THE EXCEPTIONAL RELEASE

ER

Spring 2016

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President's LOG (ISTICS)

Dennis P. Dabney

Dennis P. Dabney
President, LOA

Esteemed Members,

Greetings from our Nation's Capital! The snowstorm is past, spring is in the air and things are back to normal here. I hope this note finds you well and making a difference across the global maintenance, logistics, and acquisition enterprise. Your LOA National Board has been busy with preliminary symposium planning, inducting new board members and strengthening our outreach to you.

I will start off this note with an announcement: The 2016 Logistics Symposium and University is only 8 months away and will be held 11-14 Oct 2016 at the Gaylord National Resort and Conference Center in National Harbor, Maryland. This world-class facility will serve as the backdrop to evolve the L.I.V.E. theme focusing on Leadership, Innovation, Velocity, and Excellence. The LOA and Symposium websites and social media streams will be updated soon with more information.

Please join me in welcoming Col Scott Fike as the 2016 Symposium Chairman. Scott is a graduated maintenance group commander, experienced officer professional development leader, and currently the President of the Wright Brothers Chapter. Scott and our symposium planners, EventPower, are already hard at work building a first class professional development event.

Also hailing from the Wright Brothers Chapter, is our newly appointed National Membership Chairman, Major Dara Hobbs. Dara comes to the board at an exciting time with the emergence of the Acquisition Officer Association chapters and the joint base construct potentially expanding our membership with sister-service mission partners.

Lastly, Maj Gerard Carisio joins the National Board as the Editor-in-Chief of our quarterly journal, The Exceptional Release. Gerard is a former United States Air Force

Academy English professor (I can’t make this stuff up) and is obviously well suited to bring the ER to the next level. Gerard takes over the ER from Lt Col Jim Dorn who has done an outstanding job spreading the Association's message for almost 10 years. Thanks to all of our new board members for selflessly stepping up to serve LOA at the National level.

I had the opportunity to address our LOA and AOA chapter leadership recently and personally thanked them for guiding our total force acquisition and logistics community and fostering the next generation of informed and connected logisticians. I have seen truly dynamic agendas and programs in my short time in office and I am very excited about what our chapters are doing. Capt Carrie Kerner continues to do a spectacular job as Chapter Ambassador and I greatly appreciated the engagement.

Our highly successful industry professional development webinars will continue in 2016 as we continue to grow our outreach to members on subjects ranging from military transition to leadership development.

Thank you for all that you do. Please keep the feedback coming.

Sincerely,

Dennis P. Dabney

President, LOA

Exceptional Release

Editors Debrief

Lt Col Jim Dorn

Lt Col Jim Dorn
Editor-in-chief, Exceptional Release Military Journal

After 8 years as a field editor and almost 2 years as editor for the Exceptional Release, the time has come for me to pass the reins to Maj Gerard Carisio. Gerard is currently serving as the Commander of the 100th Maintenance Squadron at RAF Mildenhall, United Kingdom. However, as Col Dabney mentioned, he is a former English professor at the USAFA making him an excellent replacement. He's already jumped right into the mix and will publish the next edition.

This final Editor's Debrief is purely about thanks. I start by thanking the great team of field editors that I've had: Col (ret) Richard Schwing, Maj Tim Dodson, Capt Montanna Ewers, Scott Manno, and Robert Bosworth. These are the folks who do the grunt work of the initial edits of every article which comes to the ER. They do it above and beyond their normal duties as Commanders, Deputies, and DOs.

I must also thank a recent addition to the ER Staff, 1Lt David Loska. He serves as the Publisher and is solely responsible for the graphical improvements to the digital edition. At first, he was a little shocked at the free reign I gave him with the layout, but it paid off. He continues to make the journal better and I'm quite confident he and Gerard will bring the digital issue back to the magazine feel of the former printed copy.

Lastly, but most importantly, I would be extremely negligent if I didn't give immense thanks to Col (ret) Mary Parker. Mary has been with the ER as long as I can remember and serves as the Asst. Editor. It's a title that doesn't truly give her ER efforts justice. She is the glue that holds this journal together. Without her efforts and her passion for the journal, the ER would not function near as well as it does today. Thank you Mary for everything you've done, you're doing, and will do for the journal.

Safe, Reliable, and Efficient…In that order
Jim

Lt Gen John B. Cooper, Deputy Chief of Staff for Logistics, Engineering, and Force Protection Headquarters U.S. Air Force, Washington, D.C.

Lt Gen John B. Cooper

Some Logistics Truths

First I'd like to welcome everyone into the New Year, and congratulate the entire Log Nation for an outstanding performance in 2015. In 2015 we saw a hectic year punctuated by the need for more USAF airpower, and the Log Nation delivered. You responded to our Nation's call many times—from countering ISIS, to flying bombers over the Pacific, to hurricane relief ops and more, and I am so proud to be a part of Air Force Logistics and proud of your collective contributions to the Air Force mission!

At the 2015 Logistics Officers Association Symposium I introduced what I called our core "LOGTRUTHS"— a few of what I believe are the most important logistics lessons Airmen have learned over 70+ years of American airpower. Generally speaking if actions followed these ideas, we tended to succeed. They are not so much a prescription for solving a problem, but more like "loggie-mantras" for leaders who, when presented with a logistics problem, have a doctrinal starting point to lean on when building a solution. For basketball fans, these truths

would be like a coach leaning on the principle, "square your shoulders before taking the shot" when helping a player fix his or her jump shot. Simple in construction, the LOGTRUTHS are heavy in content and learned at the "school of hard knocks" by Air Force loggies over the decades:

LOGTRUTHS (loggie-mantras)

- Rear operations must be connected and respond to forward operations
- You don't have to own it to use it
- A better trained Airman is a more capable Airman
- Accurate requirements = effective logistics
- AF logistics cannot succeed without Joint logistics
- All good logistics work is done in process

Over the next several **ERs,** I'd like to describe the LOGTRUTHS as I see them. I think it is important to write these truths down so we can learn from them and avoid problems others have solved. We also need to teach the next generation what we learned. I believe the LOGTRUTHS are the seed corn of Air Force logistics doctrine.

LOGTRUTH1- Rear operations must be connected and respond to forward operations: We've all been there. You're In the middle of daily sortie generation and the ammo loads delivered are not correct. Or you're in the middle of a Phase I deployment exercise and Squadron X has not delivered its cargo on time according to schedule—the published DSOE (deployment schedule of events) was not transmitted to all units. These problems highlight a simple imperative—for operations to be successful all organizations must be connected and responsive to requirements. In these examples, for aircraft or deployment generations to be

successful the squadron or Wing C2 must set the requirements, and the supporting organization must be connected and responsive to those requirements for operations to succeed.

This same basic philosophy of "connected and responsive" can be applied at all levels of logistics. At the operational level of logistics (meaning theater-level operations) the enterprise must be connected and responsive to forward forces, which can be challenging for enterprise leaders. Early in our history we found that keeping the rear and front connected worked fairly well, but keeping the front supplied was a big problem. As the USAF established garrison bases around the world, the tyranny of distance caused delays in responding to the needs of the front. To mitigate the problem, we established large stocks of supplies to buffer the lag between requesting re-supply and actually receiving the goods. The method of supporting distant operations with large stocks worked well for the first five decades of USAF airpower, but between 1988 and 1992 two environmental factors forced Air Force logistics to change. First, we simply could not afford to operate like we had been—our ability to fly from so many well-established bases with huge stocks all over the world was draining resources. Second, as America deployed to the 1st Gulf War, we learned the difficulty of deploying to new and bare bases……we had to transform to an expeditionary Air Force. Speed and agility would be the key to success in the future. While the LOGTRUTH (the rear connected and responsive to forward ops) remained true, Air Force logistics had to change how it addressed the issue. We had to move from large garrison-based buffer stocks to be leaner, cheaper and quicker.

Many initiatives were started in the early 2000s to address this problem, and all had the same basic premise—centralized management supports decentralized operations. The journey to centralized logistics management was the next effort to be leaner, cheaper and more responsive to forward operations. Concepts like centralized supply chain management for medical, aircraft

parts, munitions, POL, vehicles and household goods became a reality. Organizations were formed to focus on global commodity support; SCOW (supply support), VEMSO (vehicle support), AFPA (POL support), GACP (munitions). The Defense Logistics Agency also became more prominent in Air Force activities. Efforts continue today to become faster and more agile using centralized management to support decentralized operations. In 2014 the Air Force Logistics Board approved centralizing WRM management, and in its first year the WRM office has found great efficiencies while strengthening support to customers. Centralization efforts continue, with work currently in progress to centralize equipment and MRSP management. All these fielded efforts have proven both mission and cost effective, and improved the connection between rear and forward operations.

Centralizing management to maximize connectivity and responsiveness has proven a rock-solid method. So what is the next big idea to make us go faster so we can keep up with an ever-accelerating world of new adversaries? In the 2000s the Air Force implemented its Air and Space Operations Center construct—AOCs are the way the USAF commands and controls its air and space activities. Today the Air Force operates 13 AOCs covering the world. Should the next step toward improving the connection between the rear and the front be to adopt an "AOC" concept for Air Force logistics? Picture a Logistics Ops Center (LOC) connected to the Warfighter and geared to respond globally to AFFOR/CCs supporting supplies, vehicles, munitions, POL, equipment, MRSPs, WRM, clothing and repair networks…..all under one roof. This LOC could be connected to AFFOR logistics staffs around the globe, prioritizing efforts, and shrinking the response time needed to support MAJCOM operations in peace, and COMAFFOR's campaign plans in crisis. It's an idea worth debating.

In the next **ER,** I'll discuss the next 2 LOGTRUTHS; "You don't have to own it to use it", and "A better trained Airman is a more capable Airman". I encourage LOA chapters to join the conversation, and debate these LOGTRUTHS (I was happy to hear the Wright Brothers Chapter in Dayton has already begun to discuss and debate the LOGTRUTHs!).

Thanks for what you do every day for Air Force Logistics!

Lt Gen John B. Cooper,

Deputy Chief of Staff for Logistics, Engineering, and Force Protection Headquarters U.S. Air Force, Washington, D.C.

SES SPEAKS

With Mr. Frank Washburn, a member of the Senior Executive Service, is Director of the 448th Supply Chain Management Wing, Air Force Sustainment Center, Tinker Air Force Base, Oklahoma.

Mr. Frank R. Washburn, Jr.

What is the Future of the Air Force Supply Chain?

Contributing Author: Capt Joseph Mercurio

I proudly started my Air Force career in September 1975 as a supply troop operating keypunch machines, researching items on microfiche readers, and "chasing parts" to keep the 90 F-111As at Mountain Home AFB flying. While technology, centralization, innovation and industry best practices transformed the organic supply chain over the course of my 40-year career, one thing has remained unchanged---the Warfighter is counting on the supply chain to deliver the right part, at the right place, at the right time to deliver combat power for America. Sounds easy enough---after all, the Air Force organic supply chain has delivered on-time Warfighter support to a wide-range of weapon systems in essentially uncontested environments for decades. However, the migration of supply chain management from government organic to private industry over the last 20 years led me to contemplate the consequences of multiple contractor managed supply chains that support specific weapon systems.

Logisticians in my peer group are likely familiar with the distinction between government organic and industry managed supply chains. That said---a new Air Force logistician with two assignments, one at a C-17 base and one at an F-22 base, may be more familiar with industry-based Contractor Logistics Support (CLS) versus the Air Force Airmen (military and civil servants) that operate the organic supply chain to provide commodity life-cycle sustainment for A-10, F-16, F-15, B-1, B-2, B-52, KC-135, C-130, C-5, ICBM, Space & C3I, amongst others.

