

Performance based logistics in Aerospace & Defense

A fast growing market, providing lower overall costs of military equipment sustainment for the government, and profitable growth opportunities for defense contractors



Abstract

Deloitte has conducted a study of Performance Based Logistics (PBL) contracts, their size, trends and markets, principally in the US defense industry. The results of this study found that since 2000, the Department of Defense (DoD) has recognized Performance Based Logistics as its preferred strategy for weapon system support and sustainment. Since that time, the role of PBL has migrated across all branches of the military, platforms, systems and sub systems. Not surprisingly, the size of DoD PBL spending has grown faster than the market overall.

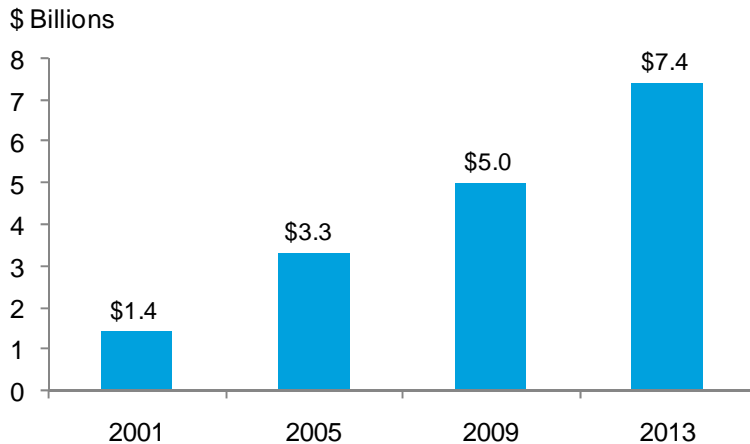
Deloitte has found that over the past eight years, DoD spending on PBL has more than tripled — from \$1.4 billion in 2001 to \$5.0 billion in 2009, at a 17.2% CAGR. Deloitte forecasts that DoD spending on PBL contracts will continue to grow at a 10.3% CAGR, reaching \$7.4 billion by 2013. At the same time, the average size of contracts — on an annualized basis — has grown from an estimated \$26.4 million in the 2000-02 timeframe, to \$59.5 million in the 2007-09 timeframe, for a 12.3% CAGR. Furthermore, average contract size is expected to continue growing at a rate of 7.6% CAGR to reach \$85.8 million by 2013.

The study also identifies issues and challenges for both the government as well as defense contractors in addressing this market including profitability levers, risk, information requirements and contracting flexibility. The study also provides recommended practices for adequately addressing the market, resulting in lower overall spend for equipment maintenance repair and overhaul.

PBL – A Preferred Model Going Forward

Performance Based Logistics (PBL) has emerged as the US Department of Defense's preferred model for support and sustainment — a trend that is almost certain to continue. DoD spending on PBL contracts has grown from an estimated \$1.4 billion in 2001 to an expected \$5.0 billion in 2009, or 17.2% CAGR. And, it's expected to continue growing at a rate of 10.3% CAGR to reach \$7.4 billion by 2013 (Figure 1).

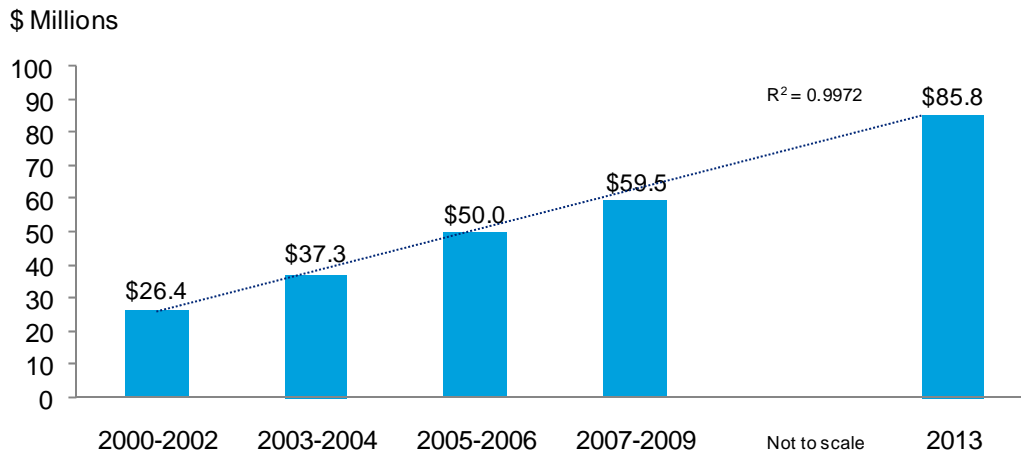
Figure 1: Annual DoD Spending on PBL Contracts



