Defense Civilian Pay System Streamlines Payroll System Operations

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CrossTalk

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Being named a U.S. Government Top 5 award winner is no small thing. For the DCPS, the technical expertise, commitment to success, and unceasing determination in providing consistently high quality while revamping and maintaining Department of Defense (DoD) payroll processing is no small thing. After all, when you work, you want to be paid accurately and on time. The DCPS – a large scale project with millions of lines of code and tens of thousands of users – successfully streamlined the payroll function for the DoD federal work force and achieved the Capability Maturity Model® (CMM®) Level 4 software quality standard in the process.

"We replaced much of our antiquated pay system with DCPS in 1995," says the director of the only non-Defense Finance and Accounting Service (DFAS) payroll office. DCPS' purpose in implementing a new pay system was twofold: (1) provide improved information processing services for civilian pay for the DoD with consistent implementation of pay policies, and (2) reduce costs.

Prior to DCPS implementation, civilian pay for the DoD was handled by approximately 2,800 payroll clerks with each clerk maintaining 500 pay accounts. Civilian pay in the DoD was supported by 26 different legacy pay systems operating at more than 350 payroll offices throughout the world. Pay-related services were handled within and by the various military services. As a result, pay policies for the

DoD were implemented inconsistently across the multiple pay systems and at high costs due, in part, to duplication of effort. The DoD now pays this same customer base using four payroll offices
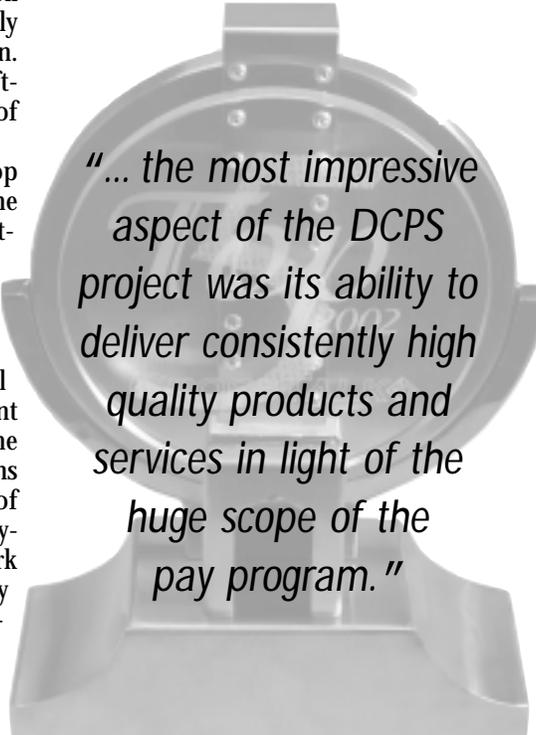
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(three in DFAS, and one non-DFAS) all supported by one system – DCPS. Today, DoD civilian pay is supported by approximately 300 payroll clerks; each clerk averages 2,500 accounts – a 400 percent productivity improvement. DCPS provides payroll services for the Executive Office of the President and the entire DoD – more than one-third of all civilians in the Executive Branch of the federal government.

Arguably, the most impressive aspect of the DCPS project was its ability to deliver consistently high quality products and services in light of the huge scope of the pay program. DCPS provides payroll processing and support to approximately 681,000 federal civilians (with over 20 employee types ranging from white collar

workers to teachers to firefighters) located at 1,266 activities worldwide across 13 time zones and 124 countries, and has approximately 37,000 total active online user accounts at any given time. The overall scope and success of the DCPS project (in terms of degree of standardization achieved, the number of customers/sites implemented, and the resulting cost savings to the DoD) is unprecedented in the defense financial systems community. According to annual studies conducted by Gartner, Inc. for the last six years, DCPS has been 100 percent to 300 percent more productive at half the cost than private industry averages.

The DCPS project was the first DFAS project to attain the Software Engineering Institute's CMM Level 2 in 1996, and Level 3 in 1999, according to Roger Meece, DCPS project team member. As of November 2002, DCPS was the first and only DFAS project to achieve CMM Level 4, making it one of the 7.3 percent of all assessed U.S. organizations – both private industry and government – to have been rated at CMM Level 4, i.e., at a high maturity software engineering level.

Large Project, Smooth Transition

In order to achieve consistent implementation of pay policies and desired cost savings from consolidation of the DoD civilian pay function, the DCPS System Manager Office (SMO) early on identified and addressed two key objectives: (1) how to efficiently and effectively incorporate the functionality required to service new DoD accounts as they were consolidated, and (2) how to improve the automated system itself as well as increase the productivity of the payroll office technicians, customer service representatives, and timekeepers who are the primary users of the system.

A well-defined, repeatable, and enforced implementation plan for account consolidations ensured timely

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arrival of new or customer-specific functionality as customer accounts were added. This implementation plan was the cornerstone of the civilian pay consolidation effort and was used extensively during the implementation of DCPS across the DoD.