At face value, my apprehension regarding the recent migration of supply chain management to contractor managed supply chains that support a specific platform may seem like a fairly benign issue---perhaps the following "futuristic" vignette better illustrates my concern.

> *In response to hostilities against a US allied country by a near-peer adversary, the United States Air Force deployed F-35s, F-22s, C-17s, CV-22s, MQ-9s, and B-1s into a contested AOR to demonstrate US resolve to support our allies. The F-35 deployed a unique contractor managed logistics system to enable supply chain support, while the F-22, C-17, CV-22, and MQ-9s deployed the Government On-Line Data (GOLD) system to enable their weapon system unique supply chain requirements to "feed into" the Air Force Standard Base Supply System (SBSS). The B-1 is supported by the Air Force organic supply chain through the Air Force Enterprise System-Supply. As hostilities escalated, the JFACC/A4 staff attempted to gain Total Asset Availability (TAV) of spares and support equipment for deployed aircraft as well as delivery dates for mission critical parts. However, the lack of an integrated supply chain capability to "fuse" data to provide the status and location of spares and support equipment for both Air Force and contractor managed spares and support equipment created theater-wide Logistics Command and Control (C2) and TAV gaps. In addition, limited authority by deployed Air Force logisticians to re-distribute contractor managed spares and the inability to share common parts across weapon systems impacted Logistics agility. As a result, Logistics leaders are challenged with making timely, informed, and authoritative decisions on spares availability, distribution and prioritization of the flow of critical assets in and out of the theater to meet Warfighter requirements.*

While some may believe the above anecdote is improbable, I believe it is risky for logisticians not to study the considerable complexity of Logistics C2 and the potential effects on Warfighter support by employing multiple weapon systems unique, non-integrated supply chains "inside the arc" in a contested, high velocity conflict---with a potentially 5,000 mile supply chain. A key tenet of Logistics in Joint Pub 4.0 is simplicity---and the above vignette highlights that Logistics in the future is anything but simple, and we need to fix that.

It is in that context, that I posit the following questions: Is our current approach to weapon system unique Supply Chain Management (SCM) with multiple supply chain solutions a best value strategy to achieve Warfighter outcomes? Will the Air Force organic supply chain become unsustainable and irrelevant due to the retirement of legacy weapon systems? In order to shed some light on those questions, and provide more context into the "so what" on this topic, this article outlines some of the background on the recent migration from organic to industry-based SCM, the supply chain value proposition, potential consequences of the migration to contractor supported SCM, and offers options for future Air Force SCM concepts.

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Background

With $5.8B in buy and repair requirements in FY16, the organic supply chain is big business---and would rank #450 in the Fortune 500. While the organic supply chain is big business, it's also old business. The current workload of the organic supply chain has been

largely determined by sustainment decisions made between 35 and 65 years ago during the acquisition of major weapon systems still flying today, such as the B-52, C-130, KC-135, F-15, and F-16. As shown in Figure 1, approximately 90% of the FY16 Air Force working capital fund spent for organically managed spares is for items related to weapon systems initially fielded prior to 1980.

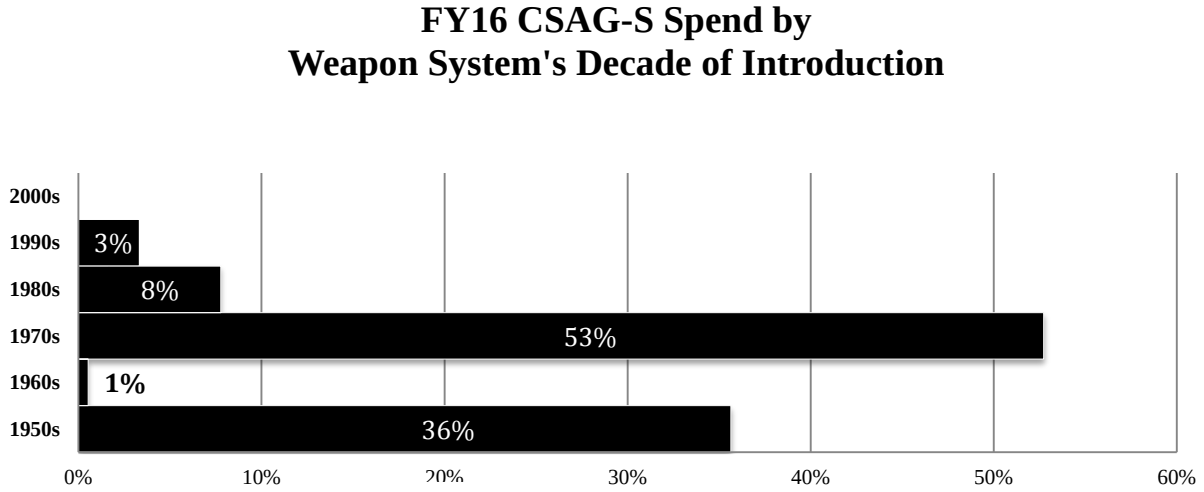

Figure 1: % of Total Buy & Repair

There are two main reasons why the Air Force's organic supply chain is mostly in the legacy parts business. The first is because the Air Force is largely in the business of flying legacy aircraft due to modernization delays following the Cold War drawdown. With an average fleet age of 27 years, it's no surprise that the majority of organic supply chain funds are spent for fleets developed and fielded in the 1970s. Not only is it taking longer to replace entire fleets, but the average fleet size is smaller due to both budget limitations and advanced capabilities offered by the next generation aircraft, which reduce the overall demand for spare parts.

The second reason for the disparity is that beginning in the 1990s, due to a variety of factors, the acquisition community started relying more on Contractor Logistics Support (CLS) or a commercial Performance Based Logistics (PBL) provider for SCM functions that would

normally have been supported organically. Figure 2 shows the SCM provider for fleets fielded from 1950 to present day.

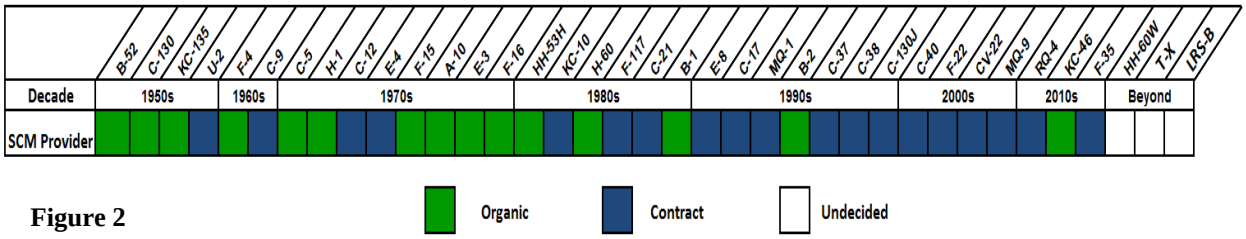

Figure 2

Organic Contract Undecided

According to a 2009 Project Air Force RAND study, prior to 1990 organic support was the default choice for SCM functions, with exceptions typically made for small fleets, highly classified programs, and commercial derivative aircraft. A number of factors challenged the status quo in the 1990s, such as political pressure to push more work to the private sector, acquisition reform initiatives that encouraged CLS and PBL strategies, and decreased funding following the end of the Cold War when it was believed that private industry offered more cost-effective support than military depots could deliver. There is also widespread belief that System Program Offices favor a weapon system level outcome-based (e.g. aircraft availability) approach to SCM versus the individual commodity/transaction-based Air Force organic approach to SCM.

According to a 2009 Project Air Force RAND study, prior to 1990 organic support was the default choice for SCM functions, with exceptions typically made for small fleets, highly classified programs, and commercial derivative aircraft.

Another way to view the trend over time is to look at total flying hours by organic and CLS supported aircraft. Figure 3 shows the total for each category from 2003 to 2015. The year 2011 was the turning point in which total CLS flying hours exceeded organic flying hours. To some extent, the C-17, F-22 and CV-22 are responsible for a portion of the increase in CLS flying hours, but by far the largest increase was due to Unmanned Aerial Vehicle (UAV) fleets.

Between the RQ/MQ-1 Predator, RQ-4 Global Hawk, and the MQ-9 Reaper; average flying hours between 2003 and 2007 was a little over 8,000 hours. A few years later, UAV flying hours increased 1,100% to an average of 92,000 flying hours between 2011 and 2014. The UAV supply chain is one domain in which the Air Force organic supply chain has very little involvement.

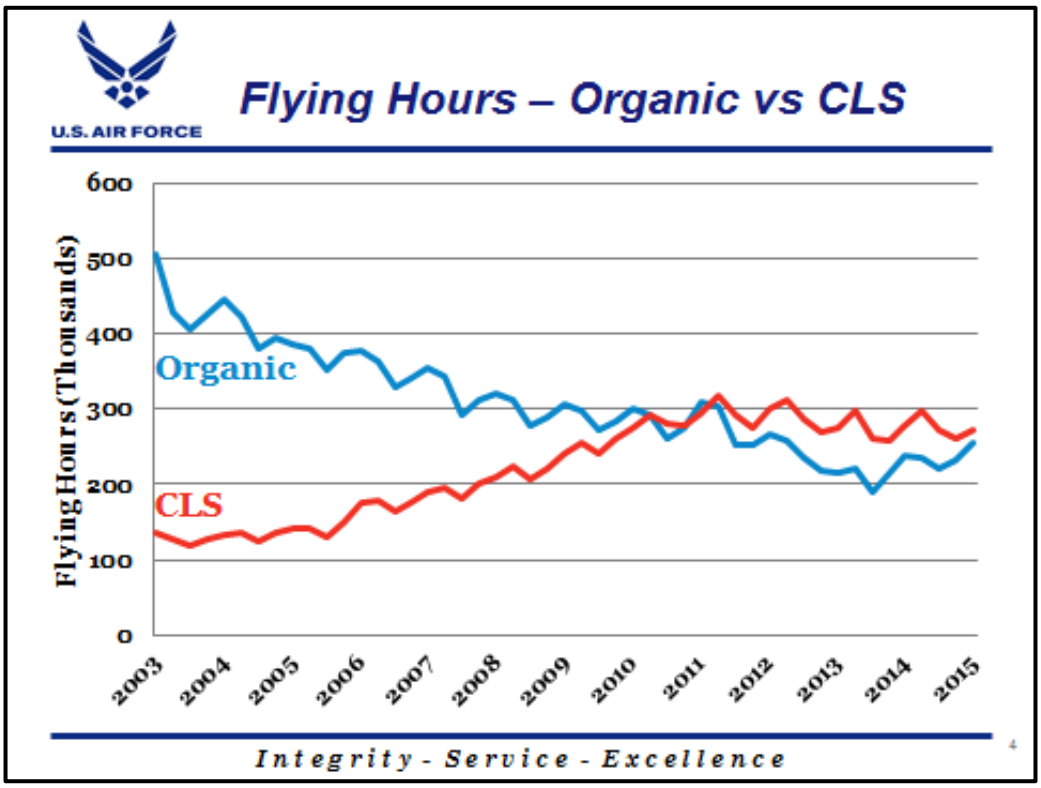

Figure 3

As outlined above, the Air Force's organic supply chain of today is a function of sustainment decisions made between 35 and 65 years ago. Likewise, the Air Force's organic supply chain of 2035 will be shaped by the sustainment decisions we make today for weapon systems such as the KC-46, Long Range Strike Bomber (LRS-B), JSTARS recapitalization, a new combat rescue helicopter, and a new advanced T-X trainer aircraft.

