

# Cost Allocation Methodologies



*Helping States Determine Equitable Distribution of  
Software Development Costs to Benefiting Programs  
Over the System Development Lifecycle*

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## CAM-TOOL User Guide

May 2004

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Guide to the Microsoft Excel tool to assist States in the  
creation of Cost Allocation Plans for shared system  
development

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## CAM-TOOL INTRODUCTION

The CAM-TOOLKIT includes the Cost Allocation Methodologies Handbook and the companion CAM-TOOL software. The CAM-TOOL was designed for use by States in creating cost allocation plans for software development costs; the CAM-TOOL implements the systematic cost allocation process outlined in the CAM Handbook. Use of the CAM-TOOL is most appropriate when there is a need to provide cost allocation justification that quantifies detailed benefit for multiple programs (e.g., during *planning* for the Implementation Advance Planning Document, or IAPD, submission for a system used by multiple operating divisions). In contrast, the Preliminary Advance Planning Document, or PAPD, submission allows for any reasonable cost allocation methodology (i.e., usually equal shares) among the benefiting programs.

The CAM-TOOL is a Microsoft Excel application that incorporates Excel functions, macros, and Visual Basic for Applications functionality to automate tasks associated with cost allocation.

### System Requirements

- The CAM-TOOL has been updated for use with Microsoft Excel 2010 or later versions.
- The CAM-TOOL uses macros in its normal operation, so macros must be enabled on your computer. Contact your technical support staff for assistance in enabling macros on your system.

### User Requirements:

- Knowledge of the process of system cost allocation. Please refer to the CAM Handbook for complete details.
- Basic proficiency in Microsoft Excel.

### Downloading the CAM-TOOL

Download the CAM-TOOL guidance and software documents from the website of the Administration for Children and Families, Office of Child Support Enforcement (ACF/OCSE) or the website for Food and Nutrition Services (FNS).

ACF OCSE website: <http://www.acf.hhs.gov/programs/css/resource-library/search?keyword=CAM-toolkit&h=1>

FNS website: <http://www.fns.usda.gov/apd/cam-toolkit>

Download all of the CAM files to a single directory on your hard drive:

- CAM TOOL (MS Excel workbook)
- CAM TOOL Examples (Simple Data Example, Complex Data Example, Data Example with Weighting)
- CAM TOOL Help Files (compressed folder)\*
- CAM User Guide (PDF)
- CAM Handbook (PDF)

**NOTE:** Unzip the CAM TOOL Help Files into the same directory as the CAM TOOL and the CAM TOOL Examples. Do not open the CAM-TOOL directly from the website; it will not be able to access help files or save data properly.

### **Preparing Data for Use in the CAM-TOOL software**

The CAM-TOOL does not include functionality for initial cost estimation. You must use cost estimation tools such as Constructive Cost Model (CoCoMo) to estimate the total work effort and the cost to be allocated.

The CAM-TOOL is designed to allocate the development costs that will be shared by multiple state and Federal programs. Costs that will be charged directly to one federal or state program will be excepted from the cost allocation plan calculations and will not be included in the results displayed on the Cost Allocation Plan worksheet. Direct charges must be accounted for separately in the project budget and added to the allocated costs determined by the CAM-TOOL in order to arrive at each program's share of the total project cost.

With the work effort and cost to be allocated in hand, you will be ready to use the CAM-TOOL. Below is a simplified view of using the CAM-TOOL.

- You will need to account for and map all of the work effort in your cost estimation process in establishing an Allocation Structure of three levels (Functional Modules, Sub\_Modules, and Detail).
- You will also need to map a scale for level of effort, i.e., create a scale of values for the efforts from your cost estimation process to use as the Allocation Base in the CAM-TOOL. If costs are estimated in hours of programming, use development hours as the allocation base. If other estimates are used, such as lines of code, you will need to document a weighting scale to factor in the level of effort.
- Then, working within the CAM-TOOL, you will identify each program that will benefit from the proposed system, and identify the system elements that each program expects to use.
- Finally, you will enter the total cost to be allocated from your cost estimation process.
- The CAM-TOOL will use the identified work efforts and the program sizes to arrive at a usage share for each benefiting program. The CAM-TOOL will then use the development values you entered as the allocation base and your previously-determined allocation cost estimate to determine the "fair share" of costs for each of the benefiting programs.

