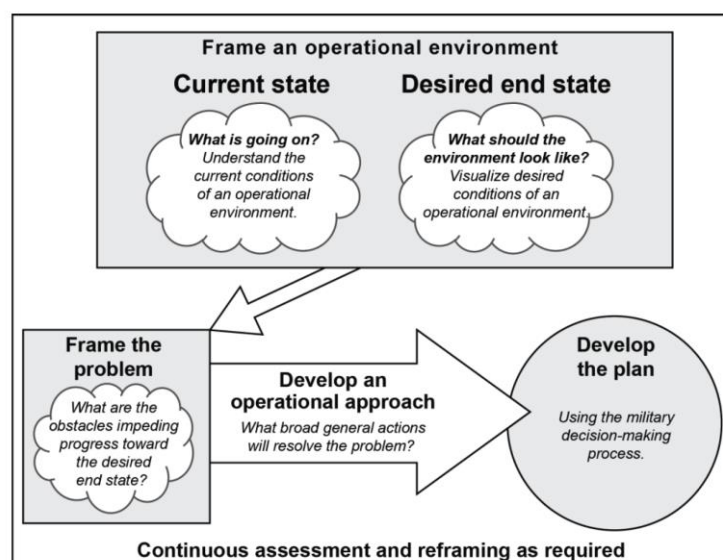


Figure 15 Army Design Methodology

I recommend that the reader step through the ADM process to familiarize themselves. The ADM shows traceability to some of the other methods addressed later in this paper. A key aspect of the ADM is that the initial step is to recognize the desired end state and work solution to achieve it. This may be familiar to readers who have read or attended training on “The Seven Habits of Effective People”, (Covey S. R., 1989), in which the initial step is “begin with the end in mind.”

[SOCOM and Expeditious Acquisition](#)

The United States Special Operations Command (USSOCOM) is a Unified Combatant Command established in 1987. USSOCOM “develops and employs fully capable Special Operations Forces to conduct global special operations and activities as part of the Joint Force to support persistent, networked and distributed Combatant Command operations and campaigns against state and non-state actors to protect and advance U.S. policies and objectives.” (USSOCOM, 2021).

SOCOM was established with legislative acts from Congress, (Goldwater-Nichols Act and the Nunn-Cohen Amendment) and was provided with Title 10 authority for “manning, training, and equipping the force” (General Raymond A. Thomas, 2017). SOCOM is comprised of the Air Force Special Operations Command, The U.S. Army Special Operations Command, the Joint Special Operations Command, the Marine Force Special Operations Command and the Naval Special Warfare Command.

The Special Operations Forces Acquisition, Technology, and Logistics (SOF AT&L) Center was established in 1991. SOF AT&L is responsible to “provide rapid and focused acquisition, technology, and logistical support to Warfighters, delivering the most

effective capabilities to our Special Operations Forces” (SOC AT&L, 2021). SOF AT&L has four key acquisition principles (SOF ATL, 2021)

- 1) Delivers capability to the user expeditiously
- 2) Exploits proven techniques and methods
- 3) Keeps Warfighters involved throughout the process
- 4) Takes risk and manages it

SOF AT&L supports a unique set of requirements that have a unique perspective from the other services’ acquisition communities. As such, SOF AT&L has tailored its acquisition process as documented in USSOCOM Directive 70-1 Acquisition Management System Policy.

The initial uniqueness identified with this document is that the primary content is contained in seven pages of primary content. There are several supporting appendixes to provide further breadth and depth. The Army Regulation 70-1 Army Acquisition Policy (June 2017) is currently 25 pages of content; this too is supported by appendices.

USSOCOM Directive 70-1 identifies that acquisition cycle is characterized by four main phases; Strategy, Planning, Execution, and Delivery/Sustainment, and seven principles; Commander Focused, Operator Informed, Risk/Opportunity Management,

Empowered, Transparency, Full Life Cycle Owner, and Agility. Figure 16 shows a graphical rendition of the USSOCOM Acquisition Process.

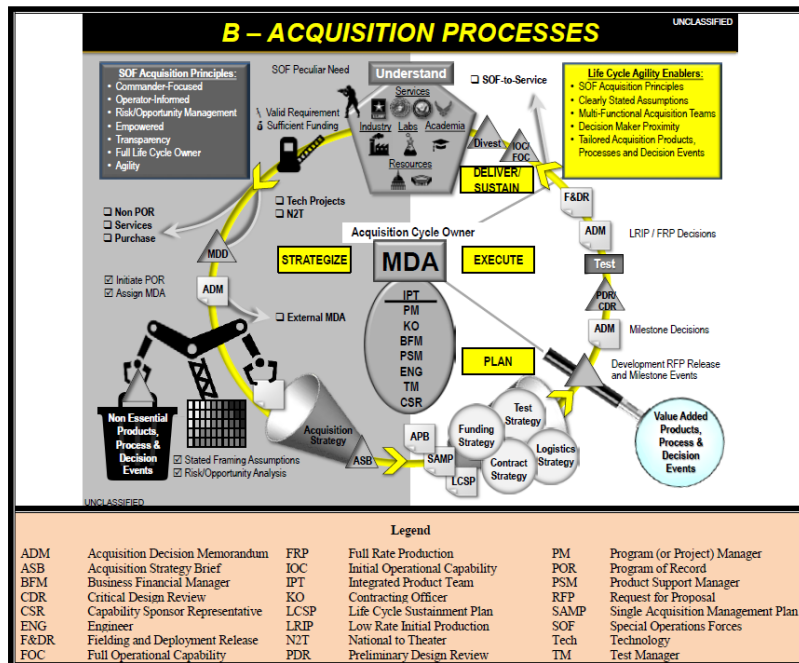


Figure 16 USSOCOM Acquisition Life Cycle

USSOCOM Directive 70-1 also identifies a stronger emphasis on pursuing opportunities “to be exploited” during the acquisition process.

The SOCOM “Acquisition Opportunity – Risk Matrix” as shown in figure 17. (USSOC, 2018). The uniqueness of this graphic was that it incorporates both risk and opportunities together into one visual graphic. SOCOM identified initial use of risk and opportunities analysis in the beginning of the Strategy phase, and throughout the full acquisition cycle. The document calls for the continuous assessment of not only the risk of the activity in execution, but of the opportunities. This combined graphic allows the supporting staff, oversight and even leadership to see not only the potential challenges managed by the program, but the opportunities that it offers to the SOCOM community.

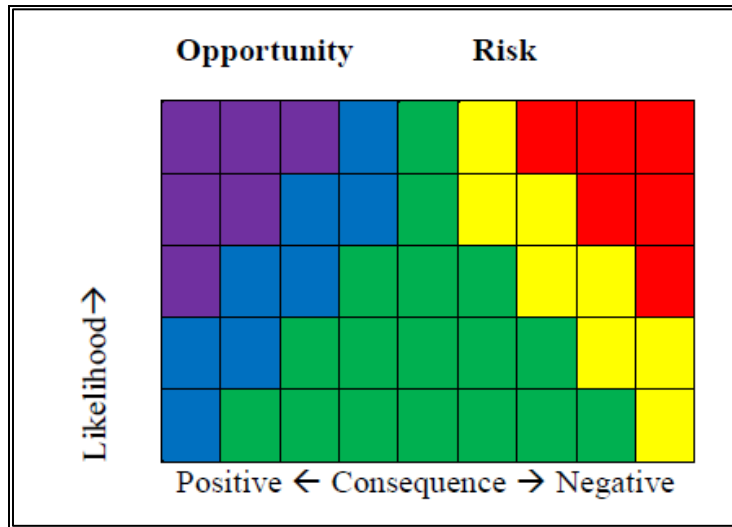


Figure 17 SOF Acquisition Opportunity and Risk Matrix (USSOC, 2018)

In terms of metrics, the SOCOM 70-1 uses forms of the word “risk” 141 times, and forms of the word “opportunity” 63 times, whereas the Army’s equivalent document AR 70-1 used the forms of the word “risk” 18 times and does not include any form of the word “opportunity.” In contrast, forms of the words “risk” and “opportunity” are found numerous times in the Army leadership publications, identified in the below table.

Army Publication	Occurrence of forms of the term “risk”	Occurrence of forms of the term “opportunity”
APD 6-22 Army Leadership and the Profession	47	69
FM 6-22 Leader Development	188	36
The Army’s People Strategy – October 2019	8	6

Risk assessment focuses on potential concerns and requires the people associated with this concern to consider, develop and potentially deploy mitigation actions prior to experiencing an actual issue. This can become a very laborious effort, and programs with a sufficient system engineering mindset will dedicate numerous

hours every month to support risk assessments to help evaluate the program progress. The continuous activity and discussions on potential problems and options to avoid them may form a bias centered on negativity. Developing mitigation plans also consume both the team's attention and labor, but if the overall risk is to be low enough to be accepted, the plans will lay idle, tabling all the effort put into their formulation. The incorporation of frequently review of the opportunities, (in conjunction with the risk) offers the potential for a more formative aspect that reinforces the need for the program's expeditious execution.

Carl Von Clausewitz and Information

Carl Von Clausewitz (1780-1831) was a Prussian General and author of many essays which were accumulated into a multiple volume book titled "On War", (Britannica, 2021). He was a witness to the French Revolutionary and Napoleonic wars, (1792-1815) to include the defeat and the post war reform of the Prussian Army. As a transition to the next set of topics in this paper, I have included two passages to help describe the situation of operating without perfect information.