Value Proposition

While the background of the Air Force organic supply chain may provoke some thought about the future relevancy of the organic SCM, an examination of alternative product support strategies provides insight into the general value proposition of organic and CLS product support strategies.

Planning for sustainment begins early in the acquisition life-cycle. In order to arrive at a product support strategy that provides best value, Public Law 111-84, Section 805 (FY10 NDAA) requires the Product Support Manager (PSM) to compare alternative product support strategies through a Product Support Business Case Analysis (PSBCA) and be revalidated at a minimum of every 5 years. A PSBCA is a structured methodology that provides an objective value analysis exploring cost, benefits and risk among alternative support strategies. As such, the PSBCAs completed over the past several years provide a rich set of data that can be mined to extrapolate general strengths and weaknesses of product support strategies.

While PSMs are directed to develop a product support strategy that achieves best value, best value can mean different things to different Program Offices. Small, highly specialized fleets with a mission vital to national security may place a higher premium on performance than cost, while larger fleets may weigh Operations and Sustainment costs more heavily. Not only is best value not the same across all weapon systems, but neither are the PSBCAs. They differ in methodology, assumptions, models, weights, criteria, metrics, and who performs the analysis. Nonetheless, there are enough

A PSBCA is a structured methodology that provides an objective value analysis exploring cost, benefits and risk among alternative support strategies.

commonalities among the various studies to generalize where the organic supply chain or private industry has a competitive business advantage.

Quantitatively, Original Equipment Manufacturers (OEMs) are generally believed to be capable of delivering higher performance based on common supply metrics in analogous CLS or OEM supported weapon systems. The 2015 KC-46 PSBCA compared spares availability rates between the KC-10 and KC-135, while a 2009 RAND study compared Total Not Mission Capable Supply (TNMCS) metrics between CLS and organically supported fleets. While the supply metrics appeared better for CLS aircraft, the RAND report cautioned that it was unclear if that was a result of better and more stable funding, or an inherently more efficient SCM structure. In qualitative categories, OEMs were believed to be better capable of handling configuration management, integration with engineering, preventing and mitigating Diminishing Manufacturing Sources and Material Shortages (DMSMS), and managing low-demand items.

Quantitatively, organic SCM is usually the least expensive product support alternative as a result of intensive cost reduction and cost effective readiness initiatives. To date, through vastly improved demand forecast accuracy and strategic sourcing initiatives, the organic supply chain contributed over a billion dollars towards the Air Force Sustainment Center's *Road to a Billion and Beyond* campaign, which provided opportunities for funding higher-priority Air Force requirements and greater capability for the Warfighter at less cost to the taxpayer.

While an efficient supply chain is important---***effectiveness rules*** and organic SCM generally ranks moderately on performance. Organic SCM execution is usually rated higher than a 3rd Party Logistics (3PL) provider but lower than the OEM. In qualitative categories, organic SCM is rated highly in existing processes, tools and experience. Although not an outright advantage over OEMs, a RAND study on F-22 sustainment cautioned that contractor strengths in

centralized asset management, a combined supplier base, modern IT systems, faster logistics time, and integration of SCM with engineering may no longer be uniquely in the domain of private industry especially given recent process improvement initiatives within the organic supply chain and Air Force Sustainment Center.

If CLS contracts do not have enough room to flex in times of budget uncertainty, then organically supported platforms may bear a disproportionate amount of risk, particularly in critical but often neglected areas such as sustaining engineering and technical data.

An often overlooked organic SCM strength is in the area of funding flexibility. While stable or guaranteed funding may be desirable from the Program Office perspective, the existence of large "must-pay" CLS bills potentially undermine the ability for the corporate Air Force to apportion risk by providing and withholding weapon system sustainment funds. A 2011 RAND study noted that "Program Office personnel revealed that contractors often offer more-favorable prices in exchange for long-term contracts and/or a guaranteed minimum level of funding." In this way, a significant amount of must-pay bills for CLS contracts means that Air Force core mission areas that depend heavily on organically supported platforms may unfairly be put at risk in times of financial uncertainty. CLS contracts can be written in a way that provides for an adequate level of flexibility, but, at least historically, that does not seem to be the case. In the same study, an average of 70% of the CLS effort was contractually guaranteed for the 10 largest CLS programs in FY06. If CLS contracts do not have enough room to flex in times of budget uncertainty, then organically supported platforms may bear a disproportionate amount of risk, particularly in critical but often neglected areas such as sustaining engineering and technical data. On the other hand, the Air Force Working Capital Fund (AFWCF), which funds

organically managed weapon system spares programs, permits maximum flexibility for inter-weapon system tradeoffs as Air Force corporate priorities evolve.

While best value and generalized competitive business advantage are critical aspects of a product support strategy, the PSBCA process does not adequately assess the risk to Logistics C2 and Warfighter effects from fielding distinct weapon system SCM strategies. PSBCAs marginalize the organic SCM capabilities to provide integrated operational Logistics C2 to allow planners to make informed and timely decisions for the prioritization and movement of critical spares and support equipment into and out of a theater during contingency operations. The Air Force can capitalize on benefits that emerge when multiple platforms participate in the same supply chain. One example of how the organic supply chain provides cost-effective readiness is through achieving economies of scale. Economies of scale give more buying power back to the Warfighter because fixed costs are spread over a larger volume of transactions. A larger customer base also gives the organic supply chain greater negotiating leverage with its suppliers through the aggregation of demand. For example, the organic supply chain is able to minimize transaction costs through its strategic sourcing initiatives when platforms share the same item or at least the same vendor for a particular commodity.

When Air Force resources are limited, it benefits having a single supply chain manager who can ensure that limited resources are spent on the Air Force's highest priorities. It's hard to imagine a situation in which OEM X subsidizes an OEM Y commodity engineering project because it provides best value for the Air Force. PBL provides incentives, which align contractor motivations to those of the

A larger customer base also gives the organic supply chain greater negotiating leverage with its suppliers through the aggregation of demand. For example, the organic supply chain is able to minimize transaction costs through its strategic sourcing initiatives when platforms share the same item or at least the same vendor for a particular commodity.

government; however, we should not be deceived into thinking that the Air Force achieves an efficient outcome when each platform attempts to maximize its own performance. This is an example of stovepiped thinking that can lead to an inefficient use of scarce resources.

Consequences

The future state of the Air Force SCM should absolutely be decided on the basis of best value, while achieving desired Warfighter outcomes---whether in the stewardship of the organic supply chain, private industry, or combination of both. As mentioned, a PSBCA provides a best value recommendation for a particular system, and despite the criticisms levied against the way PSBCAs are conducted in the DoD, it is currently the best product support decision tool that we have available. That may support an opinion that the SCM outsourcing trend is simply an internal issue between the organization responsible the organic SCM, the Air Force Sustainment Center, and the weapon system Program Offices assigned to the Air Force Life Cycle Management Center---and that the rest of the Air Force should adopt a laissez-faire approach.

One reason why the Air Force should not take a laissez-faire approach to PSBCA "best value" outcomes is the risk to Warfighter. For example, the Air Force currently lacks a centralized Logistics C2 capability to integrate or "fuse" organic and contractor weapon system support data to provide Combatant Commands (COCOMs) with global, authoritative, end-to-end Logistics data in real time. The fielding of proprietary contractor IT systems to provide supply chain support to a single weapon system introduces complexity to the Logistics "kill chain" that we need to fix in order to provide Combatant Commanders with immediate and seamless Logistics C2 in a contested environment. In addition, non-integrated, weapon system unique chains prevent the real time visibility and access to spares that are common across weapon

systems, potentially limiting our ability to leverage global spares to generate combat sorties. At the end of the day, it is the Warfighter at risk when determining best value.

Another reason why the Air Force should be skeptical of a laissez-faire approach towards product support decisions is that historical decisions can cause the Air Force to become "locked-in" to an inferior cost or performance outcome or prevent the Air Force from switching to a superior alternative. Suppose that the Air Force determines that Firm A provides best value over Firm B for a certain CLS contract, but that the situation reverses itself in 10 years such that Firm B is then preferable over Firm A. The only difference then is, what time period each firm enjoys a relative advantage over the other. Does the Air Force benefit from switching CLS providers? One reason the Air Force should not switch is if the non-recurring cost of the workload transition exceeds the potential benefit of switching. As a RAND study notes, "few CLS contracts are competed," and "contractors are unwilling to bid on CLS contracts unless the contract terms are long enough to make it worthwhile for them to purchase the required spares and the initial nonrecurring tooling to do the work." When the cost to switch exceeds the benefits of switching, the outcome is not necessarily based on the current capabilities of each contractor, but is also influenced by the consequences of prior sustainment decisions. Therefore, the past has a way of influencing future outcomes, even when the circumstances under which the initial advantages occurred are no longer present.

In addition, non-integrated, weapon system unique chains prevent the real time visibility and access to spares that are common across weapon systems, potentially limiting our ability to leverage global spares to generate combat sorties.

The Air Force can just as easily become locked-in to a contract product support provider. The most common example is when the government does not procure adequate technical data. Not only is technical data more expensive later when the government is in a weaker negotiating position, but some companies may even refuse to sell it to the government. In 2006, the GAO noted that "the lack of technical data rights has limited the services' flexibility to make changes to sustainment plans that are aimed at achieving cost savings and meeting legislative requirements regarding depot maintenance capabilities." To elaborate on just one example of the seven weapon systems listed in the report, the Air Force did not initially procure technical data for the C-130J because it was purchased as a commercial item. Later, the Air Force reversed its sustainment strategy after a DoD IG finding determined that the commercial acquisition strategy was unjustified. After the aircraft manufacturer refused to sell technical data rights to the government, the Air Force planned to enter into roughly 90 partnerships on approximately 300 C-130J unique items.

Why is that, historically speaking, decentralized decision making at the platform level, as described in the C-130J example above, has not led to best value for the Air Force when it comes to decisions on technical data? One insight comes from a 2009 CLS study that concludes with "several of the problems we have discussed involve decentralized decision making by Program Offices. Program Offices sometimes make decisions that are in the best interest of the program but not in the best interest of the Air Force as a whole." For

The most common example is when the government does not procure adequate technical data. Not only is technical data more expensive later when the government is in a weaker negotiating position, but some companies may even refuse to sell it to the government.

example, the lack of adequate technical data, especially for sole source items, limits the organic supply chains ability to qualify additional repair and buy sources, resulting in significant challenges in mitigating DMSMS. Ultimately, it is the Warfighter that is impacted by "no bids" from OEMs for sole source items where the AF does not "own" commodity production level technical data.

Warfighter effects, product support lock-in, decentralized product support decision making, and sustainability of the AFWCF emphasize the importance of making informed early sustainment decisions because initial decisions can have an outsized influence on the future product support strategy.

An often overlooked consequence of the recent trend towards industry-based SCM is the impact on the Air Force Working Capital Fund (AFWCF). The AFWCF is used to purchase and repair organically managed weapon systems' spares. The AFWCF depends on the "sale" of spares to operational Air Force units, programmed depot maintenance, engine overhaul programs, and commodity repair to sustain organic SCM operations. As legacy weapon systems (e.g. F-16, F-15, B-52, and KC-135) retire, the AFWCF will lose the "sale" of legacy spares and is at risk of becoming unsustainable based on significantly reduced customer orders.

Warfighter effects, product support lock-in, decentralized product support decision making, and sustainability of the AFWCF emphasize the importance of making informed early sustainment decisions because initial decisions can have an outsized influence on the future product support strategy. However, that may be easier said than done. Many regrettable decisions in the real-world are affected by the lack of perfect information. History indicates that sustainment plans are anything but stable over the life of a weapon system. For example, the F-22 program began with the intent to be organically supported, switched to a CLS strategy, and

then settled on a mixture of commercial and organic support in the form of a public-private partnership.