Source: Center for Naval Analysis, Deloitte Analysis

At the same time, the average size of contracts — on an annualized basis — has grown from an estimated \$26.4 million in the 2000-02 timeframe to \$59.5 million in the 2007-09 timeframe, or 12.3% CAGR (Figure 2). And it's expected to continue growing at a rate of 7.6% CAGR to reach \$85.8 million by 2013 (Figure 2).

Figure 2: Average Annualized Value of Newly Signed PBL Contracts



Note: 2009 data through January 30 Source: DoD, Deloitte Analysis

The PBL model introduces important new advantages for the DoD as well as service providers. In the PBL model, the DoD pays for outcomes rather than discrete parts and services, which shifts most of the risk to the service provider. At the same time, providers have to be incentivized to take on this risk. The way PBL contract rewards are structured offer PBL providers the opportunity to significantly increase their profit margins over the traditional cost-plus contracts of the past. This can easily be seen by dissecting the typical PBL contract into it various payment terms.

Looking at Figure 3 below we can see that there are 3 significant terms that the PBL program manager needs to be aware of:

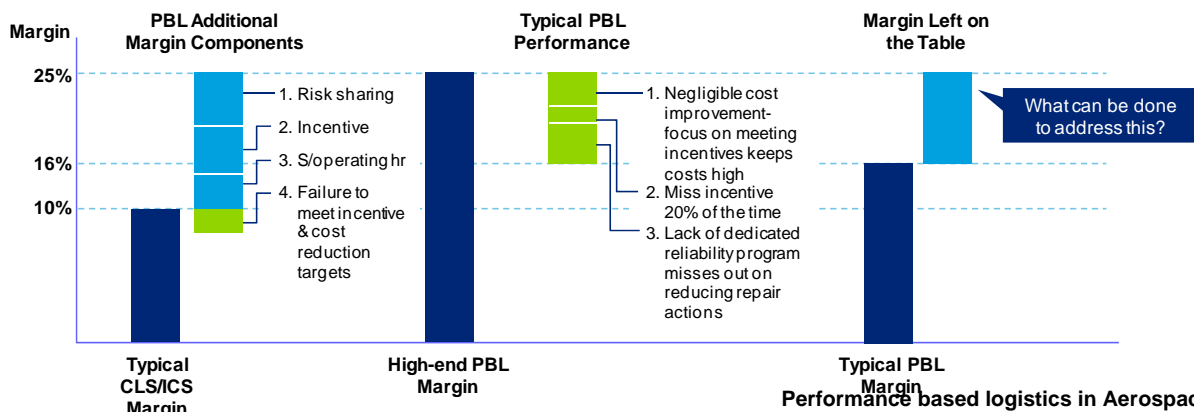
1. The risk sharing component incentivizes the provider to lower overall program sustainment costs and share in the rewards. In some cases this may be \$0.50 on each dollar saved. In the long run this can make millions of dollars for the provider if they place enough focus on aggressively reducing costs. Ignore this and the provider can end up giving back margin as there is a share in cost overruns as well;
2. The incentive fee term pays out for the contractor meeting specific operational performance expectations - % mission capable rate for example;
3. The fixed fee (or \$/operational hour) portion of the fee structure is the one that is core to all PBL — the more the asset is available for use and the more it is used, the more the provider gets paid.

