

Springer

Berlin

Heidelberg

New York

Barcelona

Hong Kong

London

Milan

Paris

Singapore

Tokyo

Reidar Conradi (Ed.)

Software Process Technology

7th European Workshop, EWSPT 2000
Kaprun, Austria, February 21-25, 2000
Proceedings



Springer

Series Editors

Gerhard Goos, Karlsruhe University, Germany
Juris Hartmanis, Cornell University, NY, USA
Jan van Leeuwen, Utrecht University, The Netherlands

Volume Editor

Reidar Conradi
Norwegian University of Science and Technology
Department of Computer and Information Science
O.S. Bragstads pl. 2 E, Gløshaugen, 7491 Trondheim, Norway
E-mail: conradi@idi.ntnu.no

Cataloging-in-Publication Data applied for

Die Deutsche Bibliothek - CIP-Einheitsaufnahme

Software process technology : 7th European workshop ; proceedings
/ EWSPT 2000, Kaprun, Austria, February 21 - 25, 2000. Reidar
Conradi. - Berlin ; Heidelberg ; New York ; Barcelona ; Hong Kong ;
London ; Milan ; Paris ; Singapore ; Tokyo : Springer, 2000
(Lecture notes in computer science ; Vol. 1780)
ISBN 3-540-67140-4

CR Subject Classification (1991): D.2, K.6, K.4.2

ISSN 0302-9743

ISBN 3-540-67140-4 Springer-Verlag Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer-Verlag. Violations are liable for prosecution under the German Copyright Law.

Springer-Verlag is a company in the specialist publishing group BertelsmannSpringer
© Springer-Verlag Berlin Heidelberg 2000
Printed in Germany

Typesetting: Camera-ready by author
Printed on acid-free paper SPIN 10719813 06/3142 5 4 3 2 1 0

Preface

The European Workshop on Software Process Technology celebrates its 10th anniversary in the year 2000.

The goal of the workshop is to assemble researchers and practitioners in the area of Software Process Technology. Issues such as process modeling, process enactment, and process improvement are central, as are empirical studies of such technology. We are happy that at EWSPT'7 about 40% of the papers reported on practical experiences.

This workshop series has, for most of the time, been supported by the PROMOTER/PROMOTER2 ESPRIT Basic Research Working Groups, coordinated by the University of Nancy.

The year 2000 workshop will be a combined workshop with the European PIE project. PIE stands for Process Instance Evolution and constitutes an ESPRIT IV Framework Long Term Research project number 34840 (not to be confused with the ESSI Process Improvement Experiments, PIEs). The aim of the PIE project is to study, to investigate, and ultimately to demonstrate what kind of services are needed to support change and evolution in human organizational processes.

Twenty-one out of 44 submitted papers were accepted for the combined workshop. The accepted papers, including 4 PIE papers, will be presented and discussed. There will also be three keynotes.

The following, related workshops have taken place in the past:

- EWPM'1 in Milan, Italy, 30-31 May 1990,
eds. Vincenzo Ambriola, Reidar Conradi, and Alfonso Fuggetta, AICA Press.
- EWSPT'2 in Trondheim, Norway, 7-8 Sept. 1992,
ed. Jean-Claude Derniame, Springer LNCS 635.
- EWSPT'3 in Villard-de-Lans (Grenoble), France, 7-9 Feb. 1994,
ed. Brian Warboys, Springer LNCS 772.
- EWSPT'4 in Nordwijkerhout (Leiden), The Netherlands, 3-5 April 1995,
ed. Wilhelm Schäfer, Springer LNCS 913.
- EWSPT'5 in Nancy, France, 9-11 Oct. 1996,
ed. Carlo Montangero, Springer LNCS 1149.
- EWSPT'6 in Weybridge (London), UK, 16-18 Sept. 1998,
ed. Volker Gruhn, Springer LNCS 1487.

The program committee for this workshop has consisted of:

- Sergio Bandinelli, ESI, Bilbao, Spain
- Reidar Conradi, NTNU, Trondheim, Norway (chair)
- Jean-Claude Derniame, University of Nancy, France
- Letizia Jaccheri, NTNU, Trondheim, Norway
- Even-Andr  Karlsson, Q-Labs, Lund, Sweden
- Manny Lehman, Imperial College, London, UK
- Carlo Montangero, Universit  di Pisa, Italy
- Nazim Madhavji, McGill University, Canada
- Henk Obbink, Philips, The Netherlands
- Markku Oivo, VTT, Oulu, Finland
- Wilhelm Sch fer, University of Paderborn, Germany
- Marv Zelkowitz, University of Maryland, USA

The organizing chair was Mehdi Jazayeri, Techn. Univ. of Vienna, Austria.

