Implementing Enterprise Lean
A Look at Ogden Air Logistics Center

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EXECUTIVE SUMMARY

This paper documents the enterprise-wide lean implementation effort at Ogden Air Logistics Center, Hill Air Force Base, Utah, and provides lessons learned for future application. Under the banner of transformation, Ogden started their enterprise lean journey in November 2003 with the Lean Aerospace Initiative (LAI) and their industry consortium members facilitating as a strategic coach. The framework for their strategy finished in June 2004. As background, the first part of the paper is dedicated to understanding the influences (geo-political, legislative, private industry/academia) affecting transformation within the Department of Defense and specific change initiatives at Air Force Materiel Command. The latter sections describe the change process itself at Ogden.

The Enterprise Value Stream Analysis & Mapping (EVSMA) tool and processes contained within were used in developing the overarching plan for long-term, continuous improvement at Ogden. The tool was developed by LAI and consists of a series of incremental steps that takes one from the current state of a defined enterprise to the vision for the future lean state. It takes the practice of value stream mapping out to the enterprise level and provides a method for analyzing/improving performance and integrating strategic objectives and stakeholder interests. In contrast with traditional value stream mapping that typically focuses on a single product or process, EVSMA cuts across multiple stakeholders, products and processes. Ogden was the first large enterprise to apply the tool and as such, provided an ideal learning laboratory.

Several lessons on change implementation and the EVSMA process itself were learned or reinforced during the last eight months. Key among these are:
- *Senior leadership needs to be fully engaged and directly sponsor the change initiative.* Additionally, the leadership team deriving the strategic framework needs to be comprised of respected individuals from across functional and product organizations.
- *Joint learning between facilitators and leadership is crucial in tailoring the change initiative to the enterprise*. Because of the size and complexity of nearly all enterprises, improvement tools and processes need to be modified to meet the unique environment of the organization. This can only happen in an atmosphere of collaboration and learning between facilitators and leadership.
- *Need to stick to the compressed schedule stated in the EVSMA guide.* Extending the schedule from three to six months resulted in a loss of team energy and focus. This is an especially important lesson in an environment with high leadership turnover such as the Air Force.

- *Facilitators need to better focus the leadership team on the specific task and drive task to completion.* Valuable time was spent in some sessions completing tasks from previous steps, pushing the schedule back and losing momentum.
- *Need a comprehensive, written plan on how to hire, train, certify, and employ internal lean experts.* While Ogden did consider these elements, internal lean experts wasted valuable time attempting to understand how they inter-related with a process they did not create. Additionally, lean experts were on their own to determine how their "tactical" efforts tied in with the "strategic".
- *Insure that a knowledgeable person is assigned the sole job of documenting key events and progress.* The team lost focus at times attempting to recreate events from memory. Documenting the process also allows others to capture the critical thought patterns that went into the process and apply it to other enterprise efforts.
- *Identify requirements and start compiling required data early in the process.* Detailed system performance, financial, and manpower data was collected at step four of the EVSMA process per the guide. However, because of the myriad of data systems involved, the collection effort took many weeks to get to the "80% solution" level. Once compiled, too little time was spent reviewing the data and interpreting its meaning due to schedule constraints.

Ogden's vision ten years into the future includes several ambitious goals: weapon system availability at 90% or better, 50% reduction in flow days, 25% reduction in cost, and readiness supported at 100%. It is way too early in the process to determine whether or not Ogden will meet these targets. However, looking solely at their effort in establishing the strategic framework, one can state reasonably that Ogden was successful. A comprehensive framework for change was established with complete senior leadership buy-in. The hard part of their journey yet remains – implementation and quantifiable results.

Introduction, Definitions, and Data Collection Methods

The primary purpose of this paper is to document the enterprise-wide lean implementation effort at Ogden Air Logistics Center and to provide lessons learned for future application. Ogden started their enterprise lean journey in November 2003 under the coaching of the Lean Aerospace Initiative (LAI) and their consortium members. The framework for their strategy finished in June 2004. This paper focuses on this time period. However, to better appreciate Ogden's approach, the first part of the paper is dedicated to understanding transformation within Ogden's broader environment -- Air Force Material Command (AFMC), headquarters Air Force (AF), Department of Defense (DoD), and the federal government. All these entities have impacted Ogden in their strive towards becoming a world class depot.

A few terms used considerably throughout this text should be defined upfront for proper context. "Transformation", "change", and "continuous improvement" are used for the most part interchangeably not because of the author's preference, but because of the broad use (and often misuse) of these terms within the DoD. The dictionary definition of transformation is "a complete change, usually into something with an improved appearance or usefulness". The key word is "complete" -- very few DoD processes or organizations truly change completely nor is it leadership's intention to change them completely when they use the word transformation. The more correct word to use is change (for a one-time effort, such as re-engineering a process or organization) or continuous improvement (for constantly striving to improve a particular process or organization).

The organizational entity of LAI consists of staff members, stakeholder directors, research assistants, and consortium members. When LAI is referenced in this document, it's being used in its broadest term unless otherwise denoted.

Data for this research was collected through the following sources:
- Interviews with Executive Leadership Team (ELT) members at Ogden over two sessions in May and June 2004
- Interviews with key personnel (Colonel/GS-15 level) involved with transformation at AFMC
- Literature search through open sources
- First-hand knowledge of the author

The Enterprise -- Ogden Air Logistics Center

Located on Hill Air Force Base (AFB), Ogden ALC is one of three ALCs in the AF responsible for depot maintenance, supply chain management, and acquisition of selected systems used throughout the AF and DoD. Some of the major systems supported are the F-16, C-130, and A-10 aircraft; Intercontinental Ballistic Missile (ICBM) fleet; and landing gear, wheels and brakes. Other systems supported include rocket motors, air munitions and guided bombs, photonics equipment, training devices, avionics, instruments, hydraulics, software, space and C3I (command, control, communications, & intelligence) and other aerospace related components. More than 500 aircraft and 62,500 end items are overhauled annually along with 36,500 electronic/instrument, 21,000 avionics, and 5,000 generator/rewind/component items. Ogden's customers include other major commands (Air Combat Command, Air Education & Training Command, United States Air Forces in Europe Command, etc.), Unified Commands (Central Command, Pacific Command, etc.), and the other armed services. Attachment 1 displays the ALC's organizational chart.

Hill AFB is located at the base of the Wasatch Mountain Range in Ogden, Utah. It's located on nearly 6,700 acres of land and has over 1,400 building and 13 million square feet of floor space. With 23,000 people (13,000 civilian; 4,700 military; 3,700 contractors; 1,600 reservists) working on the base on any given day, Hill is the largest employer in the state with an annual payroll of $750 million. The host organization at Hill is the Ogden ALC with the 75th Air Base Wing providing mission support. Several large tenants also reside on base, the two largest being the 388th Fighter Wing (active duty) and the 419th Fighter Wing (reserve)] flying the F-16 Falcon aircraft.[1]

Figure 1 Ogden ALC Reporting Relationship

Ogden reports to Air Force Material Command (AFMC), the major command responsible for acquisition and sustainment of all systems in the AF. AFMC reports directly to the AF Chief of Staff. Functionally, however, AFMC primarily reports and receives policy from two higher headquarters staff agencies -- the Assistant
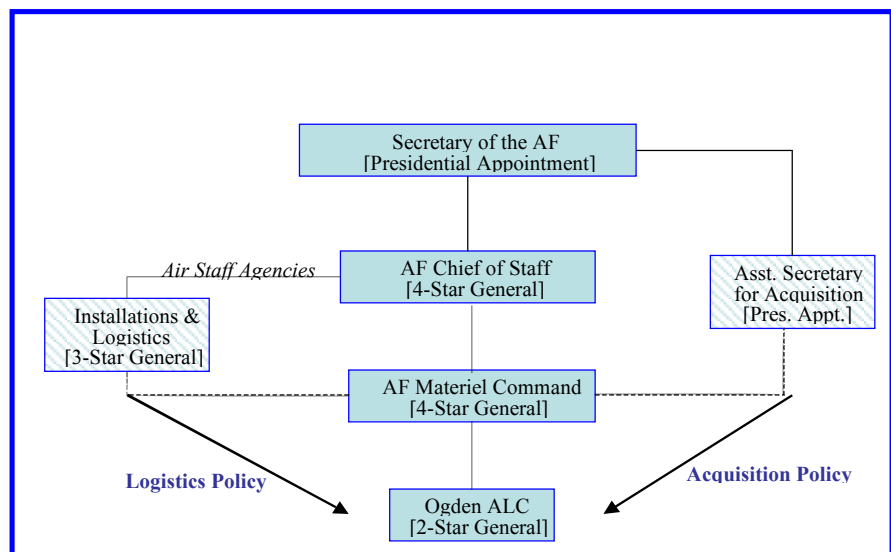
Secretary for Acquisition (SAF/AQ) for acquisition workload and the Director of Installations & Logistics (AF/IL) for sustainment-related workload.

Ogden ALC, like its parent command AFMC, wears two hats -- one for sustainment and the other for acquisition. To illustrate, the F-16 System Program Office resides at the Aeronautical Systems Center (ASC) at Wright Patterson Air Force Base where a majority of its system upgrades and improvements are managed. System support -- depot-level overhaul, maintenance and repair policy, etc -- is carried out at Ogden. Acquisition of reliability and maintainability improvements to the aircraft and support systems is also performed at Ogden. The System Support Manager (SSM) at Ogden reports to the System Program Director (SPD) at ASC who reports to the Program Executive Officer (PEO) at ASC who reports to SAF/AQ. [Note: Major re-organization is planned throughout all of the AFMC centers during the latter part of 2004. While organizational charts will change significantly, the relationship between SSM, SPD, and PEO will not change.] Logistics policy flows downward from AF/IL to AFMC to the ALCs to the system support managers. In practice, the SPD relies heavily on the SSM for all sustainment-related activities. Personnel skill

Figure 2 F-16 SPO Reporting Relationship
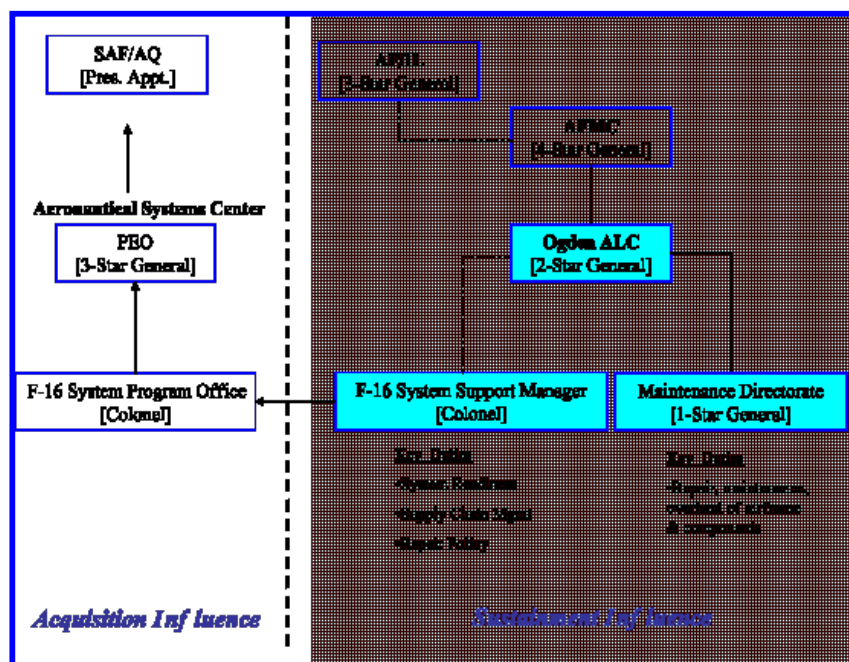
sets at Product Centers (Aeronautical Systems Center, Air Armament Center, and Electronics Systems Center) differ considerably from the skill set mix of personnel at ALCs. Very few true logistics personnel reside at Product Centers whereas a preponderance of development engineers and program managers reside at Product Centers. This personnel skill set mix is important in understanding the roles and responsibilities of ALCs and from the perspective of defining the enterprise in which Ogden operates.

