

Product Line Practice: An Effort Worth Making

“Software developed as a product line promises to be a dominant development paradigm for the new century,” according to Paul Clements of the SEI’s Product Line Practice Initiative. But the challenges involved cannot be taken lightly. “The successful transition to product-line technology requires a careful blend of technology, process, organization, and business factors improvement,” he says, but adds that the payoff is worth it: “If the pitfalls are successfully negotiated, the result is an enviable capacity to deliver extremely large systems on time and within budget.”

This issue of *SEI Interactive* examines in depth the high-stakes subject of product line practice.

Our Background article, “A Framework for Software Product Line Practice,” provides a slightly condensed version of the first two chapters of version 2.0 of this framework, which was released by the SEI in July 1999. The framework is intended to be a living document that will aid the software development and acquisition communities. Each version represents an incremental attempt to capture information about successful product line practices. This information has been gleaned from studies of organizations that have built product lines, from direct collaborations on software product lines with the SEI’s customer organizations, and from leading practitioners in software product lines.

In our first of two Spotlight articles, “Software Product Lines: A New Paradigm for the New Century,” the SEI’s Paul Clements discusses the advantages of product lines, uncovers some of their pitfalls, and shows by example the kinds of successes that organizations can enjoy. Our second Spotlight article presents further examples, describing how product line programs have been handled at Cummins Engine, Raytheon, and Hewlett-Packard. Those companies have all enjoyed substantial reductions in time to market, cost, and risk, and significant gains in efficiency and quality. But the leaders of those companies’ programs are quick to point out that large-scale technical and cultural changes are required. They share some of the lessons that they have learned.

This issue’s Roundtable captures a panel discussion from the 1999 Software Engineering Symposium. The panelists, all members of the SEI technical staff, depict a specific usage scenarios for the latest version of the product line practice framework given a specific organizational context, and illustrating the use of practices in the areas of launching a product line, scoping a product line, using commercial off-the-shelf software in a product line, and defining a product line architecture.

Finally, our Links feature offers a guided tour of information available on the Web about product line practice.

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