
Logistics Management Institute

Department of Defense
Costing References Web

Phase 1: Establishing the Foundation

CC501T1

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Chapter 1

Introduction

PURPOSE

This is a report about developing and publishing the DoD Costing References Web on the World Wide Web (<http://www.dtic.mil/dodim/costweb.html>). The DoD Costing References Web is a major resource of the Business Process Improvement On-Line.¹ This project was initiated in response to several factors. Among them were the commitment to continuously improve the Business Process Reengineering (BPR) Program's "toolbox" feedback from BPR practitioners regarding experiences with functional economic analysis and Major Automated Information Systems Review Council (MAISRC) requirements, and the Government Performance and Results Act (GPRA) of 1993. The BPR Program's toolbox includes guidebooks, software, models, examples, and related items, which are designed to be used individually or in combination to aid BPR practitioners in the conduct of reengineering projects.

SCOPE

This report addresses Phase 1 of the project, including its origins and evolution, as well as information management considerations for the project and Internet publishing. Phase 1 focused on establishing a foundation of costing information and tools, primarily of assistance and interest to the defense costing community, which includes supporting contractors. The plan for Phase 2 is to focus on expanding and extending the costing information and tools to help make it easier for functional managers to calculate cost estimates for BPR projects. Phase 2 is to be initiated after a trial period for the Phase 1 effort, and it will be the subject of a separate report.

TERMINOLOGY

To aid in the understanding of Internet-related terminology used in this report, the following simple definitions are offered:

- ◆ The *Internet* is the international network of computer networks.

¹ Business Process Improvement On-Line (<http://www.dtic.mil/dodim/bpr.html>) is operated by the Office of the Director of Functional Process Improvement in the Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence).

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- ◆ The *World Wide Web* refers to the graphical component of the Internet, manifested in hypertext documents, which enable users to quickly jump from one document on a computer to documents on any of the other computers on the Internet. In this report, the abbreviation WWW is used to refer to the World Wide Web.
 - ◆ Hundreds of thousands of webs make up the WWW. Microsoft® has defined a *web* (lower case) as a start or home page and all its associated documents, files, and images.² This report is about the DoD Costing References *Web*, one of the webs on the Internet that can be viewed using a browser application.

ORGANIZATION OF THE REPORT

Chapter 2 provides an overview of the origins and evolution of the project. Chapter 3 discusses the project from an information management perspective. Chapter 4 contains information that may be useful for planning any follow-on efforts. Contact information for project participants is in Appendix A. Appendix B provides a snapshot of the DoD Costing References Web start page.

² Microsoft® FrontPage™ 1.1 Help

Chapter 2

Project Overview

ORIGINS OF THE PROJECT

The Office of the Director of Functional Process Improvement (ODFPI) within the Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) is responsible for DoD's BPR Program. Continuous improvement of the BPR Program and its toolbox has been, and remains, a constant goal of this office. In the costing and economic analysis area, the BPR Program toolbox has been improved over time with items such as the *Functional Economic Analysis Guidebook*,¹ the Functional Economic Analysis Model (FEAM), and the TurboBPR, a Windows-based BPR support tool. The Logistics Management Institute has had a long-term association with ODFPI and had been involved in several previous continuous improvement projects. For example, the Institute contributed to the development of the *Functional Economic Analysis Guidebook* and participated in the development of the TurboBPR tool.

Customers

Two communities were identified as customers for this project. One was the traditional BPR practitioner, the functional community, which requires cost-estimating information and tools primarily for functional economic analyses. The other was the costing community, made up of the Office of the Director of Program Analysis and Evaluation (ODPA&E), the military service cost centers, and similar elements in the DoD agencies. Obtaining customer buy-in and input was deemed an essential part of the project.

Cost-Estimating Process Concerns

Business process reengineering initiatives in DoD emphasize identifying functional process improvements as the basis for computing returns on investment. Reporting functional improvement achievements is required by GPRA. Accordingly, a new level of fidelity and accuracy is required in estimating functional costs to ensure future funding support and accountability for achieving investment objectives.

Feedback from BPR practitioners on a need to streamline and simplify the process has further reinforced an increased emphasis on the cost-estimating process.

¹ Department of Defense, Corporate Information Management *Functional Economic Analysis Guidebook*, 15 January 1993.

Driving this need to streamline and simplify processes are three frequently cited concerns:

- ◆ *Difficulty in obtaining current policy and procedures.* Frequently, cost analyses are based on whatever paper copies of information are available at the time, which may not be current or correct. Delays in starting cost-estimating tasks are often caused by an analyst having to search for policy and procedures documents. As a result, managers in the reviewing chain may have less than full confidence in the quality of the results of a completed analysis done under such circumstances.
- ◆ *Difficulty in obtaining consistent guidance.* Component instructions and manuals specify slightly different reporting formats, procedures for approval, and even definitions. This causes delays in start-up, confusion on actual cost-estimating tasks and outcomes, and difficulty in review. The problem is magnified when an improvement project involves DoD-wide, cross-functional tasks.
- ◆ *Difficulty in dealing with redundant requirements.* The most frequently mentioned problem is developing a functional economic analysis under one set of constraints and having to repeat the entire process for the MAISRC. Recommendations for automated information system (AIS) investments may be developed in the course of a BPR project. AIS investments above a certain threshold are subject to MAISRC's acquisition oversight process. The cost and cycle time for each iteration can be in the order of \$300,000 and 6 months, respectively.

EVOLUTION OF THE PROJECT

Discussions regarding a costing reference guide to assist BPR practitioners began in 1994 as one of several continuous improvement projects for the BPR Program. In April 1995, the Defense Information Systems Agency (DISA), acting in support of ODFPI, initiated the planning process for the project on costing references. September 1995 was targeted as the start date for the project, when full-time Logistics Management Institute resources were expected to become available at the conclusion of another BPR project. The contents list for the first Business Process Improvement On-Line Web, published in the fall of 1995, contained a placeholder for a link to a costing web.

