### **Cost Benefit Analysis Directions**

### **Summary**

This CBA spreadsheet is designed to compare alternative solutions against each other, and against the existing solution, which is called “Do Nothing”. Alternative 1, 2, and 3 correspond to the alternatives listed in the Business Case and Alternatives Analysis (BCAA) form in the Commonwealth Technology Portfolio (CTP).

1. The CBA Toolkit is an Excel Workbook containing five worksheets/tabs and two additional tabs:
   1. Summary
   2. Do Nothing
   3. Alternative (Alt) 1.
   4. Alt 2.
   5. Alt 3.
   6. Instructions (read first)
   7. Example scenario

1. Each worksheet contains numerous locked cells. Those cells where data input is required are **BOLD YELLOW**. Cells with other colors or gray indicate those cells that are locked and cannot be edited.
2. Data entered into the following four worksheets (Do Nothing, Alt 1., Alt 2., Alt 3.) are used for calculations which are displayed in the first worksheet, Summary.

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### **Instructions for Completing CBA Calculations -Summary**

1. Go to the spreadsheet tab **Summary**:
   1. Cell C1: Enter the name of the Project
   2. Cell D3: Enter in the period of analysis
      1. Note: The Project Management Standard requires six years of O&M analysis once the new product/system is implemented.
      2. Note: Since it might require 1, 2, 3 years or more to implement the new product/system, the six year O&M analysis begins upon product implementation.
      3. To make it an equivalent analysis, each Alternative, as well as “Do Nothing”, should be analyzed across the same period. The Period of Analysis should cover the maximum time required to implement Alt. 1, 2, or 3, plus six years of O&M.
      4. For example, if it took one year to conduct a competitive RFP, and two years to implement the new system, the period of analysis is nine years (1 + 2 + 6 = 9).
   3. Cell B4: This is the Current System/Solution, or “Do Nothing” (The name will be automatically copied to the “Do Nothing” tab, Cell B1.)
   4. Cell C4: Alt 1. Enter in very brief name of Alternative 1. (The name will be automatically copied to the Alt.1 tab, Cell B1.)
   5. Cell D4: Alt 2. Enter in very brief name of Alternative 2. (The name will be automatically copied to the Alt.2 tab, Cell B1.)
   6. Cell E4: Alt 3. Enter in very brief name of Alternative 3, if needed. (The name will be automatically copied to the Alt.3 tab, Cell B1.)
   7. Cells C25, D25, E25: When you have completed populating estimated costs (both project costs and O&M costs) for Alt.1, 2, and 3, enter in the Breakeven year for each alternative; this is determined by what year the ROI changes from negative to positive. (See the Note on row 38 of each Alternative tab.)

### **Instructions for Completing CBA Calculations -Do Nothing**

1. Go to the spreadsheet tab **Do Nothing**:
   1. This tab represents (1) the current cost of owning and operating the current, legacy system, and…
   2. ….(2) the estimated cost of continuing to use the current, legacy system for the period of time it takes to implement Alternative 1, 2 or 3, plus six years.
   3. Cell C2: Enter in the first year (fiscal year (FY)) of analysis; the subsequent years will automatically populate, and all three Alternative tabs automatically populate, too.
   4. Row 4: Enter in the Operation and Maintenance (O&M) Cost estimates for all of the years of analysis.
   5. Note that the cumulative (row 5) and total (column M) O&M costs are calculated.

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### **Instructions for Completing CBA Calculations -Alternatives**

1. For Alternatives 1, 2 and 3 (tab **Alt 1., Alt 2., Alt 3**.)
   1. Each Alt tab represents an alternative solution to the business problem presented in the BCAA.
   2. Rows 3-14: Project Costs: Enter the one-time costs to implement the new product or service.
      1. These figures are estimates; additional justification/explanation can be entered into BCAA.
      2. Note: The cost categories match the names of the cost categories in the CTP Financial Planning Detail.
   3. Row 18: O&M Costs: As follows:
      1. These are full-cost estimates; (not the difference compared with today;) additional justification/explanation can be entered into BCAA.
      2. For purposes of the CBA evaluation, O&M costs include the cost of hiring / contracting additional resources to support the solution.
      3. For an apples-to-apples comparison, you must include the legacy (Do Nothing) O&M cost for the years BEFORE the new Alternative is implemented.
      4. Note that the annual, (row 19) cumulative (row 20) and total (column M) O&M costs are calculated.
      5. Note that the cumulative (row 22) and total (column M) Total Cost of Ownership (TCO) (project + O&M costs) are calculated.
   4. Benefits:
      1. Row 26: Cost Savings (calculated field): Year-by-year O&M savings compared to "Do Nothing" alternative (Cost Savings Formula: "Do Nothing" row 4 minus "Alt. 1 (,2,3)" row 19)
      2. Row 27: Cost Avoidance: If we select this alternative, we will AVOID certain costs associated with the “Do Nothing” scenario.
      3. Row 28: Increased Revenues: If we select this alternative, our organization will collect additional revenues, compared to "Do Nothing".
      4. Row 29: Other cost savings, cost avoidance or increased revenues. Explain the savings and the calculations.
   5. Row 37: Note the cumulative Return on Investment (ROI) is calculated. ROI = (benefit - project cost)/project cost
      1. Note that the breakeven year can be determined where the ROI changes from a negative % to a positive %. (To simplify this, select the first year where (if) the ROI is a positive percentage.) Input the breakeven year on the Summary tab, row 25.

Note: If, for some reason, you need to unlock cells, please contact your PMD Consultant.  Note that if a PM unlocks the sheet, then it could really damage the formulas and linkages across all the sheets. The password to unlock cells is: CBA.