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Baseline assessment of the Department of the Army cost estimating and analysis (CE/A) and cost management (CM) capabilities

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THESIS

BASELINE ASSESSMENT OF THE DEPARTMENT OF THE ARMY COST ESTIMATING AND ANALYSIS (CE/A) AND COST MANAGEMENT (CM) CAPABILITIES

by

Michael C. Doyle

June 2005

Thesis Advisor:	Daniel A. Nussbaum
Second Reader:	Samuel E. Buttrey

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13. ABSTRACT (maximum 200 words)

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The first step in this thesis was to identify which organizations in the DA employed CE/A and CM personnel. Next, questionnaires with which to elicit the information required for a complete baseline assessment were constructed, tested, and disseminated. Cost community employees filled out the questionnaires. The data collected was formed into useful categories, and displayed in informative ways. With data thus arranged, analysis was performed and recommendations made.

This thesis provides understanding of practices, techniques, and standards within the DA CE/A and CM communities. It is the first phase of a larger effort to understanding the changes in human capital strategy necessitated by the advent of General Fund Enterprise Business System (GFEBS), the Army's version of enterprise-wide financial management systems.

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Submitted in partial fulfillment of the
requirements for the degree of

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LIST OF ACRONYMS AND ABBREVIATIONS

ABC - Activity Based Costing

ABM - Activity Based Management

ABC/M - Activity Based Costing/Management

ACAT - Acquisition Category

ACD&CRB - Acquisition Costing Directorate & Cost Review Board

ACP - Army Cost Position

ACSIM - Army chief of Staff for Installation Management

AFSC - United States Army Field Support Command

AIM-HQ - Army Information Management - Headquarters

AKO - Army Knowledge On-Line

ALMC - Army Logistics Management College

ALT - Acquisition, Logistics, Technology

AMC - Army Materiel Command

AMCOM - Aviation and Missile Command

AMCCS - Army Military-Civilian Cost System

AoA - Analysis of Alternatives

ARNG - Army National Guard

ASA - Assistant Secretary of the Army

ASD - Assistant Secretary of Defense

ASP - Application Service Provider

ATEC - Army Test & Evaluation Command

AWPS - Army Workload and Performance System

BCA - Business Case Analysis

BES - Budget Estimation System

CAIG - Cost Analysis Improvement Group

CBO - Congressional Budget Office

CCE/A - Certified Cost Estimator/Analyst

CE/A - Cost Estimation and Analysis

CECOM - Communications and Electronics Command

CER - Cost Effectiveness Ratio

CF - Career Field

CHR - Civilian Human Resources

CIDC - Criminal Investigative Division Command

CM - Cost Management

CMV1...CMV5 - Cost Management Survey, version 1.....version 5

COTS - Commercial-off-the-shelf

CP - Career Program

DA - Department of the Army

DAC - Department of the Army Civilian

DASA-CE - Deputy Assistant Secretary of the Army - Cost & Economics

DAWIA - Defense Acquisition Workforce Improvement Act

DCPS - Defense Civilian Payroll System

DoD - Department of Defense

DoN - Department of Navy

EA - Economic Analysis

ERP - Enterprise Resource Planning

EUSA - Eighth United States Army

EVM - Expected Value Management

EVMS - Expected Value Management System

FORSCOM - Forces Command

FM&C - Financial Management and Comptroller

GFEBS - General Fund Enterprise Business System

GPRA - Government Performance Results Act

GS - Grade Scale

HQDA - Headquarters, Department of the Army

IBR - Initial Baseline Review

IGCE - Independent Government Cost Estimate

ICE - Independent Cost Estimate

IFS - Integrated Financial System

IMA - Installation Management Agency

INSCOM - United States Army Intelligence and Security Command

ISR - Installation Status Report

IT - Information Technology

JFMIP - Joint Financial Management Improvement Program

KM - Knowledge Management

LAN - Local Access Network

LCCE - Life Cycle Cost Estimate

MACOM - Major Command

MDW - Military District of Washington

MEDCOM - Medical Command

MSC - Major Subordinate Command

MWR - Morale, Welfare and Recreation

NETCOM - Network Enterprise Technology Command

NII - Networks and Information Integration

OPTEMPO - Operational Tempo

OSD - Office of the Secretary of Defense

OSMIS - Operating and Support Management Information System

PEO - Project Executive Officer

POC - Point of Contact

POM - Program Objective Memorandum

PM - Project Manager

PMP - project manager professional

PPBES - Planning, Programming, Budgeting and Execution System

QA - Quality Assurance

RDECOM - Research, Development, and Engineering Command

RDTE - Research, Development, Test and Evaluation

SARSS - Standard Army Retail Supply System

SBC - Service Based Costing

SCEA - Society of Cost Estimating and Analysis

SDDC - Surface Deployment and Distribution Command

SECARMY - Secretary of the Army

SECDEF - Secretary of Defense

SES - Senior Executive Service

SI - Systems Integration

SME - Subject Matter Expert

SMOC - Science and Mission Operations Center

SPS - software procurement specification

STANFINS - Standard Army Finance Information System

TACOM - Tank - Automotive & Armament Command

TRADOC - Training and Doctrine Command

USA - United States Army

USACE - United States Army corps of Engineers

USACEAC - United States Army Cost and Economic Analysis Center

USAR - United States Army Reserve

USAREUR - United States Army Europe

USARPAC - United States Army Pacific

USARSO - United States Army, Southern Command

USASOC - United States Army, Special Operations Command

USMC - United States Marine Corps

VAMOSC - Visibility and Management of Operating and Support Costs

XO - Executive Officer

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ACKNOWLEDGMENTS

This thesis is the culmination of two years of study which would never have been completed had it not for four people. My father, Charles Doyle, always encouraged me to further my education. It wasn't until he passed that I listened. My wife, Angie, who has traveled with me to wherever the Army sends us to make our home, no matter how far away from her dream and my promise to someday return to her family in Florida. COL Manago, who brought me to NPS even though I can only imagine I was wholly unqualified to attend. Professor Nussbaum gave me the vehicle and the instruction necessary to write the thesis. To these four in particular, and to all my professors and classmates without exception, I offer my sincere appreciation for making me a better officer than I was before learning from you.

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EXECUTIVE SUMMARY

Before the Department of the Army (DA) can determine what changes must be made within the Cost Estimating/Analysis and Cost Management communities to best support customer requirements in the 21st century, DA must first fully understand its current capabilities and practices with respect to its people, processes and technology. Professor Daniel Nussbaum, NPS, completed a similar survey and analysis for the Department of the Navy in October 2004, the results of which caught the interest of the United States Army. This previous work by Dr. Nussbaum and his current work with DA in assessing the Army's cost community have led to this thesis.

This thesis was designed to be an assessment of the current state of Department of Army cost estimating, analysis, and management capabilities. Specifically, it evaluated the extent to which the cost estimating and analysis and cost management communities are meeting Army leadership's current and projected needs. In particular, it supported the Deputy Assistant Secretary of the Army-Cost & Economics' (DASA-CE) mission to provide DA with cost, performance and economic analysis in the form of expertise, models, data, estimates and analysis at all levels; and it will produce opportunities for improvement in the way cost estimating and analysis and cost management communities can better serve the DA.

The method used in developing this thesis is displayed in the following figure, and a more detailed explanation follows the figure.

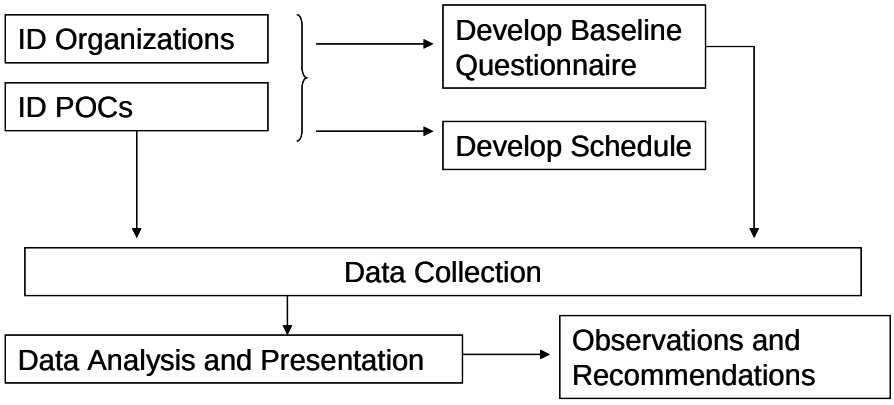

Figure 1. Process for developing a baseline assessment of the DA cost community

The first step in this thesis was to identify which organizations within DA employ CE/A and CM personnel and, for each one, identify both the head of the organization and a POC for this study. Next, a questionnaire with which to elicit the information required for a complete baseline assessment was constructed, and a schedule for disseminating and collecting the questionnaires developed and agreed upon by participating organizations.

The data required for this thesis was acquired in three ways. One is by the organizations' POCs filling out the questionnaire on behalf of the organization. The POCs in this case received and returned the questionnaire via email. The second method was via face-to-face interviews with the chiefs of the CE/A and CM organizations. The third method was a web-based survey. For this survey distribution, the URL for the web-page was emailed to potential respondents, who were then able to access the survey on the web, and complete it at their leisure.

Finally, the data collected in the previous step was formed into useful categories, and displayed in informative ways. With data thus arranged, analysis was performed and recommendations made.

This thesis provided uniform understanding, across the DA cost community, of fundamental practices, techniques, and standards within the DA cost estimating and management communities, as well as an enhanced understanding of professional and advancement opportunities. This paper described the first phase of a larger effort to understanding the changes in human capital strategy necessitated by the advent of enterprise-wide financial management systems in the US DoD, the U.S. Army version being known as General Fund Enterprise Business System (GFEBS).

I. PURPOSE

The purpose of this study is to establish the current status of the Army's cost estimating and analysis (CE/A) and cost management (CM) communities regarding people, processes, and technology. Specifically, this study seeks to identify the following:

1. What are the size, organization, and experience of the DA in-house cost estimating and analysis and cost management workforces?
2. What analyses are done and at whose request?
3. How are results transmitted and who receives the results?
4. What processes exist for the execution of cost research, recruiting, training, knowledge sharing and QA, including accountability for timeliness and reliability?
5. What data, estimating tools, research and IT infrastructure are available to support the cost estimating and analysis workforce?

By developing this baseline assessment of the CE/A and CM communities now, the Department of the Army will be better situated to determine areas in need of improvement in order to best utilize the General Fund Enterprise Business System (GFEBS, descibed in following section) once it is fielded. This study will determine how well the CE/A and CM communities are meeting the needs of the Army, and identify those areas where Army leadership is not being fully served by the CE/A and CM communities. This study has the support of DASA-CE, Mr. Steve Bagby, with respect to his mission to "Provide the Army decision makers with cost, performance and economic analysis in the form of expertise, models, data, estimates, and analysis at all levels". [1] Specifically, it will evaluate the extent to which the cost estimating and analysis and cost management communities are meeting Army leadership's current and projected needs.

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II. BACKGROUND

The impetus for this study is previous work by Professor Daniel Nussbaum for the Department of the Navy on its Cost Estimating/Analysis capabilities. This previous study provided the Department of the Navy with a baseline assessment of its cost estimating and analysis capabilities with respect to people, processes, and technology, so that once future requirements were determined for this community, gap analysis could be performed, and future needs met. This Department of the Army study is being completed at the request of the DASA-CE, and will include the CM community as well as the CE/A community. Because the U.S. Army is preparing to implement GFEBS (see below), it is imperative that leaders within the CE/A and CM communities have an accurate assessment regarding their people, processes, and technology so as to identify opportunities for improvement prior to GFEBS implementation.

A. PREPARING FOR THE GENERAL FUND ENTERPRISE BUSINESS SYSTEM

Since 1990, there have been no fewer than eight acts of Congress or policies established by the Department of Defense insisting on quality costing procedures within Department of Defense organizations including the Department of Army. These acts or policies include 1) Chief Financial Officers Act (1990), 2) Government Performance Results Act (1993), 3) National Performance Review (1993), 4) Statement of Federal Financial Accounting Standards #4 (1995), 5) DoD Acquisition Reform Goal #10 (1997), 6) USD (A & T) Issues ABC Guidance (1999), 7) Joint Financial Management Improvement Program (JFMIP) Core Financial Systems Requirements (2001), and 8) President's Management Agenda (2002). To assist the U.S. Army in attaining the quality mandated, the General Fund Enterprise Business System (GFEBS) will be implemented.

GFEBS is to be an integrated financial management system which will include a commercial-off-the-shelf (COTS) Enterprise Resource Planning (ERP) system, Systems Integration (SI) services support, and Application Service Provider (ASP) services

support. This new system, GFEBS, must be capable of supporting DoD with accurate, reliable and timely financial information. Specific tasks for the system include providing general ledger management, payment management, receivables management, funds management, cost management, and reporting. GFEBS must be a web-based system, accessible world-wide that can provide required information in real time to the Army's Installation Management Agency (IMA), Army National Guard (ARNG), and United States Army Reserve (USAR).

Within DA, there are no fewer than 100 business systems that create information of financial importance. DA will eliminate the need for a minimum of 28 and possibly up to 59 of these systems by incorporating their functions into GFEBS. From the other Army areas which will be affected by the introduction of GFEBS, such as the acquisition and logistics fields, it is expected that at least 18 more systems can be replaced by GFEBS. When in full use, GFEBS will involve logistics (wholesale and retail), procurement, healthcare, personnel management and pay, and asset management.

An example of how GFEBS can improve information accessibility, accuracy and timeliness was given by the Honorable Valerie Baldwin (ASA-FM&C) in her statement to the U.S. Senate's Armed Services Committee's Subcommittee on Readiness and Management: "Currently, the Army must engage in extensive data calls from multiple business systems to determine the number of soldiers in a medical-hold status. This information is important in determining manning and healthcare purposes. Once GFEBS is integrated with the human-resource management systems, individuals will be able to track this information along with the associated costs in a timely manner without assistance from other agencies or systems."

The GFEBS acquisition strategy is designed to mitigate risk and ensure approval by OSD Domain Owners and ASD (NII). Risk is mitigated by defining each roll-out phase as an option, with implementation phases to run from FY 05 to FY 09. Each phase has measurable exit criteria and defined objectives with extensive reviews scheduled at the end of each phase. Contracts for GFEBS may be terminated if exit criteria are not met. The government will own all artifacts and deliverables, so reusable items will represent no additional cost to the Army. By involving all leaders throughout the entire

process, risk of developing a system that does not meet the requirements established by each department is greatly mitigated.[2]

B. WHAT COST ESTIMATION AND ANALYSIS (CE/A) MEANS TO THE U.S. ARMY

From the Department of the Army Cost Analysis Manual, MAY 2002, the following information is provided on cost analysis and its importance within the Department of the Army:

> Cost analysis is: (1) the act of developing, analyzing, and documenting cost estimates using analytical approaches and techniques. (2) The process of analyzing and estimating incremental and total resources required to support past, present, and future forces, units, systems, functions, and equipment. It is an integral step in the selection between alternatives by the decision maker. (3) A management tool used to help decision makers evaluate resource requirements at key management milestones and decision points in the acquisition process.
>
> Cost analysis is used to produce cost estimates for materiel systems, automated information systems, force units, training, and other Army programs and projects. Each cost analysis should contain: (1) a clear definition of what is being costed. (2) The specification of all assumptions, ground rules, and constraints, assumed or imposed, underlying the analysis. They must each be explained with adequate rationale. (3) An estimate of all expected costs, directly or indirectly associated with the project over its life, including disposal. The cost estimate must include the identification of all data sources used. (4) Risk and uncertainty analyses identifying any circumstances which could affect a course of action. (5) Key limitations in terms of elements that were excluded.
>
> The documentation supporting the cost analysis should describe the methodology used in developing these estimates. It also should identify all the data sources and include the computations used to estimate the costs. The documentation should be in sufficient detail to permit reviewers to follow the logic from assumptions to conclusion and to update the estimate at a later time.
>
> Cost analysis is a critical element in the Army acquisition process. It supports management decisions by quantifying the resource impact of alternative options. A quality analysis includes different acquisition strategies, hardware designs, software designs, personnel requirements, and operating and support concepts. As a program matures and more

information becomes available, the cost estimate grows in complexity and detail. One test of the utility of cost analysis is its ability to respond quickly to program turbulence. Army planners must have reliable and readily available information about the cost consequences of program changes, extensions, or cancellations. Cost analysts must develop models to support these quick turnaround analyses.

Cost analysis plays a key role in budgeting the Army's operating tempo (OPTEMPO) related training costs. The Army's implementation of the DoD Visibility and Management of Operating and Support Costs (VAMOSC) program is the Operating and Support Management Information System (OSMIS) and the Army Military-Civilian Cost System (AMCCS). The DASA-CE manages the OSMIS program including developing and reporting reparable and consumable OPTEMPO costs for selected tactical systems by major command (MACOM). The development of the training mission budgets requires reliable OPTEMPO cost factors. AMCOS is a database, which provides personnel cost factors for estimating acquisition, installation operations and force/unit requirements.

Cost analysis has an on-going role in the management of base operations. Cost analysis assists installations, MACOMs and HQDA in determining base support requirements, developing budgets, conducting cost benefit analysis, and performing special studies. At the HQDA level, USACEAC develops cost factors in support of the Army Chief of Staff for Installation Management (ACSIM) for both the Installation Status Report (ISR) and the Army Installation Management - Headquarters Information (AIM-HI) model. Other ACSIM efforts supported by cost analysis include A-76 studies, Service Based Costing, and Standard Service Costing.

With the establishment of the cost/outcome oriented Government Performance Results Act (GPRA), cost analysis has taken on a larger role in to support management of base operations. The managerial costing focus, to meet GPRA mandates, requires cost analysis in the measuring and management of cost and results. Cost analysis will be needed to develop methodologies, conduct studies and analyze data of the products and services provided through base operations. The prerequisite to cost management is cost measurement. There are numerous methods of measuring costs, all of which will require cost analysis skills now and in the future. Examples of cost measurement include, full cost, job-order cost, service based cost, activity based cost, standard cost, product cost, and responsibility cost to name a few. Though there are many examples of cost measurement each demands cost analysis support to make information meaningful to Army management. USACEAC will prepare a

managerial costing manual in the future on Activity Based Costing, Service Based Costing and Standard Service Costing.

Other uses of cost analysis in the Army are to:

(1) Support decisions on program viability, structure, and resource requirements.

(2) Evaluate the cost implications of alternative materiel system designs.

(3) Provide credible and auditable cost estimates in support of milestone reviews during the acquisition process.

(4) Assess the cost implications of new technology, new equipment, new force structures, or new operating or maintenance concepts.

(5) Support the Planning, Programming, Budgeting, and Execution System (PPBES) process. This includes formulating and documenting Army Cost Positions (ACPs) on programs within the Program Objective Memorandum (POM) and the Budget Estimate Submission (BES) processes.

(6) Determine the funds required for a given level of training or operational activity such as miles driven per year.

Cost analysis applies scientific and statistical methods to evaluate the likely cost of a specific item in a defined scenario. In the real world, there are multiple uncertainties about the item's cost. Some "internal" uncertainties influencing cost are inadequate item definition, poor contract statement of work, optimistic proposed solutions, inexperienced management, and success-oriented scheduling. Some "external" uncertainties include funding turbulence, contractor's underestimating of complexity, contractor's changing business base, and excessive (or insufficient) Government oversight. In spite of uncertainty, the process of cost analysis is the most rigorous approach available to evaluate the costs of alternatives for the decision maker.

Cost analysis does have limitations. Analysts develop cost estimating methodologies with an imperfect understanding of the technical merits and limitations of the item. The applicability of historic data is always subject to interpretation. Because of future uncertainties, there are limitations in determining the degree to which reality varies from the plan. Realistically, the cost analysis process cannot:

(1) Be applied with cookbook precision, but must be tailored to the problem.

(2) Produce results that are better than input data.

(3) Predict political impacts.

(4) Substitute for sound judgment, management, or control.

(5) Make the final decisions.

Despite these limitations, cost analysis is a powerful tool. Rigorous and systematic analysis leads to a better understanding of the problem. It improves management insight into resources allocation problems. Because the future is uncertain our best estimate will differ from reality.[3]

C. WHAT COST MANAGEMENT (CM) MEANS TO THE U.S. ARMY

From Army Finance web site, (http://www.asafm.army.mil/ceac/cm-abc/doc-arch/docs/ASP-appC.doc), the following information is provided on Cost Management:

> Cost Management is a process of continuous improvement that simultaneously focuses on cost and performance to gain efficiencies and improve operations through informed decision making. Similar practices are widely used within the private sector and the Army has developed cost management training material to support a strong doctrine and to institutionalize this managerial approach within the Army. To enable managers and decision makers to manage costs effectively, good cost measurement creates cost awareness, provides relevant cost information, and correlates the information to mission performance. Successful cost management is a long-term solution that links to the organization's strategy, educates and empowers employees, and encourages cost control through rewards and incentives.
>
> Integration of Cost Management practices into the 21st Century Army is designed to enhance decision making at all levels. This will require a culture change within the Army, recognizing that cost management is a necessary discipline for all managers and decision makers, both military and civilian. A sound Army cost management doctrine will assist us in understanding the "true" costs of producing goods and services, improving operations, and linking execution to Army strategies. Cost management fully supports continuous improvement to achieve the most efficient organization... Executing the Cost Management

doctrine controls costs and improves efficiency by focusing on results, allowing the Army to meet future resource requirements.

Successful implementation of Cost Management combines strong leadership support, a cycle of commitment and review, employee empowerment, and motivational incentives. With Army leadership serving as strong advocates, the cost management paradigm establishes goals and encourages participative behavior to achieve improved performance.

Managerial Costing is the reconnaissance process for Cost Management. Cost Management must be supported by credible cost measurement tools (e.g. Activity Based Costing) that focus on true cost and meet the internal needs of managers and decision makers. The cycle of commitment and review is the key for managers to practice cost management successfully. This process has been established through installation prototypes and is depicted in diagram below.

Commanders must provide the leadership support and need for cost management information. The necessity to "pull" or lead the cost reconnaissance process creates an atmosphere of cost awareness throughout the command. A cycle of forecasting and after action review provides a frequent feedback and accountability loop that drives continuous improvement and allows for the most efficient use of resources.

Cost Management is a commitment to a new business discipline that strives for continuous improvement by managing cot for superior performance. To move forward, organizations must begin to act on current cost measurement initiatives and institutionalize cost management through sound doctrine and active leadership.

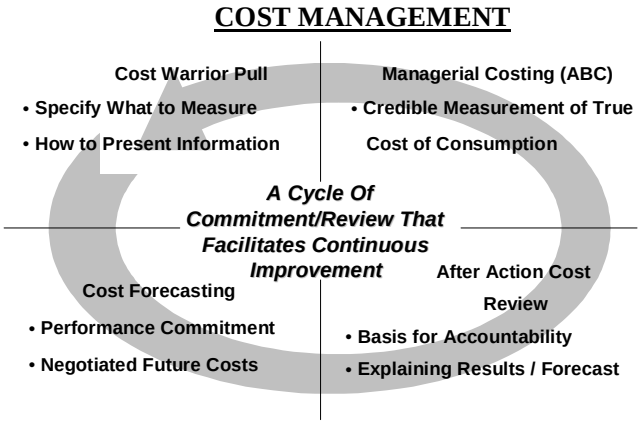

Figure 2. Cost management and commitment / review

> The strategic component of cost management should focus on the planning of priorities and setting of goals. This is achieved primarily at the Army Headquarter and MACOM level by establishing cost and performance goals. By establishing expected levels of cost to achieve desired outcomes, installations have goals to strive for through tactical Cost Management practices.
>
> Commanders focus on the tactical component of cost management by managing cost and performance through the cycle of commitment and review to achieve continuous improvement. Commanders set efficiency challenges to be achieved through the managing of activities, processes and cost. Gaining a better understanding of cost and performance will better enable organizations to achieve the strategic goals set by Army leadership.[4]

D. ACTIVITY BASED COSTING

In November, 1999, Secretary of the Army Caldera issued his Strategic Plan for Implementing Cost Management/Activity Based Costing. From Atkinson, we get the following information regarding Activity-based costing (ABC).

> Activity-based costing develops the idea of cost drivers that directly link the activities performed to the products manufactured. These cost drivers measure the average demand placed on each activity by the various products. Activity costs are then assigned to products in proportion to the demand that the products place (on average) on the activities.[5]

To illustrate ABC, assume a welder spends 60% of his time working on widgets, and 40% of his time working on doohickeys. The cost of employing the welder would be assigned to the production costs of widgets and doohickeys, 60% and 40% respectively. If 10 widgets and 10 doohickeys were produced, then the manufacturing cost of each widget and doohickey includes 6% and 4% respectively of the cost of the welder.

It was the intent of the Secretary of the Army that ABC would be implemented in 11 major business areas that support mission readiness within three years. Specifically, the Army would pursue ABC as a tool for the local manager to better understand operational cost and performance. Secretary of the Army White emphasized the importance of ABC in November 2001 when he stated that through effective ABC, the

Army could better determine the costs of our operations, the causes of those costs, and how to better manage costs while improving productivity.[6]

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III. APPROACH

The approach used in preparing this thesis is displayed in the following figure, and a more detailed explanation follows the figure.