Planning and discussions continued among ODFPI, DISA, and Logistics Management Institute on an ad hoc basis from April through October 1995, during which time the concept and scope continued to be refined. Additional coordination in late October 1995 with ODP&E helped to further refine the concept and scope, and served to gain ODP&E informal concurrence for the concept of a costing reference. From November 1995 through March 1996, additional refinements were made on the basis of customers' participation and input. The DoD

Costing References Web was published as part of the Business Process Improvement On-Line Web on 3 April 1996. The following subsections will address that evolution in more detail.

Requirement

The main requirement in the initial concept was a better set of tools to assist BPR practitioners in calculating the cost data required for functional economic analysis. The FEAM in the BPR Program toolbox worked well once costs had been developed; a tool to help develop the costs to use in the FEAM was needed. Also important was the need for standard costing information that would facilitate validation of economic analyses products, especially those involving the acquisition oversight process. In the concept refinement process, the initial step to satisfying the requirement was to establish a foundation of costing information upon which future work would be based.

Concept

The initial concept was to create a common reference point on the WWW for DoD cost-estimating information, which would be presented in value-added detail. For example, the initial concept called for developing a tailored toolbox of cost-estimating relationships, formulas, and instructions for each functional area (or grouping of similar areas). Because building the required number of different, functionally tailored toolboxes would be a major undertaking, an incremental approach was adopted. This meant concentrating development and publication efforts first on a selected functional area for which the greatest benefit would be realized. Then, as soon as one functional area toolbox was completed, work on the next toolbox would begin. Besides being of major benefit to the selected functional area, it was felt that the steep learning curve associated with developing the first functional tool would make the process of constructing the subsequent functional toolboxes easier and faster. This concept was presented to customers at the first of three meetings of the Functional Cost Estimation Forum, as it was then called, on 3 November 1995.

A decision to restructure the project resulted from discussions between ODFPI, ODP&E, and other offices following the first meeting. During these discussions, it became increasingly apparent that the technical complexity and coordination requirements implicit in the initial concept would cause the schedule to be stretched out and costs driven up. Thus, a two-phase approach was adopted, which would deliver, via the WWW in the first phase, a base of value-added costing information earlier and at relatively low cost. The more complex and costly work would be deferred until the second phase.

Phase 1 would focus on the information needs of component cost centers and support contractors. A foundation of costing references and related information was

to be established from that already existing on the WWW; nonetheless, a limited amount of new information was created from official sources to flesh out the web.

A second phase would undertake the activities from the initial concept, which is to construct a set of tailored toolboxes to aid DoD functional managers conducting reengineering projects.

This revised concept would address the first two concerns cited above: the difficulty in obtaining current policy and procedures, and the difficulty in obtaining consistent guidance.

Customer Support

The first meeting of the Functional Cost Estimation Forum with customer representatives was held on 3 November 1995. The final name selected for the web was DoD Costing References. Organizations represented at this meeting were as follows:

- ◆ Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), Office of the Director of Functional Process Improvement
- ◆ Office of the Under Secretary of Defense (Personnel and Readiness)
- ◆ Office of the Deputy Under Secretary of Defense (Logistics)
- ◆ Office of the Director, Program Analysis and Evaluation
- ◆ Office of the Director, Civilian Personnel Management Service
- ◆ Department of the Army, Cost and Economic Analysis Center
- ◆ Department of the Navy, Naval Center for Cost Analysis
- ◆ Department of the Air Force, Office of the Assistant Secretary of the Air Force, Financial Management and Comptroller.
- ◆ Defense Information Systems Agency, Comptroller and Information Engineering Directorates
- ◆ Defense Logistics Agency, Operations Research Office
- ◆ SRA, Inc.
- ◆ Logistics Management Institute.

See Appendix A for a roster of project participant names, their organizations, addresses, telephone and fax numbers.

A prototype, WWW-active demonstration of the DoD Costing References Web was shown to the participants, which helped them understand the concept. Copies of the prototype demonstration were given to the participants to take back to their organizations to facilitate buy-in by others. These prototype demonstrations could also act as a catalyst to spur others in the costing community to use the WWW to publish their own information, thus helping to reinforce and extend the foundation.

Customers attending the meetings not only were provided prototypes demonstration, they also were provided a draft contents list for review between meetings. The list included items that were already published and other costing information that would be a candidate to be published on the WWW. Suggestions for new candidate items also were sought. These lists were useful in defining the contents of the final version of the DoD Costing References Web. Since the focus of Phase 1 was on the costing community requirements, only costing community representatives attended the second and third meetings held on 3 February and 7 March 1996. An updated prototype web was demonstrated at each meeting.

Several other potential benefits were identified that helped customers buy into the project. For example, personnel at military service cost centers could refer people requesting routine information to the DoD Costing References Web, thus reducing interruptions to cost center operations. By using the DoD Costing References Web as a distribution method, one cost center representative thought money and staff time could be saved by eliminating mailing inflation factors documents to approximately 200 addressees. Feedback on Phase 1 would contribute to modifications and enhancements to the foundation as well as help in the process of developing user requirements for Phase 2. Participants agreed with the general plan as briefed.

Issues

Three main issues were raised in the 3 November 1995 meeting regarding the content of the web. These issues are listed below along with a discussion of how the issue was addressed as the project progressed:

- ◆ *Security.* Making information easily accessible on the WWW for functional managers also makes it easier for others outside OSD to access it. Furthermore, there is a constant security concern about someone inadvertently creating classified information in the process of aggregating normally unclassified information. On-line security technology adopted by some DoD agencies to control access to information may provide some insights for this project. On the other hand, there is a trend in government and DoD toward wider dissemination of all types of information.

