Second ICSE Workshop on

Software Product Lines: Economics, Architectures, and Applications

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Keywords
Software Product Line, Software Engineering Economics, Software Architectures, Organizational Issues

1 SCOPE OF THE WORKSHOP

Product line engineering is a recent concept and one of the hottest topics in software engineering aiming at synergy effects in software development. Diverse benefits like cost reduction, decreased time-to-market, and quality improvement can be expected from reuse of software assets. But also non-technical benefits can be expected as result of product branding, minimizing marginal costs, and sharing organizational costs. On the other hand, product lines introduce additional complexity: The planning and/or development of more than one product at a time has to be managed technically and organizationally.

Following the remarkable success of the "First International Workshop on Software product lines: economics, architectures, and implications" held at ICSE 2000 in Limerick, this workshop aims at sharing conceptual and practical experience by establishing contacts and starting the discussion between experts and practitioners from academia and industry.

2 OBJECTIVES OF THE WORKSHOP

The objective of the workshop is to bring together people from industry and academia to investigate the proposals and the practices that pertain to the following conceptual and technical questions:

- Product lines introduce extra complexity in software development but offer high returns: What are the tradeoffs and when should software firms decide to go for a product line approach?
- What are success and failure factors for introducing software product lines in organizations?
- Is it possible to predict when product line investment pays in a specific domain and environment?
- How can the success of a product line be quantified, taking into account non-financial factors?
- What are successful product line solutions in the context of embedded systems? How can software product lines be designed together with the corresponding hardware?
- What are good strategies for adapting existing product line items to changes due to the evolution of the product line infrastructure?
- Which organizational forms are best suited for supporting product lines?
- Is product line development manageable by small and medium-sized companies?
- Which existing tools support the product line engineering best?

3 ORGANIZATION OF THE WORKSHOP

The workshop is the *final point* of a discussion that starts with the selection of the papers to be presented at the workshop. Submitted papers are placed on a WIKI server located at the University of Alberta. The organizing committee of the workshop posts on the server a sequence of critical points and the authors of the selected papers are required to comment on them and then to participate at the pre-workshop discussion.

The workshop is also the *starting point* of a discussion to be continued on the same WIKI server.

The organizers intend to publish the best papers of the workshop in a book they would edit and are in contact with a publisher for that purpose. In case that book is accepted, authors of accepted papers will be required to adhere to the respective camera-ready copy guidelines and to sign the suitable copyright transfer forms. Otherwise, the papers presented will be published as referable Fraunhofer IESE Technical Report, as happened for the ICSE 2000 workshop.

4 PROGRAM OF THE WORKS HOP

The workshop includes also invited speakers with different backgrounds. They will focus on:

- The goals and objectives of a large project aiming at the establishment of product line approaches
- Practical experience in software product lines development

The presenters for the three discussion sections are clustered according to their main topic addressed:

- *Economic and organizational aspects of product line development.*
  The issues addressed in this session include the planning of product lines (i.e., which products should be developed as part of the product line) with respect to the expected (economic) benefits and organizational issues that have to be addressed when introducing product line development into an organization.
- *Product line development for embedded systems.*
  In this session, successful approaches for software design according to product line concepts in the context of embedded and realtime systems are discussed. These approaches take care of the difficulties to together design hard- and software.
- *Case studies, experiments, and reports from industrial projects.*
  Experience presentation and exchange is the main purpose of this third session. Presented are industrial projects, experiments, and case studies together with the respective approaches used, their results, as well as lessons learned. This experience helps other organizations that intend to invest in product line development to get a feeling for the main risk factors and the critical issues to consider.

The following table contains the schedule of the workshop.

Time	Topic
08:30 - 08:45	Introduction from the co-chairs
08:45 - 9:30	**Invited Talk** *Establishing Product Lines*
9:30 - 10:00	Session 1: Economic and organizational aspects of product line development *s*
Short Break	
10:30 - 12:00	**Session 2:** *Product line development for embedded systems*
Lunch Break	
14:00 - 14:45	**Invited Talk** *Experience in Product Lines*
14:45 - 15:30	**Session 3a:** Case studies, experiments, and reports from industrial projects
Short Break	
16:00 - 16:30	**Session 3b:** *Case studies, experiments, reports from industrial projects*
16:30 - 17:30	**Final Panel Discussion**

Particular emphasis is on the final panel discussion. Here, communities with different backgrounds (theoretical, practical, academic, industrial, etc.) will be in touch with each other. The participants of the panel will be selected based on their contributions during the workshop.

5 WORKSHOP ORGANIZING COMMITTEE

Chairs

- Peter Knauber, Fraunhofer IESE, Germany
- Giancarlo Succi, University of Alberta, Canada

Program Committee

- Luigi Benedicenti, University of Regina, Italy
- Jan Bosch, University of Groningen, The Netherlands
- Jorge Diaz-Herrera, Southern Polytechnic State University, USA
- Peter Knauber, Fraunhofer IESE, Germany
- Frank Maurer, University of Calgary, Canada
- Maurizio Morisio, Politecnico di Torino, Italy
- Nader Nada, George Mason University, USA
- Giancarlo Succi, University of Alberta, Canada

INFORMATION AND QUES TIONS

For more information, contact the workshop chairs Peter Knauber (knauber@iese.fhg.de) or Giancarlo Succi (Giancarlo.Succi@ee.ualberta.ca).