**To create multiple Cost Allocation Models for your project, it is best to create a fresh copy of the CAM-TOOL for each new scenario, giving each workbook a scenario-specific name.**

### **Starting the CAM-TOOL software**

Double-click on the CAM-TOOL filename or icon in your working directory. This application uses macros in its normal operation. Therefore, you may either enable macros for the current Excel session (recommended), or you may reset the default Security level for all sessions (generally not recommended).

## CAM-TOOL Main Menu and Navigation

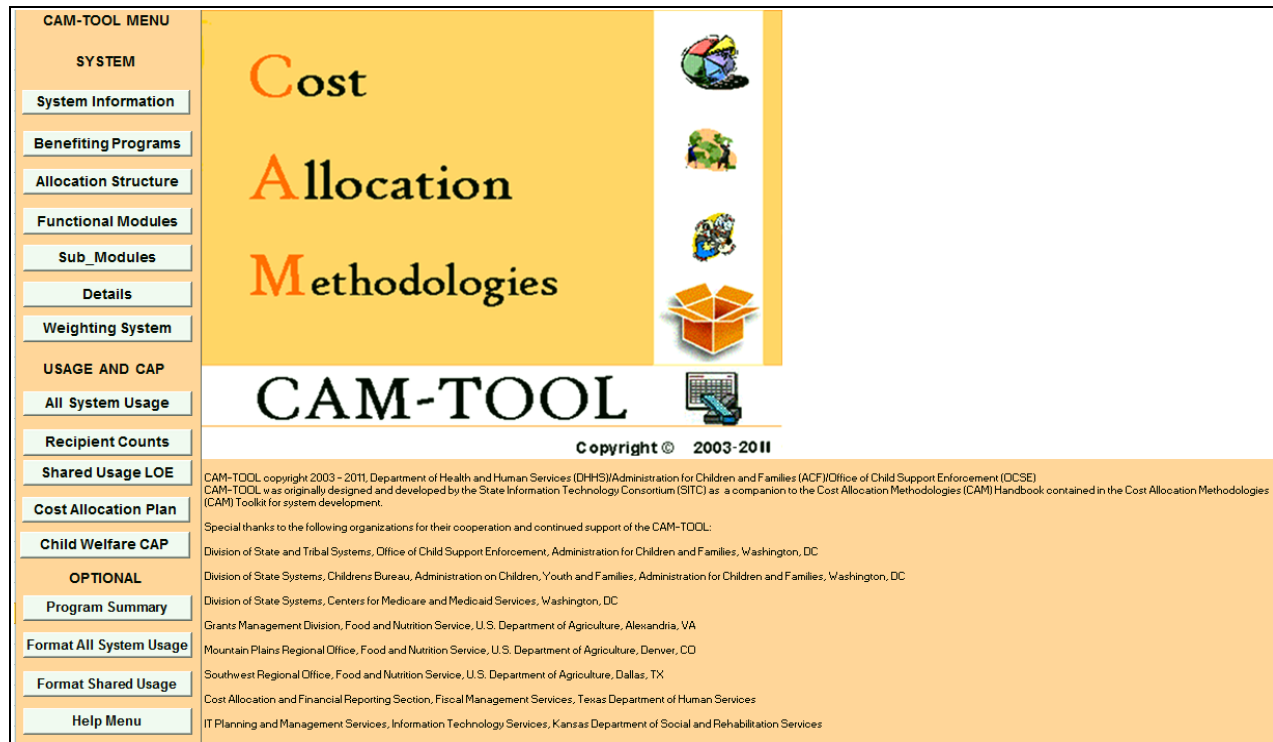


Figure 1 CAM-TOOL

**Main menu.** The Main Menu panel appears at the upper left of each worksheet in the CAM-TOOL, as shown in Figure 1. Main Menu buttons present the workflow of the CAM-TOOL, and are the easiest means to navigate between worksheets. The Main Menu contains three sections: System, Usage and CAP, and Optional, described at a high level below. Later sections provide detail on each Menu button and the dataflow between worksheets.

**Section 1: System.** The top group of menu buttons link to the worksheets that capture data about the system being cost allocated. These worksheets provide for guided entry of information on the system, the benefiting programs, the system components to be developed, and the applicable weighting system.