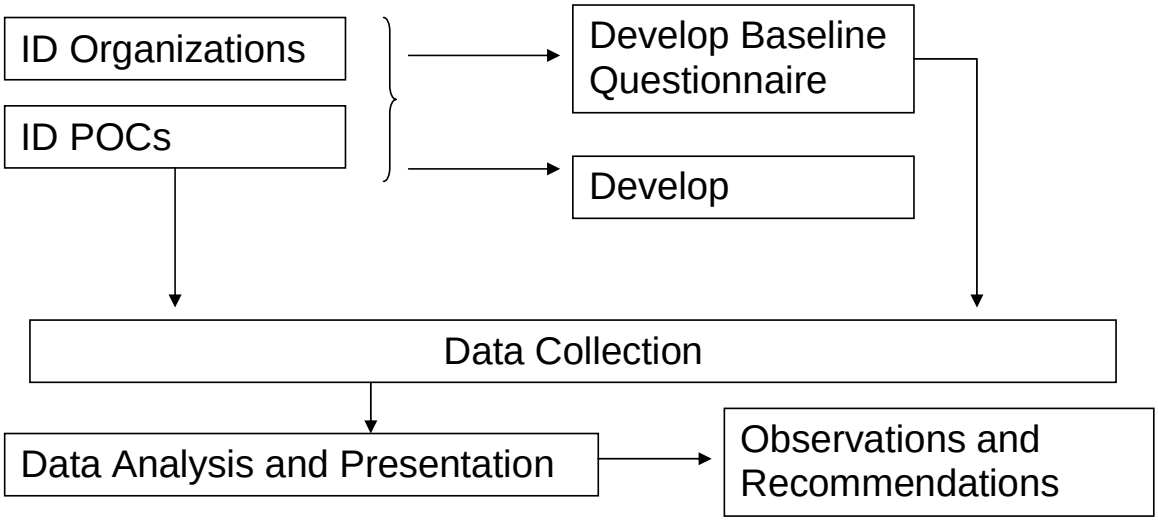

Figure 3. Process for developing a baseline assessment of the DA cost community

In this effort to provide a baseline assessment of the DA CE/A and CM communities, the following five tasks had to be accomplished: (1) define the CE/A and CM communities, (2) develop the required tools to collect the data, (3) distribute the survey (email, internet), (4) compile and analyze the results, and (5) identify opportunities for further research.

A. DEFINING THE CE/A AND CM COMMUNITIES

The first task, defining the communities of interest, was simple in theory, harder in practice. The organizational structure was already known, but the actual individuals in those positions and their contact information was not known. Once a preliminary roster of individuals was established, each potential participant was contacted by telephone.

With each contact, a brief description of the study was given in order to assist the POC in determining whether or not he or she would be the most suitable respondent within the organization for the survey. Individuals who felt they were contacted in error were asked to recommend someone within their organization who would be better suited to complete the survey. This process was repeated until each individual on the POC roster had agreed that he or she was the individual within a given organization best suited to complete the survey. Each participant was asked who else should be contacted in order to provide additional assistance with the study. By establishing a workable participant list as the first step, participants were able to provide assistance in developing the surveys as well as answering the surveys.

Command	Population	Responded	%
AMC	2646	93	3.5%
Other	2625	324	12.3%
USACE	2028	83	4.1%
TRADOC	1381	24	1.7%
FORSCOM	837	44	5.3%
MEDCOM	692	9	1.3%
USAEUR	492	10	2.0%
USARPAC	225	1	0.4%
HQDA	222	195	87.8%
EUSA	173	2	1.2%
SMDC	162	2	1.2%
USASOC	128	1	0.8%
INSCOM	118	5	4.2%
NGB	89	4	4.5%
USARSO	48	10	20.8%
CID	22	3	13.6%
Grand Total	11829	810	6.8%
		average response rate =	10.3%
		upper CI =	20.8%
		lower CI =	0.0%

series	Population	Responded	%
0343	4068	198	4.9%
0501	552	68	12.3%
0503	2	0	0.0%
0505	132	7	5.3%
0510	1099	77	7.0%
0511	920	142	15.4%
0525	588	1	0.2%
0560	3188	207	6.5%
0561	30	6	20.0%
0599	34	0	0.0%
1515	1216	45	3.7%
		average response rate =	6.8%
		upper CI =	10.7%
		lower CI =	3.0%

Table 1. Population and respondents for CM survey broken out by MACOM and series

B. SURVEY INSTRUMENT DEVELOPMENT

The second step in completing this study was to develop the surveys that would be used to collect the data. There were two, which originally differed slightly in that one was specific to the CE/A community and the other was specific to the CM community.

However, both were based on a previous survey constructed by Professor Daniel Nussbaum to establish a baseline estimate of the DoN CE/A community[7]. These surveys, like the original DoN CE/A survey, were intended to obtain data on people, practices, and tools within the designated fields (see appendix A for CE/A survey, appendix B for CM survey).

These two surveys were then offered to the previously established POCs, with the request to review them for clarity, appropriateness, and completeness. Once all POC comments were collected via email and incorporated into the survey, selected POCs were visited face to face in order to verify that the surveys would be adequate tools by which to attain the information required. At this point, it became evident that while the CE/A survey was ready for distribution, the CM survey needed further refinement.

The initial CM survey, now known as CMV1, was taken to selected Army cost management experts for discussion and review. Over the course of two separate meetings (10 DEC 04 and 4 JAN 05), Dr. Daniel Nussbaum and his team of subject matter experts (SMEs) were able to craft a reasonable draft of a quality cost management survey for use by the Army. This new version (CMV2) was reviewed in detail by J. Reauff and his team of SMEs. The content was determined to be adequate, but the wording was improved to ensure minimal complications when being completed by personel within the Army cost management community. The result was CMV3, which was ready for presentation to DASA-CE Steve Bagby. The result of Steve Bagby's comments created CMV4.

CMV4 presented the biggest changes to date, in that all questions were now directed to the actual CM employee, instead of just the department heads/ division chiefs. This was not just a simple change in wording, but a much larger change in the target population, and potentially in the percentage of completed surveys returned. Instead of sending surveys to the 11 personnel in charge of the 11 business areas, surveys would now be distributed (via the internet) to the 9000 civilian employees working in CP-11 within these business areas.

After implementation of recommended changes from Mr. Bagby, CMV4 was sent to InsightExpress for posting to the internet. The version on the internet was slightly

different from CMV4, because of coding constraints (filling in a table became filling in several rows). This internet version of the survey is now CMV5, and was proofread by both myself and Dr. Nussbaum to ensure accurate translation from CMV4 and acceptance of the complete range of possible inputs. Once verified by all interested parties, the survey was then ready for distribution.

C. SURVEY FIELDING

The CE/A survey was originally intended to be distributed via the internet. Unfortunately, time constraints led to the decision to distribute the survey through email. This was a relatively painless process since the surveys were being distributed to only ten department heads/ division chiefs. These chiefs would then ensure the survey acurately reflected the information for their employees, and then submit there organization's information on one response sheet. This led to the distribution of only ten CE/A surveys yielding information on over 200 personnel.

Due to a longer survey development time for the CM survey, there was more time to ensure the survey would be successfully entered onto the web. In order to post the survey to the internet, a recommendation was sought from people who had used web-based surveys in the past. CalibreSystems, an organization that provides contracted support to the Department of Defense, had used and highly recommended InsightExpress. After looking up the InsightExpress website, contact was made with the sales representative. InsightExpress was to provide the necessary services, which included programming the survey to the web, emailing the URL to participants, and collecting and forwarding the results. The approximate costs would be $1300.00. This price was dependent upon the size of the survey, number of participants, and whether or not the contracted company was to program the survey themselves or not (you may program yourself if so inclined), and who would send out emails in support of the surveys (another task you may do yourself in the interest of saving money).

The survey was forwarded to CalibreSystems, who then contracted InsightExpress. Because of the information acquired and contacts established when attempting to post the CE/A survey, posting of the CM survey was able to be

accomplished in just a couple of days. CalibreSystems was able to provide a draft survey and an estimated number of participants a week in advance, which allowed InsightExpress to complete a cost estimate and forward a contract in advance. When the CM survey was finalized, InsightExpress was able to begin their programming work the next day. This allowed the CM survey to be available for completion by target population within just a couple of days.

Once InsightExpress had the completed survey posted to the web, the URL for the survey was sent to our 9000 potential participants in two separate emails; one sent from DASA - FM&C, Ms. Valerie Baldwin, and the other from Ms. Terry Placek, head of Career Program (CP) 11. The purpose of the two emails was to convey as strongly as possible the chain-of -command's desire for cooperation in completing the survey in an accurate and timely manner.

D. RESPONSE RATES

In this phase of the study, the data provided through the surveys was collected, sorted into separate categories, and presented so as to be clearly understood. While it is ideal to have a 100% return rate on the surveys distributed, it was not the end result. For the CE/A survey, 8 of the 10 organizations surveyed provided inputs. These inputs were for a total of 212 CE/A personnel. Based on the number of responses, survey results have a 6.7% margin of error. Results for the CM survey were received from 6.8% of the CP-11 work-force, or 812 CM personnel. Based on the number of responses for the CM survey, there is a 3% margin of error. With the two separate surveys, practices and technologies unique to each community can be better captured without confusion on the part of the surveyor.

E. IDENTIFYING OPPORTUNITIES FOR FURTHER RESEARCH

Once the baseline has been established for the DA CE/A and CM communities, further study should be conducted to determine future requirements, and then conduct gap analysis. A study similar to this thesis was conducted for Department of Navy CE/A

community, so only the Department of the Air Force currently remains without a baseline estimate of their CE/A assets within the Department of Defense. Possibly the most immediate area of further research includes conducting the same survey and analysis as was performed for the cost management (CP-11) community for other CPs within DA. DASA-CE Steve Bagby intends to perform this study across the entire DAC population, and NPS students are ideally suited to ensure these additional studies are conducted in a timely, professional manner.

IV. RESULTS AND CONCLUSIONS

All observations for DA CE/A will be listed first, followed by observations of the DA CM community. Data for the CE/A portion of this study was collected from SAFM-CES, CECOM, RDECOM, AFSC, TACOM, AMCOM, ACD&CRB, and ALMC. The data from the CE/A survey are listed in Annex C. After careful analysis of the results, we are able to make our observations. The CM results were obtained from a sample of over 800 of the 11,000 DAC respondents working in CP-11. CM survey data are available at Annex D.

A. CE/A RESULTS

The CE/A survey was completed for 212 CE/A personnel from eight separate agencies within DA. Over 50% of all respondents are currently employed by AMCOM or TACOM. AMCOM had 30% of the total respondents with 63, TACOM had 23% with 49, ACD & CRB had 19% with 40. Also submitting responses was SAFM-CES with 25, CECOM with 22, AFSC with 7, RDECOM with 4, and ALMC with 2.

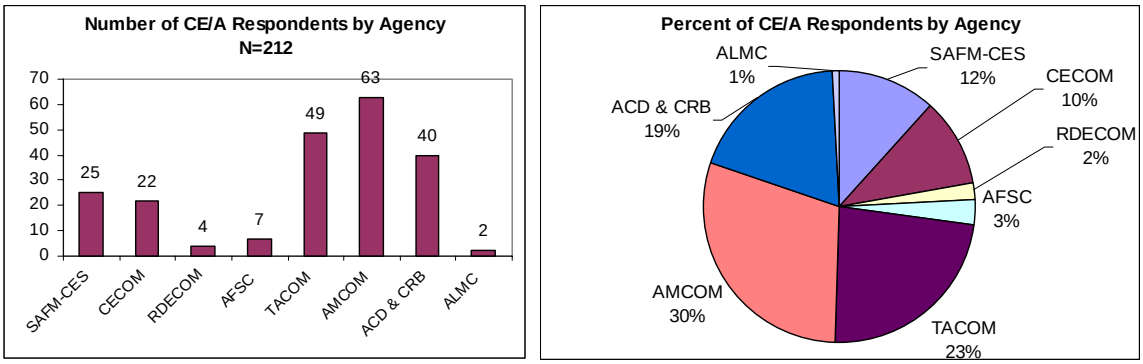

Figure 4. Number and percentage of CE/A survey respondents by agency

There were 212 respondents for pay grade. with 35 being GS 1 - 11, 125 being GS 12 - 13, and 52 in the GS-14 through SES. This means 58% of all respondents are currently in the GS-12 or GS-13 pay grade.

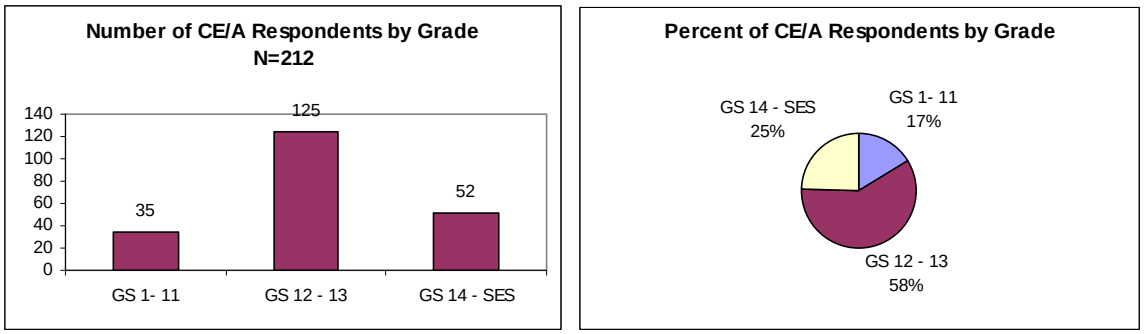

Figure 5. Number and percentage of CE/A survey respondents by pay grade

For years of CE/A experience, there were 200 respondents. Of these, 43 (22%) have from 1 - 5 years of experience, 15 (8%) have 6 - 10 years, 57 (28%) report having 11 - 20 years of experience, and 85 (42%) have been doing CE/A work for at least 21 years.

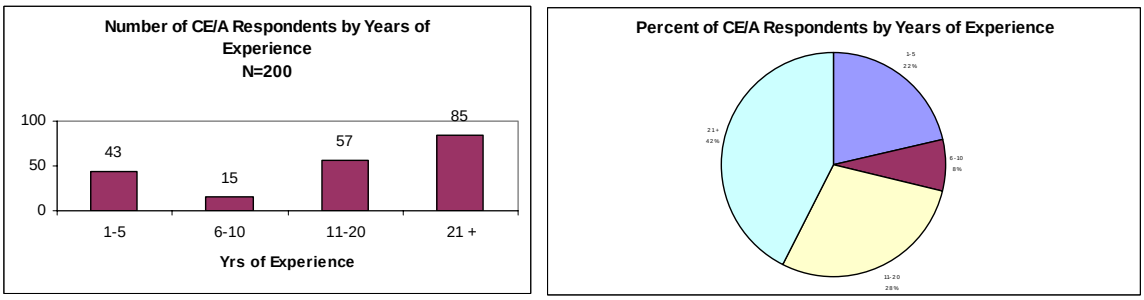

Figure 6. Number and percentage of CE/A survey respondents by years of experience

For highest academic degree attained, there were 166 respondents. Only seven (4%) have no more than a high school diploma, 91 (55%) have a bachelor's degree, and 68 (41%) have at least a graduate degree.

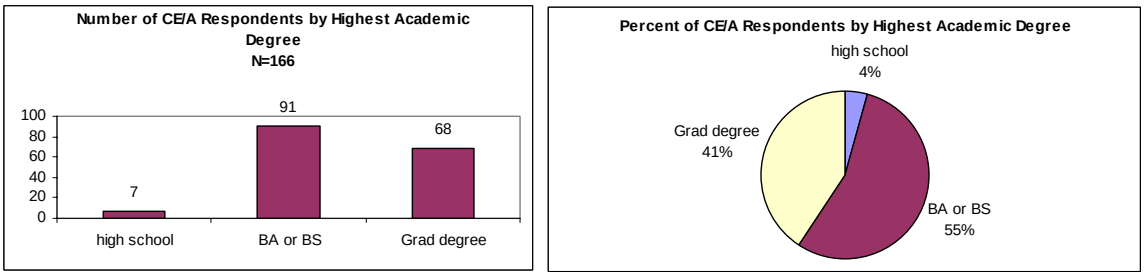

Figure 7. Number and percentage of CE/A survey respondents by highest academic degree earned

For professional certifications earned, there were 168 accredidation certificates issued. DAWIA III has the most certificate holders with 101 (61%), while no one is certified by PMP. SCEA has awarded four (2%) certificates, nine (5%) have DAWIA I, 30 (18%) have DAWIA II, and 24 (14%) have some other professional certification. Within the CE/A workforce, it is the case that some employees hold more than one form of certification, while other employees hold none.

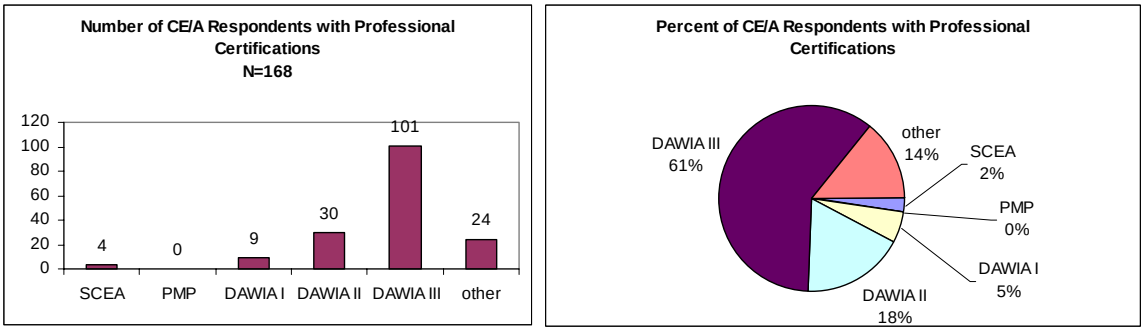

Figure 8. Number and percentage of CE/A survey respondents by professional certifications

For source of employee, there were 212 respondents. 91 (43%) say they came from college, 86 (41%) came from a different government agency, 32 (15%) from a commercial organization, and three (1%) reported coming from somewhere else.

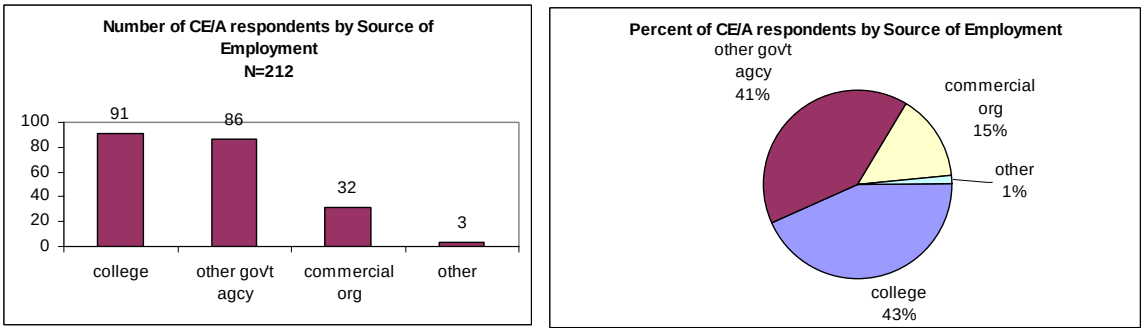

Figure 9. Number and percentage of CE/A survey respondents by source of employment

Additional items of interest concern what type of work our CE/A community performs, and at whose request. Seven agencies provided ranges for the amount of time spent by type of work. One agency spends between 20% to 50% of their effort

performing CE/A type work, with the other six saying they spend between 50% to 100% of their time doing CE/A work.

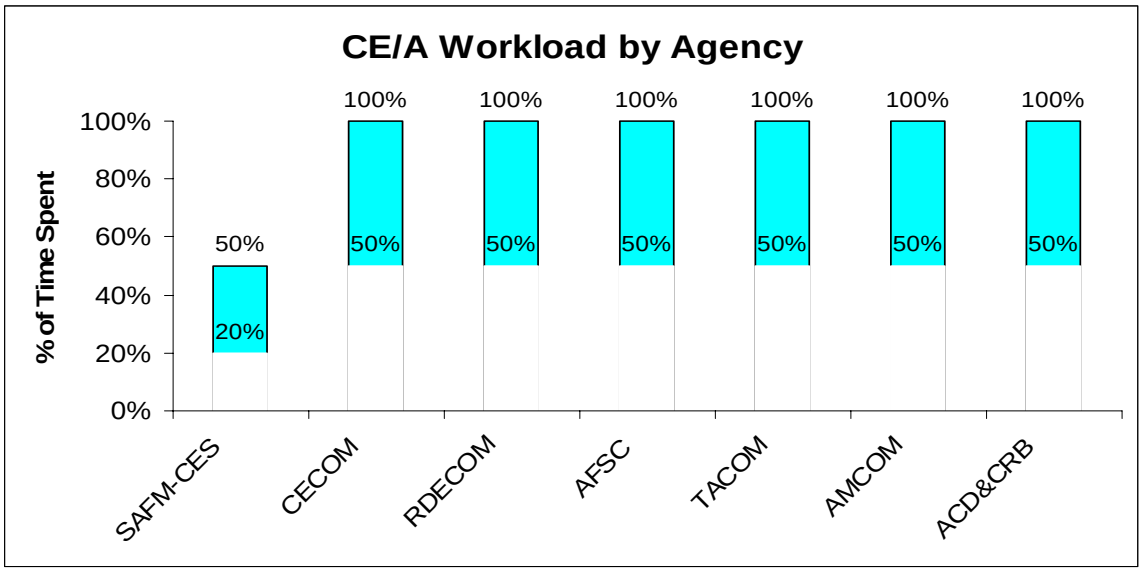

Figure 10. CE/A workload by agency

For contract support, we find one of the CE/A agencies doing none of this work, and another agency doing this work over 50% of the time. Two agencies report doing contract support type work from 20% to 50% of the time, and three of the CE/A agencies do this work from 10% to 20% of the time.

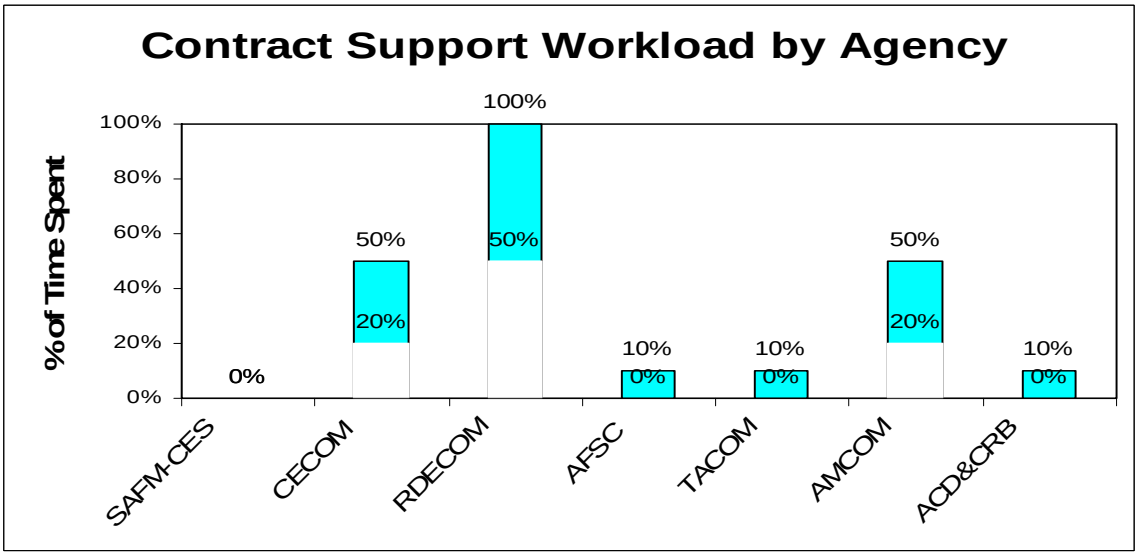

Figure 11. Contract support workload by agency

Three of the CE/A agencies perform tool building operations from 10% to 20% of the time. The other four agencies are evenly split with one each performing tool building operations over 50% of the time, 20% to 50% of the time, less than 10% of the time, and not at all.

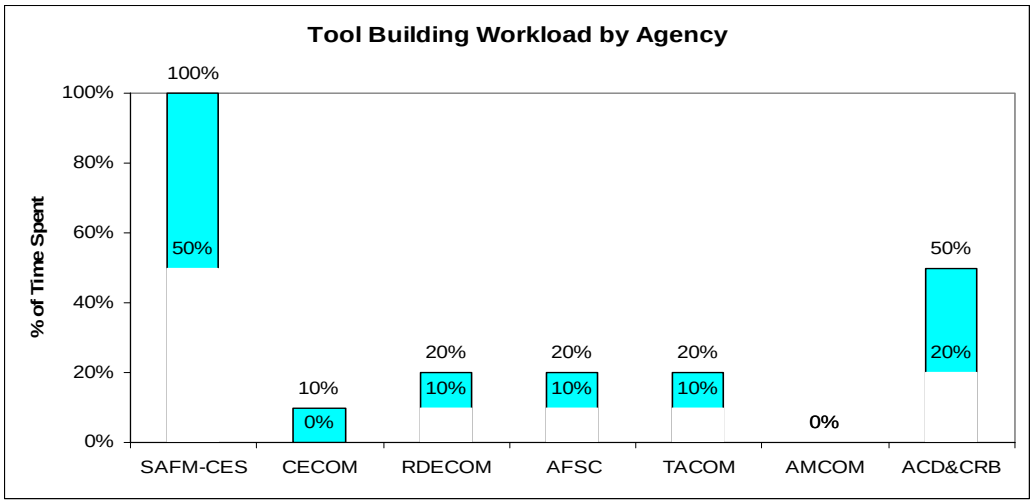

Figure 12. Tool building workload by agency

For administrative functions, only one spends 20% to 50% of its time doing this type of work. The majority (four) of the CE/A agencies spend between 10% to 20% of their time on these tasks, and the remaining two spend less than 10% of their manpower in this area.

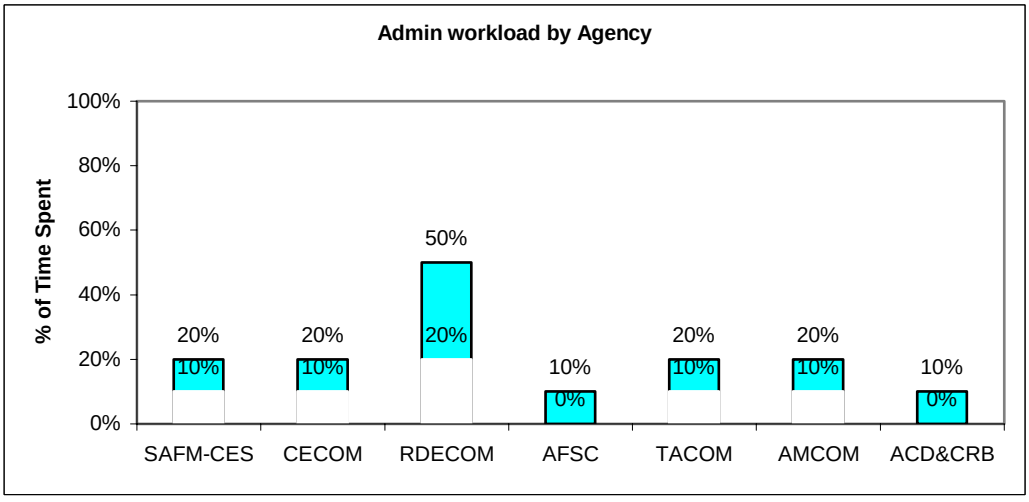

Figure 13. Admin workload by agency

Work not included in the above categories is generally not done by CE/A organizations, with five of the seven reporting no other work at all, and only one each reporting doing other work less than 10% of the time or between 10% to 20% of the time.

