

Top 10 Initial Questions for Performance Based Logistics Cost, Readiness & Other Factors

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DoD faces major challenges in establishing smart coherent logistics support strategy for its weapon systems. While Performance-Based Logistics has been promoted as a preferred implementation strategy, real questions remain unanswered about objectives and how important factors are measured. Close examination of logistics support and emphasis on an increased role for suppliers in logistics also raise major issues related to the assumption of risk. DoD must have accurate information and smart internal processes in place to avoid risk associated with simplistic decisions resulting in critical systems being left unsupported.

Here we present workable framework and propositions related to the impact of risk and measurement on performance-based logistics. None of the propositions are fully stated/supported—all recommendations are not complete solutions and require further investigation. Some of the propositions must be investigated in the field or supported by assessment models. Detailing utilisation of metrics for Performance-Based Logistics.

Activities such as heavy maintenance at Job Sites, or tracking of spare parts stock involve operational risk. In these circumstances, risk is also in a form that is easier to measure than in other operations. Assuming failure of any of the components cause the weapon system to become non-mission capable, the failure rate of the overall weapon system can then be obtained using the distributions of the time to failure of all of the components.

Now consider the problem faced by Site Visit Executive has decided that best Performance-Based Logistics strategy involves outsourcing only component with the highest failure rate. To properly value the impact of, for example, a proposed incentive to improve the reliability of component Site Visit Executive would need not only distribution factor information about the time to fail of all the other components, but also a working model covering entire weapon system in mission requirements.

After all, the final value of an improvement in reliability of a component --to readiness – of course there are other benefits in terms of reduced cost of spares over service life, and improved agility through reduced logistics footprint, increasing likelihood of mission success in the deployed weapon system. The sort of integrated simulation model needed to properly assess the impact of improved component reliability requires considerable resources also time consuming to build. Even so, models should be necessary conditions of outsourcing at the component level.

Performance-Based Logistics strategies involving less than comprehensive logistical support of a weapon system, e.g., for a component must have integrated weapons system models in support of their business case. Measurement issues exist across Performance-Based Logistics spectrum, presenting different Types of challenges at either end.

Ultimately, there are at least two core measurement issues that should be referred to when deciding on an appropriate level of support within the Performance-Based Logistics spectrum. The first is the valuation of outcome-related performance, and the second is valuation of operational and fiscal risk. Measurement-related differences between DoD and suppliers exist not only in the incentives and objectives of each, but also in the process capabilities that are important in developing logistics tactics to meet those objectives.

In translating the high-level objectives and incentives of the organisation into concrete metrics, suppliers again have an advantage. The process capabilities suppliers are investing in to provide logistic services are relatively easy to relate to profitability. The services to be outsourced, however, are more difficult to measure, and more difficult to relate to high-level DoD objectives.

For example, in reviewing essential dimensions to be considered in logistics performance assessments are that suppliers utilise matrix in which three core logistics functions exist: 1) Transit, 2) Job Site Stocks, 3) Order Processing measured along three dimensions to include 1) Time, Fiscal Expenditure, 2) Labour, 3) Job Site Infrastructure.

Contrast those dimensions with three overarching goals of Performance-Based Logistics: 1) Supply Line compression, 2) Elimination of non-value added steps, 3) Improve weapons system readiness.

Factors we have presented appear to have little in common. But all of the supply sector factors can be translated into dollars, and can be understood as the essential dimensions that must be efficiently and effectively executed to facilitate logistics support of the all supplier objectives.

The DoD factors, on the other hand, do not all translate so readily into dollars, and fall into three categories or dimensions that demonstrate how logistics support is intended to improve warfighting capability: 1) Improved Readiness-- facilitated directly by focus on readiness, and indirectly by focus on reliability, 2) Increased agility by reducing logistical footprint & eliminating non-value added steps, 3) Reducing cost by freeing up capital for other DoD priorities.

These measures highlight significant differences in how logistics is viewed. The concept of readiness shows up as 'equipment' to suppliers, who view the maintenance and functioning of their operating capital primarily as a business question – when will it become so expensive to maintain that replacement is required.

Since many DoD weapon systems are in later phases of service life and very expensive/difficult to re-capitalise, required action is often driven by outdated technology or budget constraints so readiness becomes much more central issue. Improvements in readiness, of course, improve warfighting capability; but marginal improvements are quite difficult to value in dollar terms.

Suppliers, on the other hand, view improvements in readiness in terms of maintenance and reliability. For example, proposed engineering changes to improve reliability will be weighed, not against a constrained budget available for such improvements, but against the increased profit obtainable from reduced maintenance down time, etc.

The 'agility' concept is increasingly important to suppliers, usually involving for example, the flexibility to quickly change build volumes or quickly changing technology. It shows up in the list above as 'time', because changing build volumes, models, or technology often involves expensive process down time.

DoD operations on the other hand are mobile, and mobility directly impacts mission effectiveness. Agility is not a newly discovered competitive dimension for DoD – it has always been an operational necessity. Once again, however, the operational effectiveness derived from a marginal improvement in logistics agility is very difficult to translate into dollars.

