"Speaking of superheroes, here's to the program manager (PM)! In my opinion, no job scope in the federal government compares to the responsibilities of the PM. No wonder PMs sometimes appear selective in the balls they attempt to juggle. Now here come the "loggies" with another big ball to throw at the juggler: PM responsibility for total life cycle systems management as mandated in DoD Directive 5000.01, paragraph E1.29. Being a life cycle manager is not an insignificant or marginal duty."

—Randy Fowler
   Former DASD (Materiel Readiness)

10 Things
Great Program Managers
Know About Product Support

Bill Kobren

H ats off to program managers everywhere—particularly those who not only embrace responsibility for designing, developing, and fielding weapon systems that meet cost, schedule, and performance requirements, but also focus on ensuring the system is designed to be supportable and sustainable while minimizing projected and actual operations and support (O&S) costs at every stage of the life cycle.

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> **At the end of the day, reliability (or lack thereof) is a (if not the) primary driver of future product support requirements.**

Easier said than done, of course. You've heard said—and may have even uttered them a few times yourself—things like "If I have to choose between a cancelled sustainable program today and getting through the next major milestone…" Or "I'm dealing with the alligators closest to the boat." Or perhaps "Logistics is my only discretionary account." Or "Sustainment is my design trade space." Or "That's years away; we'll address it later."

In an era of rapidly approaching fiscal austerity, aging weapon systems, and fewer new program starts, great PMs recognize they must also be product support experts, discarding remnants of short-term thinking and investing scarce resources in reliability, availability, and maintainability across the life cycle to reduce ownership costs and enhance warfighter readiness.

Given the vast range of mandates already levied upon you, if you'll permit, I offer a list of 10 things to know about product support—particularly if you are or aspire to become a great PM who truly relishes the challenge of delivering a supportable, sustainable, maintainable, reliable, cost-effective weapon system the warfighter will rely on for decades to come.

10. I'm the life cycle manager (LCM): The product support buck stops with me.
Take ownership. Total life cycle systems management is ensconced in DoD 5000 policy for a reason. It is foundational. With DoD product support and sustainment costs exceeding $200 billion a year, LCM is nothing short of imperative. Best value product support solutions require a (very) long-term perspective and up-front investments. Because best value often does not equate to lowest acquisition cost, great PMs focus first and foremost on metrics-driven optimization of life cycle cost, warfighter readiness requirements *and* overall system availability, great PMs recognize LCM cannot simply be viewed as "something the loggies will take care of later."

9. The right product support manager (PSM) is key. Demand excellence and accept nothing less.
Although great PMs intuitively know they are ultimately responsible for life cycle management, the PSM plays an integral role on your behalf in implementation and execution. By statute and in policy, the PSM is accountable to you to:
- Provide weapon-systems-product-support subject-matter expertise for the execution of your duties as total life cycle systems manager.
- Develop and implement a comprehensive, outcome-based product support strategy.
- Promote opportunities to maximize competition while meeting the objective of best-value long-term outcomes to the warfighter.
- Leverage enterprise opportunities across programs and DoD components.
- Leverage appropriate analytical tools and conduct appropriate cost analyses to craft your product support strategy.
- Develop and implement appropriate product support arrangements, assess and adjust resource allocations and performance requirements for product support to meet warfighter needs.
- Optimize implementation of the product support strategy.

To achieve this on your behalf, the PSM also documents your product support strategy in a life cycle sustainment plan (LCSP), conducts periodic product support strategy reviews, and revalidates the supporting business case analysis (BCA) prior to each product support strategy change or every 5 years, whichever occurs first.

The PSM is a key teammate; understand their responsibilities, ensure they are well trained, and hold them accountable. Know what deliverables your PSM is responsible for at every milestone. Ask the hard questions: Does our product support strategy represent "best value" support to the warfighter? How do you know? Familiarize yourself with the DoD *PSM Guidebook* to better understand PSM roles and responsibilities. Study the DoD Product Support Business Model (PSBM, Figure 1) to better understand key interfaces and relationships. A word of advice: To effectively implement the PSBM, your systems engineers and PSM must be "joined at the hip." Corollary 1: your cost estimators, business and financial managers, and PSM must also be "joined at the hip." Corollary 2: Your contracting officer and PSM must be "joined at the hip." Corollary 3: You get the picture; interdisciplinary integration is essential for successfully devising, implementing, and improving a long-term best-value product support strategy.

