

Business Case Analysis (BCA)

OSD has issued guidance emphasizing the use of the Business Case Analysis as a fundamental tool to support PBL support strategy decisions. A PBL BCA provides a best-value analysis that considers not only cost, but other quantifiable and non-quantifiable factors supporting an investment decision. This can include, but is not limited to, performance, producibility, reliability, maintainability, and supportability enhancements. The decision to pursue a PBL strategy, especially for new systems, is directed by policy in DODD 5000.01, and is strongly urged for consideration for fielded systems. The PBL BCA is a useful tool that assists in refining the myriad decisions that go into determining the best value workload allocation strategy decisions and fine-tuning the PBL strategy to achieve the optimum sustainment approach for the objective system or end item.

Depending on the type of PBL contract, the PBL BCA may be used throughout the life cycle of the project. Specifically, the PBL BCA:

- Is used in the initial decision to invest in a project.
- Guides the decision to select among alternative approaches.
- Is used to validate any proposed scope, schedule, or budget changes during the course of the project.
- Should also be used to identify the various budget accounts and amounts affected by the various product support strategies.
- Should be a living document ' as project or organization changes occur they should be reflected in updates to the business case.
- Should be used to validate that planned benefits are realized at the completion of the project.

This information should be used in further decisions to sustain or enhance the solution and to refine estimation of benefits and costs for future projects in the organization.

A PBL BCA is an expanded cost/benefit analysis with the intent of determining a best value solution for product support. The BCA assesses each alternative and weighs total cost against total benefits to arrive at the optimum solution. The PBL BCA process goes beyond cost/benefit or traditional economic analyses by documenting how each alternative fulfills the strategic objectives of the program; how it complies with product support performance measures; and the resulting impact on stakeholders. A PBL BCA is a tailored process driven by the dynamics of the pending investment (PBL) decision. The BCA identifies which alternative support options provide optimum mission performance given cost and other constraints, including qualitative or subjective factors. Developing the PBL BCA should determine:

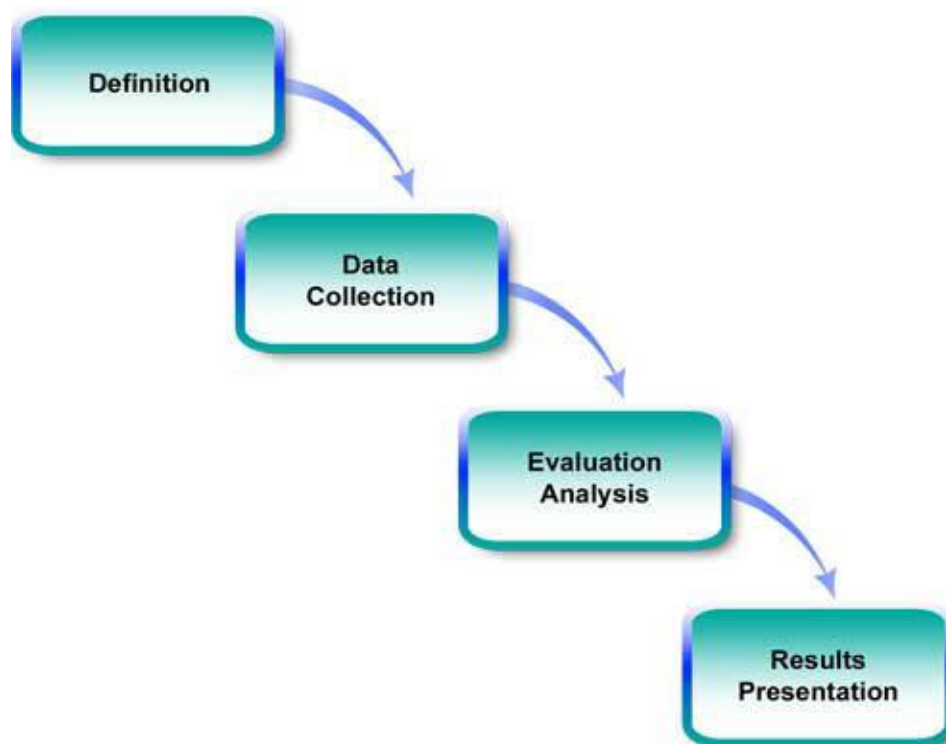
- The relative cost vs. benefits of different support strategies.
- The methods and rationale used to quantify benefits and costs.
- The impact and value of Performance/Cost/Schedule/Sustainment tradeoffs.
- Data required to support and justify the PBL strategy.
- Sensitivity of the data to change.

- Analysis and classification of risks.
- A recommendation and summary of the implementation plan for proceeding with the best value alternative.

As a minimum, a PBL BCA should include:

- An introduction that defines what the case is about (the subject) and why (its purpose) it is necessary. The introduction presents the objectives addressed by the subject of the case.
- The methods and assumptions that state the analysis methods and rationale that fixes the boundaries of the case (whose costs and whose benefits examined over what time period). This section outlines the rules for deciding what belongs in the case and what does not, along with the important assumptions.
- The business impacts are the financial and non-financial business impacts expected in one or more scenarios.
- Risk assessment that shows how results depend on important assumptions ('what if'), as well as the likelihood for other results to surface.
- Conclusions and recommendations for specific actions based on business objectives and the results of the analysis.