INFORMATION IN WAR

By the word "information" we denote all the knowledge which we have of the enemy and his country; therefore, in fact, the foundation of all our ideas and actions. Let us just consider the nature of this foundation, its want of trustworthiness, its changefulness, and we shall soon feel what a dangerous edifice War is, how easily it may fall to pieces and bury us in its ruins.

Great part of the information obtained in War is contradictory, a still greater part is false, and by far the greatest part is of a doubtful character.

UNCERTAINTY OF ALL DATA.

Lastly, the great uncertainty of all data in War is a peculiar difficulty, because all action must, to a certain extent, be planned in a mere twilight, which in addition not

unfrequently—like the effect of a fog or moonshine—gives to things exaggerated dimensions and an unnatural appearance.

What this feeble light leaves indistinct to the sight talent must discover, or must be left to chance. It is therefore again talent, or the favour of fortune, on which reliance must be placed, for want of objective knowledge.” (Clausewitz, 1909)

Appreciate the Context

The Joint Special Operations University supports the SOCOM community to provide training and conduct research with a mission statement to; “deliver relevant SOF-Specific education at the USSOCOM enterprise and priority partners to influence the current and future strategic environment” and a Vision statement of; “sharpen minds by inspiring ideas, connecting people and accelerating learning”, (Joint Special Operations University, 2021).

As part of my research for this paper, I found an interesting paper within the Joint Special Operations University library, titled “Complexity, Organizational Blinders, and the SOCOM Design Way” (Ellis & Black, 2018) The paper’s stated purpose is to, “explain why the complex world is so difficult to comprehend and provide a way for navigating through it.”

The “SOCOM Design Way” (SDW), provides a common framework to pursue problem solving for operational use, it also has utility to the examination of organizational and acquisition situations. Ellis and Black’s paper resonated with attempting to grasp the complexities within the acquisition process, or in addressing concurrent challenges within the acquisition activity. The 2015 release of SDW countered the potential impact of nearly 15 years of primarily conducting direct action

(DA) and Foreign Internal Defense (FID) missions, while under-performing of the full spectrum of SOCOM capabilities.

Prior discussion in this paper explored the theories and practices developed by Taylor, the Gilbreths, and Ford, in the early part of the 1900's in which workforce specialization and scientific management led to recouping efficiencies in labor. Studies of repetitive work and cumulative continuous experience identified the means to predict the measure of improved efficiency of labor on the Wright Learning Curve. Wright's learning curve analysis also identified that when changes were implemented (engineering design changes, process changes or change of parts), the previously gained efficiency of labor reverted "up the learning curve" into the initial phase of execution.

SOCOM command was concerned that 15 years of repetitive, limited focused operations were diminishing proficiencies of alternate skills. More importantly, being that SOCOM operations are identified to be unique, dynamic, require deep perception and empathetic skills, while also being very reactive to developing conditions, the repetitive exercise of limited modes of operations was providing a cumulative "positive feedback" into the observation and decision-making skills calibrated to the conditions being experienced. The loss of experience constricts the ability to recognize developing conditions not typically occurring in their current experience. The cognitive decision-making skills prioritizes information from recent experiences. Information not being experienced was becoming under-prioritized in cognitive decision-making.

Framing

Ellis and Black define framing as; “The conscious and purposeful act of bounding one’s thinking, the system, or the issue at hand, or the deliberate rubric an individual might use to organize his or her thoughts about a particular topic in order to facilitate investigation and learning.” (Ellis & Black, 2018)

Visual perception is a key aspect for the development of a frame. Descriptions from two identified scientific publications can help explain how the visual experience leads to the developing a frame.

The first paper is, “Reference-frames in Vision: Contributions of Attentional Tracking to Nonretinotopic Perception in the Ternus-Pikler Display”, (Lauffs, Choung, Ogmen, Herzog, & Kerzel, 2019). That paper describes how an individual gathers patterns of behavior; “According to behavioristic theories, stimuli generate sensations, which are stored in memory. Correlations between stimuli (classical conditioning) or stimuli and behavioral responses (operant conditioning) cause these sensations to be associated with each other to generate complex representations.”

The second paper, “Perception: An Introduction to the Gestalt-Theorie”, (Koffka, 1922) describes why unanticipated behavior is drawn into the viewer’s attention. Our brains’ cognitive processing of information has shaped the individual’s recent experiences in similar conditions. This sets the stage for the expectation of future incoming information. When received information is counter to the expected, the brain recognizes this and calls out attention to it. The individual needs to recognize this effect and consider the implications. If sufficient inspection on the element that raised attention, the context of the situation may not be fully perceived. Koffka states that

perception is a complex process derived from three elements, sensation, association and attention. "Attention... not only influences the texture and the course of our conscious processes, but is also likely to be influenced by them" (Koffka, 1922).

My take-away on these topics is that limited experience and initial information may override the potential perceptions that may be present with more information. The observer's experiences prioritizes the information on hand When similar conditions begin to appear, the prior experience shapes the forming perspectives, and thus may impose misinformed influence on the development of the current "frame."

"I've seen this before; I know what to do next" would be an applicable description. In reality, you may have previously experienced something like what may be going on in the current condition, but your brain has stopped trying to gather additional information, it already has developed the full answer.

Information of lower prioritization, i.e., from modes of operations not being exercised, offers the potential to develop perception "blindness." Having a "blinder" to what turns out to be critical perceptual perspectives may jeopardize the success to achieve the intent.

The full frame includes more than just the visual and cognitive processed conditioning. It incorporates the other senses, prior experience, information provided from external sources prior to the observed information, and the cooperation of the others in the communication chain to leverage the power of synergy. It is important to remember that there is a degree of certainty that there is unobservable or unreported

information within any situation. This information may be a critical component of the situation.

As described by Paul Cilliers, author of *Complexity, Deconstruction and Relativism*,

“The fact that our knowledge is limited is not a disaster, it is a condition for knowledge. Limits enable knowledge. Without limits we would have to incorporate life, the universe and everything into every knowledge claim we make and that is not possible. Limiting frameworks makes it possible to have knowledge (in finite time and space). At the same time, having limits means something is excluded, and we cannot predict the effects of that exclusion. Knowledge is a fragile and, above all, contingent thing” (Cilliers, 2013).

Black and Ellis identify the shortfall of traditional methods to “frame” a situation, inferring that the individual is describing the situation based on what they were informed, what they are observing and interpreting, in summary, their perspective of the available knowledge on hand.

One traditional “schoolhouse” technique instructed on framing a situation is a three-step process of “see, understand, and predict” (Ellis & Black, 2018). They stress the importance to acknowledge that additional knowledge is not on hand. The frame will not be accurate and complete; this is further compounded when limited training forms partial cognitive thought processing capabilities.

Blinders

The term “blinders” identify the shielding of this additional information. A visual example of a blinder are the physical screens affixed to racehorse’s head to limit external visual information from distracting the horse from what lies directly ahead. Screens, walls, and doors in hospitals provide physical and visual blinders to protect the

privacy of individuals, allow for the informational security of physician-patient discussions and mitigate external stimuli from potentially further adversely affecting the patient.

Had the horse or physician the ability to observe all related activities and understand the effects of the cascade of connecting stimuli; the potential courses of action, the desired intended results, and decision made may be different than when even a small amount of information is shielded by blinders. The horse may realize that the fastest way to its next meal is not straight ahead on the curving racetrack, but rather, right across the infield. The physician may come to the realization of a slow spread of cotangents such as *Clostridioides difficile*, commonly identified as C-Diff, (Mayo Clinic, 2021) which affects a half of million people in the United States and is passed by physical touching from visitors, medical and cleaning staff.

Blinders do not only exist in the visual or physical realm. Intellectual blinders are resultant from individual's lack of exposure too and retention of education, training, and social conditions, to include awareness and empathy of others. Blinders form from through gaps in experience, pre-determined expectations, and the cognitive ability of interpreting received information and drawing conclusions.

[*Back to the SDW*](#)

As described in the Ellis and Black paper;

“SDW provides the foundation for talking about, conceptualizing, deconstructing, analyzing, synthesizing, and acting in a complex adaptive world. It is a way of perceiving complexity and an attitude for operating in it. Above all, the SDW is an ethos of learning and discovery.

The SDW is a way of thinking that enables one to envision what might be possible, what should be created, or performed. In effect, SDW enables one to question the efficacy of a policy, strategy, or mission; an organizational structure; a long-standing process; and, in general, the organizational way of doing things.