Discussion. The decision to make the Phase 1 product mainly a subject directory of organized and annotated hypertext links pointing to information

already published elsewhere on the WWW largely eliminated security as a concern. In essence, the security decision had already been made by the information's originator who had taken the responsibility for publishing it on the WWW. Originator in this context means the sole authoritative source having official responsibility for the information. This concern will have to be addressed in Phase 2 in those cases where "new" information is synthesized and tailored to meet customer requirements.

- ◆ *Usability.* Information, such as tools and cost factors, must be tailored to make it useful to the functional community. For example, some of the existing cost-estimating tools that might be valuable to functional staff personnel may require an expert's knowledge to use them properly. Making it possible for the functional staff personnel to use cost-estimating tools without expert assistance will be a significant challenge in many cases.

Discussion. This issue became moot for Phase 1, since the focus is on the WWW subject directory concept. The usability issue will be addressed more appropriately in Phase 2 as information is tailored to address user requirements. There was a point raised by one of the BPR practitioners about a need to "validate" the tools and models to ensure that cost analysis products would be accepted as being valid. The ODPA&E representative helped clarify this point by stating that only the results of analyses are validated. Tools and models used to obtain the results are not subject to validation.

- ◆ *Quality.* Identifying the source and currency of the information, from which its quality can be determined, will be an essential requirement.

Discussion. This issue also became essentially moot for Phase 1, since the hypertext links pointed to webs that were operated by the originators of the information. In Phase 2, the quality issue will have to be addressed in cases where information is synthesized and tailored to meet user requirements.

Strategies

Several strategies were agreed to in the first meeting. Most of the strategies were applicable to Phase 1; some of them were applicable to both phases, and others only would be applicable to Phase 2. The following is a list of the strategies with a

discussion of their applicability to the phases and how they were modified as the project progressed:

- ◆ Focus first on supporting selected BPR projects that can realize the greatest benefits.

Discussion. This strategy is only applicable to Phase 2 because of the shift of this requirement from the first phase, which focused on building a foundation of costing information that already was published on the WWW.

- ◆ Draw on existing costing information and tailor it to fit the toolbox.

Discussion. The first part of this strategy is applicable to both phases. Existing information in Phase 1 meant mainly information already published on the WWW. The second part regarding the toolbox is only applicable to Phase 2 since it refers to synthesis and tailoring to meet user requirements.

- ◆ Provide access to all communities through a corporate WWW “clearinghouse.”

Discussion. The clearinghouse concept changed to that of a subject directory as being more accurate. While the Phase 1 shifted primarily to the costing community requirements, all communities could access the information via the WWW.

- ◆ Enter data once; use it many times.

Discussion. This is a key information management principle. It is implemented in this project by using the WWW to obtain information from the originator. The originator enters the information once (publishes and maintains it in one place), which is used many times by members of DoD throughout the world. This strategy applies to both phases.

- ◆ Review and update on a regular basis.

Discussion. This is key to maintaining quality and user confidence in the site and to “keep them coming back.” This assumes that the originator will keep the information on the WWW current. User feedback also would be welcomed as a part of the review and update process.

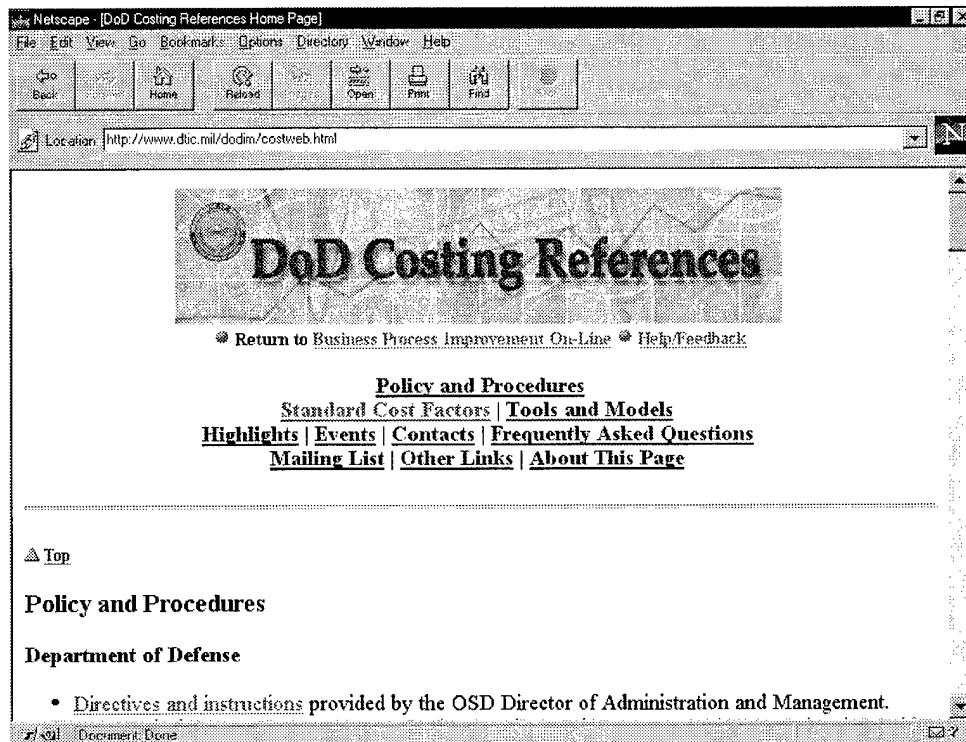
- ◆ Provide links to other cost-related web sites.

Discussion. With the adoption of the two-phase approach, this became the main focus of Phase 1. It will be of somewhat lesser importance in Phase 2.

DoD Costing References Web Contents

Figure 2-1 shows the opening screen of the DoD Costing References start page in the Netscape Navigator™ browser window. See Appendix B for a snapshot of the entire start page contents.

