

AMC Regulation 37-4

Financial Administration:

Validation of Cost and Economic Analyses

**U.S. Army Materiel Command
4400 Martin Road
Redstone Arsenal, AL 35898-5000
03 October 2012**

UNCLASSIFIED

SUMMARY of CHANGE

AMC-R 37-4

Validation of Cost and Economic Analyses

This regulation --

- **Has been revised to update administrative information.**
- **Supersedes:**
 - **AMC-R 37-4, dated 25 January 1999.**
- **Updates references to reflect current Army guidance.**
- **Clarifies roles and responsibilities.**
- **Addresses specific types of cost and economic analyses.**
- **Clarifies and updates the process for preparation and validation of cost and economic analyses based on current business practices.**

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY MATERIEL COMMAND
4400 MARTIN ROAD, REDSTONE ARSENAL, AL 35898-5000

AMC REGULATION
NO. 37-4

03 October 2012

Financial Administration

VALIDATION OF COST AND ECONOMIC ANALYSES

Supplementation of this regulation is prohibited unless prior approval is obtained from the proponent.

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1. **Purpose.** This regulation establishes the policies, responsibilities, and procedures for validation of cost and economic analyses (EAs) within the U.S. Army Materiel Command (AMC). Army Regulation (AR) 11-18, Army Programs, The Cost and Economic Analysis Program (see appendix A, reference 1), requires validation of all cost and economic analyses and other cost comparisons to ensure their currency, reasonableness, and completeness for use in decisionmaking for the Planning, Programming, Budgeting, and Execution (PPBE) process. AMC examples include, but are not limited to: the application of EAs in Army Working Capital Funds (AWCF) Capital Investment Program (CIP) Projects; cost benefit analyses in support of POM builds, concept plans, and legislative proposals; business case analyses; Life Cycle Cost Estimates (LCCE); Independent Government Cost Estimates (IGCE); and Operations and Support Cost Reduction (OSCR) Projects.

*This regulation supersedes AMC-R 37-4, 25 January 1999.

2. **Scope.** This regulation applies to all AMC functional staff and subordinate commands. It also establishes procedures for participation in the validation of cost analyses prepared by AMC supported Program Executive Offices/Program Managers (PEOs/PMs).

3. **Policy.**

a. Effective management and allocation of Army resources require that verified, validated, and coordinated cost and economic analyses be furnished to support funding requirements. Cost and economic analyses prepared by HQ AMC functional staff or subordinate commands must be validated before officially releasing them to higher or lateral headquarters and/or outside AMC.

b. The proponent should prepare the cost or economic analysis, as they are the most qualified to define the program, define the alternatives, and frame the analysis. At each level, the proponent cost analysis office supports the proponent, works with the proponent and the budget office to identify bill payers, and performs validation of the analysis.

c. The proponent will coordinate the validation process with the cost analysis offices of other responsible organizations when cost and economic analyses require validation by more than one organization.

d. When cost and economic analyses are prepared by proponents without a cost analysis office, validations are still required and will be performed by the cost analysis office at the next higher level.

4. **Responsibilities.**

a. The Deputy Chief of Staff for Resource Management (DCSRM), HQ AMC G-8 will:

(1) Direct and review the command-wide validation program.

(2) Maintain a review capability within HQ AMC to coordinate and verify cost documents prepared by the functional offices and AMC MSCs/LCMCs for use outside AMC.

b. Commanders and functional directors at each AMC Life Cycle Management Command (LCMC) and Major Subordinate Command (MSC) will:

(1) Provide for the operation of a cost analysis office within the intent of this regulation and establish internal policies and procedures to accomplish the mission.

(2) Ensure timely submission of cost and economic analyses for review and validation prior to submission to other commands/offices.

(3) Coordinate with PEOs and PMs to provide validated cost and economic analyses to support the PPBE process.

c. Cost Analysis Offices will:

(1) Ensure that cost and economic analyses satisfy the validation criteria for the specific type of analysis.

(2) Operate as focal points for review and validation of cost and economic analyses.

(3) Ensure analyses are submitted with sufficient time to meet external suspenses.

(4) Develop standards and techniques for validating cost and economic analysis submissions.

(5) Provide results of the review and validation of submissions to the proponent office with comments on areas requiring correction and/or improvement.

(6) Tailor internal validation processes and procedures to complement the efforts of the DCSRM, HQ AMC G-8 Integration and Cost Division and the Deputy Assistant Secretary of the U.S. Army Cost and Economics (DASA-CE).

d. Proponents will:

(1) Ensure analyses are submitted to the proponent cost analysis office with sufficient time to meet external suspenses.