The PBL BCA becomes an iterative process, conducted and updated as needed throughout the life cycle as program plans evolve and react to changes in the business and mission environment. Click on any of the BCA steps in the below graphic for more information on that part of the BCA process:



DoD has promulgated the following Guiding Principles for conducting a PBL BCA in [USD\(AT&L\) Memorandum, Performance Based Logistics \(PBL\) Business Case Analysis \(BCA\), 23 January 2004](#):

- All BCAs will be based on warfighter-stated performance requirement(s), which are documented in Performance Based Agreements (PBAs).
- BCAs will be conducted to assess changes from existing product support strategies for legacy systems and to support the product support strategy for new weapon systems. Over time, BCAs will need to be updated or repeated to validate the approach taken and to support future plans.
- BCAs will evaluate all services or activities needed to meet warfighter performance requirements using 'best value' assessments. Best value is the expected outcome that, in the Department's consideration, provides the greatest overall benefit in response to requirements. The assessments will include cost per output, performance measures, capitalization/asset ownership, size of footprint, reliability growth, life cycle costs, Diminished Manufacturing Sources (DMS) management, obsolescence/obsolescence mitigation plan, technology insertion, and risk management. The value added in terms of benefits and outcomes of all services and activities will be identified.
- Initial strategies for ACAT1 programs will be developed prior to Milestone B, including definition of the metrics that will be used to define a program's ability to meet future logistics and operational performance requirements. These strategies shall provide the foundation for detailed PBL Business Case Analyses to be completed prior to Milestone C and/or contract award that are based on the detailed design. BCA estimates shall be accomplished at significant subsystem/repairable item levels that provide the information necessary to initiate cost-effective maintenance and repair actions.
- BCAs will continue through life cycle process with oversight to ensure reassessment at appropriate trigger points, including life cycle costs (LCC) updates; Reduced-Total Ownership Costs activities; and/or continuous improvements actions. The Military Services will evaluate PBL performance at appropriate decision points.
- The cost and performance baselines for legacy systems will be determined by historic experience and costs. The cost baseline will include all appropriate government and/or contractor costs, including indirect costs, overhead, and handling fees. Consideration shall be given to the cost, performance, and risk aspects of all elements of Integrated Logistics Support (ILS). For new system BCAs, detailed Milestone C baselines shall be established considering reliability and maintainability projections at the major system repairable level. These individual estimates shall be sufficiently detailed to provide the basis for contractual actions leading to workable support strategy actions. Although these estimates shall sum up to the validated Service cost position Cost Analysis Improvement Group (CAIG) risk concerns must be considered within the overall process.
- BCAs will reflect operational requirements and existing DoD guidance for contractors on the battlefield, 10 U.S.C., Section 2464 (the necessity for the Department to maintain core logistics capabilities), 10 U.S.C., Section 2466 (the limit on contracting for depot level maintenance), ability to synchronize with the Defense Transportation System, and flexibility to support contingencies, and surges. The BCA will specifically consider the full range of minimum and maximum essential logistics capabilities (peacetime to full mobilization requirement), existing infrastructure and common consumables support.

- BCAs will include risk assessment of expected performance, supply chain responsiveness, and surge capabilities. Consideration of performance and cost risk will explicitly consider contract versus organic risk management, financial accountability, and recovery actions. The risk assessment should address the probability of and confidence level of the following events occurring: poor performance, cost growth, extended labor disputes, and change over in product support integrator/provider (PSI/PSP).
- For all PBL contracts, warfighter requirement(s) will be linked to metrics and metrics to contract incentives. For all organic PBL product support integrators (PSIs), warfighter requirement(s) will be linked to metrics and metrics to PBAs between the Program Manager and the organic PSIs.
- BCAs will be developed using information provided by all appropriate product support stakeholders, including government and industry providers. In order to maintain a competitive environment, industry participation will be determined IAW the Federal Acquisition Regulation (FAR).
- BCAs will be conducted using analytic tools approved by the Services.

These guiding principles are structured to support 'best value' assessment of product support strategies, consistent with existing PBL guidance. All efforts to develop a business case analysis should be consistent with these guiding principles.

USD(AT&L) Memorandum, Performance Based Logistics (PBL) and the Business Case Analysis (BCA), May 20, 2004, provides additional guidance to the Services for performing Strategic Planning Guidance mandated PBL BCAs on all new and fielded ACAT I and II programs by September 30, 2006. This Memorandum defines the criteria to be used in the analyses and reemphasizes the PBL Guiding Principles detailed above.

The business case analysis is depicted in the graphic below and includes the specification of assumptions, the gathering of data, analysis, and the development of recommendations and communication of recommendations to decision-makers. For more guidance on each step of the BCA, click on the step you would like to learn more about.

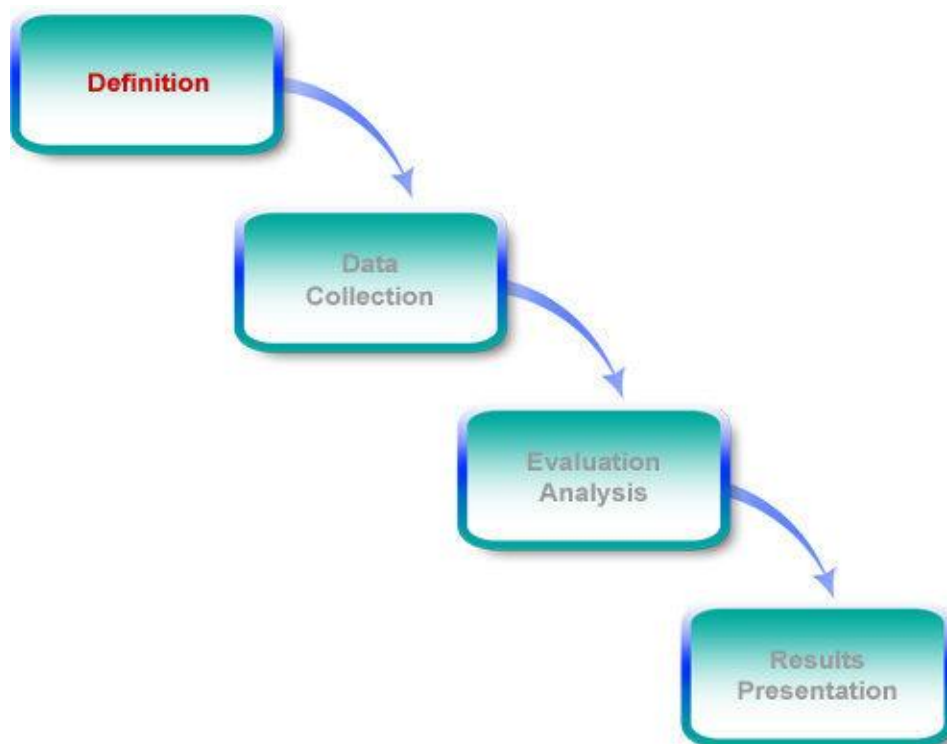
Output:

The output of this step is the business case, a formal document that provides justification for the level of resources needed to achieve the Product Support Objectives specified in the Performance Based Agreement. The BCA documents support alternatives considered, factors involved in the Product Support Agreement(s), and the tangible and intangible benefits of the overall Product Support strategy including the quantification of return on investment.