Figure 2-1. Opening Screen of the DoD Costing References Start Page



The DoD Costing References is organized into 11 major sections. Each section is described below:

- ◆ *Policy and Procedures.* This section provides links to departmental and military service issuances as well as to similar documents from other executive branch agencies such as the Office of Management and Budget and the General Services Administration.
- ◆ *Standard Cost Factors.* This section provides links to military and civilian pay tables, inflation indices, DoD per diem rates, and similar information.
- ◆ *Tools and Models.* This section provides a link to abstracts of information about the leading tools and models of interest to the costing community.
- ◆ *Highlights.* This section serves to alert users to new information of interest to the costing community.

- ◆ *Events*. This section provides information concerning meetings, conferences, and symposiums of interest to the costing community.
- ◆ *Contacts*. This section provides links to contact information for the costing community.
- ◆ *Frequently Asked Questions*. This section provides space for users' questions to be posted to help other users.
- ◆ *Mailing List*. This section provides users a link to a page where they can sign up to be notified by E-mail of changes to the Business Process Improvement On-Line family of webs.
- ◆ *Other Links*. This section provides users with several costing-related links.
- ◆ *Help/Feedback*. This section provides information on how to get help via a toll-free number or E-mail.
- ◆ *About This Page*. This section provides a brief statement of the purpose of the web.

Phase 1 Implementation

Following the 7 March 1996 meeting, final editorial and technical actions were taken. ODFPI approved the DoD Costing References Web and sent it to the Defense Technical Information Center (DTIC), the Internet service provider for ODFPI, for it to be published on the WWW. On 3 April 1996, the DoD Costing References Web went on-line as part of the Business Process Improvement On-Line Web.

Chapter 3

Information Management and the Internet

GENERAL

In this chapter, the DoD Costing References Web project is discussed from an information management viewpoint as it applies to the Internet. Information management is concerned with the life cycle of data or information, its creation, use, sharing, and disposition.¹

INFORMATION MANAGEMENT PERSPECTIVE

The aim of Phase 1 of the project was to construct a foundation of costing information that would provide a value-added service to customers and also demonstrate the potential of WWW publishing to the costing community. A secondary aim was to spur members of the community to establish their own web presence for distribution of costing information. To flesh out the DoD Costing References Web to meet user needs and better serve the demonstration function, a limited number of web documents were actually created for Phase 1. Army and Navy inflation indices and the Defense Business Operations Fund information sheet were created from original sources and approved by the originators prior to publication. The Tools and Models abstracts were drawn from a U.S. Army Cost and Economic Analysis Center study.²

Information delivery processes should be fast, accurate, and low cost. Creating a subject directory such as the DoD Costing References Web is a step in that direction. It provides a single reference point for costing information, directs users to up-to-date information from authoritative sources, and generally places only a small cost on the users. Some additional mission cost is born by ODFPI, but when viewed from a corporate perspective, it is assumed that the overall cost of information delivery has dropped.

Any individual cost analyst has the capability to find and share costing information. However, when many individual analysts are seeking the same information and only sharing it within a limited circle, if at all, duplication of effort and inefficiencies result. Finding information on the WWW can also be inefficient; it is not always simple or quick. Several approaches—both active and passive—can be used to find information on the WWW. One approach is to use a subject directory

¹ DoD Directive 8000.1, *Defense Information Management*, 27 October 1992.

² U.S. Army Cost and Economic Analysis Center, *Survey and Assessment of Cost Estimating and Economic Analysis Models*, Vol. 1, Survey and Assessment, 31 May 1994.

such as Yahoo!™, which is not exhaustive but may be a good place to start. Another approach is to use a search engine, such as Excite™ or Alta Vista™. These search engines, while being constantly improved, still lack the capability to discriminate between value-added information and information clutter. Therefore, an analyst often has to waste time parsing the clutter to get to the value-added information. Another less rigorous approach is to join a specialized on-line mailing list, where members share information and pointers to other resources. A final approach is to use an agent, such as a librarian, to carry out the search. Of course, using an agent is not a practical solution in all cases. In this project, ODFPI assumed the agent function for the costing community with the establishment of the DoD Costing References Web. By centrally managing this function, the process of information delivery is made more efficient and effective. Agent activity falls within the role of the information provider, which will be discussed in the next subsection.

INTERNET ROLES

Internet roles can be categorized as customers, Internet service providers (ISPs), and information providers. In some cases, one actor may play more than one of these roles. Customers or end users, either individuals or organizations, obtain Internet services and information to help them conduct business or perform their mission. ISPs act as the intermediaries between customers and information providers and may offer an array of different services to each of the others involved. In some cases, an ISP may provide original or proprietary content thereby taking on an information provider role also; CompuServe® and America Online® are examples. An ISP normally provides its customers a package of services, such as a network connection (directly or indirectly to the Internet), necessary software, and at least a small web or similar interface oriented to its customers' needs. On the other side of its business, an ISP may offer a range of services to information providers who do not want to run their own Internet services. Web design, hosting, domain registration, and maintenance are examples of the services that may be offered to information providers in these cases. Information providers create or collect information and publish it on the Internet. Fees are normally involved in these dealings and are more visible to the various actors in the commercial domains, but less so in the government and military domains. A discussion of fees is beyond the scope of this report.

In this project, there was an overlapping of these roles. ODFPI acted both as an information provider and an ISP with its establishment of the DoD Costing References Web. As an information provider, ODFPI generated the contents of the DoD Costing References Web, the comprehensive subject directory of links to costing information published on the WWW. As an ISP, ODFPI hosted Army and Navy inflation factors files within its WWW server space since their costing centers lacked their own WWW presence at that point. The military service cost centers acted as both information provider and customer for various portions of the

DoD Costing References Web. The main ISP role is played by DTIC, which provides Internet information services for the Business Process Improvement On-Line Web as well as a large part of DoD. At another level, DTIC is also an information provider. It provides information—records of planned, ongoing, or completed defense-related research—to U.S. government agencies and their contractors.