If changing circumstances are common enough to warrant a reconsideration of a weapon system's sustainment strategy, the Air Force may not be retaining enough SCM options to do so, given the trend in Figure 2. Still, the future of the AF organic supply chain is far from certain, but it is worth considering the ramifications if the Air Force chose to divest itself of an organic supply chain or let it atrophy to the point where it was no longer competitive for new or existing workload. From a risk standpoint, the Air Force should be prepared for a situation in which an agreement between the government and the contractor cannot be reached. This may occur when the contractor is not interested in the work, the government is unsatisfied with the cost and/or performance of the contractor, and/or the contractor wants to "off-load" legacy supply chain workload to the organic supply chain in order to focus on an emerging or new weapon system. In these cases, the lack of a credible organic alternative puts the Air Force at risk for being locked-in to the OEM supply chains. To reiterate a point above, the existence of such a lock-in does not automatically imply a claim of inefficiency. Rather, it only suggests that when we see ourselves travelling down a path that later becomes impossible or cost-prohibitive to reverse, we should exercise due caution that we won't come to regret it later. For example, the Air Force may want to consider not only if one alternative has a competitive advantage, but why---because some advantages are only temporary, rather than inherently in the domain of one or the other.

Options

If the Air Force desires to retain options for SCM, there are a few different approaches it can take to do so. The first approach would be through direct intervention. In other areas of product support, it is common for the government to intervene with product support decisions through legislation, DoD/AF regulations, and internal guidance. For example, 10 U.S.C. 2466 ("50-50 Rule") and 10 U.S.C. 2464 (Core Logistics Capabilities) impose a restriction on how much depot-level maintenance private industry can perform. Internally, the Air Force or DoD might mandate the use of a certain technology, standard or interface to ensure interoperability with other systems. Finally, the Air Force or DoD can issue guidance on a preferred product support strategy, like Open Systems Architecture or PBL, while still allowing for exceptions based on the nature of the program.

For example, the Air Force may want to consider not only if one alternative has a competitive advantage, but why---because some advantages are only temporary, rather than inherently in the domain of one or the other.

In 2001, the GAO recommended that the DoD define core logistics capabilities for non-maintenance activities such as engineering, supply chain management, and transportation. Following the report, amendments to the 2003 Defense Authorization bills would have redefined core logistics functions from maintenance and repair to include acquisition logistics, SCM, and other logistics functions. According to the GAO, the amendments were withdrawn only after the Under Secretary of Defense wrote Congress that the DoD understood the intent of 10 U.S.C. 2464 and would maintain a full range of logistics capabilities to include SCM. Despite the reassurance, there's still reason to be concerned that the Air Force is not on a path to retain organic SCM capabilities. Of the 12 weapon systems fielded since 1990 in Figure 2, only the

B-2 has an organic supply chain, and a pending Business Case Analysis (BCA) decision could result in B-2 SCM transition to industry.

Retaining organic supply support options by direct intervention is possible, but it is also an unsatisfying proposition because it promotes a zero-sum game mentality that places the Warfighter at unnecessary risk. For example, determining how much organic SCM capability the Air Force needs to respond to military mobilization, contingencies, and other emergencies is a difficult question. One reason why the DoD may hesitate to consider non-maintenance activities as part of a core logistics capability definition is that, unlike maintenance which can be easily be expressed in terms of Direct Labor Hours, SCM is difficult to quantify in a way that drives the right behavior. Therefore, a legislative or internal mandate can be seen as an arbitrary decision and also would not be guaranteed to produce the most efficient outcome.

The second way that the Air Force can retain options for best value SCM is through a new supply chain business model. The traditional approach to SCM is an "all or nothing" proposition, i.e. all organic and no industry---or all industry and no organic. There is potential for a business model that leverages the collective strengths of both organic and contractor SCM capabilities to bring best value to the Air Force, achieve Warfighter support outcomes, enable global, authoritative, end-to-end Logistics C2, retain the flexibility and solvency of the AFWCF, and preserve both organic and industry supply chain competencies.

Changing the Air Force SCM business model can only be accomplished through bold leadership and willingness for innovation. A business model that leverages the collective strengths of the organic and industry supply chains can be achieved through expanding the use of the AFWCF for SCM PBL strategies (versus appropriated funds) at the system or sub-system levels versus the current transactional or commodity level PBL approach. One reason that the

Air Force may want to consider using the AFWCF as a source of funding for system/sub-system level SCM PBL contracts is that it gives the Air Force a credible exit strategy if at some future time the contractor and the government cannot reach an agreement.

It may be up for debate if a SCM PBL approach is more effective applied at the system or sub-system/component level, but the answer is most likely that it depends on the nature of the program. This area of underutilization in the Air Force today represents a source of superior value that the Air Force can lock itself out of and later come to regret. The organic supply chain is collaborating with industry to pursue a system/sub-system SCM PBL framework that leverages the collective strengths of the organic and industry capabilities---perhaps we will have an opportunity to report our progress in a future edition of the Exceptional Release.

While we tend to look at weapon system acquisition on a program-by-program basis, we typically employ Air Force weapon systems as part of a task force---and Logistics support needs to operate as a "system" to support all of our platforms.

In addition to a new SCM business model, the Air Force should invest significant thought into the gaps and seams in Logistics C2 and the complexity CLS imposes on the Logistics infrastructure. Core functions of Logistics include engineering, maintenance, services (food, water, and ice), supply, transportation, medical, and fuels---amongst others. It's interesting to note that many of these Logistics functions operate supply chains that have migrated outside of the organic Logistics infrastructure, such as the Standard Base Supply System. An option for the Air Force to "think about" is a strategic plan to address product support more holistically (e.g. what's best for the Air Force), versus through an individual weapon system or commodity lens.

While we tend to look at weapon system acquisition on a program-by-program basis, we typically employ Air Force weapon systems as part of a task force---and Logistics support needs

to operate as a “system” to support all of our platforms. Therefore, we need to start thinking about a Logistics C2 capability to “fuse” organic and CLS data, rather than relying on people to interpret multiple standalone CLS system to collect information---then manually consolidate the data to provide the Warfighter with visibility of critical Logistics support.

Summary

The organic Air Force supply chain is big business, but it’s also old business. Approximately 90% of weapon system spending in the organic supply chain is for items related to weapon systems initially fielded prior to 1980. If the outsourcing trend continues, the organic supply chain may become obsolete or at a competitive disadvantage when the legacy weapon systems retire which could leave the Air Force without a credible alternative to the OEM supply chain.

Product Support BCAs tend to rank the organic supply chain moderately on performance; organic SCM performance is rated higher than a 3PL, but lower than the OEM. In qualitative categories, organic SCM is rated highly in funding flexibility, existing processes, tools, and experience. The organic supply chain can also offer significant cost savings to the Air Force. As one study noted, many benefits asserted by contractors are not uniquely in the domain of private industry.

The Air Force should remain cautious when making irreversible or quasi-irreversible decisions like the divestiture of the organic supply chain without being certain of the long-term consequences. Decentralized decision making at the platform level can lead the Air Force down an undesirable path that is difficult to reverse. One way that the Air Force can retain options for supply support is to expand the use of the AFWCF to fund system/sub-system SCM PBL strategies. In addition, the Air Force can devote thought and analysis into the gaps and seams in

Logistics C2 and the complexity CLS imposes on the Logistics infrastructure to ensure we employ deployable and winnable Logistics solutions for the Warfighter.

What is the future of the Air Force supply chain? This question is relevant because it is the Warfighter who ultimately bears the risk of multiple non-integrated supply chains and limited Logistics C2 in future contested environments. If the recent trend towards industry based SCM continues, the AFWCF could become unsustainable (perhaps by 2035) based on significantly reduced customer orders due to legacy aircraft retirements---and as mentioned earlier, the Air Force's organic supply chain of 2035 will be shaped by the sustainment decisions we make TODAY. What makes this problem challenging is the long lag time between the sustainment decision and the consequences, which prevents organizational learning from occurring. The lack of a timely feedback loop means that this problem is not self-correcting, but requires deliberate planning to ensure organic SCM can remain a credible option for the 21st century. Sustainment decisions made between 35 and 65 years ago on platforms like the C-130, KC-135, and B-52 still matter to the Warfighter today. Likewise, the Warfighters of 2035 or 2050 are depending on us making the right long-term sustainment decisions today.

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Lay it Flat:
AoP in Overhead Organizations

By: Capt Sean Allen and
Capt Matt Macdonald

The Air Force has been the landscape for process improvement for a relatively long time. Total Quality Management (TQM) preceded Air Force Smart Operations for the 21st Century (AFSO21) and a fairly recent addition to these tools is Air Force Sustainment Center's (AFSC) Art of the Possible. The Art of the Possible (AoP) is quickly becoming a common phrase to describe the production system and sustainment strategy within AFSC. The Fall 2015 ER contained an article describing depot maintenance on the E-3 Sentry that described gated processes—a key ingredient of the AoP methodology. For those unfamiliar with AoP, it is a production management methodology used in the AFSC to plan, manage with science, monitor performance and improve production. A detailed description of the AoP is not the focus for this article, but you can read more about it—in the Fall 2015 ER. Instead, this article will detail AoP's application in indirect and overhead operations.

(AoP) is a production management methodology used in the AFSC to plan, manage with science, monitor performance and improve production.

The enormous success of AoP in depot maintenance has motivated many organizations outside maintenance to adopt the methodology as their process improvement tool. Undoubtedly, the AoP tools are

AoP tools are extremely valuable for any process-based organization.

extremely valuable for any process-based organization. Yet, the application of this methodology in administrative or overhead organizations can be daunting, and without some basic guidelines, may result in less than optimal results. The focus of this article is simple, before you either brush aside AoP as "a maintenance thing", or struggle with applying the AoP methodology, a quick read on the successes, struggles, and advice from overhead organizations that have been successful in AoP implementation is well worth your time. Most importantly, the results those organizations have achieved can be especially motivating.

In July 2015, Brigadier General Walter J. Lindsley, WR-ALC/CC, charged the leadership of the Warner Robins ALC's overhead organizations to implement the AoP. The motivation for this effort was clear: the maintenance organizations in the ALC had tremendous success with this process improvement methodology, and it seemed obvious that the overhead organizations could benefit as well.

The Steps

Brig Gen Lindsley gave his overhead leadership team a set of steps to guide them through AoP implementation; in his own words "Lay it Flat". These steps proved critical to the AoP success in the organizations outlined below. The first of these steps was to develop a Mission Essential Task List (METL). This product required each of the organizations to thoughtfully analyze all of the work performed in each of their work centers. Mr. Doug Keene, Special Assistant to the WR-ALC Commander, calls this step "understand everything you are responsible for first." In addition to knowing what you do, find the directive that requires it (AFI, TO, Policy Letter, etc.). When accomplishing

The final product of this step, a fully-developed METL, speaks to what your organization is all about.

non-directed tasks ask, is it value added? If the answer is no, you're already on your way to speeding production by removing that task. Both overhead organizations below found non-value added and non-directed tasks being performed that they were able to remove. The final product of this step, a fully-developed METL, speaks to what your organization is all about. It focuses the team on the mission, it illuminates waste, and it gets everyone involved in developing the list. This milestone ultimately begins shining the light on the organizations products and services.