Environment for Change

The roots of enterprise transformation at Ogden trace back several years through a series of initiatives and events that occurred within the AF and DoD. Likewise, change within the AF and DoD are a reflection of influences exerted upon them by Congress, industry, and academia as a whole. In many cases, newly enacted federal statutes provided an immediate impetus for change while introduction of best practices predominate in the private sector took longer to make an impact. These influences, taken in context with the era in which we live, form the foundation for the transformation activities taking place today at Ogden. This examination of change is bounded by reviewing significant events and activities primarily over the last 15 years that impacted the defense environment. Bounding the time period for this paper is absolutely necessary given that change at varying rates has occurred throughout the Air Force's history (and the history of mankind), with each successive change molding and impacting future events.

A Changing World

The engagement of the United States to push-back, contain and, ultimately, defeat Iraq combined with actions in the 1990s in the Balkans and numerous other peacekeeping and humanitarian missions around the world stretched the resources of the U.S. military. The Cold War structure of the military made rapid mobilization for these engagements difficult, especially in light of significant manpower decreases. The Air Force, like the other armed services, realized that its deployment packages needed to change significantly to react quickly and decisively to these contingencies. Additionally, in the wake of declining morale and retention due to a high operations tempo, deployments for service members needed to be stabilized as best as possible by making the deployment timeline more predictable. Thus was born the Air Expeditionary Force (AEF) in the late 90's. Force packages were comprised of Air Expeditionary Wings that would rotate being deployed or on alert for deployment, have a scheduled period to train, and have a predictable reconstitution or rest period. This AEF structure demanded a different, more agile logistics system to support it. Thus was the genesis of what would ultimately be called eLog 21, a series of logistics change initiatives sponsored by AF/IL aimed at improving readiness and cutting costs. These initiatives had enormous stretch goals such as increasing system availability by 20% while at the same time reducing cost by 20% by 2006. These goals could not be reached except through transformation -- significantly changing the way the AF conducts logistics across all levels of command. The 2001 Quadrennial Defense Review (QDR) solidified this expeditionary mindset. The QDR recognized the nature of America's new enemy and the need to have a capabilities-based joint force.[2] Defense Secretary Donald Rumsfeld summed up the task as "to defend our nation against the unknown, the uncertain, the unseen, and the unexpected".[3]

Legislative Pressure

The dramatic buildup of the U.S. military in the 1980s in response to the Soviet threat was made possible in part through a massive increase in acquisition budgets (re-instatement of the B-1 Bomber program, Ground Launched Cruise Missile program, Strategic Defense Initiative, etc.). While this massive increase is generally attributed to bringing down the Soviet empire by bankrupting their economic system in their attempt to counter our efforts, the cost to the United States was enormous as well in terms of waste and inefficiency in our Defense procurement and logistics systems. The Chief Financial Officers Act of 1990 recognized these inefficiencies and waste and attempted to bring more effective general and financial management practices to the federal government.[4] As the name of the act implies, chief financial officers were designated throughout government cabinet offices and agencies and held accountable for the resources they controlled. In 1993, the Government Performance Results Act (GPRA) was enacted with the aim of establishing strategic planning and performance measurement across the federal government.[5] Specific to the defense acquisition community, the "$800 hammer" became the rallying cry for reform. Congress responded by passing the Defense Acquisition Workforce Improvement Act (DAWIA) in 1991.[6] DAWIA established education, training, and work experience requirements for acquisition professionals and set off a series of acquisition reforms within the AF in the form of "Lightning Bolts". These Lightning Bolts were initiatives mandated by SAF/AQ and implemented reforms such as establishing centralized contract review teams, creation of acquisition strategy panels, and formation of integrated product teams. These are just a few of the many Lightning Bolts to reform acquisition and the subsequent focus on acquisition excellence and reinvention sponsored by SAF/AQ. In 1996, the Information Technology Management Reform Act and the Federal Acquisition Reform Act (together referred to as the Clinger-Cohen Act) dramatically changed the way in which information technology systems are procured and simplified the acquisition process by eliminating some non-value added steps in the procurement process. The act also changed the approval process for IT systems, giving agency heads the approval authority to procure systems, but came with a requirement -- IT investments must explicitly be tied to agency accomplishments.[7] These legislative efforts significantly changed the landscape of the acquisition and sustainment environments and reflected a growing plea among the general public to make federal government more efficient and accountable for their actions.

Private Industry & Academia Influence

Another important part of the landscape that affected transformation within DoD was management and process improvement movements in vogue during the 1980s and 1990s. These movements typically originated with academia, but were assimilated into government via private industry practice. Total Quality Management (TQM) was introduced to the AF during the late 80's with its leading advocates

being General Bill Creech, former commander of the Tactical Air Command, and General Merrill McPeak, former AF Chief of Staff. Quality Circles or Kaizen Teams, the precursor to the more refined TQM, swept America's business culture in the early 80's with emphasis on the creativity of the individual working in teams and the "voice of the customer". As TQM became more ingrained in the AF in the early 90's, a radical shift in philosophy occurred. Practices and processes that were once checklist and regulation driven with centralized direction were rescinded and replaced with local procedures. These local procedures were developed with broad top-level guidance. Dreaded compliance inspections from higher headquarters were replaced with much less intense staff assistance visits and written directives that were once 250 pages long were slashed and rewritten to 25 pages. The Federal Acquisition Regulation, the primary document that drives acquisition policy and procedures, underwent radical rewrite as well. This led to a drastic change in the relationship between government and industry in the procurement process. What started as a "we versus them" attitude at the start of the 90's changed into an attitude of teaming by the end of the decade.

While TQM as a formal program died out towards the end of the 90's, its basic premise of focus on the customer and continuous improvement lives on today in the form of lean practices. Lean practices are a set of principles adopted from the Toyota Production System and can be summarized as actions that reduce waste and create value. While used predominantly in the manufacturing setting, lean has been employed in the U.S. across the spectrum of businesses and organizations with varying degrees of success. Organizations (and those that sell their services to organizations as consultants) differ widely on how lean is introduced and sustained, but all hold true to the central tenets -- reduce waste and create value. Lean principles have been used at all three of the ALCs using the events driven, bottom-up approach with islands of success noted.

Figure 3 Lean Thinking General Principles

> - Specify Value
> - Identify the Value Stream
> - Make Value Flow Continuously
> - Let Customers Pull Value
> - Pursue Perfection

Source: *Lean Thinking,* Womack & Jones, 1996

Six Sigma, the centerpiece tool used by such industry giants as Motorola and General Electric, has been engaged at some of the ALCs as well. Six Sigma is a data driven, statistical approach for eliminating defects in any process. With its overall theme of reducing variation and increasing quality -- whether it is in maintenance, repair, and overhaul (MRO) operations or administrative processes -- Six Sigma tenets have produced some success stories within the ALCs.

Evolutionary business management and strategy theorems practiced in private industry during the 90's also played an important role in shaping transformation. Business process redesign advocated the slashing of existing processes and replacing them with streamlined processes. The theory of constraints movement recognized the internal and external pressures related to managing multiple projects competing for limited resources in large organizations and emphasized the need for robust planning and execution processes.[8] The balanced scorecard provided a mechanism to derive strategy and map initiatives to those strategies.[9] All three of the above -- business process redesign, theory of constraints, and balanced scorecard -- had a significant effect on policy and decision makers in the DoD. The AF alone has spent millions of dollars per year in an attempt to replicate private industry's successes with these tools.

The Lean Aerospace Initiative (LAI) at MIT was established in 1992 at the behest of the AF with the goal of transforming the defense aerospace industry using lean principles. Defense aerospace industry members and the AF fund the consortium making up LAI and provide top-level guidance in the form of a board of directors-type of structure. The consortium knew that for the defense industry to stay viable, it needed to change its weapon system acquisition focus from performance at any cost to affordability. For this to occur, the entire enterprise of a specific organization needed to become leaner -- product development, testing, business operations, manufacturing, suppliers, etc. -- all needed to think and behave as a lean enterprise. LAI's role over the years has shifted from being research-centric to acting as leader and facilitator of a learning community. While the early years of LAI were centered on transforming industry, it embarked on a program in 2002 called Lean Now as a means to support AF transformation of their extended enterprise using LAI's resources [see Jobo (2003) for a comprehensive look into Lean Now.[10]]

Change from the Top

Perhaps the single biggest advocate for change in DoD is the Secretary himself -- Donald Rumsfeld. Secretary Rumsfeld, in an effort to garner congressional support for the Defense Transformation Act, wrote "While our troops operate in a fast-paced world of high-tech weaponry and precision-guided munitions, the men and women who support them here at home still slog through red tape and regulations that are, in some cases, decades old. We must be as agile, flexible, and adaptable as the forces we field in battle".[11] Rumsfeld at times has been his department's most vocal critic, citing that it takes his department twice the time to produce new weapon systems as it did when he last held the post of Secretary of Defense in 1975. His zeal for transformation is evident by him taking on one of the most protected classes in Washington -- the federal civilian workforce -- in the passage of the Defense Transformation Act. The

act, passed in November 2003, creates a new national security personnel system that provides sweeping changes to civilian management policies enabling the department to hire and fire employees more easily and reward employees based on performance rather than tenure.[12]

The above provides the macro environment for change within the AF. The next section sketches change activities and key events at Ogden's immediate higher headquarters -- Air Force Material Command.

Change at Air Force Material Command (AFMC)

Change within AFMC is on going and dynamic and heavily influenced by functional activities. For example, change within the Capabilities Integration Directorate at AFMC is heavily influenced by SAF/AQ policies, change within the Logistics Directorate is heavily influenced by USAF/IL, change within the Financial Management Directorate is influenced by the Office of Assistant Secretary of the AF for Financial Management (SAF/FM), and so forth. Significant change activities that have occurred over the last five years at AFMC will be outlined. An overview of AFMC's mission and organizational structure is provided first.

AFMC's Mission & Organization Structure

All of the AF's depot-level workload and most of its acquisition are accomplished by a workforce of 90,000 people within AFMC (space-related acquisition was moved from AFMC to Air Force Space Command in 2001). AFMC's vision is "To be a valued team member...of the world's most respected Air and Space Force". Its mission is to "Deliver war-winning -- technology, acquisition support, & sustainment -- expeditionary capabilities to the war fighter". Headquarters AFMC's mission, on the other hand, is to shape the workforce and infrastructure to accomplish its mission. AFMC's guiding principle is to deliver "War-winning capabilities...on time, on cost". General Gregory Martin, the AFMC Commander, summed up AFMC's mission as follows "Our Command exists for one reason, and that's to fulfill this mission. It is a mission that only AFMC can carry out. It is what we do, it is why we exist, it is what defines us in the eyes of the rest of our Air Force. Bottom Line: AFMC delivers war-winning expeditionary capabilities to the war fighter--thru our core competencies of providing the best technology, acquisition support (I underline support because we support AQ in the acquisition function), and sustainment".[13] The bulk of AFMC's workload is conducted at four types of locations:

- Product Centers -- Responsible for acquiring and managing weapon systems
- Test Centers -- Focus is on testing of new and mature systems
- Research Laboratory -- Single research laboratory (multiple branches and locations) within the AF

- Air Logistic Centers -- Responsible for sustainment of all weapon systems and management of more mature systems

See Attachment 2 for AFMC organizational chart.

