



PERFORMANCE BASED LOGISTICS

Leveraging Industry/Government Partnerships

By George P. Blumberg

Performance Based Logistics (PBL) is now the preferred U.S. Department of Defense contracting approach when purchasing weapons systems support. Tying long-term contracts to the performance of weapons systems over their life cycles, the PBL approach pays contractors for performance outcomes, not repairs. Under PBL, the goals of for-profit corporations align with the DOD goals of system availability, cost minimization, and bringing MRO activities closer to the end user. This article is Part 4 in an ongoing series providing an inside view of PBL contracting.

Part 1 (AAD Fall 2006) of this series outlined the evolution of the PBL approach, its break with traditional contracting methods, and its impact on organizations. Part 2 (AAD Winter 2006/2007) described the need for contractor risk minimization, achieved through historical modeling and data projection, and surveyed the PBL structure of several weapon systems programs. Part 3 (AAD Spring 2007) addressed some of the best practices for PBL—key metrics that define a potentially successful PBL program.

KEY METRICS FOR PBL SUCCESS

Kate Vitasek, a partner in the consulting firm Supply Chain Visions (www.scvisions.com) and a faculty associate at the University of Tennessee's Aerospace and Defense Clearinghouse, has been part of a team researching the factors that make PBL contracting successful. Among the success factors she outlined in the third installment in this series were: (1) A contracting strategy developed in partnership with the contractor and the DOD, (2) long-term contracts, (3) few metrics, (4) top-level support from both parties, and (5) leveraging the mix of where the work gets done.

Part 3 of our PBL series also focused on the

U.S. Army's Shadow 200 program. We examined how the success factors apply to a program, which, by PBL performance measures, is meeting or exceeding its goals. The Shadow 200 is the Army's Tactical Unmanned Aerial Vehicle (UAV), its battlefield eyes, using video and infrared sensors. The Shadow's contractor, AAI Corporation, manages the Shadow's supply and maintenance system; the company meets metrics to support Shadow operational requirements, with incentives for meeting and/or exceeding performance targets.

Perhaps what is most unique about the Shadow 200 program is "where the work gets done." In this case, the contractor, AAI, has been working in partnership with the U.S. Army in a deployed, tactical, over-the-shoulder environment—the middle of the war in Iraq. Providing logistical support in a hot zone might seem extreme, but planning for such exceptional scenarios must be part of PBL weapons support contracts. After all, the battlefield is where warfighter support is critical.

For this Part 4 installment of our PBL series, we decided to explore Vitasek's success Factor Five, which she described more simply as, "Where does it make sense to do the work?" Vitasek explains that Title Ten amendments, starting in the late 1990s, opened the door for public/private partnerships. Based on a leveraging approach, work is now often split between government facilities and contractor providers. "We look at the optimal mix," she says, "between organic facilities and personnel, and private contractor facilities and personnel."

To illustrate specific PBL-inspired public/private work sharing partnerships in real-life cases, we conducted the following interviews with key players at Robins Air Force Base and the Fleet Readiness Center Southeast.



Wayne Ayer, Director of C-130J Sustainment, 560th Aircraft Sustainment Squadron, C-130J Flight
Photo courtesy of U.S. Air Force, Sue Sapp

PBL MEANS NEW WORKING RELATIONSHIPS

*Location: Robins Air Force Base
Program: C-130J Sustainment
Interviewed: Wayne Ayer, Director of C-130J Sustainment, 560th Aircraft Sustainment Squadron, C-130J Flight*

AAD: The C-130 has been in inventory since 1954. So the DOD has a broad maintenance experience and investment in the maintenance infrastructure, doesn't it?

Ayer: Yes, there is a substantial infrastructure for dealing with the C-130E through H3 legacy aircraft for the common areas of the airframe. But the C-130J aircraft, which number fifty-three in inventory and are still being procured, have unique elements like a glass cockpit, upgraded electrical systems, enhanced cargo handling systems, upgraded engines and props, and specialized mission equipment.

AAD: So these unique C-130J model elements are supported apart from legacy aircraft sustainment and are covered under a PBL partnership arrangement?

Ayer: Yes, we have entered into partnerships

with both Rolls-Royce and Lockheed Martin. (Dowty Propeller is currently a member of the Rolls-Royce partnership, but it will be broken out under a separate partnership agreement in the near future.) They are 10-year PBL contracts, initiated February 1, 2006. We negotiated the first couple of years of each partnership and will price the remainder in the out years.

AAD: What are the roles of the partners?

Ayer: We have a propulsion contract with Rolls-Royce and a C-130J-specific non-propulsion contract with Lockheed Martin Aero. Traditionally, the C-130J has been nearly 100 percent organically supported, because the aircraft's been in inventory so long; we created a broad capability to support it.