8. Everything that really matters can pretty much be summed up in a single page.
On April 5, 2010, the USD (AT&L) issued a definitive policy memorandum titled "Strengthened Sustainment Governance for Acquisition Program Reviews." It not only mandated a sustainment "quad chart" focusing on product support strategy, funding, and implementation "big rocks," but perhaps

Figure 1. Product Support Business Model (PSBM)
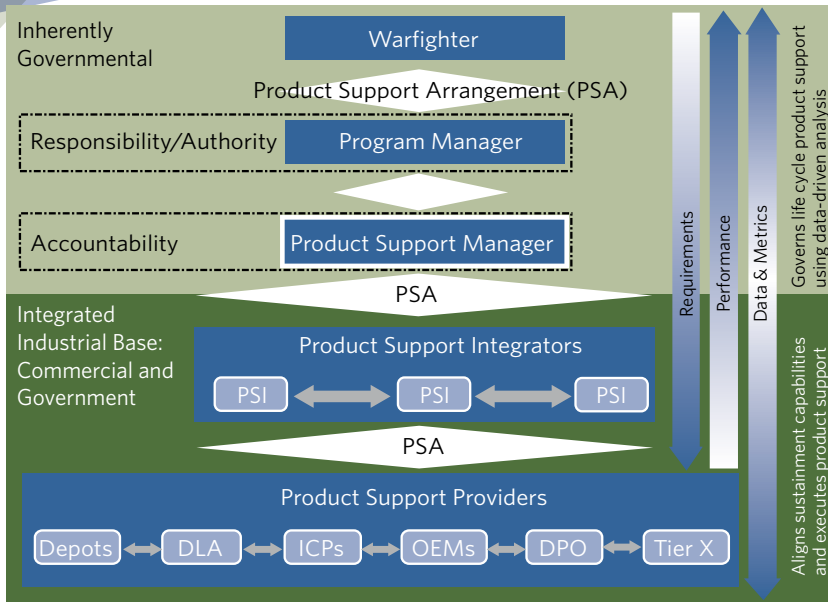
The PSM is the warfighter's principal product support agent responsible for incentivizing PSI(s) to achieve warfighter requirements. *Source:DoD PSM Guidebook.*

strategies: metrics, performance-based agreements, data, and rigorous product-support business-case analysis required to justify and measure success. Leverage evolutionary acquisition strategies. A word of caution: Resource constraints are a reality on every program; don't let product support considerations be the first casualty when making design trades.

All this should serve as a constant reminder that reliability (or lack thereof) is a (if not *the*) primary driver of future product support requirements. Design your system with supportability in mind. Earlier is always better when devising and implementing a robust reliability, availability, and maintainability (RAM) strategy. Vigorously embed well-thought out technical data rights strategies, risk management, supportability analysis, Condition Based Maintenance Plus, value-engineering, technology insertion, continuous modernization, sustaining engineering, product improvement programs, and demilitarization & disposal planning into your program.

more importantly, through the four key life cycle sustainment outcome metrics, it articulates what really counts: availability, reliability, O&S cost, and mean down time (Figure 2). Yet again, affordable readiness is clearly paramount. It concisely conveys to senior decision makers that O&S costs are to your programmatic cost analyses, regardless of program stage in life cycle. Know this chart like the back of your hand. Review it regularly with your PSM and life cycle logistics team. Regarding the data contained on the chart, ask how they know. Ask not only how current results can be improved, but what we are doing to improve them. Ensure warfighter customers and the resource sponsors are engaged.

7. Design systems with supportability in mind.

Because DODD 5000.01 identifies supportability as the fourth element of acquisition, cost, schedule, and performance alone are no longer sufficient. To successfully achieve this requirement, it's imperative to first get the product support requirements right—right from the start. Work with the requirements community to understand what is technically and fiscally feasible. Work together to ensure product support requirements are not gold plated or that they lock you into future requirements creep. Invest in long-term, outcome-based life cycle product support

6. Product support strategies must be iteratively crafted, revalidated, and documented.

Regularly ask yourself (and your PSM): What is my product support strategy? How do I know it's the right one? Can I explain it to those unfamiliar with my program? Are my PEO,