Change Or Else

In the fall of 2001, AF leadership met at CORONA (the AF's top leadership meeting scheduled twice a year) where General Lester Lyles, then the AFMC Commander, received an imperative -- make AFMC meaningful to the rest of the AF. General Lyles then took the unprecedented step of assembling a group of senior leaders, one from each center, and formed a transformational working group led by Major General Michael Mushala. The group was formally established in May 2002 as a staff office (AFMC/TR) reporting directly to the commander and had the charter of providing the strategy, framework, and roadmap for transformation. The group started with no other direction; the recommendations they made (to include the ultimate transformation -- dissolving AFMC -- if the group came to that conclusion) would be based on their assessment of the command.

A transformational road map was communicated to the command in January 2003 as a series of expectations. The first was that AFMC needed to have an expeditionary mindset in line with the war fighter. Second was that AFMC needed to be more innovative, adaptive, and responsive? Third was that the command needed to be easy to do business with. Last, they needed to be effective and efficient.[14] No true transformational-type of recommendations were adopted during the Transformation Working Group's existence. However, perhaps the biggest benefit occurred when the members returned to their individual centers where they applied some of the practices they were exposed to. One such instance was at Hanscom AFB where they implemented Balanced Scorecard across Electronics Systems Center.

The transformation flag and message the Transformation Working Group carried turned into the Transformation Directorate (TR) which stood-up in June 2004. Information Technology, which used to be a directorate of their own right, became a division under TR. Another division, Business Process Transformation, was established to tackle the job of re-engineering the financial management and other business processes within the AF [AFMC was given this new task from AF headquarters since AFMC owned most of the processes to be re-engineered]. The last major division is Capabilities and Requirements. This division has the charter to carry-on the work of the former Transformational Working Group. While TR has the responsibility for guiding transformation within the command, it doesn't own all of the transformational efforts underway within the command. The largest directorate, Logistics, has several major change initiatives ongoing with potential sweeping changes. The largest of these efforts,

Purchasing and Supply Chain Management (PSCM), is a collaborative effort between logistics and contracting whose goal is to provide a continuous link between demand and supply planning, purchasing, inventory management, and suppliers. This ambitious project initiated in 2001 is an offshoot of the USAF/IL Spares Campaign whose goal was to increase weapon system availability through better spare parts management. The PSCM team is composed of members from across AFMC and is divided into four sub-teams: strategic planning, demand planning, supplier relationship management, and customer relationship management.[15] The PSCM team's timeline is to produce a roadmap that can be implemented by summer 2004; the entire effort is expected to take seven years to complete. Another major initiative centered on logistics is Depot Maintenance Transformation (DMT). DMT is aligned under the Logistics Directorate and is responsible for streamlining and improving depot processes. These improved processes are seen as vital to AFMC becoming "World class depots providing the world's best war fighter support".[16] DMT efforts to date have produced a library of process improvement techniques and benchmarking of best practices. The individual ALCs have the job of integrating and tailoring these techniques and best practices to meet their needs.

Enterprise-Wide Change at Ogden

Origins

In the spring of 2002, Major General Scott Bergren (then ALC Commander) recognized the need for his center to have a focal point for coordinating and energizing process improvement efforts. The AF Secretary had previously challenged the ALCs to benchmark with industry and strive to become world class.[17] While various organizations had benchmarking efforts underway, Ogden had no central clearinghouse to coordinate the center's overall improvement activities. Thus was the origin of the ALC's Transformation Office (XP-T) which stood-up in August 2002 and was led by Colonel Michael Maquet. XP-T surveyed change management and process improvement practices and consultants over the next several months to chart a course of change for the ALC. What ensued was the emergence of a "Y-NOT" (short for Why Not?) theme for cultural change. Colonel Maquet expressed this theme to the base populace in a January 2003 article in the Hill AFB newspaper where he articulated the Y-NOT attitude in a series of questions. Why do we need to transform? Why do we need to support continuous process improvement? Why should we be more customer focused? The answer was "Why not?"[18] A Y-NOT newsletter was published periodically to communicate process improvement successes and to reinforce the Y-NOT culture the center was attempting to embed.

Lean practices were first introduced to the ALC in the fall of 2002 in the form of training within the F-16 system support office. Contractors were hired six months later to bring lean to depot maintenance -- Southwest Consulting was hired for the aircraft lines and Simpler for electronics. These lean activities enjoyed a measure of success, but stayed within the boundaries of maintenance. There was no central thread that tied all the lean activities together ALC-wide.

Because of the success of the first round of Lean Now projects within the command, AFMC asked each of the centers in early 2003 for potential Lean Now candidate projects for round two. Lean Now had tackled and shown results the previous year and AFMC was interested in further applying Lean Now throughout the command. Ogden responded by recommending that streamlining the purchase request process at Ogden would make an ideal project and AFMC approved it in June 2003. The project kicked-off in August with a one-week facilitator's class conducted by LAI in which twenty-five people attended. All of the XP-T staff was included in this training in addition to others throughout the center. The project itself started in September and would ultimately take until June 2004 to complete. XP-T considered early on how the event would tie-in strategically to the center's other efforts and the resources required. It was this project that spurred XP-T to consider larger application of lean. The purchase request project turned out to be LAI's foot in the door at Ogden.

Between February and August 2003, transformation activities slowed down considerably due to a change of commanders -- General Bergren retired and handed off the reigns to Major General Kevin Sullivan. At his first offsite with his senior staff in October 2003, General Sullivan decided to continue what he described as "tactical deployment of lean events" continuing with lean in maintenance and employing elsewhere as the opportunity presented itself.[19] With the seeds of enterprise-wide change planted through the Lean Now project, LAI was invited to attend the next offsite in November to state the case for enterprise-wide implementation. LAI conducted a Lean Awareness course with Ogden's senior staff and deputies in November. During the all-day session, the case for enterprise change was presented using a mixture of teaching tools -- lecture, discussion, case studies, and game playing. It was at this meeting that the "light went on" with General Sullivan and other leaders in the room that an enterprise lean approach was needed to strategically manage the center.

The transition to lean roadmap was presented to the ELT by LAI in December 2003 as a framework for transformation. It soon became apparent that the "Focus on the Value Stream" section was most important to Ogden and that the Enterprise Value Stream Mapping & Analysis (EVSMA) model would be the right tool and process to use.

Figure 4 Transition-To-Lean Roadmap
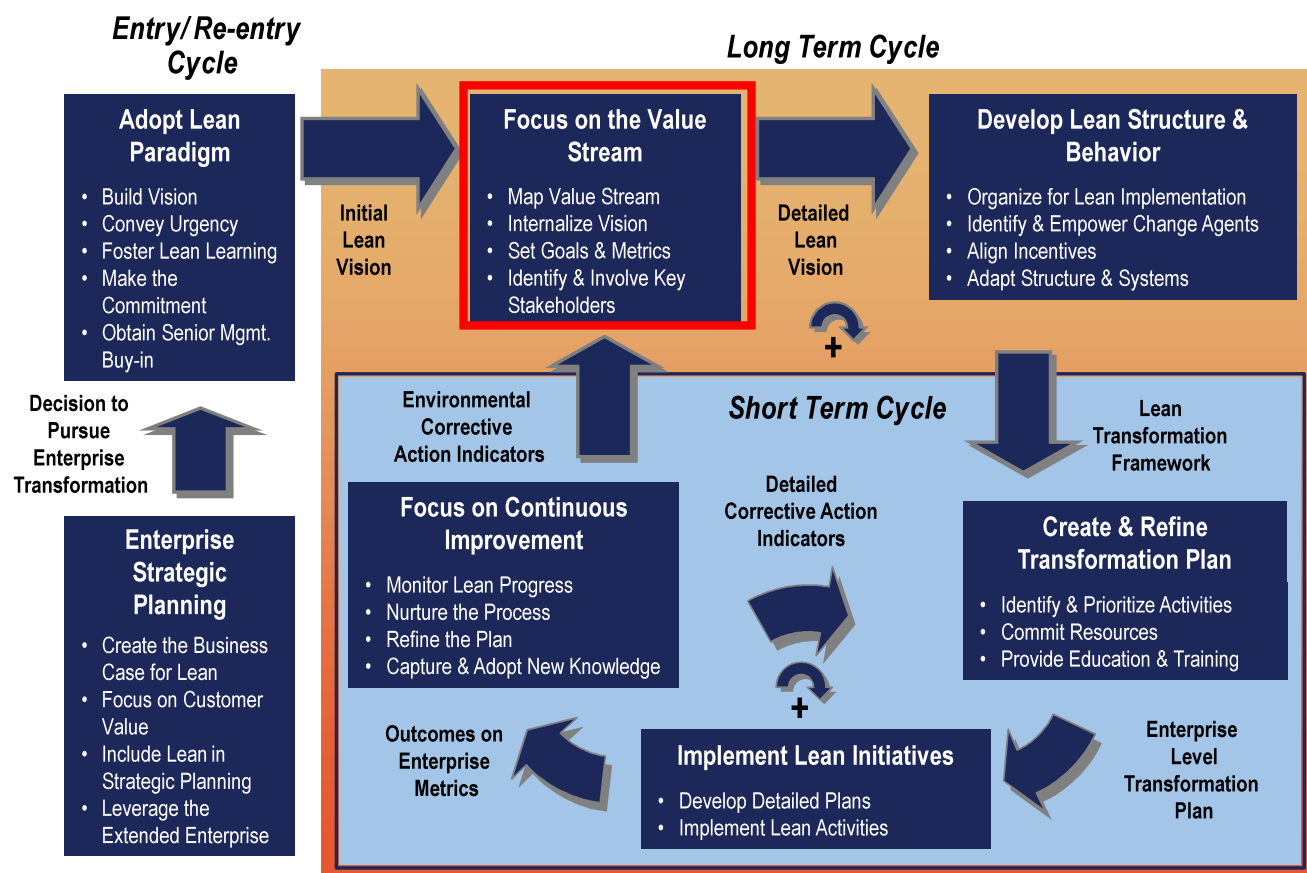
Source: EVSMA Guide, dated 14 Aug 03

Role of LAI

LAI entered what they called the "Enterprise Value Phase" of their organization's existence in September 2002. This phase focused on application of lean principles, practices, and tools. One of the goals of this phase was to support lean transformation change of the government.[20] Coaching Ogden through the EVSMA process was a natural function for LAI. Their role from the beginning was to be a strategic coach and they had an established network of lean experts available to consult and assist. LAI staff and consortium members (namely Raytheon and Boeing) would facilitate and mentor the center's leadership team and provide a coach to guide the center's efforts after the strategy roadmap was completed. Consortium lean experts would also train and certify the initial cadres of Ogden personnel selected to become lean experts. The total time commitment on LAI's part was established at one year. In turn, Ogden was expected to follow the LAI model -- EVSMA -- and provide timely and honest feedback

along the way. Both parties recognized that Ogden would be the first true enterprise-wide rollout of EVSMA and that they would learn together as they followed the processes and templates associated with the tool. The goal was to refine the tool through learning to make it more practical for future employment. The enormous resource commitment on LAI was recognized upfront; however, the magnitude of the commitment wasn't realized for several months into the process when additional LAI workload was generated as a result of unforeseen (but welcomed) workload due to positive word-of-mouth advertising from the Ogden effort (namely, Oklahoma ALC starting enterprise-wide lean).

