



Performance Based Logistics Contracting **Part 2**

By George P. Blumberg

The first installment of this series on Performance Based Logistics (PBL) contracting (AAD fall 2006), surveyed the evolution and hallmarks of the PBL contracting approach, and its revolutionary nature and impact on organizations. This second installment describes the need for risk minimization, achieved through historical modeling and projection data, and outlines the results of several programs that operate under PBL contracts.



Photo Courtesy of:
Top Left-Eaton Aerospace
Top Middle-Lockheed Martin
Top Right-Eaton Aerospace
Lower Left-Eaton Aerospace
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*Jeff Bantle,
Vice President
Lockheed Systems Integration,
Owego, NY*

PBL has become the preferred U.S. Department of Defense contracting approach when purchasing weapons systems support. Under PBL, long-term contracts are tied to the performance of weapons systems over their life cycles. Contractors are paid for performance outcomes, not repairs. In this way, the goals of for-profit corporations are aligned with DOD goals of system availability and cost minimization.

Under PBL, private sector contractors adapt their best commercial practices to large-scale program management, including risk mitigation and streamlining logistics chains. Contractors often enter into unique partnerships with DOD facilities to achieve readiness and cost goals.

PBL is seen as a key factor not only in increasing the availability and reliability of weapons systems, but also in simultaneously integrating the functions of base- and intermediate-level facilities. As a result, MRO activities are brought closer to the end user, and the whole process is streamlined.

CONTRACTOR UNCERTAINTY AND OPPORTUNITY

PBL provides an uncertain—but potentially rewarding—environment for contractors: They are incentivized to meet or exceed measurable outcome metrics, and they face penalties for falling short.

According to John Kotlanger, partner in Performance Based Logistics Programs (www.pblprograms.com), which advises contractors on risk management, a PBL can generate a 20 to 30 percent profit margin, yields far larger than the 5 to 7 percent

margin common to traditional contracting. "The risk is greater, and so is the reward," he says. The key to successful PBL contracting is risk assessment.

Kotlanger and other consultants, such as Kate Vitasek, of the University of Tennessee's Aerospace and Defense Clearinghouse faculty and a partner in the consultancy Supply Chain Visions (www.scvisions.com), caution that PBL contracting requires laying out carefully constructed business cases, based on historical and projected data. They agree that the private sector has some very good measurement techniques. "Corporations are driven by cash flow and balance sheets," says Vitasek, "and can often project their commercial business operations or previous government contracting experience to a government-support scenario, modifying assumptions as appropriate."

Vitasek advises that a business case may

take 6 months or more to complete. And Kotlanger believes that to apply PBL to a legacy program, 2 years' worth of data is needed. "In the past, I've laughed when the government has given a short response time for an RFP on a PBL-type program," he says. "You couldn't possibly understand your risks well enough in a 30-day or 60-day response timeframe. The government can't buy PBL on the fly, and the contractor has to understand his risk."

The DOD Joint Strike Fighter (JSF) program was a PBL program from the start. Prior to the start of system design and development (SDD) in fall 2001, fully validated and affordable operational requirements were available. Vitasek and Kotlanger agree that the JSF program is on target with sufficient long-range, up-front planning to provide a high probability of success.



Photo Courtesy of Lockheed Martin

MINIMIZING H-60 SUPPORT RISK

"It's all about understanding and managing risk," says Rod Skotty, President of Maritime Helicopter Support Company (MHSCo), the Lockheed Martin/Sikorsky joint venture formed in 2001 to provide wholesale, overhaul, modification, packaging, handling, storage, transportation, obsolescence management, and reliability improvements for more than 350 Naval H-60 helicopters. MHSCo's PBL-based contract includes payment for total flight hours—the availability of the helicopter to fly missions—versus the pre-PBL system of payment for parts and repairs.

"Luckily, we had 30 years of baseline experience with this aircraft," says Skotty. "We did lots of modeling and failure analysis. We looked at the total supply chain and found areas to make it more efficient and save money. We introduced fixes and improvements to hardware. With a 5-year

contract, you have the time to introduce hardware improvements, because you'll be around when they pay off."

In December 2003, MHSCo received a \$417 million "tip to tail" contract for H-60 support. MHSCo has a very lean administrative structure, and serves as a channel to direct and manage work. In effect, MHSCo manages the entire supply chain, including transportation and warehousing (run by partner AAR Corporation).