References:

The attached file(s) in this contribution mentions the DoDD 5000.1 and/or the DoDI 5000.2. The DoDD 5000.1 has been renamed to DoDD 5000.01 and certified current as of 20 November 2007. It can be found at <http://www.dtic.mil/whs/directives/corres/pdf/500001p.pdf>. The DoDI 5000.2 has been re-issued as the DoDI 5000.02, effective 8 December 2008. It can be found at <http://www.dtic.mil/whs/directives/corres/pdf/500002p.pdf>.

Definition



The first step in the BCA process, Definition, sets the scope of the analysis. During the definition stage, analysts formulate the assumptions and constraints that will guide the analysis. Analysts also identify the number of alternatives the BCA will consider. The definition stage can often make or break a BCA. It lays the groundwork for the BCA, communicating to decision-makers the reasoning of the analysts, which establishes the credibility of the BCA.

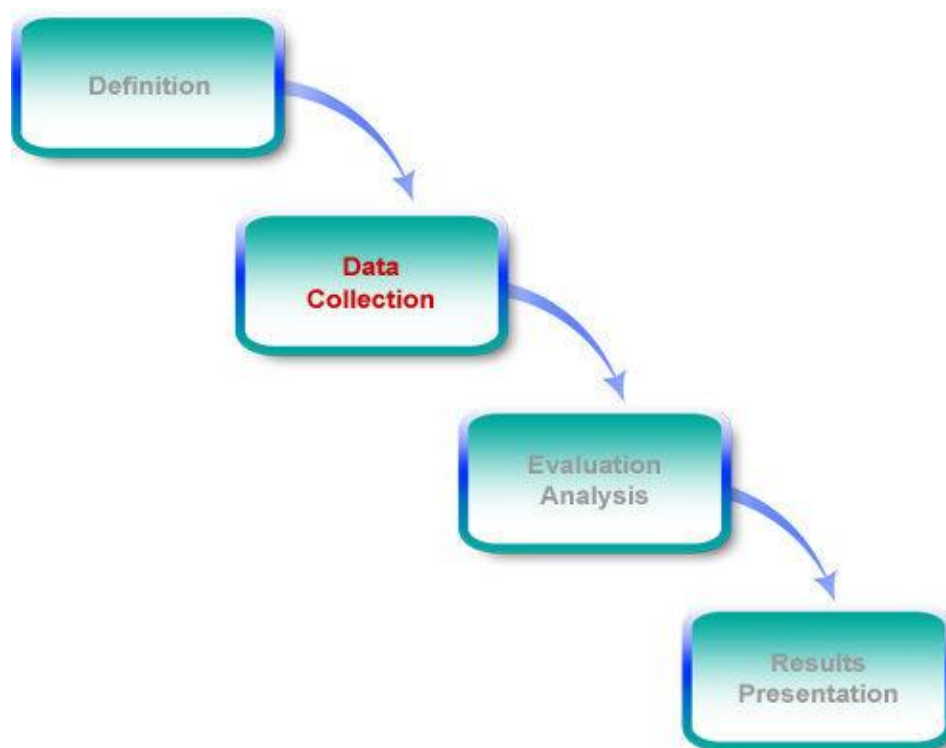
Because BCA's are always forward-looking, and the future is always difficult to predict, must state a series of assumptions that will guide the BCA. Stating assumptions allows decision-makers to measure the reasonableness of your conclusions. To the maximum extent possible, the assumptions stated in the Definition section of the BCA should be tested in the Evaluation and Analysis section of the BCA. For example, if a BCA assumes that the average usage of a weapon system is 1,000 hours per year in peacetime, the analysts need to measure the impact on the business case if the assumption is wrong.

In order to focus the BCA and discourage analysts from wandering off on tangents, the analysts must identify the constraints of the BCA. Constraints are self-imposed rules that limit the extent of analysis. For example, the analysts should initially decide if they are building a case that involves PBL support for the entire weapon system, or if they are only considering PBL support

for a component or components of the weapon system. As part of the identification of constraints, the analysts also identify which courses of action they will develop analyses for.

Alternative logistical support options are identified during the [Allocate Work](#) and [SCM Strategy](#) steps of the PBL process. At a minimum, there will always be at least two options or potential outcomes from the analysis, even if they are to adopt a specific decision or to maintain the status quo. Frequently, there will be multiple alternatives under consideration, which makes it critically important to identify succinctly the key characteristics or defining features of each support option.

Data Collection



During this second stage of the BCA process, analysts identify the types of data they will need, and classify it into categories. The analysts then identify potential data sources, and create a methodology for pursuing and obtaining the data. Analysts should note that BCA's do not only collect and analyze cost data. Analysts must identify all relevant data, to include performance data, so that the business case analysis can identify the best overall value among alternatives, and not just the lowest cost. The analysts will also need to develop models to organize the data, such as spreadsheets and databases, which can be used to store the data once it is obtained. Once the data is received, analysts must measure the integrity of the data, and normalize it so that "apples to apples" comparisons can be made.