Enterprise Lean Process

Enterprise Value Stream Analysis & Mapping (EVSMA) Overview

The EVSMA tool was developed in direct support of the goals identified as part of the Enterprise Value Phase of LAI with the Alpha version released in August 2003. The tool consists of a series of eight incremental steps that takes one from the current state of a defined enterprise to the vision for the future lean state. It takes the practice of value stream mapping out to the enterprise level and provides a method for analyzing/improving enterprise performance and integrating strategic objectives and stakeholder interests. In contrast with traditional value stream mapping that typically focuses on a single product or process, EVSMA cuts across multiple stakeholders, products and processes (both direct and enabling processes). Attachment 4 graphically displays the EVSMA process. The intended benefits of EVSMA are:

- Enterprise level focus on enterprise-wide processes
- Provides a cohesive method for diagnosing an enterprise in order to expose sources of waste and to identify barriers to value delivery
- Gives consideration to the needs/values of all stakeholders
- Identifies process interfaces, disconnects and delays
- Identifies improvement opportunities that will benefit the entire enterprise[21]

Figure 5 EVSMA Steps

Source: EVSMA Guide, 14 Aug 03
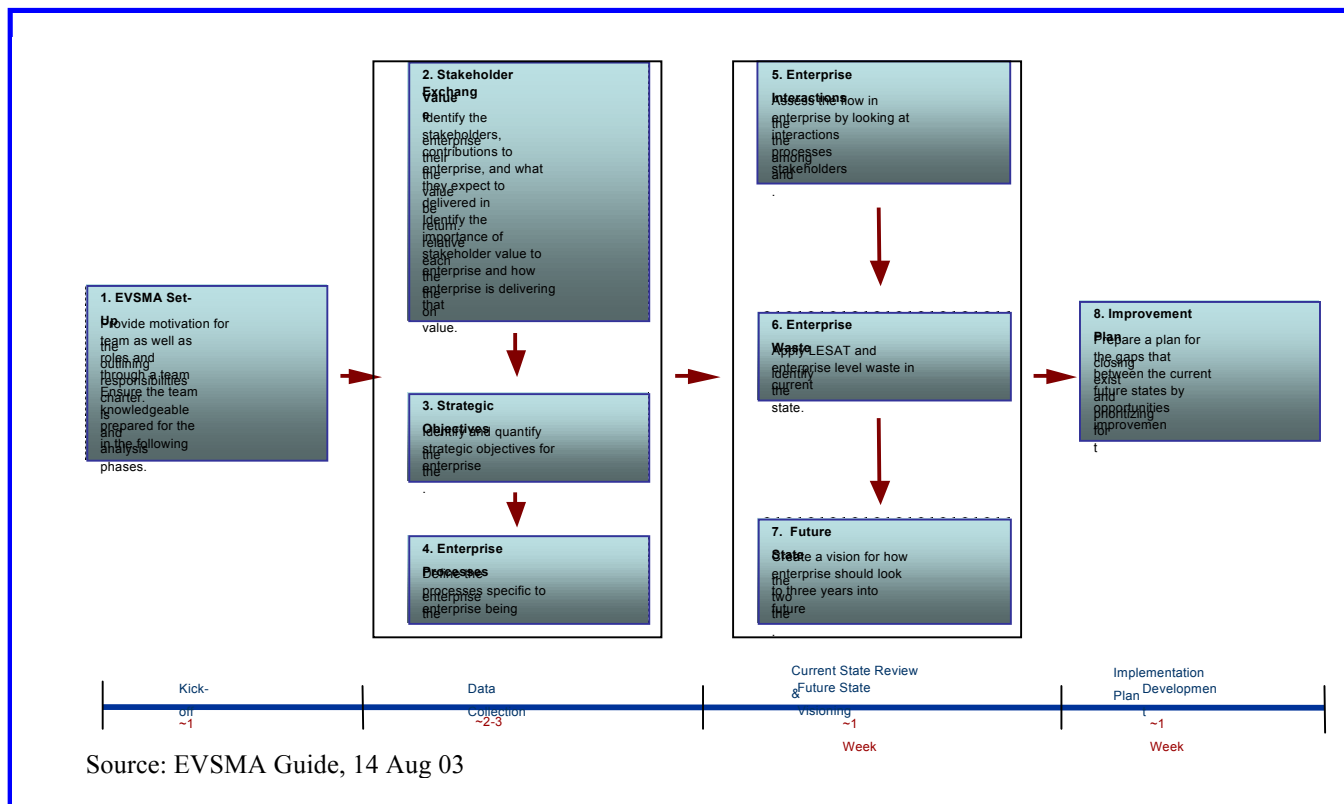
Ogden followed the EVSMA steps in a series of sessions from January to June 2004. While the steps were essentially performed in order, previous steps would frequently be revisited and revised as the group learned more about the overall process. Additionally, some sub-steps were either deferred or merged with subsequent steps due to availability of resources or to better align the sub-step with other steps. As a result of this learning experience between Ogden and LAI, the EVSMA guide will be refined (for example, overall steps may reduce from eight to six). Details from each step and analysis of the process are provided in the ensuing sections. For sake of clarity, all actions for a particular step are included under that step (unless otherwise noted) even though they may have been completed over a period of time.

Step One -- Set Up: Executive Leadership Team, War Room & Schedule

The case for action was stated clearly -- Ogden must transform in order to improve war fighter capabilities and to posture for the future. To accomplish this, an Executive Leadership Team (ELT) was established to guide the process under the sponsorship of General Sullivan. The General recognized the importance of leadership to this process and appointed several of his direct reports (or their deputies) to

form the ELT headed by Mr. Michael Gill (Senior Executive level grade). The ELT members represented all major process owners, a director and a deputy director from two product offices, and the local American Federation of Government Employees (AFGE) president. General Sullivan himself attended many of the ELT meetings.

The ELT's charter was to lead transformation by determining focus, setting priorities, goals, metrics, identifying resources, and removing barriers. The team quickly bonded to a common purpose with mutual respect and the free-flow of ideas becoming part of the group's operating principles. While some suggested that a few of the members were "fence sitters", the term was used to state that the members didn't necessarily buy into the notion that the approach they were using was revolutionary -- they were still very much committed to change and making the ALC better. Several members stated that the effectiveness of the group was due to the ELT's direct reporting relationship to the commander and this was purely a coincidence in that the executive director and vice commander positions happened to be vacant during the period. Mr. Gill had periodic one-on-one sessions with the commander to explain the group's position, make recommendations, and receive guidance. This relationship would have been altered if the two key leadership positions were filled. The only negative comment from ELT members was the time commitment required for team meetings (the ELT required a minimum of two to four full days a month for six months plus) but this was viewed as necessary and inevitable.

Figure 6 Executive Leadership Team

> *Team Leader:* Mr. Mike Gill
>
> **Team Members**
> • Union President: Mr. Troy Tingey
> • Plans & Programs Director: Mr. James Sutton
> • Transform Chief: Col Michael Maquet
> • Civilian Personnel Director: Mr. Andy Flowers
> • Logistics Deputy: Col Tim Bair
> • Air Base Wing Vice Cmdr: Col Joseph Sokol
> • Maintenance Deputy: Mr. Ross Marshal
> • Space & C3I Director: Col Larry Schaefer
> • F-16 Deputy: Ms. Dawn Sutton
> • Finance Deputy: Mr. Gus Burbank
> • PSCM: Mr. Tom Girz

The ELT had a dedicated conference room for their use for an eight-month period. This conference room, or war room as it is sometimes called, proved to be a highly valuable tool in itself. EVSMA progress was documented on wall charts and provided a visual representation of the individual steps in the process. In what became known as a "wall walk", ELT members walked-through the process when providing status updates to General Sullivan or explaining the process to visitors. Later on in the process, Ogden's lean experts also used this conference room to delineate their strategy and map it to the overall effort.

The first schedule was developed and presented to the ELT in January 2004 (see Attachment 3). This schedule sequenced the EVSMA steps over a two-month period with the internal lean experts trained and

running improvement efforts by early April. This aggressive schedule was ultimately extended due to three primary factors: 1) Excessive lead-time required to hire the lean experts, 2) Facilitators at times did not drive the ELT to task completion per the schedule, and 3) Incomplete meeting documentation which led to wasted time at the start of some meetings (e.g., finishing up previous tasks/steps that they previously thought were complete, not understanding exactly where they were in the process, etc.).

Step Two -- Stakeholder Value Exchange

This tedious step involved identifying the enterprise's stakeholders and expressing the value exchange between them. Nine separate stakeholders were identified: shareholders, end users, customers, leadership, employees, partners, suppliers, unions, and society.

Most of the stakeholders' names are self-explanatory; a few require definition. Shareholders refers to congress and the general public, end users are the war fighters, and customers are the entities that directly receive the product.

Figure 7 Stakeholders

After the value exchange (value derived from and to) was understood, an assessment was made on the health of the relationship. This was done in part through surveying the stakeholders. The ELT took the completed survey results at face value. This was visually portrayed by plotting the specific value exchange on a chart with one axis as the relative importance of the exchange and the other axis representing current performance. Attachment 5 provides an example of this chart and value exchange identification.
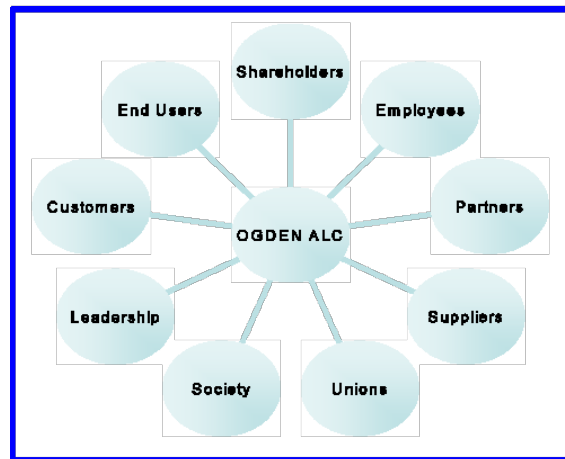
Step Three -- Strategic Objectives

Prior to the enterprise-lean effort, Ogden had been using the services of a consultant who specialized in Balanced Scorecard (BSC). The consultant assisted Ogden in developing notional scorecards for five perspectives -- war fighter, stakeholder, resources, internal business processes, and learning & growth. Outcomes, measures, targets, and initiatives were mapped to these scorecards. Once LAI came on board, the center suspended their BSC venture. Because Step 3 of the EVSMA process required delineation of strategy and metrics, the ELT felt that BSC was the right tool to use and attempted to schedule their BSC

consultant to facilitate this step. Due to the consultant's non-availability, this is still an open task. A sample scorecard that was developed in June 2003 is provided as an example as to how BSC may complement EVSMA.