A Case for Profitable Growth

While the above seems like a good opportunity to raise traditionally mediocre margins, not all PBL contracts we have studied meet these lofty goals. They often meet the incentive fee portion because this is the one metric that everyone, customer and provider alike, watch closely but at what cost? Sometimes over procurement of spares covers up for poor product reliability or inefficient forecasting techniques, poor choices made with a cost-plus culture keep costs high and erode margins. Many times there is little visibility into where the costs are coming from — frustrating program managers who can find themselves playing the game at a disadvantage. While PBL managed to the highest levels offers significantly higher margins (sometimes in above the 20% range) we have found that many are falling short and only slightly increasing their cost-plus performances.

When we studied typical PBLs we found that the margins range from 14-16%, compared to 8-12% for a traditional cost-plus contract. We believe that across the DoD’s portfolio that there is around 4-8% margin left on the table. This translates into billions of additional profit across all of the DoD’s PBL contracts — not to mention significant cost savings for the government. Of course, the downside is that low-performing providers can see their margins erode completely (Figure 3). However, some high-performing PBL service providers are achieving margins in excess of 20%. What makes them better than the rest of the pack?

Figure 3: Typical PBL Margins



To succeed in this environment, A&D companies need new and improved capabilities, a performance-driven mindset, and a solid understanding of the risks involved in providing performance-based services. They also need more guidance and partnership from the government to ensure that the full benefits of PBL are realized. Companies not committed to improving their PBL capabilities are likely to find themselves falling behind, or getting locked into bad contracts that will never be profitable.

PBL Profitability Levers

There are a number of levers that service providers can use to enhance their PBL profitability. Improved systems reliability under a performance-based scheme directly affects bottom-line profitability by reducing the cost to maintain established service levels. After all, the less a system is down, the less money is spent bringing it back into service. Enhanced support capability helps providers identify and mitigate potential performance problems. It is much cheaper to address issues early than to fix them after they become major problems. Last but not least, effective risk management is the cornerstone of PBL success. Unmanaged risk directly erodes PBL margins. It also undermines service levels, which can have a negative impact on performance-based financial incentives.

Keys to Effective PBL

Making the leap to PBL is a complex challenge; however, we believe three activities are particularly important to establishing an effective and profitable PBL operation:

- **PBL Capability Assessment.** The starting point is to understand a service provider's current capabilities and carefully choose which capabilities must be developed to fully capitalize on the PBL profitability levers.
- **Pricing and Risk Analysis:** An effective pricing model is fundamental to successful performance-based service delivery. The model should include flat fee, incentive, and risk components that align with the performance parameters established in the contract.
- **Culture shift.** Cultivating the right culture improves performance and reduces the cost of service. At every level, there should be a clear understanding of how employee actions affect PBL profitability, and how PBL differs from a traditional cost-plus contract.

Focusing on these three areas, particularly in the early stages of PBL maturity, can help service providers improve their capabilities and profit margins while keeping risk in check.