Figure 2. Sustainment Quad Chart
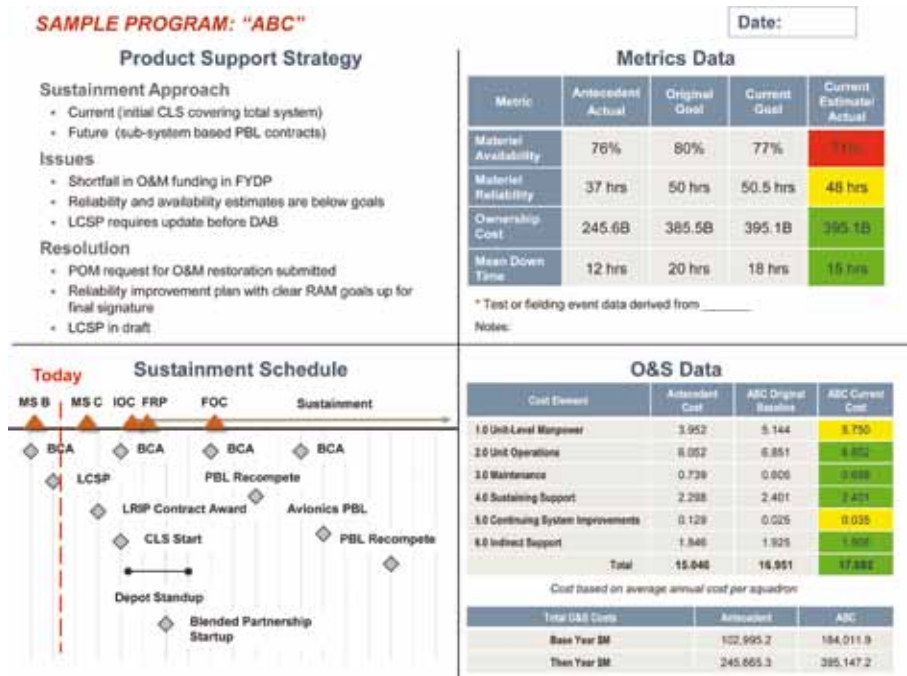
milestone decision authorities, and warfighter customers on board with it? Does it meet their requirements not just near-term, but is it flexible and visionary enough to do so for the life of my program?

Built upon the statutory and policy requirements levied on the PSM to develop, document, and justify outcome-based life cycle product support strategies, first understand the requirements, conduct supportability analyses, and complete the first of many future product support business case analyses. To document the results of these analyses, use the powerful new 12-step DoD Life Cycle Product Support Strategy Process Model (Figure 3), contained in the April 2011 *PSM Guidebook,* and the "Document Streaming—Life Cycle Sustainment Plan" (LCSP) policy memo, issued Sept. 14, 2011, by the principal deputy USD (AT&L). Because both the product support BCA and the LCSP are intended to be iterative, each will be regularly updated for the life of the program. Ultimately, the LCSP is a program's primary management tool to document the program's product support strategy and satisfy the warfighter's sustainment requirements.

5. Twelve new integrated product support (IPS) elements provide the framework.

The traditional 10 integrated logistics support (ILS) elements were recently replaced by a significantly more robust set of 12 integrated product support (IPS) elements (Figure 4). The "ILS to IPS transition" recognized the broader context and in-

tegrated interdisciplinary nature of product support, and was a major enhancement of DoD life cycle management. Introduced in the April 2011 *PSM Guidebook*, details can be found in the *2011 IPS Element Guidebook*, to be issued in the coming months. Familiarize yourself with them, seek to understand how they are integrated, and consider the implications if the IPS elements are not an integral part of both the product support and acquisition strategies.