SAMPLE METL:

QA Mission Essential Task Listing (METL)

Requirement	Direct Support During Operation	Direct Support after Operation	Non-Direct Support of	Organization Support	AFSC or AFMC Support	Reference
Conformance of Product						
In process Quality Verification Inspections (QVI's)	X					AFSCMAN 21-102 para 8.4.4.1.2
In process Quality Verification Inspections (QVIQ's)	X					AFSCMAN 21-102 para 8.4.4.1.3
Quality Verification Inspections (QVI's)		X				AFSCMAN 21-102 para 8.4.4.1.2
Personnel Evaluations (PE's)			X			AFSCMAN 21-102 para 8.4.4.1.1
Routine Inspections (RI's)				X		AFSCMAN 21-102 para 8.4.4.1.4
Management Inspections (MI's)				X		AFSCMAN 21-102 para 8.4.4.1.6
Special Inspections (SI's)				X		AFSCMAN 21-102 para 8.4.4.1.5
TDV Identification				X		AFSCMAN 21-102 para 8.4.4.1.7.2
Process and Services						
Depot Maintenance Training Requirements			X			AFSCMAN 21-102 para. 8.4.3.1
AFMC and AFSC Quality Assurance Working Group				X		AFSCMAN 21-102 para 8.4.1.5
Annual Quality Assurance Meeting (Face to Face)					X	AFSCMAN 21-102 para. 8.4.1.5.1.
Maintain Developed ALC/CC Quality Policies and Instructions				X		AFSCMAN 21-102 para. 8.4.1.1
Manage FAA, Part 145, Repair Station Processes (N/A)						AFSCMAN 21-102 para 8.4.1.8.4
Develop Quality Assurance Plan				X		AFSCMAN 21-102 para 8.4.2.2
Develop Quality Assurance Surveillance Plan				X		AFSCMAN 21-102 para 8.4.2.3
ALC Focal Point for AFSC Logistics Compliance Assessment Program					X	AFI21-101_AFMCSUP para. 8.3.31.1.2
ALC Focal Point for QIMSS database				X		AFSCMAN 21-102 para. 8.4.5.1.
Manage ALC's SAP Program				X		AFSCMAN 21-102 para. 8.4.1.9.10
Manage ALC's AS-9100 Program				X		WR-ALC OI63-501 para. 1.1.
Manage ALC's FOD/DOP Program				X		AFSCMAN 21-102 para. 8.4.1.9.11
Manage ALC's Impoundment Program				X		AFSCMAN 21-102 para. 8.4.1.9.15.
ALC's Focal Point for MICT				X		WR-ALC OI 90-201 para. 3.2.7
ALC's Focal Point for Emergency Management Exercises				X		AFI21-101_AFMCSUP para. 8.4.3.1.

The second step of this process is to identify how the organization's personnel support the METL tasks. How many people does it take to complete each task? Which internal offices work on each task? Are external organizations involved in completing a task? These questions, and others like them, can help any organization identify manpower imbalances and set the foundation for future AoP methodology when used with a fully-developed METL.

Step three is the task of prioritizing your workload. At this point, the METL has been filtered down to solely those tasks that are required, but there is certainly some variance in the

importance and frequency of each of them. The basic starting point is to identify which tasks on your METL are critical to someone else. A "customer approach" here is useful: Is the output of a task on your METL needed by someone external to your organization? The overhead organizations in WR-ALC utilized a scale of priority; 1 for any task that was in direct support of a maintenance critical path and a 5 for administrative tasks with no impact to the maintenance critical path. For some organizations (especially those outside the ALCs), this may not be as obvious; however, evaluating your tasks as "customer focused" should provide the priority evaluation you need.

Now it's time to set up the machine. Step four identifies those tasks on the METL that make sense to "gate." The example organization referenced for this article chose one task with which to start. What is the most critical task on your list? Again, what is it your organization is all about? After you've selected a task, you can now work to apply the AoP methodology; step five. While it is beyond the scope of this article to discuss the AoP methodology in full, several people interviewed did mention the critical importance of identifying the process flow and process critical path, gating it, establishing performance and then using the results to drive improvements.

Example 1: WR-ALC Safety

In July of 2015, WR-ALC Safety was one of the overhead organizations charged by the Commander to implement AoP. Mr. James Hogan, WR-ALC's Chief of Safety, told us right away that he welcomed the challenge. He noted that many folks in Safety regularly had to stay late on Fridays and often worked weekends to finish investigations within required timelines. He also noted that he had pre-conceived notions as to the bottleneck of his investigations.

After building the METL, Mr. Hogan identified non-directed tasks and during Step 2, his team noted a gross imbalance of workload. While Investigation Program Management usually only took one person to perform most of the steps, it became evident that the workload of the Safety Specialists was very different between each of them. During the third step, Mr. Hogan and his team selected Investigation Program Management from his METL as the office's top priority and the first for AoP implementation, as they realized it was their most customer-focused task. While the investigations the Safety Office performs can cause significant after-hours work to complete, they may have recommendations that can prevent mishaps in the future, therefore, timeliness of their completion is a critical factor.

After only four months of effort in implementing AoP in Investigation Program Management, Mr. Hogan points out that there have been many improvements to the program. First off, staying late to finish investigations is now a thing of the past. The investigation "machine" is now steady, with reports on-time without anyone staying late. Establishing a balanced workload across all Safety Specialists has improved report quality as a result of less overwork and better training for those that were under-utilized. Now, instead of working a long list of investigations, and making small progress on all of them each day, the investigators focus their efforts on one report, completing it before pulling another from the queue. Mr. Hogan noted that one of the most important byproducts of AoP implementation has been better communication, throughout the investigation process. By "laying it flat", the team was able to identify truly where the bottlenecks in the process existed, and they were much different than expected. Now, the investigators work hard

…one of the most important byproducts of AoP implementation has been better communication

to maintain both speed and quality of their reports through better communication with both internal and external agencies in the process. The biggest piece of advice from Mr. Hogan, "It's critical to talk to your folks...explain the process, why you're doing it, and get buy-in EARLY." The most recent results from the Investigation Program Management reflect a huge drop in Work in Process (WIP), as measured in Air Force Safety Automated System (AFSAS), from 42 reportable mishap investigations to 19, as well as a notable improvement in producing mishap investigation reports on-time. This leaves the organization more time to focus on prevention as opposed to chasing escapes.

Example 2: WR-ALC Quality Assurance

The WR-ALC Quality Assurance office was another overhead organization charged by the Commander to implement AoP. Mr. Ed Montano, WR-ALC's Chief of Quality Assurance, offered advice on selecting tasks to implement AoP. "First, you have to know *everything* you're responsible for. Once you have that, it's much easier to decide what to gate [implement AoP]." He also added, "When you're reviewing those METL tasks, and find a quarterly report that is customer-focused, but if you're never late…move on; there's no reason to gate it." Mr. Montano and his team started their AoP efforts at the same time as the WR-ALC Safety Office, and their efforts led them to implement AoP on the Acceptance Inspection Deficiency Report (AIDR) process.

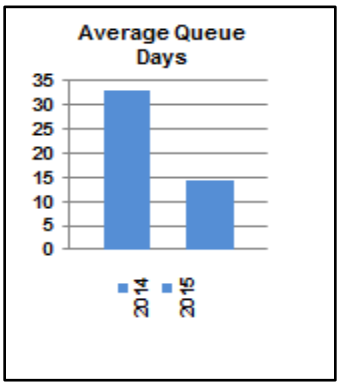
The AIDR is the formal mechanism for field level organizations to report deficiencies that were not corrected during depot maintenance. Processing and analyzing these reports are crucial in identifying defect trends and corrective actions. As one might expect, this process is extremely customer-oriented. Historically, the responses to the AIDRs from WR-ALC Quality

Assurance took a long time, often returning a response to the customer long after the users had forgotten about the deficiencies. Mr. Montano's team wanted to change this. During their AoP implementation, his team had a few lessons learned. First, they found it extremely important to flow the process first and then build the gates. Mr. Montano's team also noted their most important ingredient to success was to manage execution at the tactical level.

By following the steps to "Lay it Flat", QA was able to establish their METLs, review all processes they conducted, and the governing regulations behind each of the processes. As noted above, the process is customer-oriented and Deficiency Report (DR) processing was one key area identified for customer satisfaction. Following steps one and two allowed a prioritization of processes and adjustment of resources to meet higher priority tasks. While QA is still solidifying the gating process and integrating with depot maintenance units and System Program Offices, the speed driven by the AoP implementation was immediately noticed. DR receipt acknowledgement time dropped from an average of 20 days at the beginning of the implementation, to one day currently. Average days for DRs to wait in queue have also been slashed roughly 50% between CY14 and CY15. By prioritizing customer satisfaction, QA was able to focus resources and manpower to support that priority. Continuing the AoP implementation in the gating process will only further serve to refine the AIDR processes and improve customer satisfaction.

...their most important ingredient to success was to manage execution at the tactical level.

AIDR Queue Reduction:



Conclusion

To borrow from the last edition of the ER, "No matter how it is applied, the key to making any process improvement endeavor, gated process, or production machine successful in an organization is to develop people to identify constraints and be problem solvers" (J. Downing, Fall 2015 ER). I couldn't have said it better myself. The common theme you'll find in the advice from these organizations is that effectively communicating the purpose and plan for AoP implementation is critical, to all affected levels of a process. Without early buy-in from the people that are working the process, any AoP efforts will struggle. However, as the data shows above, when you do it right, success can yield big dividends to your organization. AoP, as a process-improvement methodology, is extremely effective for administrative or overhead organizations just as it is for production organizations.

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AFSC's Engine of Change

By: Lt Col Michael Allison and

Capt Jared Newman

Any Air Force which does not keep its doctrines ahead of its equipment, and its vision far into the future, can only delude the nation into a false sense of security

General Henry H. "Hap" Arnold
Commanding General, USAAF
November 1945

In early 2012, the United States Air Force (USAF) embarked on a new course for supporting the Warfighter with the creation of the Air Force Sustainment Center (AFSC), as part of the larger development of Air Force Materiel Command's (AFMC) 5-Center Construct. Motivated by an ever-constrained fiscal environment, the Department of Defense (DoD) and the USAF were forced to develop a more efficient and effective model for doing business--a model that would preserve maximum capabilities (science, technology, acquisition, test and sustainment), while looking for opportunities to increase effectiveness (standard business practices, streamlined decision making and mission alignment). The need for this change was detailed in the *Fiscal Year 2016 Air Force Posture Statement* which stated:

> "The world continues to change at an unprecedented pace and operational requirements continue unabated. The demands for global engagement is challenging under any circumstance . . . but when combined with an uncertain budget environment, it drives the Air Force – indeed, all

Services – to make incredibly difficult choices, pitting vital requirement against vital requirement.

America is an airpower nation; we have enjoyed unrivaled success in the air for the past 70 years. But future success is not a birthright, and air and space superiority is not an entitlement. It must be earned. Without it, American influence diminishes and the US military will be forced to radically change how it goes to war. Americans will be put in danger, and our leaders' options will be markedly limited. Our adversaries know this and are taking steps to tip the balance in their favor."

Concurrent with the AFMC reorganization that precipitated the 5-Center Construct and the transition of the existing Air Logistics Centers into Air Logistics Complexes was the development of a document known at the time as the *AFSC Way* (since updated to *The Air Force Sustainment Center Presents: Art of the Possible*). This document, in the words of Lieutenant General Lee K. Levy II, AFSC Commander, allows AFSC to "provide greater military capability and improved readiness at less cost than ever before." It is a methodology "not about working harder, cutting corners or jeopardizing workplace safety, [but rather] it is about recognizing opportunities, understanding and eliminating true limiting constraints,

...allows AFSC to "provide greater military capability and improved readiness at less cost than ever before."

improving processes and maximizing available resources." Using this roadmap, every organization within AFSC, and more specifically within the Air Logistics Complexes, have embarked on a journey of continuous improvement and sustained excellence.