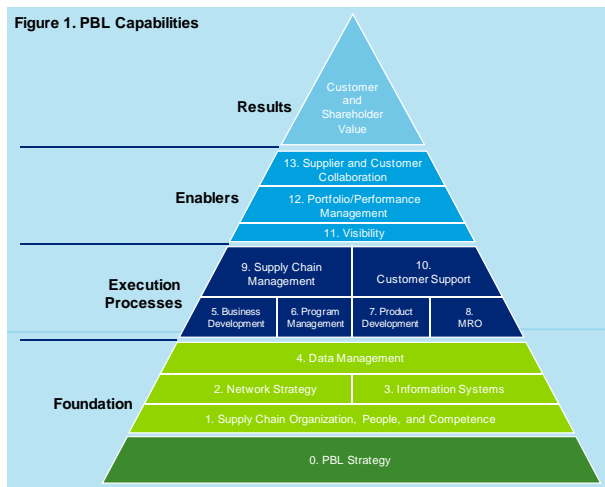
#1: PBL Capability Assessment

PBL requires significant changes and improvements throughout the business. A capability assessment and diagnostic helps service providers to objectively evaluate the maturity of their existing capabilities and to develop a roadmap for improvement. This fact-based approach can improve a company's return on PBL-related capability investments, boost its margins, and increase its market share by expanding the business' range and depth of services.

Although PBL represents a fundamental shift in the way companies handle customer support and sustainment, many OEMs tackle the challenge in bits and pieces. The result is a hodgepodge collection of initiatives that is often time-consuming, incomplete, and expensive. To avoid this pitfall, we recommend a holistic approach that looks at the whole picture: what business the company wants to be in, what services it wants to offer, and what capabilities are needed to execute its overall PBL strategy?

A Capability Maturity Model (CMM) helps chart a comprehensive course to profitable PBL (Figure 4).

Figure 4: PBL Capability Maturity Model



Such a model enables a business to develop an effective PBL strategy, assess its current capabilities against the strategy, and quickly close any gaps. PBL capabilities fall into three broad categories:

Foundational capabilities. These basic capabilities provide the foundation for performance-based logistics. In the early stages of PBL maturity, the customer support & sustainment (CS&S) organization is just getting started with PBL operations and order management, and focuses little or no attention on sales, marketing, human resources, and business management. Information systems are generally not integrated across functions, which results in islands of data that are of little use to the enterprise.

As an OEM's capabilities mature, PBL services are increasingly managed as a "business within a business." CS&S activities are separated from the company's standard activities and treated as a profit center. Integrated information systems are deployed to provide real-time information across the enterprise, and costs are tracked at a detailed level so decision-makers can better understand the key drivers of performance and profitability.

Execution processes. These are the core operating processes for executing PBL contracts. In the early stages of maturity, the OEM pays little attention to designing for reliability and maintainability to keep long-term support costs low. In addition, these core PBL processes are buried in the company's standard supply chain process, which leads to scheduling conflicts and poor visibility into true costs. The processes and organizations that handle key PBL activities — such as forecasting, repair and failure history management, multi-echelon network planning and optimization, and provisioning — are poorly defined or non-existent.

As capabilities mature, these core PBL processes are separated from the company's standard production processes. Significant investments are made early in the product lifecycle to design products that are more reliable and cheaper to own. In addition, PBL processes are tightly integrated with customers and suppliers, tailored to meet PBL requirements, and constantly monitored and improved to manage risk and increase profits. Selected non-core activities may be outsourced to key 3PL partners in order to create a total business solution.

Enabling processes. These advanced capabilities can help an OEM take its performance to the next level. In the early stages of PBL maturity, performance measures continue to focus primarily on spare part sales and fill rate. Little attention is paid to measuring and improving overall supply chain performance, and there is scant differentiation between how production and sustainment performance is assessed. Collaboration is generally

limited to working with suppliers to streamline the procurement process through improvements such as eRFQs, Auto POs, and supplier self-service.

As PBL capabilities mature, the company's focus expands from supplier collaboration to supply chain collaboration. Information is provided at a detailed level that helps the company and its supply chain partners make better decisions. To make sure everyone is working in the same direction, PBL requirements and performance measures are shared with all partners and aggressively managed to help mitigate risk. The company develops forward-looking diagnostic systems and processes, along with comprehensive performance metrics to anticipate maintenance needs and reduce unplanned downtime.