Information Management Activities

The different activities of information management—creating, using, sharing, and disposing of data or information—are addressed in the following subsections as they apply to the DoD Costing References Web project. The data or information created in this project is the directory with hypertext links to help guide the user to the costing reference needed.

CREATING DATA OR INFORMATION

ODFPI created the subject directory information on the DoD Costing References Web that is used to access the information that an originator created and published elsewhere on the WWW.

Establishing links only to information published by its originator or a recognized agent ensures quality of information. For example, the Defense Finance and Accounting Service is a recognized agent for the DoD Comptroller in the instance of military pay information. “Entering data once and using it many times” is a key to streamlining processes and ensuring data accuracy. Following the idea of having the originator create, update, and delete data stored in one place provides for the greatest simplicity and economy.

Reducing opportunity for error is another reason for only establishing links to the originator’s site and not duplicating those files within the DoD Costing References Web. By maintaining duplicate files on a second site, there is a risk that the duplicates will contain errors or they will not be updated simultaneously with the original. Each additional copy also incurs a maintenance cost. By following the rule that the originator maintains the information in one place, accuracy and efficiency are enhanced. This approach reduces the maintenance requirements for the DoD Costing References Web itself.

USING AND SHARING DATA OR INFORMATION

In the traditional print paradigm, data or information on paper are distributed to many users throughout DoD. Each user then has a copy, which may or may not be the most current version or at his or her fingertips. Therefore, using print-based data or information can impose costs on an organization that can be reduced or eliminated in a WWW paradigm. Furnishing data or information on separate local area networks moves in the direction of the WWW paradigm, but does not

approach the potential improvements in the quality and cost of data and information delivery offered by the WWW.

Publishing on the WWW means that information can be shared by all elements of DoD, worldwide. The originator's changes or updates to content are immediately available around the world, providing for responsive service to users. However, the user must be alert to the possibility that the originator has changed the information. Active and passive mechanisms can be used to ensure that the user has the latest information. The originator may assign an expiration date to the information so the user is prompted to check back around the expiration date for the latest version. In other cases, the originator may announce a change by E-mail if users are known or may post the information in some other forum that users routinely check. Perhaps the simplest method is for the user to employ the monitoring tools built into many of the latest browsers, which can signal the user that a web document has changed.

The process of widely sharing information can add value in other ways. It may serve to highlight and eventually eliminate redundancy of information. Data standardization efforts can also be facilitated. Additionally, the greater its visibility and use, the better the quality of the information is likely to be.

DISPOSITION OF DATA OR INFORMATION

Since the originator will update most of the information and dispose of the old information, the key task for the DoD Costing References Web is to make sure that the links to the new information are correct and the links to the old information are deleted. There is no need to archive of any of the information at the DoD Costing References Web level. In some cases, such as the Air Force's files of past inflation data, useful archives have been established by the originator.

Information Services

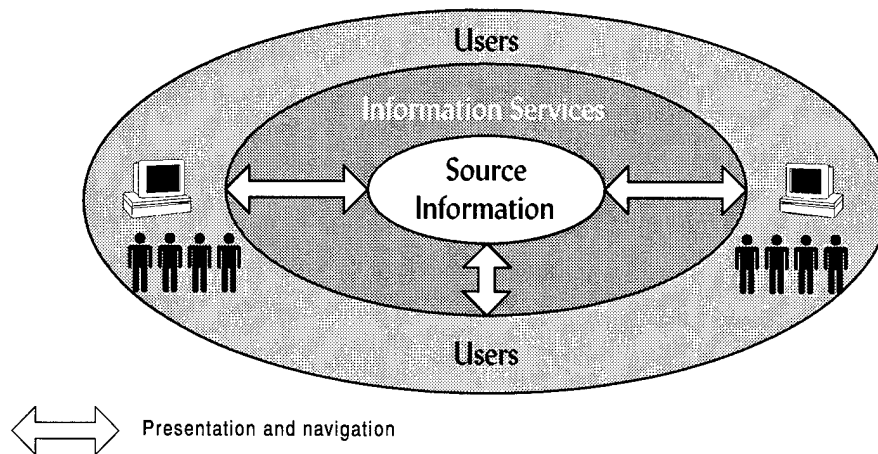
Information services is an activity within the information management function. This subsection discusses information services activities as they apply in the context of this project. Information services is defined in DoD Directive 8000.1, *Defense Information Management*, as

a range of Information Management activities typically provided from service suppliers to customers on a fee-for-service basis. Those activities include analysis, acquisition, test, delivery, operation, or management of hardware, software, and communications systems.

The main service supplier in this project is ODFPI, who can also be described in Internet terms as an information provider and ISP. Information services include presenting an annotated subject directory of the costing information—the hyper-text pages of the DoD Costing Reference Web—and the tools for navigating these

pages internally and the WWW externally. In other words, the DoD Costing References Web provides a graphical user interface for those interested in costing information. Figure 3-1 provides a simplified view of the relationship between the users, the information services, and the potential source information. The source information sphere represents the Internet with its millions of pages of information. The arrows connecting the source information sphere and the users layer represent the presentation and navigation aspects of information services.

Figure 3-1. Information Services' Relationships Between Sources and Users



Information Technology and WWW Access

The WWW offers several features that make it an attractive technology for many uses. It is a proven technology, it is (in most cases) a low-cost information-delivery system, and it is an open system (browsers running on different operating systems can view the same hypertext document).

WWW technology helps meet the main user requirements for accessing information easily. Any WWW browser, such as the Netscape Navigator™ or the Microsoft Internet Explorer™, is easy to use. Using a browser requires little or no training, and it can provide information at the individual user's desktop. The user need not interrupt his or her work to visit the library or go to a bookshelf for the needed information.