SDW is a way to navigate the ambiguous, dynamic, and uncertain space that joins politics and the strategic employment of military power. “ (Ellis & Black, 2018)

The SDW model is comprised of three elements:

1. Appreciate the context
2. Define the problem
3. Develop an approach

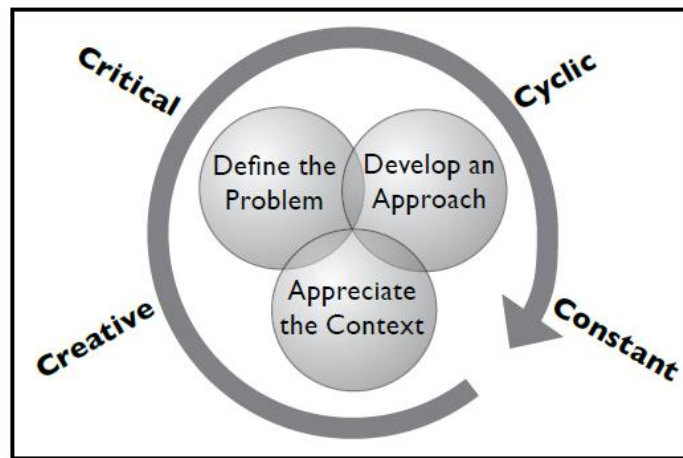


Figure 18 Figure 10 SOCOM Design Way (SDW), (Ellis & Black, 2018)

The above graphic identified these three elements in the center, surrounded by a circular arrow. The arrow signifies that challenging problems typically need numerous passes through this process to reach an amenable status. Some problems may be solvable, and others, at best may only be manageable. The selections of actions taken in the first pass, may lead to alternate challenges as you dig deeper into the problem on a second pass.

Surrounding the arrow on the left side of the graphic are two key tenants of leadership, the ability to apply “Critical” and “Creative” thinking. On the right side are the terms “Cyclic”, to infer that a problem solved once, can return if the underlying conditions remain. The last term on the right side is “Constant” to signify that persistence, attention to detail, being proactive and resilient are key qualities but problems are a constant part of life.

Ellis and Black recommend spending approximately 65% of the available time to Step #1, “Appreciate the context”, < 25% on step #2, “Defining the problem”, and if the initial two have been done sufficiently, only 10% will be required to “Develop an approach.”

The term “sufficiently” has some degree of ambiguity, as the situation may be evolving, or unidentified blinders may be affecting the situation. The prioritization in time towards the initial step offers the potential to reduce the ambiguity but cannot guarantee to provide definitive truth.

Once an approach is defined, it seems appropriate to verify that the current context is applicable to the solution, and if so, execute and monitor the results by re-examining your “appreciation of the context”, and such.

Appreciate the Context

Ellis and Black describe that the selection of the words “Appreciate the context” was made with the intent to highlight that the observer may never truly fully comprehend or understand the situation at hand. However, by acknowledging that you are simply

“Appreciating the context”, there is an opportunity to “*to grasp the nature, worth, quality, or significance of, to judge with heightened perception or understanding - of the interrelated conditions in which something exists or occurs*”, (Merriam-Webster, 2021), about the current state of the system.

This initial step calls for the gathering of all available information with the intent to collect not only what is immediately available, visible, and perceived, but also information to supply “divergent perspectives, interests, and practices”, which will be “identified, analyzed, and later synthesized into a holistic perception on an issue” (Ellis & Black, 2018). As earlier addressed, blinders are of importance, the awareness of potential blinders are of critical importance. The paper provides many additional perspectives and theories on how to stretch towards reaching the “appreciate” level through research and theorems on personal, organizational, cultural, perspectives, perceptions, and the present blinders.

A previous discussion on Ward’s Simplicity Cycle Manifesto and the use of a sling to hit a target offers use of an analogy to demonstrate the challenge of blinders. Readers of the Bible may recall the story of a shepherd named David whose use of such a sling was capable of knocking down a giant name Goliath (1 Samuel 17: 49, 1992). Current day management analogies of David and Goliath (InsightSquared, 2021), (Murphy, 2014), (Gladwell, 2013) identify numerous leadership lessons from this story, and resonate with a number of topic from this paper. There are two perspectives from the engagement between Davis and Goliath. From the perspective of David, a small organization with well-matured skills can achieve success under insurmountable odds inferred by a larger more powerful organization. From the perspective of Goliath,

the story explains how a behemoth organization can fall from a disruptive action imposed by an unexpected and smaller scaled source. Commonly referenced aspects include,

- Speed and agility can be more effective against an administratively burdensome and slow bureaucracy
- Lethal precision can be very effective and efficient
- Forces which requires excessive resources to sustain or is not mobile does not guarantee success
- Disruption of the status quo is both an option, awareness of disruption should be considered in both your offensive tactics and in your defensive posture
- Skill, technology and tactics can overcome a larger, but inflexible opponent
- The synergy of confidence, skill and being underestimated forms strength
- Agreeing to terms that are not guaranteed can results in the unexpected outcome
- Misconceptions are the result of blinders

In contrast with many tradition problem-solving techniques, the SDW recommends that it may not be prudent to address a challenge by first writing out the problem statement; the initial step is “Appreciate the context” of the situation to include looking for blinders, and incorporate views of others to negate your own personal blinders. Immediately jumping to “the obvious solution to the obvious problem” led to deciding a conflict’s outcome solely on Goliath.

There are problems, and there are “Wicked” problems

Problems are often the result of a multitude of causes interacting in a disharmonious manner. The initial identification of a problem may not immediately lead to the primary, or “root cause”, and upon initial inspection the observer may not understand a potential cyclic nature of the problem, or if it is feeding off some

unapparent cycle. As such, problems do not progress in a linear manner most times. Ellis and Black identify that the SDW is better suited in addressing a “wicked” problem.

The word “wicked” has two commonly used forms and connotations. Its traditional use as an adjective identifies something “morally very bad, evil,” (Merriam-Webster, 2021). Throughout New England, and in particular throughout the Boston area, “wicked” has evolved into an adverb through a “grammaticalization” process. Wicked as an adverb becomes an intensifier or booster, described as “as an adverb that strengthens or amplifies another word” (Record, 2014). Though “wicked problem” may have its initial roots from a member of the Red Sox Nation (Nowlin, 2021), the SOCOM mission often addresses unbelievably challenging, continuously evolving and frequently evil situations.

The categorization of a “wicked” problem is in itself complex; there is not a definitive singular description for a wicked problem but there are aspects that may resonate with the reader. Wicked problems are associated with situations that may be developing in a manner not clearly articulated to the observer, and the interaction of the observer into the situation could be altering the dynamics of the situation. In that regard, “the information needed to understand the problem depends upon one’s idea for solving it” (Rittel & Webber, 1973). Rittle and Webber identified some peculiar, yet ambiguous attributes to define a wicked problem that include the following key elements:

- *The concomitant pairing of any potential sets of problem understanding and solution technique cannot be simplified as either true or false or good/bad*
- *Once applied, the selected intended solution will permeate throughout the situation in likely unintended consequences that in retrospect may identify that the evolved situation may be worse than the starting condition*
- *There is no clear description of the required completion of the problem*
- *Unique in description and in the response to stimuli. Solutions applied to similar situations may not lead to comparable conclusions*

- *Are the result of other (potentially multiple) problems. Addressing identifiable causation (if traceable) should have a more correlated impact, however, higher-level causes may be broader in definition and by nature more challenging to address.*

Wicked problems are a big deal; they need management, or at least addressed in some manner. Do not feel challenged by this, they are under-definable, have irreversible cause-effect consequences, they may not be solvable. “Wicked problems” need continuous re-examination, and acknowledgement that the full awareness of the entire situation may not be apparent. Wicked problems need more than one single decision or action. They require continuous monitoring is required to increase awareness, with the potential that the current action may in fact lead towards an evolution in an unexpected manner, towards your intended resolution, or further away.

In contrast with some tradition problem solving methods, the initial step is not to start by developing the problem statement; rather the initial step is “Appreciate the context.” The Ellis and Black paper go into detail on many aspects of the SDW. Their identification of sensing models and, in particular, the Cynefin Framework, is of interest. Understanding the type and severity of the problem is a key aspect of fully “Appreciating the context.”

Alternate Problem Solving for comparison

The American Society for Quality (ASQ) instructs one commonly used technique for problem solving. The ASQ problem solving model is conducted in a four-step process,



Figure 19 ASQ Problem Solving (ASQ, 2021)

(1) Define the problem, (2) Generate new ideas, (3) Evaluate and select a solution, and (4) Implement and evaluate the results. The ASQ method is in Figure 19.

The SDW does not address problems in accordance with the ASQ method. The ASQ

method is appropriate for addressing problems in which there is a known relationship between cause and effects, and the situation is either static, or at a predictable and identifiable rate of change.

The Cynefin Framework

Exploration on the topic of decision-making led me to a 2007 Harvard Business Review article written by Dave Snowden and Marry Boone titled, “A Leader’s Framework for Decision Making.” The article identifies that “good leadership is not a one-size-fits-all proposition” as some common leadership techniques proven to work in some situations are not effective in all situations, especially ones that are complex, complicated, and even chaotic, (Snowden & Boone, 2007). They propose that leadership should utilize the “Cynefin Framework”, which provides a means for recognition of four possible contexts being experienced, along with individualized techniques to be pursued to either address

the situation directly or mitigate the situation to a lesser degree of context that can be more readily addressed.

Cynefin, (pronounced ku-NEV-in), (Snowden & Boone, 2007) is a Welsh word selected by Snowden in 1999. Cynefin does not directly translation to a singular English word, to infer that the framework, by its own name, signifies an expansion of complexity within the framework. Cynefin has connotations to the English words of habitat, haunt, acquainted and familiar. Snowden describes that “Cynefin” signifies the multiple factors in our environment and our experience that influence us in ways we can never understand, (Snowden D. , 2010).

Snowden describes the Cynefin Framework as a “naturalising sensemaking” model (Snowden & Rancati, 2021) to help identify a full complement of types of problems. “Naturalising” refers to the use of natural science in understanding how humans interact with systems and with each other. The definition of the word “Sense” includes “conveyed”, “intended”, “perception”, “conscious awareness”, or “rationality”, (Merriam-Webster, 2021) which implies the potential for uniqueness of the level of perceived observation by an individual or collective.