Figure 8 Balanced Scorecard Example

Warfighter Perspective: Objectives, Definitions, and Measures

Objectives (Outcomes) & Definitions	Measures	Targets 03 04 05			Initiatives
C1. Warfighter requirements delivered as promised Ensure delivery of planned products & services as promised (cost, schedule, quality). This includes maintaining a customer focus leveraging technology to deliver what the customer needs, when needed to accomplish AEF commitments. Respond to the customerÕs unplanned requests by maintaining flexibility in our processes and having contingency plans in place for special efforts. Link: AFMC Obj #1	C1.1. Timeliness of delivery C1.2. Quality of product C1.3. Cost of product C1.4. Flexibility to unplanned requests				C1.a. Reduce process flow days by 50% C1.b. Reduce man-hours per product by 50%
C2. Ogden is the Òsustainer of choiceÓ for the Warfighter Customers recognize Ogden as the best source for acquisition and sustainment activities, and when given a choice they come to us first. Link: AFMC Obj #1	C2.1. Annual Survey -Customer satisfaction with Ogden -Willingness to bring new work to OO -How well did we respond to service calls -Willingness to continue doing business with Ogden -If given a choice, would they continue sending work to Ogden				C2.a. Improve delivery process
C3. Fully trained and capable personnel and equipment provided to support expeditionary operations OO-ALC must be able to support 100% of tasked deployments. Link: AFMC Obj #2	C3.1. SORTS Rating C3.2. Training Currency				C3.a. Improve mobilization process of IMAs for backfill C3.b. Improve mobilization process of all UTCs

Step Four -- Analyze Current Enterprise Processes

Major enterprise processes were identified in this step. The ELT struggled to succinctly define processes at a high-level; the natural inclination was to describe detailed, lower-level processes. The team discovered that organizing these lower-level processes into higher-level categories or value streams eventually produced the desired outcome. Process definition was highly iterative, thus the use of post-it™ notes was an effective method to document and organize the results. Four top-level value streams were identified: depot maintenance, program management, purchasing and supply chain management, and

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readiness. The first three value streams were no surprise since they represented the ALC's traditional mission. Readiness, however, was not as obvious. The team included readiness upon the realization that the 75th Air Base Wing directly supports an Air Expeditionary Wing (388th Fighter Wing).

Data collection on ALC performance (financial, system, manpower) started during this step as well. Collecting this data through the myriad of systems used at the center proved to be a huge effort. Starting this data collection earlier would have helped to stay on schedule.

Step Five -- Analyze Current Enterprise Interactions

Processes were outlined horizontally on the conference room wall using butcher paper and post-it™ notes during this step. String was then used to identify the "touch points" between the processes. A color dot system was used to indicate how healthy the ELT viewed the processes. A poor or unhealthy process would be given a red dot. The rating system was purely subjective, but it did provide insight. For example, a string of red dots clearly indicated that a process was either inefficient or broken. The "spaghetti" diagram also helped visualize the potential effect of change in one area and how it could affect the greater enterprise.

Figure 9 Spaghetti Diagram
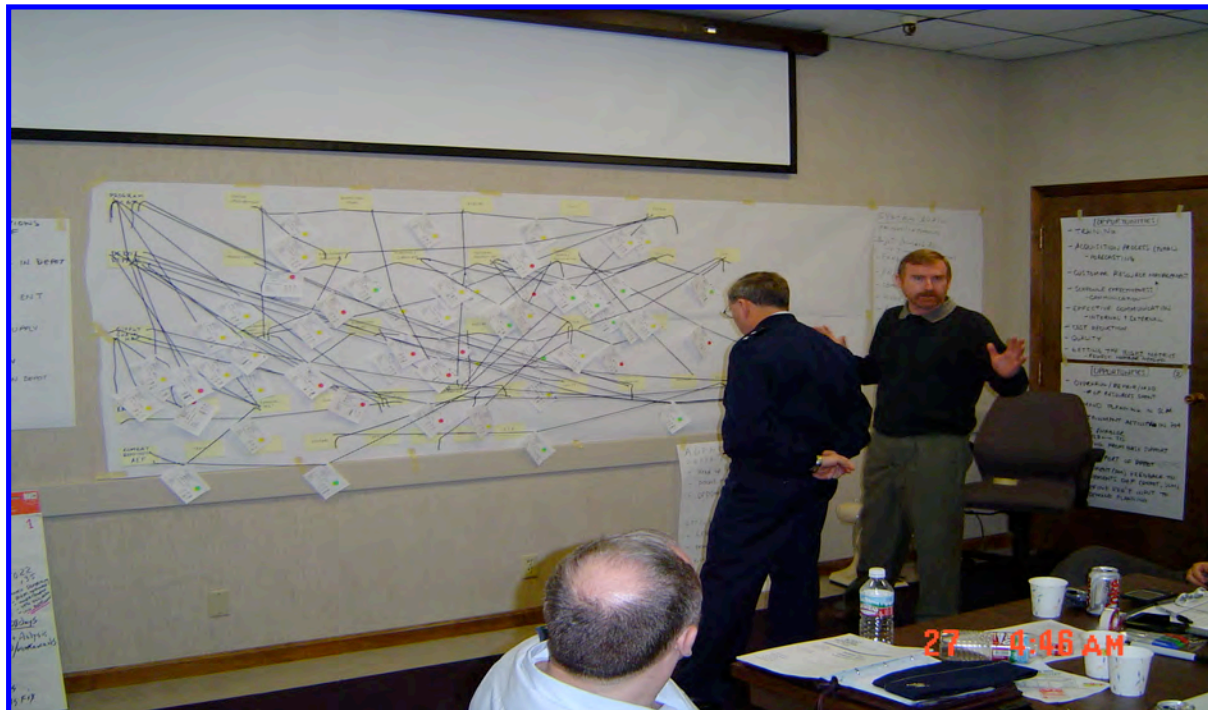
Step Six -- Synthesize Current State

The Lean Enterprise Self-Assessment Tool (LESAT) was used to assess the current state or condition of the center. LESAT is a tool developed by LAI in conjunction with industry and government that assesses the present state of "leanness" in an enterprise and its readiness for change. Accomplished by senior leadership, it's a self-assessment consisting of 54 practices or questions broken down into three categories: life cycle, enabling infrastructure, and enterprise leadership processes. Each practice is assessed on a capability maturity scale of one to five with one being the lowest rating and five the highest. The ELT and the center's leadership board (all the direct reports to the commander) completed the assessment along with General Sullivan. Participants were brutally honest with the assessment, following the well-defined rating criteria in the LESAT guide. A total of 30 assessments were reviewed and combined to derive the center's scores.

The ELT also identified enterprise-level waste in this step. They used the headings from the EVSMA Guide to categorize waste and as an aid in brainstorming. These categories of waste are: waiting/delays, excessive transportation, inappropriate inventory, excessive motion, defects/rework, overproduction, opportunity costs, and structural inefficiencies. Over fifty areas or processes were highlighted as inefficient or wasteful. The ELT tagged one particular category of waste -- structural inefficiencies -- as

having the most detrimental impact to the center. Interestingly but not surprising, Ogden has little to no control over many of the structural inefficiencies. The ELT made a conscious effort not to restrict themselves to processes within their span of control. While they may elect not to tackle such difficult obstacles, knowing that the obstacles exist and understanding their impact to the center is helpful in deriving mitigation strategies.

Figure 10 Structural Inefficiencies

> ➢ Too many layers of supervision
> ➢ Lack of integrated data system
> ➢ Micro-management in decision making
> ➢ Mission areas
> ➢ Reorganization before changing processes
> ➢ Obligation of money (rules)
> ➢ Mission assignment process
> ➢ Funds segregation (color of $)
> ➢ Workload assignment between ALCs

Step Seven -- Envision Future State

This step of the EVSMA process entailed developing the future vision state looking three to five years out into the future and performing a gap analysis between the current and future states. The ELT concluded that this was the most difficult step. They wrestled with this portion of the process for an entire day in

their attempt to define Ogden's end state and finally came back to the Air Force's core values of integrity, service before self, and excellence. Breaking into small groups to write specific sections of this step, then combining the work, helped the ELT as a whole develop this vision. The ELT also developed a vision for 10 years in the future in the form of BHAGs (Big Hairy Audacious Goals). Per Collins & Porras, BHAGs should capture the imagination and rally the workforce while at the same time be achievable, albeit maybe a slight stretch to attain.[22] The ELT was careful to establish the BHAGs at the enterprise level, not program. Attachment 7 displays this strategic vision.

Figure 11 BHAGs

> ***Be America's Best!***
>
> We will be the benchmark provider of logistics capability sustaining our nation's war fighters
>
> - Support system availability at 90% or better
> - 50% reduction in flow time
> - Support readiness at 100%
> - 25% cost reduction

In the future state, any and all savings in cost and manpower are intended to be re-applied back into the center. This point was made several times at different steps of the process and, in fact, was instrumental in getting union buy-in to the entire process up front. This philosophy is very much a product of government service where job security and workforce size is paramount not only to the workforce, but for leadership as well. It does pose some interesting questions. How do you know if you reached your vision if your overall cost and manpower numbers have not changed significantly? How do you account for cost and manpower for new and retiring workload? Underpinning this philosophy is the expectation that higher headquarters will cut funding in the future as a result of further diminishing budgets. Thus, getting leaner throughout the enterprise will be necessary just to meet workload requirements.

Step Eight -- Develop Implementation Plan

Using information from previous steps, the ELT performed a gap analysis to determine shortfalls. The results were documented with the intention of using this analysis as a starting point for improvement efforts. The communications plan was also finalized during the timeframe of this step. This plan outlined how best to communicate the message of transformation to the workforce and other stakeholders. A number of other plans and documents remain outstanding. Notable among these are the strategic governance plan (how to strategically manage the enterprise lean effort), lean expert employment plan, and lean methodology standardization plan.

Role and Use of Internal Lean Experts

The importance of having an internal group of lean experts at Ogden was very well understood. Significant change at the center would have to occur at the lean expert level, not within the ELT. The ELT's job was to provide the strategic framework. The goal was to have a core group of experts totaling 1% of the workforce (approximately 140 people) within two to three years. However, the ELT eventually settled on approximately one-half of this number, 75, as being an achievable number. These experts would serve two years and then recycle back into the workforce. Eventually, the center would be inoculated with lean experts, both current and former. To kick-start the effort, eleven lean experts would be chosen as the initial cadre. Once trained, the eleven would be broken down into three groups of three plus two experts to intern with industry. The interns would come back after their tour with industry to coach the center.

The ELT deliberated over the hiring process with the civilian personnel chief (an ELT member himself) guiding the discussions. The local union president was very much a part of deliberations and reviewed and provided comments to the job descriptions. The following overarching premises were reached:
- Looking for people who have the potential to become future leaders at the center (similar to industry's model for change experts)
- Position descriptions must be written to attract as many qualified people as possible
- Both wage-grade series (blue-collar) and general-service series (white collar) personnel must be "reachable" in the hiring process
- All would be promoted (grade/pay) into positions rather than re-assigned in grade

The job announcements went out in March (see Attachment 6 for position description excerpts). By the end of April, over 800 people throughout the center had applied for the eleven positions. The civilian personnel office culled the list of applicants and the ELT made the final selection decisions. Eleven were selected at the end of April -- one who would act as the lead in the grade of GS-14 and ten combined in the GS-12 and GS-13 grades. Within five days of the selection decision, the group was on their way to Long Beach, California, for a training session at Raytheon. They returned to Ogden where they received additional training and "homework" by their consortium coaches.

The cost to train each group of 10-12 black belts was expected to be around $225K not including their salary. This amounts to approximately $2.5M per year for the center -- a sizable investment. Notionally, the center plans on getting the capability to train black belts in-house within two years, drastically reducing the cost. In the interim, the center may also bring the instructors to Ogden saving approximately

half the total cost by reducing travel expenses.