One such organization, at the Oklahoma City Air Logistics Complex, is the Propulsion Maintenance Group (PMXG). PMXG, the hub of USAF engine maintenance and production, has for decades, flown under the radar in terms of recognition about what they do and understanding of how they do it. However, as the central propulsion maintenance and repair facility in the USAF responsible for maintenance on jet engines worth over $4B in support of 1,390 aircraft in 38 functional and geographic areas around the globe, PMXG's role in accomplishing the USAF's mission cannot be understated.

This article's primary goal is to provide insight into the operation of PMXG and its impact on the ability of the USAF to fulfill its mission to Fly, Fight and Win. In order to accomplish this goal, it is first necessary to provide a brief history of how and why AFSC and the 5-Center Construct (now a 6-Center Construct) was developed, followed by a short overview of what the Art of the Possible (AoP) entails and why it is essential to the USAF's ability to confront a rapidly-changing global environment. Finally, and most importantly for this discussion, the article explores the mission of PMXG and the ways this unique organization is leveraging the tools and tenets of the AoP to increase propulsion sustainment and logistics support capability for the Warfighter. In this way, PMXG embodies the approach outlined in *America's Air Force: A Call to the Future,* calling for "strategic agility to confront the rapidly-changing global environment." Creating an organization

This article's primary goal is to provide insight into the operation of PMXG and its impact on the ability of the USAF to fulfill its mission to Fly, Fight and Win.

and a mindset that does "not advocate a 'stay the course' mentality. Rather, they challenge us--all of us--to show the courage to change in the face of uncertainty, all the while strengthening the many advantages we currently enjoy."

AFSC and the 6-Center Construct

In 2012, Air Force Material Command decided a reorganization of its core competencies was necessary to conduct its business in the most efficient manner. The 5-Center Construct—which has since been expanded to a 6-Center Construct--took AFMC's core activities and functionally aligned them into Numbered Air Force-equivalent Centers covering the life cycle of the technology-driven Warfighting enterprise. Life Cycle Management activities encompassing acquisition activities are hosted in the Air Force Life Cycle Management Center (AFLCMC); test functions reside in the Air Force Test Center (AFTC), nuclear systems management is focused in the Air Force Nuclear Weapons Center (AFNWC); mission support activities are hosted in the ***newly-created*** Installation and Mission Support Center (IMSC); all logistics sustainment activities reside under the Air Force Sustainment Center (AFSC); and all research and development functions are under the Air Force Research Laboratory (AFRL) . This Center-focused initiative has given commanders the ability to focus their efforts on optimizing their mission sets.

The 5-Center Construct—which has since been expanded to a 6-Center Construct--took AFMC's core activities and functionally aligned them into Numbered Air Force-equivalent Centers covering the life cycle of the technology-driven Warfighting enterprise.

The AFSC comprises the three Air Force Depots at Oklahoma City, OK, Ogden, UT, and Warner Robbins, GA; the three Air Base Wings at Tinker AFB, Hill AFB, and Robins AFB that support these depots; and the Air Force's only supply chain wings, the 635th Supply Chain

Operations Wing and 448th Supply Chain Management Wing. Prior to the stand-up of the AFSC, these organizations were not working in tandem to meet Warfighter needs; rather, they operated in functional silos resulting in Air Force logistics (maintenance and supply) having very little in common with the Air Force's industrial base. A common operating methodology, that shared best practices and production science techniques across the depots and supply chain wings, was necessary if any readiness gains were to be realized under the AFSC. The publication of *AFSC Presents: Art of the Possible* would prove to be the impetus needed to provide a common methodology across these seemingly disparate functions.

The Air Force Sustainment Center Presents: Art of the Possible

AFSC Presents: Art of the Possible provides a common body of knowledge for the Air Force Sustainment Center. It combines the science of production and sustainment activities with the hard-won practicum of process improvement across the Air Force's industrial activities. In short, the AoP provides the organizing principle behind how the Air Force does readiness sustainment.

This handbook outlines how to employ gated processes, the Theory of Constraints, Lean practices, Little's Law and a host of other production science methods, and does not apply solely to depot maintenance activities. Any field-level Phase Dock can employ a gated process to cut in-dock days and any materiel handling function can utilize the Theory of Constraints to identify and eliminate processing bottlenecks that slow down the flow of goods to end users. These are decades-old, battle-tested tools

...the AoP provides the organizing principle behind how the Air Force does readiness sustainment.

developed in the private sector to improve everything from production of automobiles to improved methods for growing and delivering produce to supermarket shelves. A quick search in e-Pubs for "AFD-140911-029" will provide any airman with an easy to read guide for implementing the hard won victories from the private sector, and subsequently the depots, into their daily standard work.

Propulsion Maintenance Group

The 76th Propulsion Maintenance Group, the home of organic jet engine maintenance for the Air Force, is one of the USAF's best-kept secrets. Under US Code Title 10, Section 2466, the 76 PMXG is charged with providing 50% of the Depot maintenance for engines as measured in dollars, with most of the remainder being produced in the private sector. As the Air Force's only Depot maintenance organization tasked with engine maintenance, it conducts heavy overhaul and repair for engines supporting the B-1, B-2, B-52, E-3, E-8, KC-135, RC-135, C-17, F-15, F-16, F-22, and F-35 as well as the Navy's E-6 fleet.

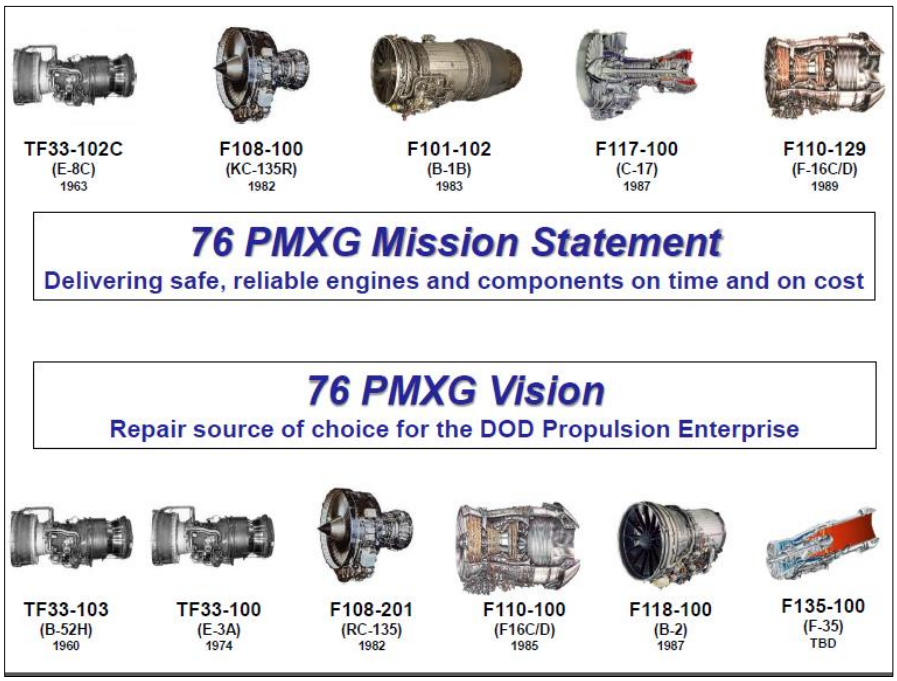

Figure 1. 76 PMXG Mission and Vision Statement and aircraft engines supported

In addition to whole engine overhaul, the 76 PMXG repairs engine modules/rotors, components and blades for use on its engine assembly lines and supports the worldwide engine supply chain as well. All of this repair activity is big business. In FY15, PMXG produced 323 engines, 746 engine modules/rotors and 5,029 components/blades totaling over $1.1B in sales to the Warfighter, while driving a defect rate of less than .03% across all production lines--well below the industry standard! This production output was roughly the same as completed in FY14, even though manpower was down by almost 300 personnel from two years earlier, primarily due to the scientific production methods outlined in the *AFSC Presents: Art of the Possible*. A quick overview of a few of these improvements is highlighted below.

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Art of the Possible driving the Science of Throughput

The 76 PMXG has been on a journey for over 5 years to create a culture of problem solvers trained to gather data and use it to drive decision making. Tools outlined in the *AFSC Presents: Art of the Possible* playbook, such as the 8-Step Problem Solving Model, and Waste (or Gemba) Walks as described in Womack and Jones' excellent book, *Lean Thinking*, were great starting points for this journey; however, the journey is a continuous one and PMXG continues to refine its problem solving behavior by instituting a Road to Enlightenment for all PMXG employees. This training plan, a roadmap for all levels of the organization from the lowest level worker on the floor up through the Squadron Directors, is designed to ensure all

workers will understand Lean; Theory of Constraints; Statistical Process Control; and Root Cause Analysis so that it will drive cultural change across the group.

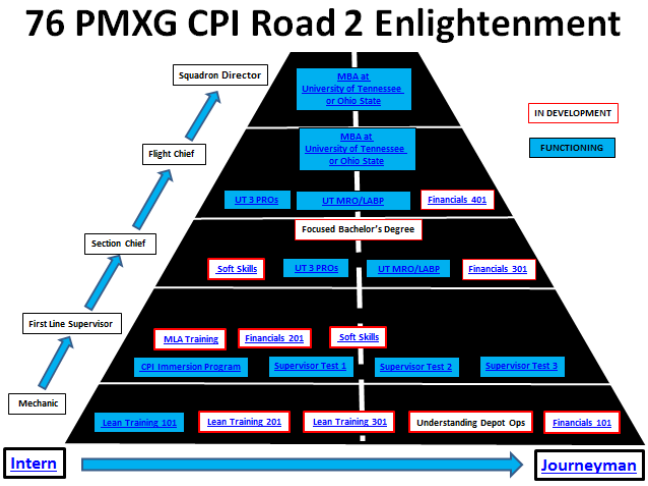

Figure 2. 76 PMXG Continuous Process Improvement (CPI) Road 2 Enlightenment

It was discovered that acknowledgement, understanding and eventually implementation was directly proportional to the foundational training that was provided to the work force. This multi-tier training is infused with an AFSO 21-inspired 8-Step Poke-Yoke (a lean term which means error prevention). It was quickly determined this type of universal understanding, despite previous quality improvement training, was needed because many employees struggled with completing the 8-Step problem solving model laid out in the *AFSC Presents: The Art of the Possible* without a strong, broadly-based foundation. Employees were routinely making errors in the early stages of the problem-solving process, which would invariably result in bad outputs. To counter this junk-in/junk-out problem,

As a result of this investment in training the workforce, several CPI events were conducted to solve problems across the PMXG enterprise.

the process was simplified by creating a web-based tool to guide the problem solvers through a series of questions to assist them in populating the 8-Step model as they progress. In the Poke-Yoke the user must answer a series of questions to progress through the 8-Step model. When a question cannot be answered no progress is made along the 8-Step model. This inability to progress with bad data ensures that any root cause analysis and subsequent countermeasure implementation takes into account the original problem, the scope of the problem and its improvement targets.

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As a result of this investment in training the workforce, several CPI events were conducted to solve problems across the PMXG enterprise. Projects such as the Planned Re-Work Reduction and Materiel Review Board Analysis have driven down rework (overwork), which has cut production hours while increasing production capacity. Gated control processes have been implemented across all engine lines and Swarm Management is being utilized in back shops to reduce process variation, identify production constraints and eliminate waste. A closer examination of gated process implementation can be found in Case Study A.3 within *AFSC Presents: Art of the Possible* and is detailed below.