- **System Information:** The System Information worksheet captures information about the system undergoing cost allocation.
- **Benefiting Programs:** The Benefiting Programs worksheet identifies the programs that will benefit from the system development and program related information. The CAM-TOOL uses program abbreviations to identify the benefiting programs on usage data worksheets, the cost allocation worksheet, and optional worksheets.
- **Allocation Structure:** The Allocation Structure worksheet documents up to three levels of allocation (i.e., functional module, sub\_module, and detail) and the basis for development calculations, such as development hours, lines of code, user screens, etc.
- **Functional Modules:** The Functional Modules worksheet is used to document the highest-level system components, or functional modules.

- **Sub\_Modules:** The Sub Modules worksheet is used to document how the functional modules break out to the second level of system components to be developed, the sub\_modules.
- **Details:** The Details worksheet is used to document how the sub\_modules break out further to the third level of system development components, the detail level.
- **Weighting System:** The Weighting System supplemental worksheet documents your system of measuring or ranking the relative ease or difficulty of each development effort. You must implement a weighting system if you are estimating costs in a unit other than development hours.

**Section 2: Usage and CAP.** The middle group of menu buttons link to the worksheets that document the breakdown of system functionality used by each benefiting program. These sheets help calculate the “fair share” of cost allocation for each benefiting program.

- **All System Usage:** opens All System Usage worksheet to document the planned usage of the system by each benefiting program.
- **Recipient Counts:** opens System Recipient Counts worksheet to assign duplicated recipient counts for each benefiting program to support the usage identified in All System Usage worksheet.
- **Shared Usage LOE:** opens Shared Usage LOE worksheet to calculate the level of effort values for shared system usage and then to calculate the cost allocation plan.
- **Cost Allocation Plan:** opens Cost Allocation Plan worksheet to document the final cost allocation percentages based on the results in the Shared Usage LOE worksheet.
- **Child Welfare CAP:** opens Child Welfare CAP worksheet to document any further breakdown of costs within Child Welfare, and calculation of the overall single figure to be used by the CAM-TOOL for the federal financial participation by Child Welfare.

**Section 3: Optional.** The final group of menu buttons link to optional CAM-TOOL worksheets for ad hoc data analysis, and direct access to Help Files. These worksheets do not feed data to any other worksheets; they are available for end-user reference and analysis.

- **Program Summary:** The Program Summary worksheet provides a summary of the system functionality usage by benefiting program.
- **Format All System Usage:** The Format All System Usage worksheet allows custom formatting of data for reporting, presentation, or additional calculations.
- **Format Shared Usage:** The Format Shared Usage worksheet allows custom formatting of data for reporting or presentation, or additional calculations.
- **Help:** The Help worksheet contains links to the CAM-TOOL help files related to specific worksheets. Help files must reside in the same directory as the CAM-TOOL software in order for them to work correctly.

## **CAM-TOOL Data Operations.**

The CAM-TOOL uses data entered to worksheets in three ways.

- (1) Data on the original worksheet remains visible as a reference.
- (2) Command buttons on selected worksheets allow the user to make progressive calculations of usage, and to copy some or all of the data onto other worksheets.
- (3) The CAM-TOOL copies some data automatically for use in background calculations.

Therefore, it is CRITICAL that you observe and follow notes in this Guide for how and where you may add rows or columns of data.

## The CAM-TOOL Worksheet Format

All worksheets in the CAM-TOOL follow the format shown in Figure 2.

	A	B	C	D	E	F	G	H
1	CAM-TOOL MENU	?	Sub Modules		Copy to the Details Worksheet			
2			Enter Project/System Name in System Information					
3	SYSTEM		Alerts					
4	System Information		Assessment					
5	Benefiting Programs		Case Management					
6			Eligibility Determination					
7	Allocation Structure		Financial					
8			Intake					
9	Functional Modules		Interfaces					
10			Reports					
11	Sub Modules		Integration Support					
12			Security Management					
13	Details							
14								
15	Weighting System							
16								
17	USAGE AND CAP							
18								
19	All System Usage							
20								
21	Recipient Counts							
22								
23	Shared Usage LOE							
24								
25	Cost Allocation Plan							
26								
27	Child Welfare CAP							
28								
29	OPTIONAL							
30								
31	Program Summary							
32								
33	Format All System Usage							
34								
35	Format Shared Usage							
36								
37	Help Menu							
38								
39								

