

Assessing Process-Centered Software Engineering Environments

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Process-centered software engineering environments (PSEEs) are the most recent generation of environments supporting software development activities. They exploit an explicit representation of the process (called the *process model*) that specifies how to carry out software development activities, the roles and tasks of software developers, and how to use and control software development tools. A process model is therefore a vehicle to better understand and communicate the process. If it is expressed in a formal notation, it can be used to support a variety of activities such as process analysis, process simulation, and process enactment. PSEEs provide automatic support for these activities. They exploit languages based on different paradigms, such as Petri nets and rule-based systems. They include facilities to edit and analyze process models. By enacting the process model, a PSEE provides a variety of services, such as assistance for software developers, automation of routine tasks, invocation and control of software development tools, and enforcement of mandatory rules and practices. Several PSEEs have been developed, both as research projects and as commercial products. The initial deployment and exploitation of this technology have made it possible to produce a significant amount of experiences, comments, evaluations, and feedback. We still lack, however, consistent and comprehensive assessment methods that can be used to collect and organize this information. This article aims at contributing to the definition of such methods, by providing a systematic comparison grid and by accomplishing an initial evaluation of the state of the art in the field. This evaluation takes into account the systems that have been developed by the authors in the past five years, as well as the main characteristics of other well-known environments.

Categories and Subject Descriptors: D.2.6 [Software Engineering]: Programming Environments; K.6.3 [Management of Computing and Information Systems]: Software Management—*software development; software maintenance*

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Process Centered Software Engineering Environments

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Process-centered Software Engineering Environments Pankaj K. Garg, Mehdi Jazayeri, 1996 Process Centered Software Engineering Environments PSEEs represent a new generation of software engineering environments in which the processes used to produce and maintain software products are explicitly modeled in the environment PSEEs hold the exciting promise of enabling a significant increase in both software productivity and quality The book presents a comprehensive picture of this emerging technology while highlighting the key concepts and issues The first chapter introduces some of the basic concepts and developments behind PSEEs and discusses the unifying role it plays in combining project management software engineering and process engineering The second chapter reviews related process modeling and representation concepts terminology and issues Chapter 3 analyzes the features of some example PSEEs and Chapter 4 takes an inside look at the implementation of these features by describing specific design choices made by researchers The last chapter discusses the evolution of PSEEs to accommodate practical issues in actual work settings and to play a more significant role in the software life cycle The text is a collection of influential papers that will bring the newcomer quickly up to speed on this fast moving field For the researcher the issues described in the text present a challenge to be conquered and directions to pursue For the practitioner they represent benefits that may be gained in the application of PSEEs in the work environment

ProcessEase Sean Christopher Watters, 2005 A project to create a process centered software engineering environment named ProcessEase to be used as a teaching aide in an undergraduate software engineering course at California Polytechnic State University San Luis Obispo *Implementing compliance in process-centered software engineering environments* Wykeen Seet, Brian Warboys (Prof.), University of Manchester. School of Computer Science, 2004 [An Interoperability Model for Process-centered Software Engineering Environments and Its Implementation in Oz](#) Israel Z. Ben-Shaul, Gail E. Kaiser, Tekhniyon, Makhon tekhnologi le-Yisra'el. Department of Electrical Engineering, Tekhniyon, Makhon tekhnologi le-Yisra'el. Fakultah le-handasat hashmal, 1995 *Implementing Support for Software Processes in a Process Centered Software Engineering Environment* Hans-Ulrich Kobialka, 1998 [Detection and Handling of Deviations in Process-centered Software Engineering Environments](#) Marcos Aurélio Almeida da Silva, 2012 Software Processes aim at improving the quality and productivity of software development by encoding sets of well know practices for realizing them When encoded in the form of Software Process Models SPM they can be analyzed improved and automated This third activity is the focus of this work More specifically we deal with a particular piece of software that is in charge of the automatization of the execution of SPMs the Process centered Software Engineering Environment PSEE They consist of process aware software development environments that allow process agents to enact a SPM while having the conformance of their actions to the SPM verified by the PSEE In this work we are interested in the actions performed by the agents that do not conform to the SPM we call these actions deviations As a starting point of this work we evaluated the existing PSEEs and realized that they do not provide the