A key performance measure affecting aircraft availability is the "fill rate" for requisitions. Jeff Bantle, a vice-president at Lockheed Martin Systems Integration, in Owego, New York, explained that there are different priority levels assigned to incoming parts requisitions. "Some get filled in 24 hours, some 48, some 96. If we deliver a fixed part within the time allotted, then we've filled a requisition." Bantle says that prior to the PBL structure, when the U.S. Navy was filling requisitions, the fill rate was 62 percent. Now the fill rate percentage is in the mid-90s. "And our response time to get parts delivered has gone from 50-plus days on average to about 7 days under PBL."

The Navy has one PBL contract with



*George R. McAndrews,
PBL Director
Eaton Aerospace*

have weeks of no ranking at all, which is where we like to be." Skotty says that working with MHSCo's subs, vendors, and Navy and Army depots, lean process improvements have been instituted across the logistics chain, saving time and cost.

It is pay for performance, versus pay for repairs. "We invoice pre-set figures on a

The key to successful PBL contracting is risk assessment.

MHSCo, providing one contact point for the airframe and avionics. (GE has a separate engine contract with the Navy and Raytheon has one for the FLIR system.) Avionics repairs flow to Lockheed, and airframe and dynamic components flow to Sikorsky. In turn, both Lockheed and Sikorsky manage a number of contractors. "In some cases, we've even moved repairs to government depots where subcontractors might have cost more money. We just look at the best tradeoffs in filling the requisition," says Bantle.

Skotty explains that applying commercial practices means added efficiency. "We have an obsession with managing subcontractors, transportation, schedules, and processes," he says. One key metric is "stock in transit time." At first, says Skotty, "We were seventh-highest in the Navy, very high up on the issues list. (Note: A number 1 issue is the worst.) We worked at it, and now our rank is down to 100 or more. Frequently, we

monthly basis," says Skotty. "After a year, we reconcile, either giving back money or getting an incentive award fee, measured in 6-month periods." How have they been doing? "Let's just say, since inception we've received 100 percent of the award fee with no problems."

The original 2003 contract, running to December 2008, covers 540 part numbers. "We took some time to model the repair cycle of these parts," recalls Skotty. The phase two award, in the amount of \$204.8 million, covers another 680 part numbers. "It was done in an incremental way, so as not to overstress the process," he explains.

JOINT STRIKE FIGHTER HYDRAULICS

The Joint Strike Fighter is a PBL program from inception, and Eaton Aerospace is responsible for the advanced aircraft's hydraulics system. George McAndrews is Eaton Aerospace's PBL Director for the project.



"I started working on Eaton's role with JSF about 3 years ago," McAndrews says. "Lockheed is our customer, and we are going to be compensated by the mission readiness of the aircraft." McAndrews says Eaton Aerospace approaches the risk with a base comfort because, in its commercial experience, Eaton's pumps and actuators demonstrate high reliability. "On the commercial side, we've been able to review and assess components and modify parts to extend their lives. We can take a similar approach with the JSF Program."

McAndrews says that with a 5- to 8-year contract length, Eaton will be able to analyze parts performance on early production runs of the JSF, forward buy parts, and continue to build parts, modifying them as needed, based on JSF operating results. So the aircraft will have a consistently high availability rate. "And let's say a part lasts 1,000 hours as we monitor it on the JSF. Maybe we'll work with the government to get them a new part at 950 hours, instead of waiting until it fails. We're interested in aircraft readiness."



*Robert P. Luley,
Vice President of Program Management
and Technology
Eaton Aerospace*

Luley says that his company will monitor parts to know when and how they wear or fail. "We'll know pressures and temperatures, based on prognostic sensors installed in our own equipment. But we'll also be able to get downloads of records from sensors installed

...it's a different world under military PBL on a totally new, high-tech platform such as the JSF.

Bob Luley, Vice President of Program Management and Technology at Eaton Aerospace, says that being in on the long-lead JSF planning process is helping mitigate risks. "While we're very early on in the JSF, we do realize we have commercial experience at the component level, as opposed to the subsystem level. But we're used to tearing down pumps, getting data, and optimizing parts to increase reliability. We were selected on the basis of our strong willingness to move forward."

In moving ahead, Luley recognizes that while Eaton Aerospace has years of historical experience, it's a different world under military PBL on a totally new, high-tech platform such as the JSF. "We need prognostics," he says. "Conceptually, we expect that our payment will be adjusted up or down, based on our components' reliability. But we're banking on the extensive prognostic tools JSF will have."

on other parts of the aircraft and in different operating environments. I'm anticipating we can forecast failures and unscheduled maintenance needs from flight data, and we then [can] transition into making the modifications we need to meet our reliability and availability targets."