Accessing the DoD Costing References Web and other documents on a routine basis can be done using the bookmarking utility in the browser. If the DoD Costing References Web is frequently referred to, it can be made the default start (i.e., first) page so it appears whenever the browser is opened. The shortcut feature of Windows 95™ provides another option for quickly accessing the DoD Costing References Web. In addition, the DoD Costing References Web helps alleviate

“information overload” situations, where the customer has to spend time wading through clutter to get to the information needed.

Little technology risk is associated with the WWW. The WWW and the Internet are proven technologies, as are hypertext markup language (i.e., HTML) and the browsers used to access the WWW. While the leading browsers are being rapidly enhanced, older generation browsers are sufficient to access the full contents of the DoD Costing References Web.

Electronic publishing via the WWW is generally much cheaper than traditional print publishing once the investment is made for a WWW presence. However, electronic publishing may not entirely eliminate the need for paper documents and the associated costs in producing, storing, disseminating, and recycling or destroying them. Costs may tend to shift more to maintaining and enhancing a web’s content, which includes inserting new web technology and keeping the content fresh and up to date. Electronic publishing on the WWW provide a tremendous capability for rapid expansion of content. Expanding a web by adding hypermedia documents is a relatively simple, quick, and low-risk process.

WEB PAGE DESIGN

An abundance of valuable and useful web page design information can be found on the WWW itself and in print sources. This brief discussion of web page design merely touches on some of the more important design considerations addressed in developing the DoD Costing References Web. The main design goals for any web is to make it easy to use (i.e., user friendly) and have it offer enough value-added content to keep the user coming back again and again.

First impressions are important. When a user opens a web start page, the first screen should contain three essential elements: an indication of the purpose of the document, which may be expressed in the title; a contents listing; and navigation links (see Appendix B). The purpose of the DoD Costing References Web is expressed in its title graphic. The graphics image of the rising red line on a chart and the script and coins reinforces the web’s identity. Immediately beneath the graphic is a link to the parent page. This link is primarily for users whose entry route is not through the parent (or home) page. Then there is a contents area, with links to the topic areas within the document. Within each section, there is a hypertext button to take the user back to the top of the page. This type of navigation to take the user back to the first screen, or top of the document, should be considered, especially if the user has to scroll down the page. The essential navigation buttons—Top and Home—are duplicated at the bottom of the page, so the user has a choice of places to go when reaching the end of the document.

Response time, which is the time a web page take to download and display on a computer monitor screen, is another important consideration. Studies have shown

that user attention begins to wander after approximately 10 seconds.³ Most DoD users probably have Internet connections that download nearly all web pages within 10 to 15 seconds. The general rule for accommodating lower speed connections (at least 28.8 kilobits per second (Kbs)), is to limit the combined text and images in a web document to approximately 50 kilobytes (KB). At 28.8 Kbs, the 11 KB text portion of the DoD Costing References Web and the small images appear on the screen in about 15 seconds, with the title image, totaling about 44 KB, appearing about 20 seconds later. Hence, a user can start reading the text while the title image is loading. (Reducing the "byte weight" or quality of the title image will improve its loading speed.) The DoD Costing References Web is also designed to work without the images for those users with slower connections or who prefer not to enable the images.

Somewhat related to the response-time consideration is whether the web will contain one or more big pages or many short ones. The subject directory nature of the DoD Costing References Web led to creating one big main page (a little over three printed pages), with a few short ones. A user has the option of scrolling down the main page or, by using the navigation buttons, jumping directly to the section of interest.

Testing is an important final check before publication on the WWW. Testing means making sure that web pages display properly in the most popular browsers, because each one may display the web page differently. A page may need to be tweaked to ensure it is optimized for the most popular browsers. If a page is designed to be printed, that aspect needs to be checked also. The DoD Costing References Web was checked with the Netscape NavigatorTM and Microsoft Internet ExplorerTM browsers.

³ Jakob Nielsen, *Guidelines for Multimedia on the Web*, <http://www.sun.com/951201/columns/alertbox/>, December 1995; and *Response Time*, <http://www.sun.com/951201/columns/alertbox/response.html>, December 1995.

Chapter 4

Evaluation and Follow-on Actions

GENERAL

Planning and implementation of the first phase of the DoD Costing References Web project through the end of 1996 was covered in the preceding chapters. This chapter is designed to facilitate any efforts that may be undertaken in the future, such as Phase 1 evaluation and follow-on efforts for both Phases 1 and 2. Included in this chapter is information from the original concept and other information developed during project implementation. Information in this chapter is presented as advice, to be modified as new and changing requirements and circumstances warrant.

Development of new content for Phase 1 was limited because the DoD Costing References Web was structured mainly as a directory pointing to costing information already published on the WWW. However, producing toolboxes for Phase 2, if the original concept is followed in principle, will require a substantial amount of new content to be developed. Any further efforts on this project will require additional funding beyond that provided for the Phase 1 efforts covered in this report.

PHASE 1 EVALUATION AND ACTIONS

Informal feedback regarding the DoD Costing References Web has been uniformly positive; the DoD costing community views it as a value-adding resource. However, a formal evaluation of the Phase 1 efforts to date would help ensure that it fully meets the users' needs and help determine what the next project steps should be.

An approach for a formal evaluation would be for ODFPI to survey a representative sample of the stakeholders (the costing and the functional communities). A questionnaire of perhaps 10 items with a section for comments would suffice. After analysis of the survey data and any other pertinent information, ODFPI and stakeholders would assemble to review and discuss the results.¹ The following are examples of the major questions that might be addressed:

- ◆ How is the DoD Costing References Web being used?

¹ One source of helpful information is usage data; it is automatically collected and available on-line at <http://www.dtic.mil/dusage/stats>.