In order to determine the CE/A community's ability to meet customer requirements, we must determine who tasks the CE/A community and for what purposes. For CE/A tasks, PEO's task the highest percentage of our organizations (86%), followed by PMs and MACOMs with 71% each. SECARMY tasks the next highest percentage at 57%, followed by HQDA (43%) and SECDEF (29%). Only 14% apiece said they were tasked by CAIG, MSC, or a subMACOM.

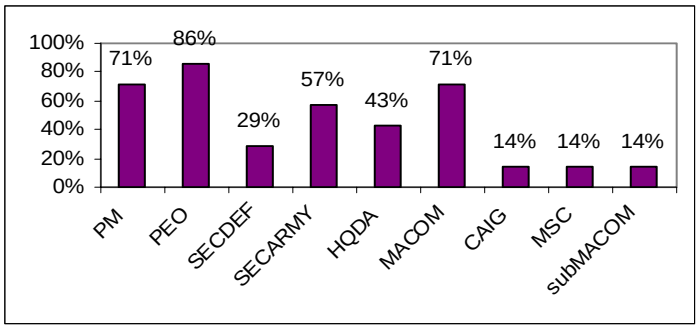

Figure 14. Percent of CE/A agencies tasked by the listed offices for CE/A tasks

Contract support is tasked to the DA CE/A organizations by two primary sources. PMs task 71% and PEOs task 57% of the CE/A organizations for this purpose. No other agency, office, or organization tasks more than 14% of the CE/A agencies for contract support.

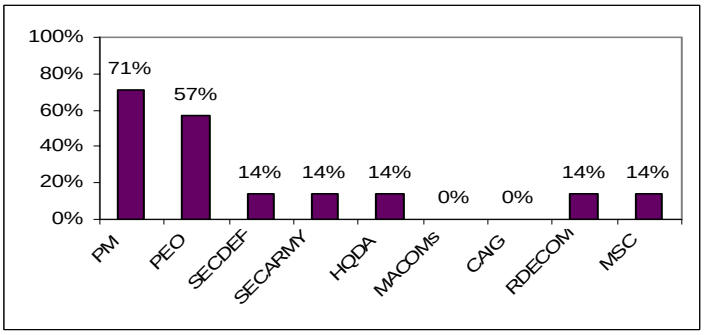

Figure 15. Percent of CE/A agencies tasked by the listed agencies for contract support

Origins for tool building tasks are a little more evenly spread than the tasking origins are for contract support. PMs again task the highest percentage of CE/A organizations (57%) followed by PEOs and SECARMY with 43% each, and HQDA and MACOMs tasking 29% of the DA CE/A organizations for tool building. Only 14% of the CE/A organizations are tasked by any one other agency or organization.

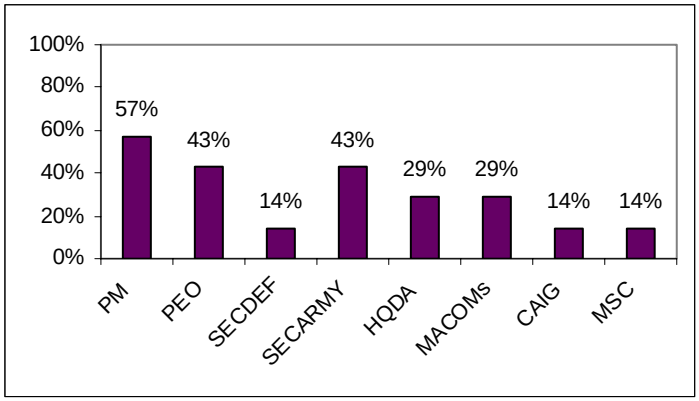

Figure 16. Percent of CE/A agencies tasked by the listed agencies for tool building

For administration, HQDA, MACOMs, PMs, and SECARMY task 29% of the CE/A organizations. No any other agency tasks more than 14% of CE/A organizations for administrative tasks.

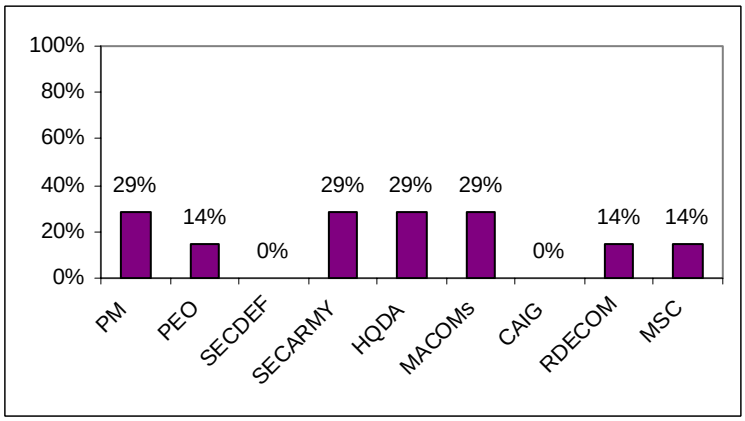

Figure 17. Percent of CE/A agencies tasked by the listed agencies for administration

The following comments also come from the CE/A survey. They provide insight into what the respondents would change to improve the CE/A community. The responses

fall into the categories of training and personnel, how to improve performance, and quality assurance/ quality control.

Under the heading of training/personnel, we have the following comments:

- "DA/MACOM should allow more input from the MSCs in the recruitment/selection process of the Operation Research Analysts. MSCs can often find the caliber of analysts they are looking for through their local academic institutions. "
- "DA/MACOM should provide centrally funded interns to replace the aging CA community."
- "Comptrollers should be trained in the use and value of cost analysis products; e.g., HQ AMC should have a Cost Analysis."
- "Much of CE/A guidance and training is focused on RDTE and production life cycle phases. A greater focus (more training) on the sustainment phase for the CE/A community would be helpful."

Improved performance is the second category, with the following comments:

- "Fund positions that would be used to perform internal cost research. DASA (CE) funds for cost research, but an internal cost methodology and data group would really improve cost products (e.g. life cycle cost estimates, economic analyses, etc.). With over 90% of the CE/A positions funded by customers (e.g. reimbursable) the CE/A community never has enough time (personnel available) to do the type of research and data collection that is so important to developing quality cost products. In years past this was a common group in most cost offices—performing fundamental cost research. Reconstituting this capability with central funding could do more than anything to enhance the cost community."
- "Enforce existing policies and/or require data collection from all ACAT I and ACAT II contracts. The Cost Estimating / Analysis industry would function best if all estimates were performed at the mission level. The performance of cost estimates by HQ does not add value if they have to come to the local/mission level to gather information."

- "Place more emphasis on cost analysis and cost estimating of program requirements, with trade-offs on those requirements."
- "Take the cost analysis out of the budget/execution area, because when the focus is on the budget, cost estimates lose their value, and lose the insight of the user's requirements. To accomplish this, there should be more interface/coordination between the MACOMs/ MSCs and TRADOC cost analysts."

Under the heading of Quality Assurance / Quality Control:

- "Create DA field offices that would have more insight with their weapon systems to develop that independent/validation review of PEO/PM cost estimates/studies."
- "Revamp the Analysis of Alternatives process so new system proponents are not in charge of the analysis."
- "Cost studies for major systems should be validated at the local level IAW guidance similar to AMC-R 37-4. Provide more government resources/personnel to perform cost research studies."
- "More funds and resources are needed to enforce EVMS activities and independent reviews. Specifically, activities like EVMS oversight and other analyses which require independence should be centrally funded rather than PM funded."

B. CM RESULTS

The CM survey was completed for 810 CM personnel from 39 separate agencies within DA. Almost 50% of all respondents represented are currently employed by AMC, HQDA, or IMA combined, while over 50% of the employing agencies had five or fewer respondents.

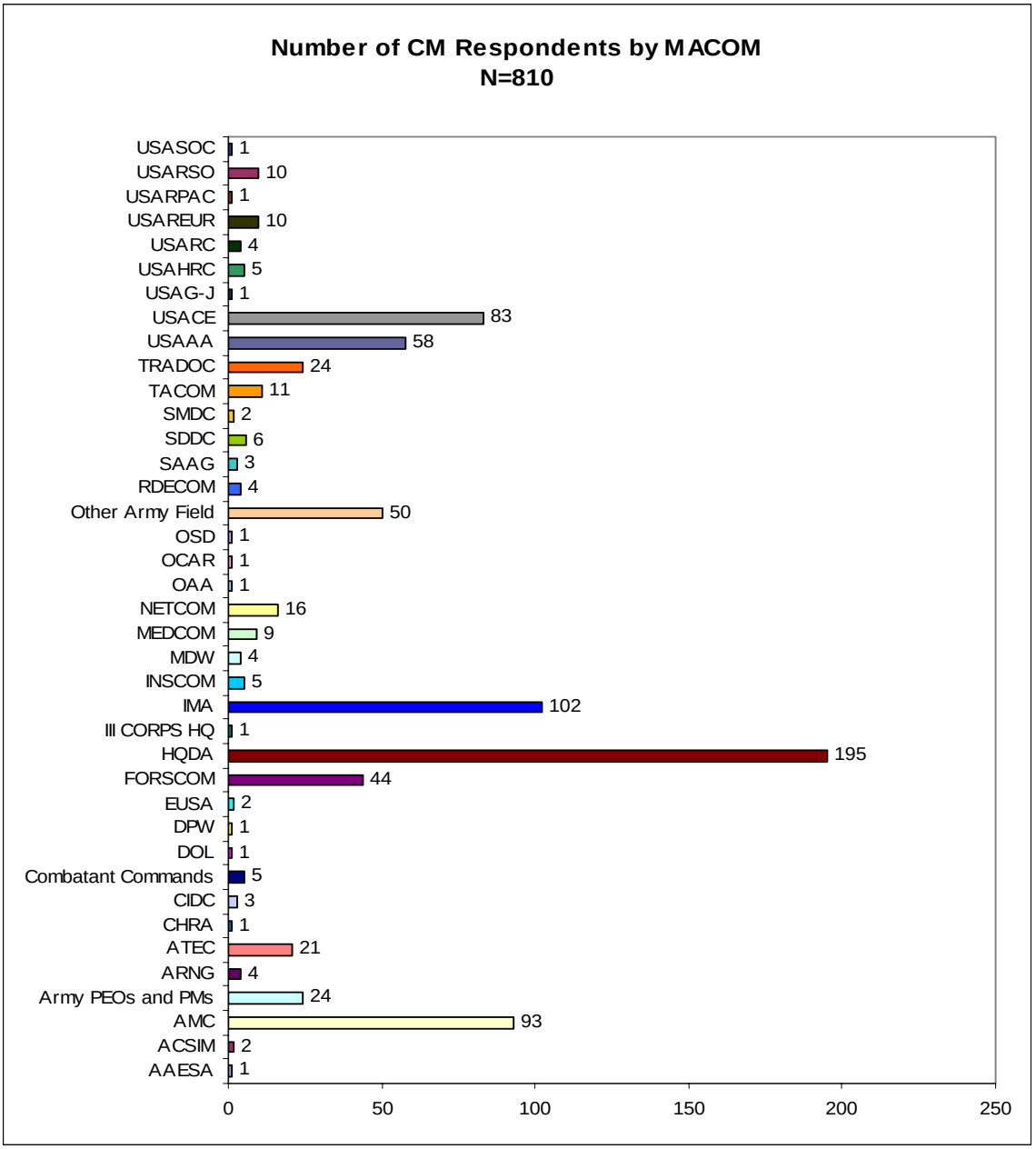

Figure 18. Number of CM respondents by MACOM

There were 810 respondents for pay grade, with over 200 belonging to each GS-12 and GS-13. Almost 700 of the 810 report belonging to GS-11 through GS-14. Noticeably absent was any respondent in the GS-10 pay grade. Less than 1% of all respondents were in the pay grades GS-1 through GS-5.

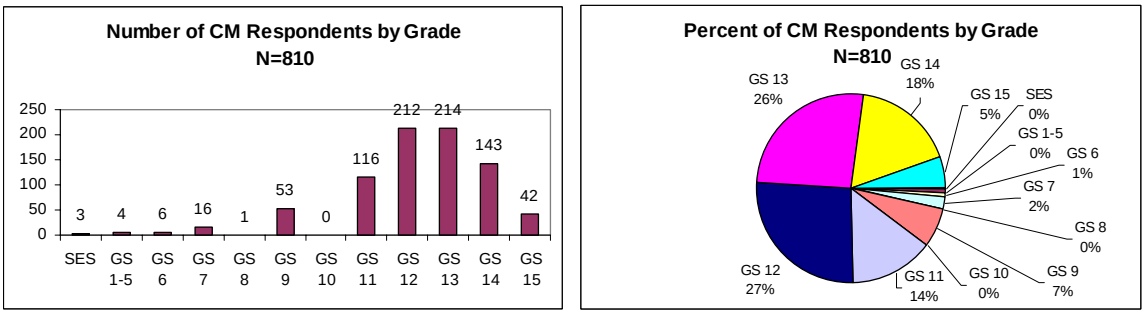

Figure 19. Number and percentage of CM survey respondents by grade

There were 810 respondents from 25 separate series, with 207 being series 0560, 198 being series 0343, and 142 being series 0511. Nine of the series had only one respondent, and five of the series had only two respondents.

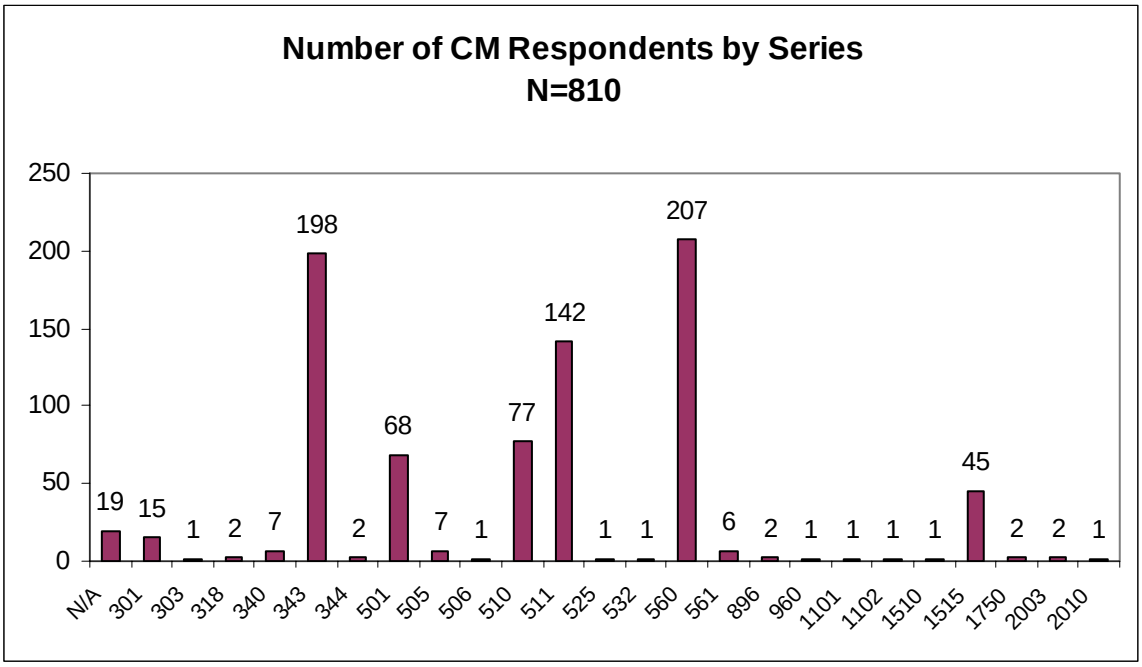

Figure 20. Number of CM respondents by series

There were 810 respondents for organizational level. 270 (33%) belong to HQDA, 145 (18%) report working at the HQ, MACOM level, 152 (19%) working at an other HQ above brigade level, and 243 (30%) working at a support, field, or local agency.

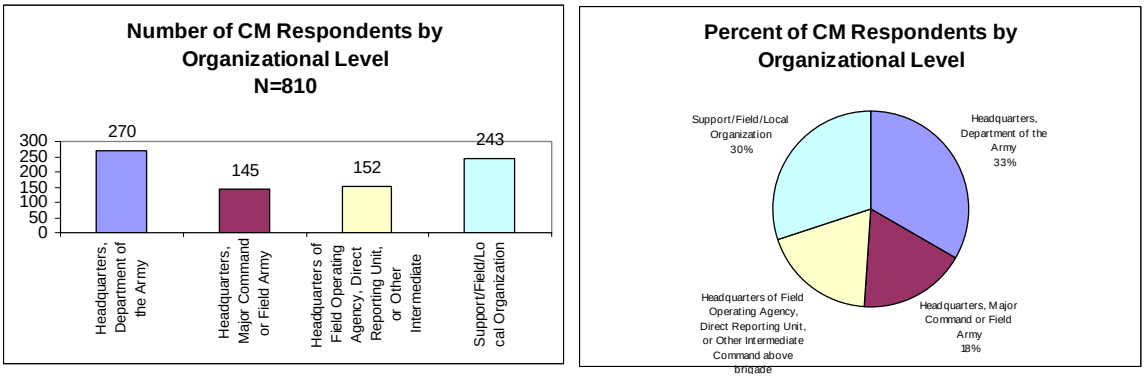

Figure 21. Number and percentage of CM survey respondents by organizational level

There were 541 respondents for years of experience, with 241 (45%) having more than ten years of cost management experience. Sixty-three (12%) reported having less than one year of experience, 55 (10%) have one to two years, 100 (18%) have three to five years of experience, and 82 (15%) report having six to ten years of experience.

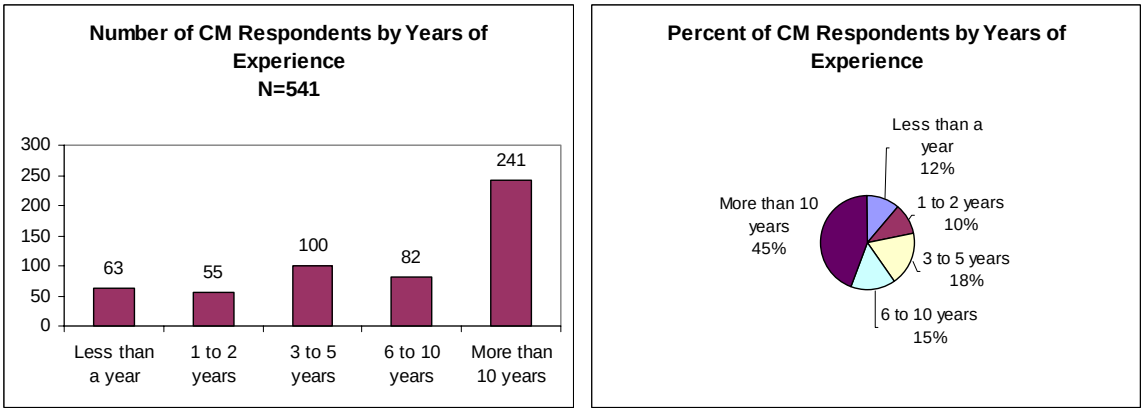

Figure 22. Number and percentage of CM survey respondents by years of experience

There were 541 respondents for years in current position. With the 104 (19%) that have moved into their current position less than one year ago, the 141 (26%) that have been in place for one to two years, and (25%) that have worked in the same

position for three to five years, 70% of the respondents have five or fewer years in their current position. Fifty-seven (11%) have six to ten years in the same position, and 104 (19%) have been in place for more than ten years.

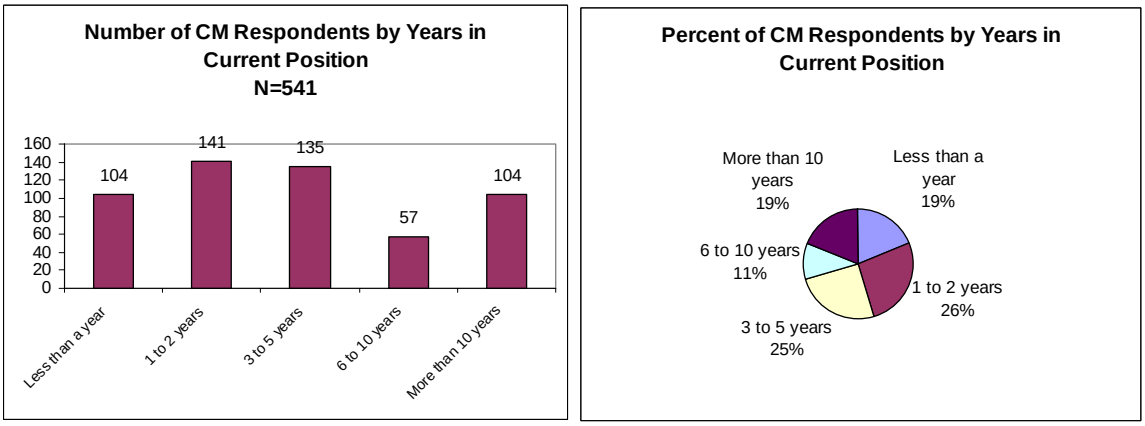

Figure 23. Number and percentage of CM survey respondents by years in current position

There were 541 respondents for source of employee, with 198 coming from their current organization and another 198 coming from another Army organization. These two sources account for 73% of the respondents. Apprroximately 11% came directly from either a different federal or DoD organization (61) or from the private sector (59), and 25 (5%) from some other source.

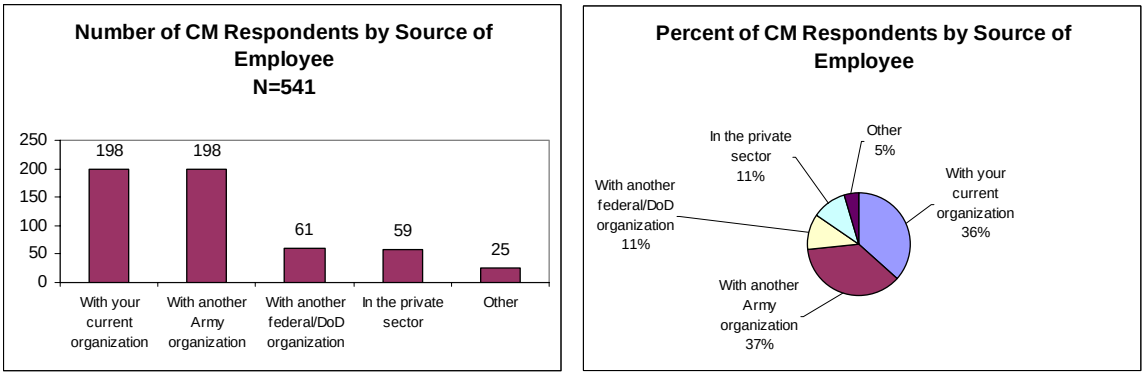

Figure 24. Number and percentage of CM survey respondents by source of employee

There were 810 respondents for highest academic degree earned, with 109 having only a high school diploma or equivalent. This means 87% of the respondents have some type of college degree. Seventy-seven (10%) have an associate's degree, 358 (44%) have a bachelor's degree, 256 (32%) have earned a master's degree, and 10 (1%) have earned a doctorate.

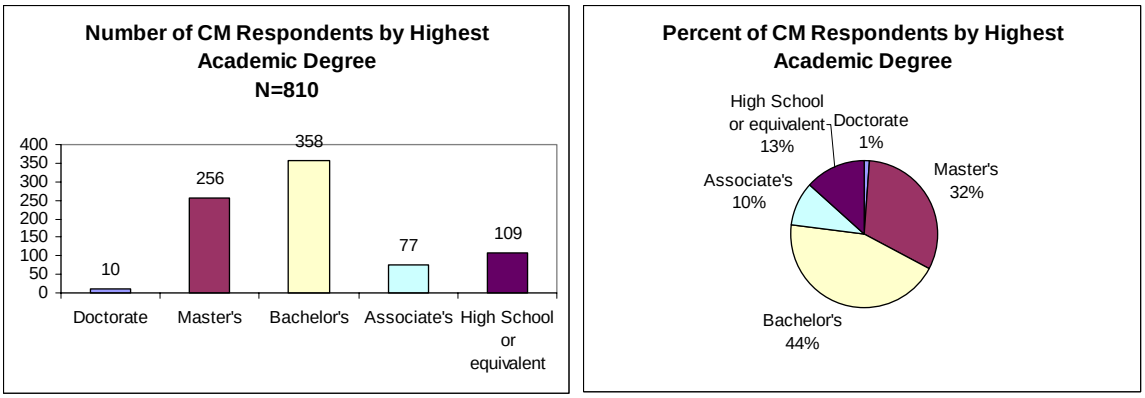

Figure 25. Number and percentage of CM survey respondents by highest academic degree earned

There were 542 respondents who said whether or not they were currently in a manager's or supervisor's role. 192 (36%) are serving as managers or supervisors, 349 (64%) are not.