> *"In 2013 the F108 engine program office needed increased organic engine production to keep pace with engine removals. The 76th Propulsion Maintenance Group, responsible for all organic engine production, followed a traditional path and played a little "5 year old soccer" by throwing all available resources at the problem. Lack of a clear process resulted in wildly varying production, and drove PMXG to three shifts and overtime as high as 20% on the F108 engine line. Along with huge variances in monthly production, annual production cycled as*

well. Monthly production would range from 3-11 engines per month and annual production ranged from 68 to 97 engines. PMXG averaged 106 flow days to repair an engine. Increased requirements and inconsistent production led Propulsion Sustainment Directorate to offload 15 engines worth of work to an outside contractor as a hedge against erratic PMXG production in FY12 and FY13.

In July 2012, a team was established to work process improvement efforts on the F108 engine line by developing a standard gated process, giving PMXG a consistent/efficient F108 engine delivery. It took the team 89 days to set up the F108 gated process and 220 days to produce their first engine on target with a low flow day total of 49 days."

This process of learning about and then employing these improvement tools works! As recently as the 3rd quarter of FY15, the F108 fan assembly team was conducting a Pareto Analysis and utilizing the 8-Step problem-solving Poke-Yoke to implement concurrent work. This allowed them to increase throughput by 25%, cut rework/recycles for their product by 95% and reduce their gate cycle time by 35%. These employees are solving their own problems

where they work because they have the tools and training they need to make improvements happen.

Conclusion

According to *The World's Greatest Air Force: Powered by Airmen, Fueled by Innovation:*

> "Every Airman should constantly look for smarter ways to do business. The person closest to the problem is often the one with the best solution. Leaders should empower Airmen to think creatively, find new solutions, and make decisions. Airmen at all levels must have the courage to take risks and learn from mistakes as we pursue a stronger Air Force."

The 76 PMXG has taken this charge to heart, developed a set of tools outlined in *AFSC Presents: Art of the Possible* and witnessed as production output, and consequently Warfighter support, has improved immensely. The journey is just beginning, but with the training, tools, and motivation to improve, the 76 PMXG continues to provide the Air Force with **Thrust you can Trust**.

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LRG…The European Way

By: Maj Donell Pittman

2LT Sarah Wisner

The term *logistics* has worked its way into the common lexicon of society, but LOA members know the term is very broad and covers many aspects of industry and military operations. It encompasses all processes of acquisition, transportation, fleet management/maintenance and execution of an operation. This article will explore how the 86th Logistics Readiness Group (LRG), one of two in the Air Force, meets the logistical demands of the airlift and joint mobility hub at Ramstein Air Base, Germany. The 86 LRG consists of four independent squadrons, each tackling its own aspect of logistics within the 86th Airlift Wing (AW) mission, and concurrently supports the missions of Headquarters, United States Air Forces in Europe, the 435th Air Ground Operations Wing, the 521st Air Mobility Operations Wing, US Army Europe and Africa, and 26 other geographically separated units within four different commands: EUCOM, CENTCOM, AFRICOM and TRANSCOM.

The 86th Vehicle Readiness Squadron (VRS); 86th Logistics Readiness Squadron (LRS); 86th Material Management Squadron (MMS); and 86th Munitions Squadron (MUNS) coordinate efforts within the group to ensure seamless execution of missions both locally and down range. When asked about the importance of logistics as it pertains to the profession of arms, 86th LRG Commander, Col Lawrence Hicks said, "Everything about warfare hinges on logistics […in]

both success and failure." He notes that rather than leading Airmen, he leads commanders. This additional layer of leadership is one of the major differences between the LRG and the more traditional LRS structure. Throughout the interview, the faith he has in his commanders and the 1,000+ Airmen, local national employees, and government civilians who work together to enable agile combat support of intra/inter-theater missions was evident. "LRG has one of the most complex missions that I have interacted with and it's also my favorite," said Col Hicks. In 2015, the LRG supported many operations, including INHERENT RESOLVE, ATLANTIC RESOLVE, UNITED ASSISTANCE, JUNIPER MICRON, JUKEBOX LOTUS, National Airborne Operations Center movements, Noncombatant Evacuation Operations (NEO), Field Training Detachments (FTD), Theater Support Packages (TSP) and multiple POTUS support requirements spanning EUCOM, AFRICOM, and CENTCOM.

When asked about the importance of logistics as it pertains to the profession of arms, 86th LRG Commander, Col Lawrence Hicks said, "Everything about warfare hinges on logistics […in] both success and failure."

86 VRS

The gears at Ramstein keep turning to provide this support and 86 VRS is there to ensure those gears are well maintained and ready to move our forces. They manage the second largest vehicle fleet in the Air Force. They operate and maintain 1,700 vehicles, and in 2015, supported 17,000 missions, transported 86,000

They operate and maintain 1,700 vehicles, and in 2015, supported 17,000 missions, transported 86,000 passengers, and moved 14.5M pounds of cargo.

passengers, and moved 14.5M pounds of cargo. Additionally, they provided crucial support to the Defense POW/MIA Accounting Agency for its mission to locate MIA/KIA in the EUCOM AOR and bring them home with honor.

86 LRS

The 86 LRS literally fuels the mission by operating DoD's largest in-garrison POL operation. As the largest consumer of fuel in EUCOM, in 2015 it pushed over 198 million gallons of JP-8. It also lays claim to refueling Air Force One in a record 28 minutes! LRS also houses USAFE's largest Traffic Management Office (TMO) whose household goods section supports the 57,000+ members of the joint Kaiserslautern Military Community. It also runs the command's largest Materiel Management Flight which manages 362 equipment accounts and 735,000 line items worth $244M stored across three major warehouses.

As the largest consumer of fuel in EUCOM, in 2015 it pushed over 198 million gallons of JP-8.

86 MMS

The 86 MMS is tasked with storing, maintaining, inspecting, and if needed, deploying over 85% of USAFE's War Reserve Materiel (WRM). The 86th MMS consists of 35 personnel spanning 17 AFSCs who manage two million line items and 1100 Unit Type Codes (UTCs) stored across three locations in two countries.

Since 2013, they have deployed approximately 200 UTCs across Europe and Africa to support a wide range of operations, exercises, FTDs and TSPs.

Since 2013, they have deployed approximately 200 UTCs across Europe and Africa to support a wide range of operations, exercises, FTDs and TSPs. Most recently, to repel the ISIS threat, they supplied 90% of the needed capabilities to establish a bare base in Turkey from which we are now able to mount personnel recovery operations in support of Operation INHERENT RESOLVE.

86 MUNS

Finally, although normally aligned under a Maintenance Group, the 86th Munitions Squadron falls under the LRG umbrella.- It stores, maintains, and ships munitions stockpiles valued at $414M. It supplies countermeasure munitions for the 86 AW and AMC in-transit aircraft to ensure safety of flight as they transit to/from CENTCOM. It is one of two Tactical Ammunition Rapid Response Package (TARRP) squadrons in the Air Force. Its support played a crucial role in Libya during Operation ODYSSEY DAWN, Operation UNIFIED PROTECTOR and most recently, Operation INHERENT RESOLVE.

It stores, maintains, and ships munitions stockpiles valued at $414M.

Working together, the men and women of VRS, LRS, MMS and MUNS create a synergy whose impact is felt throughout DoD. They ensure gears of the logistics enterprise are greased and seamlessly operate to ensure EUCOM, CENTCOM and AFRICOM are supplied with the right cargo and personnel at the right place at the right time.

With the inherent value of logistics support continually advancing as technology is developed, industry must evaluate age-old processes and continue to innovate. In his article, "USAFE A4: Set the Theaters in Europe and Africa," Brigadier General Roy-Alan C. Agustin points out, "From a logistician's perspective, it is clear that there is a need for more robust and synchronized USAF logistics capabilities in our theaters." The 86 LRG illustrates this ideal of an effective and collaborative effort to manage one of the most complex logistical support missions in the Air Force, ensuring seamless movement of materiel and creating unlimited possibilities in regards to base capabilities and theatre-wide operations.

Brigadier General Roy-Alan C. Agustin points out, "From a logistician's perspective, it is clear that there is a need for more robust and synchronized USAF logistics capabilities in our theaters."

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The 86 AW exists as a pivotal hub – not only between CONUS and Europe, but as the supplier of critical mobility, cyber and contingency response capability to three Geographic Combatant Commanders.

Improving Methods for Tracking Depot Cannibalization

By: 1st Lt Chas Sweitzer, 2d Lt Robert Larsen, Capt David Roth, Capt Jenna Rederus, Mr. Les James, and Mr. Michael Nowinski

The Air Force Sustainment Center (AFSC) Way outlines a leadership style focused on instilling a continuous process improvement culture to achieve the Art of the Possible (AoP). The 416th Supply Chain Management Squadron (SMCS) at Hill AFB, is taking this focus to new levels with its array of Rapid Improvement Events (RIE). One such event revolved around the realization that the Air Force supply chain had almost no ability to track cannibalization data at the depot level for the A-10. If this data were to become available, it could identify critical gaps in the supply system. These gaps could then be addressed, reducing maintenance flow time and delivering aircraft to the Warfighter faster and at a lower cost.

Communicating the change is centered on identifying a "Road to…" goal. This is the first step toward achieving the AoP mindset. Identifying the "Road to…" consists of four elements:

(1) The Burning Platform (reason behind goal)

(2) The Production Machine (science behind goal)

(3) Framing the Challenge (performance history)

(4) Action Plan (what it will take to meet goal)

In the RIE discussed throughout the following narrative, the goal was simple: establish methodology to track cannibalization data throughout the A-10 enterprise. More specifically, the stated goal of the RIE was to "Increase depot cannibalization reporting accuracy in Programmed Depot Maintenance Schedule System (PDMSS) and Reliability and Maintainability Information System (REMIS) to >95%."

The A-10's depot repair occurs in the 571st Aircraft Maintenance Squadron (AMXS) at Hill AFB. This squadron falls under the 309th Aircraft Maintenance Group, which maintains five other airframes at Hill AFB while facing the ongoing challenges of hiring a skilled workforce with a dwindling applicant pool, operating with aging and limited infrastructure, and producing aircraft with increasing workloads (most notably the new workload of the F-35). In order to rise to these challenges and continue supporting the Warfighter, the group must create solutions to maximize efficiency by freeing-up as many resources as possible. This is the burning platform! As the 416 SCMS supports this 571 AMXS and many other maintenance organizations at the field level, it *must* be able to provide parts to the maintainers in the fastest way possible to avoid delay in capability provided to the Warfighter.

In order to rise to these challenges and continue supporting the Warfighter, the group must create solutions to maximize efficiency by freeing-up as many resources as possible.

While a production machine traditionally refers to input and output of a maintenance activity, the AoP extrapolates this concept to simply define it as the science behind a goal. Not every change in an AFSC organization requires a calculation of flow days and application of Little's Law. Once processes are established there will be benefits of gating, application of Theory of Constraints, etc. In the case of this RIE, though, the team simply needed to evaluate

where, in the current process, a gap between desired capability and output was taking place. This prompted the next step.

In order to Frame the Challenge, it must be known what the current state of the issue is. For this to happen, current requirements must be researched. In this RIE it was known that Air Force Instruction (AFI) 21-101 stated that "When the cannibalization is approved, the scheduler prepares the required cannibalization paperwork for the mechanic to remove the item from the 'donor' aircraft and then initiate the documentation of the cannibalization into PDMSS". Knowing this information as a starting point, and following verification, allowed the team to see there was some reporting taking place with this process; it just wasn't flowing to the desired channels.