(2) Ensure the cost or economic analysis is arithmetically correct and that charts, graphs, and figures reconcile with one another.

(3) Ensure rationale and documentation are submitted in a clear and logical manner and are provided with the cost or economic analysis at time of submission for validation, and are cited in reports and presentations related to the analysis.

5. Procedures.

a. Economic Analyses.

(1) Economic Analyses are required for all new or ongoing programs or activities forwarded to higher headquarters for approval when there is a choice or trade-off between two or more alternatives.

(2) Exemptions to the requirement for preparation of an EA are as follows:

(a) When Department of Defense (DOD) instructions or directives waives the requirement (e.g., equipment age or condition replacement criteria).

(b) When the requirement is an environmental, hazardous waste reduction, or Federal, state, or local regulatory agency mandate, including directed action by higher DOD or Army authority, which precludes choice or trade-off among alternatives.

(3) Economic Analyses will generally be prepared in accordance with the DA Economic Analysis Manual (see appendix A, reference 5). Analyses submitted to support a CIP proposal (both economic analyses and cost comparison analyses) will be prepared in accordance with AMC Policy and Procedures for Economic Analysis of AWCF CIP Projects (see appendix A, reference 7).

(4) Economic Analyses and exemption justification statements (prepared when an EA is not required) will be validated in accordance with appendix B, the Department of the Army Economic Analysis Manual, and the AMC Policy and Procedures for Economic Analysis of AWCF CIP Projects (as applicable).

b. Cost Benefit Analyses.

(1) Cost Benefit Analyses are required:

(a) In accordance with Under Secretary of the Army (USA)/Vice Chief of Staff of the Army (VCSA) Memorandum, 30 December 2009, subject: Cost-Benefit Analysis to Support Army Enterprise Decisionmaking (see appendix A, reference 2).

(b) With Force Design Updates (FDU), concept plans, and as part of VCSA portfolio analyses.

(c) As required in support of the Army Campaign Plan (ACP), Budget, Requirements, Programs (BRP), and Army Requirements and Resource Board (AR2B).

(d) As required by OSD, Congress, HQDA, Army leadership, or AMC.

(e) Per the Army Program Guidance Memorandum (APGM), and Technical Guidance Memorandum (TGM), all new programs or increases to existing programs in support of Program Objective Memorandum (POM)/Budget Estimate Submission (BES) where the cost is greater than or equal to CBA thresholds specified in POM guidance.

(2) CBAs will be prepared in accordance the U.S. Army Cost Benefit Analysis Guide (See appendix A, reference 3) and the AMC CBA Process Plan (See appendix A, reference 4).

(3) CBAs will be validated in accordance with appendix C, the U.S. Army Cost Benefit Analysis Guide, and the AMC CBA Process Plan.

c. Business Case Analyses.

(1) Business Case Analyses are required in support of Performance-Based Logistics (PBL) support strategy decisions.

(2) Business Case Analyses will be prepared in accordance with DOD Product Support Business Case Analysis Guidebook (see appendix A, reference 8) and the AMC Business Case Analysis/Break Even Analysis Standard Operating Procedure (see appendix A, reference 9).

(3) Business Case Analyses will be validated in accordance with appendix D, the DOD Product Support Business Case Analysis Guidebook, and the AMC Business Case Analysis/Break Even Analysis Standard Operating Procedure.

d. Other analyses will be validated in accordance with applicable DOD standards and guidelines on a case-by-case basis.

e. Validation Documentation.

(1) All cost and economic analyses will be submitted to the MSC Cost Analysis activity and validated before their submission to higher or other headquarters. Prior to release from HQ AMC, cost estimates and economic analyses will be reviewed by the DCSRM, HQ AMC G-8 Integration and Cost Division.

(2) Cost estimates and submissions will be marked with an official stamp on the face of the document or other conspicuous location to express concurrence after review if the validation requirements are met. The stamp will display the following:

- Name of Cost Analysis activity;
- Cost Analysis activity control number;
- Signature of validation analyst;
- Signature or initials of supervisor (except in those instances where the validation is performed away from the analyst's home station);
- Phone number for a point of contact;
- Date of validation;
- Date the validation expires; and
- Any remarks by the validating analysts.

(3) A document that does not meet the validation requirements is not justified and should be returned to the proponent without being stamped. In this case, a validation review sheet stating the reasons validation is not justified should be provided to the proponent with the document, to include:

- Name of Cost Analysis activity;
- Title and date of document;
- Name and phone number of analyst responsible for the review;
- Reasons for return of cost document including non-concurrence; and
- Signature of supervisor.

