PERFORMANCE-BASED LOGISTICS— BARRIERS AND ENABLERS TO EFFECTIVE IMPLEMENTATION

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The Department of Defense is implementing Performance-Based Logistics (PBL) in both new acquisition programs and legacy programs. Each of the Services is executing PBL policy at the system, subsystem, and component level. The Services are also working in conjunction with each other to implement PBL on joint programs. This study identifies the most common barriers and enablers as the Services go forward with PBL implementation, determines if there are relationships between these barriers and enablers, and also evaluates the success of PBL implementation.

Traditionally, support for weapon systems in the Department of Defense (DoD) centered around ten or eleven logistics elements, split between acquisition-related activities at the front end of the life cycle- and sustainment-related activities at the back end. Metrics focused on the logistics elements themselves and internal processes often having little direct relationship to warfighter requirements. The shift toward Integrated Logistics Support attempted to wrap together the distinct logistics elements into a coordinated approach, but there was still the disjointed acquisition versus sustainment-support issue and the lack of a linkage between supportability measures and warfighter needs. In addition, choice of support providers was often an *all or nothing* proposition; either entirely organic (DoD) or entirely commercial (CLS or contractor logistics support). The advent of Total Life Cycle Systems Management (TLCSM) and Performance-based Logistics (PBL) addressed all of these issues.

The TLCSM mandated a new focus by program managers toward the entire life cycle, firmly linking acquisition and sustainment activities into an integrated process. To measure success, PBL required that supportability metrics be directly related to performance outcomes for the warfighter, and PBL also offered a choice of organic and commercial support providers for picking the right combination in achieving best value to the program. A succinct definition quoted from a recent report by the Center for the Management of Science and Technology at the University of Alabama in Huntsville defines PBL as, "an integrated acquisition and sustainment strategy for enhancing weapon system capability and readiness, where the contractual mechanisms will include long-term relationships and appropriately structured incentives with service providers, both organic and non-organic, to support the end user's (warfighter's) objectives" (Berkowitz, et al., 2003, p. 5).

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Implementation of PBL was mandated in September, 2001 in the Quadrennial Defense Review (QDR), and initial guidance was promulgated by the Office of Secretary of Defense (OSD) (Aldridge, 2002). The OSD issued a Product Support Guide that provided a strategy for executing PBL (Morales, 2001). Subsequently, each of the Services provided implementation guidance to their programs (Bolton, 2002; Schneider, 2002). In accordance with the FY03 Defense Policy Guidance, the scope of the programs to be considered for PBL implementation included all new weapon systems and all Acquisition Category (ACAT) I and II fielded systems (Young, 2003). The importance of sustainment in the program life cycle and in implementing PBL was recognized. To ensure the requisite priority on sustainment issues within program offices and to ease the PBL implementation efforts, the concept of TLCSM was promulgated (Aldridge, 2003).

Total Life Cycle Systems Management emphasizes an early focus on sustainment in the program management office, making the program manager responsible for all activities associated with the acquisition, development, production, fielding, sustainment, and disposal of a weapon system across its life cycle. This was a significant paradigm shift from traditional program management focus on the early phases (acquisition, development, fielding) of the life cycle. To support the decision-making process in selecting organic and commercial support providers, OSD promulgated guidelines for conducting a Business Case Analysis (BCA) (Wynne, 2004a). In addressing the performance metrics' relationship to

desired outcomes, OSD provided some common examples such as operational availability and logistics footprint (Wynne, 2004b).

The Services began encountering problems in implementing PBL, both for new and existing programs. There were existing cultural and structural barriers that inhibited effective implementation. On the other hand, there were a number of enablers that were being utilized for more effective implementation. These barriers and enablers were the subject of numerous program briefings and reports presented at a number of conferences and road shows over the last couple of years.

This research study intends to identify the most frequently impacting barriers and enablers to effective PBL implementation within DoD, how they influence PBL implementation, and recommend strategy/actions that will facilitate more effective implementation for new and legacy programs.

LITERATURE REVIEW

An extensive search was conducted on the Internet to identify current PBL policy and implementation guidelines. A review of OSD and Service Web sites, as well as some industry Web sites, was completed. Briefings from a number of conferences were obtained, showing the status of several programs undergoing PBL implementation. Also, there were ongoing discussions and correspondence regarding PBL implementation and problems encountered with a number of practitioners within the Services. A review was conducted of existing DAU curriculum in Performance-Based Acquisition and Performance-Based Logistics. Through participation in PBL conferences and road shows, there were discussions with key policymakers and implementers. Based on the preliminary literature survey and feedback from practitioners, it was apparent that there were numerous instances of misunderstanding of the PBL concept, resistance to its initiatives, and problems in implementation.

