

# Greatness in Software Development Abounds in the U.S. Government

Pamela Bowers  
CROSSTALK

*CROSSTALK is proud to announce the winners of the 2001 Top 5 U. S. Government Quality Software Projects. These top five projects were selected from 87 nominations in this first event. They demonstrate how competent software project teams go about building successful products. In the following pages, we present a brief article on each winning project, along with biographies of the judges, and brief summaries of the top 11 finalists.*

## U.S. Government's Award-Winning Quality Software Projects

The results are in, and it is clear that the government is building many successful software packages that are top-notch examples in project management and quality control. Listed below in alphabetical order are the winners in CROSSTALK's first Top 5 U.S. Government Quality Software Projects contest. We congratulate them and hope you enjoy reading more about their winning projects in the following pages.

- **ATB-230 STARS Product Team**  
**Project Name:** Standard Terminal Automation Replacement System  
**Customer Organization:** National Air Traffic Controllers Association, and Professional Airways Systems Specialists  
**Location:** Washington, D.C.
- **Detachment 1, Ogden ALC**  
**Project Name:** Higher Authority Communications/Rapid Message Processing Element  
**Customer Organization:** Headquarters, Air Force Space Command  
**Location:** Offutt AFB, Neb.
- **F/A-18 Advanced Weapons Lab**  
**Project Name:** System Configuration Set 15C  
**Customer Organization:** Program Manager, Air-265  
**Location:** China Lake, Calif.
- **Lockheed Martin Mission Systems**  
**Project Name:** Data Capture System 2000  
**Customer Organization:** Bureau of the Census  
**Location:** Bowie, Md.
- **TRW Tactical Systems Division**  
**Project Name:** Force XXI Battle Command Brigade and Below  
**Customer Organization:** U.S. Army CECOM

Great software projects are a combination of excellence in project management, estimation, measurement, quality control, and change management. This type of performance is exhibited by the 2001 U.S. Government's Top 5 Quality Software Projects announced here in CROSSTALK. The winners and finalists alike in this first CROSSTALK presentation are "existence proofs that large and complex software projects can be finished on time, within budget, meet with favorable user reactions, and have few remaining defects after delivery," says Capers Jones, chief scientist of Artemis Management Systems and director of Software Productivity Research Inc., Burlington, Mass., and a Top 5 judge.

## Tough Choices

There were 87 nominations received in CROSSTALK's search for the top five government software projects. It was extremely difficult to narrow this list. Each nomination was scored by at least three professionals from the Software Technology Support Center (STSC) at Hill Air Force Base. The STSC consists of software engineers and consultants that have worked in both software engineering process groups and in Capability Maturity Model® Level 5 software development projects, and are recognized as expert authors and speakers on software.

The STSC reviewers judged projects on customer value, performance, technical value, and per their own discretion (see page 18 for complete scoring parameters). From this scoring, the top one-third of nominations was selected. The project customers were contacted to ensure product satisfaction and their high regard for the project teams. The remaining top nominations, along with their customer questionnaires and additional information, were sent to seven judges, scored from one to 100, and ranked from one to 16. Judges were free to use their own scoring criteria, but were required to provide justifications

for all projects ranked one through five. In most cases, judges used a similar ranking system as the STSC reviewers.

These preliminary scores were used to select the top eight projects for final scoring. Judges then reviewed the other judges' justifications for these eight projects to decide the final top five projects on Sept. 5, 2001. These five projects are all ranked equally as winners (See accompanying sidebar). A more detailed look at each project follows in this special Top 5 section.

CROSSTALK was very fortunate to have some of the best and well-known software professionals volunteer as judges for the 2001 U.S. Government's Top 5 Quality Software Projects. They gave considerable time to reviewing entries and writing summary decisions. The CROSSTALK staff is proud to give you a brief biography of each judge on page 5. Without them, the contest would not have been possible. We also thank all the STSC reviewers for their time and effort, and everyone who provided nominations.

Each Top 5 winner will be presented with an engraved award like the one featured on this CROSSTALK cover during the 2002 Software Technology Conference (STC) "Forging the Future of Defense Through Technology" in Salt Lake City April 28-May 2. The award ceremony will be held in front of an estimated 2,000 STC attendees and the leaders of each of the Department of Defense services on Tuesday, April 30 during the co-sponsored panel discussion from 8:00-9:30 a.m.. A Top 5 panel discussion will also be held on Wednesday, May 1.

It is our hope to continue to award the top government software projects annually. The U.S. government is doing a great job of producing software to support the entire country in many, many ways. CROSSTALK's Top 5 U.S. Government Quality Software Projects award recognizes that greatness does abound in U.S. government software project teams. ♦

## TOP 5 QUALITY SOFTWARE PROJECTS JUDGES' BIOGRAPHIES



**David A. Cook, Ph. D.**, is a principal engineering consultant at Shim Enterprise Inc. He is currently assigned as a software-engineering consultant to the Software Technology Support Center, Hill AFB, Utah. He was formerly an associate professor of computer science at the U. S. Air Force Academy, and also a former deputy department head of the Distance Education Department at the Air Force

Institute of Technology. Dr. Cook was a member of the Air Force Ada 9x Government Advisory Group, and has published numerous articles on software process improvement, software engineering, object-oriented software development, and requirements engineering. He has a bachelor's degree in computer science from the University of Central Florida, a master's degree in teleprocessing from the University of Southern Mississippi, and a doctorate in computer science from Texas A&M University. Dr. Cook's e-mail address is <david.cook@hill.af.mil>.