(4) Cost and economic analyses transmitted electronically must include the same validation information as on the official stamp on the last page of the transmission. A log

number MUST be included. In lieu of signatures, the names of the validators and supervisor are to be entered.

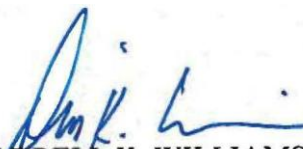
(5) An expiration date, not to exceed 12 months from the date of validation, will be posted on the validation stamp. If further use of the document is needed subsequent to the expiration date, it must be returned to the originator who will identify whether any significant changes have occurred. If there are none, the document will be revalidated. If there are significant changes or a new analysis is submitted, a new validation will be required prior to official use of the document.

(6) Each MSC Cost Activity will maintain a complete validation logbook of all cost submissions processed, containing:

- Date cost document was received for validation;
- Type of document reviewed;
- Title/description;
- Document date and number;
- Requester;
- Suspense date, if applicable;
- Date reviewed/validated;
- Control/validation number;
- File reference number (containing document and back-up data) or log number;
- Remarks (validation qualification, exceptions, etc.).

The proponent of this regulation is the U.S. Army Materiel Command. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to Deputy Chief of Staff for Resource Management (DCSRM), HQ AMC G-8 Integration and Cost Division, 4400 Martin Road, Redstone Arsenal, AL 35898-5000.

FOR THE COMMANDER:


DARRELL K. WILLIAMS
Brigadier General, USA
Chief of Staff

DISTRIBUTION:

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APPENDIX A

References

1. AR 11-18, Army Programs, The Cost and Economic Analysis Program, 31 January 1995, http://armypubs.army.mil/epubs/pdf/R11_18.pdf.
2. USA/VCSA Memo, 30 December 2009, subject: Cost-Benefit Analysis to Support Army Enterprise Decision-Making, <https://collab.aep.army.mil/sites/G8Collab/amccba/Shared Documents/Signed USA VCSA CBA Memo 20091230.pdf>.
3. DASA-CE CBA Guide and Template, https://cpp.army.mil/portal/page/portal/Cost_Performance_Portal/ CPP_Main_Page/CBA_Portal/CBA_Documents.
4. AMC CBA Process Plan, <https://collab.aep.army.mil/sites/G8Collab/amccba/Shared Documents/CBA Process Plan 08 AUG 12.pdf>.
5. Army Economic Analysis Manual, DASA-CE, February 2001, <http://asafm.army.mil/Documents/OfficeDocuments/CostEconomics/Guidances//eam.pdf>.
6. DA Cost Analysis Manual, DASA-CE, May 2002, <http://aec.army.mil/usaec/acquisition/documents00-cam0501.pdf>.
7. AMC Policy and Procedures for Economic Analysis of Army Working Capital Fund (AWCF) Capital Investment Program (CIP) Projects, 2 February 2010, https://collab.aep.army.mil/sites/G8Collab/Cost_Community/Shared Documents/AMCRM-I CIP EA policy as of 2 Feb 2010.pdf.
8. DOD Product Support Business Case Analysis Guidebook, <http://www.dau.mil/pubscats/PubsCats/BCA Guidebook April 2011.pdf>.
9. AMC Business Case Analysis (BCA)/Break Even Analysis (BEA) Standard Operating Procedures (SOP), <https://collab.aep.army.mil/sites/G8Collab/AMC PBL Business Case Analyses/SitePages/Home.aspx>.

APPENDIX B
Criteria for Validation of Economic Analyses (EAs)

EAs are validated in accordance with the current DA Economic Analysis Manual, appendix M:

Economic Analysis Checklist.

Version as of 12 September 2012 is below:

Economic analysis checklist	Y	N	M	N/A
(1) Objective/problem review checklist				
(a) Is the objective clear and specific?				
(b) Is the objective realistic and attainable?				
(c) Is the objective statement in terms of output or accomplishment?				
(d) Is the objective, as stated, unbiased as to the means of meeting the objective?				
(e) Are the expected outputs/accomplishments defined in quantifiable, measurable terms?				
(f) Are criteria specified for selection of a preferred course of action?				
(g) Can progress toward attainment of the objective be measured?				
(h) Is the objective statement phrased so that the type and variety of potential alternatives are not unnecessarily limited?				
(i) If a completion or implementation date is required, has it been specified?				
(j) Is the statement of the objective/problem well documented?				
(2) Assumptions/constraints				
(a) Are all assumptions realistic and justified?				
(b) Are all assumptions pertinent to the analysis identified and rationale provided?				
(c) Are all assumptions identified as such?				
(d) Are assumptions used only when facts cannot be obtained?				
(e) Do the assumptions preclude potential alternative solutions?				
(f) Is an assumed future "state of nature" identified?				
(g) Do assumptions include economic life and future workload?				
(h) Is a project timeframe established?				
(i) Are funding/budget constraints considered and identified?				
(j) Are space, construction, furniture and lab equipment needs included?				
(k) Are necessary geographical constraints included?				
(l) Are assumptions too restrictive or too broad?				
(m) Are facts presented as assumptions? Can the facts be verified? Are uncertainties treated as facts?				
(n) Are all assumptions/constraints well documented?				
(3) Alternatives				
(a) Have all feasible alternatives been considered?				
(b) Is the status quo presented as an alternative? If not, this needs to be explained in the documentation.				