The first step in the data collection process is obvious: get the data. Although the first step may be obvious, it is rarely easy. Data is often obscured in databases in remote locations, or buried in budget documents. Operating and Support cost data is available for Navy weapon systems through [Navy VAMOSC](#), USMC data is available at [Marine VAMOSC](#), and Air Force data at [AFTOC](#). Usually estimating the cost for a contractor to provide product support services is simple. The government formally requests a price from the contractor to provide the services, and the contractor replies with a proposal and price.

But as often is the case, the required cost or performance data cannot be found, or in the case of a new weapon system, the data is not available. When data is not available, the resourceful analyst must estimate the data. There is nothing wrong with making estimates, so long as the reasons for why estimates were used, and the methodology for calculating the estimates are clearly explained. Three methods for developing estimates from the [OSD CAIG Cost Estimating Guide](#) are explained below:

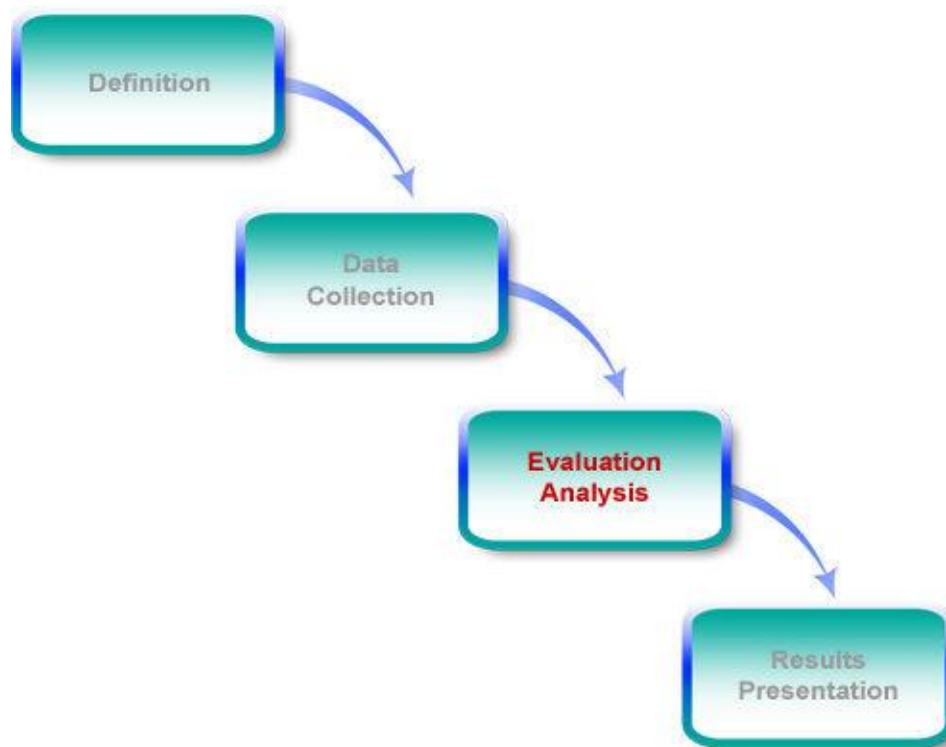
- **Parametric Estimation.** Parametric estimation employs cost-estimating relationships (CERs) to develop projections of weapons costs using various statistical techniques (typically regression analysis). A CER is simply an equation that relates one or more characteristics of a system to some element of its cost. CERs should be current, appropriate for the range of data being considered, and applicable to the system in question. Over time, changes in policy and technology alter the reliability, maintainability, and supportability of a weapon system. The data used to develop the original CER become outdated, and the CER must be revised as data bases are updated. CERs have some distinct advantages, especially in the early phases of a program, when little specific information is available. At this initial stage in the program life cycle, the physical characteristics of a system may be a suitable proxy for purposes of estimating costs. Before using CERs, the underlying cost-estimating relationships should be thoroughly understood. If CERs are improperly applied, the result could be a serious estimating error.
- **Analogy Estimation.** In this technique, a currently fielded system (reference system) similar in design and/or operation to the proposed system is identified. The cost of the proposed system is then calculated by adjusting the cost of the reference system to account for differences between it and the new system. Where data are limited, subsystems from other fielded systems may be used to represent the subsystems of the proposed system. The analogy method of cost estimating is widely employed because it avoids many of the negative aspects of CERs. However, one drawback to analogy estimating at the subsystem level is the extensive amount of detailed technical and engineering data required. The analogy approach places heavy weight on the opinions of "experts." Therefore, the rationale used to arrive at a position must be clearly documented. Historical data bases available through the Visibility and Management of Operating and Support Costs (VAMOSC) system may be used to identify the operating costs of weapon systems and subsystems that are similar to the proposed system.
- **Engineering Estimation.** This approach produces detailed build-up, or "bottoms-up," estimates. It is the most time-consuming of the three techniques. An engineering estimate is constructed by consolidating estimates for individual work segments into a total project projection. The objective is to determine as accurately as possible all of the actions that

would occur in the "real world." Estimating by engineering methods requires extensive knowledge of a system's characteristics. The system is typically broken into lower-level components, each of which is costed separately. Although much detailed data and many man-hours are required for this approach, the quality of the estimates is highly dependent on the milestone to which a program has progressed and on the credibility of the data used in the analysis.