Investigation into the term “sense-making” also shows use of either “sensemaking” or “sense making.” Sense-making is a topic within organizational psychology developed in the 1970’s. It has numerous applications in the DoD environment, with particular relevance to joint or coalition operations which are “*complicated by numerous technical, social, organizational, cultural, and operational factors,*” (Wikipedia, 2021).

Sense-making models are defined by Snowden as “how do we make sense of the world so we can act in it”, (Snowden & Rancati, 2021). The SOCOM publication on “Complexity, Organizational Blindness, and the SOCOM Design Way” describe Sensemaking as, “Models designed to enable an individual to conceptualize the nature of the environment in which he or she is situated to determine how best to respond”, (Ellis & Black, 2018).

Army Field Manual (FM) 6-22 Leader Development incorporates the use of the term in a section titled “Cohesive and Effective Teams”:

Paragraph 1-26; “Teams that thoroughly engage in active situation assessment and understanding will have the best information available to work on required tasks. Asking questions and sensemaking are valuable processes for teamwork. Sensemaking is a process of creating meaning of an experience through discussion. Individual experiences and insights have greater value through a collaborative situation assessment. The depth of understanding achieved is pivotal in how the team handles complex problems. Developing accurate assessments and the ability to make precise distinctions comes from teams that are motivated to practice at discussing problems critically.” (U.S. Army, 2015)

One further description of Sense Making:

“The topic has been identified to not only address the five senses of humans; Sight, Sound, Smell, Taste, and Touch, physical, emotional, spiritual, and intuitional responses posited as involved in human sense-makings of their worlds, both internal and external...related to human-computer interaction (HCI), cognitive systems engineering, knowledge management, communication studies, and library/information science (human information behavior)”, (Oxford Bibliographies, 2021).

More typical problem-solving techniques, (such as the ASQ method), use a “categorization” procedure. Information is gathered and then analyzed to select commonly used approaches to address the situation in accordance with the

categorization. It is not uncommon to find yourself in a situation where you may not have access to all the truly pertinent data and/or have a perfectly matched set of solutions. Standard problem-solving techniques do not perform well in complex, multi-dimensional situations, where the perceived information is probably contradictory or has a great deal of uncertainty, (as referenced earlier from the writings of Carl Von Clausewitz). Making sense is surely on the path towards addressing a situation.

Ellis and Black’s paper utilized the Cynefin framework to help first gaining an “appreciation” for the type of problem, or problems, being encountered. Understanding the type of problem will help determine methods for either understanding how to address the problem or potentially actually solving some problem. The rendition of the Cynefin Framework as described at the time of the Ellis and Black paper, along with the current rendition is identified in Figure 20. The current rendition seems to evolve as the topic continues to be exercised and explored, the current rendition comes from the “Cognitive Edge web site”, founded by Snowden, (Snowden D. , The Cynefin Framework, 2021)

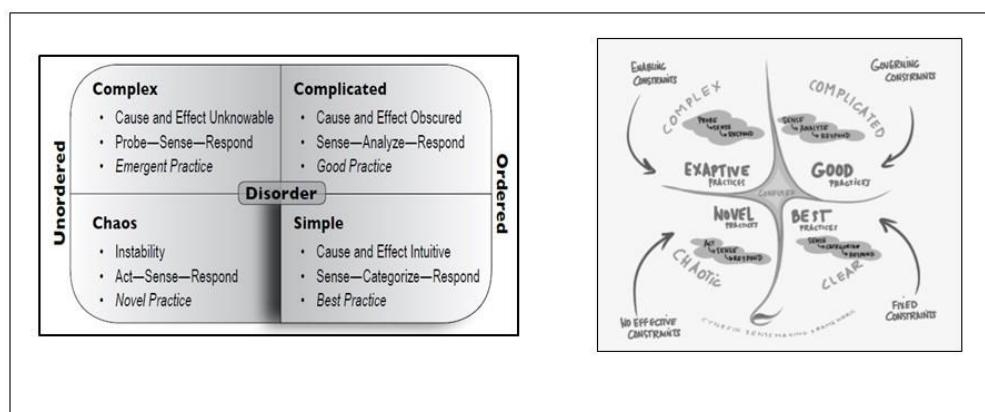


Figure 20 Cynefin Frameworks (Snowden, 2021)

The Cynefin Framework has multiple sections to represent different context of the problem. The goal of using the Cynefin Framework is first to identify where the problem is situated within the framework. Ideally, your situation will fit within one of the identified four primary contexts: (starting in the lower right quadrant and continuing in a counterclockwise rotation) Clear, Complicated, Complex or Chaotic. In the event that you feel that your situation does not align with one of these four, the situation belongs in the center section, identified as “Confused.” Once identified, there are techniques available to address the problem, or de-escalate the problem to a lower-level order, which is easier to resolve.

Programs are required to conduct Risk Management procedures in order to mitigate risk from becoming an issue. Issues may have secondary effects and should be mitigated or avoided. Issues left unmanaged will degrade mission effectiveness and efficiency. Some issues have no solution. When faced with an unresolvable issue, the issue is accepted, and provisions need to address that circumstance.

Earlier editions of the Cynefin Framework also identified use of two sub-divisions, “ordered” was on the right, and “un-ordered” on the left. The current renditions still identify the right-side context (clear and complicated) of being categorized as being in “order” however the left side is no longer categorized together as “un-ordered,” as they deserve their independence as individualized contexts.

Starting on the “Ordered” (right side) of the framework, the two cells share a common attribute that actions to trigger a cause-effect relationship and de-escalate the problem. The observer should have the ability to recognize constraints within the situation that are fixed or at least definable. The primary challenge is to gain awareness

of the situation to know what to do. Another sign that the situation is in the “order” realm, is the recognition of structure in terms of leadership reporting chain, technical data, and established processes and/or procedures. Your action to address this type of situation will have a predictable reaction.

Contingent upon the available information, perspectives, and knowledge of the team’s skill in “gaining an appreciation of the context,” the available information may identify either selection of “Clear” or “Complicated.”

Clear problems have a recognizable and known cause and effect relationships. There are visible constraints, which eliminates needing to figure out a boundless range of uncertainty. The means to address this is to conduct a “Sense-Categorize-Respond” process. The participants observing a clear problem should be able to reach agreement on the known cause and implement a known solution. Mature organizations should have “Best Practice” of Standard Operating Procedures (SOPs) that can be deployed.

Complicated problems are not as identifiable. However, they too have cause-and-effect relationships. There may be a lag in timing between the cause and effect relationship, or the relationship between the two is a little harder to understand without gathering specialized experts into the problem inspection process. A deeper investigation will correlate what is causing the effect.

Complicated context has bounded constraints that are not fixed but have identifiable governing foundations. Identifying this relationship is important as it helps identify the cause-and-effect variables through inspection of the governing control.

Complicated problems will not have well-rehearsed Best Practice / SOP at the ready, but if the participants have a reasonable amount of experience, they should be

able to reach agreement on a “Good Practice” action after conducting a cycle of “Sense-Analyze-Respond.”

The two cells on the left side are more challenging. They will not readily identify with a cause-and-effect relationship. You are not in full awareness of the full set of information. Unlike the “ordered” side, where prescribed procedures can trigger a somewhat predictable cause and effect reaction, the left side contexts are interacting systems and connectivity between identifiable elements are not well defined or evident. The constraints are also not as identifiable as on the “ordered” side.

Paul Cilliers provides a further description between the difference in categorization between complex and complicated. An airplane is a complicated entity, as the entirety of a single airplane has a well-documented set of parts and assembly procedures. A plane in a static state on the runway may be assembled or disassembled and re-assembled again with the proper tools, instructions, and trained staff. Mayonnaise is a good example of something that is complex. Mayonnaise has a defined set of ingredients combined in a predictable proportion. However, once mixed the ingredients cannot be separate again. The final product’s ingredients are “fundamentally changed by the interaction.” In other words, complex systems are subject to coevolution, and once it happens, it is an irreversible new system. (sonjablignaut, 2017).

The investigation of an airplane crash would typically start off more so in a complex context than only a complicated context, as the original state of the airplane has been altered irreversibly due to the cause of the failure, and the resultant impact on the ground or in the water. As the investigation continues, if the effects of the impact can be negated, and as the review of suspected sub-systems are negated to not be of

the initial failure, the investigation may transition from complex to a complicated context, where “best” practices may lead to the root cause and possible responses to avoid the issue on other similar planes.

Complex differs from a chaotic context by having a perceivable emergent pattern, but without an accurate predictability upon initial engagement. Expect that unperceivable elements are at work within the system, and they are driving the observed patterns. Without an incredible expert involvement and awareness, they remain hidden from the observers behind blinders. As such, complex problems are more difficult to address.

Snowden identifies that the complex situation requires a cycle of “Probe-Sense-Respond”, somewhat like a scientific approach of experimentation. Complex situations have constraints; however, they are not clearly identifiable. Complex situations have “Enabling” constraints, which should help bound the selection of probe experimentation. The observer will engage with minor probes of engagement. The observer’s “senses” identify if the situation has either improved or degraded. If the sense is amenable towards a more desired status, repeat the probe with greater volume and energy. If the observed “sense” is a degraded situation, retract the probe, and attempt to reverse the probe’s adverse effects. If no response is apparent, the experimentation of alternate probes should continue until a positive outcome occurs. Ellis and Black write extensively on this mode as it a common entry point for SOCOM activities.

