Software Reuse: Major Issues Need to Be Resolved Before Benefits Can Be Achieved

David Chao

U.S. General Accounting Office
441 G Street, N.W.
Techworld - Room 9715
Washington, DC 20548
Tel: 202-512-6354
Email: chaod@source.asset.com OR cvy@cu.nih.com
Fax: 202-512-6450

Abstract

On February 7, 1992 the Chairman of the Subcommitte on Defense, House Appropriations Committee, requested that we provide background information on software reuse, including an overview of issues that can inhibit effective software reuse, and information on Defense's strategy to implement a departmentwide software reuse program.

Keywords: Reuse inhibitors, US Government, General Accounting Office

Workshop Goals: To keep abreast of state of the art and state of the practice in software reuse

Working Groups: Reuse management, organization, and economics.

1 Position

Developing and maintaining software in organizations such as the Department of Defense is very costly. According to many experts in the software community, software reuse is a possible solution to reduce these costs, as well as to increase software productivity and reliability. Although these benefits and savings are compelling, achieving them will require the resolution of significant technical, organizational, and legal issues.

Even while proclaiming the potential of reuse, many software experts have questioned the maturity of software reuse. These experts indicate that the methodologies to implement reuse have not been fully developed, tools to support a reuse process are lacking, and standards to guide critical software reuse activities have not been established.

Beyond such technical difficulties, organizations also face numerous challenges to effectively implement and practice reuse. An organization must make a significant commitment to reuse because fundamental changes in the organization's software development approach will be needed and significant up-front costs for training and tools will be required. Further, uncertainties in legal policies, such as liability and intellectual property rights that currently hinder software reuse, need to be addressed, and acquisition policies need to be modified to better promote reuse.

Additional information regarding these results can be found in: GAO Report: GAO/IMTEC-93-16. Software Reuse - Major Issues Need to Be Resolved Before Benefits Can Be Achieved, January 1993.

2 Biography

David Chao is a Senior Technical Advisor with the Accounting and Information Management Division of the General Accounting Office. He is currently involved in the follow-on review of DoD's strategy to implement software reuse and the effectiveness of its approach. In addition, he was involved in the review of DoD's Integrated- Computer Aided Software Engineering (I-CASE) procurement, which a report was published in June 1993. Previously, he has held software Engineering positions with Texas Instruments Incorporated and McDonnell Douglas Corporation, in the design and development of business and scientific applications.