4. Obsolescence and DMSMS will eat your lunch (along with breakfast and dinner if you're not careful).

Proactively anticipate, plan for and aggressively tackle obsolescence and Diminishing Manufacturing Sources and Materiel Shortages (DMSMS) issues. Leverage the extensive resources of the Defense Standardization Program Office (DSPO), the Government-Industry Data Exchange Program (GIDEP), Defense Logistics Agency, the SD-22 "Diminishing Manufacturing Sources and Materiel Shortages: A Guidebook of Best Practices and Tools for Implementing a DMSMS Management Program," and a series of DMSMS-training modules available on the DAU Continuous Learning site. Ensure continuous modernization, technology insertion, major modifications, and service life extensions are key components of product & process improvement across the lifecycle. And recognize that despite the importance of developing, implementing, and incorporating a proactive DMSMS and obsolescence mitigation program into your product support strategy, up-front and ongoing investments of manpower and funding will be necessary.
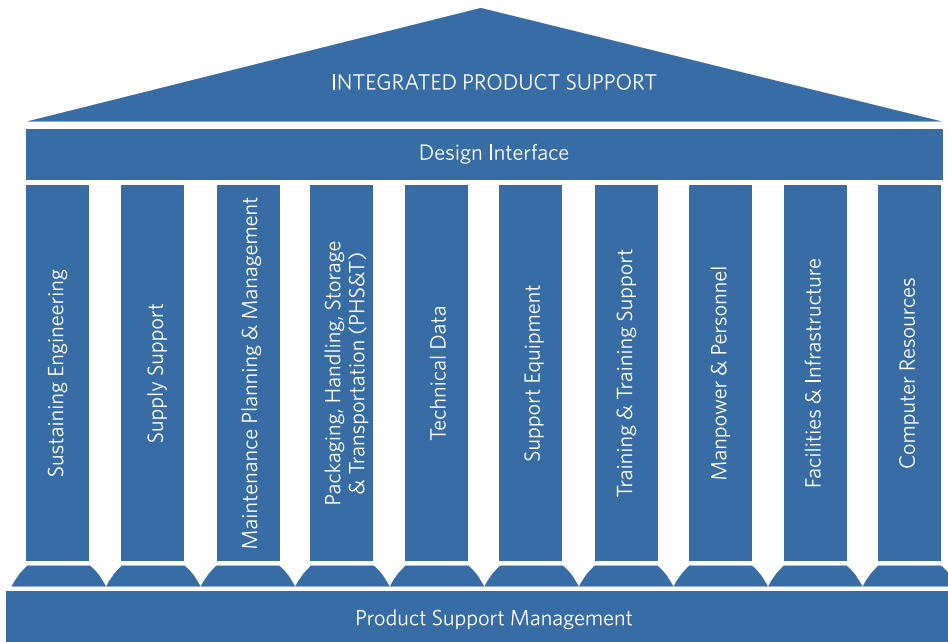
3. PBL is a powerful force multiplier.

Defined as "an outcome-based product support strategy that plans and delivers an integrated, affordable performance solution designed to optimize system readiness," when properly applied, Performance Based Life Cycle Product Support (PBL) support strategies have repeatedly demonstrated the ability to improve system availability, drive reliability improvements, enhance warfighter support, tackle process inefficiencies, proactively mitigate obsolescence and DMSMS issues, and often reduce O&S costs in the process. In short, PBL is an important and highly integrative enabler of life cycle management success. The continuation of introductory vignette at the beginning of this article reaffirms this: "PBL, with its outcome-focused principles, metrics, and incentives, serves as a simplifying strategy for the PM. PBL offers a one-stop approach for

Figure 3. DoD Product Support Strategy Process Model

Figure 4. Integrated Product Support (IPS) Elements

INTEGRATED PRODUCT SUPPORT

Design Interface

- Sustaining Engineering
- Supply Support
- Maintenance Planning & Management
- Packaging, Handling, Storage & Transportation (PHS&T)
- Technical Data
- Support Equipment
- Training & Training Support
- Manpower & Personnel
- Facilities & Infrastructure
- Computer Resources

Product Support Management

Product support is enabled by 12 integrated product support (IPS) elements, designed to deliver system readiness and availability while optimizing system life cycle cost.

the PM to perform effectively as the life cycle manager. PBL is the best enabler of the total life cycle systems management concept; it provides a means for the resource-constrained program management office to develop, implement, and manage the sustainment of a system over its life cycle."

This was revalidated in an ongoing DoD study titled "Project Proof Point," conducted as an objective, data-driven assessment of outcome-based product support strategy performance, and how these arrangements can be improved as we move forward. The study's first phase examined ten major PBL programs, and the results were encouraging to say the least, confirming "PBL arrangements reduce DoD's cost per unit of performance while simultaneously driving the absolute levels of system, sub-system, and component readiness/availability." Assuming your program's product support BCA produces similar results, take full advantage of the myriad benefits PBL can deliver for your program and key stakeholders.

