



## Product Line Practice (PLP) Initiative

A software product line approach involves systematic large-scale reuse rather than traditional one-at-a-time system development.

Through software product lines companies can realize order-of-magnitude improvements in time to market, cost, productivity, quality, and other business drivers. The commercial impact of product lines is now seen in a variety of domains including office appliances, avionics, medical devices, automotive, and telecommunications.

In the Product Line Practice (PLP) Initiative, we work to make software product line development and acquisition a low-risk, high-return proposition.

### Our Work

Our PLP Initiative work focuses on

- maturing and codifying practices to exploit commonality and manage variation across families of similar systems
- forming strategies to bootstrap organizations that otherwise would find a product line approach prohibitive
- providing assistance to customers to address key product line challenges
- training developers, acquirers, and educators to use effective software product line principles and practices

### How We Can Help

We can help **executives**

- understand how product lines can help the organization
- examine an organization's readiness for adoption

Are you interested in

- increased quality?
- decreased cost?
- decreased labor needs?
- decreased time to market (to field, to launch...)?
- ability to move into new markets—in months, not years?



Organizations of all types and sizes are discovering that a product line strategy, when skillfully implemented, can produce those benefits—and ultimately give the organizations a competitive edge.

*For more about these and other results, visit [www.sei.cmu.edu/productlines/casestudies/](http://www.sei.cmu.edu/productlines/casestudies/).*

- create a plan for adopting a product line

We can help **organizations**

- identify common requirements across a product line
- develop a business case for adopting software product lines
- create a strategy for producing products in a product line
- develop a product line operating concept and training plans
- develop measurement and tracking mechanisms

We can help **acquisition organizations**

- develop acquisition strategies and approaches
- develop requests for proposals
- develop statements of work
- organize contractor planning, tracking, and monitoring in a product line effort

### Our Models

- The SEI Framework for Software Product Line Practice<sup>SM</sup>, now in version 5.0—a web-based, living document that aids the software community in software product line endeavors. This version includes an association of software product lines with other emerging technologies, such as agile and SOA-based approaches.
- Product Line Patterns that provide solutions to common product line problems
- The Product Line Adoption Roadmap, to help guide initiation of your product line effort

### Our Methods

- SEI Product Line Technical Probe<sup>SM</sup> (PLTP<sup>SM</sup>)—for examining an organization's readiness to adopt or ability to succeed with a software product line approach

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- SEI Product Line Quick Look—for gathering initial information relative to an organization's readiness to adopt or ability to succeed with a software product line approach
- Structured Intuitive Model for Product Line Economics (SIMPLE)—a straightforward, comprehensive cost model for software product lines
- technical and management practices, acquisition guidelines for product lines, product line practice patterns, and a product line adoption roadmap
- practice-specific workshops
- planning workshops

## Our Courses

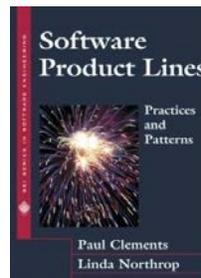
- a five-course curriculum that includes training in software product line fundamentals, adopting software product lines, developing software product lines, and PLTP team member and leader roles
- three certificate programs
  - software product line professional
  - PLTP team member
  - PLTP leader
- an executive seminar

## Some Facts about SEI Product Line Impact . . .

- More than 20 universities across the U.S. have incorporated the SEI *Software Product Lines: Practices and Patterns* book into their courses of study.
- In 13 annual workshops, PLP has fostered U.S. Department of Defense progress in software product lines.
- PLP leadership established the international Software Product Line Conference (SPLC), first conducted in 2000.

## Our Book

- the Addison-Wesley book *Software Product Lines: Practices and Patterns*



## Research Collaboration Opportunities

PLP Initiative researchers are interested in teaming with others to advance the use of product line approaches in connection with other software engineering technologies such as service-oriented architectures, systems of systems, and open approaches.

## Relationship to Other SEI Work

The PLP Initiative is an area of concentration in the Carnegie Mellon® Software Engineering Institute (SEI) Research, Technology, and System Solutions (RTSS) Program. The RTSS team focuses on the structure and behavior of software-reliant systems—and the intimate relationship between structure and manifested quality attributes—to enable assured and flexible system capabilities at all scales.

## Related Website

[www.sei.cmu.edu/productlines/](http://www.sei.cmu.edu/productlines/)

## For More Information

SEI Customer Relations  
Phone: 412-268-5800  
FAX: 412-268-6257  
Email: [info@sei.cmu.edu](mailto:info@sei.cmu.edu)  
Software Engineering Institute  
Carnegie Mellon University  
4500 Fifth Avenue  
Pittsburgh, PA 15313-2612

*About the SEI: The SEI is a federally funded research and development center that provides the technical leadership to advance the practice of software engineering so that software-reliant systems can be acquired and sustained with predictable and improved cost, schedule, and quality.*