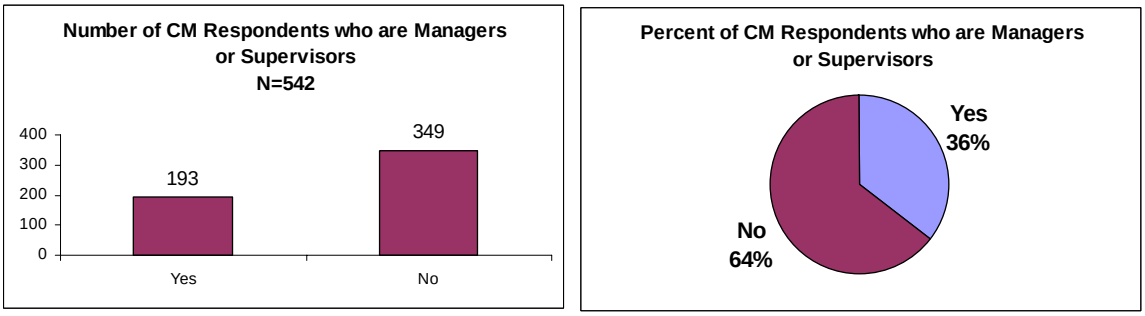

Figure 26. Number and percentage of respondents by whether or not they are mangers or supervisors

There were 810 respondents for type of cost work they perform in their current positions. 363 perform cost analysis functions, 295 do cost collection, 222 do cost management functions, 211 perform cost measurement, and 146 perform costing support

functions. Many of the 810 perform more than one function, as 269 perform no costing functions at all. Of the 810 total respondents, 168 estimated the amount of time they spend on those functions that they do perform. The average amount of time spent on each function is as follows: 34.8% on cost analysis, 24.5% on cost management, 20.6% on cost measurement, 19.8% on cost collection, and 17.9% on costing support functions. Some respondents stated that they spent 100% of their time working on just one type of cost work for each option other than cost collection. No respondent stated to spending more than 90% of their time on that type of work.

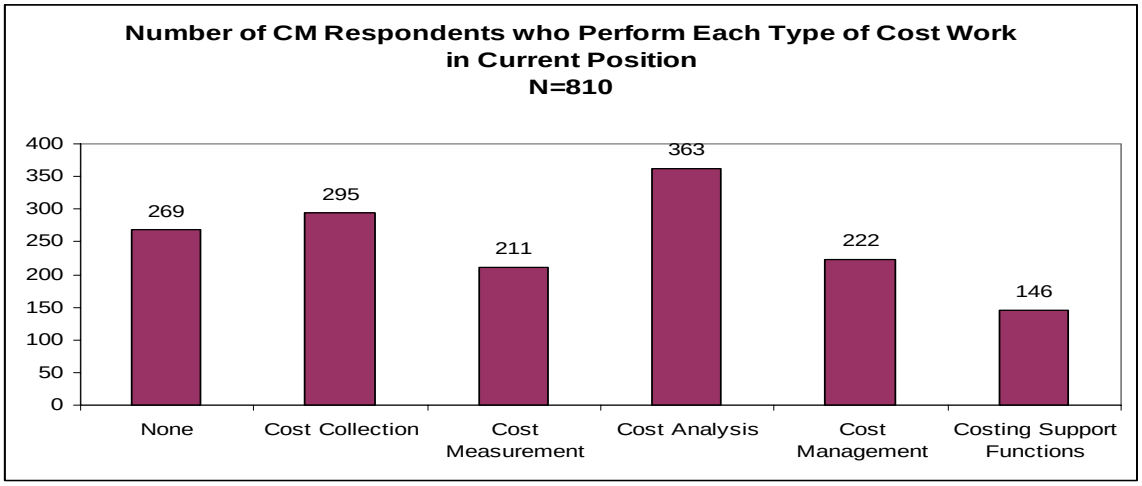

Figure 27. Number of CM survey respondents who perform different types of cost work

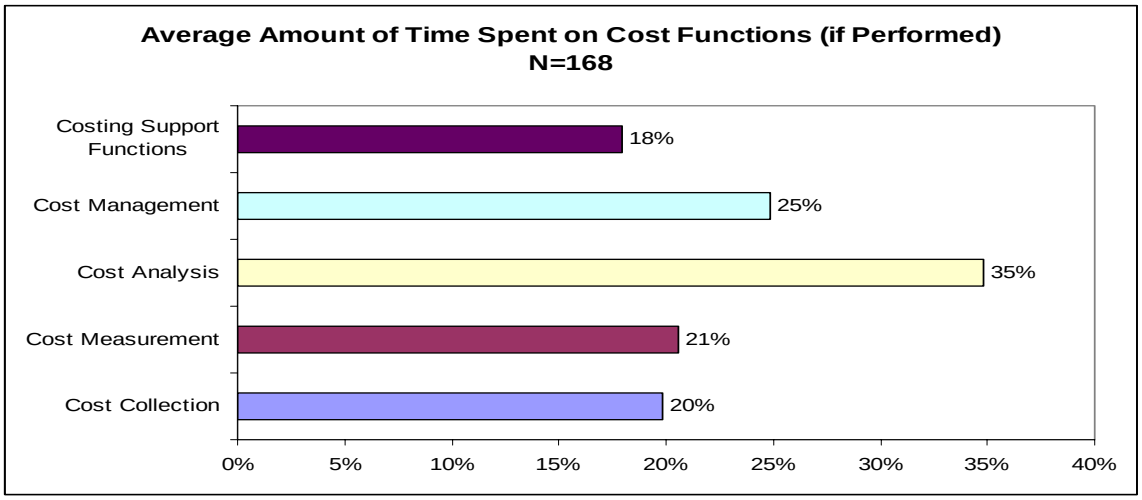

Figure 28. Average amount of time respondents spent doing each type of cost work (if performed)

There were 541 respondents who answered the survey question asking whether or not their work was done in support of defense system acquisition management. Of those, 420 (78%) say their work is not done in support of this important function, while 121 (22%) say that it is.

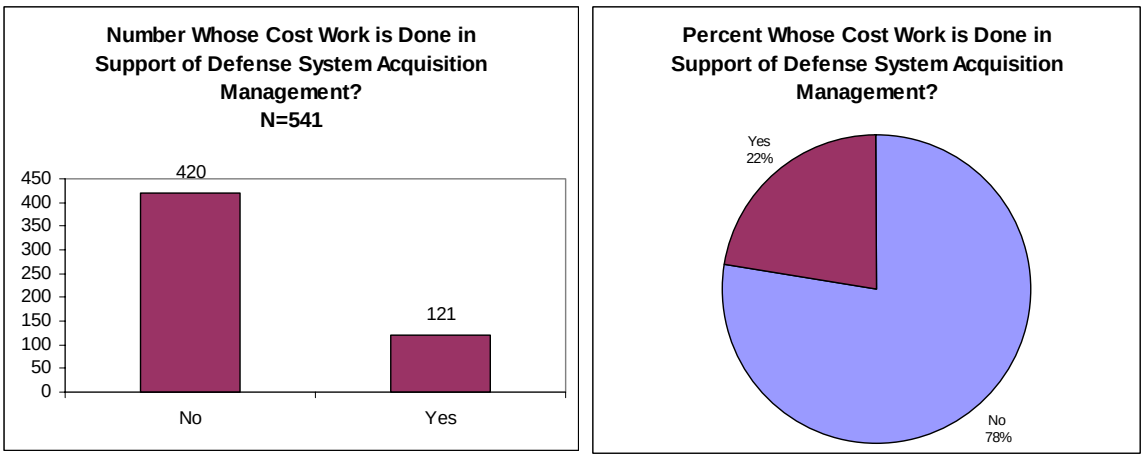

Figure 29. Number and percentage of CM survey respondents whose work supports defense system acquisition management

There were 542 respondents who said whether or not they generate costing information. Of these, 235 (43%) said no, 307 (57%) said yes.

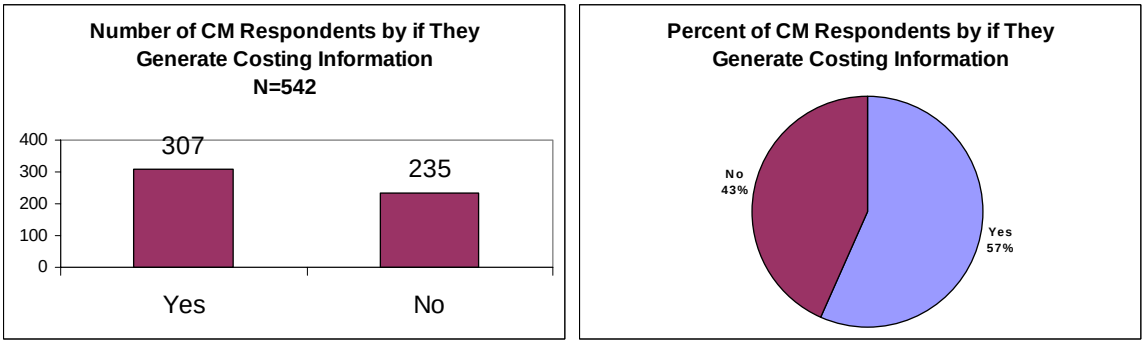

Figure 30. Number and percentage of CM survey respondents by whether or not they generate costing information

There were 542 respondents who selected from a list of tasks those that they have performed in their current position. A majority (361) have collected information for costing purposes, and performed analysis of cost information (349). 222 have linked cost information to performance measures. The next four tasks most often performed are:

used cost analysis to make decisions for improving an organization or process (192), participated in the creation of a strategic plan (190), provided assistance to an organization's leadership/ management in using cost analysis (187), and created non-budget cost information (180). Most respondents have completed more than one task in their current position.

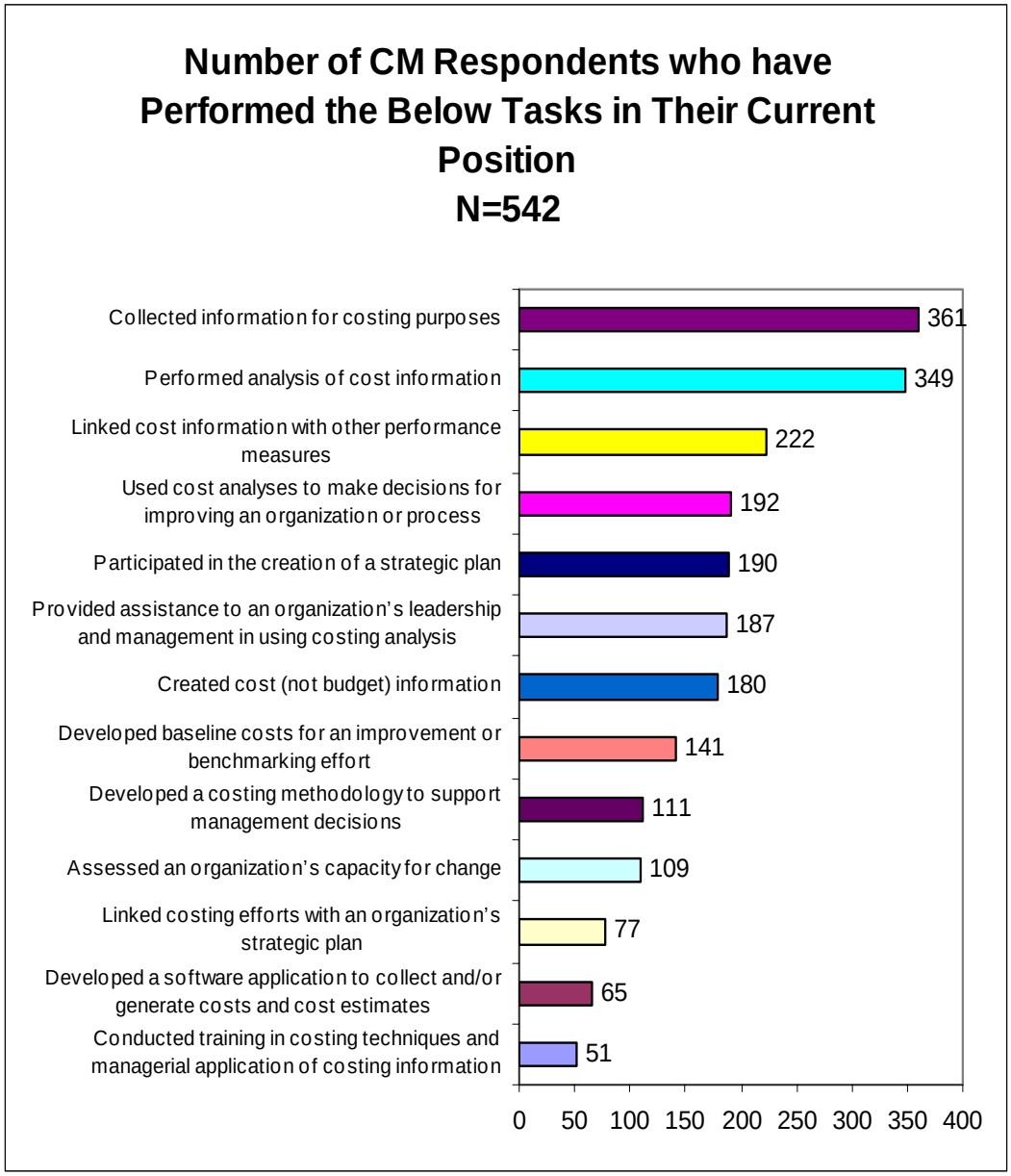

Figure 31. Number of CM survey respondents who have performed the above costing tasks in their current position

307 respondents provided information on to whom they provide information, with 233 providing cost information to their immediate supervisor, 190 to managers across their organization, and 128 to the head of their organization. Other recipients of costing information include higher headquarters (114), the organization's business or resource management office (92), organizations external to the cost provider (87), an information system accessible by multiple organizations (42), and 13 listed other organizations as recipients.

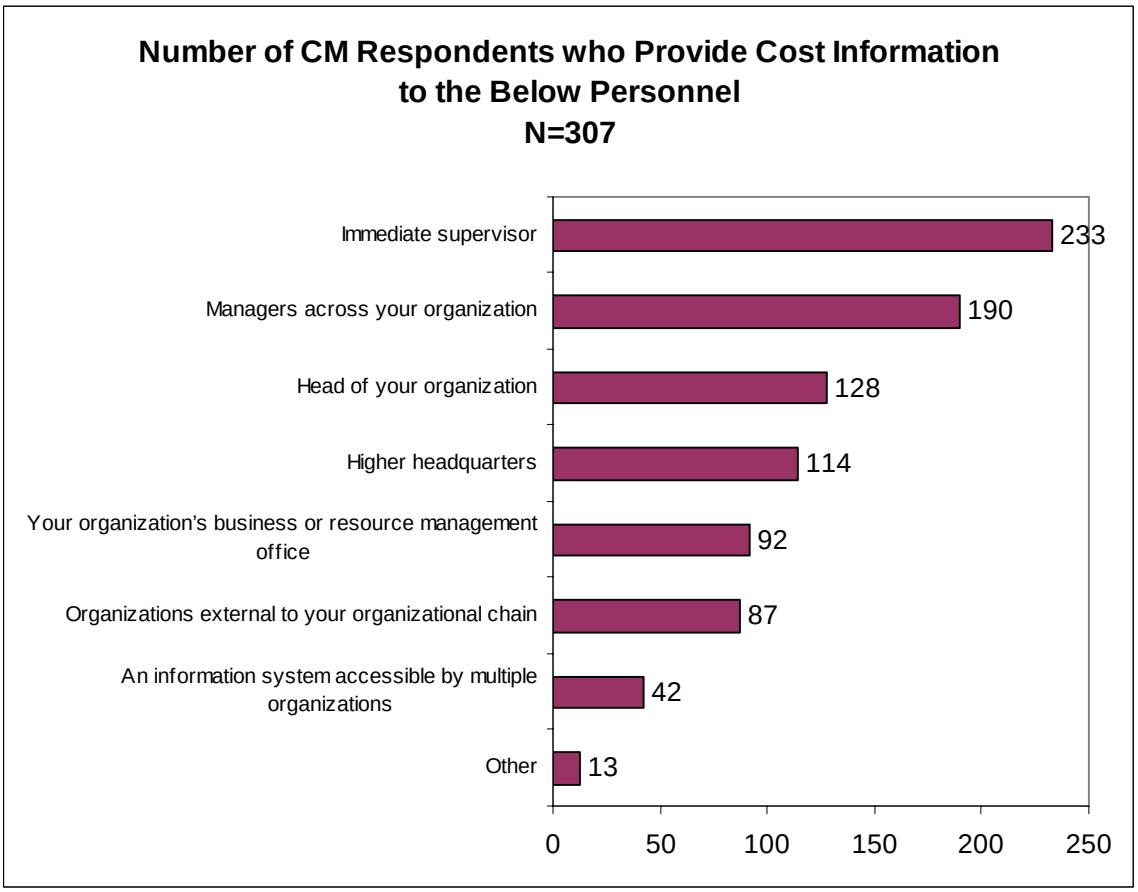

Figure 32. Number of CM survey respondents by who receives their costing information

When asked if the head of their organization's ability to use costing information to improve the organization is part of the head of the organization's assessment, 542 people responded. 378 (70%) do not know, 99 (18%) say yes, and 65 (12%) say no.

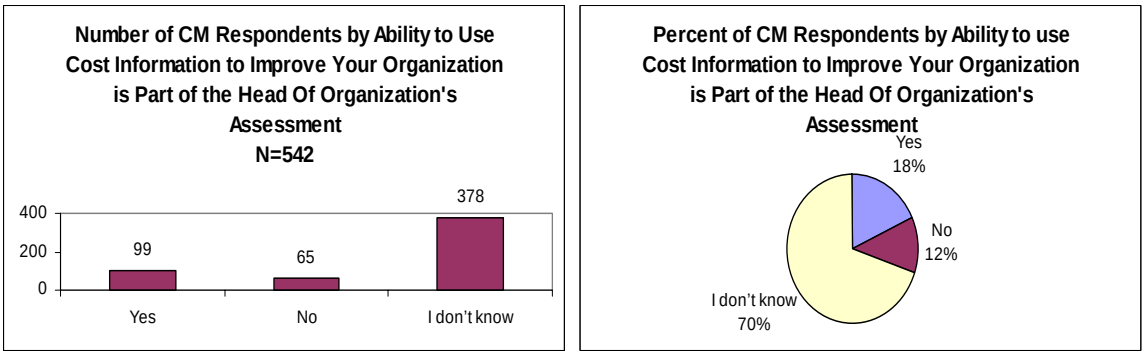

Figure 33. Number and percentage of CM survey respondents by if the head of their organization's ability to use cost information to improve the organization is part of his/her assessment

There were 542 respondents who rated the priority the head of their organization places on internal management and control of costs. 271 (50%) believe this priority is high, 194 (36%) say mid-level, 66 (12%) think it's a low priority, and 11 (2%) believe the head of the organization places no priority on this at all.

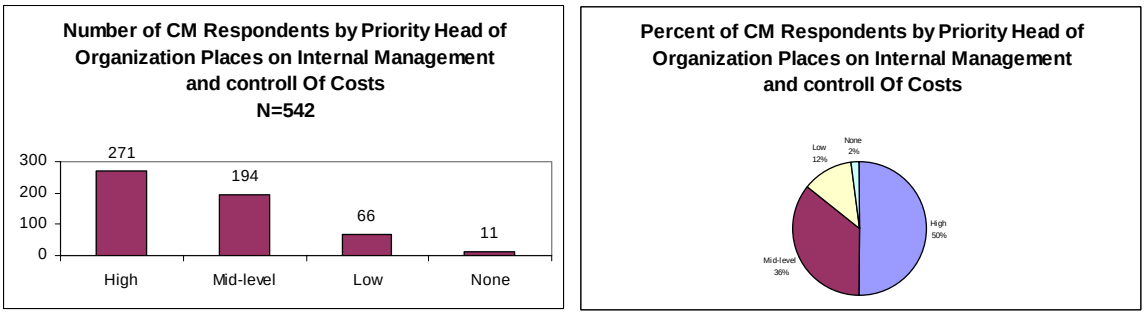

Figure 34. Number and percentage of CM survey respondents by the importance the head of their organization places on internal management and control of costs

There were 542 respondents who rated the importance of internal management and control of costs to the success of their immediate supervisor. Of these, 191 (35%) believe this is very important, 197 (37%) say somewhat, 61 (11%) and 27 (5%) respond with not very important and not important at all, respectively. Sixty-six (12%) do not know.

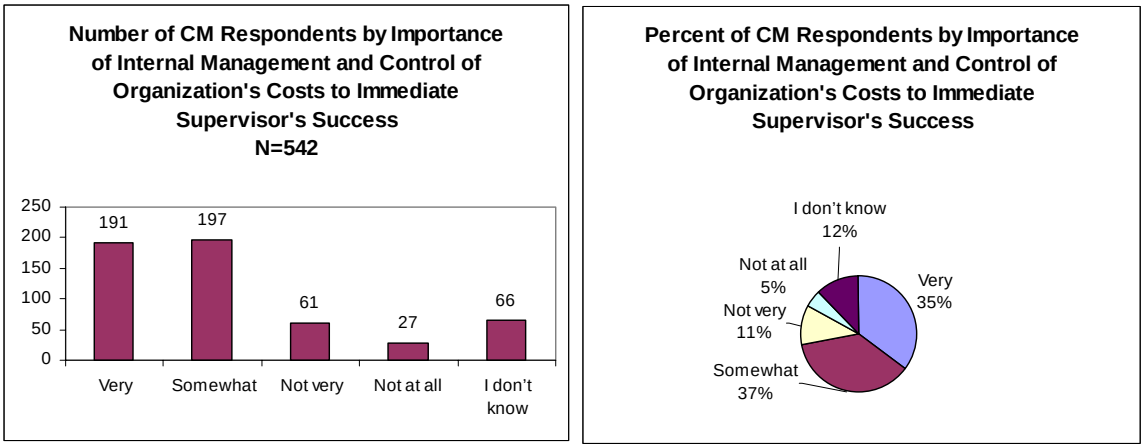

Figure 35. Number and percentage of CM survey respondents by how they rate the importance of internal management and control of costs to their immediate supervisor's success

There were 542 respondents by if their ability to use costing information to imrove the organization is part of their assessment. 179 (33%) say yes, and 363 (67%) say no.

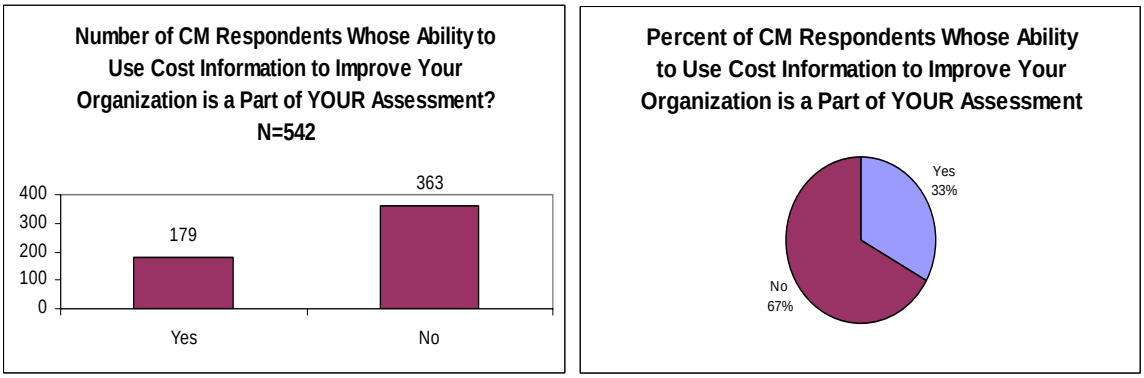

Figure 36. Number and percentage of CM survey respondents by whether their ability to use costing information to improve their organization is part of their assessment

There were 542 respondents who rated the importance of internal management and control of costs to their own success. 178 (33%) believe this is very important, 233 (43%) say somewhat, 86 (16%) and 45 (8%) respond with not very important and not important at all, respectively.

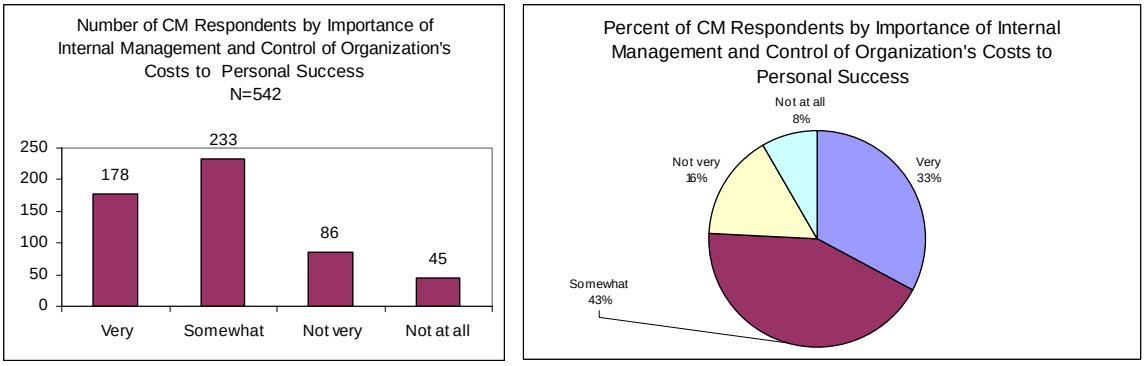

Figure 37. Number and percentage of CM survey respondents by how they rate the importance of internal management and control of costs to their personal success

There were 542 respondents for the impact of costing information and efforts on organization's internal operations. 251 (47%) believe the impact is significant, 164 (30%) say there is some impact, 71 (13%) say minimal to none, 56 (10%) do not know.

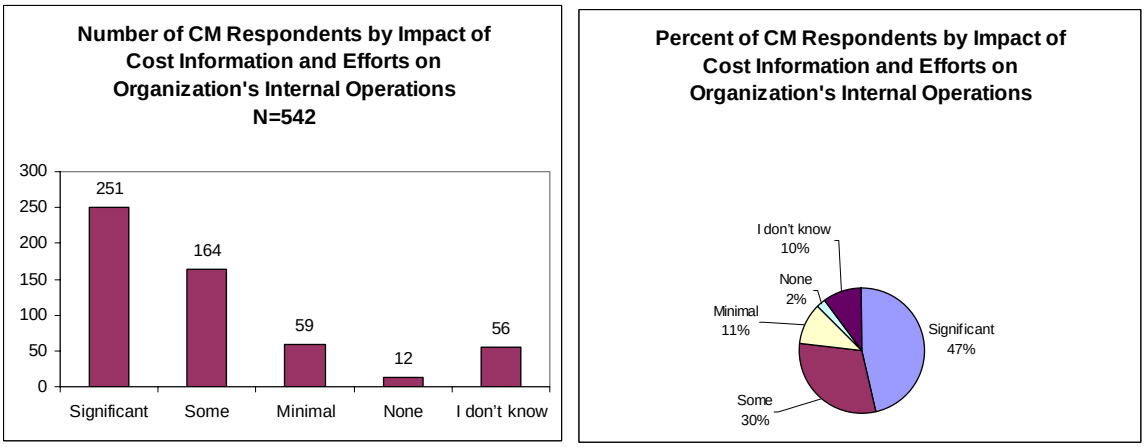

Figure 38. Number and percentage of CM survey respondents by impact cost information and efforts have on organization's internal operations

There were 542 respondents who rated the importance of internal management and control of costs to the success of their immediate supervisor. 314 (58%) believe this is very important, 145 (27%) say somewhat, 37 (7%) and 8 (1%) respond with not very important and not important at all, respectively. 38 (7%) do not know.