2. Maintenance planning is a big deal. So is supply chain management.

According to the DoD *Maintenance Fact Book*, "DoD materiel maintenance is big business, costing about $80 billion in FY 2009. This total funds 653,000 military and civilian maintainers and thousands of commercial firms—all devoted to the maintenance of 290 ships, 14,000 aircraft, 800 strategic missiles, 361,000 ground combat and tactical vehicles, and myriad other DoD weapon systems, components, and equipment items." Hence, maintenance planning and maintenance management is among the most critical of the IPS elements. Design in maintainability to reduce life cycle costs,

as well as to ease training, technical data, support equipment, and manpower burdens on the warfighter. Commit to rigorous and timely verification and validation of maintenance and repair procedures and technical publications. Plan early for long-term depot level maintenance requirements and depot source of repair decisions. Address statutory depot maintenance statutory requirements in your product support strategy. Leverage public-private partnerships with industry to craft a robust supply chain and tap the best capabilities of both the private and public sectors.

1. Acquisition and sustainment are two sides of the same coin.

For those overseeing programs in early acquisition, don't lose sight of the fact that the hard work is just beginning when the system is fielded. Great PMs recognize the need for early and continued emphasis on getting system deployment, delivery, site activation, and field support planning right. Did you appropriately address facilities, information technology, training, technical manual/order, support equipment, and manpower requirements early in system development? Has your team anticipated and proactively addressed political, economic and environmental impacts? Integration with existing infrastructure? Required infrastructure upgrades?

For fielded systems, a key aspect of the job is to support the existing design, improve the system, and enhance the support. This entails constantly gathering and analyzing field data, taking timely action to correct or avoid negative trends, and

The PSM is a key teammate—understand their responsibilities, ensure they are well trained, and hold them accountable.

Key Product Support Resources & Links

Product Support Policy, Guidance & Tools Repository (https://acc.dau.mil/productsupport)

Life Cycle Sustainment Plan Outline (https://acc.dau.mil/lscsp-outline)

Product Support Manager (PSM) Reference Repository (https://acc.dau.mil/psm)

Product Support Manager's (PSM) Guidebook (https://acc.dau.mil/psm-guidebook)

Business Case Analysis (BCA) Guidebook (https://acc.dau.mil/bca-guidebook)

Logistics Assessment (LA) Guidebook (https://acc.dau.mil/la-guidebook)

Integrated Product Support (IPS) Element Guidebook (https://acc.dau.mil/productsupport)

Life Cycle Sustainment Plan (LCSP) Outline (https://acc.dau.mil/productsupport)

Logistics & Sustainment Blog (https://dap.dau.mil/career/log/blogs/default.aspx)

Product Support Training (http://icatalog.dau.mil/onlinecatalog/tabnavcl.aspx?tab=CLL)

Regardless of where your program is in the acquisition cycle, these 10 things to know about product support will serve you well in achieving optimized, affordable readiness for our warfighters.

I consider myself extremely fortunate, having had the privilege to work for several great PMs earlier in my career. Each recognized the importance of getting foundational requirements right. Each chose to make long-term investments in product support in order to reduce life cycle costs. Each demanded nothing less than excellence from their logisticians. To a one, they refused to defer difficult product support decisions. Each regularly and candidly communicated with key product support stakeholders. And each knew their decisions would have ramifications for decades to come. So, when it comes to product support, I encourage you to emulate their example, reflect on the things discussed in this article, and in so doing, establish yourself as a truly great PM in your own right!

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> **For more on product support, look for the March-April 2012 special issue of *Defense AT&L.***

taking the time to visit the warfighter where they live and work. Talk to the operators, maintainers, and supply managers. Find out what issues are hurting their heads. Do they have ideas for improving the system? Are there spare parts, reliability, or repair process issues? You will probably already be aware of such problems, but if not, trust me: The troops in the field will ensure you know about it!

Farewell to Eduard Boyd

Ed Boyd, director of DAU's Visual Arts and Press department since 2003, will retire on Dec. 31, after nearly 40 years of service in the Department of Defense. Ed served for many years in the Army, working in graphic arts and in recruiting. He arrived at DAU in 1977 and has served under all but one DAU president. Ed's capable leadership, unflagging sense of humor, and joyous can-do spirit will be greatly missed by everyone who has had the privilege of working with him.

We wish him and his wife Sharon (a longtime DAU staff member) the very best in their well-deserved retirement.