The lean experts' first assignment was to concentrate on improvements in the F-16 aircraft program. The ELT came to this decision after an intensive data review. Financial, personnel, and system performance data while overwhelming from sheer volume all pointed to the fact that improvements in the F-16 program would have the most direct and immediate impact to the center and to the war fighter. There was no systematic method of looking at the data and ranking improvement priorities. Rather, the F-16 as a whole was obviously the program to start with since it touched all the processes at the center (this was known intuitively by the commander and ELT before looking at the data as well). As to the specific areas for improvement, the ELT left this up to the experts to decide and to report back to the ELT for approval. The plan was to break them up into groups of three to tackle different improvement areas. However, before they could get this far, they would need to decide on a methodology for choosing the specific target areas. Mapping tactical targets to the center's strategic framework proved to be difficult especially with no formalized guidance other than the products produced by EVSMA. A process for identifying improvement areas and the approval coordination process still requires formulation and documentation.

An area of great interest and much discussion surrounds certification of lean experts. Prior to the enterprise-wide effort, the center had a small group of "green belts" or lean specialists resident in XP-T. These people were considered specialists by virtue of training (both LAI-provided and in-house training) -- they had no actual experience in facilitating and guiding lean events. Over time, most of these specialists did gain experience, but the question of what constitutes certification remains. The same holds true for the lean experts hired as part of the enterprise effort -- they're called experts by virtue of attending training. The issue of certification remains an open item for Ogden to resolve. Key to resolving this issue is to determine how, and even if, the specialist and expert systems will complement each other. That is, a logical progression would be to become specialist qualified first, then expert qualified. Clouding this issue is the fact that none of the specialists working in XP-T were selected as experts during the first round of hiring.

As the center prepares for round two of lean expert hiring scheduled for October 2004, the ELT is still debating the merits of the premises used to hire the initial cadre and whether or not refinements should be made. Possible changes include selecting a limited number of military members and allowing for re-assignment in grade versus promotion.

Lessons Learned

Lessons can be gleaned from Ogden's first eight months of their enterprise lean journey. Some of these lessons are rather universal in any large-scale endeavor while others are specific to the EVSMA process and the environment at Ogden. The author has looked back over notes and presentations from multiple sources at Ogden and LAI in addition to his limited first-hand experience in providing these lessons learned. Positive and negative lessons are included with the hope that inclusion of both would lead to better future engagements with enterprise lean.

Lessons

- *Senior leadership needs to be fully engaged and directly sponsor the change initiative.* Additionally, the leadership team deriving the strategic framework needs to be comprised of respected individuals from across functional and product organizations. Ogden did this especially well with nearly all team members citing this as the primary reason for success. General Sullivan made it a personal priority to attend as many ELT meetings as possible and had an open door for the ELT chief.
- *Joint learning between facilitators and leadership is crucial in tailoring the change initiative to the enterprise.* Because of the size and complexity of nearly all enterprises, improvement tools and processes need to be modified to meet the unique environment of the organization. This can only happen in an atmosphere of collaboration and learning between facilitators and leadership of the specific enterprise. At Ogden, use of the EVSMA tool provided a structured approach in examining themselves and to chart a course of action to arrive at their desired future state. However, the tools and processes associated with EVSMA needed to be modified to fit the organization. Facilitators and the ELT worked together to tailor tools and processes to fit Ogden's environment.
- *Need to stick to the compressed schedule stated in the EVSMA guide.* Extending the schedule from three to six months resulted in a loss of team energy and focus. This is an especially important lesson in an environment with high leadership turnover such as the AF. In Ogden's case, ELT participation slackened somewhat as the months passed by. There's also concern that the reassignment of several key ELT members over the summer months will have a negative impact on the process. Keeping the schedule compact would allow more time for the center to establish its lean roots through the people most instrumental in its creation.
- *Facilitators need to better focus the leadership team on the specific task and drive task to completion.* Valuable time was spent in some sessions completing tasks from previous steps, pushing the schedule back and losing momentum.
- *Need a comprehensive, written plan on how to hire, train, certify, and employ internal lean experts.* While Ogden did consider these elements, lean experts wasted valuable time attempting to understand

how they inter-related with a process they did not create. Additionally, lean experts were on their own to determine how their "tactical" efforts tied in with the "strategic".

- *Insure that a knowledgeable person is assigned the sole job of documenting key events and progress.* The team lost focus at times attempting to recreate events from memory. Documenting the process also allows others to capture the critical thought patterns that went into the process and apply it to other enterprise efforts.

- *Identify requirements and start compiling required data early in the process.* Detailed system performance, financial, and manpower data was collected at step four of the EVSMA process per the guide. However, because of the myriad of data systems involved, the collection effort took many weeks to get to the "80% solution" level. Once compiled, too little time was spent reviewing the data and interpreting its meaning due to schedule constraints.

Summary

Was Ogden successful? How do you measure success so early in their journey? These two questions are way too premature to answer in light of the long-term improvements Ogden is striving to achieve. However, looking solely at their effort in establishing the strategic framework, one can state reasonably that Ogden was successful. A comprehensive framework for change was established with complete senior leadership buy-in. Will leadership's buy-in translate to guaranteed success enterprise-wide? Again, this question is too early to answer but the seeds of success are sown. The immediate concern most have is whether or not lean will survive beyond the tenure of the current commander.
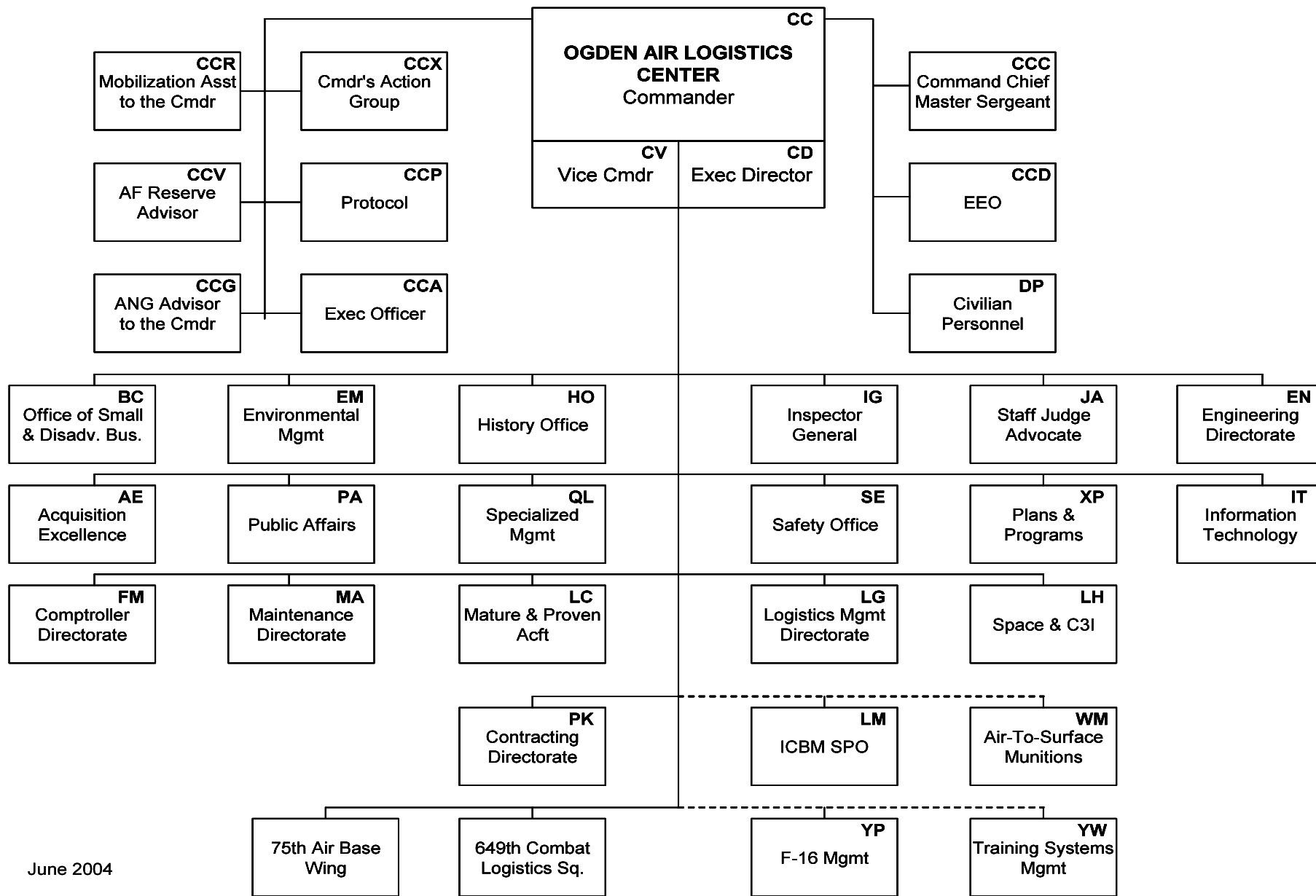
The learning laboratory at Ogden proved exceptionally valuable in testing EVSMA at the enterprise level. This was made possible through the cultivation of an environment where government (ELT), industry (consortium lean experts), and academia (LAI staff) worked together to flesh out and refine processes. As a result, the EVSMA guide will be refined to incorporate lessons learned.

Ogden's desire for transformation and their efforts to date are especially important considering transformational activities underway at higher command. AFMC is making tremendous resource investments in the Purchasing & Supply Chain Management and Depot Maintenance Transformation initiatives. The product from these initiatives will soon flow down to the ALCs. The ALCs prepared for change and desiring excellence will quickly adapt and capitalize on these initiatives.