MOVING FROM COMMERCIAL TO MILITARY PBL

Pratt & Whitney has been working in a PBL-like environment commercially since the early 1990s. According to Mark Buongiorno, Director of Military Fleet Management Programs, "It was hard for some people to realize that programs in commercial aviation such as dollar-per-engine-flight-hour or dollar-per-engine-cycle programs were, in a sense, PBL before there was a definitive government PBL strategy."

He recalls that when, in 1997, the USAF was moving toward Flexible Sustainment for

Photo Courtesy of Eaton Aerospace



Mark Buongiorno,
Director of Military Fleet Management Programs
Pratt & Whitney

the C-17 aircraft, with Boeing competing engine support among commercial engine providers, P&W teamed with United Airlines, offering a dollar-per-engine cycle program. The team competed successfully in three successive contract periods.

"Boeing does the systems integration, P&W has the propulsion knowledge, and P&W and United [Airlines] provide the MRO infrastructure and established repair capability," says Buongiorno. The F117 PW100 engine on the C-17 aircraft is the military version of the commercial PW200 engine.

The traditional arrangement with the USAF was for it to purchase all the logistics elements to sustain the engine in the field, such as tooling, manuals, and spare parts. They would capitalize a facility. "We'd provide parts and services on a transactional basis," he says. For the C-17 program, which will support 180-plus four-engined aircraft, plus spares, Buongiorno says P&W leveraged much of what was learned in commercial dollar-per-flight-cycle arrangements. "A power-by-the-hour agreement aligns the customer's goals and P&W's goals, whereas the old replacement market revenue stream was not necessarily an alignment," he explains.

In assessing and managing risk, P&W has developed an internal tool set that draws a tight correlation between utilization and maintenance costs. Buongiorno describes it as a proactive series of forecasts, given [the] interacting sets of variables P&W examines. "It's actually a program management approach

to logistics."

That program management approach works on three levels. The first level is to look at the transactions that are performed: Aircraft fly, engine events occur, and P&W supports the events. The second level is where metrics are generated: the number of sorties flown per day, the number of cycles per month, and the number of inductions of new aircraft per year. The third level is analyzing the metrics and trends and actively working to affect the future in a positive way. "It's not rearview mirror management," Buongiorno explains, "but proactively managing what we'll be up against in the future."

For example, he says that, in a given month, a certain number of parts might be coming up for a time change. In that case, P&W would work with maintenance schedulers to spread the work out over 3 months to better match demand to supply and minimize customer impact.

Constant "dashboard monitoring" and making smart recommendations on engine and performance operating parameters keeps P&W ahead on upcoming maintenance needs. "Let's just say it's good health monitoring," comments Buongiorno. "For example, when aircraft are going down range, you might recommend certain maintenance be performed prior to departing for a certain period of time to a certain operating environment. It's simply optimizing management and operations within the aircraft's operating envelope."

Buongiorno says that flexibility in forming teaming arrangements is a key to minimizing risk and maximizing efficiency. "We form teaming arrangements with the DOD. They



The facility was inaugurated October 20, '06, and is composed of the Naval Aviation Depot Jacksonville, Florida, and the Aircraft Intermediate Maintenance Detachments at Jacksonville and Mayport, Florida.

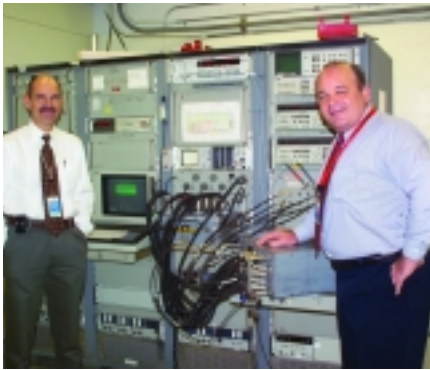
Top Photo: (l-r) Capt. John Scanlan II, Commanding Officer, Fleet Readiness Center, Southeast - Rear Adm. Michael D. Hardee, Cmdr., Fleet Readiness Centers - Rear Adm. H. Denby Starling II, Cmdr., Naval Air Force, U.S. Atlantic Fleet

Middle Photo: Capt. John Scanlan II (C.O., FRCSE) & AFCM Richard Grace (C.M.C., FRCSE) unfurl the Command FRC flag.

Bottom Photo: Capt. John Scanlan II addresses attendees at the FRCSE Stand-up ceremony.

Photo Below: Troops in formation as color guards post the colors.





Tom Aton,
Business Operations Director
FRC Southeast.

Jon Stafford
Business Management Specialist
FRC Southeast.

the Charleston Air Force Base facility where the contractor team is using a government facility to supply direct operating support. "On F119 support (for the F-22 Raptor aircraft), we have a partnership with the Depot in Oklahoma City; for the J52 (EA-6B

commercial and military operations.