The workshop was organized in 11 sessions:

- PIE project
- Keynote by M. M. Lehman, “Thirty Years in Software Process”
- Methods
- Applications, Part 1
- Distributed Processes / Process Modeling Languages,
- Keynote by Victor R. Basili: “Experimental Software Engineering”
- Industrial Experiences, Part 1
- Industrial Experiences, Part 2
- Keynote by Robert Balzer: “Current State and Future Perspectives of
Software Process Technology”
- Applications, Part 2
- Wrap-up and Future Directions (no papers)

We hope you enjoyed the workshop and will enjoy the proceedings.

Trondheim, January 2000
Reidar Conradi

Table of Contents

Session 0: PIE Workshop

The PIE Project: An Introduction (Short Paper)	1
Pierre-Yves Cunin, LSR-IMAG, University of Grenoble	

A Support Framework for Dynamic Organizations	6
Mark Greenwood, Ian Robertson, Brian Warboys, University of Manchester, UK	

Advanced Services for Process Evolution: Monitoring and Decision Support	21
Sami Beydeda, Volker Gruhn, Christian Schneider, University of Dortmund, and Ilham Alloui, Sorana Cîmpan, Flavio Oquendo, University of Savoie at Annecy	

Support for Software Federations: The PIE Platform	38
Pierre-Yves Cunin, Sami Dami, Jacky Estublier, LSR-IMAG, Grenoble, G. Cugola, Alfonso Fuggetta, Politecnico di Milano, H. Verjus, University of Savoie at Annecy, and F. Pacull, M. Rivière, Xerox Research Lab., Grenoble	

Session 1: Thirty Years in Software Process	54
Keynote by M. M. (Manny) Lehman, Imperial College:	

Session 2: Methods

Transcribing Process Model Standards into Meta-Processes	55
Carla Blanck Purper, University of Bremen	

A CMM-Based Evaluation of the V-Model 97	69
Viktor Schuppan, Technische Universität München and Winfried Rußwurm, Siemens AG, München	

Overcoming Inadequacies in Process Modelling: The Need for Decisioning Be a First-Class Citizen (Short Paper)	84
Flavio Oquendo, University of Savoie at Annecy and K. Nadia Papamichail and Ian Robertson, University of Manchester, UK	

Session 3: Applications, Part 1

Process Metrics for Requirements Analysis	90
Vincenzo Ambriola and Vincenzo Gervasi, Università di Pisa	
Software Process Technology and Software Organisations	96
M. Letizia Jaccheri, Reidar Conradi, and Bård H. Dyrnes, NTNU, Norway	

Session 4: Distributed Processes / Process Modeling Languages

Modeling Management and Coordination in Development Processes (Short Paper)	109
Dirk Jäger, Aachen University of Technology	
Support for Mobile Software Processes in CAGIS	115
Alf Inge Wang, NTNU, Norway	
View-Based vs Traditional Modeling Approaches: Which Is Better?	131
Josée Turgeon, University of New Brunswick, Canada and Nazim H. Madhavji, McGill University, Canada	
Structuring Complex Software Processes by Process Landscaping (Short Paper)	138
Volker Gruhn and Ursula Wellen, University of Dortmund	

Session 5: Experimental Software Engineering

Keynote by Victor R. Basili, University of Maryland	150
---	-----

Session 6: Industrial Experiences, Part 1

Software Process Technologies and the Competitiveness Challenge (Short Paper)	151
Giovanni A. Cignoni, Cescvit SpA, Italy	
Test Management Automation: Lessons Learned from a Process Improvement Experiment (Short Paper)	156
Giuseppe La Commare and Griselda Giraudo, Sodalìa SpA and Tonella, ITC-Irst, Trento	

The Introduction and Evaluation of Object Orientation in a Company Developing Real-Time Embedded Systems	161
Colin J. Theaker, Neil Blackwood, and Robert Mason, Terraflux Limited, Stoke-on-Trent, UK	

Session 7: Industrial Experiences, Part 2

Descriptive Process Modeling in an Industrial Environment: Experience and Guidelines	176
Ulrike Becker-Kornstaedt, Fraunhofer IESE, Kaiserslautern and Wolfgang Belau, DaimlerChrysler Aerospace AG	

SDL Based Approach to Software Process Modeling	190
Ivana Podnar and Branko Mikac, University of Zagreb, Antun Caric, Ericsson Nikola Tesla	

Achieving Customer Satisfaction through Requirements Understanding	203
John Elliott and Peter Raynor-Smith, Defence Evaluation and Research Agency, Malvern	

Session 8: Current State and Future Perspectives of Software Process Technology	220
Keynote by Robert Balzer, USC-ISI:	

Session 9: Applications, Part 2

Customizing the PuLSE TM Product Line Approach to the Demands of an Organization	221
Klaus Schmid and Tanya Widen, Fraunhofer IESE, Kaiserslautern	

The Application of Metrics to Industrial Prototyping Processes: An Empirical Study (Short Paper)	239
Keith Phalp, Bournemouth University and Steve Counsell, Birkbeck College, University of London	

Author Index	249
---------------------------	------------