RESEARCH QUESTIONS AND HYPOTHESES

The following questions were posed to frame the research effort:

1. What are the barriers and how do they influence PBL implementation?

2. What are the enablers and how do they influence PBL implementation?

3. What strategy/actions would lead to more successful PBL implementation?

In reference to question 1, seven key barriers were identified through the efforts of the Literature Review. These barriers were:

1. Funding restrictions/inflexibility (e.g., Working Capital Fund, various appropriations/transfer and expiring funds rules, limited Program Manager [PM] control over Operation and Maintenance [O&M]).

2. Statutory/regulatory requirements (e.g., Title 10, service policies).

3. Old paradigms/culture (e.g., organic versus commercial, parts management versus performance management, minimize contractors on the battlefield).

4. Existing infrastructure/bureaucracy (e.g., PM office structure, stovepiping, short PM tours).

5. Technical data rights issues.

6. Lack of PBL awareness/training.

7. Inability to incentivize organic providers.

In reference to question 2, seven key enablers were identified through the efforts of the Literature Review. These were:

1. Supply Chain Management (e.g., end-to-end customer support, enterprise integration).

2. Strategic alliances/partnerships (e.g., depot partnering, joint ventures).

3. Performance-based contracting (e.g., incentivizing performance).

4. Performance-based metrics.

5. Total Life Cycle Systems Management (TLCSM) perspective.

6. Adoption of Commercial Off-the-Shelf (COTS)/Best Commercial Practices.

7. Reduction in Total Ownership Cost (RTOC) initiative.

Based on the research questions, six hypotheses were developed:

1. There is an indirect relationship between the number of barriers and the success of PBL implementation.

2. There is a direct relationship between the mitigation of barriers and the success of PBL implementation.

3. There is an indirect relationship between the influence of barriers (after mitigation) and the success of PBL implementation.

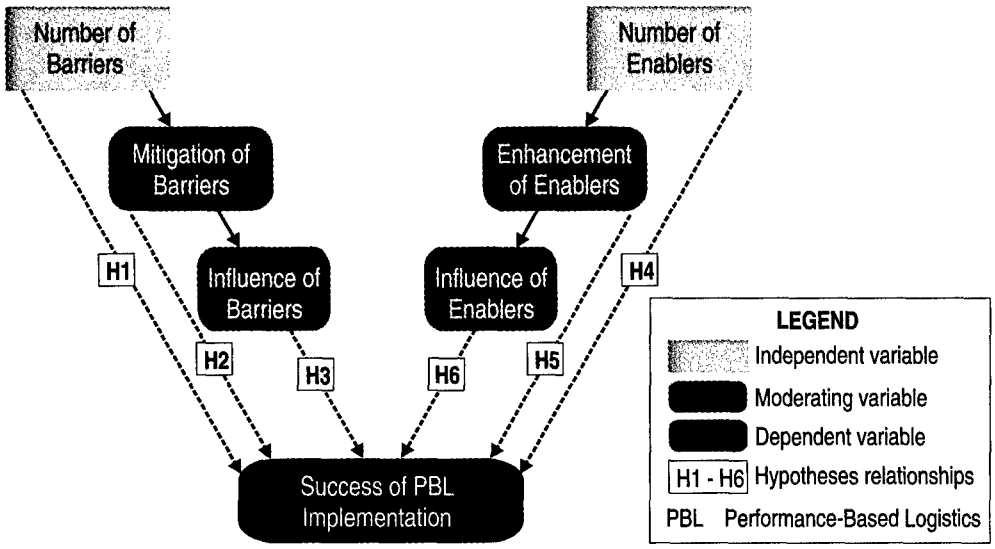

FIGURE 1. RESEARCH MODEL

4. There is a direct relationship between the number of enablers and the success of PBL implementation.

5. There is a direct relationship between the enhancement of enablers and the success of PBL implementation.

6. There is a direct relationship between the influence of enablers (after enhancement) and the success of PBL implementation.

The research model in Figure 1 graphically displays these hypotheses and associated variables.