Economic analysis checklist	Y	N	M	N/A
(c) Are all alternatives presented feasible?				
(d) Is the status quo used as a basis for comparison?				
(e) If appropriate, is lease versus buy evaluated as an alternative?				
(f) Are the alternatives distinctly different, rather than a mere restructuring of a single course of action?				
(g) Are options applicable to each alternative presented?				
(h) Has the rationale for immediate rejection of alternatives, prior to full analysis, been provided?				
(i) Have alternatives omitted from the analysis been identified and rationale provided for their omission?				
(j) If other Government organizations can provide the desired product or service, have they been identified as alternatives?				
(k) If the project increases productive capacity, has a contracting alternative been examined?				
(l) Are the alternatives well defined?				
(m) Do alternatives overlap one another? Why?				
(4) Cost estimating				
(a) Have all costs, including common costs, been provided for each alternative?				
(b) Have cost estimates been provided for the status quo? Are they reasonable? Can they be verified?				
(c) Do labor costs consider specific skill levels, fringe benefits, overtime, and shift differential?				
(d) Is future equipment replacement properly included as an investment cost (production and deployment)?				
(e) Are current asset values, residual values, and inherited assets considered? Is the method of determining these values adequate? Has it been identified and explained?				
(f) Is space or operating area included as a capital asset and not as an operating cost?				
(g) Are cost collection methods correct?				
(h) Are CERs and methodologies identified? Are CERs adequate and structurally valid? (cost estimating relationships)				
(i) Are the sources of estimates identified? Are these sources accurate and appropriate?				
(j) Are future costs evaluated in terms of constant dollars?				
(k) Have cash flows been discounted at an appropriate discount rate?				
(l) If inflation or cost escalation is included, have the rate and the source of the rate been identified?				
(m) Are cost savings or avoidance determined only by comparing with the "status quo?"				
(n) Are cost factors current and supportable?				
(o) Is appropriate backup documentation, e.g. cost data sheets and variable explanation sheets, provided to support cost estimates?				

Economic analysis checklist	Y	N	M	N/A
(p) Are cost estimates consistent with assumptions and constraints?				
(q) Has the life cycle cost estimate been provided for all feasible alternatives?				
(5) Benefit analysis				
(a) Have all project benefits, been included and adequately explained?				
(b) Are the benefits identified in quantifiable, measurable terms as much as possible?				
(c) Do the benefits relate to the project objective?				
(d) Are secondary, side benefits identified as such?				
(e) Has a ranking or priority system been developed for evaluating importance of nonquantifiable benefits?				
(f) Are negative benefits identified and quantified?				
(g) Is the list of benefits free of double counting?				
(h) Are the assumptions identified and rationale explained? Are they too restrictive or too broad?				
(i) Are estimating techniques defined? Are they appropriate?				
(j) Are information/estimation sources clearly identified?				
(k) Is all the benefit information tabulated for ease of examination?				
(l) Are data collection methods valid and adequate?				
(m) Are benefits estimating techniques valid?				
(n) If savings have been claimed, will a budget actually be reduced? Have the identified savings been fully coordinated with the impacted activity?				
(o) Have all advantages and disadvantages of the alternatives been identified?				
(p) Were the criteria used to measure the benefits justified by the context of the EA?				
(q) Is expert opinion used? Were these experts properly qualified?				
(r) Has there been a rational assessment of nonquantifiable factors?				
(6) Comparative analysis of costs and benefits				
(a) Do the comparison and selection criteria agree with those in the project or mission objective statement?				
(b) Do the alternatives permit attainment of the project objective?				
(c) Have costs and benefits information for each alternative been combined to show relationships such as cost benefit ratios, and so on?				
(d) Are the alternatives compared to the status quo?				
(e) Were alternatives compared using the proper quantitative technique(s); such as benefit cost ratio, savings-to-investment ratio, etc? Does the benefit-cost ratio reflect worthwhile alternatives for completeness?				
(f) Was an incremental analysis performed?				
(g) Have trade-offs between benefits been considered?				
(h) Does the analysis seem free of bias in favor of a particular alternative (for example, no benefits indicated for one or more of the alternatives, biased assumptions, and so on)?				
(i) Was the cost impact of parallel operations included?				