Once the data has been collected, the quality of the data must be assessed before it can be used. Analysts should determine whether the data is complete and accurate. Then, the data must be normalized to support "apples to apples" comparisons. The most common form of data normalization consists of applying inflation/deflation to indices to future or past costs, to account for the time value of money. The process of "normalizing" cost data includes normalizing it in terms of both cost *categories* and *representation*. To normalize across categories, the analyst will use a comprehensive cost or estimating breakdown structure (see the following paragraph). To normalize in representation, the analyst must convert dissimilar time frame values to "constant" values. Constant Year Dollars, a common estimating terms, refers to dollars reflected against a specific base year that have been adjusted for the effects of inflation. Various options may (and probably will) have dissimilar cost time periods, so all supporting costs must be converted to the same constant year dollars for a nominal "base" year (e.g. \$CY05). After costs have been adjusted for inflation, then the actual comparison of costs among different alternatives with different time frames can still reflect a true "apples to apples" cost comparison. When comparing costs between alternatives, cost analysts use Net Present Value (NPV) calculations to determine which option(s) truly has the best value. Net Present Value reflects the value of future cost estimates (e.g. forecasted future earnings) in "today's money". This is achieved by applying a discount rate to future earnings. In simple terms, future year dollars have less value than current year dollars. A dollar today can has more potential "it can be invested or expended. A dollar tomorrow is hypothetical "it can only be estimated "no tangible actions can be accomplished with it.

Once the data has been collected and evaluated, it is used to populate a cost model. Although a variety of models may be employed, the same model should be applied to each alternative. However, analysts will probably use the same model crafted during the [SCM Strategy](#) step of the PBL process. The normal Product Support Process model should be comprised of the relevant [ILS elements](#). But, there may be occasions when it is appropriate to use a different model, such as the [CAIG Generic Cost Element Structure](#).

Evaluation & Analysis



During the third phase of the BCA, analysts begin the actual "number crunching". Using the data collected in phase 2, analysts build a case for each alternative, using both quantitative and qualitative data. Each alternative, to include the baseline prepared during the [Baseline the System](#) phase, is compared against each other, in an effort to identify a best value alternative. Analysts should not seek to merely determine which alternative has the lowest cost, but to determine which alternative provides the optimal combination of price and performance.

In order to balance the cost data for each alternative with qualitative data, where appropriate, product support alternatives will address the following factors:

- Cost per output
- Performance measures
- Capitalization/asset ownership
- Logistics footprint
- Reliability
- Diminishing manufacturing sources (DMS) management
- Obsolescence mitigation
- Opportunities for technology insertion.

In addition to the factors identified above, analysts must ensure that each Product Support Strategy can comply with existing DoD guidance to include:

- Contractors on the battlefield
- Core Logistics Capability [10 USC, Section 2464](#)
- 50/50 Depot Maintenance Rule [10 USC, Section 2466](#).

Analysts must also identify all risk factors for each Product Support Strategy. Analysts must also address risk mitigation strategies for each identified risk. Risk areas that must be addressed are:

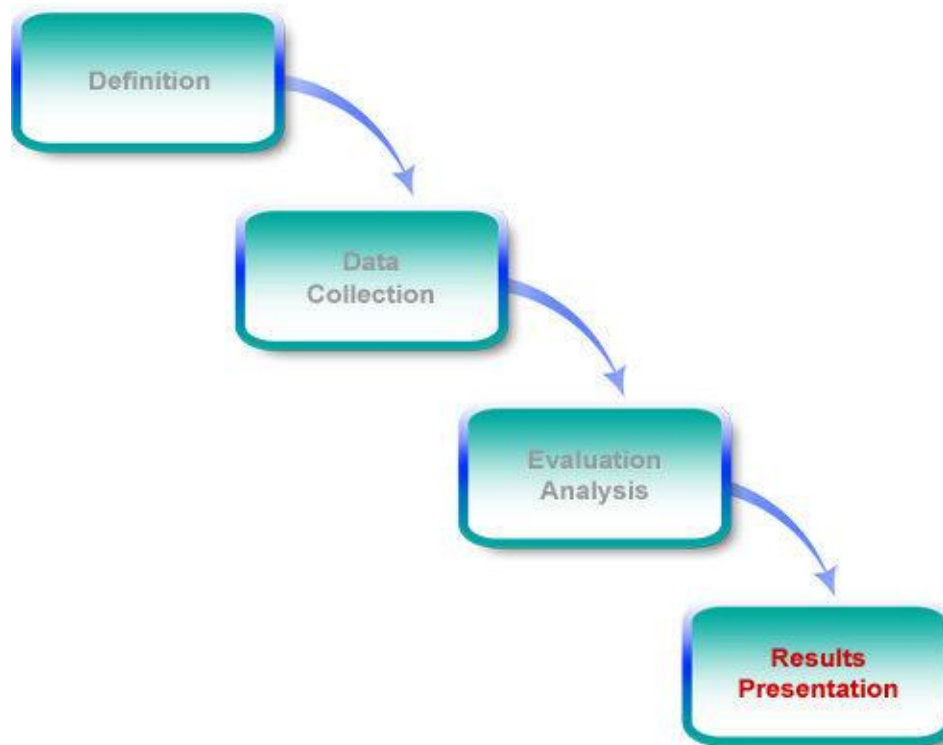
- Cost risk (mitigated through recovery actions)
- Performance risk (mitigated through metrics)
- Surge capacity (mitigated through contractual agreement).

Analysts should also develop contingency plans to mitigate unforeseen circumstances such as a labor strike, a change in the Product Support Integrator, or a contractor who goes out of business.

After the analysts have gathered all cost data and performance/qualitative data, they must accomplish a risk analysis and a sensitivity analysis. Risk analysis attempts to predict the likelihood of an event occurring, and the impact to the case outcome. For some situations, risk analysis can occupy the most volume and level of effort of the entire business case development; can be quantitative or qualitative. A sensitivity analysis attempts to explain what happens if assumptions change or prove wrong (?what if drills?). How sensitive are your financial model?s overall outputs, to changes of individual inputs? If this cost changes, how does it affect the ?bottomline?; can be quantitative or qualitative. After these analyses are completed, it is time to choose a support strategy and recommend it to the decision-makers. However, it can be difficult to couple quantitative data to non-quantitative data and identify the best value, because non-quantitative data tends to be subjective. The analyst must convert a highly subjective evaluation to a more objective assessment methodology. The most common method used is discussed in the following paragraph.