An ideal probe produces an agreeable pattern, or an effect emerged as witnessed by the “sense.” An undesirable probe action is evident by sensing a previous stable pattern begins to grow unstable or a poor effect has emerged.

When an experimental probe shows no reaction, it may be due to the fact that that the action was beyond the enabling constraints, meaning that it did not affect the situation. This identifies the need for additional observers watching for patterns in response to the probe. Complex operations require support that is more specialized.

Being in the complex context means that the organization is not expected to have an off the shelf “Best Practice,” or even a “Good Practice.” Snowden assigns the term “Exaptive” which I interpret to signify application of action to disrupt the situation and/or pattern. The term “Exaptation” comes from biology; the identification of a trait or feature that takes on a new function that differs from its original function. Bird feathers are an example. Prior evolutionary conditions of birds resembled reptiles. The emergence of feathers on some species helps regulate the bird’s temperature. The current version of birds also uses feathers to fly.

Previous editions of the Cynefin Framework, such as the revision used in the Ellis and Black publication, indicated use of “emergent practices” with complex context situations. Emergent infers tailored to the unique situation. Most importantly, they must be controlled / managed to allow for the recognition of the corresponding impact. The current edition has replaced the term “Emergent” with Exaptive” presumably to signify that the probe should change the situation beyond its current observed natural state.

Complex context situations are addressed by continuing the “Probe-Sense-Respond” cycle until the situation improved sufficiently to either become altered to a less context (complicated or simple), where the cause-effect relationship can be addressed more with less experimentation and more experienced practices (Best or Good). The resolution of a complex problem is the identification of the cause-effect

relationship, and critical experience that may help address a similar condition more efficiently, or at best enter the framework on the “order” side.

Chaos is a situation not in a steady, predictable state of action, signifying that it is unstable, and turbulent. Chaos has no determination of logic or order of the recognized parts of the system under inspection and thus not identifiable constraints. When found to be in a chaos context, the recommendation is to pursue a cycle of “Act-Sense-Respond.”

In practice, the primary action is to impose order, quickly to mitigate or reduce the turbulence. If the actions are effective (through sensing), you may have successfully shifted the situation down into a lower level of a problem (from chaos to complex, then from complex to complicated, etc.). If the initial actions were not effective, further experimentation on a wider scale is applied. (Ellis & Black, 2018)

Chaos may require actions that are novel or exploitation of accidents, (Snowden & Rancati, 2021), signifying that trying anything is a reasonable course of action.

The central zone on the Cynefin Framework shows “A/C”, signifying “Aporetic” and “Confused. Aporia means “an expression of real or pretended doubt or uncertainty especially for rhetorical effect, a logical impasse or contradiction.” Confused is defined as “being perplexed or disconcerted, disoriented with regard to one's sense of time, place, or identity,” (Merriam-Webster, 2021).

The importance of the Aporetic / Confused zone as it signifies that the observer needs to begin somewhere. It is realistic to enter a situation and realize that you are immediately unable to identify the context of entry. This does not prescribe that entering an unknown situation is Chaotic, but the initial observations may help identify one of the

four contexts to proceed towards an acceptable resolution. Snowden also identifies the challenge of migrating from a higher context to a lower may put you back into the A/C zone until you observe a change, or not. All four contexts require observation followed by engagement followed by further observation.

The research of this paper and the exploration of the Cynefin Framework is far deeper than documented in this report. Opening one's mind to diverse and divergent appreciations of context is truly a perplexing task. It takes practice, perspective, and support.

In line with the Black and Ellis SOCOM paper, research published under the title of "Fostering Complexity Thinking in Action Research for Change in Social–Ecological Systems" (Rogers, et al., 2013), identifies the foundations behind blinders, and actions to managing wicked problems.

When people are confused by dilemmas, or come face-to-face with uncertainties, their response is determined by the patterns of intellectual behavior upon which they can draw. This implies that people should maintain an awareness of, and make conscious choices about, which patterns of intellectual behavior (habits of mind) are most appropriate to use under which circumstances. A certain level of competency is then required to use, carry out, and sustain the behaviors effectively, and also to reflect upon, evaluate, and modify them for future use under different conditions. Moving one's self, or a group of stakeholders, from one position of competency to another is unlikely to happen unless thinking and doing are bounded by particular intellectual patterns. (Rogers, et al., 2013)

Three "frames of mind" are identified to help the individual gain a potentially more meaningful appreciation of the situation."

- (1) Openness: Be willing to accept, engage and internalize alternative perspectives and paradigms. This challenges the ability to balance current

knowledge with “ambiguity, unpredictability, serendipity, and paradox.” All information feeds resultant gained knowledge.

- (2) Situational Awareness: Continuously gather information across a multi-element perspective identified as Values—Social, Technical, Economic, Environmental, and Political (V-STEEP). This manner has more structure and identifies interdependencies.
- (3) Pursue action or maintain restraint: Assess the risk of either taking action or maintaining restraint. Both options may lead to a further evolution of the situation that may not be accurately predictable, but the decision helps shape the situation towards an intended status.

Additional definition of these three modes follow:

Box 1:

Habits of mind that promote patterns of openness in behavior

- Hold your strong opinions lightly and encourage others to do the same.
- Be prepared to identify and accept the intervention of surprise, serendipity, and epiphany.
- Encounter every person with equal respect, listen for their specific needs, knowledge, and ways of knowing.
- Be open to both/and options.
- Do not reject ambiguity or paradox. They are to be expected and their acceptance as legitimate can often avoid dispute.
- Cultivate, honor, and affirm the legitimacy of multiple perspectives and outcomes. Be ready to chart your way through them to learn about multiple legitimate outcomes: there are many ways of skinning the cat.
- Accept everyone as co-learners, not experts or competitors.
- Encourage cooperation and consensus: the best way to get what you need is to help others get what they need.

Box 2:

Habits of mind that promote patterns of situational awareness in behavior

- Discern when a change is sufficient to require renegotiation or review.
- Consider the importance of relationships and interactions between entities and not just the entities themselves.
- Become conscious of and accept change agents and processes.
- Be time and place specific: without it you cannot properly identify the appropriate context or define problems and solutions.
- Be aware of contingencies, scale, and history: they all play a role in mapping the present and the future.
- Surface the collective principles and values that will bound decision situations and help keep decision making consistent from one context to the next.
- Use these principles to guide decision making, rather than relying on facts and numbers, which will change with context.
- Reflect often: formally, informally, individually, and collectively.

Box 3:

Habits of mind that promote patterns of a healthy respect for the restraint/action paradox

Decisiveness/willingness to act under tension

- Encourage courage. Do not be afraid of intelligent mistakes.
- Avoid paralysis from the paranoia of omission, and/or fear of simplicity.
- Have the courage to seize the just-do-it moment.
- Accept that there is no one right place to start or end.
- Do so when it is sensible and useful.
- Have courage to take action from which you can learn.
- Even mistakes lead to learning.
- Cultivate an awareness of the natural inclination to avoid discomfort and have the courage to push beyond it.

Restraint under tension

- I Discern when to trust the facilitation process and stand back quietly, giving the group dynamic space and allowing emergence.
- Avoid premature convergence—avoid being too quick to make judgments and choices. Keep options on the table long past their apparent usefulness. Many will find context later in the process.
- Avoid overconfidence about being ready to take action in a data-driven “predict and act” mode.
- Know when to rest. Open and participatory engagement exposes vulnerabilities, requires humility, and takes energy
- Getting ahead of the game leaves participants unsettled and opens opportunities for dissent. Provide participants ample time for healing and replenishment.

McCue's paper, "The Impact of Decision-Making Theory on the Department of Defense's Acquisition Process for the Procurement of Major Weapon Systems," (McCue, 2003), documents a significant history on the theories of decision-making, with an obvious focus on DoD Acquisition that he describes as a "quasi-scientific decision-making process that swims in a sea of political change." (McCue, 2003). McCue identifies the DoD acquisition decision-making process has two primary goals, to provide equipment for military capabilities and "maintain the industrial flexibility and innovation potential."

McCue identifies the multitude of external influences that add into the decision-making process to include Congress and the annual budgeting process, conflicts around the globe, foreign political upheaval and change in status of power, and the economy. Closer to the actual decision makers are dynamic influences internal to the DoD who have control that can be modified to change, (ideally improve), the decision making process and outcomes.

Research of decision-making identifies ties to Max Weber's writing on bureaucracy as a "system of authority relationships defined by rationally developed rules" (Chandler, 1988), and individual's rationalization consider the means, ends and consequences of decisions and actions from their perspective. The perception of "rational" will vary throughout any organization or when used to communicate to other organizations. A convincing proposition, clear analysis or tie to an analogous condition may translate the rationalization beyond your group.

McCue discusses other factors that influence individuals' decision-making mindset is the availability, accuracy and comprehension of data and information. Lack of information and other aspects of uncertainty can also impose a challenge into the decision-making process. Attempt to gain an understanding of the amount of uncertainty through taking stock of the availability of desired information. Awareness of uncertainty helps shape the action to implement the decision.