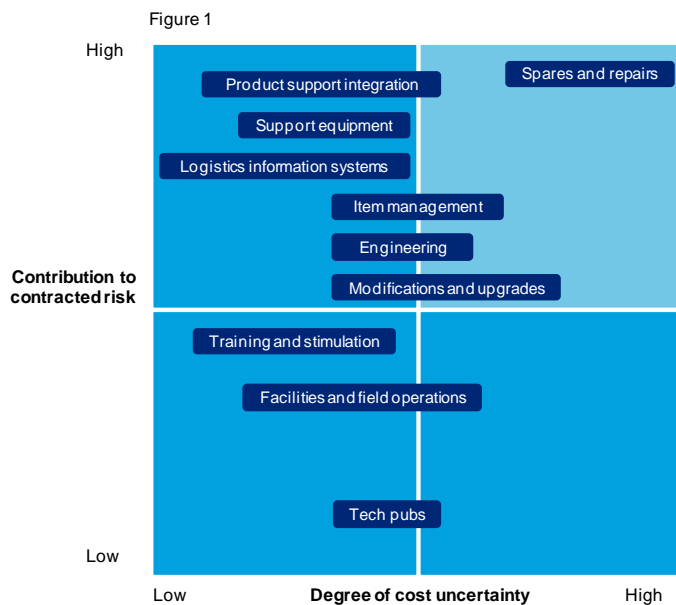
#2: PBL Pricing and Risk Analysis

Pricing PBL contracts is much harder than pricing a traditional cost-plus contract. It is also much more critical to long-term profitability and success. With PBL, service providers contractually guarantee a specific level performance for a fixed price, which shifts much of the risk from the customer (DoD) to the provider. If the price is too high, the provider loses the bid. But if the price is too low, the provider gets stuck servicing an unprofitable contract.

Determining the right price for a PBL contract requires sophisticated, risk-based pricing capabilities. The analysis must include all of the costs necessary to profitably deliver the specified level of service.

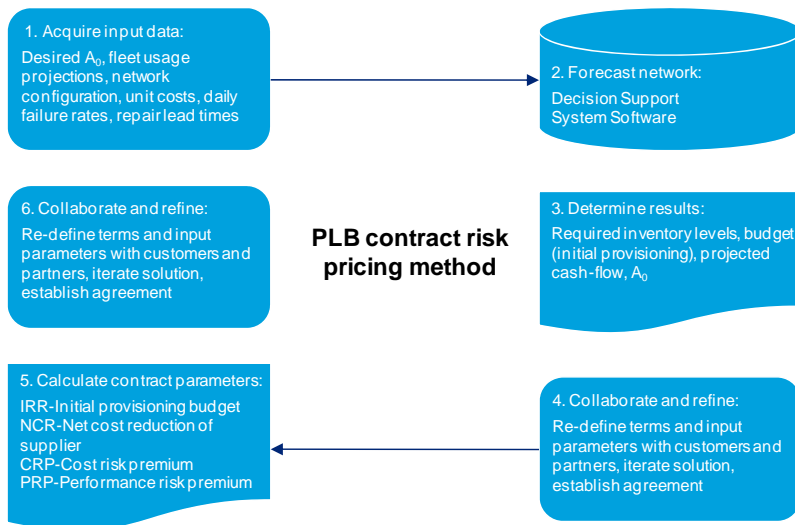
When responding to an RFP, the biggest challenge is quantifying the risk of failure to meet the customer's stated performance objectives. A wide range of PBL contract elements can contribute to this risk (Figure 5).

Figure 5: PBL Contracting Risk



However, when the degree of cost uncertainty is factored into the analysis, one element stands out: spares and repairs. A PBL provider must be able to confidently model the complex and dynamic spares and repairs network during the pricing process — and be able to effectively manage it after the contract has been awarded. A provider must also apply rigorous due diligence when calculating prices and analyzing risk. An effective approach combines classic incentive and contract theory with service parts supply chain theory to model how contracted parties are likely to behave in different situations. It also considers the risk and cost-sharing factors that should be priced into the contract (Figure 6).

