Officials react to congressional software report

Government and professional-society officials have reacted to a report urging major changes in US federal software development and procurement. The report was written by the House Committee on Science, Space, and Technology and released Nov. 6 ("Major Changes in Federal Software Policy Urged," Soft News, *IEEE Software*, November, pp. 78-81).

Among its recommendations were coordination among federal agencies; increasing the scope of the Software Engineering Institute; considering accreditation of software engineers for at least safety-critical projects; and restructuring procurement policy to give local managers more control, to spend more money during early development to save repair costs later, and to promote evolutionary development.

• Federal coordination. Civilian and defense agencies with computing needs have already begun to coordinate their efforts, using the Federal Coordinating Committee on Science, Engineering, and Technology as their contact point. The committee is part of the White House Office of Science and Technology Policy. For example, several agencies have coordinated technical development, planning, and even funding requests as part of the effort to study global environmental change such as the depletion of the ozone layer protecting life from ultraviolet radiation and the rise in the atmosphere's temperature because of industrial emissions.

Such coordination recognized that "no one has the budget to do it all, so how about a coordinated program that builds on the strengths of the organization?" said Helen Wood, the Computer Society's president and director of satellite data processing at the National Oceanic and Atmospheric Administration. Another example is the recent coordination among agencies to lobby for funds to establish a national research network and to promote high-performance computing.

• Expanding the Software Engineering Institute. "I would agree that other agencies and the contractors that support them could certainly use the same insights on technology development and technology transfer," said Larry Druffel, the SEI's director. He would prefer that the SEI be "augmented" than duplicated because "I imagine it would be rather expensive to duplicate this. The SEI took five years to get where we are," he said. Increasing the SEI's role would be more cost-effective than duplicating it, he said, because most agencies' software problems are similar to the Defense Dept.'s. Druffel cautioned that because the Defense Dept. funds the SEI, it should be consulted on any expansion.

If it expanded its scope, the SEI would mostly need people who understand the newly supported applications, Druffel said, because "it's difficult to transfer technology out of context." But Druffel cautioned that "you have to avoid making the SEI too big. There are a lot of quality people out there, but you don't want them all in Pittsburgh," where the SEI is based.

• Accreditation. The report quoted ACM President Bryan Kocher as saying the professional societies should "strive for adoption of appropriate federal standards for the computing profession."

Although Kocher said that enforcing professional standards for safety- and reliability-critical systems via contracts "sounds pretty reasonable," he said the report overstated his opinion on accreditation. The report quoted a June editorial in *Communications of the ACM* where Kocher decried the patchwork quilt of state laws that is emerging to regulate computing professionals, comparing it to the insurance industry's state-by-state regulatory system. In that context, he said, federal standards would be a good idea.

Ken Anderson, the 1989 IEEE Computer Society president, said, "I think certification is a good idea. If done properly, it forces the practitioner to keep abreast."

• Procurement. "As bad as the current approach is, it will be very difficult to change, very difficult to fund. Life-cycle costing is still a bit of an art form," Wood said. Career advancement and budget allocations are often influenced by near-term developments like the number of systems completed, she said. "A program manager is rated on how many contracts he gets and completes, not on how easy it was to maintain the system a decade later," Wood said. Similarly, because of budget limits, it would be difficult for Congress to concurrently fund several competing large-scale software systems at the design stage, even though that may result in long-term cost reduction. However, the promise of future systems that better support requirements and cost less to maintain will be "well worth the effort," Wood said.

—Galen Gruman, Soft News Editor