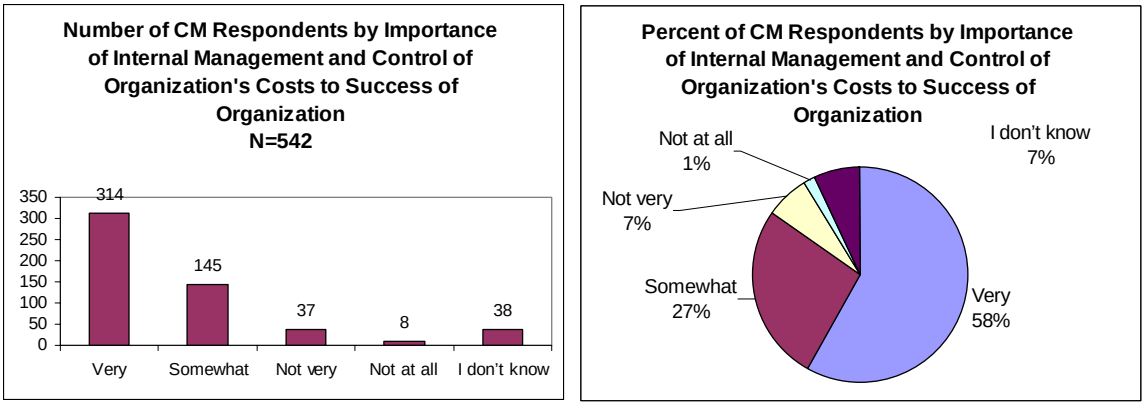

Figure 39. Number and percentage of CM survey respondents by how they rate the importance of internal management and control of costs to their organization's success

There were 810 respondents for pay grade, with over 200 belonging to each GS-12 and GS-13. Almost 700 report belonging to GS-11 through GS-14.

There were 542 respondents who rated the importance the external chain of command places on internal management and control of costs. Of these, 231 (43%) believe this is very important, 146 (27%) say somewhat, 39 (7%) and 11 (2%) think this is not very important or not important at all, respectively. There were 115 (21%) respondents who did not know.

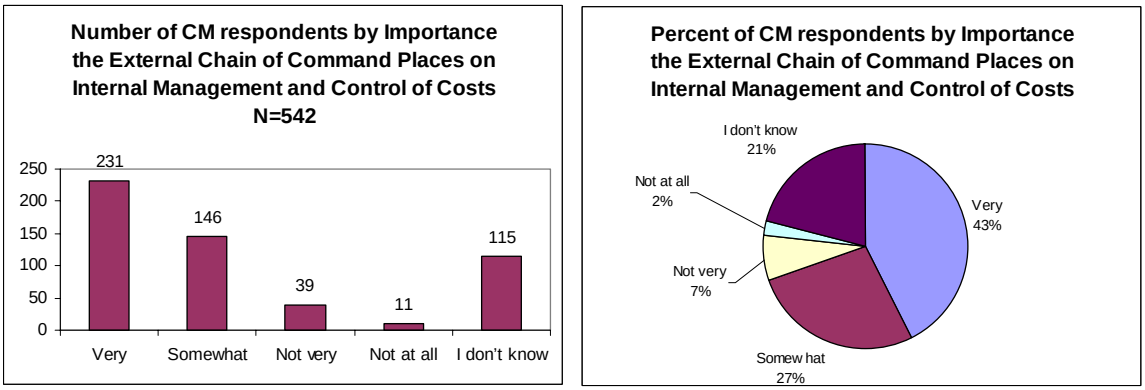

Figure 40. Number and percentage of CM survey respondents by importance the external chain of command places on internal management and control of costs

There were 307 respondents who commented on how their costing information was used. Many allow that their information is used for more than one purpose. There were 185 who said their information was used to justify/generate resource requirements and budgets; 168 say to evaluate and make business improvement decisions for your organization; 167 believe it's to fulfill higher headquarter reporting requirements; 165 think their information is used to measure and evaluate performance for their organization; and 164 say to manage and control costs for the organization. There were 136 respondents who said measuring project progress and comparing alternatives for decision makers was the intended use of their costing information.

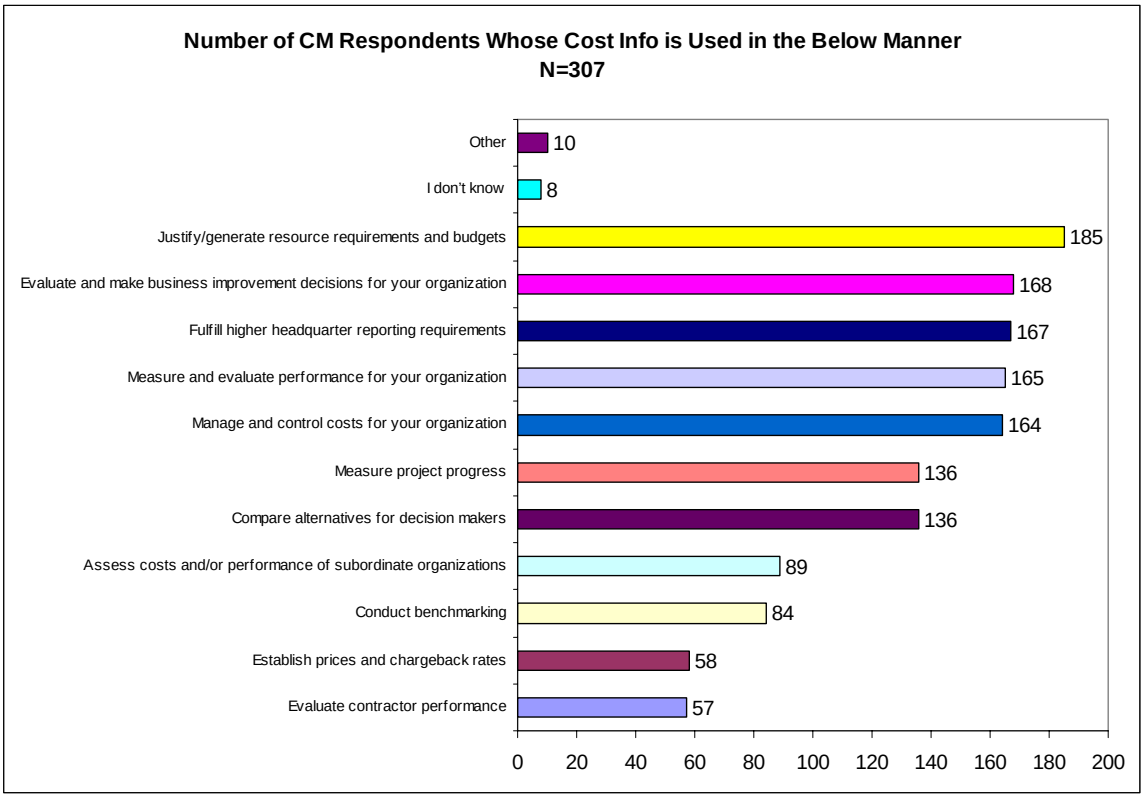

Figure 41. Number of CM respondents by the manner in which their costing information is used

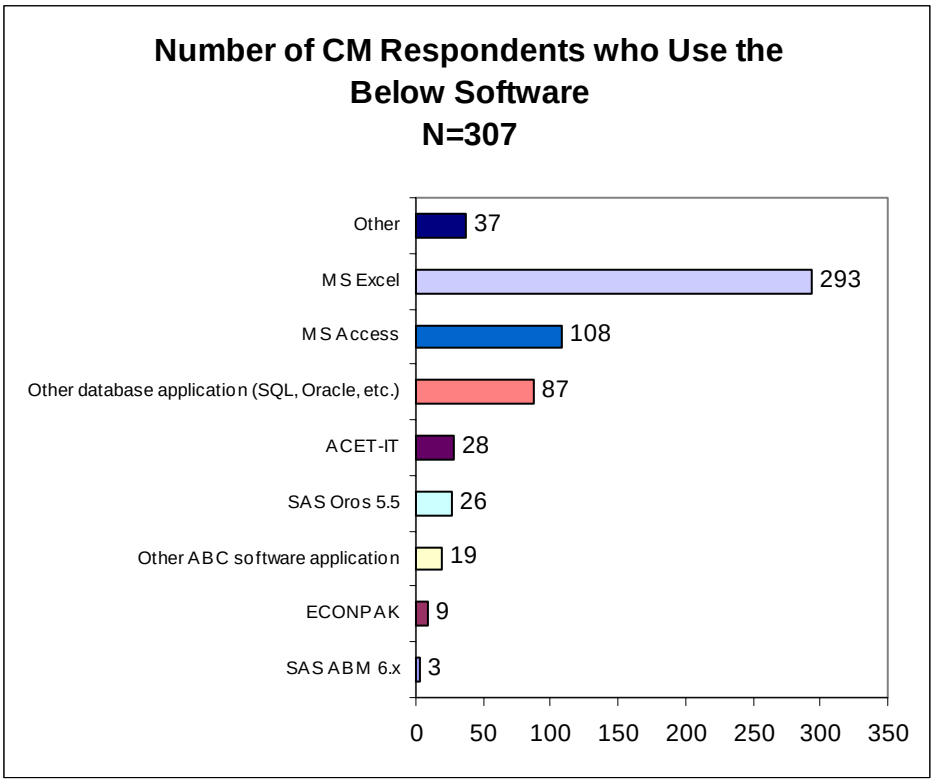

Figure 42. Number of CM survey respondents who use the above costing software

There were 307 respondents for type of costing software used. Almost all, 293, use MS Excel, 108 use MS Access, and 87 use other database applications (such as SQL, Oracle, etc.). Less than 10% of the respondents use any one other type of costing software.

There were 307 respondents for how sources of costing data, with 205 receiving data from financial management systems, 112 say from internal data collection sources, 109 use Army websites. Other sources include resource management systems, internally developed software applications, contractors, non-Army websites, cost factor's databases, and others.

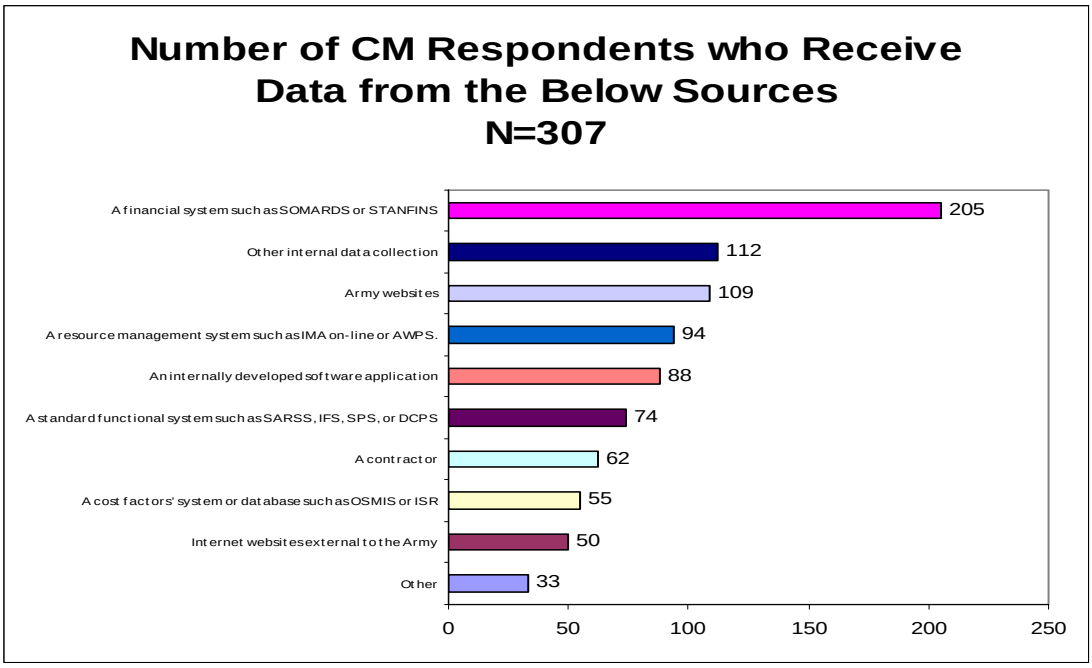

Figure 43. Number of CM survey respondents by source of costing data

There were 307 respondents for how cost data provide their costing data to others. 241 use email, and 218 provide a hard copy report or brief. Importing a file electronically into a system was selected 71 times (and 64 let someone else do it for them), 64 manually enter information into a system, and 62 both posted to the web, and on a LAN.

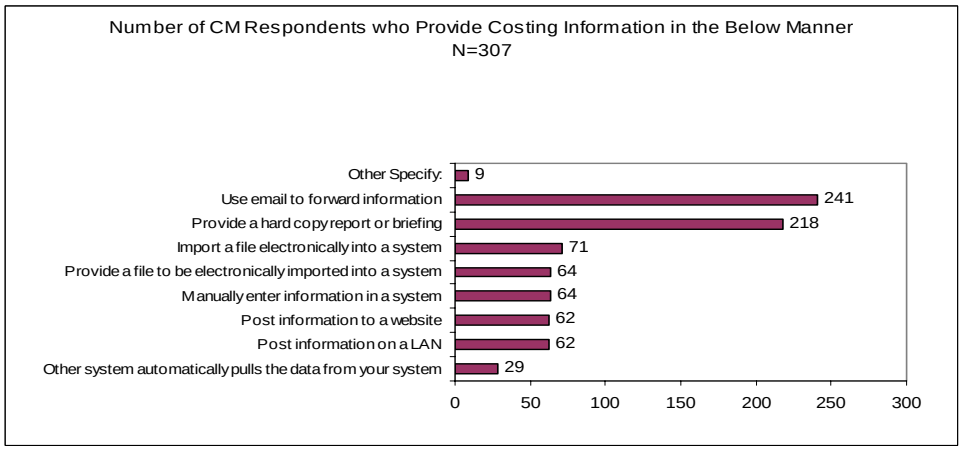

Figure 44. Number of CM survey respondents by manner in which costing data is provided

There were 542 respondents to how costing information is shared. There were 356 respondents who do so informally by assisting others when asked. Two-hundred-five conduct on-the-job training. Other methods of sharing information include giving briefings and presentations at professional forums (98), posting information to a locally established system (71), and presenting formal training (53). Writing articles for publication was used by 28 responents, participating in an email list-serve by 25, and 4 post items to Army Knowledge On-Line. Surprisingly, 90 out the 542 say they do not share costing information.

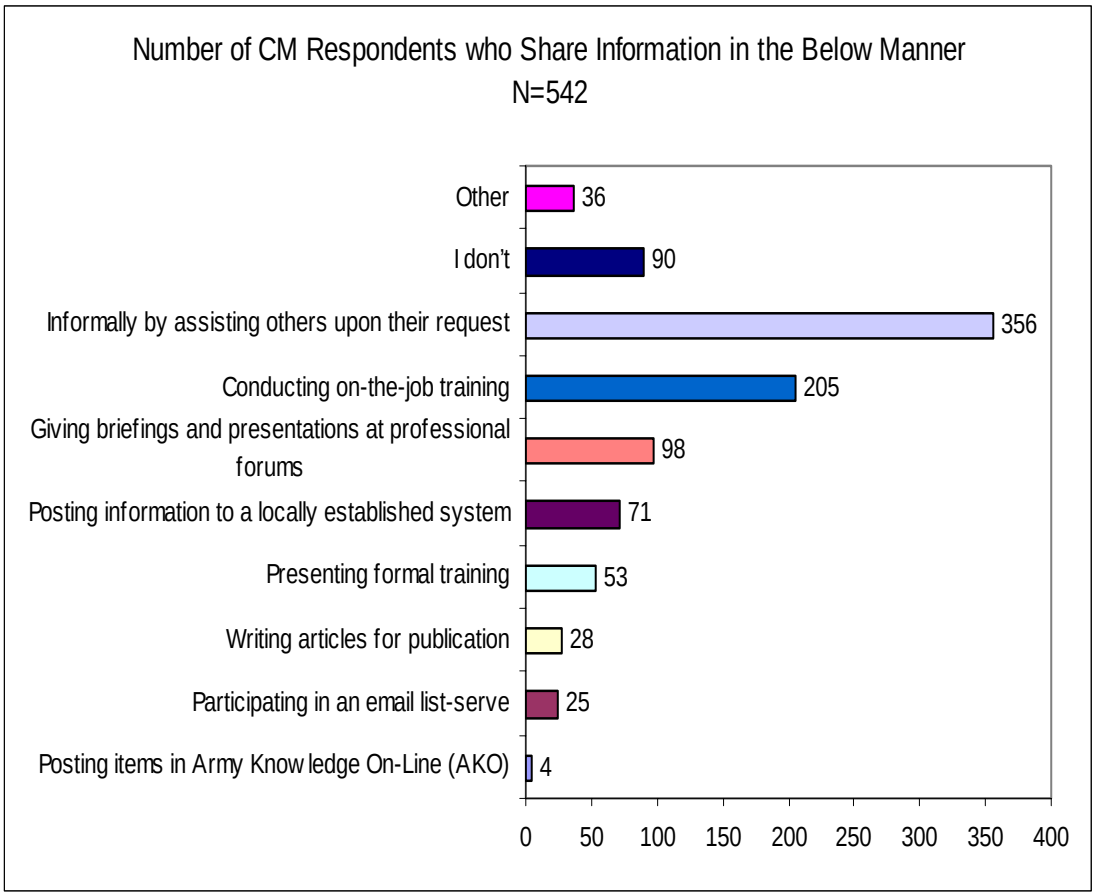

Figure 45. Number of CM survey respondents by how they share costing information

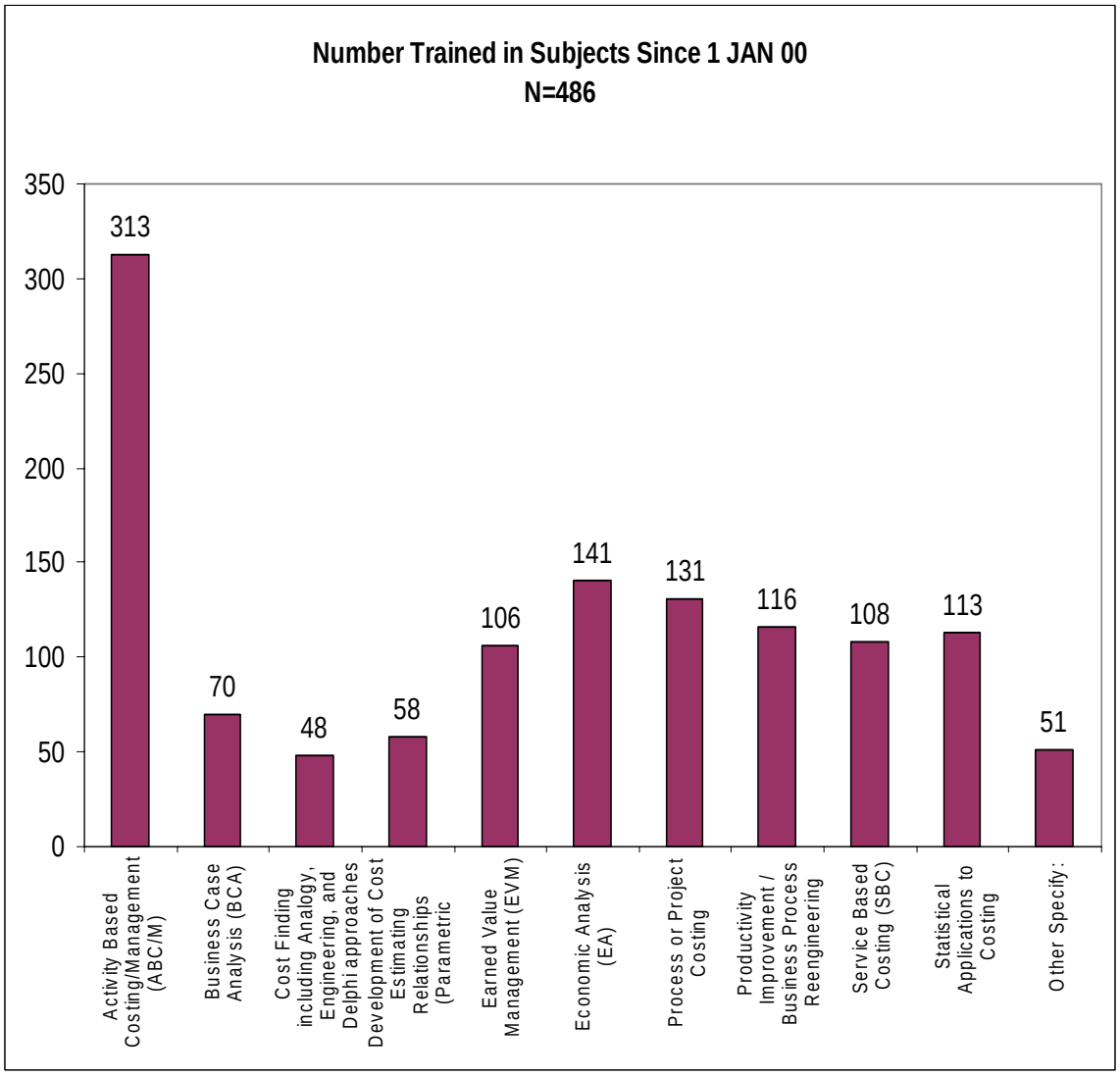

Figure 46. Number trained in cost subjects since 1 JAN 00

There were 486 respondents for subjects trained, with respondents able to be trained in more than one subject. By far, at 313, more people have received training in Activity based Costing/ Management than any other subject. The training of cost finding and estimating relationships seem to be lacking. Of possibly more importance, are the 549 responses for training received in the methods/ tools that are used by the CM community. 60.8% of the respondents who have used EVM have received training in EVM. For other tools/ methods, the range runs from 38.6% (project or process costing)

to 47.6% (service based costing). By looking at this chart, we see clearly that fewer than 50% of the respondents have received training on the tools they use in the workplace.

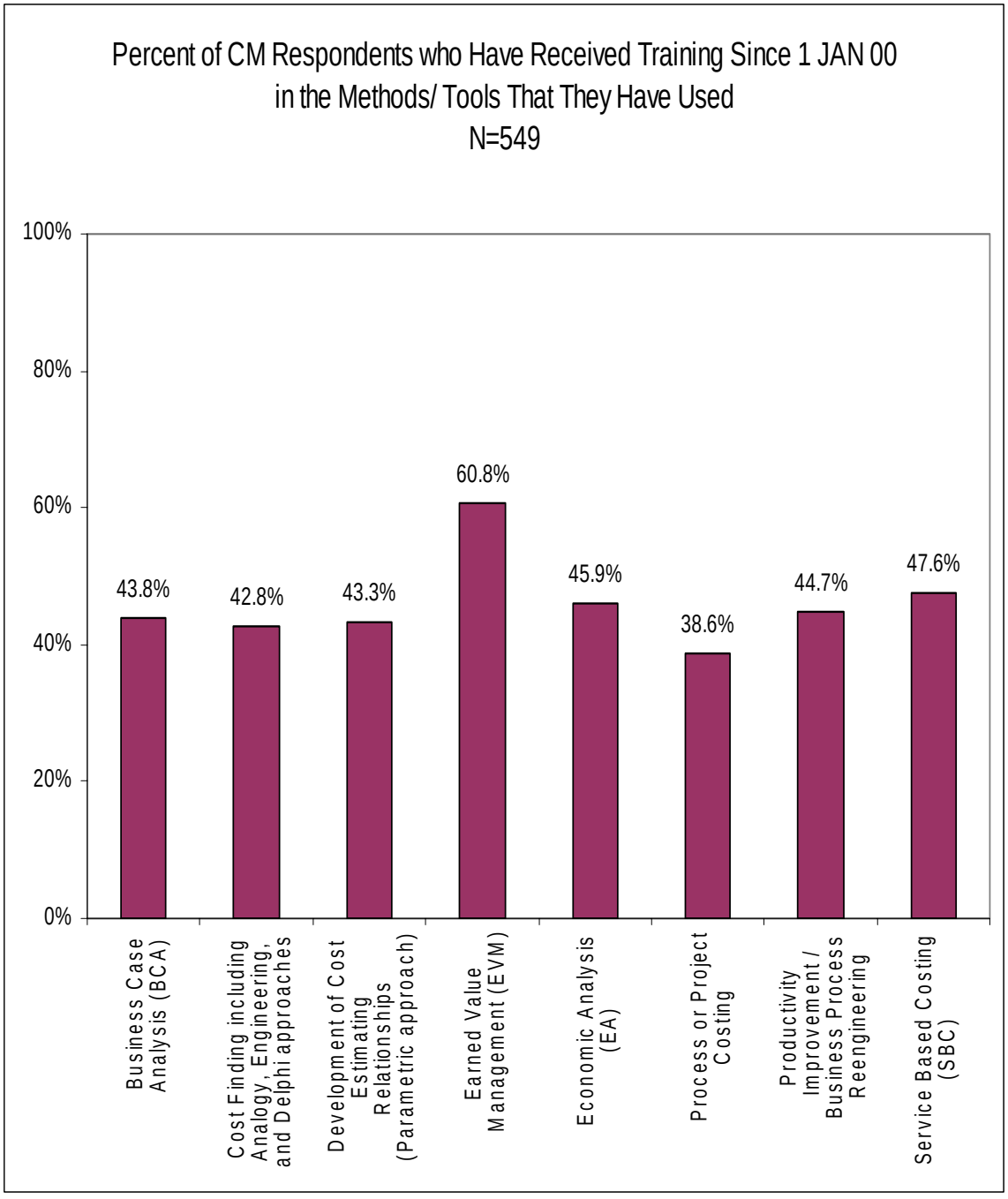

Figure 47. Percentage trained in methods used

There were 541 respondents by use of tools/ methods, with respondents able to choose more than one method/ tool (70 chose none of the above). Trend analysis was used by 284, and ABC/M by 243. Project or process costing was used by 181 respondents, economic analysis by 159, productivity improvement/ business process reengineering by 134, and service based costing used by 127 respondents. Other methods were reported as being used by less than 20% of the respondents.