The ELT summarized Ogden's transformation efforts best. They were confident that they were successful in deriving the strategy for change, but the hard part was yet to come -- implementation and quantifiable results.
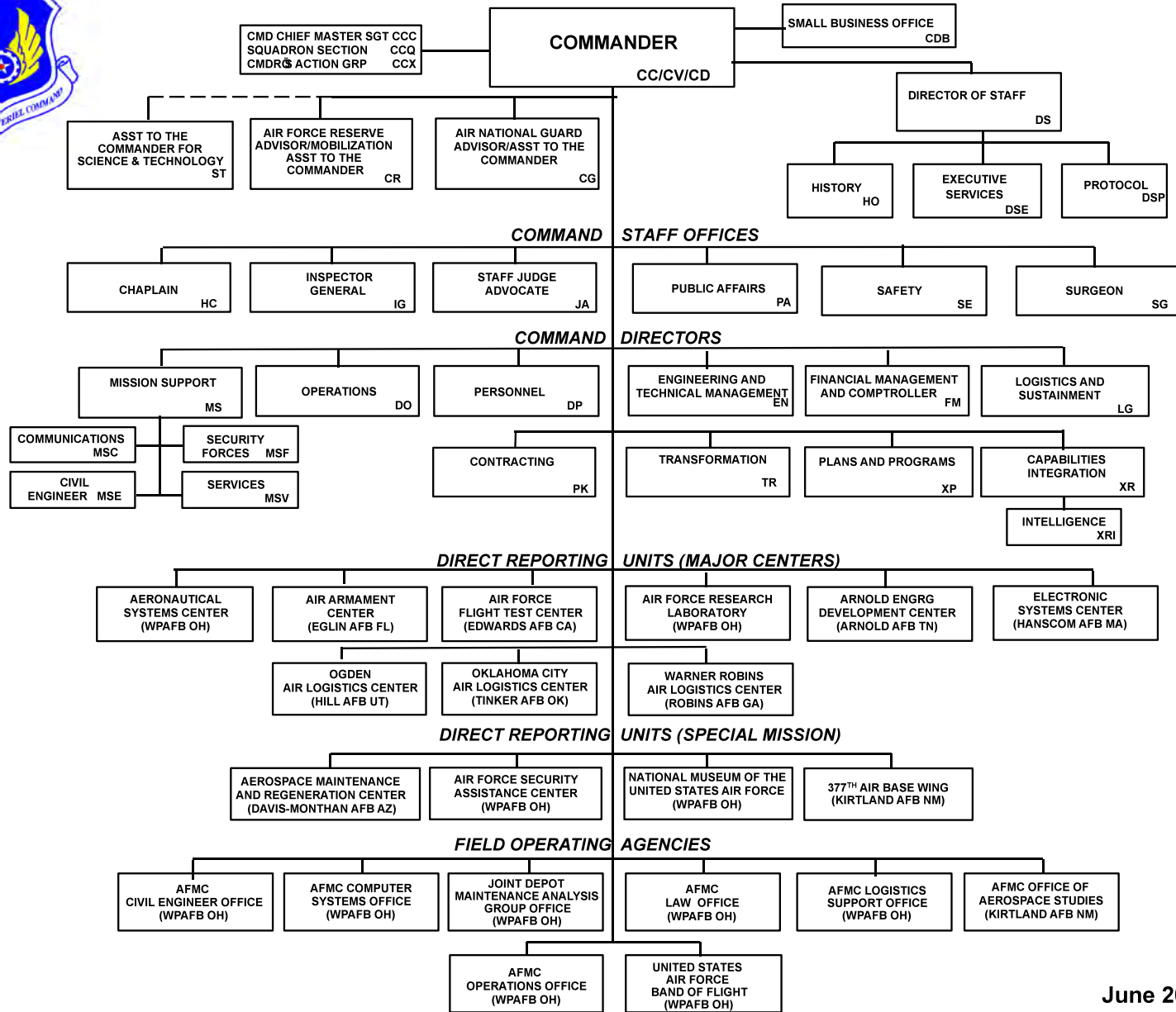
Organization Chart
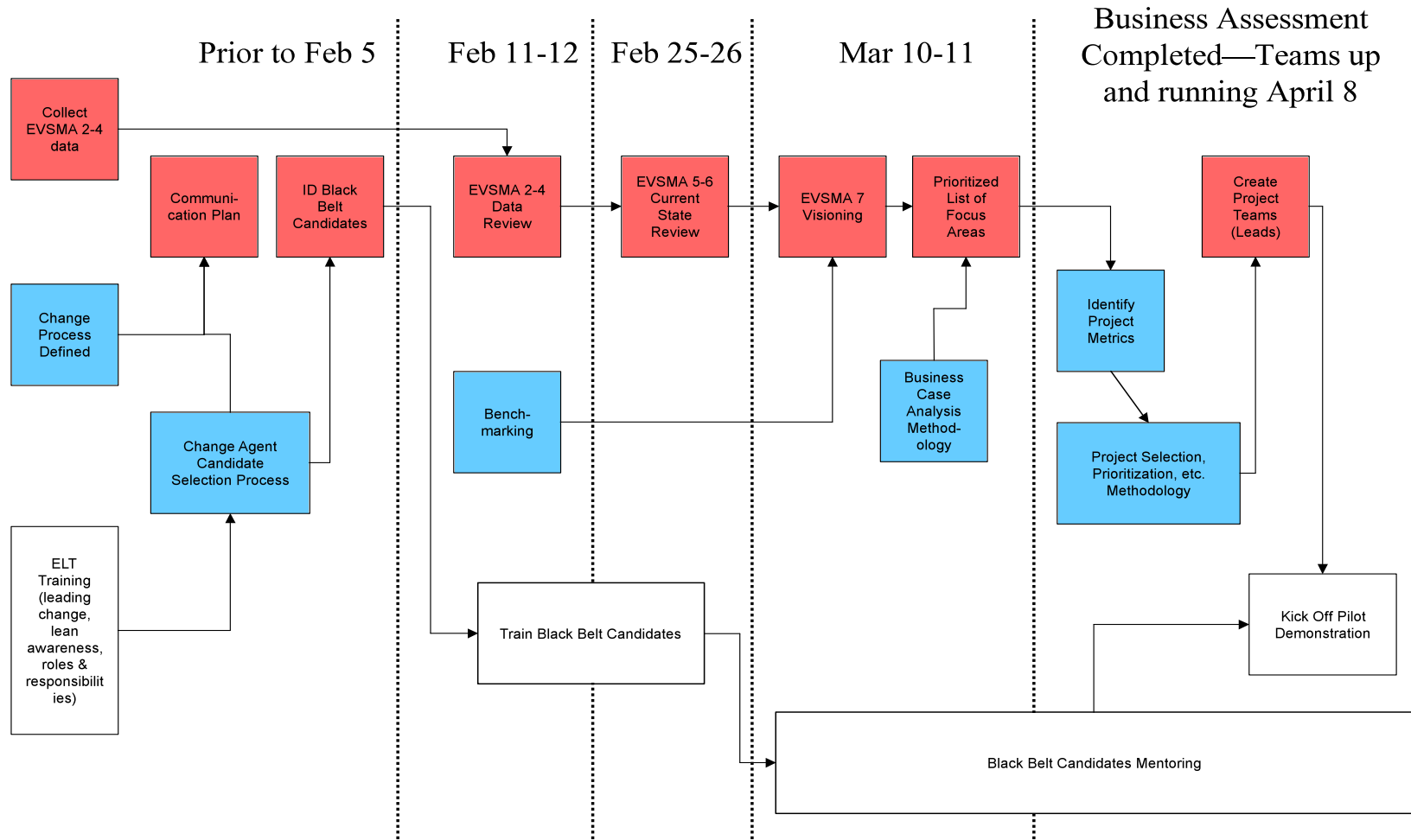
Ogden Air Logistics Center

CCR Mobilization Asst to the Cmdr	**CCX** Cmdr's Action Group	
CCV AF Reserve Advisor	**CCP** Protocol	
CCG ANG Advisor to the Cmdr	**CCA** Exec Officer	

CC
OGDEN AIR LOGISTICS CENTER
Commander

CV Vice Cmdr	**CD** Exec Director

CCC Command Chief Master Sergeant

CCD EEO

DP Civilian Personnel

BC Office of Small & Disadv. Bus.	**EM** Environmental Mgmt	**HO** History Office	**IG** Inspector General	**JA** Staff Judge Advocate	**EN** Engineering Directorate
AE Acquisition Excellence	**PA** Public Affairs	**QL** Specialized Mgmt	**SE** Safety Office	**XP** Plans & Programs	**IT** Information Technology
FM Comptroller Directorate	**MA** Maintenance Directorate	**LC** Mature & Proven Acft	**LG** Logistics Mgmt Directorate	**LH** Space & C3I	
	PK Contracting Directorate		**LM** ICBM SPO	**WM** Air-To-Surface Munitions	
	75th Air Base Wing	649th Combat Logistics Sq.	**YP** F-16 Mgmt	**YW** Training Systems Mgmt	

June 2004

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Organizational Chart

Air Force Materiel Command

COMMANDER
CC/CV/CD

CMD CHIEF MASTER SGT CCC
SQUADRON SECTION   CCQ
CMDR'S ACTION GRP   CCX

SMALL BUSINESS OFFICE
CDB

DIRECTOR OF STAFF
DS

ASST TO THE
COMMANDER FOR
SCIENCE & TECHNOLOGY
ST

AIR FORCE RESERVE
ADVISOR/MOBILIZATION
ASST TO THE
COMMANDER   CR

AIR NATIONAL GUARD
ADVISOR/ASST TO THE
COMMANDER
CG

HISTORY
HO

EXECUTIVE
SERVICES
DSE

PROTOCOL
DSP

COMMAND STAFF OFFICES

CHAPLAIN
HC

INSPECTOR
GENERAL
IG

STAFF JUDGE
ADVOCATE
JA

PUBLIC AFFAIRS
PA

SAFETY
SE

SURGEON
SG

COMMAND DIRECTORS

MISSION SUPPORT
MS

OPERATIONS
DO

PERSONNEL
DP

ENGINEERING AND
TECHNICAL MANAGEMENT
EN

FINANCIAL MANAGEMENT
AND COMPTROLLER
FM

LOGISTICS AND
SUSTAINMENT
LG

COMMUNICATIONS
MSC

SECURITY
FORCES   MSF

CIVIL
ENGINEER   MSE

SERVICES
MSV

CONTRACTING
PK

TRANSFORMATION
TR

PLANS AND PROGRAMS
XP

CAPABILITIES
INTEGRATION
XR

INTELLIGENCE
XRI

DIRECT REPORTING UNITS (MAJOR CENTERS)

AERONAUTICAL
SYSTEMS CENTER
(WPAFB OH)

AIR ARMAMENT
CENTER
(EGLIN AFB FL)

AIR FORCE
FLIGHT TEST CENTER
(EDWARDS AFB CA)

AIR FORCE RESEARCH
LABORATORY
(WPAFB OH)

ARNOLD ENGRG
DEVELOPMENT CENTER
(ARNOLD AFB TN)

ELECTRONIC
SYSTEMS CENTER
(HANSCOM AFB MA)

OGDEN
AIR LOGISTICS CENTER
(HILL AFB UT)

OKLAHOMA CITY
AIR LOGISTICS CENTER
(TINKER AFB OK)

WARNER ROBINS
AIR LOGISTICS CENTER
(ROBINS AFB GA)

DIRECT REPORTING UNITS (SPECIAL MISSION)

AEROSPACE MAINTENANCE
AND REGENERATION CENTER
(DAVIS-MONTHAN AFB AZ)

AIR FORCE SECURITY
ASSISTANCE CENTER
(WPAFB OH)

NATIONAL MUSEUM OF THE
UNITED STATES AIR FORCE
(WPAFB OH)

377TH AIR BASE WING
(KIRTLAND AFB NM)

FIELD OPERATING AGENCIES

AFMC
CIVIL ENGINEER OFFICE
(WPAFB OH)

AFMC COMPUTER
SYSTEMS OFFICE
(WPAFB OH)

JOINT DEPOT
MAINTENANCE ANALYSIS
GROUP OFFICE
(WPAFB OH)

AFMC
LAW OFFICE
(WPAFB OH)

AFMC LOGISTICS
SUPPORT OFFICE
(WPAFB OH)

AFMC OFFICE OF
AEROSPACE STUDIES
(KIRTLAND AFB NM)

AFMC
OPERATIONS OFFICE
(WPAFB OH)

UNITED STATES
AIR FORCE
BAND OF FLIGHT
(WPAFB OH)

June 2004

Strategic Schedule [Jan 04]

Source: ELT in-work documentation

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EVSMA Process

Enterprise Value Stream Mapping and Analysis

EVSMA Approach

1: Define the Enterprise
- Motivate change - describe the "Case for action"
- Identify and empower Leadership Team
- Describe the enterprise, identify the scope of the effort
- Create a team charter

2: Identify Stakeholder Value Exchange
- Identify key stakeholders
- Define the value exchange between each stakeholder and the enterprise - value contributed and value expected
- Prioritize stakeholder values