Figure 6: A Model-based Approach to PBL Pricing



This new model-based approach to PBL pricing and risk analysis has several important advantages over the current seat-of-the-pants approach.

- **Flexibility.** Customers often change their requirements in the middle of the RFP process. Such adjustments are not a problem if the service provider has a rigorous analytical model.
- **Adjustability for different time periods.** Key variables such as risk tolerance and cost tend to shift over time. A model-based approach makes it easy to adjust the analysis to account for these changes, or to structure the deal as a series of consecutive short-term contracts that each reflects the unique operating requirements and parameters at a particular point in time.
- **Transparency.** With a model-based approach, all parties can see how the contract terms and pricing were determined. This is a clear differentiator in today's PBL marketplace.
- **Trade-off analysis.** What is the best way for a PBL provider to improve profitability: invest in product modifications that improve reliability, which reduces inventory and maintenance costs? Or buy more product inventory, which makes it easier to satisfy the contract terms and collect the related performance incentives? A robust analytical model helps a company make informed trade-offs.
- **Ability to predict cash flows.** Companies accustomed to cost-plus contracts are often unclear about how PBL can drive greater value for the business. An analytical model uses forecasted usage data to calculate a series of expected cash flows for the operation.
- **Consistency between contract design and contract management.** Using the same tool to design and manage a PBL contract improves consistency and helps ensure the terms of the contract are met.

Developing the right contract terms to properly balance risk, expectations, and performance is a real challenge. It helps to have a rigorous and analytical planning approach that accurately reflects the PBL provider's ability to manage cost and risk while delivering the required performance. The latest tools and techniques can dramatically improve a company's ability to develop PBL contracts that are profitable, sustainable, and competitively priced.

#3: PBL Culture Shift

The shift to PBL requires employees to fundamentally change their behaviors and mindset. For many companies, this is the single biggest obstacle to PBL success. It is human nature for people to keep doing what they are doing. Also, the vast majority of A&D leaders built their careers in a cost-plus environment and are accustomed to

managing that kind of business. Making the switch to a performance-based environment and a performance-based corporate culture can be a huge challenge.

Companies that want to change their culture often try to make it happen through sweeping changes that affect the entire enterprise at once. However, the results of this top-down, enterprise-wide change are generally disappointing. In order to change their ways, employees need clear, specific direction and tangible motivation – not just executive proclamations and catchy slogans. Banners, coffee cups, podcasts, and executive e-mail campaigns are not sufficient to achieve the magnitude of transformation required for PBL.

In our experience, a behavior-based approach is the most effective way to establish a PBL culture. This innovative approach focuses on “business critical events” — a small set of activities that have the biggest impact on PBL success. These activities usually involve a relatively small number of employees, making it easier to modify behavior and measure results. Improvements focus on tangible, observable actions.

Changing behavior around business-critical events can have a large and immediate impact on PBL performance. Perhaps even more important, it tends to produce a ripple effect that helps transform the way people think and behave across the entire enterprise. Over time, these new behaviors and mindset are institutionalized into the culture and become second nature.

Deloitte’s Capability Maturity Model includes more than 50 business critical events for PBL. However, our work with A&D leaders has shown that five of these events are particularly important:

- Choose a PBL leader and then empower that person to execute the PBL strategy.
- Use customer interactions to demonstrate the organization’s ability to operate in a performance-based environment.
- Structure a profitable contract by focusing extra attention on pricing and risk.
- Manage risk effectively by viewing PBL contracts as a portfolio.
- Respond successfully to an RFP by assembling a team that understands the company’s PBL financials and operating model.

Companies that are just getting started with PBL — or are struggling to climb the learning curve — should focus extra attention on these five areas.