To try and normalize sustainment support for the J model, we integrated Rolls-Royce/Dowty and Lockheed Martin personnel right into the Air Logistics Center [ALC]. The repair of assets is done at OEM facilities, and overseen by Lockheed Martin Aero or Rolls-Royce. We have their personnel in engineering, materials management, and program management within our organization. We have fourteen Lockheed Martin Aero and Rolls-Royce/Dowty personnel, as well as a reach-back capability at Rolls-Royce Indianapolis; at Lockheed Martin in Marietta; and at Dowty in Sterling, Virginia, and

in the UK. When a customer calls in, it's transparent to them who they get—U.S. government personnel or contractor personnel. They don't really care which it is; they just want their problem solved.

AAD: What are the contract performance metrics measured under the PBL contract?

Ayer: The supply chain metrics are stockage effectiveness, customer wait time, and MICAP [mission capability] hours. We also measure sustaining engineering response time. Sustaining engineering covers calls from the field for support not detailed in technical orders. We track the timeliness of the response. Then, there is also overall customer satisfaction. We're developing aircraft availability and the vendor's contribution to it as a metric. It's a partnership, where we rely both on the contractor and the DOD, so we calculate his contribution to aircraft availability separately from the DOD's contribution.

Last is lifecycle cost reduction, which we have yet to develop. We need time to first establish a cost baseline and then performance metrics and goals.

AAD: Since the program is new, will the metrics be measured and phased in over time?

Ayer: Yes. We've incentivized sustaining engineering and customer satisfaction in Year One. Supply chain efficiency metrics will be phased in at the beginning of Year Two. Data was collected during Year One to provide a baseline for the Year Two supply chain efficiency metrics.

AAD: What about mission capability as a metric?

Ayer: Mission capability was a metric early on during our PBL contract negotiations. But because the contractor in this partnership is not responsible for the whole nose-to-tail supply chain, we couldn't use it as an incentive element with them. As I noted earlier, the contractors only provide the support for the C-130J unique elements of the aircraft. The existing DOD infrastructure provides the balance.

AAD: Under your contract, up to what point are the contractors responsible for the supply chain?

Ayer: In our case, Lockheed Martin and Rolls-Royce are responsible for entire supply chain for the C-130J unique items, from the supply transportation times right up to the point they reach the air base.

Once the item is tracked to the air base, we stop the clock. That is, as soon as FedEx, for example, tries to deliver it the first time. The suppliers can't be responsible for delays in what happens after the part gets here.

AAD: But mission capability rate must be an overall goal of yours?

Ayer: Oh, yes. We're building toward an 82 percent mission capability rate. We don't have sufficient spares in inventory to this point to achieve that. We've had to structure the contract to buy additional spares. We negotiate a rate attainable based on sparing and turnaround times for repairs that can be met. The C-130J partnership provides the customer with support from the existing C-130 organic sustainment infrastructure, plus the J-unique infrastructure through the PBL contracts. The Air Logistics Center has the responsibility of integrating the two sustainment environments to satisfy the mission capability rate goals levied by the customer. If a user gets funded, let's say, to only 80 percent, we go back to suppliers and say "What is obtainable for this cost financial base?" Initially, you won't see degradation as you live off spares. But over time, as spares are consumed, you'll have lower stocks, and lower overall availability. An 82 percent capability rate would be a significant enhancement.

AAD: How was the contract structured before PBL?

Ayer: Everything was under Lockheed, and Dowty and Rolls-Royce were subcontractors. We broke it out a bit in the best interests of the government. Before PBL, there were a series of different price structures for consumables and repairables, without incentives. We had a flying hour rate for repair of repairables, where we paid for X number of flying hours for repairs per year on a fixed price hourly basis. Our consumables, we paid calendar-based, on a 4-year basis. As fleet size increased, the number of airplanes coming due on their 4-year consumables allocation grew each year.

AAD: How is the PBL contract different?

Ayer: Now, we have a flexible incentivized contract. We've minimized the amount of manpower support—that's the fixed price part of the contract, or the overhead to keep the doors open. Then, we pay the cost per flying hour, which includes the engineering, repair of repairables, replenishments of consumables, and the condemnations. If the user flies fewer hours, the bill is lower; it's not a "must pay" bill.

AAD: What about incentives?

Ayer: We have negative incentives and positives in the contract. We structure them under a flying hour rate. If the aircraft doesn't fly, it doesn't earn revenue. These vendors signed up to non-availability due to all causes. What this means is that even a C-130 legacy common item can prevent the aircraft from flying and therefore not generating flying hour revenue. The PBL partners were able to agree to this by

looking over the last couple of years of data and examining our average flying hours to establish the business revenue baseline potential. This "all-causes" approach has incentivized the partners to assist us in the management of all non-availability issues, not just the C-130J unique elements for which they are under contract.

Relative to performance metrics, we have thresholds and additional performance tiers. For example, let's say the customer wait time threshold is less than 4 days. Anything over 4 days is a penalty, which increases with each day. While a wait time back under 4 days might be a positive incentive.



AAD: What are the strengths and weaknesses of this kind of partnership relationships?