3: Characterize Current Strategic Objectives
- Identify current strategic objectives
- Identify associated metrics
- Analyze current enterprise performance relative to strategic metrics

4: Analyze Current Enterprise Processes
- Identify current major enterprise processes
- Collect enterprise process performance data

5: Analyze Current Enterprise Interactions
- Prioritize processes based on enterprise impact
- Assess process and stakeholder interactions

6: Synthesize Current State
- Identify enterprise level waste
- Apply LESAT - to evaluate current state maturity and identify desired state

7: Envision Future State
- Develop lean enterprise vision for 3-5 years in the future
- Perform gap analysis between current state and future vision

8: Develop Implementation Plan
- Prioritize improvement projects
- Prepare EVSMA proposal for executive review and approval
- Provide input to develop detailed transformation/ implementation plan

Who should use it?
Enterprise leaders looking for a how-to method for analyzing their enterprise

What does it do?
Provides a structured approach to define and characterize the current state of the enterprise from various perspectives, create a future state vision, and identify a plan to close the gap between the two

What are the benefits?
Identifies improvement opportunities that will benefit the entire enterprise; creates an integrated improvement approach which prevents localized sub-optimization

Define and Characterize the Current State

Enterprise Boundaries

Enterprise Interactions — LESAT

Strategic Objectives

Stakeholder Values

Enterprise Wastes — Enterprise Processes

Close the Gap

Create the Future State

Lean Enterprise Vision
- 3-5 years in the future
- ¥ Enterprise Goals
- ¥ Vivid description
- ¥ Key result areas or strategic imperatives
- ¥ Revised system of metrics

What is an Enterprise Value Stream?
A portrayal of the relationships of the enterprise with its external environment and stakeholders and the general ordering and integration of high-level internal enterprise lifecycle, enabling, and leadership processes.

End-Use Customers
Shareholders
Society
Employees
Government
Corporation/ Military Command
Buying Customer
Partners
Suppliers
Financial Community
Unions
Academia
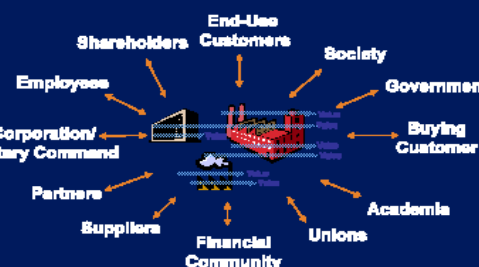
Progress
3 LAI alpha test successfully completed
9 MIT alpha tests completed as graduate student projects on actual enterprises
Several additional test sites identified
Beta version expected May 2004
Version 1 expected September 2004

EVSMA Engagement (~3 months)
Identify Leadership Team
Kick-Off Event (1/2 day)
- ¥ EVSMA step 1
Workshop # 1 (2 days)
- ¥ Lean Leadership Training
- ¥ Start EVSMA steps 2-4
Data Collection (1-2 weeks)
- ¥ Characterize data for steps 2-4
Workshop # 2 (2 days)
- ¥ Finish EVSMA steps 2-4
Conduct LESAT (1/2 day)
Workshop # 3 (2 days)
- ¥ EVSMA steps 5-6
Workshop # 4 (2 days)
- ¥ EVSMA step 7
Workshop # 5 (2 days)
- ¥ EVSMA step 8

Stakeholder Value Exchange Example

End Users

Value from *Expected*	END	Value to *Contributed*
Frequent Credible Communication	USERS	**Feedback** HAFB
Quality Products	Warfighter	**Advocates**
Accurate Timely Schedule	MX	
Proactive, Predictive Management Program	Users	
Stable Costs	Foreign Countries	
Spares Available on Shelves; Wait Minimum Time	Military Combat Commanders Using Commands	
Maximum A/C Availability: On-time, Combat Quality,		
Good Parts Value: Quality Parts, MICAP		
Rapid Mod Employment, Thinking Operational		
Responsive		

Warfighting Commands
ACC, ANG,
AFRC

Stakeholder: End User

Major Factors Contributing to End User Value:

Current Performance (High / Low)
Relative Importance (Low / High)

- Spares Available On Shelf
- Quality Product
- Proactive Predictable Prog. Mgmt.
- Accurate Schedule (Timely)
- Stable Costs
- Frequent Credible Communication
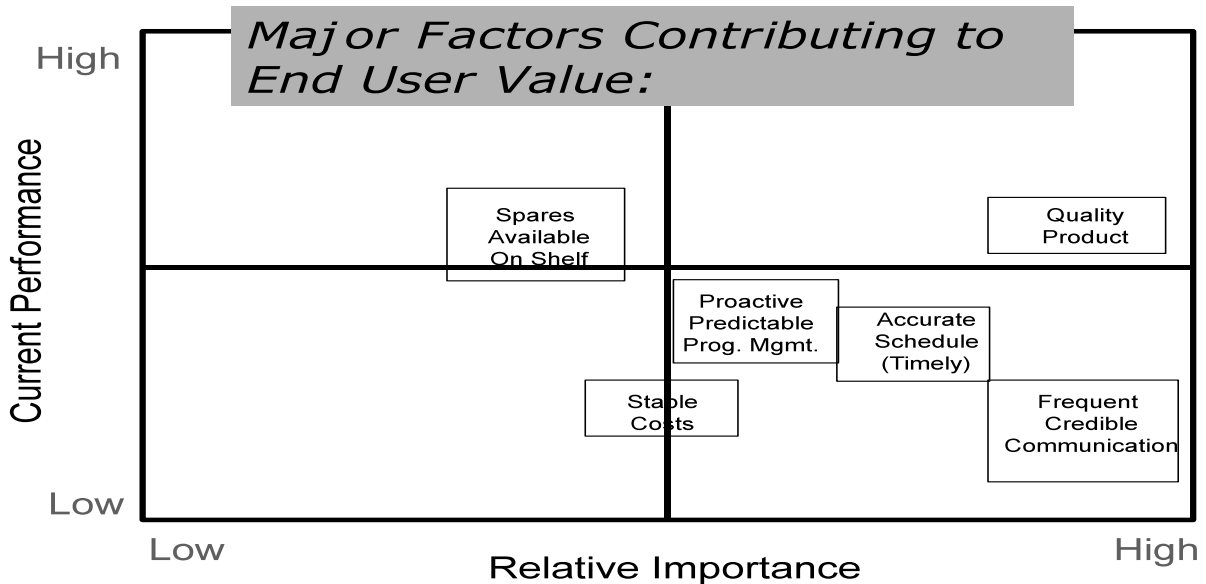
Lean Expert Position Description [Excerpts]

(GS-13 Level)

PURPOSE OF POSITION AND ORGANIZATIONAL LOCATION
The primary purpose of this position is: To serve as a lead project manager/facilitator (expert change agent) responsible for leading, training and mentoring internal and external team members and participants dealing with complex projects/programs.

KEY DUTIES

DUTY 1: Plans the management strategy for assigned LEAN projects/efforts within cost, schedule, and performance baselines as directed by the supervisor. Assigned projects/ efforts are characterized by unusual factors and pressures that create a management situation resulting in a substantial element of uncertainty and risk as to the foreseeable outcome. Vital aspects of the program require the development of new approaches to problems and the pursuit of alternative courses of action. Generates specific plans, goals, and objectives consistent with policies and requirements. Advises supervisor of significant actions or problems, and recommends solutions. Complies with all security directives and policies as required. Analyzes interrelated issues of effectiveness, efficiency, and productivity; facilitates and assists teams in developing recommendations to solve problems; and applies program management principles to guide program accomplishment through the various phases. LEAN effort and program complexities frequently require reprogramming and adjustment of schedules, funding, and the activities of program participants.

DUTY 2: Plans, organizes, leads, and facilitates the activities of Implementation Team members, leaders, subject matter experts and Green Belt facilitators. Leads team members in all phases of the management of the project LEAN Effort to include baseline analysis, operational analysis, process stability, process improvement and control systems. Educates team members in LEAN principles, processes and tools. Continually studies, reviews, and evaluates LEAN effort project/program progress. Formalizes system requirements into appropriate specifications. Establishes management controls such as milestones, expenditure rates, management indicators, and management reviews to reflect program status and provide early detection of emerging problems. Reviews programming documents and/or accesses the impact of internal and external actions to determine their effect on the development, production, and targeted areas of improvement and to ensure that programs are within baseline and budgetary limitations. Organizes teamwork efforts and leads a team of specialists in resolving a variety of issues to include technical, schedule, cost, and supportability. Provides feedback to customers, and team members, as well as keeping abreast of changing environments and potential shifts in emphasis or other program changes.

DUTY 3: Represents the organization at executive levels within the Government and to contractor/industry representatives. Participates in conferences and meetings to deliver presentations on project/program status, accomplishments, challenges encountered and anticipated, support requirements, and the integration and advocacy of program and project objectives. Negotiates and resolves controversial issues, advocates proposals and recommendations, and reports on progress in resolving critical issues. Consults with managers and executives to influence future policies and initiatives from a program management perspective.

DUTY 4: Prepares, presents, defends, and interprets staff and team results to the Director and/or other management officials. Conducts Team leadership meetings and Implementation Team meetings to address problems, technical developments, program changes, etc., and to collectively prepare a team approach to process changes. Briefs higher levels of management on program progress, problems, and other factors of interest or inquiry. This includes making recommendation, which can affect the structure and future work of the organization. **DUTY 5:** Creates, organizes, leads, conducts and monitors training for the activities of individuals becoming Green and Black Belt Lean Facilitators at OO-ALC. Updates or creates appropriate training programs and material. Teaches/facilitates all Process Improvement (PI) training being conducted at OO-ALC from the Executive/Directorate level personnel to individuals working the processes, to include the training of new PI Green Belt Facilitators. Mentors, oversees and trains new facilitators as they engage in LEAN Process Improvement events to assure competence and prepare facilitators to stand on their own. Analyzes interpersonal and team interactions; develops solutions; and applies facilitation principles to guide team accomplishment through the various phases. Facilitation and training complexities frequently require reprogramming and adjustment of schedules, funding, and the activities of program participants.
DUTY 6: Submits recommendations for improvements in training, communication, facilitation and utilization of Process Improvement tools.

RECRUITMENT KNOWLEDGES, SKILLS, AND ABILITIES

1. Knowledge of Process Improvement tools, and principles of facilitation techniques, as well as (DROP: laws), principles, procedures, and techniques of LEAN methodologies. (DROP: policies, and practices of program management.)

2. Knowledge of business, labor standards, industrial management, administrative practices, process improvement, contracting procedures, technical concepts, and production practices to evaluate proposals/activities.

3. Knowledge of team facilitation, training requirements, teaching techniques, and human dynamics, to conduct Process Improvement Events and train facilitators at all levels below the executive level of the OO-ALC. 4. Knowledge of the missions, roles, functions, organizational structures, and operation of the Department of Defense, Air Force, and other entities that govern, interface with, and/or influence the project management process improvement process.

5. Ability to relate instructional material, facilitation techniques, and process improvement tools to real life situations in a variety of work environments.

6. Ability to communicate both orally and in writing, clearly, concisely, and with technical accuracy.

7. Ability to establish and maintain good relationships with individuals and groups within the office as well as outside the immediate work unit.

8. Ability to plan, organize, lead, mentor, train and manage critical aspects of research, development, production, and support of subsystems or equipment, and integrate, analyze, and manage a variety of project/program management functions and personnel.

Source: ELT in-work documentation

Strategic Vision

Source: ELT in-work documentation

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