**Carol Dekkers** is president of Quality Plus Technologies Inc., a management consulting firm specializing in helping Department of Defense and private organizations succeed with function points, make wise investments in software measurement, and achieve bottom-line improvements through process improvement. Dekkers is vice-chair of the Project Management Institute Metrics Specific Interest Group, a past president of the International Function Point Users Group, and an International Organization for Standardization project editor on the Functional Size Measurement project. She was named one of the 21 New Faces of Quality for the 21st century by the American Society for Quality. She is a professional engineer, certified function point specialist, and a certified management consultant. Dekkers e-mail address is <dekkers@qualityplustech.com>.



**Jack Ferguson, Ph.D.**, is deputy Acquisition Resources and Analysis director for Software Intensive Systems. Dr. Ferguson is responsible for improving the research, development, and acquisition of software intensive systems in the Department of Defense (DoD). Formerly Dr. Ferguson was a senior member of the Technical Staff at the Carnegie Mellon University Software Engineering Institute (SEI). He led the project to develop the Software Acquisition Capability Maturity Model<sup>®</sup> and was program manager for Capability Maturity Model<sup>®</sup>-Integrated<sup>SM</sup>. Dr. Ferguson also spent 26 years in the U.S. Air Force. He has a doctorate in aerospace engineering from the University of Texas at Austin. He won the Air Force Research and Development Award for his work on attitude control of GPS spacecraft and is listed in Jane's Who's Who in Aerospace. Dr. Ferguson's e-mail address is <fergusj@acq.osd.mil>.



**Watts S. Humphrey** is a fellow at the Software Engineering Institute (SEI) of Carnegie Mellon University, which he joined in 1986. At the SEI, he established the Process Program, led initial development of the Capability Maturity Model<sup>®</sup>, introduced the concepts of Software Process Assessment and Software Capability Evaluation, and most recently, the Personal Software Process and Team Software Process. Prior to joining the SEI, he spent 27 years with IBM in various technical executive positions. He has a master's degree in physics from the

Illinois Institute of Technology and in business administration from the University of Chicago. He is the 1993 recipient of the American Institute of Aeronautics and Astronautics Software Engineering Award. His most recent books include *Managing the Software Process*, *A Discipline for Software Engineering*, *Managing Technical People*, and *Introduction to the Personal Software Process*. Humphrey's e-mail address is <watts@sei.cmu.edu>.



**Capers Jones** is chief scientist emeritus of both Artemis Management Systems and Software Productivity Research Inc., Burlington, Mass. Jones is an international consultant on software management topics, a speaker, a seminar leader, and author. He is also well known for his company's research programs into the following critical software issues: Software Quality: Survey of the State of the Art; Software Process Improvement: Survey of the State of the Art; Software Project Management: Survey of the State of the Art. Formerly, Jones was assistant director of programming technology at the ITT Programming Technology Center in Stratford, Conn. Prior to that he was at IBM for 12 years. He received the IBM General Product Division's outstanding contribution award for his work in software quality and productivity improvement methods. Jones' Web site is <www.spr.com>. His e-mail address is <cjones@spr.com>.



**Gerald "Jerry" M. Weinberg, Ph. D.**, is a principal in the consulting and training firm of Weinberg & Weinberg. For more than 45 years, Dr. Weinberg has worked on transforming software organizations. He is author or co-author of more than 40 books, including *The Psychology of Computer Programming* and *Introduction to General Systems Thinking*. Many of his books cover all phases of the software life cycle, including *Exploring Requirements*, *Rethinking Systems Analysis and Design*, *The Roundtable on Project Management*. His books on leadership include *Becoming a Technical Leader*, *The Secrets of Consulting*, *Quality Software Management* four-volume series, and more. He is also known for his workshops for software leaders, including "Problem Solving Leadership (PSL)," "The Congruent Organizational Change-Shop," and more. Dr. Weinberg's Web site is <www.geraldweinberg.com>. His e-mail address is <hardpretzel@earthlink.net>.



**Brenda Zettervall** is a computer scientist at the Naval Surface Warfare Center, Dam Neck. She has more than 25 years of experience in the field of computer systems and software engineering for complex, real-time command and control systems used both for deployment on U.S. Navy surface ships and for simulated land-based integration. Currently Zettervall is deputy director for the Naval Collaborative Engineering Environment, the office of the Chief Engineer for the Navy, for Research, Development, and Acquisition. In addition, Zettervall provides naval coordination for software related activities for the Department of Defense Software Intensive Systems Steering Group. She was awarded the Navy's Meritorious Civilian Service award for her work with the Office of the Undersecretary of Defense. Zettervall has a bachelor's degree in mathematics from Radford University. Her e-mail address is <zettervallbt@navsea.navy.mil>.