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- ◆ Is there a continuing need for the DoD Costing References Web?
 - ◆ How should the project proceed?

If all the participants agree that there is a continuing need for the DoD Costing References Web, the outputs of this meeting would be as follows:

- ◆ *Phase 1*—a list of changes and improvements for the existing DoD Costing References Web.
- ◆ *Phase 2*—a preliminary statement of vision, goals, and objectives.

After this meeting, a detailed plan to accomplish these tasks would be developed under ODFPI direction and submitted to the stakeholders for their concurrence.

PHASE 2 PLANNING AND ACTIONS

Phase 2's original concept was to produce toolboxes containing new tools and costing information to streamline the process for computing functional cost estimates. A new vision, goals, and objectives statement for Phase 2 ultimately will depend on the Phase 1 evaluation results and the deliberations of ODFPI and the stakeholders. The following summary of deliverables, general plan, and issues should not to be viewed as exhaustive or directive, but as an aid to ODFPI and stakeholder deliberations. Changing requirements and conditions naturally will affect the information summarized below:

- ◆ Deliverable

The deliverable should be a set of electronic toolboxes (e.g., cost estimating relationships, formulas, and instructions) specifically tailored for each functional area (or grouping of similar areas) to be published on the DoD Costing References Web.

- ◆ General plan

- Rank functional areas according to the estimated benefits to be realized from the toolbox.
- Develop one functional area toolbox at a time. Start with the toolbox for the functional area that will realize the greatest benefit. Then step down the rankings, working on one functional area at a time.
- Use information already published on the WWW to the extent possible rather than generating new content. (Enter data once; use it many times.)

- Encourage owners of costing information to publish it on the WWW to facilitate the DoD Costing References Web effort.
- ◆ Issues
 - Security
 - Toolbox contents should not be classified, contractor-sensitive, or proprietary.
 - Toolbox contents should be screened to ensure that classified information is not inadvertently revealed or created by the aggregation of normally unclassified information.
 - Usability
 - Toolboxes should take advantage of WWW technology.
 - Toolboxes should require little or no training to use.
 - Prototype toolboxes should be thoroughly tested with user representatives.
 - Quality
 - Toolboxes should be developed and tested in close coordination with technical experts responsible for cost-estimating relationships, formulas, models, and other pertinent information.
 - Toolboxes, supporting information, and hypertext links must be updated on a timely basis.
 - Schedule

Completion of Phase 2 could take 1 to 2 years, depending on the resources available.

Appendix A

DoD Costing References Web Project Participants

Name	Organization/Address	Phone #	Fax #
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Tim Haider	USTRANSCOM JTCC-RM 508 Scott Drive Scott Air Force Base, IL 62225	618-256-8501	618-256-4477
Antoinette Hawkins	Civilian Personnel Management Service 1400 Key Boulevard, B200 Arlington, VA 22209-5441	696-3543	696-5468
Paul Kaschak	Defense Information Systems Agency (D62) 5600 Columbia Pike Falls Church, VA 22041	681-2409	681-2863
Jim Keller	Naval Center for Cost Analysis 1111 Jefferson Davis Highway Arlington, VA 22202	604-0286	None

Note: OASAF(FM&C) = Office of the Assistant Secretary of the Air Force (Financial Management and Comptroller); OASD(HA) = Office of the Assistant Secretary of Defense (Health Affairs); ODPA&E = Office of the Director, Program Analysis and Evaluation; ODASD(IM) = Office of the Deputy Assistant Secretary of Defense (Information Management); ODUSD(L) = Office of the Deputy Under Secretary of Defense (Logistics); OUSD(P&R) = Office of the Under Secretary of Defense (Personnel and Readiness); USTRANSCOM = United States Transportation Command.

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Mike Medlock	Logistics Management Institute 2000 Corporate Ridge McLean, VA 22102-7805	917-7496	917-7482
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Nancy Orvis	OASD(HA) Defense Medical Info. Mgmt. Skyline 6, Suite 817 5109 Leesburg Pike Falls Church, VA 22041-3201	681-3918	681-8845
Jim Pilger	Defense Information Systems Agency (DC2) 701 South Courthouse Road Arlington, VA 22204-2199	607-6378	607-4138
Jan Rider	Defense Logistics Agency 8725 John Kingman Road Ft. Belvoir, VA 22060	767-5280	767-5283
Joe Romito	Logistics Management Institute 2000 Corporate Ridge McLean, VA 22102-7805	917-7439	917-7482
Richard Scott	United States Army Cost and Economic Analysis Center 5611 Columbia Pike Falls Church, VA 22041-5050	681-9170	681-7552
Dave Smith	SRA, Inc. 2000 15th Street Arlington, VA 22201	558-4734	None
Ben Sottile	Defense Logistics Agency CANE 8725 John Kingman Road Ft. Belvoir, VA 22060	767-2167	761-2162

Note: OASAF(FM&C) = Office of the Assistant Secretary of the Air Force (Financial Management and Comptroller); OASD(HA) = Office of the Assistant Secretary of Defense (Health Affairs); ODP&E = Office of the Director, Program Analysis and Evaluation; ODASD(IM) = Office of the Deputy Assistant Secretary of Defense (Information Management); ODUSD(L) = Office of the Deputy Under Secretary of Defense (Logistics); OUSD(P&R) = Office of the Under Secretary of Defense (Personnel and Readiness); USTRANSCOM = United States Transportation Command.

DoD Costing References Web Project Participants

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Note: OASAF(FM&C) = Office of the Assistant Secretary of the Air Force (Financial Management and Comptroller); OASD(HA) = Office of the Assistant Secretary of Defense (Health Affairs); ODP&E = Office of the Director, Program Analysis and Evaluation; ODASD(IM) = Office of the Deputy Assistant Secretary of Defense (Information Management); ODUSD(L) = Office of the Deputy Under Secretary of Defense (Logistics); OUSD(P&R) = Office of the Under Secretary of Defense (Personnel and Readiness); USTRANSCOM = United States Transportation Command.