Analysts can cut through the uncertainty of choosing between alternatives composed of subjective and objective data using the analytical hierarchy process (AHP). AHP is a process for assigning values to the different facets of an alternative, and then assigning an overall score to the alternative, allowing analysts to rank alternatives in order of preference. For a complete

Present Results



The ultimate step of the BCA process is the presentation of results. The best analysis in the world is worthless, if the BCA team cannot communicate the results of its analysis to the management decision-makers. Conclusions should state the complete case tersely, but completely, supporting your evidence from the preceding sections. Effective conclusions are organized around the objectives stated up front in the case. Did the recommended alternative cost less? Was it best value? Also, point out any surprising or unexpected results or findings that could be misinterpreted. The written BCA should include a full description of the process the analysts used to arrive at its results. Quantitative data should usually be presented in the form of charts and graphs, accompanied by a narrative explaining the results. Do not expect decision-makers to labor to understand the results of your work. Tell them exactly what you mean and why. And, an effective BCA must recommend a course of action to the decision-makers. A recommendation brings closure to the case and reminds the reader the ball is in their court. OK boss, what's your decision? Just like a court case, the business case should provide support your recommendation that a reasonable person would find compelling.

The format of the BCA presentation should largely mirror the process outlined previously. The first section should contain an introduction, giving readers the background regarding the decision to use PBL and identify all unique logistical support considerations.

The second section of the report should discuss how the BCA was framed. Here, the analysts detail the approach they took to building the business case. The analysts should identify all assumptions and constraints they used to frame the BCA. Analysts should also address which alternatives (in the form of Product Support Strategies) were chosen for analysis in the business case, and which alternatives were not.

The third section of the report should cover the presentation of the data. Spreadsheets are most often used to display costs. However, only results should be displayed in the body of the report. If it is appropriate to display raw data, or large amounts of data, then use appendices. Analysts must take pains to ensure that non-cost data like readiness or fill rates are displayed alongside the cost data in a way that allows decision-makers to understand the connection between them. Oftentimes, graphs or charts can effectively display the linkage. The analysts must also ensure that decision-makers fully understand the risks involved with each Product Support Strategy.

In the fourth and last section of the report, analysts draw conclusions, and recommend a course of action to decision-makers. The recommendation will usually consist of maintaining the status quo or adopting a new Product Support Strategy

Award Contracts

Traditional Support Strategies

In traditional support strategies, where DoD purchases transactional goods and services, it is incumbent upon DoD to specify which goods and services are desired, and how many of each is desired. The support provider's only responsibility is to provide the goods or services requested. If DoD managers make inaccurate decisions about which items need to be repaired, or what quantity of items need to be purchased, then responsibility for the subsequent degradation of system operational effectiveness lies with DoD, not the support provider. Conversely, when DoD buys a level of support or performance, then the responsibility for the subordinate decisions (i.e. which items to repair, what quantity of items to procure) transitions to the support provider, along with the risk for the resulting effect on operational effectiveness.

Reducing "Risk" to the Government

Inherent in any business transaction where a level of performance is purchased, rather than discrete goods and services, there is a de facto shift of risk to the provider of support. This is true of PBL relationships, as well. While DoD can never completely delegate risk for system operational performance, PBL strategies move a level of risk away from DoD to the support provider commensurate with the scope of support for which the support provider is responsible. If structured with the right metrics, incentives, and strictly limited exclusions to coverage, a PBL support package will highly incentivize the contractor to make good decisions and not suffer the financial consequences of bad decisions. Correctly structured PBL support will significantly reduce, but not eliminate, risk to the government.

Contract Types

Contract types vary according to --

- (1) The degree and timing of the responsibility assumed by the contractor for the costs of performance; and
- (2) The amount and nature of the profit incentive offered to the contractor for achieving or exceeding specified standards or goals.

DoD support contracts fall into two broad categories: *Cost Plus* or *Fixed Price*

PBL contracts can be of either type, but in general the objective is to work towards a Fixed Price contract, in conformance with the PBL concept of buying defined outcomes at a defined price.

DoD Contract Types			
	Fixed Price	Cost Plus	
	Firm-Fixed Price (FFP)	Cost-Plus-Incentive-Fee (CPIF)	Cost-Plus-Award-Fee (CPAF)
Description	<ul style="list-style-type: none"> Price not subject to any adjustment Specifies a target cost, a price ceiling and a profit adjustment formula Maximum risk on Contractor Minimum administrative burden on parties Preferred contract type 	<ul style="list-style-type: none"> Government pays allowable cost and incentive fee Incentive fee based on contractor achievement of objective metric targets Can also include cost gainsharing; comparing actual cost to target cost and sharing of savings 	<ul style="list-style-type: none"> Government pays allowable cost, base fee and award fee Base fee does not vary with performance Award fee is based on a subjective evaluation of performance Amount of award fee is unilateral
PBL Application	<ul style="list-style-type: none"> Requirement is well defined Able to establish fair and reasonable pricing 	<ul style="list-style-type: none"> A relationship can be established between the fee and the performance measures 	<ul style="list-style-type: none"> Subjective evaluation is desired (i.e. customer satisfaction)

Within these two broad categories (Fixed Price and Cost Plus), there are further delineations of specific contract types, shown in the adjacent graphic.