These differences in organisational objectives and the consequent logistics objectives are manifest in differences in process. Classification and review of supplier logistics process metrics is evident in three categories: 1) Utilisation, 2) Effectiveness 3) Return on Labour.

Utilisation measures simply address the question of how much of a resource is used, compared to what has been made available. While these Types of measures may be useful in assessing the efficiency of a narrow segment of a process e.g., space utilisation useful in assessing the efficiency of Job Site, they do not contribute to accurately define role of logistics in meeting organisational objectives, since they do not measure outputs at all. It might be claimed that they measure inefficiency, but even this is not true – all they measure is activity, not whether that activity is directed toward some valued outcome.

Effectiveness measures raise difficult but essential questions, since measures are only as good as norms established for outputs-- useful for historical comparison of a single process, but value in comparing across processes or in guiding resource allocation decisions is quite limited, because the norms established are not necessarily comparable across processes.

Measures to include Return on Labour incorporate both outputs and inputs. For suppliers, assessing the contribution of an activity to its objectives is a matter of relating those inputs/outputs to business success. Even while not simple to execute e.g., single factor Return on Labour measures do not capture an accurate fiscal picture, real-world examples can be measured or translated to dollars e.g., dollars paid for orders processed, or delivery made.

Site Visit Executive must fully consider field level mission satisfaction metrics. The importance of the 'Troop View' is related to balanced scorecards impacting mission success. Satisfaction of Field-level Troops is an important predictor of future success, as Unhappy Units are unlikely to return in future. It is also a way to gauge quality of service delivery, which is difficult to measure through direct observation of the process.

Beyond simple utilisation measures, supplier logistics performance measures can be characterised in terms of business interests impact. Compare supplier logistics measures to what might be proposed as a mission execution ratio for weapons systems logistics:

For example, if 10 aircraft are deployed in a squadron in a given month, and nine of them are fully mission capable for the whole month while the 10th is down for maintenance the whole

month, that squadron would report an availability of 90%. At first glance, this looks like a utilisation measure, not a productivity measure – but availability is often used as a surrogate for readiness in the military context, which is typically given as a primary outcome objective of military logistics.

While costs incurred for making weapon systems fully mission capable can be estimated, benefits is far more difficult to assess in dollar terms. Another problem is that availability is only a surrogate for readiness because it is a ‘single factor’ measure. Availability measures are usually not refined enough for many resource allocation decisions made by DoD administrators.

So distinction is made between a mission capable system --able to perform some missions-- and a fully mission capable system—able to perform any mission reasonably expected of the platform. And Readiness itself, is just a surrogate for the organisational objectives of DoD i.e., “Ready for What?

Note that if availability were really the objective, it could be maximised by parking equipment, because then it would almost never break. Hence, logistics performance of weapon systems is more difficult to measure than supplier logistics-- at least in terms of productivity—and probably more attenuated from DoD objectives than are supplier logistics measurement systems.

How do measurement issues we have presented inform Site Visit Executive decision to bring forward a weapon system or component as a candidate for Performance-Based Logistics? Considering only outsourced Performance-Based Logistics solutions, we must consider economic logic behind outsourcing, even while full consideration may cause some of underlying justification for outsourcing to disappear.

So putting in place smart techniques for assessments of performance-based contracts is major objective of Site Visit Executive must include steps aimed review of field-level factors . For comprehensive weapon system logistical support, or for components unique to weapons systems, ready markets for maintenance do not always exist, or many other logistical support functions. In those cases, implementation of outsourced Performance-Based Logistics solutions will require more effort to define and examine appropriate metrics, and negotiate good deals.

In summary, measurement issues are important to relationship between suppliers and DoD. From the point of view of measurement, the best Performance-Based Logistics candidates are those with external markets for services, and clear outcomes that can easily be related to mission objectives. When markets are not available, or when components or logistical elements are so deeply embedded in a weapon system that support services are difficult to tie to warfighting outcomes, better tools and guidance are needed to support valuation decisions and contract negotiations.

1. How many systems, subsystems, or components under consideration are in system e.g., engines inducted per year?
2. What will it cost to field new infrastructure or modify current infrastructure? How much does the system cost specifically the replacement cost of the system or subsystem?

3. Is number of potential product support providers sufficient to serve as a competitive market, can you internal competitive pressure in a limited or sole-source situation?
4. Have part demand and/or labour hour requirements achieved level of predictability post-fielding that support consistency in market of potential product support providers?
5. Are there common subsystems or components among platforms so negotiate leverage to offer suppliers opportunity to benefit from scale economies?
6. Are there opportunities to lower sustainment cost to achieve required operational performance?
7. Is system availability or derivative requirement for subsystem/component consistently below or projected to be below required threshold?
8. How are systems, subsystems, or components in question being supported today?
9. Is there sufficient operational life remaining in product to warrant changes to support solution and be attractive to supplier bottom line?
10. Are there any planned upgrades, service life extension programmes, or overhauls in the works?