Economic analysis checklist	Y	N	M	N/A
(j) Are the economic lives reasonable?				
(7) Sensitivity/risk/uncertainty analysis				
(a) If a risk analysis has been performed, how were the probability estimates derived?				
(b) Has an uncertainty analysis been performed? What technique was used (for example, a fortiori or contingency analysis)?				
(c) Were ranges of values used for unknown quantities?				
(d) Were point values varied to illustrate impact?				
(e) Have all relevant "what if" questions been answered? Are they documented in the EA?				
(f) Has a sensitivity analysis been performed to show the impact of changes in dominant cost elements? Examples are length of economic life; volume, mix or pattern of workload; requirements; organizational structure; equipment, hardware, or software configuration; or, impact on the length of time for project completion. If no sensitivity analysis has been performed, why not?				
(g) What do the sensitivity analysis results imply about the relative ranking of alternatives?				
(h) Would the recommendation stay the same if an unknown characteristic varied within a feasible range?				
(8) Recommendation checklist				
(a) Are the recommendations logically derived from the material?				
(b) Are the recommendations feasible in the real world of political or policy considerations?				
(c) Are the recommendations based on significant differences between the alternatives?				
(d) Do benefits exceed costs for the preferred alternative?				
(e) Does the analysis data support the recommendation?				
(f) Is the recommended alternative supported with proper rationale? Are the reasons clearly identified and documented?				
(g) Have all significant differences between the recommended alternative and others been emphasized?				
(9) Documentation checklist				
(a) Is the EA documentation consistent with other program documentation?				
(b) Will the EA "stand on its own?"				
(c) Will an independent reviewer be able to reach the same conclusion?				
(d) Is the EA documentation adequate for the reviewer to duplicate cost and benefits estimates?				

APPENDIX C

Criteria for Validation of Cost Benefit Analyses (CBAs)

CBAs are validated in accordance with the current DASA-CE CBA Checklist.

Version as of 12 September 2012 is below:

Cost Benefit Analysis (CBA) Checklist

The CBA guidebook outlines the steps to prepare a CBA. The CBA Review Board (CBARB) will review and validate the CBA in its entirety. The CBA package consists of two components: 1) the CBA in narrative form and/or suggested briefing format and 2) the supporting worksheets, which contain cost estimate calculations. As a quality review, the CBA POC/preparer must complete the checklist and include it with the CBA package sent to DASA-CE. DASA-CE personnel will then use the checklist to confirm that all documents needed for validation were included. All CBAs and supporting material should be sent to the following mailbox: cba@conus.army.mil. The CBA website is located at: <https://cpp.army.mil>.

CBA Title and Date Submitted	
CBA POC/Preparer:	
Approved by: (Leader/manager at least one level above POC/preparer)	
Date and Name of DASA-CE Reviewer: (CBARB Use Only)	

A complete CBA Package is composed of two major parts:

Part I: Cost Benefit Analysis in a narrative format and/or suggested briefing format.

This checklist as well as the CBA Guide and other resources may be found on the CBA Portal which is part of the Cost and Performance Portal.

Requirements to access the new CBA portal in the CPP:

1. You must have a current AKO account.
2. You must register and obtain a CPP account. Please go to <https://cpp.army.mil> and follow the registration instructions.

A.	Preliminary/Administrative Content	CBA POC (Preparer)	DASA-CE Use Only
1.	Requirement meets one or more of the following criteria: As noted by USA/VCSA memo, 30 December 2009 Per current APGM and TGM With Force Design Updates Part of VCSA portfolio analyses To ACP, BRP, AR2B with issues they will consider Developed in response to directive from Army leadership, OSD, or Congress Submitted with acquisition actions not associated with a decision milestone As part of the development of Concept Plans		
	Main Content	CBA POC (Preparer)	DASA-CE Use Only
1.	Executive Summary (Include the total cost of the recommendation and what time period it covers.)		
2.	The 8 Step Methodology.		
	Step 1: Define and Scope the Problem/Opportunity.		
	Background.		
	Problem/Opportunity Statement .		
	Objective/Goal.		
	Scope.		
	Step 2: Formulate Assumptions and Identify Constraints.		
	Step 3: Define Alternatives (Include status quo in applicable).		
	Three or more alternatives (a.k.a. Courses of Action (COAs)).		
	Step 4: Develop Cost Estimates for Each Alternative.		
	Source and quality of cost data used.		
	Accuracy and reasonableness of cost estimates.		
	Step 5: Identify Quantifiable and Non-Quantifiable Benefits.		
	Step 6: Define Alternative Selection Criteria (Financial and Non-financial).		
	Step 7: Compare Alternatives.		
	Risk assessment and mitigation.		
	Second and third order effects.		
	Costs and benefits comparison (Benefits should exceed costs where possible).		
	Decision matrix (Criteria used is consistent with Step 6 and the weights reasonable).		
	Sensitivity analysis (Optional content).		
	Billpayers/tradeoffs.		
	Step 8: Report Results and Recommendations (Using a narrative and/or suggested briefing format).		
3	Timeline or critical dates for implementing the recommendation. (Optional but encouraged).		
4	Glossary of terms used in the CBA. (Optional but encouraged).		