At times, the most "rational" decision will be one made for the sake of making a timely decision, without sufficient information to make it an exceptionally effective decision. Often not making a decision would lead to an exceptionally dire situation, thus it is generally thought better to make a timely decision based on the information on hand than wait to be in receipt of all possible information.

McCue also references a paper titled "Inside Bureaucracy," (Downs, 1964), which discusses several topics as related to the effectiveness and efficiency of bureaucracies. Some key topics include:

- How "rational" decisions are subject to individuals' self-perceptions, needs, position of authority and bias, not always in an altruistic manner for the organization
- The quality and quantity of information degrades as it travels out and upward between its source and the decision maker. Decision at high levels of leadership is typically very concise and limited to only the important facts, as determined by the final gate keeper. Each transfer point is an opportunity for re-shaping of the narrative to apply his or her own perspective or potentially personal interests. The result in that the decision maker may not have all of the facts available for the decision.

Coinciding with the growth of technology included the means to improve the collection, storage, sharing and conducting analytical procedures on data. The improperly collection of data can easily occur. This results in a condition where flawed

information being fed into analysis algorithms that will process the information regardless of its validity. Throughout much of a data set's life, good data looks identical to bad data. Details about how the data was collected, and circumstantial aspects occurring when the data was collected may be critical, and are often not recorded. The method, type and collection techniques must align with the intended needs. Before initiating the full data capturing activity, collect and process samples for verification.

The ability to collect nearly an unbounded amount of data is helpful to feed into the analysis activity, but it also offers the challenge of potentially overloading the analysis process. "Paralysis by Analysis" is a phrase often used at the middle to upper levels of leadership, when confronted with an overload of information. Too much analysis provides the opportunity to broaden the spectrum of information far beyond the most important aspect or may allow a team to turn an expected few days of activity to drag into several weeks, (or months). Either situation may delay the ability to make timely decisions.

The growth in technology also coincides with the increased complexity of systems and the ability to interface multiple complex systems together. The collective benefit of a widely integrated system-of-systems offers the potential to collect, share, and make decisions from an incredibly wide spectrum of sources. The delicate act of coordinating multiple development programs in a synchronous manner is an incredible challenging activity.

The Massachusetts Institute of Technology's Sloan Management Review published a relevant research feature titled "Between "Paralysis by Analysis" and Extinction by Instinct," (Langley, 1995). Langley's research on making better decisions reached the

finding that the systematic study of issues identifies that “unaided human judgement is frequently flawed.”

A basic understanding of cognitive psychology identifies that an individual's cognitive construct leads him/her to a preference for either intuitive or analytical thinking. Many intuitive decisions can be heavily swayed by an individual's recent or memorable events, most are not able to accurately predict the role of chance, and dependent upon their personality and mindset, can either allow their pessimism or optimism to override facts and go with their “gut feel.” When the individuals vested with the authority to “make the rational decision” act with their “gut feel” and in a hasty manner with incomplete access to information or comprehension of the information, it has been described as setting the stage for potential “Extinction by Instinct.”

Langley's analysis of “In Search of Excellence” (Peters & Waterman, 1982) identified that formal analysis has a bias towards negative responses. Perceived comparable analysis often is not fully adaptable to real life conditions, is not able to discern non-quantifiable data. The desire to conduct analysis often leads to a collection of an exceptionally large amount of information that cannot be easily transformed into meaningful knowledge and support a decision. “Paralysis by Analysis,” is a situation commonly reached by people with a cognitive style preference of analytical thinking. Some enjoy the hunt, more so than the resultant dinner, as described by gathering an unbounded amount of data followed by a limitless means for studying it and have less regard for reaching a conclusion, assessment, or decision.

Given the need to make a rational decision, conditions often occur to either have truly little analysis or be overwhelmed with a lot of multi-dimensional analysis that does not lead to positions to support any decision.

The source for decisions was a theme of a study conducted by Langley in three types of organizations over two years (Langley, 1989). Her research reviewed 183 decisions and found several interesting perspectives.

- Formal analysis was conducted to support four primary intents
 - Information: to gain a better understanding of issues or gain a “sense” of the organization on a topic
 - Communication: to provide additional information to convince others of their formulated position
 - Direction and control: to solve a specific problem or to develop an implementation plan for a decision
 - Symbolic: to legitimize activities justify the rationalization of a decision, to impress others either within or outside the organization
- Analysis commonly follows the engagement of three elements the “Initiator” who called for the study, the “Executor” who performed the study and the “Target” who was provided the results. The organizational information simplified the organization to three individuals involved in the activity: a manager, a line person who reports to the manager, and supporting staff that directly serves the manager or the line manager’s staff. Only six combinations of the possible total set of 27 occurred. Management initiated and received studies, but did not execute them. The line and support staff performed all three actions.
- Most decisions had little to no study or analysis, and only a small percentage of decisions had major analysis.
- My take on Langley’s conclusion is that the amount of analysis conducted in an organization is not an indicator of being more rational. It reflects that the

organization has multiple groups that share a behavior to either offer their analysis, request others' analysis or be directed to conduct analysis. This maintains the harmony throughout the diverse groups within the organization. It is a promising idea that organizations should expect this type of behavior and should develop preferred standards, methods, and tools in place to support analysis and the findings for further dissemination. Disparity in the means of conducting analysis throughout an organization will result in friction between groups.

Given the realities of daily program execution, I recognize that most decisions do not wait for the optimal analysis results. Given the use of military decision standards, and discipline within the organization, and the fact that the majority of managers at one point either were in an operational unit or conducted hands on engineering or business analysis earlier in their careers may suggest why many daily decisions do not depend upon a significant amount of analysis. Significant decisions, such as initiating a program of record, transitioning into production, or fielding a system require an intense amount of analysis, collaboration, and debate.

My summary point on decision-making.

- It is important to be concise, factual, and timely in reporting to your leadership.
- It is best to present your own information to the actual decision maker. This commonly is not an allowable option. It is critically important to be aware of and inform the stakeholders that form a chain between yourself and the ultimate decision maker.
- Leadership has the opportunity to request or receive analysis on data available to studies, however that data and its analysis may not always sway the final decision
- Data collection and analysis consumes resources; when needed, the means and methods must be applicable and aligned to the need

- Conducting analysis does not immediately signify rationalization
- Decision needs to be made to make progress

“The best is the enemy of good. By this I mean that a good plan violently executed now is better than a perfect plan next week.” (General George S. Patton, 1885-1945)

Leadership Points Down and Upwards

A common definition of Leadership is “the ability to inspire confidence and support among the people who are needed to achieve organizational goals,” (DuBrin, 2018).

Building relationships is a critical aspect of being a successful leader. Good relationships foster the establishment and growth of trust, sharing of knowledge and commitment. Trust, knowledge, and commitment cannot be surged when needed. An accepted best practice from numerous leadership engagement to build and maintain relationships before challenging situations occur and you have an established relationship to communicate, collaborate and work together on a shared agenda.

Leadership and management stages below and above your position are part of your successful business relationship. This will aid in maintaining that accurate and timely information does not change as it travels down through the organization, or up to your leadership. Requesting desk side discussions with the stakeholders is one technique to maintain connectivity throughout the staffing process. Most leadership will offer time to understand the situation and will offer guidance from their current perspective. Perspectives change according to the level of the organization’s position within the leadership change.

Leadership skills do not only point downwards on the organizational chart to the individuals working the details daily. Occasionally your skills of leadership influence point upwards to your own leadership to support the program's forward progress. Most organizations' leadership are also usually very willing to support maintaining connectivity with the stakeholders who have an opportunity to support the progress of your program. "Leading Up and Down the Chain of Command" is the title in the book "Extreme Ownership," in which this point is described. The success of organization or program goal needs leadership applied towards both your team, and the key stakeholders who hold the authority to staff and/or approve requests and make programmatic decisions. As stated in the referenced book, "Leading up the chain of command requires tactful engagement with the immediate boss (or in military terms, higher headquarters) to obtain the decision and support necessary to enable your team to accomplish its mission..." (Willink & Babin, 2018)

[The New Acquisition Framework](#)

The 2020 release of DoD Directive 5000.01 "The Defense Acquisition System", (Office of the Under Secretary of Defense for Acquisition and Sustainment, 2020) is a significant revision that provides a more clearly articulated set of acquisition processes.

It should be pointed out that the last revision of this document (August 2018), (USD(AT&L), 2018) and the related supporting documents such as DoD Instruction 5000.02 "Operation of the Defense Acquisition System" were clearly aligned toward the current 2020 revision with numerous identifications of "flexibility and tailoring":

- DODD 5000.01 – 2020 Section 4, Policy – paragraph 4.3.1. Flexibility. There is no one best way to structure an acquisition program to accomplish the objective of the Defense Acquisition System. MDAs and PMs shall tailor program strategies and oversight, including documentation of program information, acquisition phases, the timing and scope of decision reviews, and decision levels, to fit the particular conditions of that program, consistent with applicable laws and regulations and the time sensitivity of the capability need.
- DoDI 5000.02 “Operation of the Defense Acquisition System” (OSD, 2018) includes the term “tailor” 45 times, to include on the initial page in the section titled “Purpose”:
 - *Authorizes Milestone Decision Authorities (MDAs) to tailor the regulatory requirements and acquisition procedures in this instruction to more efficiently achieve program objectives, consistent with statutory requirements ...*
 - *The structure of a DoD acquisition program and the procedure used should be tailored as much as possible to the characteristics of the product being acquired, and to the totality of circumstances associated with the program including operational urgency and risk factors.*
 - (a) MDAs will tailor program strategies and oversight, including program information, acquisition phase content, the timing and scope of decision reviews and decision levels, based on the specifics of the product being acquired, including complexity, risk factors, and required timelines to satisfy validated capability requirements.*
 - (b) When there is a strong threat-based or operationally driven need to field a capability solution in the shortest time, MDAs are authorized to implement streamlined procedures designed to accelerate acquisition system responsiveness. Statutory requirements will be complied with, unless waived in accordance with relevant provisions.*
 - (c) In accordance with Section 806 of Public Law 114-92 (Reference (d)), the Secretary of Defense may waive acquisition law or*

regulation to acquire a capability that would not otherwise be available to the DoD Components.