RESEARCH METHODOLOGY

This research study was primarily qualitative in the measurement of variables. Correlational research was conducted using surveys to obtain primary data. Surveys were selected as an effective method to obtain data from program offices where they are implementing PBL in their programs. The statistical test used for all six correlation hypotheses was the Pearson product-moment (at least one of two variables in each hypothesis is ratio or interval type data). Due to the small size of the sample and the fact that the dependent variable consisted of ordinal type date, the Spearman rank-order r test was also conducted on all six hypotheses. Results were then com-

pared with the results of the Pearson product-moment test. No significant differences were noted.

RESEARCH SURVEY

A data survey was created on the Web and instructions sent out to key PBL points of contact (POC) within each of the Services. The Service POC's instructed program managers that had undergone PBL implementation within their respective Service to fill out the data survey. There were a total of 26 program managers that responded to the survey. Of the 26 programs, 10 were Joint, 9 were Army, and 7 were Navy/Marine Corps. No Air Force specific programs responded. Both new and legacy programs participated. Of the 26 programs, 11 were new and 15 were legacy. Another distinguishing factor was the scope of the PBL; implemented at the system, subsystem, or component level. Of the 26 programs, 11 were system level, 9 at subsystem level, 4 at component level, and 2 did not distinguish. A final distinguishing factor was the impact of PBL on logistics elements. Three primary logistics elements were chosen: supply, maintenance, and transportation. Of the 26 programs, 13 impacted all three elements, 4 impacted supply and maintenance, 1 impacted supply and transportation, 2 impacted only supply, 3 impacted only maintenance, 1 impacted only transportation, and 2 did not distinguish. Figure 2 provides a summary chart.

RESEARCH FINDINGS

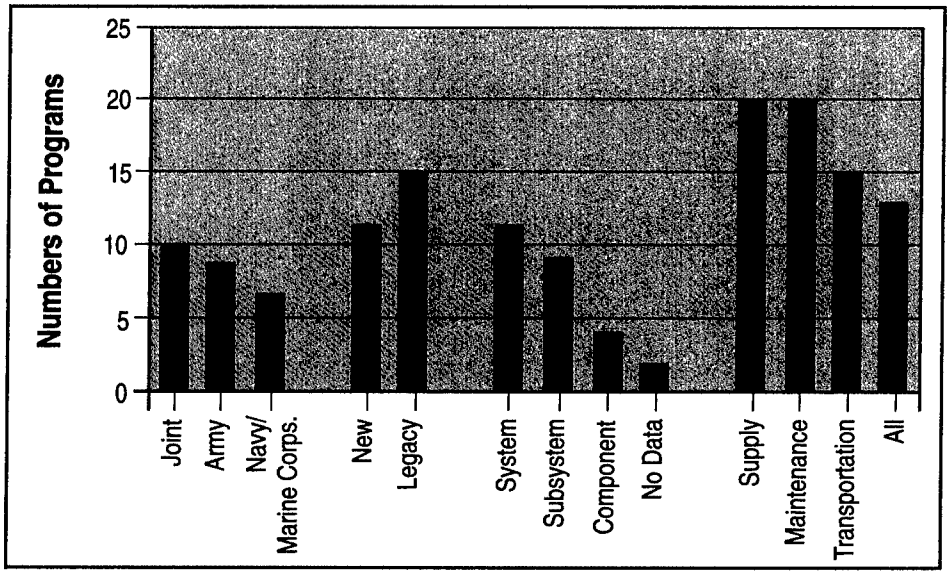

FIGURE 2. PROGRAM SUMMARY CHART

Of the 26 programs surveyed, 17 identified funding as a barrier; 13 identified statutory/regulatory, culture, and lack of PBL training as barriers; 12 identified existing infrastructure as a barrier; 11 identified technical data rights issues as a barrier; and