Part II: Supporting Documentation (Cost and Benefit Estimates).

Thorough documentation is essential for validating and defending a CBA. Documentation should be written/presented step-by-step and should include everything necessary for another analyst (i.e., CBARB analyst) to easily and quickly replicate the estimate and arrive at the same results/recommendation as it appears in the briefing format. All calculations and analysis should be well labeled, include explanations and the names and contact information of all analysts associated with the spreadsheets or documents as well as the date of the analysis. Users should forward all relevant schedules with the briefing format for review.

	Supporting Documents	CBA POC (Preparer)	DASA-CE Use Only
1.	Names and contact information of analysts providing estimates and analysis (linked to products produced)		
2.	Complete worksheets and other schedules used to build the content of the briefing format (Part A of this checklist).		
3.	Description of cost analysis process or methodology used		
4.	Data Sources and Models Used		
5.	Training requirements and strategy (if applicable)		
6.	Personnel costs (if applicable)		
	Identify if contract, military, or civilian (grade, series, annual salary, locality)		
	Operations costs (travel, training, supplies, equipment)		
7.	O&S concept (if applicable)		
8.	Acquisition strategy (if applicable)		
9.	Procurement/fielding schedules ((if applicable)		
Part III: Remarks			

APPENDIX D

Criteria for Validation of Business Case Analyses (BCAs)

BCAs are validated in accordance with the current DOD Product Support Business Case Analysis Guidebook appendix B Product Support BCA Checklist.

Version as of 12 September 2012 is below:

Product Support BCA Checklist	Y	N	M	N/A
1. Executive Summary:				
a) Does the executive summary adequately state the problem, study objective, and significant criteria, assumptions and constraints?				
b) Are the feasible alternatives clearly identified and differences explained?				
c) Is the recommended alternative adequately supported by referencing details of the analysis?				
2. Introduction, Outcomes, and Requirements:				
a) Is the outcome clear and specific?				
b) Is the outcome realistic?				
c) Are any feasible alternative solutions excluded due to a bias in the objective statement?				
d) Is the objective, as stated, unbiased as to the means of meeting the objective?				
e) Are the expected outputs/accomplishments defined in quantifiable, measurable terms?				
f) Are criteria specified for selection of a preferred course of action?				
g) Is the objective statement phrased so that the type and variety of potential alternatives are not unnecessarily limited?				
h) Is the statement of the objective/problem well documented?				
i) Have performance measures and outcomes been identified which are appropriate for monitoring the business performance under the proposed new business plan?				
3. Assumptions and Methods :				
a) Are all assumptions recognized and identified?				
b) Are the assumptions realistic, justified, and realistically supported?				
c) Are assumptions used only when actual facts are unavailable?				
d) Are assumptions unnecessarily restrictive, thereby preventing consideration of feasible alternatives?				
e) Do assumptions include economic life and future changes in operations requirements?				
f) Are key facts, ground rules, laws, DOD or Service policies, and other constraints stated?				
g) Are all assumptions pertinent to the analysis identified and rationale provided?				
h) Is a project timeframe established?				
i) Are space, construction, furniture, and lab equipment needs included?				