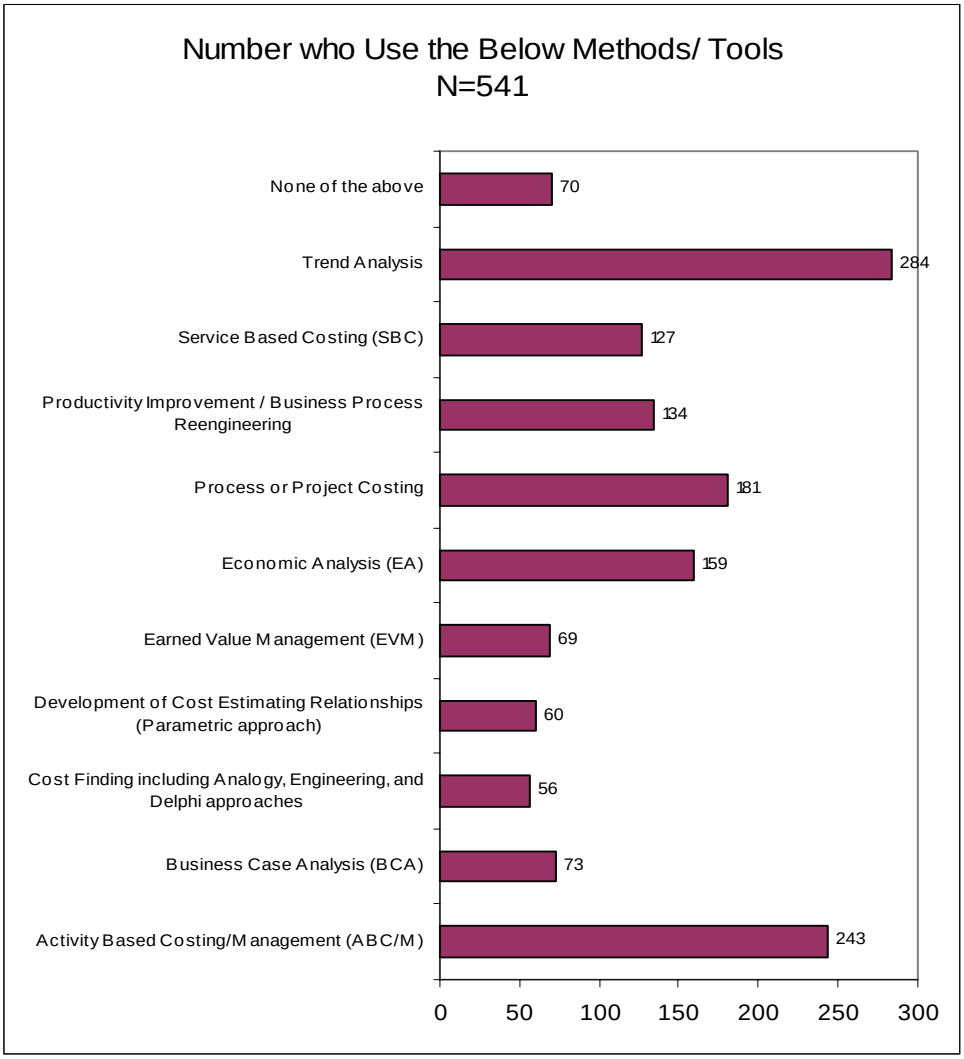

Figure 48. Number of CM respondents by methods/ tools used

There were 307 respondents for how costing data is validated, with respondents able to choose more than one answer. 224 compare with data from other sources, 117 use

data already validated by others, 96 statistically sample the data and verify its accuracy. 28 respondents do not validate cost data, and 11 respondents use other methods.

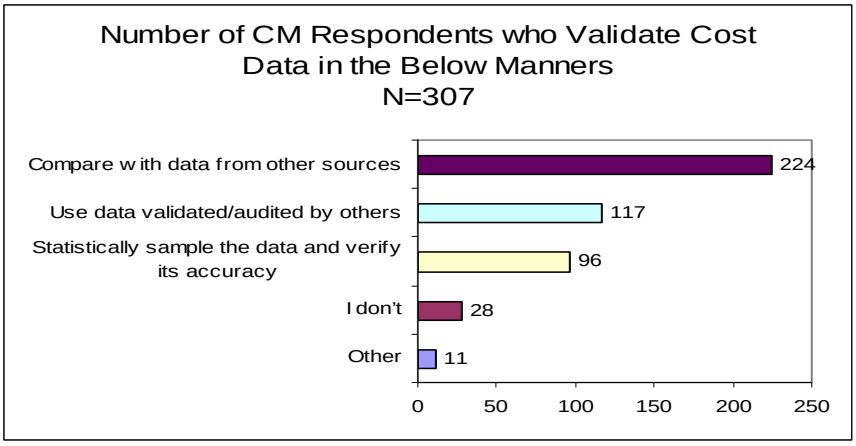

Figure 49. Number of CM survey respondents by how they validate data

There were 307 respondents for how often they update cost information. Of these, 93 update information monthly, 49 do so daily, and 42 do so weekly. Of the 49 who chose other, most of these were determined to be as required based on the job, data, or other requirements.

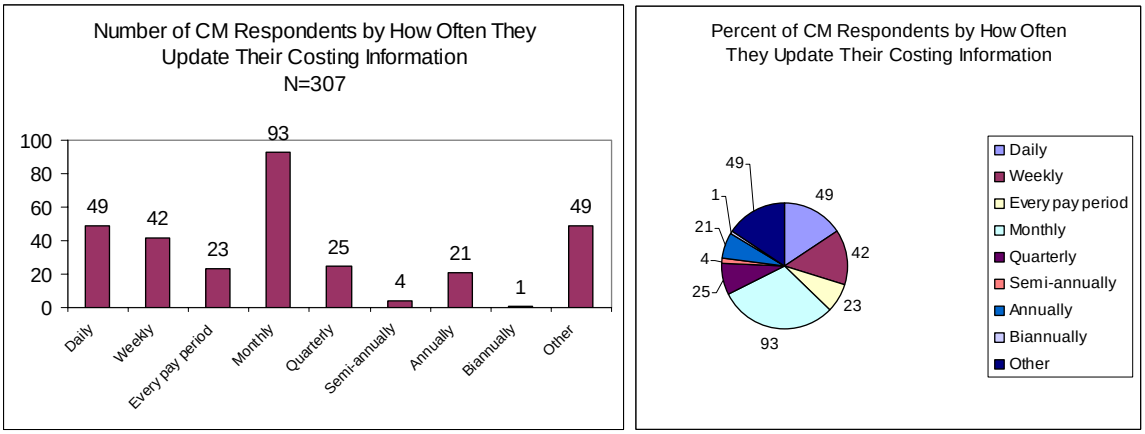

Figure 50. Number and percent of CM survey respondents by how often they update costing information

There were 542 for how often costing information is formally reviewed by leaders/ managers, with 221 (41%) saying they do not know. 124 (23%) say monthly,

quarterly was selected 49 times (11%), and daily was selected 40 times (7%). 10 (2%) respondents believe their manager/ leader never formally reviews cost information.

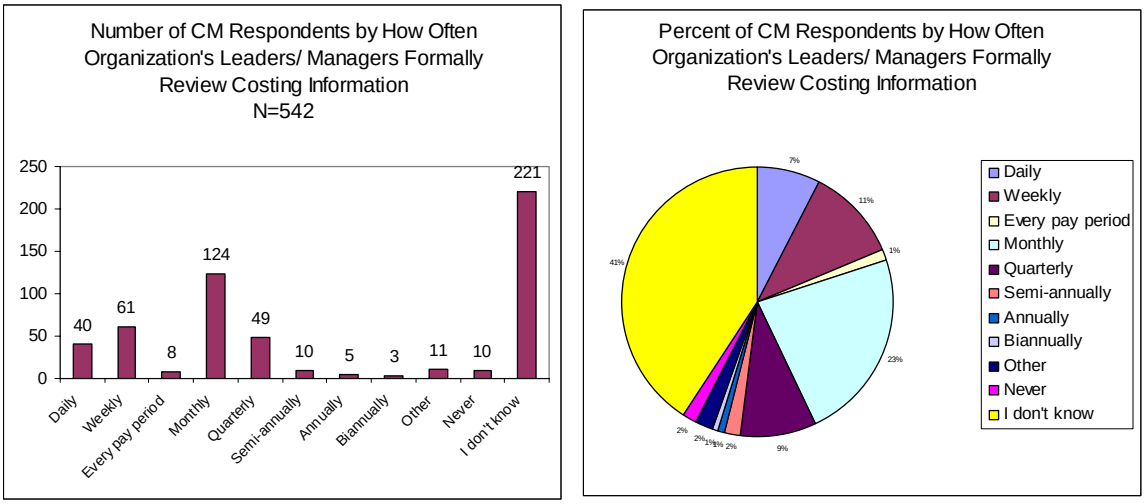

Figure 51. Number and percentage of CM survey respondents by how often their leaders/managers formally review costing information

There were 541 respondents who selected the top three features they would like to see in GFEBS. The capability to perform queries and data downloads without technical assistance was selected by 339 respondents, 316 selected the ability to link financial data with workload, performance, and other cost data to generate process, project, activity, product, burdened, and full costs. Next at 213 comes the capability to seamlessly merge financial data with other data or factors to generate variance, economic, and cost-benefit analyses or to derive cost rates and cost/revenue estimates, followed by a system that automatically updates standard reports and charts with 202 selections. The remaining options and the number of selections include: Ability to link financial transactions with transactions in other functional systems (173); Possesses strong ad hoc reporting capability with ability to drag and drop data to spreadsheet (156); Capability to build next year's budget based on current and/or previous year execution (152); Ability to electronically assign or withdraw funding authorities without incurring Ant-Deficiency Act violations (56).

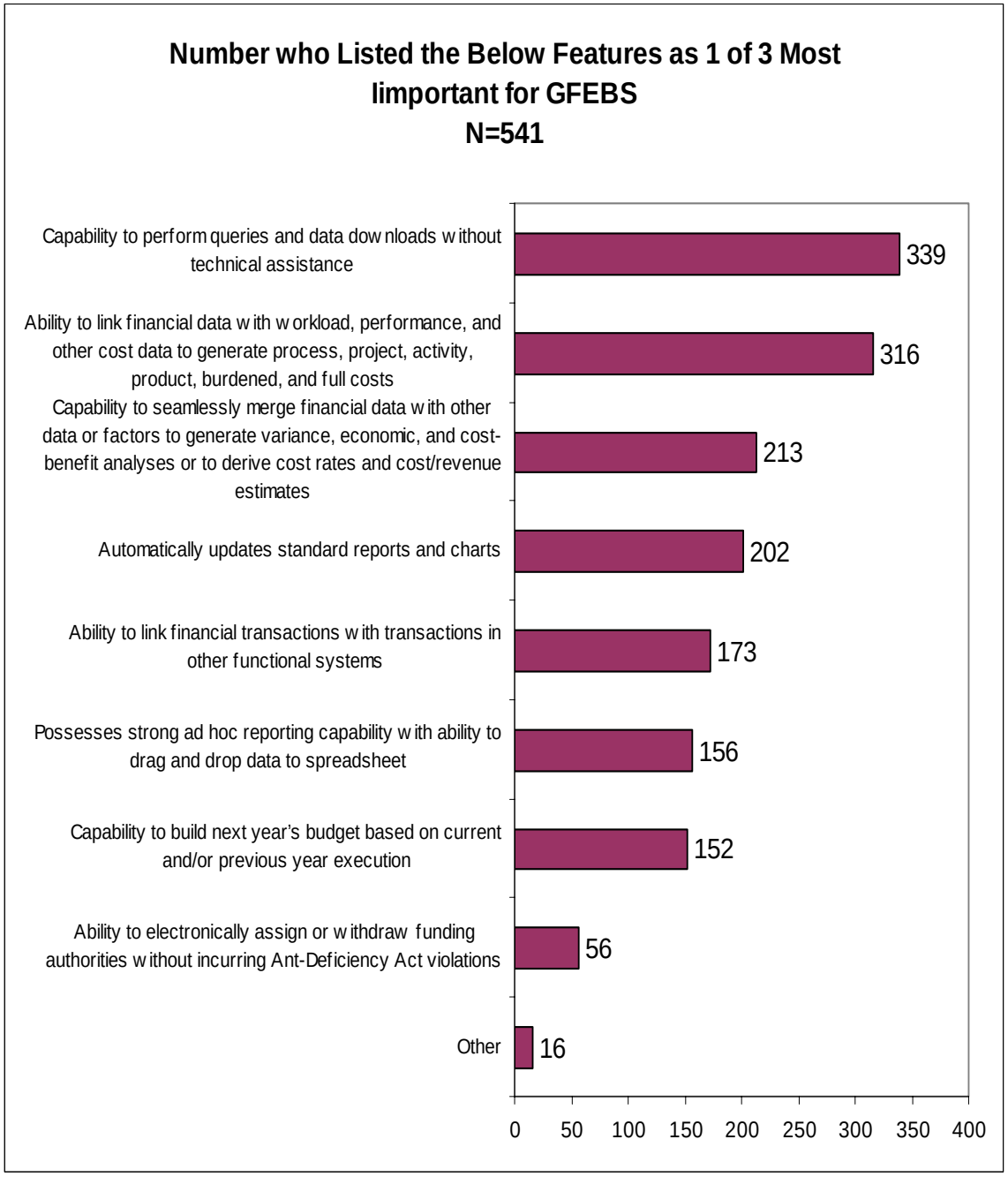

Figure 52. Number of CM survey respondents by most important features of GFEBS

From the CM survey, we also received comments on how to improve the cost community. Of the 810 comments regarding how to improve the cost community, the top categories for comments were no-comment, training, system requirements, and data

collection-validation. I have ignored the no-comment category, and provide examples of the others.

Training comments included:

- "Ensure that courses of instructions are developed that are relevant and applicable to the Army's business."
- "MORE TRAINING!" This comment was made more than any other.
- "More Cross Functional Training - Change Culture from Budget Management to Cost & Performance Management."
- "As a supervisor, I would like to provide bi-weekly training sessions (maybe 1-2 hours long) to my employees. I do not have the time to develop a lesson plan. I would like to see standardized lesson plans available on a website that I could access and use to conduct cost analysis training to my employees."

Data collection and validation comments included:

- "The data captured in most systems are not reliable. The individuals required to enter data don't understand what data is to be captured and why. Accounting systems do not really capture cost data but we treat the data as though it is. In the corporate world, cost data is tracked separately from accounting data."
- "Make data more accessible."
- "VALIDATE!"
- "Cost data needs to be validated at each level of aggregation. Logic checks and analyses of unexpected and unusual costs should be performed. Cost definitions need to be standardized. One-time, fixed and variable costs need to be segregated."

Comments about system requirements included:

- "It needs financial systems/reports that allow "drill'down" into the causes of cost changes. Needs the ability to integrate budget data with execution data to allow analysis instead of spending excessive amounts of time cleaning and aligning data."
- "Have standard systems that link supply, maintenance and other functional systems to the financial systems."

- "Improvements to financial systems that are compatible with and link to one another. Use off-the-shelf systems, as opposed to internally developed systems - an integrated system from the field to upper HQDA management."
- "The biggest challenge seems to be that the planners have a difficult time figuring out what the executers have done/are doing. To deal with this: • ensure that data is recorded correctly at lowest levels (standardization, training). • Demand that ALL data flows to a central database regardless of system enter into. • Allow access to query this database."
- "Minimize the amount of and standardize the financial systems software/web based and ensure that they all interface with each other. There are too many different programs that are used, clearly a waste of government funds. There are more dollars spent on developing/implementing/training/fixing then paying attention to what we have and cleaning out the programs that are not compatible and stand alones. The military civilian work force is short handed and the demands versus the ability to produce are out of balance. Necessary steps are being passed over just to get the job done whether the data is correct or not. This is all due to bad programming of the workforce. When developing financial programs the end user needs to always be involved in the process from the beginning."
- "Standardize systems. Make it mandatory, that all systems be compatible with each other. Make data more easily accessible to lay persons."

Other comments that may be of interest include the following:

- "Promote cost management to senior and mid-level leadership by including it leadership performance standards. - Increase leadership awareness of cost analysis as a distinct and valuable discipline within the of Comptroller Programs. (CP-11 is not just BUDGETERS and MANAGEMENT ANALYSTS!!!) - Garner leadership support of training and professional development opportunities for cost analysts. The HQ of my organization was and is still slow on the uptake to fully comprehend the scope of the various cost management programs, their linkages and how to integrate them into decision making. Believe the source of the

problem is that when the organization was stood up, there was no recognition of cost analysts as a distinct discipline because of the drive to standardize job series and descriptions. Consequently there was no inventory of cost analyst capability on staff, with the result that contractors have been hired to perform things which staff cost analysts did. An ironic course of action considering the concern about cost containment."

- "The cost effort must be bottom-up. All MACOMs have loose assets that perform cost functions upon request and as needed. Army need to re-shape the RM structures at MACOM level to incorporate costing as a permanent function of MACOMs RMs. In a zero sum strategy, I would initiate an aggressive cost training program to incorporate cost responsibilities in several of the CP11 career program series' (343, 560, etc.). This action might include creating or re-labeling divisions or sections within MACOMs RMs that can gather an array of Army civilians with different skills and series to perform the costing function. For example; a section that could gather 0560 Budgeters, 343-Management Analysts, Economists, ORSA, Manpower Specialists and other costing professionals. This costing team would be most effective at the MACOM level."
- "Have models validated by independent source. Then use the information the model generates as the optimal requirements for that program. Then prioritize resources based on all requirements. We spend much time on second guessing our models output."
- "Once costs are captured from Army activities, make the information available for general use in 'read and print' formats by other Army activities to encourage standardization and efficiency/effectiveness."
- "Often times, generic applications intended for the civilian sector don't translate well to the government/military environment. Also, cost applications and the resulting data tend to be subject to the interpretation of whoever is trying to prove a specific point. Finally, the Army has a habit of embarking on these ambitious programs supposedly to provide information for better decision making. The programs generally require considerable automation to work and unfortunately

the contractors are never quite able to deliver a system that fulfills the requirements originally envisioned. As a result, considerable resources are wasted. Let's make sure that we know what we want and that it will actually be used for decision making and not just develop a system to respond to some audit report or Congressional criticism."

- "People need to understand more than just pulling numbers out of a system and analyzing them. They need to understand what goes into making up those numbers. Automating systems to a point can lead to people punching numbers without an understanding of their impact on costs and programs. Reliability, accuracy and timeliness of cost information are negatively impacted by non-integrated disbursing and accounting operations. These two functions should be at the same finance and accounting activity whenever possible and not segregated for reasons of consolidating accounting information."
- "The ability to rely on the data in any system is impacted by the emphasis placed on accuracy in data input. Unless the Army decides to increase the accountability of the individuals responsible for entering information into the system(s) then I will always remain skeptical of the information provided to me. GFEBS may be a great system but only high quality data will make it worthwhile."
- "Don't invest in a pie in the sky cost accounting system to try to capture every cost all at once. Instead, shift to a risk based approach to costing and attempt to capture accurate cost data for these functions that represent the most initial risk. Determine what it is you will do with cost data. Will we collect it for the sake of stating a bottom line cost of doing business or will we use it to evaluate the success of a program and actually attempt to save the taxpayer some money? By the way, as long as the Army remains budget centric there is little motivation to reduce annual budget requirements. Collect all the cost data you like but do something positive with the data."

V. OPPORTUNITIES FOR FURTHER RESEARCH

Baseline assessments have now been conducted for both DoN and DA CE/A capabilities, and the DA CM capability. Opportunities are available to conduct similar analysis for Department of the Air Force, or to compare and contrast the capabilities already assessed. Follow on work could focus on the future needs of these communities. This work would then allow gap analysis to be conducted, ensuring DoD components are developing, providing and utilizing costing assets and capabilities as efficiently as possible.

For the Benefit of the Army, the same survey used for the CM community would now be distributed to a different DA career field. DASA-CE Steve Bagby knows we have captured a large part of the cost management workers within DA, but would like to determine how many other CPs perform cost functions in the course of their work.

The different methods of conducting surveys used for this thesis may provide additional research possibilities by comparing results of surveys completed by supervisors about their workforce as compared to the results of surveys completed by the workers themselves.

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VI. PARTICIPANTS

The participants in this study were developed from an initial list of personnel provided by DASA-CE Steve Bagby. With this original list and a DoD phone book, a more comprehensive POC list was developed. The key here was asking each potential POC, "Who else should we talk to?" Once completed, the POC roster did not necessarily include the chiefs of each division, but the XO, assistant, or other individual who would be completing the surveys most accurately within each division. The Participants were further broken down into two groups: (1) the CE/A community and (2) the CM community. Table 2 is a list of the points of contact and their organizations for the CE/A community within the U.S. Army. SMDC and AMC did not complete surveys.

Table 2. CE/A Organizations within the U.S. Army, and their points of contact.

TACOM	Rich Bazzy	(586) 574-6665	richard.bazzy@us.army.mil
AFSC	Richard Jayne	(309) 782-6538	richard.jayne@afsc.army.mil
ALMC	William Burnham	(804) 765-4736	william.burnham@us.army.mil
SMDC	Ms. Lisa Gilbert	(256) 955-4575/5521	lisa.gilbert@us.army.mil
CECOM	Howard Douglas	(732) 427-2711	howard.p.douglas@us.army.mil
AMC	Ken Freund	(806) 617-9100	ken.freund@us.army.mil
AMCOM	Frank Lawrence	(256) 842-2817	frank.t.lawrence@us.army.mil
RDECOM	Roger Staso	(410) 436-5041	roger.staso@us.army.mil
Cost&Perf Mgmt Div	Mr. Steve Barth	(703) 692-7399	stephen.barth@us.army.mil
Contractor Spt	Mr. Mike Streff	(703) 692-7412	michael.streff@hqda.army.mil
Calibre	Bill Matfeld	(703)797-8819/8500	bill.mattfeld@calibresys.com
Unit Mssn Cost Div	Mr. Joel Gordon	(703) 692-7388	joe.gordon@us.army.mil
Costing Review Board Office	Mr. Morteza Anvari	(703) 601-4150	morteza.anvari@hqda.army.mil
Acquisition Costing Directorate	COL Arthur Kron	(703) 601-4200/4199	arthur.kron@us.army.mil
Weapon System Division	Mr. Sean Vessey	(703) 601-4138	sean.vessey@us.army.mil
C4ISR Costing Division	Mr. John Carroll	(703) 601-4168	john.e.carroll@us.army.mil
Cost Policy & Research Division	Mr.David Henningsen	(703) 601-4163	david.henningsen@us.army.mil
G8 Executive Services Division	Ms. Dianne Letsche	(703) 602-7552	dianne.letsche@us.army.mil

Table 3 is a list of the department heads/ division chiefs and their organizations for the CM community within the U.S. Army. It is no coincidence that the 11 organizations within the U.S. Army are the 11 business areas within the U.S. Army. A complete listing of the CM participants is not included since there was a target population of over 9000 participants.

Table 3. CM Organizations within the U.S. Army, and the department heads/ division chiefs.

Acquisition	ASA(ALT)	Dale Fletcher	(703)614-3753	dale.fletcher@saalt.army.mil
IMA	ASA(ALT)	JoAnn Blanks	(703) 602-1796	jo.blanks@hqda.army.mil
Civ Human Res	Army G1	Ms Elizabeth Throckmorton	(703) 695-5701	elizabeth.throckmorton@us.army.mil; debra.george@us.army.mil
Contracting	ASA(ALT)	LTC Mark Conley	(703)695-2488	mark.conley@hqda.army.mil
Depots	Army G4	COL Michael Ramsey	(703) 614-4444	michael.ramsey@us.army.mil
Info Support	Army G6/CIO	Mr. John Roe	(703) 806-8628	john.roe@us.army.mil
Inst Trng	Army G3	COL Joe Back	(703) 614-9853	joe.back@hqda.army.mil
Ordnance	Army G4	COL Michael Ramsey	(703) 614-4444	michael.ramsey@us.army.mil
R&D Labs	ASA(ALT)-RT	Gary Peck	(703) 601-1549	gary.peck@saalt.army.mil
Supply Mgt	Army G4	COL Michael Ramsey	(703) 614-4444	michael.ramsey@us.army.mil
Test & Eval	TEMA	Mr. John Foulkes Mr. Raymond Wagner	(703) 695-8995 (703) 614-4318	wagnerj@hqda.army.mil; foulkjb@hqda.army.mil

ANNEX A. CE/A SURVEY

REVIEW AND TRANSFORMATION OF DEPARTMENT OF THE ARMY COST ESTIMATING AND ANALYSIS (CE/A) CAPABILITIES

The purpose of this effort is to assess the DA CE/A community, including a comprehensive, objective, and detailed assessment and analysis that compares the current status of people, processes, technologies and capabilities within CE/A and to those that are needed to meet the challenges of the Department of the Army in the 21st century.

The overarching goal of this effort is to ensure that the DA CE/A community provide high quality, responsive, and customer-focused support at all levels within DA.