PBL Growing Pains

The rapid adoption of PBL has introduced new challenges that could threaten its future success. As PBL contracts have increased both in number and value, there is increasing pressure for the government to properly manage this growth. Here are a few key areas that could benefit from additional attention:

- **PBL policy guidance.** Although the DoD demonstrated a clear preference for performance-based support in its 5000 Series Regulations, it established few specific guidelines for adoption. As a result, PBL contracts can vary widely from program to program. A set of standard PBL policies promoting greater clarity and consistency could be highly beneficial.
- **Oversight.** Today, a single program might have multiple PBL agreements with a variety of support providers, all operating under different levels of oversight. Also, key parameters such as contract length, cost floors and ceilings, and performance standards may be subject to different standards from one project to the next.
- **Accounting.** Above the individual program level there is currently no formalized means of tracking PBL spending. Clearer accounting guidelines could offer much needed visibility and help keep overall spending in line with expectations.

Improvement in these areas would give PBL initiatives the clear focus they need to be successful, and help drive more efficient and effective results for everyone involved.

Summary

Deloitte believes that our study shows that PBL is now a preferred sustainment strategy for US military spending. Our study found that from a nascent level of \$1.4 billion in 2001, PBL has grown to \$5.0 billion in 2009, at a 17.2% CAGR. Deloitte forecasts that DoD spending on PBL contracts will continue to grow at a 10.3% CAGR, reaching \$7.4 billion by 2013. Furthermore, average annual size of contracts has grown from \$26.4 million in the 2000-02 timeframe, to \$59.5 million in the 2007-09 timeframe, and that average annual contract size is expected to reach \$85.8 million by 2013. This is due to the need for the US Military to bring costs down and to improve dispatch reliability. It also represents a market opportunity for defense contractors at a time of budget uncertainty in trying economic times.

With PBL, service providers bear an increasing level of performance risk. However, there is opportunity to grow profitably in this area, by developing the required capabilities, infrastructure, and culture. Defense contractors have an unprecedented opportunity to boost their top-line revenue and bottom-line profitability with the proper balance of risk and reward. At the same time, a lack of visibility into total PBL spending presents a significant management risk for the DoD, and could start to erode some of the DoD's core depot maintenance capabilities if not properly managed. The US government is recognizing the growing impact of PBL and accordingly, will need to continue to focus on enhancements to controls and policies necessary the controls and policies necessary to advance PBL procurement and contract execution, while properly managing this fundamental transformation in sustainment infrastructure.

For both the US Military as well as for defense contractors, PBL market growth represents a positive transformation that is in step with the changing DOD procurement priorities, one that is providing a path for more value for less money, at a higher level of service.

Methodology

Our estimates of DoD PBL funding (Figure 1) are based on published sources in combination with Deloitte analysis. Specifically, our estimate of funding for 2001 and 2005 is based primarily on a study published by the Center for Naval Analysis (CNA), “Performance-Based Logistics Contracts: An Overview”. In relying on the CNA analysis, we make the assumption that DoD spending on Naval PBL contracts is comparable to DoD spending on PBL contracts for each of the other military services.

Our estimates of funding for 2009 and 2013 are based on an array of assumptions about growth in the DoD’s sustainment budget and the continued adoption of PBL throughout the military. Our estimates for these two years are also based on public sources, including analyses on the future of PBL as well as recent DoD PBL contract announcements. In estimating DoD PBL spending for 2009 and 2013, we took a particularly conservative approach.

In estimating the average annualized value of newly signed PBL contracts (Figure 2), we relied on DoD PBL contract announcements via the DoD’s press release service, defenselink.mil, going back to 2000. In certain instances, a given announcement co-mingled a PBL contract with other types of services as part of a single, larger contract announcement. In such instances, we used our judgment in estimating what portion of that larger contract was associated with PBL. We recognize that the DoD press release service, defenselink.mil, does not as a matter of practice provide all newly signed PBL contracts that are issued by the DoD.

In Figure 2, we grouped data such that each time period had approximately the same number of data points. We also projected the growth in average annualized value of newly signed PBL contracts to 2013 using a simple linear regression technique.

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