Product Support BCA Checklist	Y	N	M	N/A
j) Are necessary geographical constraints included?				
k) Are assumptions too restrictive or too broad?				
l) Are facts presented as assumptions? Can the facts be verified? Are uncertainties treated as facts?				
m) Are all assumptions/constraints well documented?				
n) Are methods, factors, evaluation criteria, and their approval process by the governance board clearly documented?				
4. Alternatives:				
a) Are all feasible alternatives considered?				
b) Were alternatives rejected before a full analysis was adequately documented?				
c) Are the alternatives significantly different as opposed to superficial restructuring of a single course of action?				
d) Was the status quo used as the baseline for alternative evaluation?				
e) Were other Government agencies' capabilities to provide a product or service considered, where applicable?				
f) Were contracting alternatives considered (including public private competition under OMB Circular A-76 or termination and consolidation of existing contracts)?				
g) If appropriate, is lease versus buy evaluated as an alternative?				
h) Are options applicable to each alternative presented?				
i) If the project increases productive capacity, has a contracting alternative been examined?				
j) Are the alternatives well defined?				
k) Do alternatives overlap one another? Why?				
5. Benefits and Non-financial Analysis:				
a) Have all project results, outputs, benefits, or yields been included?				
b) Do the benefits relate to the project objective?				
c) Are the benefits identified in measurable terms where possible?				
d) Are benefits measuring techniques properly defined and supported?				
e) Is benefit priority or ranking criteria clearly stated and used in the evaluation? Is any weighting scale consistently and reasonably applied?				
f) Are negative results or outputs identified and adequately evaluated?				
g) Is the list of benefits free of double counting?				
h) Are secondary benefits (not related to the objective) identified?				
i) Are all cost savings represented as a negative cost rather than as a benefit?				
j) Are the benefits suitably tabulated, graphed, etc.?				
k) Are the assumptions identified and rationale explained? Are they too restrictive or too broad?				
l) Are estimating techniques defined? Are they appropriate?				
m) Are information/estimation sources clearly identified?				
n) Are data collection methods valid and adequate?				
o) Are benefits estimating techniques valid?				

Product Support BCA Checklist	Y	N	M	N/A
p) If savings have been claimed, will a budget actually be reduced? Have the identified savings been fully coordinated with the impacted activity?				
q) Have all advantages and disadvantages of the alternatives been identified?				
r) Is expert opinion used? Were these experts properly qualified?				
6. Cost and Financial Analysis:				
a) Are cost and savings schedules realistic?				
b) Have all incremental costs to the taxpayer, including common costs, been provided for each alternative?				
c) Have cost estimates been provided for the status quo? Are they reasonable? Can they be verified?				
d) Are all Government direct and indirect costs included for each alternative?				
e) Do investment costs include CAPE guidance, IPS Elements, etc.?				
f) Are personnel costs all inclusive; that is, specific skill levels, fringe benefits, overtime and shift differentials, etc.? Are personnel costs broken out by rank/grade, number of employees in each category, etc.?				
g) Are future equipment replacement costs included as investments as opposed to operations costs?				
h) Are available asset values considered and are such values adequately documented?				
i) Are cost collection and aggregation methods correct?				
j) Are estimating relationships and procedures identified and properly supported?				
k) Are program or project costs expressed in constant dollars?				
l) Where inflation or cost escalation is used, have the factors been identified and validated?				
m) Are cash flows discounted at the proper discount rate using OMB Circular A-94 guidance?				
n) Are the sources of estimates identified? Are these sources accurate and appropriate?				
o) Are cost factors current and supportable?				
p) Is appropriate backup documentation, e.g., cost data sheets and variable explanation sheets, provided to support cost estimates?				
q) Are cost estimates consistent with assumptions and constraints?				
r) Has the life cycle cost estimate been provided for all feasible alternatives?				
7. Risk:				
a) Assuming that a risk analysis has been performed, how were the probability estimates derived?				
b) Has an uncertainty analysis been performed? What technique was used (for example, a fortiori or contingency analysis)?				
c) Were ranges of values used for unknown quantities?				
d) Were point values varied to illustrate impact?				

Product Support BCA Checklist	Y	N	M	N/A
e) Have all relevant "what if" questions been answered?				
8. Sensitivity Analysis:				
a) Were the effects of possible changes to the objective requirements evaluated?				
b) Has a sensitivity analysis been performed to show the impact of changes in dominant cost elements? Examples are length of economic life; volume, mix or pattern of workload; requirements; organizational structure; equipment, hardware, or software configuration; or, impact on the length of time for project completion. If no sensitivity analysis has been performed, why not?				
c) What do the sensitivity analysis results imply about the relative ranking of alternatives?				
d) Would the recommendation stay the same if a given characteristic varied within a feasible range?				
9. Conclusion and Recommendation:				
a) Do the comparison and selection criteria agree with those in the project or mission objective statement?				
b) Does analysis data clearly support the recommendation?				
c) Were alternative selection criteria applied consistently?				
d) Were cost and benefit data suitably displayed to accurately depict relationships?				
e) Were the alternatives compared to a common baseline (minimum requirements level)?				
f) Were alternative comparison techniques suitable for the program project being evaluated; that is, present value, payback period, uniform annual cost, etc.?				
g) Was a specific course of action recommended?				
h) Does the analysis seem free of bias in favor of a particular alternative (for example, no benefits indicated for one or more of the alternatives, biased assumptions, etc.)?				
i) Are the recommendations logically derived from the material?				
j) Are the recommendations feasible in the real world of political or policy considerations?				
k) Are the recommendations based on significant differences between the alternatives?				
l) Do benefits exceed relevant costs for the preferred alternative?				
m) Have all significant differences between the recommended alternative and others been emphasized?				
n) Does the communication plan show a reasonable plan for spreading the word about the proposed business process to all affected parties?				
o) Is there a project plan that spells out in sufficient detail the actions different offices or organizations must take to implement the new way of doing business?				
p) Does the plan include reasonable steps that are sequenced in proper order to get from the "as is" to the "to be" state of business?				