**Figure 2 Common Layout for CAM-TOOL Worksheets**

In **Figure 2** above, format areas common to all worksheets are called out:

1. Each worksheet displays the main menu for navigation.
2. “?” (i.e., question mark) appears in cell B1 on each worksheet. Click on the “?” to access the help file for the worksheet.
3. Row 1 on each worksheet contains worksheet header information and command buttons to initiate specific CAM-TOOL automated functions. Figure 2 includes one command button, **Copy to the Details Worksheet**.
4. Row 2 is reserved for column header information, such as Functional Module, etc.
5. Worksheet data input and display begins in cell “C3”. In Figure 2, worksheet data includes Alerts, Assessment, Case Management, etc.

## CAM-TOOL Worksheet Conventions and Constraints.

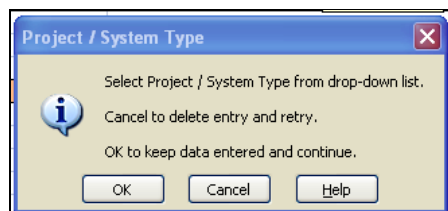
Conventions used throughout the CAM-TOOL include the following:

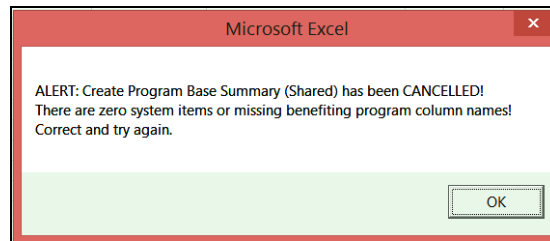
1. **Data copied to other worksheets.** The CAM-TOOL frequently copies data from one completed worksheet into one or more other worksheets for further use. Each worksheet chapter in this Guide identifies data that has been "copied from" another worksheet and data that will be "copied to" other worksheets or calculations.

**Important constraint:** *BE CAUTIOUS when it is necessary to correct or update data. In the CAM-TOOL, data you enter on one worksheet is copied and expanded to more detail on other worksheets. When you make a change to a prior worksheet, be sure to re-run each succeeding automated CAM-TOOL operation in order to preserve the integrity of your data.*



2. **Adding data rows.** In the System group of worksheets, the CAM-TOOL provides specific areas for adding **rows** of information as needed to expand functional modules to submodules to detail modules. In these areas, you may add as many **rows** as your cost allocation data requires.
3. **Deleting or changing columns:** ***Do NOT change any column names, delete columns, or change the order of columns in the Benefiting Programs, Sub\_Modules, or Details Worksheets, or the CAM-TOOL will not provide accurate calculations.*** A required field may be empty of data, but the data column itself must exist to allow CAM-TOOL calculations to run.
4. **Changing data after entry to the CAM-TOOL.** Data resulting from CAM-TOOL automated tasks or calculations is protected from manual changes. Changes must be accomplished by using CAM-TOOL buttons and userforms.
5. **Data Length and Wrapping.** You may enter numeric, alphanumeric, or text data as you would in any Excel spreadsheet. Existing fields for alphanumeric data are set to wrap the display of text data. If you enter a number that is too long for the current display setting, "###" displays instead of numbers. To correct this, you may widen the column by dragging the column separator at the top of the spreadsheet.
6. **Optional Summary worksheets.** Worksheets on the "Optional" portion of the navigation menu provide results of calculations. These sheets are 'stand-alone' in the sense that data is not copied from these sheets or used in further CAM-TOOL processes. You may change the names and ordering of columns on these sheets to provide custom views for printing, or to conduct your own further calculations on the data.
7. **Data validation errors and alerts.** The CAM-TOOL offers numerous command buttons that copy data from one sheet to another, or make calculations to data on a worksheet. Before doing so, the CAM-TOOL performs basic data validation checks, for example, to check that there is data on the worksheet, or that all of the data fields required in the calculation are filled in. If there is insufficient or incorrect data, the CAM-TOOL cancels the button action and offers a message box with information on corrective actions (see examples below).





**Figure 3 Common CAM-TOOL Alert Messages**

The most critical error messages are covered in the User Guide sections to which they apply.