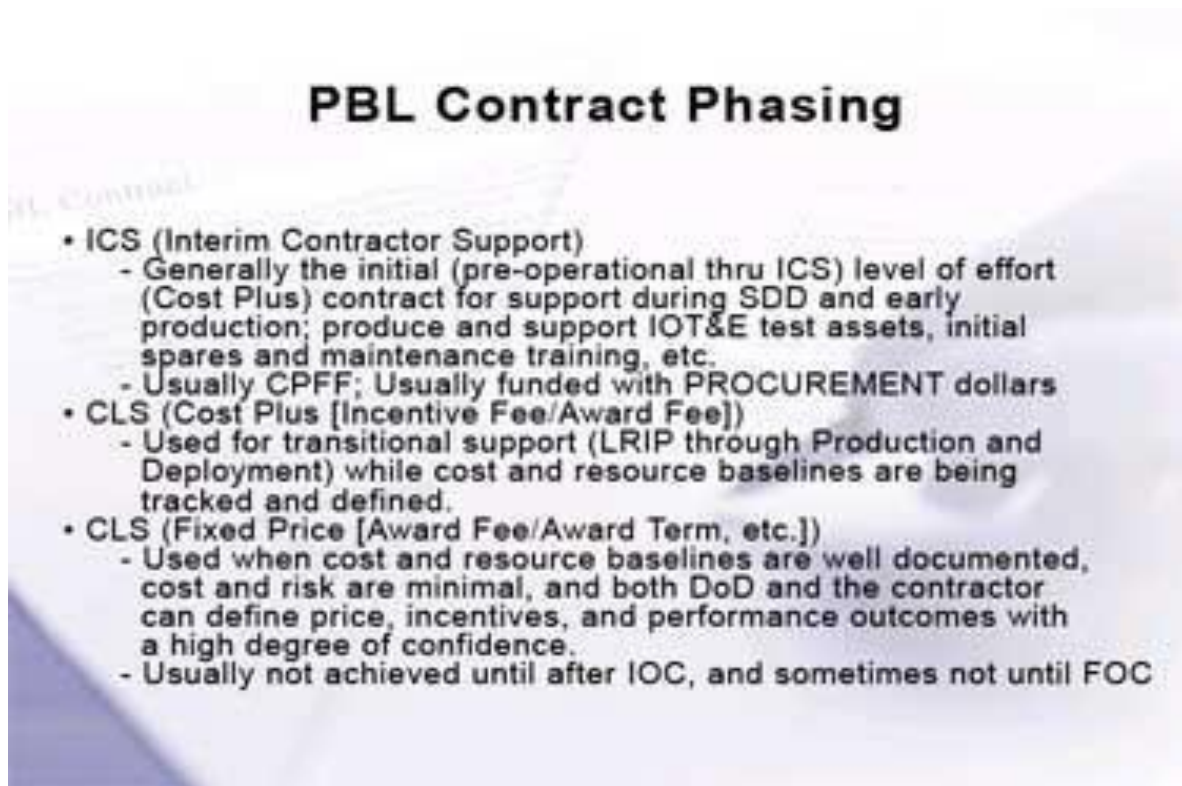
The major determinant factor in choosing between Cost Plus and Fixed Price contracts is the degree of pricing risk present in the support cost. In general, pricing risk is high during the early phases of program development and deployment; hence the use of Interim Contracting Support (ICS) contracts on a cost reimbursable basis. As costs become more stable, but still subject to pricing risk, a transition to a Contract Logistics Support (CLS) contract of a Cost Plus (CP) type is feasible, including the addition of either Incentive Fee (CPIF) or Award Fee (CPAF) features, or a combination of both (CPIF/AF).

Types of Contracts

- **Cost Plus**
 - **CPFF (Cost Plus Fixed Fee)**
 - Used when cost and pricing risk is maximum (VERY early)
 - Basically reimburses contractor for level of effort work accomplished, plus reasonable profit
 - **CPIF (Cost Plus Incentive Fee)**
 - Used early in program when metric baseline is immature
 - Primarily oriented towards COST (allowable and target)
 - Can include some performance incentives other than cost
 - **CPAF (Cost Plus Award Fee)**
 - Used when SUBJECTIVE assessments of contractor performance are desired (i.e. customer satisfaction)
 - When used - usually in combination with CPIF
- **Fixed Price**
 - **FFP or FP-AF (Fixed Price - Award Fee)**
 - Used when cost and resource baseline is fully mature - pricing risk is MINIMUM
 - Puts highest risk on contractor and lowest risk on government

These types of Cost Plus contracts can be structured with cost targets, incentives, and other features that realize most, but not all, the price benefits of Firm Fixed Price contracts while still accommodating pricing risk. Again, the ultimate objective should be to convert to a long term Firm Fixed Price contract with appropriate incentive features (i.e. FPAF). Fixed Price contracts are inherently cost-controlled the contractor will not be paid more or less than the specified fixed price. When used in PBL strategies, where achievement of specified performance outcomes is desired, the Fixed Price Award Fee (FPAF) is the usual form of fixed price contract utilized. The contractor receives the fixed price negotiated in the contract, while also having the opportunity to earn a "bonus" amount in the form of the Award Fee based on their success in meeting the metrics specified in the Award Fee plan. In a Fixed Price contract, a commercial PSI enters into a PBL contractual arrangement with the understanding that they will receive a fixed price, regardless of the amount of resources or cost they contribute to the effort. This financial risk is a factor in their negotiation of both contract price and incentives. The nature of the incentives will dictate the type of fixed price contract, such as Fixed Price Award Fee, Award Term, Gain Sharing, or others as appropriate. The critical advantage to Fixed Price contracts is that they tend to be self-motivating; they motivate the contractor to do inherently good things such as procure

ultra-reliable parts and perform high quality repair actions, since the contractor ultimately benefits from less cost (and higher profit) resulting from fewer parts and repairs required over the long term. Developing a contracting strategy, encompassing the phasing and types of contracts, is a critical factor in PBL strategy development. A notional example of PBL contract phasing is shown below.



Contractual Incentives

PBL has been described as a transition from arms length to arm in arm relationships between commercial providers and organic organizations. It requires open and honest communication, a commitment to team relationships that optimize system objectives over parochial interests and long term success over short term gain. PBL contracts and formal agreements are, with intent, structured to produce win-win scenarios. For many years, DoD contracting had a strong ?win? orientation negotiating the best terms with little regard for the benefits or terms of the other party. In PBL, negotiations do not have to be mutually exclusive; it is possible to describe and document terms that optimize outcomes and objectives for both parties in the relationship.