Product Support BCA Checklist	Y	N	M	N/A
q) Do steps in the action plan acknowledge any barriers to implementation and allow time and a reasonable plan of action to overcome implementation barriers?				
10. Documentation:				
a) Are the costs thoroughly documented in appendixes so an independent reviewer may replicate it?				
b) Is it possible to trace costs to their basic inputs, units of measure, sources derived from, and as of date for any special rates or factors?				
c) If costs, assumptions, or other input to the estimate is based upon expert opinion, does the supporting documentation include the individual's office symbol, email address, and phone number?				
d) Will the Product Support BCA "stand on its own?"				
e) Will an independent reviewer be able to reach the same conclusion?				
11. Coordination:				
a) Has coordination of all participating offices and organizations been obtained?				
12. Sustainability:				
a) Is the project economically viable?				
b) Is the project energy and resource efficient?				
c) What is the program's potential environmental impact?				
d) What are the program's plans and mitigation strategies for potential environmental impacts?				
e) Is the project safe for workers and end users?				
f) What is the impact to the local community?				
g) Does the project consider the 6Rs of closed loop material flow (Recover, Recycle, Redesign, Reduce, Remanufacture, and Reuse)?				
h) Does the project consider the 7 Elements of Sustainable Manufacturing (Cost, Resource Consumption, Environment, Health, Safety, Waste Management, and Local Community)?				

GLOSSARY

Section I. Abbreviations:

ACP

Army Campaign Plan

AMC

U.S. Army Materiel Command

APGM

Army Program Guidance Memorandum

AR2B

Army Requirements and Resource Board

AWCF

Army Working Capital Fund

BCA

Business Case Analysis

BEA

Break Even Analysis

BES

Budget Estimate Submission

BRP

Budget, Requirements, Programs

CBA

Cost Benefit Analysis

CIP

Capital Investment Program

DA

Department of the Army

DASA-CE

Deputy Assistant Secretary of the Army for Cost and Economic Analysis

DCSRM

Deputy Chief of Staff for Resource Management

EA

Economic Analysis

FDU

Force Design Updates

HQ

Headquarters

HQ AMC

Headquarters, U.S. Army Materiel Command

IGCE

Independent Government Cost Estimate

LCCE

Life Cycle Cost Estimate

LCMC

Life Cycle Management Command

MSC

Major Subordinate Command

OSCR

Operating and Support Cost Reduction

OSD

Office of the Secretary of Defense

PBL

Performance-Based Logistics

PEO

Program Executive Office

POM

Program Objective Memorandum

PM

Program/Project/Product Manager

PPBE

Planning, Programming, Budgeting, and Execution

SOP

Standard Operating Procedure

TGM

Technical Guidance Memorandum

USA

Under Secretary of the Army

VCSA

Vice Chief of Staff of the Army

Section II. Terms:

Cost Analysis Office - office that reviews and validates proponent's analysis to ensure it is sufficient for decisionmaking (including risk analysis, sensitivity analysis, reasonableness of assumptions, documentation and basis of estimates), and applies judgment to determine how well the proposed costs represent what the cost of the proposal or project should be.

Cost and Economic Analysis - broad term that includes, but is not limited to: Analyses of Alternatives, Cost Benefit Analyses, Business Case Analyses, what-if analyses, Life Cycle Cost Estimates, Independent Government Cost Estimates, and A-76 studies (Outsourcing). These examples are used to allow decision makers to make informed decisions.

Cost Avoidance - a reduction in required expenditures that had not been previously budgeted with no reduction in current capability.

Cost Savings - a reduction in required expenditures that had been previously budgeted with no reduction in current capability.

Proponent - office of primary responsibility that advocates a given proposal or project requiring a cost or economic analysis.

Validate - to evaluate a cost or economic analysis to confirm that it is sound, obtained with the use of acceptable cost estimating methods and founded on fact or capable of being justified, supported, and defended.

Section III. Special Abbreviations and Terms: This section contains no entries.