The second objective was addressed by establishing a strong change management process within the program in conjunction with a focused effort to identify, incorporate, and/or build civilian pay *best practices* into the DCPS system itself, including improvements such as automation of retroactive processing, interfacing personnel actions, and retirement. Further, the change management process addressed the need to balance and resolve DoD priorities with the priorities of the various DCPS customers.

Methods of Ensuring Quality

DCPS subject matter experts had extensive interaction with customers in the area of requirements gathering. Functional and technical staff members regularly met face to face during the requirements phase of the software development cycle. Through these detailed and personal discussions, requirements were clearly defined and documented, virtually eliminating any misunderstanding of what the customer requested and expected to receive.

Peer reviews, turnover reviews, software quality assurance, a formal test process, risk management, and statistical process control were used to ensure product, process, and project quality. Reviews were held within every software engineering phase to identify and remove defects. Review issues were continuously examined for trends, improvement, and defect cause and effect. Formal turnover reviews were held between engineering phases to ensure work product phase transferability.

Since DCPS is a Federal pay system, much of the change request workload is non-discretionary in nature: it is driven by the need to comply with legislative, regulatory, and/or top-driven policy changes. Although the DCPS change-management process has significantly matured over the years, the close working relationship between the civilian pay functional proponents (e.g., the military services, payroll offices, and functional requirements analysts) and the DCPS project staff stands out as a primary reason for the program's success, especially in its handling of system changes. This maturation has been particularly evident in dealing with the business-based/discretionary change requests that come from the user community. Customers participate in the review and prioritization of change requests. The change process itself (from customer submission of change requests to customer acceptance testing) is defined, documented, and understood. DCPS receives an average of 640 change requests from customers in a typical year. Changes to the system result largely from new legislation or policies, cost-based performance enhancements, and new systems features/modifications to existing functionality.

Challenges Presented

DCPS' in-progress reviews and testing efforts have historically been very effective in maintaining high quality as reflected in low defect rates. DCPS uses the *waterfall* development methodology that includes program unit testing, string testing, integration testing, and acceptance testing for every release.

Risk management is very important to the DCPS project both in identifying risks for specific change requests and/or releases, and in developing and tracking mitigation measures. A formal risk-management plan and associated process are used to evaluate each system change request based on assigned risk factors, and to numerically aggregate individual change risks into an overall release risk factor. If a high risk is identified, formal risk-mitigation steps are defined with accompanying manager roles/responsibilities to ensure mitigation measures are executed and tracked.

From strictly a project *process* point of view, maintaining the right balance between high quality and schedule/productivity expectations of customers is a challenge. "As a general rule, customers do not like waiting for requested software changes. DoD customers are no exception," says DCPS System Manager Sandy Barrineau. For a pay system like DCPS, even a perceived *simple* change must be thoroughly analyzed and tested to minimize risk. "From a *people* point of view, the fact that customers' minimum expectations from the system are to be paid (a) correctly and (b) on time – without fail – has been a never-ending challenge," says Barrineau. "DCPS operates 24x7x365, and as such requires a project staff that provides 24x7x365 support."

"Strong program leadership supported by senior management, a strong commitment to success at all levels within the project, and the technical expertise and unceasing determination of the DCPS project staff to provide consistently high quality products and services to our DoD customers are definitely the strongest points of the project," says Meece.

Accomplishments

Since initiating its software process improvement program, DCPS software releases have consistently occurred on schedule and in accordance with the release date committed to the customer. CMM Levels 2 and 3 were achieved while the DCPS project was in the midst of its DoD consolidation effort. In April of 2002, a DFAS site was evaluated using the Malcolm Baldrige National Quality Award Criteria for Performance Excellence and found that "…(DCPS) has effective, systematic processes to ensure security, reliability, and integrity of the systems it develops and maintains."

"This project prides itself in trying to meet every possible need required of its customers," says DCPS SMO representative Michael Johnson. "The role and functions performed by this project are extremely important in maintaining employee morale within the DoD to ensure employees receive accurate and timely payments for the services they perform for the department. The constant and extraordinary efforts expended by this project and organization over the years, coupled with their resilience and desire to deliver quality software projects is to be commended."

"From the initial meeting, the software engineering organization for DCPS proved their professionalism and dedication by outlining the entire conversion process from start to finish to the finest detail," reiterates the director of the only non-DFAS payroll office. "Thanks to their outstanding support and planning, our conversion took place with little to no impact on our office. Whether it's adding additional functionality or incorporating legislative changes, we know it will be incorporated timely and accurately. DCPS has an outstanding configuration control process where customers participate in determining what changes are important and should be incorporated. Another important process is the Software Acceptance Testing, which includes users and policy experts testing the system *before* the software is released. Excellent communication, knowledgeable subject matter experts, and great customer service practices are just a few of the reasons DCPS continues to grow and flourish. They are extremely deserving of this award."◆