A cursory review of recently published 2020 edition of DoD Instruction 5000.02, “Operation of the Adaptive Acquisition Framework,” identifies that instead of defining a “one form fits all”, now programs have the ability to pursue a more authorized, but tailored approach. The current edition appears to offer acquisition programs with the ability to select from an established set of options to follow, with the allowance to tailor as proposed and approved.

As of the writing of this paper, full release suite of DoD and Army acquisition governance and policies remain under revision. The current revision is critically important and identifies a significant start of a new phase of acquisition reform and improvement, i.e., change.

Chapter 5 – Conclusions

This paper’s research identified several sources of change applied towards the Army’s Acquisition activity. The discovery and discussion on a number of themes, along with numerous theories and practices offers an opportunity to improve the effectiveness and efficiency the readers’ organization or activities.

This research led to a focus on gaining a better understanding of aspects that lead to change within the acquisition process, as well as a much deeper inspection than planned on associated research and theories on implementing change, decision making and addressing problems. Change can come from various sources on a cyclic schedule, in response to causation, or from a need to adapt to external transformation direction.

This requires the ability to frame, categorize, and prepare for proactive or reactive courses of action.

Some summary points;

- Change will occur;
 - All members of the acquisition community need to maintain currency on the numerous Acquisition related publications from within the service, from OSD, DAU and Congress.
 - Change occasionally occurs due to leadership's perspectives and perceptions that may not be readily apparent.
 - Frequent changes occur on a scheduled cyclic release, such as from within the annual NDAA, with the change of administration, and release of the National Defense Strategy.
 - Change is enacted to support the service when the Army is called to go to war, or after the de-escalation following conflict.
 - Directed change to your program occurs as you approach a major decision such as entry to production that will initiate consumption of a significant amount of budget, or due to issues of a program that has interdependency with yours.
- It is important to attempt to understand the rationalization behind the "why" for the need for this change. Understand the rationalization behind the change will help you focus efforts to support its implementation. Not understanding the need for change is due to blinders inserted by yourself, your organization, or external influences. Gather information from as many alternate viewpoints as possible to

pursue potential opportunities to transform from “the impacted” to “the adapted.”

Understanding the need for change is not always clear. When directed, its support and implementation is important.

- Supporting the implementation of change affords opportunities to make improvements within your program. Consider some of the theories provided in this paper, and along with further research on your own. Some goals for consideration; (1) simplicity beats complexity, (2) intense management of your responsibilities includes identification and mitigation of challenges, (3) apply critical and creative thinking to develop and implement “rational decisions,” and (4) stay focused and coordinated with the service and local organizational mission and vision.
- It is also important to consider, and collect metrics on your organizational operations, beyond the standard reporting requested by headquarters. This will consume valuable program resources, so consider this action carefully. The metrics should have a clear contributing tie towards measuring effectivity and efficiency. Some efforts are relatively short in-duration (such as preparing for a review, developing a contract modification, manufacturing the initial sets of prototypes); others will last throughout the entire program execution. Reviewing and reacting to program operational metrics may help your program stay on the baseline path before external groups conduct their own analysis.
- Practice of the Cynefin Framework should help categorize the types of current or anticipated problems, as well as begin implementation of corrective actions.

Review and exercise the Army Design Method and the SOCOM Design Way.

Both offer unique perspectives that will add depth and breadth to the evaluation, development, and implementation of courses of action.

- Invest your and your team's time to conduct research to further explore the theories found in this paper to conduct you own journey of discovery, self-reflection, and application. Of particular interest:
 - John Kotter (Organizational Transformation)
 - Dan Ward (Acquisition reform and routing out complexity)
 - Ellis and Black (Complexity and the SOCOM Design Way)
 - Dave Snowden (Cynefin Framework)
 - ADP 6-22 Army Leadership and the Profession and FM 6-22 Leadership (multiple skills and knowledge)

Recommendations for Future Research

(1) AFC's efficiency and effectiveness

The measure of transformation effectivity are measured through an assessment of results. Independent analysis should review program cost, schedule and performance metrics, quick wins, and lessons learned from the AFC's CFT modernization activities. The unique organizational approach and streamlined acquisition process offer an opportunity to identify behaviors transferable to traditional Program of Records. Of particular interest are:

- The CFT organizational approach
- The revised requirements generation process
- How large-scale S&T activities may reduce the subsequent development activity
- Collaboration in planning, executing and evaluating test and evaluation activities
- Program cost, schedule and performance estimating and execution
- The coordination and collaboration between AFC, AMC, and ASA(AL&T)

(2) GAO Analysis

The availability of time limited my personal research on the analysis published by GAO who provides a perpetual delivery of analysis related to acquisition activity.

Numerous topics within this paper are explored in published GAO reports. Follow-on research from the review of the GAO perspective may identify additional applicable aspects worthy of follow-on research.

Samples include:

- GAO-03-669 Results-Oriented Cultures: Implementation Steps to Assist Mergers and Organizational Transformations (GAO, 2003),
- GAO-17-309 Weapon Systems: Prototyping Has Benefited Acquisition Programs but More Can Be Done to Support Innovation Initiatives
- GAO-19-132 Army modernization: Steps Needed to Ensure Army Futures Command Fully Applies Leading Practices
- GAO 20-439 Drive to Deliver Capabilities Faster Increases Importance of Program Knowledge and Consistent Data for Oversight
- GAO's annual report on Major Weapon System Acquisition. (The 2020 report is GAO-20-439)

(3) Analysis of the effectivity of Congressional Acquisition reform.

Congress provides the statutory governance of the acquisition activity. Reviewed legislative language covers the gamut from preventing deficient performance from continuing to supporting innovative opportunities. Legislation also both increases and decreases delivery of reports and analysis to Congress. The allocated time for this paper supported a cursory review of several Congressional Acts and NDAA language but did not allow for a deep inspection into this topic. Two sources were identified that may offer a starting point for follow-on research.

- a. The summer 1999 publication of Acquisition Review Quarterly, an article titled; *“The Impact of the Packard Commission's Recommendations on Reducing Cost Overruns on Defense Acquisition Contracts”*, (Christensen, Searle, & Vickery, 1999), *reached the conclusion that acquisition reform initiatives enacted between 1960 through 1990 allowed for continuous contract cost growth averaging ~20%. A focused inspection of 269 contracts during implementation of the Packard Commission findings, (1988-1995) continued this trend. The article leverages numerous GAO reports as well as a RAND study, “An Analysis of Weapon System Cost Growth*, (Drezner, Jarvaise, Hess, Hough, & Norton, 1993).
- A potential hypothesis: With extraordinary growth in technology and the need to interface systems together has grown at a rate much grander than the methods used to estimate (or is it guestimate?) the initial program cost and schedule baseline, is the continuous control measures being applied through legislative potentially mitigating program cost growths of 30-40%?
- b. Given the continued generation of, and overlapping implementation of numerous reform legislation, it would be interesting to attempt to find correlations between legislation that can be identified to be effective in implementation vs not. A potential starting point would be to conduct additional analysis on the NDAA “Section VIII” provisions. Each year has a mix of both additive requirements and relief to prior legislation.

Closing Remarks

Leveraging the body of knowledge that preceded today and contributing toward the current knowledge base has been extremely rewarding. The research included deep self-inspection and encouraged the gathering of information from a very wide range of sources and topics. I believe that that I have obtained partial knowledge on many topics, though continued development and practice is required.

Leaders, support your team's self-development through the engaging exercise of challenges, improvement, failure, and success. Pursue formulating and implementing opportunities to improve the acquisition community, and in a word, change.