Ayer: I established this partnership development team about 4 years ago, and it was important to recognize everyone's strengths. One private industry weakness is interfacing with our supply chain data systems, which can be cumbersome to deal with. Industry strengths are interfacing with elements of manufacturing, existing business relationships, and flexibility in contracting. But the partnership is all about reinforcing our strengths. We are able to integrate these strengths to include the vast organic sustainment experience on the legacy C-130.

AAD: What is in store for partnerships?

Ayer: Our depot activation will be coming up in the next 3 years. We'll be entering into partnerships with multiple vendors. We'll acquire third-party logistics services and access to technical repair manuals and, under that

oversight environment, our Air Logistics Centers will provide touch labor for repairs. The parts will be sent back to OEMs for repairs, which would then have them repaired at an Air Logistics Center. The part would be placed back into our supply chain and issued to our blue suiters for installation. On the C-130J airframe itself, where the majority of structural component repairs are common to the legacy C-130 aircraft, heavy maintenance will be done at Warner Robins ALC or Ogden ALC.

AAD: What are the ultimate goals?

Ayer: Increased availability. Also, what does it cost the user of the platform? I believe costs can be driven down. For example, you can increase

the efficiency of the recurring maintenance inspection processes. One of the flaws, so to speak, of the inspection processes is that you may look for flaws that only show up on an aircraft after 30 years. . . . So why look for them when the aircraft is new?

AAD: So it's about smarter ways to work in a partnership?

Ayer: Yes. We'll be sharing more in our mutual analysis to enable us to share efficiencies. There's more work to do now than we know what to do with. If we can find smarter ways to work together, where the contractor brings resources to bear, there is great value. Industry can tap into new technology more easily in some cases than we can. Industry can work a diminishing manufacturing issue for a production line and then come back and share it with us. And if we structure relationships flexibly enough, we can garner benefits. It's this team environment that has allowed us to build bridges instead of walls.



From left to right: Donald L. Brown, Jr., Senior Business Management Specialist, Fleet Readiness Center Southeast
 Luis A. Llera, General Electric Aircraft Engine Business Operations Manager, F404/F414 PBL Programs
 Photo Courtesy of Victor Pitts, Fleet Readiness Center Southeast

Location: Fleet Readiness Center (FRC) Southeast

Program: Engine Maintenance for GE 404 Engine on F/A-18 Aircraft

Interviewed:

Luis A. Llera, General Electric Aircraft Engine Business Operations Manager, F404/F414 PBL Programs

Donald L. Brown, Jr., Senior Business Management Specialist, Fleet Readiness Center Southeast

AAD: Can you give us the background on engine repair/maintenance prior to the PBL effort?

Llera: It was just parts deliveries to a customer order, with a standard DOD-negotiated contract. There was no partnering or incentives. Orders were placed and GE [General Electric] supplied requested parts to Philadelphia NAVICP [Navy Inventory Control Point], which scheduled the

workload to the depot and delivered the parts.

Brown: The DLA [Defense Logistics Agency] also supplied parts from GE, so we had multiple suppliers for one product.

AAD: How did the PBL contract come about?

Llera: The structure has to start with the prime NAVICP. They create the business case analysis, and this drives them to determine if a PBL is a feasible way to support a commodity. The prime NAVICP developed a requirement based around an F/A-18 aircraft availability metric. Thirty-seven major components—like rotor systems, cases, frames, controls, and accessories—had to be supplied to meet the metric. It was the only metric that was part of the PBL contract. NAVICP was looking to establish a 4-year performance program with a long enough timeline to get results.

AAD: Why only one metric?

Brown: I think it was recognized that they had not done a PBL contract to that point with this large magnitude, and, if a contract document has too many checkpoints, it could bog the whole process down. So availability was the metric.

AAD: And what is the availability metric?

Brown: The availability metric that had to be met was 85 percent. Prior to PBL, the availability metric of a component to a fleet activity relative to the engine was 43 percent. Currently it's up to 95 percent. The internal metric we use is turn times; that's been reduced on average by 30 percent.

Llera: When we picked up the program in 2003, there were 718 back orders with 436 being priority one, the most critical. We reduced backorders to zero in 15 months.

AAD: Who gauges whether the metrics are met?

Brown: NAVICP, the customer, measures the metrics. They tell us if we are meeting the measures, and they become the auditing line.

AAD: Is consideration given to improving component life?

Llera: Now, GE assumes more risk. A lot has to do with commodity MTBF [mean time between failures]. We use forecasting models to look at meeting the availability requirement over time, and we can consider investing in commodity improvements to minimize that risk. Of course, with risk comes cost, and investment in commodity MTBF improvement.

AAD: Isn't this partnering part of the new direction in transforming depots?

Llera: Yes, depots are moving to establish themselves as hybrid MRO facilities. They're using Airspeed, which is the NAVAIR implementation of Lean and Six Sigma. This helps empower the artisans on the floor, making them part of focus groups looking at product flow and establishing internal metrics.

Brown: In moving toward a hybrid partnering of industry and government, GE brought the technical experience and supply support. Jacksonville had the hands-on maintenance and touch labor skills. ■

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