Appendix B

DoD Costing References Web Start Page

(<http://www.dtic.mil/dodim/costweb.html>)



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Policy and Procedures

DEPARTMENT OF DEFENSE

- [Directives and instructions](#) provided by the OSD Director of Administration and Management.

ARMY

- [Policy, procedures, and guidance](#) provided by the Assistant Secretary of the Army, Financial Management and Comptroller.

NAVY

- [Acquisition regulations, guidelines, and requirements](#) provided by the Naval Information Systems Management Center.
- [Acquisition information](#) provided by Space and Naval Warfare Systems Command.

AIR FORCE

- [Policy, procedures, and guidance](#) provided by the Assistant Secretary of the Air Force, Financial Management and Comptroller.

OTHER COMPONENTS

- Links to other Component costing references will be added as they become available on the WWW.

OTHER FEDERAL GOVERNMENT

- [OMB documents](#) (Office of Management and Budget circulars, bulletins, etc.)
- [FAR](#) (Federal Acquisition Regulation) and [DFARS](#) (Defense Supplements) provided by General Services Administration.

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Standard Cost Factors

- [Military pay and allowances tables](#) provided by the Defense Finance and Accounting Service. Contact your Component comptroller for detailed guidance in using these tables for program and budget computations and economic/cost analyses.
- [Civilian personnel pay tables](#) provided by the Defense Finance and Accounting Service. Contact your Component comptroller for detailed guidance in using these tables for program and budget computations and economic/cost analyses.

OTHER FACTORS AND RATES

- [Inflation Guidance](#) [OUSD(Comptroller), February 21, 1996.]
- Service escalation indices
 - [Army 1996 Price Escalation Indices](#) [US Army Cost and Economic Analysis Center.] Also available: [Outlay and Obligation Rates](#). (MS-Excel)
 - [Navy 1996 Inflation Indices and Outlay Profile Factors](#) [Naval Center for Cost Analysis.] (MS-Word) Also available in [ASCII](#).
 - [Air Force 1996 Inflation Files](#) [Deputy Assistant Secretary of the Air Force, FMC]
- [Discount rates](#) Appendix C of OMB Circular A-94. (Rates used in TurboBPR.)
- [Official DoD Per Diem Rates](#) provided by the Per Diem, Travel, Transportation, and Allowances Committee.
- [Defense Business Operations Fund \(DBOF\)](#) business areas and procedures.
- [Visibility and Management of Operating and Support Costs \(VAMOSOC\)](#).
 - [Army](#)
 - [Navy](#)
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Highlights

^{NEW} [DoDI 7041.3, Economic Analysis for Decisionmaking](#) Revised and reissued on November 7, 1995.

^{NEW} [DoDD 5000.1 and DoD 5000.2-R Revised defense acquisition policy effective March 15, 1996.](#)

^{NEW} [Cost as an Independent Variable DoDD 5000 theme emphasizing the need for cost/performance tradeoffs in acquisition decisions.](#)

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Events

- [Institute for Operational Research and the Management Sciences \(INFORMS\) Spring 96 Washington Conference.](#)
 - [Society of Cost Estimating and Analysis \(SCEA\). National conference: Orlando, Florida, 26-28 June 1996. Contact: SCEA office, 101 South Whiting Street, Suite 201, Alexandria, VA 22304 Tel: \(703\) 751-8069.](#)
 - [DoD Cost Analysis Symposium. Next symposium Fall 1997](#)
-

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Contacts

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Other Links

- [Defense Acquisition University](#) The gateway to information on the Defense Systems Management College, Air Force Institute of Technology, Army Logistics Management College, Naval Postgraduate School, et al.
- [General Accounting Office](#)
- [Commerce Business Daily](#)
- [Federal Register](#)

-
- [Consumer Price Indexes](#) Historical CPI information is provided by the US Bureau of Labor Statistics.
 - [NASA Cost Technology](#) Information on Activity Based Costing, Cost Deployment, Cost Misconceptions, Function Cost Analysis, Parametric Cost Analysis, Value Engineering, etc.
 - [RAND Cost Analysis Reports](#) Abstracts and an order form are provided.
 - [Federal Reserve Economic Database \(FRED\)](#) Historical US economic and financial databases plus other regional data is offered by the Federal Reserve Bank in St. Louis.
 - [FINWeb](#) Economics and finance related topics, scholarly journals and papers, financial databases.
 - [Institute of Management Accountants](#) Information on Activity Based Costing.
 - [Business Process Improvement On-Line](#) Information on Activity Based Costing.
 - [US Postal Rates](#) Provided by the US Postal Service WWW pages.
 - [Yahoo Economic Indicators](#) topics.
 - PAE/LMI Symposium on Infrastructure Resources. *Coming.*
 - IDA Cost Research Symposium. *Coming*
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About this Page

This web is designed to serve the DoD cost community and those engaged in functional process improvement or similar projects where cost estimation tools and techniques may be helpful. The aim is to provide information that is official and up to date.

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Appendix C

Glossary

AIS	automated information system
BPR	business process reengineering
DISA	Defense Information Systems Agency
DoD	Department of Defense
DTIC	Defense Technical Information Center
E-mail	electronic mail
FEAM	Functional Economic Analysis Model
HTML	hypertext markup language
ISP	Internet service provider
KB	kilobyte
Kb	Kilobit
Kbs	Kilobits per second
MAISRC	Major Automated Information Systems Review Council
ODFPI	Office of the Director of Functional Process Improvement
ODPA&E	Office of the Director of Program Analysis and Evaluation
OSD	Office of the Secretary of Defense
WWW	World Wide Web

REPORT DOCUMENTATION PAGE

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