A P&W spokesperson, Heather Summerer, said that with continuing upgrades under PBL contracts, the time on wing for the F117 engine has increased 215 percent over the past 8 years. She also

The new structure and a PBL environment encourage unique partnerships with industry.

aircraft), we partner with Naval Air Depot Jacksonville." (Note: Jacksonville was recently re-named Fleet Readiness Center Southeast; see below.)

On the F119 and J52 programs,

reported that turn times have been decreasing: 25 percent for engines and 43 percent for LRU (line replaceable units).

MOVING CLOSER TO END-USERS

The Navy's new integrated MRO structure realigns and merges depot and intermediate maintenance activities into six Fleet Readiness Centers (FRCs) with thirteen affiliated FRC satellite sites. The new structure and a PBL environment encourage unique partnerships with industry.

"FRCs integrate all continental U.S.-based, off-aircraft depot- and intermediate-level maintenance," explains Tom Aton, Business Operations Director at FRC Southeast. The facility was inaugurated on October 20, 2006, and it is composed of the Naval Aviation Depot Jacksonville, and the Aircraft Intermediate Maintenance Detachments at Jacksonville and Mayport, Florida.

Using the H-60 helicopter's ALQ142 emitter locator system as an example of the type of spares/repairs streamlining the Navy is dedicated to achieve, he says, "We're pushing more depot-level capability closer to the customer, and pushing depot-level repairs out to intermediate repair sites." The goal, explains Aton, is to decrease the amount of rework coming back to the depot level at Jacksonville. "We're looking to interdict return of parts to the depot by heading it off at the pass," he says, referring to NAS Mayport, Florida. "We've exported depot-level skills to Mayport, putting some of our depot-level partisans next to uniformed maintainers at the intermediate level. We'll now experience fewer components sent from Mayport back here."

FRC Southeast's partnering agreement with industry on ALQ142 spares and repairs exemplifies how the DOD is working under



can supply facilities, touch labor, some infrastructure. We bring the integration of OEM services and our understanding of the product and predicting modeling capabilities to the relationship."

For example, the C-17 program is taking advantage of existing infrastructure, such as

Buongiorno says P&W is currently in transition to a PBL program structure. "We do a lot of internal company PBL training. Because it was born out of the commercial work we've done," he says, "we've taken a one-company approach across P&W divisions, sharing best practices between

PBL to achieve its goals. "Prior to PBL," explains Jon Stafford, FRC Southeast Business Management Specialist, "NAVICP (Navy Inventory Control Point) generated a repair schedule to us for components, based on their consumption-based model. They'd schedule us, fund repairs, supply parts to us through the private contractor, and we'd receive units and make repairs." The depot would supply the labor. "We'd strike a firm fixed-price for the fiscal year for a particular part, and we'd do the repair for the fixed price."

But now under PBL, NAVICP contracts for spares and repairs on the H-60 naval helicopter not with a Naval depot, but with MHSCo, the Lockheed Martin/Sikorsky joint venture company. "MHSCo has partnered with us to perform the repairs we used to do before" says Stafford, "but they are providing all logistics, scheduling, parts, and parts movement. And we do it for MHSCo on a cost-reimbursable basis, not fixed-price."

Aton explains that "Now, we base the price on direct labor and a production overhead, and we establish a rate and apply it against the labor hours for the repair. As we approach 70 percent of the expenditures allocated, we notify MHSCo for funds as needed." And they execute the repair at MHSCo's direction. "We perform changes directed to enhance reliability, and we get paid for the level of effort expended."

MHSCo is motivated to meet availability targets it has contracted for with NAVICP and to minimize the total investment of FRCS Southeast in doing repairs. Aton says the team established with MHSCo did value stream mapping and process evaluation, and the overall logistics response time to the fleet has improved from 57 days to 7 days. "Stock in transit went

from seventh issues ranking to a zero ranking," he says, and the fill rate improved "dramatically."

Aton reports that progress is being made. "We're seeing less repairs and that is the conscious intent. In a sense, if we put ourselves out of business repairing parts we're successful. It's counterintuitive from a business volume point of view, but it makes sense from a Naval Aviation Enterprise point of view. We're trying to minimize aircraft maintenance and cost of ownership, and enhance readiness."

STOCKHOLDERS AND STAKEHOLDERS

PBL contracting is an important tool in aligning contractor goals with DOD readiness and cost reduction goals. As more legacy systems are moved into a PBL environment, and as new systems are initially fielded in a



*Rod Skotty,
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PBL environment, both stockholders and stakeholders will have their goals met. Stay tuned for future articles on PBL. ■

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