Responding Organization:_____
Date:_____

Respondent's Name and Position:_____

Interviewer(s):_____

PERSONNEL (Answer for personnel in your organizatio

1. **Number of FTEs**

2. **Number of personnel, by Grade levels**

GS 1-11	GS 12-13	GS 14-SES

3. **Number of personnel, by total number of years of cost estimating/analysis related experience**

1-5	6-10	11-20	21 +

4. **Number of personnel, by hig academic degree**

High School	BA or BS	Graduate Degree

5. **Number of personnel with professional certifications**

Cost estimating		DAWIA			Other professional certifications
SCEA	PMP	Level I	Level II	Level III	

6. **What is the source from which you have drawn your current personnel?**

	What is the approximate percent of your current personnel whose last job was
College	
Any other government agency	
Commercial organization	
Other	

PROCESSES

Functional responsibilities (What you do): Fill out the table below, indicating which CE/A functions your organization has responsibility for and then estimate the distribution of total workload that goes into each.

	LEVEL OF EFFORT FOR EACH WORKLOAD CATEGORY			
	Very small < 10%	**Small 10-20%**	**Moderate 20-50%**	**Large > 50%**
Cost Estimating/Analysis (LCCE, ICE, AoA, EA, IBR)				
Contract Support (EVM, IGCE, Source Selection**)**				
Tool Building (Cost Research, Training, Data Collection, CER Development, Model Building				
Administration				
Other				

Tasking origins (Who asks us to do CE/A?): Fill out the table below, indicating who provides the tasking to your organization.

	WHO PROVIDES TASKINGS TO YOUR ORGANIZATION?								
	PM	**PEO**	**SECDEF**	**SECARMY (which ASA?)**	**HQDA**	**MACOMs**	**CAIG**	**Other**	**Other**
Cost Estimating/Analysis (LCCE, ICE, AoA, EA, IBR)									
Contract Support (EVM, IGCE, Source Selection**)**									
Tool Building (Cost Research, Training, Data Collection, CER Development, Model Building									
Administration									

	DOES ANYONE BESIDES THE TASKING AGENCY GET A COPY OF YOUR PRODUCT?								
	CBO	**SECDEF**	**SECARMY (ASA*)**	**HQDA**	**MACOMs**	**CAIG**			
Cost Estimating/Analysis (LCCE, ICE, AoA, EA, IBR)									
Contract Support (EVM, IGCE, Source Selection**)**									
Tool Building (Cost Research, Training, Data Collection, CER Development, Model Building									
Administration									

***Identify which ASA: FM&C, ALT, etcetera**

RECRUITING - Is there, within your organization, a standardized or written procedure for performing the task? If there is a standardized or written procedure, is there a process chart?

TRAINING - Is there, within your organization, a standardized or written procedure for performing the task? If there is a standardized or written procedure, is there a process chart?

- **What problems are there with training programs? What suggestions do you have to make the training program better, either within your organization, or within the DA CE/A community?**

Quality Assurance - Is there, within your organization, a standardized or written procedure for performing the task? If there is a standardized or written procedure, is there a process chart?

- **What problems are there with QA? What suggestions do you have to make QA better?**

Knowledge Management and Knowledge Sharing - Is there, within your organization, a standardized or written procedure for performing the task? If there is a standardized or written procedure, is there a process chart?

- **How do you leverage technology and employ knowledge management (KM) to improve the efficiency of your processes?**

TECHNOLOGIES

Methodologies-- Do you have access to or a license for the following commercial tools? For those tools for which you do have access or a license, to what extent do you use the tool? Please add to the list any commercial tools you use for cost estimating and analysis.

	DO YOU HAVE ACCESS TO OR A LICENSE FOR, THIS TOOL?	IF YOU HAVE ACCESS OR A LICENSE, HOW HEAVILY DO YOU USE THE TOOL?		
COMMERCIAL TOOL		RARELY	OCCASSIONALLY	FREQUENTLY
Software cost estimating models (SEER-SEM and PRICE-S)				
Hardware cost estimating models (SEER-H and PRICE-H)				
ACEIT (Automated Cost Estimating Integrated Tools)				
Crystal Ball (cost risk analysis model)				
Gartner Group's TCO Manager				
Decision-Making Support Applications (Team Expert Choice, Logical				
Decisions for Windows)				
Equipment Designer Cost Analysis System (EDCAS)				
USCM (Unmanned Spacecraft Cost Model, versions 5 & 7)				
NASA/Air Force Cost Model (NAFCOM 99)				
PRICE Estimating Suite (PES)				
REVIC				
Other				
Other				
Other				

DATA-- DO YOU BUY IT? COLLECT IT? GET IT BY SWAPPING/SHARING IT?

If you were in charge, what would you do or advise be done to make the cost estimating and analysis community function better?

Who else should we talk to?

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ANNEX B. CM SURVEY

REVIEW AND TRANSFORMATION OFDEPARTMENT OF THE ARMY COST MEASUREMENT, COST ANALYSIS, AND COST MANAGEMENT CAPABILITIES

The purpose of this effort is to assess the current Army community engaged in cost measurement, cost analysis, and cost management to compare the current status of people, processes, technologies and capabilities to those that are needed to meet the challenges of the Army in the 21st century.

The overarching goal of this effort is to ensure the Army costing community provides high quality, responsive, and customer-focused support at all levels within the Army. The following definitions are provided to assist respondents in identifying their roles and participation, if any, in Army costing efforts.

1. Cost Collection **– the collection for costing purposes of obligation and expenditure (financial) data, other cost data, workload and performance data, and inventory data.**

2. Cost Measurement **– the use of the data gathered under cost collection to create managerial (not budget or financial) views of costs including indirect versus direct costs, overhead and/or general and administrative costs, incremental costs, full (or fully burdened) costs, process costs, project costs, ABC costs, Service Based Cost/Installation Status Report (SBC/ISR) costs, unit costs, and product/service costs.**

3. Cost Analysis **– the analysis of the costs generated under cost measurement to enable managers and decision makers to make sound business decisions. This includes performing trend analysis, assessing productivity improvements, performing business case analysis (BCA) and economic analysis (EA), and benchmarking using cost information.**

4. Cost Management – the use of the cost analysis products to make sound business decisions including improving business processes, realigning resources, eliminating waste, influencing cost drivers, and planning operations.

5. Costing Support Functions – training in costing efforts, supervising costing efforts, and providing headquarters staff and oversight support of costing efforts and programs.

TARGET POPULATION FOR THIS SURVEY: Any Department of the Army civilian

PERSONAL COSTING EXPERIENCE

1. Select your grade. (Check only one)

- ☐ SES
- ☐ GS 1-5 or equivalent
- ☐ GS 6 or equivalent
- ☐ GS 7 or equivalent
- ☐ GS 8 or equivalent
- ☐ GS 9 or equivalent
- ☐ GS 10 or equivalent
- ☐ GS 11 or equivalent
- ☐ GS 12 or equivalent
- ☐ GS 13 or equivalent
- ☐ GS 14 or equivalent
- ☐ GS 15 or equivalent

2. Select your career program or career field. (Check only one)

- ☐ None
- ☐ Engineer/Scientists (Construction) CP-18
- ☐ CHR Management CP-10
- ☐ Transportation Management CP-24
- ☐ Comptroller CP-11
- ☐ Manpower/Force Management CP-26
- ☐ Supply Management CP-13
- ☐ Installation Management CF-29
- ☐ Contracting/Acquisition CP-14
- ☐ Training CP-32
- ☐ Engineer/Scientists (Non-Construction) CP-16
- ☐ IT Management CP-34
- ☐ Materiel Maintenance Management CP-17
- ☐ MWR CF-51
- ☐ Other Specify: _____

3. Enter your job series. (use 4 digits, e.g., enter "0343" for 343)

GS - ☐ ☐ ☐ ☐

4. Select the type of position. (Check only one)

- ☐ Full time permanent
- ☐ Full time temporary
- ☐ Part time
- ☐ Intermittent (term)

5. Select the MACOM or Operating Agency to which you are currently assigned. (Check only one)

- ☐ HQDA
- ☐ IMA
- ☐ Other Army Field Operating Agencies
- ☐ Army PEOs and PMs
- ☐ Combatant Commands
- ☐ INSCOM
- ☐ CIDC
- ☐ MDW
- ☐ NETCOM
- ☐ ATEC
- ☐ USAREUR
- ☐ FORSCOM

- ☐ AMC
- ☐ TRADOC
- ☐ EUSA
- ☐ USACE
- ☐ MEDCOM
- ☐ USARPAC
- ☐ USARSO
- ☐ SMDC
- ☐ USASOC
- ☐ SDDC
- ☐ Other Specify: _____

Select the Army business area of the <u>organization</u> to which you are currently assigned. (Check only one)

- ☐ Depot Maintenance Operations
- ☐ Supply Management (Wholesale)
- ☐ Ordnance
- ☐ Information Support
- ☐ Civilian Human Resources
- ☐ Other mission Specify: _____
- ☐ Institutional Training
- ☐ Base Operations and Support
- ☐ Research and Development
- ☐ Test and Evaluation
- ☐ Contracting
- ☐ Systems Acquisition

6. Select your highest academic degree. (Check only one)

- ☐ Doctorate
- ☐ Masters
- ☐ Bachelor
- ☐ Associates
- ☐ High School or equivalent

7. What formal costing/cost management training (see definitions on cover) have you attended since 1 January 2000? (Check all applicable)

- ☐ None. Skip to question #9.
- ☐ 1 or more sessions at a professional conference
- ☐ 3+ days of software training on costing software including SAS Oros or ABM software
- ☐ 1 to 3-day training class on cost management and/or costing methodologies
- ☐ Less than 10 hours within another professional development course
- ☐ 10-40 hours in formal professional courses
- ☐ 10-40 hours in web-based courses
- ☐ Over 40 hours in formal professional courses
- ☐ Over 40 hours in web-based courses
- ☐ College course(s) for credit

8. In what types of costing-related subjects have you received the training indicated above? (Check all applicable)

- ☐ Activity Based Costing/Management (ABC/M)
- ☐ Business Case Analysis (BCA)
- ☐ Cost Finding including Analogy, Engineering, and Delphi approaches
- ☐ Development of Cost Estimating Relationships (Parametric approach)
- ☐ Earned Value Management (EVM)
- ☐ Economic Analysis (EA)
- ☐ Process or Project Costing
- ☐ Productivity Improvement / Business Process Reengineering

☐ Service Based Costing (SBC)
☐ Statistical Applications to Costing
☐ Other Specify: _____

What category of costing functions do you perform in your <u>current</u> position? (Check all applicable) (see definitions on cover)

☐ None - **Stop. Do not complete the rest of the survey. If you want to provide comments on Army costing, proceed to the Comment section at the end of the survey**

☐ Cost Collection
☐ Cost Measurement
☐ Cost Analysis
☐ Cost Management
☐ Costing Support Functions

9. For the costing functions you checked above, what percentage of your annual time is devoted to each function?

Cost Collection..... _____ **%**
Cost Measurement ..... _____ **%**
Cost Analysis ..... _____ **%**
Cost Management ..... _____ **%**
Costing Support Functions _____ **%**

10. Do you perform your costing functions in support of <u>defense systems acquisition management</u>? (Check only one)

☐ No. Skip to question #14. ☐ Yes. Continue with next question,

11. Did you recently complete a survey on Army Cost Estimating and Analysis?

☐ Yes. **Stop. Do not complete the rest of the survey.**

☐ No. Contact Steve Barth at Steve.Barth@hqda.army.mil to obtain a copy of the cost analysis survey. **Do not complete the rest of this survey.**

12. How many years experience do you have in costing functions? (Check only one)

☐ Less than a year
☐ 1 to 2 years
☐ 3 to 5 years
☐ 6 to 10 years
☐ More than 10 years

13. How many years have you been in your <u>current</u> costing position? (Check only one)

☐ Less than a year
☐ 1 to 2 years
☐ 3 to 5 years

- ☐ 6 to 10 years
- ☐ More than 10 years

14. Prior to your current costing position, where did you work? (Check only one)

- ☐ With your current organization
- ☐ With another Army organization
- ☐ With another federal/DoD organization
- ☐ In the private sector
- ☐ Other

15. Which of the following methodologies/tools have you used in performing your costing functions? (Check all applicable)

- ☐ Activity Based Costing/Management (ABC/M)
- ☐ Business Case Analysis (BCA)
- ☐ Cost Finding including Analogy, Engineering, and Delphi approaches
- ☐ Development of Cost Estimating Relationships (Parametric approach)
- ☐ Earned Value Management (EVM)
- ☐ Economic Analysis (EA)
- ☐ Process or Project Costing
- ☐ Productivity Improvement / Business Process Reengineering
- ☐ Service Based Costing (SBC)
- ☐ Trend Analysis
- ☐ None of the above

16. How do you share your costing information and experiences? (Check all applicable)

- ☐ Writing articles for publication
- ☐ Giving briefings and presentations at professional forums
- ☐ Presenting formal training
- ☐ Conducting on-the-job training
- ☐ Participating in an email list-serve
- ☐ Posting items in Army Knowledge On-Line (AKO)
- ☐ Posting information to a locally established system
- ☐ Informally by assisting others upon their request
- ☐ I don't
- ☐ Other Specify: _____

17. Are you currently in management or a supervisor's position? (Check only one)

- ☐ Yes
- ☐ No

18. Does your performance appraisal include an assessment on your use of costing information to improve the organization? (Check only one)

- ☐ Yes
- ☐ No

ORGANIZATIONAL COSTING IMPLEMENTATION

19. In your <u>current</u> position, which of the following costing-related functions have you performed? (Check all applicable)

- ☐ Assessed an organization's capacity for change
- ☐ Conducted training in costing techniques and managerial application of costing information
- ☐ Participated in the creation of a strategic plan
- ☐ Linked costing efforts with an organization's strategic plan
- ☐ Linked cost information with other performance measures
- ☐ Developed a costing methodology to support management decisions
- ☐ Developed a software application to collect and/or generate costs and cost estimates
- ☐ Collected information for costing purposes
- ☐ Created cost (not budget) information
- ☐ Performed analysis of cost information
- ☐ Provided assistance to an organization's leadership and management in using costing analysis
- ☐ Developed baseline costs for an improvement or benchmarking effort
- ☐ Used cost analyses to make decisions for improving an organization or process

20. Is the head of your organization rated on her/his use of costing information to improve the organization? (Check only one)

- ☐ Yes
- ☐ No
- ☐ I don't know.

21. What importance does your organization's external change of command place on internal management and control of costs? (Check only one)

Very	Somewhat	Not very	Not at all
☐	☐	☐	☐

22. What impact does costing information and efforts have on your organization's internal operations? (Check only one)

Significant	Some	Minimal	None
☐	☐	☐	☐

23. How important is the internal management and control of your organization's costs to the success of your organization? (Check only one)

Very	Somewhat	Not very	Not at all
☐	☐	☐	☐

24. How important is the internal management and control of your organization's costs to your personal success within the organization? (Check only one)

Very	Somewhat	Not very	Not at all
☐	☐	☐	☐

25. How important is the internal management and control of costs to the success of your immediate supervisor? (Check only one)

Very	Somewhat	Not very	Not at all
☐	☐	☐	☐

26. What priority does it appear to you that the head of your organization gives to the internal management and control of your organization's costs? (Check only one)

High	Mid-level	Low	None
☐	☐	☐	☐

27. How often do your organization's leaders/managers formally review their costing information? (Check only one)

- ☐ Daily
- ☐ Weekly
- ☐ Every pay period
- ☐ Monthly
- ☐ Quarterly
- ☐ Semi-annually
- ☐ Annually
- ☐ Biannually
- ☐ Other Specify: _____

28. Do you generate costing information (cost measurement and cost analysis) in your <u>current</u> position? (Check only one)

- ☐ Yes. Continue with next question.
- ☐ No. **Stop. You are finished with this part of the survey. Go to the Comments section at the end of the survey to provide any comments.**

29. Which of the following methodologies/tools have you used in your <u>current</u> position? (Check all applicable)

- ☐ Activity Based Costing/Management (ABC/M)
- ☐ Business Case Analysis (BCA)
- ☐ Cost Finding including Analogy, Engineering, and Delphi approaches
- ☐ Development of Cost Estimating Relationships (Parametric approach))
- ☐ Earned Value Management (EVM)
- ☐ Economic Analysis (EA)
- ☐ Process or Project Costing
- ☐ Productivity Improvement / Business Process Reengineering
- ☐ Service Based Costing (SBC)
- ☐ Trend Analysis
- ☐ None of the above

30. What software do you use to create your costing information? (Check all applicable)

- ☐ MS Excel
- ☐ MS Access
- ☐ Other database application (SQL, Oracle, etc.)
- ☐ SAS Oros 5.5
- ☐ SAS ABM 6.x
- ☐ Other ABC software application
- ☐ ECONPAK
- ☐ ACET-IT
- ☐ Other Specify: _____

31. What is the source of the data for your measurement and/or analysis? (Check all applicable)

- ☐ A financial system such as SOMARDS or STANFINS
- ☐ A resource management system such as IMA on-line or AWPS.
- ☐ A standard functional system such as SARSS, IFS, SPS, or DCPS
- ☐ A cost factors' system or database such as OSMIS or ISR
- ☐ Army websites
- ☐ Internet websites external to the Army
- ☐ A contractor
- ☐ An internally developed software application
- ☐ Other internal data collection
- ☐ Other Specify: _____

32. How often do you update your costing information? (Check only one)

- ☐ Daily
- ☐ Weekly
- ☐ Every pay period
- ☐ Monthly
- ☐ Quarterly
- ☐ Semi-annually
- ☐ Annually
- ☐ Biannually
- ☐ Other Specify: _____

33. How do you validate your costing data? (Check all applicable)

- ☐ Compare with data from other sources
- ☐ Statistically sample the data and verify its accuracy
- ☐ Use data validated/audited by others
- ☐ I don't
- ☐ Other Specify: _____

34. To whom do you provide costing information? (Check all applicable)

- ☐ Immediate supervisor
- ☐ Managers across your organization
- ☐ Your organization's business or resource management office
- ☐ Head of your organization
- ☐ Higher headquarters
- ☐ An information system accessible by multiple organizations
- ☐ Organizations external to your organizational chain
- ☐ Other Specify: _____

35. What means do you use to provide costing information? (Check all applicable)

- ☐ Provide a hard copy report or briefing
- ☐ Use email to forward information
- ☐ Post information to a website
- ☐ Post information on a LAN
- ☐ Manually enter information in a system
- ☐ Import a file electronically into a system
- ☐ Provide a file to be electronically imported into a system
- ☐ Other system automatically pulls the data from your system
- ☐ Other Specify: _____

36. How is this costing information used? (Check all applicable)

- ☐ Evaluate and make business improvement decisions for your organization
- ☐ Manage and control costs for your organization
- ☐ Measure and evaluate performance for your organization
- ☐ Justify/generate resource requirements and budgets
- ☐ Fulfill higher headquarter reporting requirements
- ☐ Assess costs and/or performance of subordinate organizations
- ☐ Conduct benchmarking
- ☐ Establish prices and chargeback rates
- ☐ Measure project progress
- ☐ Evaluate contractor performance
- ☐ Compare alternatives for decision makers
- ☐ I don't know
- ☐ Other Specify: _____

COMMENTS

What improvements would you suggest to advance Army costing functions?

Provide comments on this survey.

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ANNEX C. CE/A SURVEY DATA

	PMP	0	0	0	0	0	0		0		0	0.000	0.000		0.0	0.0	
	DAWIA I	3	2	0	1	0	3		0		9	1.286	1.380	1.0	0.3	2.2	
	DAWIA II	4	3	3	1	6	13		0		30	4.286	4.309	3.0	1.3	7.3	
	DAWIA III	14	17	1	3	33	31		2		101	14.429	13.489	9.3	5.1	23.8	
	other	2	2	1	0	6	13		0		24	3.429	4.685	3.2	0.2	6.7	
source of pax (%)	college	0.04	0.23	0	0.72	0.94	0.45	0.13	0		91	0.428	0.356	0.2	0.2	0.7	
	other gov't agcy	0.88	0.18	0.5	0.14	0	0.5	0.64	0		86	0.406	0.322	0.2	0.2	0.6	
	commercial org	0.08	0.59	0.5	0.14	0.06	0.05	0.21	0		32	0.153	0.221	0.2	0.0	0.3	
	other	0	0	0	0	0	0	0.02	1		3	0.013	0.353	0.2	0.0	0.3	
PROCESSES	CE/A	3	4	4	4	4	4	4	1		28	3.5					
workload (%)	Contract Spt	0	3	4	1	1	3	1	0		13	1.625					
(1= <.1, 2 = .1-.2,	Tool Bldg	4	1	2	2	2	0	3	0		14	1.75					
3 = .2 - .5,4 = >.5)	Admin	2	2	3	1	2	2	1	0		13	1.625					
0 = 0%	other	0	0	0	0	1	2	0	2		5	0.625					
who tasks for	PM	1	1	1	0	1	1	0	1		6	0.75	0.463	0.3	0.4	1.0	
CE/A	PEO	1	1	1	0	1	1	1	0		6	0.75	0.463	0.3	0.4	1.0	
(1 if yes)	SECDEF	1	1	0	0	0	0	0	0		2	0.25	0.463	0.3	0.0	0.6	
	SECARMY	1	0	0	0	1	1	1	0		4	0.5	0.535	0.4	0.1	0.9	
	HQDA	1	0	1	0	0	0	1	0		3	0.375	0.518	0.4	0.0	0.7	
	MACOMs	1	1	0	1	1	1	0	0		5	0.625	0.518	0.4	0.3	1.0	
	CAIG	0	0	0	0	0	0	1	0		1	0.125	0.354	0.2	0.0	0.4	
	other(MSC)	0	0	0	1	0	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
	other (subMACON)	0	0	0	0	1	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
who tasks for	PM	0	1	1	0	1	1	1	0		5	0.625	0.518	0.4	0.3	1.0	
Contract Spt	PEO	0	1	1	0	1	0	1	0		4	0.5	0.535	0.4	0.1	0.9	
(1 if yes)	SECDEF	0	1	0	0	0	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
	SECARMY	1	0	0	0	0	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
	HQDA	1	0	0	0	0	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
	MACOMs	0	0	0	0	0	0	0	0		0	0	0.000		0.0	0.0	
	CAIG	0	0	0	0	0	0	0	0		0	0	0.000		0.0	0.0	
	other(RDECOM)	0	0	1	0	0	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
	other (MSC)	0	0	0	1	0	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
who tasks for	PM	0	1	1	0	1	0	1	0		4	0.5	0.535	0.4	0.1	0.9	
Tool Bldg	PEO	0	1	1	0	0	0	1	0		3	0.375	0.518	0.4	0.0	0.7	
(1 if yes)	SECDEF	1	0	0	0	0	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
	SECARMY	1	0	0	0	1	0	1	0		3	0.375	0.518	0.4	0.0	0.7	
	HQDA	1	0	0	0	0	0	1	0		2	0.25	0.463	0.3	0.0	0.6	
	MACOMs	1	0	0	0	1	0	0	0		2	0.25	0.463	0.3	0.0	0.6	
	CAIG	1	0	0	0	0	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
	other (MSC)	0	0	0	1	0	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
	other	0	0	0	0	0	0	0	0		0	0	0.000		0.0	0.0	
who tasks for	PM	0	1	0	0	0	1	0	0		2	0.25	0.463	0.3	0.0	0.6	

Admin	PEO	0	1	0	0	0	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
(1 if yes)	SECDEF	0	0	0	0	0	0	0	0		0	0	0.000		0.0	0.0	
	SECARMY	1	0	0	0	0	1	0	0		2	0.25	0.463	0.3	0.0	0.6	
	HQDA	1	0	1	0	0	0	0	0		2	0.25	0.463	0.3	0.0	0.6	
	MACOMs	0	1	0	1	0	0	0	0		2	0.25	0.463	0.3	0.0	0.6	
	CAIG	0	0	0	0	0	0	0	0		0	0	0.000		0.0	0.0	
	other(RDECOM)	0	0	1	0	0	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
	other (MSC)	0	0	0	1	0	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
	CE/A	CBO,SECDEF, SECARMY, HQDA	HQDA		AMC	ASA-CE CAIG	CBO ASA-FM&C MACOM CBO	HQDA, MACOM, PEO/PM									
who else gets	Contract Spt																
copy of your	Tool Bldg	SECDEF, SECARMY, HQDA, MACOMs, CAIG				ASA-CE CAIG		MACOM, CAIG, PEO/PM									
product?	Admin	SECARMY, HQDA					CBO										
Recruiting	(see																
Training	word																
QA	document)																
KM																	
TECHNOLOGIES	SEER-SEM	1	1	1	0	1	1	1	0		6	0.75	0.463	0.3	0.4	1.0	
Liense or access	SEER/PRICE - H	1	1	1	0	1	1	1	0		6	0.75	0.463	0.3	0.4	1.0	
to the listed	ACEIT	1	1	1	1	1	1	1	0		7	0.875	0.354	0.2	0.6	1.0	
commercial tools?	Crystal Ball	0	0	0	1	1	1	1	0		4	0.5	0.535	0.4	0.1	0.9	
(1 if yes)	TCO Mgr	0	0	0	0	0	1		0		1	0.125	0.378	0.3	0.0	0.4	
	Dec-making Spt apps	0	0	0	1	0	0	1	0		2	0.25	0.463	0.3	0.0	0.6	
	Decisions/windows	0	0	0	0	0	0	0	0		0	0	0.000		0.0	0.0	
	EDCAS	0	0	0	0	0	0	0	0		0	0	0.000		0.0	0.0	
	USCM	0	0	0	0	0	0	0	0		0	0	0.000		0.0	0.0	
	NAFCOM 99	0	0	0	0	0	0	0	0		0	0	0.000		0.0	0.0	
	PES	1	1	1	0	1	1	1	0		6	0.75	0.463	0.3	0.4	1.0	
	REVIC	0	0	0	0	0	0	0	1		1	0.125	0.354	0.2	0.0	0.4	
	SPSS	1	0	0	0	0	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
	OROS	0	1	0	0	0	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
	PERT Chart EXPERT	0	1	0	0	0	0	0	0		1	0.125	0.354	0.2	0.0	0.4	
	WINSIGHT (EVMS tool)	0	0	0	0	0	1	0	0		1	0.125	0.354	0.2	0.0	0.4	
	ARTIMIS (EVMS tool)	0	0	0	0	0	1	0	0		1	0.125	0.354	0.2	0.0	0.4	
	VERT (sim pkg)	0	0	0	0	0	0	0	1		1	0.125	0.354	0.2	0.0	0.4	
	other- COMPASS	0	0	0	0	0	1	0	0		1	0.125	0.354	0.2	0.0	0.4	
	SEER-SEM	1	3	1	0	2	3	2	0		12	1.5					
How often used?	SEER/PRICE - H	1	2	1	0	2	3	1	0		10	1.25					
(1 = rarely,	ACEIT	1	3	3	1	3	3	3	1		18	2.25					
2 = occasionaly,	Crystal Ball	0	0	0	2	3	1	1	0		7	0.875					
3 = frequently)	TCO Mgr	0	0	0	0	0	1	0	0		1	0.125					
	Dec-making Spt apps	0	0	0	1	0	0	1	0		2	0.25					
	Decisions/windows	0	0	0	0	0	0	0	0		0	0					
	EDCAS	0	0	0	0	0	0	0	0		0	0					
	USCM	0	0	0	0	0	0	0	0		0	0					
	NAFCOM 99	0	0	0	0	0	0	0	0		0	0					
	PES	1	2	1	0	2	2	1	0		9	1.125					
	REVIC	0	0	0	0	0	0	0	1		1	0.125					
	SPSS	3	0	0	0	0	0	0	0		3	0.375					
	OROS	0	1	0	0	0	0	0	0		1	0.125					
	PERT Chart EXPERT	0	1	0	0	0	0	0	0		1	0.125					
	WINSIGHT (EVMS tool)	0	0	0	0	0	3	0	0		3	0.375					
	ARTIMIS (EVMS tool)	0	0	0	0	0	3	0	0		3	0.375					
	VERT (sim pkg)	0	0	0	0	0	0	0	3		3	0.375					
	other - COMPASS	0	0	0	0	0	2	0	0		2	0.25					
DATA	(see word document)																