APPENDIX A – ACRONYMS

AAE	Arm Acquisition Executive
AAW	Army Acquisition Workforce
AC	Armaments Center
ACAT	Acquisition Category
AD	Army Directive
ADM	Acquisition Decision Memorandum
ADP	Army Doctrine Publication
AFB	Air Force Base
AFC	Army Futures Command
AL	Alabama
AMC	Army Materiel Command
AMD	Air and Missile Defense
AMS	Army Modernization Strategy
AMSAA	Army Materiel Systems Analysis Activity
APB	Acquisition Program Baseline
AR	Army Regulation
ARCIC	Army Capabilities Integration Center
ASA (AT&L)	Assistant Secretary of the Army for Acquisition, Logistics and Technology
ASC	Acquisition Support Center
ASQ	American Society for Quality
ATL	Acquisition Technology and Logistics
ATP	Army Technical Publication
BCT	Brigade Combat Team
BY	Base Year
CA	California
CAPE	Cost Analysis Performance Evaluation
CCDC	Combat Capabilities Development Command
CDID	Capability Development Integration Directorate
CEO	Chief Executive Officer
CER	Cost Estimating Relationship
CFT	Cross Functional Team
CG	Commanding General
CMR	Conditional Materiel Release
COA	Course of Action
CP	Command Post
CSA	Chief of Staff, Army
CTO	Combined Test Organization
DA	Department of the Army

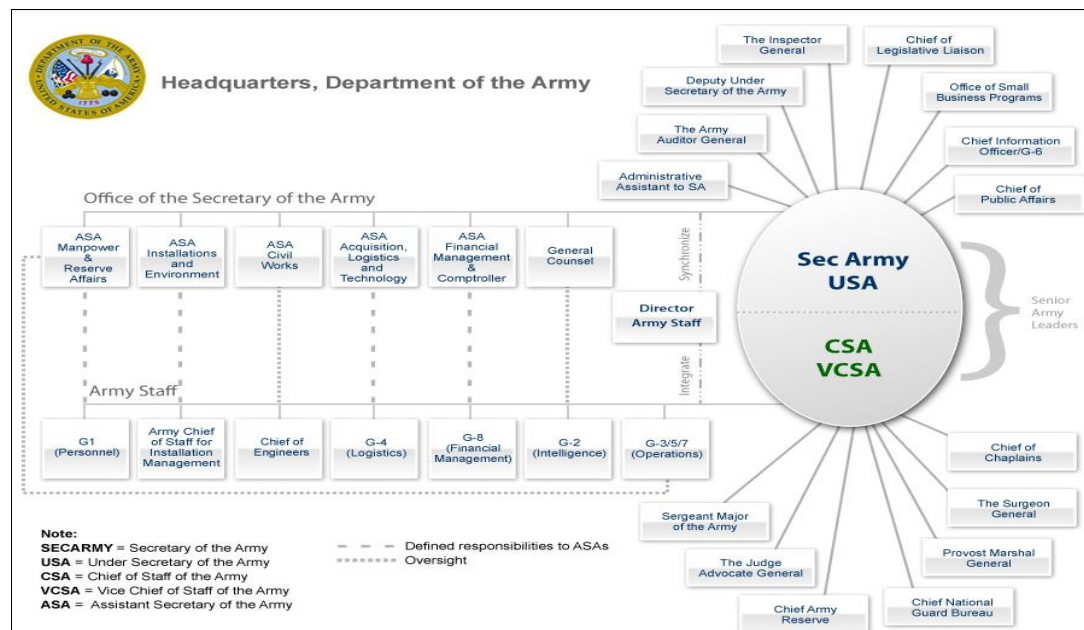
DACM	Director, Acquisition Career Management
DAG	Defense Acquisition Guide
DARPA	Defense Advanced Research Projects Agency
DASA(CE)	Department of the Army for Cost and Economics
DAU	Defense Acquisition University
DAWIA	Defense Acquisition Workforce Improvement Act
DC	District of Columbia
DoD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
DOT	Director of Test
DVD	Digital Video Disk
DWAWIA	Defense Acquisition Workforce Improvement Act
EBSCO	Elton B. Stephens Company
EVM	Earned Value Management
<i>F.I.S.T.</i>	Fast Inexpensive Simple and Tiny
FACNET	Federal Acquisition Computer Network
FAR	Federal Acquisition Regulation
FASA	Federal Acquisition Streamlining Act
FCS	Future Combat System
FID	Foreign Internal Defense
FM	Field Manual
FMR	Full Material Release
FVL	Future Vertical Lift
FY	Fiscal Year
GAO	Government Accountability Office
GEN	General
GM	General Manager
GO	General Orders
GWOT	Global War on Terrorism
HCI	Human-Computer Interaction
HQDA	Headquarters, Department of the Army
<i>HR</i>	House Resolution (Congress House of Representatives)
IAW	In Accordance With
<i>IBM</i>	International Business Machines
IED	Improved Explosive Device
IPT	Integrated Product Team
IRT	In Regard to
IV	Roman Numeral - Four
JCIDS	Joint Capabilities Integration Development System

JPEO	Joint Program Executive Officer
JRC	Joint Research Centre (European Union Organization)
LRPF	Long Range Precision Fires
LSAT	Law School Admission Test
LSI	Lead System Integrator
LTG	Lieutenant General
MA	Massachusetts
MCAT	Medical College Admissions Test
MDA	Milestone Decision Authority
MDID	Milestone Document Identification
MDO	Multi-Domain Operations
MIT	Massachusetts Institute of Technology
MRAP	Mine Resistant Ambush Protected
MS	New Jersey
MRRB	Material Release Risk Management Board
NDAA	National Defense Authorization Act
NGCV	Next Generation Combat Vehicle
NJ	New Jersey
NPR	National Public Radio
NPS	Naval Postgraduate School
NRP	National Public Radio
OMB	Office of Management and Budget
OSD	Office of the Secretary of Defense
OUSD	Office of the Under Secretary of Defense
PEO	Program Executive Officer
PLAW	Public Law
PM	Program Manager
PNT	Precision Time and Navigation
POGO	Project On Government Oversight
POR	Program of Record
PPBE	Planning, Programming, Budget and Execution
PQ	ProQuest
RDECOM	Research Development Engineering Command
SAR	Selected Acquisition Report
SAT	Standard Aptitude Test
SDW	SOCOM Design Way
SL	Soldier Lethality
SOC	Special Test Equipment
SOCOM	Special Operational Forces Command
SOF	Special Operational Force

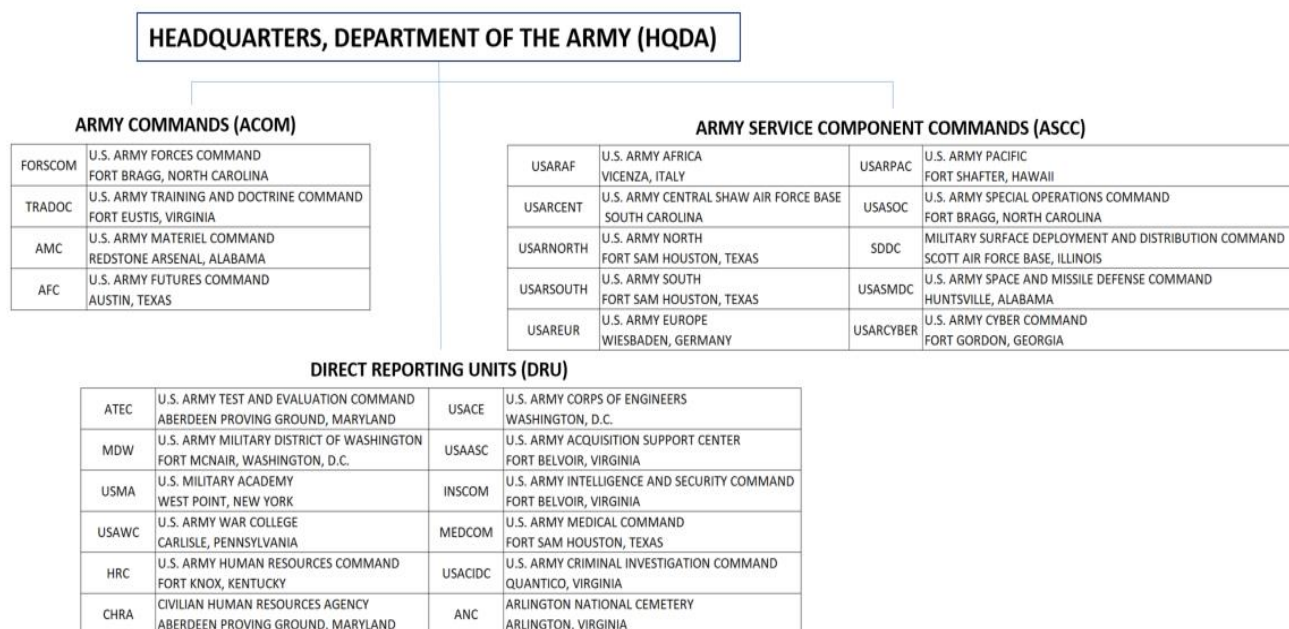
<i>SOF(ATL)</i>	Special Operational Forces Command, Acquisition Technology and Logistics
SOP	Standard Operational Procedures
SSCF	Senior Service College Fellowship
STE	Synthetic Training Environment
TRAC	TRADOC Analysis Center
TRADOC	Training and Doctrine Command
TRL	Technology Readiness Level
UAV	Unmanned Air Vehicle
UMR	Urgent Materiel Release
US	United States
USA	United States Army
USAASC	U.S. Army Acquisition Support Center
<i>USC</i>	United States Code
USD	Under Secretary for Defense
USMC	United States Marine Corp
USSOC	United States Special Operations Command
USSOCOM	United States Special Operations Command
VA	Virginia
VIII	Roman Numeral - Eight
V-STEEP	Values - Social, Technical, Economic, Environmental, and Political
VIII	Roman Numeral - Eight
WSAR	Weapon System Acquisition Reform Act
WW	World War

APPENDIX B – Army Acquisition Organizational Information Army Command Structure.

Figure 1 shows a representative organizational chart for HQDA, (US Army, 2021)



The Army Command structure (U.S. Army, 2020) is comprised of a Headquarters, with three reporting elements: Army Commands, Army Service Component Commands, and Direct Reporting Units.



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