A Win-Win Situation

One of the best ways to achieve this win-win scenario in PBL contracting is through the use of contractual incentives. One of the earliest DoD contracts, the purchase of the first military

aircraft from the Wright Brothers in 1909, made use of contract incentives as illustrated in the adjacent graphic.

PBL contract incentives will vary depending on the program phase, level of risk, and level of baseline maturity. Product Support Integrators should be motivated to achieve those performance outcomes which are 1) most relevant to the program activities ongoing at the current program phase, and 2) are consistent with the scope of PSI responsibility for managing activities to achieve those outcomes. The chart below portrays this incentives maturity concept

The most common PBL incentives are listed below.

- **Incentive Fee**

- Most incentive contracts are primarily oriented toward cost incentives, which take the form of a profit or fee adjustment formula and are intended to motivate the contractor to effectively manage costs. No incentive contract may provide for other incentives without also providing a cost incentive (or constraint).
- Incentive contracts may include a target cost, a target profit or fee, and a profit or fee adjustment formula that (within the constraints of a price ceiling or minimum and maximum fee) provides that
 1. Actual cost that meets the target will result in the target profit or fee;
 2. Actual cost that exceeds the target will result in downward adjustment of target profit or fee; and
 3. Actual cost that is below the target will result in upward adjustment of target profit or fee.

- Performance incentives may also be included, and should be considered in connection with specific product characteristics (e.g., a missile range, an aircraft speed, an engine thrust, or vehicle maneuverability) or other specific elements of the contractor's performance. These incentives should be designed to relate profit or fee to results achieved by the contractor, compared with specified targets achieved by the contractor.

- **Award Fee**

- An Award Fee plan is established
- Can be a combination of Objective and Subjective assessments
- Award fee (or portion thereof) is earned by meeting Award Fee plan performance goals

- **Award Term**

- Additional (option) years are added to the original contract based on satisfactory contractor performance

- **Shared Savings (Gain Sharing)**

- Fixed Price ? Contractor Costs = Contractor Profit
- When a pre-negotiated maximum contractor profit increases (meaning costs decrease due to contractor achieved savings), DoD and contractor share the savings based on a percentage formula (e.g. 50/50); (NOTE: The Contractor must share in any cost OVER-RUNS as well!)

Earning PBL contractual incentives is based on meeting the contractual metrics for performance and/or support. Although varying from contract to contract, metrics should be structured to earn a full incentive if metrics are met or exceeded, and lesser portions of the incentives if the metrics are not fully met, with lesser amounts of incentive earned down to a metric floor at which point no incentives are earned. As an example, a PBL metric may be Non-Mission Capable Supply (NMCS), which measures the percent of time that a system is not Mission Capable due to lack of a critical part supplied by the PSI. A typical percentage target for this metric would be 5%, meaning that the metric would be fully met if, for the weapon system fleet, the total Non-Mission Capable percent attributable to critical parts supplied by the PSI does not exceed 5% for the measurement period (i.e. the PSI makes the part available 95% of the time). If met, the PSI would receive the full incentive. However, the contract should also identify a sliding scale of NMCS percentages, for example, from 6-10%, with an incentive amount (less than the full incentive amount) identified for each percentage point higher than 5% but not greater than 10%. For example, if the NMCS percentage for the measurement period was 6%, then the PSI would receive the incentive amount (again, less than the full 5% NMCS incentive amount) identified at that percentage level, and correspondingly decreasing incentives at 7, 8, 9, and 10% respectively. An NMCS percentage of 11% or higher would earn no incentive. This award fee structure is shown graphically in the table below.

PBL Contract Incentives

- **Incentive Fee**
 - An incentive fee plan is established
 - Restricted to **OBJECTIVE** (quantitative) assessments only
 - Incentive fee (or portion thereof) is earned by meeting performance targets
 - Also used for primarily cost-based incentive contracts
 - i.e. target cost; incentive for not exceeding
 - Most frequently used form of incentive in PBL contracts
- **Award Fee**
 - An award fee plan is established
 - Primarily used for **SUBJECTIVE** assessments
 - i.e customer satisfaction, overall management, etc.
 - Award fee (or portion thereof) is awarded based on a subjective evaluation process.

Award Fee Table							
NMCS %	5%	6%	7%	8%	9%	10%	11 % >
Award Fee Points	100	80	60	40	20	10	0

Although the focus of PBL contracts is positive, through inclusion of incentives, it may be necessary to include disincentives, or sanctions, when the PSI does not achieve a minimum performance requirement. Although not earning an incentive should be adequate sanction, as described above, there may be circumstances where an actual reduction in the base contract amount, vice non-earning of an incentive, will apply. Use of sanctions in PBL contracts should be rare and, as stated, will usually be suitable only for unusual, but highly mission critical, situations.

The Air Force F-117 ?Nighthawk? stealth aircraft is supported by a PBL contract with a range of metrics and corresponding incentives earned under an award fee contract, where the PSI earns points towards the award fee payment through meeting target objectives for a range of seven critical operationally relevant support metrics, as shown below:

Metric	Standard	Weight
Non-Mission Capable Supply	5%	25
Mission Capable Supply Delivery	72 Hours	15
Readiness Spares Kits	96%	15
Depot Quality: # of Discrepancy Reports	0-20	15
Depot Delivery Days Late	0 Days	15
Delinquent Deficiency Report Responses	1 Delinquency	10
Weapon System Trainer Availability	99%	5

Output:

The output of this step is the formal negotiated agreement that documents the support requirements and associated metrics to be accomplished by the Product Support Integrator in support of the PBL customer. The PBL contract assures that the customer's objectives are attained in terms of cost, quality, and responsiveness to stated results-oriented requirements. The contract award is made to entities that have a track record of successful past performance, or who demonstrate a current superior ability to perform.