		# of pax by Grade					
category		GS 1- 11	GS 12 - 13	GS 14 - SES			
totals		36	125	52			
mean		0.167	0.587	0.245			
ST_DEV		0.376	0.493	0.431			
		# of pax, by total	# of yrs experience	in CE/A area			
category		1-5	6-10	11-20	21 +		
totals		44	15	57	85		
mean		0.205	0.071	0.267	0.401		
ST_DEV		0.407	0.257	0.444	0.491		
		# of pax by highest	academic degree				
category		high school	BA or BS	Grad degree			
totals		7	91	68			
mean		0.041	0.529	0.395			
ST_DEV		0.198	0.501	0.488			
		source of pax (%)					
category		college	other gov't agcy	commercial org	other		
totals		91	86	32	3		
mean		0.428	0.406	0.153	0.013		
ST_DEV		0.496	0.492	0.359	0.118		
		# of pax w/certs					
category		SCEA	PMP	DAWIA I	DAWIA II	DAWIA III	other
totals		4	0	9	30	101	24
mean		0.023	0.000	0.052	0.174	0.587	0.140
ST_DEV		0.151	0.000	0.223	0.381	0.494	0.348

ANNEX D. CM SURVEY DATA

	Grade											
X value	SES	GS 1 - 5	GS 6	GS 7	GS 8	GS 9	GS 10	GS 11	GS 12	GS 13	GS 14	GS 15
N	810	810	810	810	810	810	810	810	810	810	810	810
total	3	4	6	16	1	53	0	116	212	214	143	42
avg	0.003704	0.004938	0.007407	0.019753	0.001235	0.065432	0	0.14321	0.261728	0.264198	0.176543	0.051852
st dev	0.060783	0.070142	0.0858	0.139237	0.035136	0.24744	0	0.350503	0.439847	0.441177	0.381517	0.221865
conf	0.004186	0.00483	0.005909	0.009589	0.00242	0.01704	#NUM!	0.024138	0.030291	0.030382	0.026274	0.015279
lower ci	0	0.000108	0.001499	0.010164	0	0.048392	#NUM!	0.119072	0.231438	0.233815	0.15027	0.036573
upper ci	0.00789	0.009769	0.013316	0.029342	0.003654	0.082472	#NUM!	0.167348	0.292019	0.29458	0.202817	0.067131

Type Employment				Org Level				Academic Degree				
full time permanent	full time temporary	part time	intermittent (term)	HQDA	HQ, MACOM	HQ, other Intermediate Cmd Above Bde	Spt/ Field/ Local Org	Doctorate	Masters	Bachelor	Associate	HS Diploma/ GED
810	810	810	810	810	810	810	810	810	810	810	810	810
801	4	4	1	270	145	152	243	10	256	358	77	109
0.988889	0.004938	0.004938	0.001235	0.333333	0.179012	0.187654	0.3	0.012346	0.316049	0.441975	0.095062	0.134568
0.104887	0.070142	0.070142	0.035136	0.471696	0.3836	0.390677	0.458541	0.110491	0.46522	0.496929	0.293481	0.341472
0.007223	0.00483	0.00483	0.00242	0.032484	0.026417	0.026904	0.031578	0.007609	0.032038	0.034222	0.020211	0.023516
0.981666	0.000108	0.000108	0	0.300849	0.152595	0.16075	0.268422	0.004737	0.284012	0.407754	0.074851	0.111052
0.996112	0.009769	0.009769	0.003654	0.365817	0.205429	0.214559	0.331578	0.019955	0.348087	0.476197	0.115273	0.158084

Dev't of Cost Estimating Relationships (parametric)		EVM		EA		Process or Project Costing		Productivity Improvement/ Business Process Reengineering		SBC		Statistical Applications of Costing		Other		None		Cost Collection		Cost Measurement		Cost Analysis		Cost Management	
486	0.119342	486	0.218107	486	0.290123	486	0.269547	486	0.238683	486	0.222222	486	0.23251	486	0.104938	810	0.332099	810	0.364198	810	0.260494	810	0.448148	810	0.274074
58	0.324524	106	0.413386	141	0.454287	131	0.444182	116	0.426718	108	0.416168	113	0.422868	51	0.30679	269	0.471257	295	0.481502	211	0.439175	363	0.497611	222	0.446322
0.028852	0.036752	0.040389	0.040389	0.03949	0.03949	0.037938	0.037938	0.037	0.037	0.037595	0.037595	0.027275	0.027275	0.032454	0.032454	0.033159	0.033159	0.030244	0.030244	0.034269	0.034269	0.030736	0.030736		
0.09049	0.181355	0.249735	0.249735	0.230057	0.230057	0.200745	0.200745	0.185222	0.185222	0.194915	0.194915	0.077663	0.077663	0.299645	0.299645	0.331038	0.331038	0.23025	0.23025	0.41388	0.41388	0.243338	0.243338		
0.148194	0.254859	0.330512	0.330512	0.309038	0.309038	0.276621	0.276621	0.259222	0.259222	0.270106	0.270106	0.132214	0.132214	0.364552	0.364552	0.397357	0.397357	0.290738	0.290738	0.482417	0.482417	0.304811	0.304811		

Amount of training		Pro Conference Sessions		3 days of software tng		1 to 3 days tng on CM or costing methodologies		<10 hrs w/in another professional dev't course		10 - 40 hrs in Pro dev't couusre		10 - 40 hrs in web-based course		>40 hrs in Pro dev't couusre		>40 hrs in web-based course		college course(s) for credit		Subjects trained				Cost Finding (Analogy, Engineering, Delphi approaches)	
none																				ABC/M		BCA			
810		810		810		810		810		810		810		810		810		810		486		486		486	
324		165		71		108		52		79		54		103		32		113		313		70		48	
0.4	0.203704		0.087654		0.133333		0.064198		0.097531		0.066667		0.12716		0.039506		0.139506		0.644033		0.144033		0.098765		
0.490201		0.403		0.282966		0.340145		0.245256		0.296863		0.249598		0.333359		0.194916		0.346688		0.479299		0.351485		0.298654	
0.033758		0.027753		0.019487		0.023424		0.01689		0.020444		0.017189		0.022957		0.013423		0.023875		0.042612		0.031249		0.026552	
0.366242		0.175951		0.068168		0.109909		0.047308		0.077087		0.049478		0.104203		0.026083		0.115631		0.601421		0.112784		0.072213	
0.433758		0.231457		0.107141		0.156758		0.081087		0.117975		0.083855		0.150118		0.052929		0.163381		0.686645		0.175282		0.125318	

	spt DSAM		Experience					Current Pos				
Costing Support Functions	No	Yes	< 1 yr	1 - 2 yrs	3 - 5 yrs	6 - 10 yrs	> 10 yrs	< 1 yr	1 - 2 yrs	3 - 5 yrs	6 - 10 yrs	> 10 yrs
810	541	541	541	541	541	541	541	541	541	541	541	541
146	420	121	63	55	100	82	241	104	141	135	57	104
0.180247	0.77634	0.22366	0.116451	0.101664	0.184843	0.151571	0.445471	0.192237	0.260628	0.249538	0.10536	0.192237
0.38463	0.417082	0.417082	0.321062	0.302485	0.388529	0.358937	0.497478	0.394423	0.439384	0.433146	0.307301	0.394423
0.026488	0.035146	0.035146	0.027054	0.025489	0.03274	0.030246	0.04192	0.033236	0.037025	0.036499	0.025895	0.033236
0.153759	0.741195	0.188514	0.089397	0.076175	0.152103	0.121325	0.403551	0.159	0.223604	0.213039	0.079466	0.159
0.206735	0.811486	0.258805	0.143505	0.127153	0.217582	0.181817	0.487391	0.225473	0.297653	0.286037	0.131255	0.225473

Employee Source					methods used							
current organization	different Army organization	different federal/ DoD org	private sector	other	ABC/M	BCA	Cost Finding (Analogy, Engineering, Delphi approaches)	Dev't of Cost Estimating Relationships (parametric)	EVM	EA	Process or Project Costing	Productivity Improvement/ Business Process Reengineering
541	541	541	541	541	541	541	541	541	541	541	541	541
198	198	61	59	25	243	73	56	60	69	159	181	134
0.365989	0.365989	0.112754	0.109057	0.046211	0.449168	0.134935	0.103512	0.110906	0.127542	0.2939	0.334566	0.247689
0.482152	0.482152	0.316585	0.312	0.210135	0.49787	0.341971	0.304908	0.314306	0.333887	0.455968	0.472275	0.43207
0.040629	0.040629	0.026677	0.026291	0.017707	0.041953	0.028816	0.025693	0.026485	0.028135	0.038422	0.039796	0.036409
0.32536	0.32536	0.086077	0.082767	0.028504	0.407215	0.106119	0.077819	0.084421	0.099406	0.255478	0.294769	0.211281
0.406618	0.406618	0.139431	0.135348	0.063918	0.491121	0.163752	0.129205	0.137391	0.155677	0.332323	0.374362	0.284098

Manager	YOUR apprsl	Have you done....	created cost (not budget) info	collected info for costing purposes	dev'd a software app to collect and/or generate costs and cost estimates	dev'd a cost methodology to spt mgmt decisions	linked cost info with other perf measures	linked cost efforts with an orgs strategic plan	participated in creation of a strategic plan	trained cost techniques and managerial application of cost info	assesses an org's cap for change	share knowledge	formal training	OJT	email list - serve	AKO	locally established system	informally, assisting others upon request	do not share	other
Yes	No	Yes	541	541	541	541	541	541	541	541	541	541	541	541	541	541	541	541	541	541
541	541	541	541	541	541	541	541	541	541	541	541	541	541	541	541	541	541	541	541	541
192	349	179	180	360	65	111	222	77	189	51	109	98	52	204	25	4	71	355	90	36
0.354898	0.645102	0.330869	0.332717	0.665434	0.120148	0.205176	0.410351	0.142329	0.349353	0.09427	0.201479	0.032484	0.02486	0.040877	0.017707	0.007226	0.028479	0.040061	0.03141	0.021021
0.478925	0.478925	0.470961	0.471622	0.472275	0.325435	0.404204	0.492353	0.349711	0.477207	0.292474	0.401476	0.071258	0.096118	0.377079	0.046211	0.007394	0.131238	0.656192	0.166359	0.066543
0.040357	0.040357	0.039686	0.039741	0.039796	0.027423	0.03406	0.041488	0.029469	0.040212	0.024645	0.033831	0.148662	0.181146	0.485104	0.210135	0.085748	0.337973	0.475417	0.372747	0.24946
0.314542	0.604745	0.291183	0.292976	0.625638	0.092725	0.171115	0.368863	0.112861	0.309141	0.069624	0.167648	0.033071	0.051756	0.336202	0.028504	0.000168	0.102759	0.616131	0.134949	0.045523
0.395255	0.685458	0.370555	0.705231	0.147571	0.239236	0.451839	0.171798	0.389565	0.118915	0.235309	0.708817	0.221363	0.120979	0.417957	0.063918	0.014619	0.159718	0.696253	0.197768	0.087564

				OrgHeadrated			Ext CoC import					
performed analysis of cost info	provided asst to an org's ldrshp and mgmt in using costing analysis	dev'd baseline costs for an improvement or benchmark effort	Used cost analysis to make decisions for improving an org or process	Yes	No	Don't Know	Very	Somewhat	Not Very	Not at all	Don't know	
541	541	541	541	541	541	541	541	541	541	541	541	
348	187	141	191	99	65	377	230	146	39	11	115	
0.643253	0.345656	0.260628	0.35305	0.182994	0.120148	0.696858	0.425139	0.269871	0.072089	0.020333	0.212569	
0.479483	0.476022	0.439384	0.47836	0.38702	0.325435	0.460042	0.494822	0.444303	0.258874	0.141266	0.409504	
0.040404	0.040112	0.037025	0.040309	0.032612	0.027423	0.038766	0.041696	0.037439	0.021814	0.011904	0.034507	
0.602849	0.305544	0.223604	0.312741	0.150382	0.092725	0.658092	0.383442	0.232431	0.050275	0.008429	0.178062	
0.683657	0.385768	0.297653	0.393359	0.215607	0.147571	0.735623	0.466835	0.30731	0.093903	0.032237	0.247076	

cost impacts intrl ops					int mgmt/cost cntrl to org success					intMgmt/costCntrl to prsnl success		
Significant	Some	Minimal	None	don't know	Very	Somewhat	Not Very	Not at all	Don't know	Very	Somewhat	Not Very
541	541	541	541	541	541	541	541	541	541	541	541	541
251	163	59	12	56	314	144	37	8	38	178	232	86
0.463956	0.301294	0.109057	0.022181	0.103512	0.580407	0.266174	0.068392	0.014787	0.07024	0.32902	0.428835	0.158965
0.499161	0.459245	0.312	0.147409	0.304908	0.493949	0.442365	0.252651	0.120813	0.255788	0.470292	0.495368	0.365982
0.042062	0.038698	0.026291	0.012421	0.025693	0.041623	0.037276	0.02129	0.01018	0.021554	0.039629	0.041742	0.03084
0.421894	0.262595	0.082767	0.00976	0.077819	0.538784	0.228898	0.047102	0.004607	0.048686	0.289391	0.387093	0.128125
0.506018	0.339992	0.135348	0.034603	0.129205	0.622029	0.30345	0.089682	0.024968	0.091794	0.36865	0.470578	0.189804

	intMgmt/costCntrl - Sprvsr success						priority-OrgHead-costCntrl				ldrs review cost info		
	Not at all	Very	Somewhat	Not Very	Not at all	Don't know	High	Mid-Level	Low	None	Daily	weekly	Pay Period
	541	541	541	541	541	541	541	541	541	541	541	541	541
	45	191	196	61	27	66	270	194	66	11	40	61	8
	0.083179	0.35305	0.362292	0.112754	0.049908	0.121996	0.499076	0.358595	0.121996	0.020333	0.073937	0.112754	0.014787
	0.276409	0.47836	0.481107	0.316585	0.217956	0.327584	0.500462	0.480032	0.327584	0.141266	0.261911	0.316585	0.120813
	0.023292	0.040309	0.040541	0.026677	0.018366	0.027604	0.042172	0.04045	0.027604	0.011904	0.02207	0.026677	0.01018
	0.059888	0.312741	0.321751	0.086077	0.031541	0.094392	0.456904	0.318145	0.094392	0.008429	0.051867	0.086077	0.004607
	0.106471	0.393359	0.402833	0.139431	0.068274	0.1496	0.541247	0.399045	0.1496	0.032237	0.096007	0.139431	0.024968

							Gen cost?		methods used in current position		
	Monthly	Quarterly	Semi-annually	Annually	Biannually	Other	Never	Don't Know	Yes	No	ABC/M	BCA	Cost Finding (Analogy, Engineering, Delphi approaches)
	541	541	541	541	541	541	541	541	541	541	307	307	307
	124	49	10	5	3	11	10	220	307	234	126	43	40
	0.229205	0.090573	0.018484	0.009242	0.005545	0.020333	0.018484	0.406654	0.567468	0.432532	0.410423	0.140065	0.130293
	0.420711	0.287267	0.134819	0.095779	0.074329	0.141266	0.134819	0.491664	0.495886	0.495886	0.492714	0.347621	0.337175
	0.035451	0.024207	0.011361	0.008071	0.006263	0.011904	0.011361	0.04143	0.041786	0.041786	0.055115	0.038885	0.037717
	0.193754	0.066366	0.007124	0.001171	0	0.008429	0.007124	0.365224	0.525682	0.390746	0.355308	0.10118	0.092576
	0.264657	0.11478	0.029845	0.017313	0.011809	0.032237	0.029845	0.448085	0.609254	0.474318	0.465539	0.17895	0.16801

								software				
Dev't of Cost Estimating Relationships (parametric)	EVM	EA	Process or Project Costing	Productivity Improvement/ Business Process Reengineering	SBC	Trend Analysis	None of the Aboww	MS excel	MS Access	other database application (SQl, Oracle, etc.)	SAS Oros 5.5	SAS ABM 6.x
307	307	307	307	307	307	307	307	307	307	307	307	307
55	43	97	121	78	76	181	24	293	108	87	26	3
0.179153	0.140065	0.315961	0.394137	0.254072	0.247557	0.589577	0.078176	0.954397	0.351792	0.283388	0.084691	0.009772
0.384107	0.347621	0.465656	0.489462	0.436049	0.432298	0.492714	0.268886	0.208962	0.478309	0.451379	0.278875	0.09853
0.042967	0.038885	0.052089	0.054752	0.048777	0.048357	0.055115	0.030078	0.023375	0.053504	0.050492	0.031195	0.011022
0.136187	0.10118	0.263872	0.339385	0.205295	0.1992	0.534461	0.048098	0.931023	0.298287	0.232896	0.053495	0
0.22212	0.17895	0.36805	0.448889	0.302849	0.295914	0.644692	0.108254	0.977772	0.405296	0.333879	0.115886	0.020794

				Source of data								
other ABC software app	ECONPAK	ACET-IT	other	financial system: SOmARDS, STANFINS, ..	resource mgmt system such as IMA on-line or AWPS	standard functional system: SARSS, IFS, SPS, DCPS, ..	cost factors system or database: OSMIS, ISR, ..	Army websites	non-Army websites	contractor	internally dev'd software application	other internal data collection
307	307	307	307	307	307	307	307	307	307	307	307	307
19	9	28	37	205	94	74	55	109	50	62	88	112
0.061889	0.029316	0.091205	0.120521	0.667752	0.306189	0.241042	0.179153	0.355049	0.162866	0.201954	0.286645	0.364821
0.241348	0.168966	0.288371	0.326102	0.471788	0.461662	0.428414	0.384107	0.479309	0.369847	0.402114	0.452933	0.482166
0.026997	0.018901	0.032257	0.036478	0.052775	0.051642	0.047923	0.042967	0.053616	0.041371	0.044981	0.050665	0.053936
0.034892	0.010415	0.058948	0.084043	0.614978	0.254547	0.19312	0.136187	0.301433	0.121495	0.156974	0.235979	0.310885
0.088887	0.048217	0.123463	0.156999	0.720527	0.357831	0.288965	0.22212	0.408665	0.204238	0.246935	0.33731	0.418756

	updata cost info									validate cost info		
other	Daily	weekly	Pay Period	Monthly	Quarterly	Semi-annually	Annually	Biannually	Other	compare with data from other sources	statistically sample data and verify accuracy	use data validated/audited by others
307	307	307	307	307	307	307	307	307	307	307	307	307
33	49	42	23	93	25	4	21	1	49	224	96	117
0.107492	0.159609	0.136808	0.074919	0.302932	0.081433	0.013029	0.068404	0.003257	0.159609	0.729642	0.312704	0.381107
0.310243	0.366841	0.344205	0.26369	0.460276	0.273946	0.113585	0.25285	0.057073	0.366841	0.44487	0.464352	0.486452
0.034704	0.041035	0.038503	0.029497	0.051487	0.030644	0.012706	0.028284	0.006384	0.041035	0.049764	0.051943	0.054415
0.072788	0.118574	0.098305	0.045422	0.251445	0.050789	0.000324	0.04012	0	0.118574	0.679878	0.260761	0.326693
0.142196	0.200644	0.175311	0.104415	0.354419	0.112077	0.025735	0.096688	0.009642	0.200644	0.779405	0.364646	0.435522

		provide cost info to ..								how provide cost info...		
Don't validate	other	immediate supervisor	mngrs across your org	org's business or resource mgmt office	Head of your org	higher HQ	info system accessible by multiple organizations	Orgs external to your organizational chain	other	hard copy report/ briefing	use email to forward info	post to website
307	307	307	307	307	307	307	307	307	307	307	307	307
28	11	233	190	92	128	114	42	87	13	218	241	62
0.091205	0.035831	0.758958	0.618893	0.299674	0.416938	0.371336	0.136808	0.283388	0.042345	0.710098	0.785016	0.201954
0.288371	0.186171	0.428414	0.486452	0.458863	0.493857	0.483951	0.344205	0.451379	0.201704	0.454458	0.411482	0.402114
0.032257	0.020825	0.047923	0.054415	0.051329	0.055243	0.054135	0.038503	0.050492	0.022563	0.050836	0.046029	0.044981
0.058948	0.015005	0.711035	0.564478	0.248345	0.361695	0.3172	0.098305	0.232896	0.019782	0.659262	0.738988	0.156974
0.123463	0.056656	0.80688	0.673307	0.351003	0.472181	0.425471	0.175311	0.333879	0.064908	0.760934	0.831045	0.246935

						how is your cost info used						
post on a LAN	maually enter info in a system	import a file electronically into a system	provide file to be electronically entered into system	other system automatically pulls the data form your system	other	evaluate and make business improvement decisions for youre org	manage and control costs for your org	measure and evaluate performance for your organization	justify/ generate resource requirements and budgets	fulfill higher HQ reporting requirements	assess costs and/or performance of subordinate organizations	conduct benchmarking
307	307	307	307	307	307	307	307	307	307	307	307	307
62	64	71	64	29	9	168	164	165	185	167	89	84
0.201954	0.208469	0.23127	0.208469	0.094463	0.029316	0.547231	0.534202	0.537459	0.602606	0.543974	0.289902	0.273616
0.402114	0.406877	0.422333	0.406877	0.292949	0.168966	0.498577	0.499643	0.499409	0.490158	0.498876	0.454458	0.446542
0.044981	0.045514	0.047243	0.045514	0.03277	0.018901	0.055771	0.055891	0.055864	0.05483	0.055805	0.050836	0.049951
0.156974	0.162955	0.184028	0.162955	0.061693	0.010415	0.49146	0.478311	0.481595	0.547776	0.488169	0.239066	0.223665
0.246935	0.253983	0.278513	0.253983	0.127232	0.048217	0.603003	0.590093	0.593324	0.657435	0.599779	0.340738	0.323566

establish prices and chargeback rates	measure project progress	evaluate contractor performance	compare alternatives for decision makers	don't know	other							
307	307	307	307	307	307							
58	136	57	136	8	10							
0.188925	0.442997	0.185668	0.442997	0.026059	0.032573							
0.392088	0.497551	0.389473	0.497551	0.15957	0.177807							
0.043859	0.055657	0.043567	0.055657	0.01785	0.01989							
0.145066	0.38734	0.142101	0.38734	0.008209	0.012684							
0.232784	0.498653	0.229235	0.498653	0.043908	0.052463							

ANNEX E. PROS AND CONS OF WEB-BASED SURVEYS

Using a web-based survey for the CM community turned out to be very beneficial due to the number of questions per survey and the large number of respondents. The web-based survey allowed for results to be viewed in three different ways: 1) on-line, 2) results emailed in a word document, complete with charts, graphs and summary statistics, or 3) as an excel spreadsheet, with respondents by row, answers by column. Included with the Excel spreadsheet was an additional Excel spreadsheet identifying how answers were coded (e.g.: yes = 1, no = 2, don't know = 3).

For daily status checks, when it was important to know how many respondents had completed the survey and the MACOMs to which they belonged, I viewed results on-line. When interested in determining the grade or series of respondents by MACOM, the on-line viewing application allowed the responses to one question to be broken out based on the response to a second question. This resultant table could then be forwarded to DASA-CE for assistance in encouraging participation where participation may have been lacking.

The ability to create tables of responses for two separate questions was convenient in that it took only seconds to compare responses to any one question against the response to any other question. This convenience allows for multiple comparisons in an effort to determine if there may be correlation in any area. Because responses are available in excel, immeasurable time is saved by not having to code responses yourself. Also, for those prone to error, the possibility of coding incorrectly is eliminated. Dissemination of results to interested parties is also possible since virtually everyone has access to MS Excel.

The survey itself is available to anyone with internet access (again, virtually everyone) and the correct URL. The URL was emailed to potential respondents, and once employed, a cookie installed on the computer does not allow access to the survey again for 14 days. This is meant to deter anyone from answering more than once, but it is not fool proof. Another drawback to the web-based survey was the lack of a 'back' or

'previous question' button. Several respondents stated that they would have preferred the ability to verify their answers before submitting the survey, but that was not possible.

For personnel who responded to the survey either by email or face-to-face, either Dr. Nussbaum or I was available to clarify any uncertainty or confusion prior to the respondent submitting the survey. For the respondents who used the web-based survey, there was no way to leave the survey, seek clarification, and open the survey again the next day (due to the 14-day cookie). This, in part, may have led tho the steady decline in the number of respondents as the survey went on.

For this type of project, where time is of the essence, and the risk of the cost management community wanting to sabotage the effort is low, I believe the benefits of using a web-based vehicle far outweigh the hazards.

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