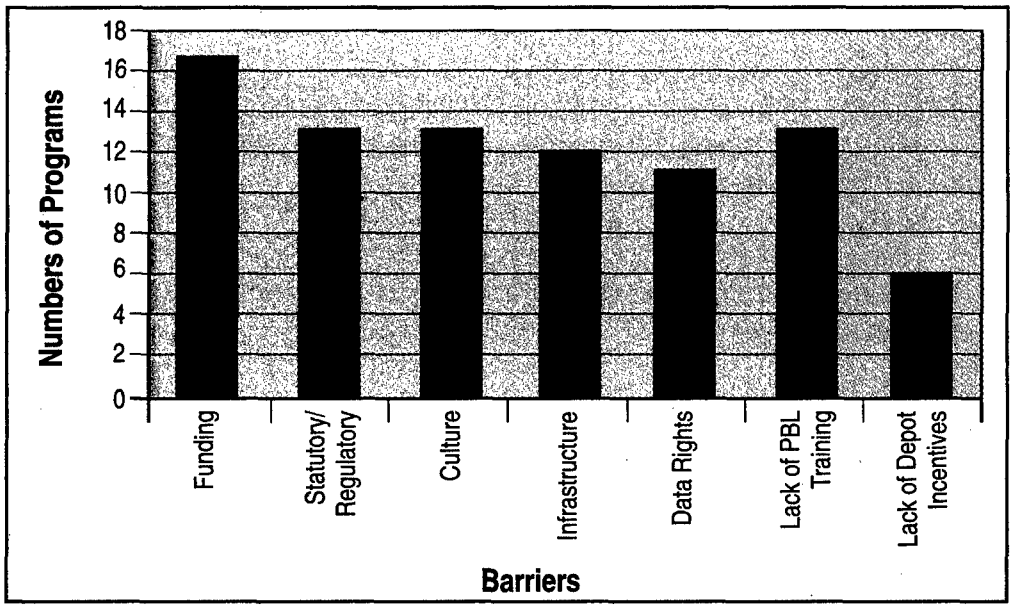

FIGURE 3. BARRIERS IDENTIFIED

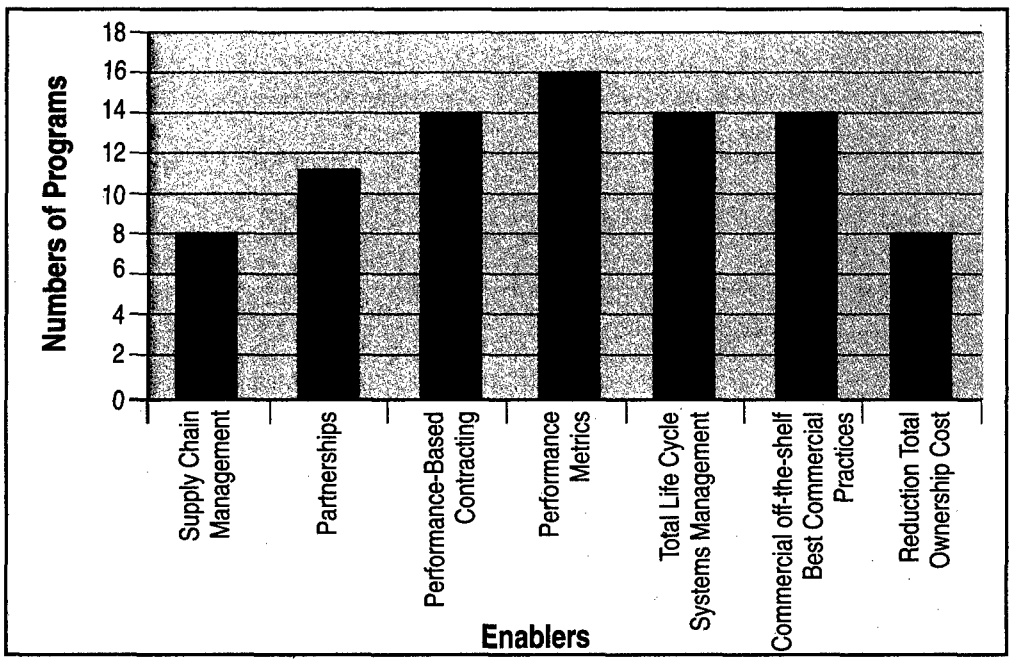

FIGURE 4. ENABLERS IDENTIFIED

6 identified lack of organic depot incentives as a barrier. For the same 26 programs surveyed, 16 identified performance metrics as an enabler; 14 identified performance-based contracting, TLCSM, and COTS/best commercial practices as enablers; 11 identified partnering as an enabler; and 8 identified supply chain management and RTOC as enablers. Summary charts of the results are shown in Figures 3 and 4.

Of the 6 hypotheses tested, the data analysis supported 3 hypotheses at the 0.10 significance level using both the Pearson product-moment test and the Spearman rank-order r test. Of the 3 supported hypotheses, 2 were supported at the 0.05 significance level using the Pearson product-moment test and 1 was supported at the 0.05 significance level using the Spearman rank-order r test. The 3 supported hypotheses were:

1. There is a direct relationship between the number of enablers and the success of PBL implementation.

2. There is a direct relationship between the enhancement of enablers and the success of PBL implementation.

3. There is a direct relationship between the influence of enablers (after enhancement) and the success of PBL implementation.