Knowing this information as a starting point, and following verification, allowed the team to see there was some reporting taking place with this process; it just wasn't flowing to the desired channels.

What the team found was that all cannibalization actions were being documented by the maintainers on a local form. This form was then being provided to the schedulers in order to document on a local spreadsheet. For FY14, the local spreadsheet indicated 317 cannibalization actions occurred within the 571 AMXS. When analysts entered REMIS for comparison, only three actions were captured. The team also identified a critical shortfall in that PDMSS and REMIS were not integrated with one another as expected.

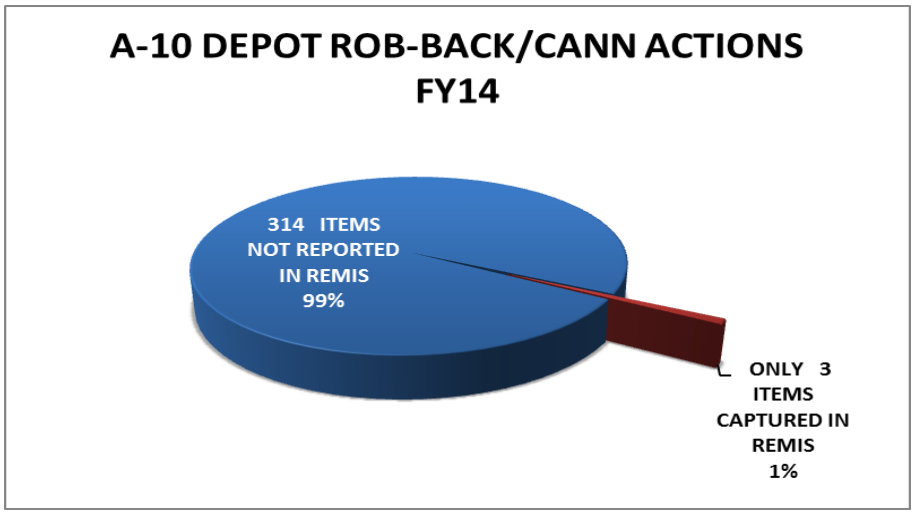

Figure 1: FY14 Cannibalization Actions in 571 AMXS

Communication between organizations and systems wasn't helping the matter. The need to collect accurate data at the onset was never established in the depot; thus, complete Work Unit Codes (WUC), Part Numbers/Serial Numbers and Action Taken Codes were not appropriately captured. To further explore the communication issues, some maintainers were using the terms "Rob-Back", "CANN", and "K-Ball"—all to describe a cannibalization effort. While Rob-Back is not clearly defined in an AFI, DOD defines it as a "temporary borrowing of a required part"—quite different than a true cannibalization effort. This exacerbated the situation by not recognizing that Rob-Back actions were in fact cannibalizations and needed to be documented and processed as such. To stress the communication even more, each squadron within the depot had an individual process to locally track cannibalization actions. Additional understanding of the performance history was established by outlining the current state of the cannibalization process (Figure 2).

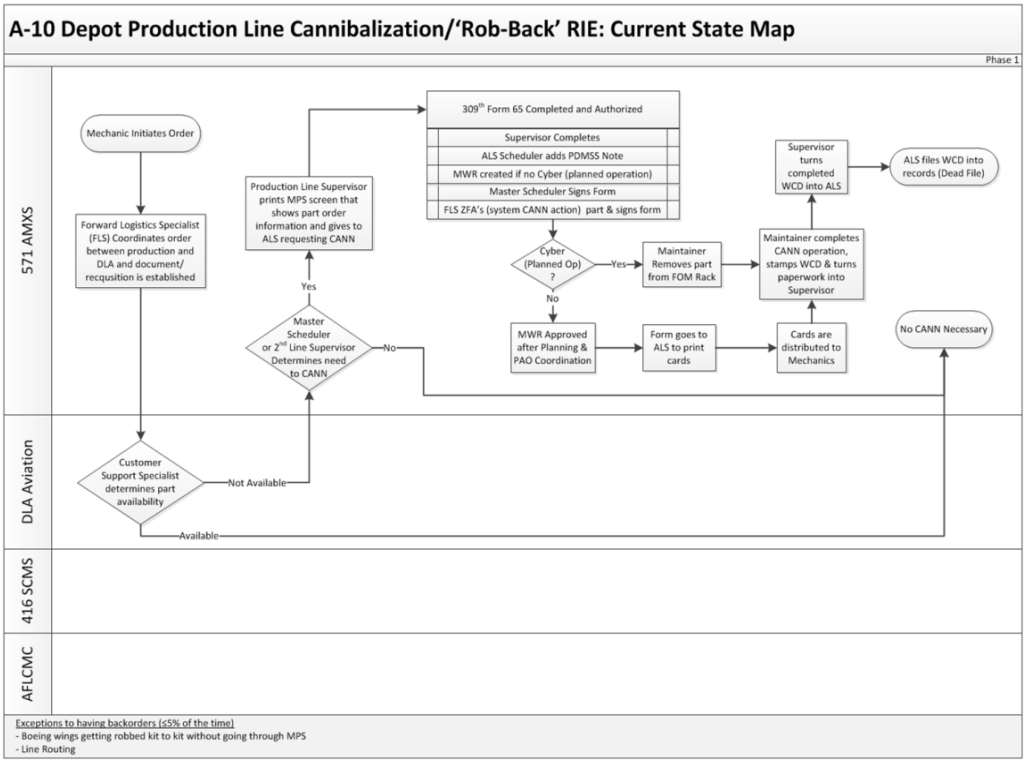

Figure 2: Cannibalization Process Map: Pre-RIE

Once the data surrounding the goal had been laid out, the team developed an actionable plan to move forward and realize that goal. This is communicated through an action plan. There were no maintainers at fault for not documenting these actions. The form they were asked to fill out did not require the necessary information to flag a cannibalization in PDMSS. This had to be changed, but it was only one of the five countermeasures used to implement the change.

1. Draft a Local Supplement to AFI 21-101
2. Standardize the Depot Cannibalization Request form
3. Train maintainers on new process
4. Modify Cannibalization module in PDMSS
5. Conduct Strategic Supportability Assessments

From these countermeasures, action items could be tracked by adding specificity to the countermeasures above and assigning an OPR. These action items are shown in Figure 3. They directly correlate with the vision of a desired end state in Figure 4. Once the implementation of the action plan is complete, the "Road to…" process will have driven an organizational change that aids response to our burning platform.

Action Items	Counter Measures	OPR/OCR
Require note for each CANN in PDMSS Web (Scheduler's Log Book)	CM1 - Local Supplement to AFMC 21-101	OO-ALC/OBLA
Identify Cannibalization terminology	CM1 - Local Supplement to AFMC 21-101	OO-ALC/OBLA
Mandatory Action Taken Code of "T" and "U" on all CANN MWRs--regardless of whether Cyber is available or not	CM1 - Local Supplement to AFMC 21-101	OO-ALC/OBLA
Include Standardize Depot CANN Request Form (possibly electronic)	CM1 - Local Supplement to AFMC 21-101	OO-ALC/OBLA
Consider inclusion of A-10 Depot Cannibalization RIE Future State Process Map	CM1 - Local Supplement to AFMC 21-101	OO-ALC/OBLA
Add Parts Serial Number for Removal/Install (as directed by -06 TO)	CM2 - Standardize Depot CANN Request Form	309 AMXG
For serially controlled items general system WUCs cannot be used; utilize 5 digit code	CM2 - Standardize Depot CANN Request Form	309 AMXG
Add training unit for 309th AMXG WCD initial/refresh training	CM3 - Training	OO-ALC/OBHC
309th AMXG interim process change notification	CM3 - Training	571 AMXS/MXDXAA
MWR Web (PDMSS) CANN Module Training	CM3 - Training & CM4- CANN Module in PDMSS	75 ABW/SCPLM
Add/modification signature blocks, part serial number field, scheduler's note field	CM4 - CANN Module in PDMSS	75 ABW/SCPLM
User Acceptance Testing	CM4 - CANN Module in PDMSS	75 ABW/SCPLM
Prevent future known backorders	CM5 - Strategic Supportability Assessments (DLA-aviation/SCMS)	OO-ALC/OBLA

Figure 3: Action Plan

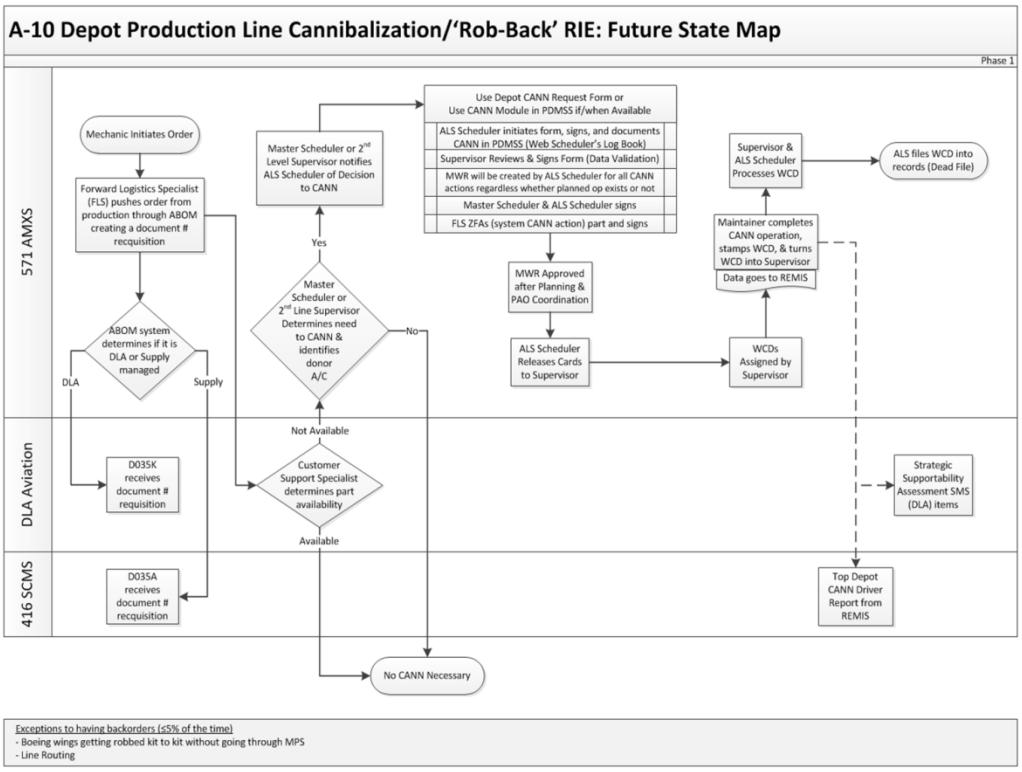

Figure 4: Cannibalization Future State Process Map: Post-RIE

The 416 SCMS, as a support organization, has many goals but in many cases shares a common burning platform: dwindling resources with a constant or increasing workload. Its job is too important not to perform at the highest levels and gain maximum efficiencies. This is a responsibility to the American citizen, and the Warfighter depends on it. The procedures above are not meant to impress the reader with revolutionary new introspect. Rather, they should hit home the simplicity of process improvement; get the right people in the room and examine the process in a structured manner. The action items listed above will certainly help the A-10 enterprise, but other airframes, potentially even those managed outside of Ogden Air Logistics Complex, may reap the benefits.

Its job is too important not to perform at the highest levels and gain maximum efficiencies. This is a responsibility to the American citizen, and the Warfighter depends on it.

While cost savings and efficiencies are yet to be realized, they are certain, due simply to the event listed above based on principles of the AFSC Way.

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