TABLE 1.
RESULTS SUMMARY

Hypothesis	Pearson Correlation Coefficient	Significance Level (Pearson)	Spearman Correlation Coefficient	Significance Level (Spearman)
Indirect relationship between number of barriers and success of Performance-Based Logistics (PBL).	-0.102	0.68	-0.154	0.53
Direct relationship between mitigation of barriers and success of PBL.	-0.162	0.51	-0.130	0.60
Indirect relationship between influence of barriers (after mitigation) and success of PBL.	-0.192	0.43	-0.227	0.35
Direct relationship between number of enablers and success of PBL.	0.414	0.08	-0.443	0.06
Direct relationship between enhancement of enablers and success of PBL.	0.540	0.02	0.456	0.05
Direct relationship between influence of enablers (after enhancement) and success of PBL.	0.533	0.02	0.393	0.10

Of the 6 hypotheses tested, the data analysis did not provide sufficient support for 3 of the hypotheses. They are as follows:

1. There is an indirect relationship between the number of barriers and the success of PBL implementation.

2. There is a direct relationship between the mitigation of barriers and the success of PBL implementation.

3. There is an indirect relationship between the influence of barriers (after mitigation) and the success of PBL implementation.

A summary of the results is shown in Table 1.

CONCLUSIONS

Based on the results of the survey and data analysis, there appears to be some relationship between the identified enablers and the success of PBL implementation. The most frequent enablers that appeared to influence success were performance metrics, performance-based contracting, TLCSM, and COTS/Best Commercial Practices. This is in alignment with the level of emphasis in these areas from both a policy and training perspective within DoD. Those enablers influencing fewer programs were supply chain management and RTOC. Although certainly important from a broad PBL perspective, it may be more challenging for respondents to link these concepts to PBL execution at the program office level.

As in most research studies, all the hypotheses may not be supported from the data analysis. In this case, the hypotheses dealing with barriers to PBL implementation and their influence on success were not supported at the requisite significance level. This may be due to the small sample size (26) and/or the inability to understand the true impacts of barriers on PBL execution. It was apparent in the literature survey that a number of activities view barriers as a significant issue in their implementation efforts and that policymakers are coming out with initiatives to mitigate some of those barriers. What the research study did show was that funding seems to be the most frequently encountered barrier followed by statutory/regulatory, culture, and lack of PBL training. The least encountered barrier was lack of organic depot incentives, which may be partly due to the use of commercial depots by some of the programs surveyed.

SUMMARY/RECOMMENDATIONS

Based on the research study findings, policymakers in DoD should continue to focus on initiatives that encourage the use of enablers such as performance metrics, performance-based contracting, and use of COTS/Best Commercial Practices. They should look at ways to more closely link concepts such as Supply Chain Management

and RTOC to program execution so that implementers of PBL realize the practical application of those concepts. Policymakers should increase their efforts to mitigate barriers in the funding, statutory/regulatory, and training areas. Replacement of the Planning, Programming, and Budgeting System (PPBS) with Planning, Programming, Budgeting, and Execution (PPBE) and relaxation of regulatory requirements (DoD 5000 series/Defense Acquisition Guidebook) are starting to have some impact, along with a new focus on Performance-Based Acquisition training at the Defense Acquisition University through classroom, online, and continuous learning activities. These efforts need to continue and be reinforced by service policy and training efforts.

At the program office level, logisticians need to work in close concert with the program manager and other acquisition disciplines to address performance issues and ensure metrics are linked closely with warfighter outcomes. Contracting officers need to work closely with logisticians when drafting contracting strategy and building incentives into contracts. Financial managers and logisticians need to jointly develop life cycle cost estimates and come up with innovative approaches within the funding constraints and statutory guidelines to reduce total ownership cost. Logisticians need to develop objective business case analyses to support smart decisions on the right mix of support providers to optimize warfighter performance outcomes.

In summary, PBL along with TLCSM have required a paradigm shift in how we view program life cycles and supportability. There are a lot of challenges or barriers that inhibit our ability to be effective. There are also a lot of enablers that increase our ability to be successful in implementing PBL. If policymakers working in concert with program offices can continue to mitigate the barriers and enhance the enablers, we can offer a better product to the warfighter that will meet or exceed their performance requirements while providing long term savings to the program. Only in this way can we both meet the increasing challenges of the new threat environment and stay within the tightening budget constraints of today and in the future.

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