necessary support for detecting and handling deviations This work intends to provide PSEEs the necessary support for detecting deviations and guiding process agents in handling them In terms of detection our approach reduces the level of prescriptiveness of PSEEs by allowing them to detect deviations as early as possible Early Deviation Detection and to classify deviations according to their impact to the process objectives Risk Assessment In terms of guidance we want our approach to allow the PSEE to delay the effective handling of deviations for as long as possible Late Deviation Handling and to provide correction plans that help process agents to reduce the overall risk represented by the detected deviations Correction Guidance

Software Engineering Environments, 1995 Malcolm S. Verrall, 1995 Sessions on database issues PCTE process modeling integration and orientation from the proceedings of the April 1995 conference offer recent research in principles models architecture and design in software engineering environments Subjects include CASE Tool integration Indra requirements

Handbook of Research on Emerging Advancements and Technologies in Software Engineering Ghani, Imran, Kadir, Wan Mohd Nasir Wan, Ahmad, Mohammad Nazir, 2014-04-30 Advanced approaches to software engineering and design are capable of solving complex computational problems and achieving standards of performance that were unheard of only decades ago Handbook of Research on Emerging Advancements and Technologies in Software Engineering presents a comprehensive investigation of the most recent discoveries in software engineering research and practice with studies in software design development implementation testing analysis and evolution Software designers architects and technologists as well as students and educators will find this book to be a vital and in depth examination of the latest notable developments within the software engineering community

User-Centred Requirements for Software Engineering Environments David J. Gilmore, Russel L. Winder, Francoise Detienne, 2013-06-29 The idea for this workshop originated when I came across and read Martin Zelkowitz's book on Requirements for Software Engineering Environments the proceedings of a small workshop held at the University of Maryland in 1986 Although stimulated by the book I was also disappointed in that it didn't adequately address two important questions Whose requirements are these and Will the environment which meets all these requirements be usable by software engineers And thus was the decision made to organise this workshop which would explicitly address these two questions As time went by setting things up it became clear that our workshop would happen more than five years after the Maryland workshop and thus at the same time as addressing the two questions above this workshop would attempt to update the Zelkowitz approach Hence the workshop acquired two halves one dominated by discussion of what we already know about usability problems in software engineering and the other by discussion of existing solutions technical and otherwise to these problems This scheme also provided a good format for bringing together those in the HeI community concerned with the human factors of software engineering and those building tools to solve acknowledged but rarely understood problems

Process-centered Development Environments Alan M. Christie, 1993 The issue of process verification is thus also explored The success of PCDEs rests heavily on end user

acceptance Because of this the report concludes with a review of user oriented process and social issues relevant to the successful adoption of PCDEs

Worldwide Computing and Its Applications - WWCA'98 Yoshifumi Masunaga, Takuya Katayama, Michiharu Tsukamoto, 1998-02-16 This book constitutes the refereed proceedings of the Second International Conference on Worldwide Computing and Its Applications WWCA 98 held in Tsukuba Japan in March 1998 This volume presents 14 invited and survey papers together with 20 papers selected by the conference committee The volume is divided into topical sections on distributed objects distributed componentware distributed systems platforms Internet technology mobile computing interculture technology collaborative media collaborative support information discovery and retrieval novel network applications

Enterprise Information Systems II B. Sharp, Joaquim Filipe, José Cordeiro, 2013-11-11 This book comprises the refereed papers together with the invited keynote papers presented at the Second International Conference on Enterprise Information Systems The conference was organised by the School of Computing at Staffordshire University UK and the Escola Superior de Tecnologia of Setubal Portugal in cooperation with the British Computer Society and the International Federation for Information Processing Working Group 8.1 The purpose of this 2nd International Conference was to bring together researchers engineers and practitioners interested in the advances in and business applications of information systems The papers demonstrate the vitality and vibrancy of the field of Enterprise Information Systems The research papers included here were selected from among 143 submissions from 32 countries in the following four areas Enterprise Database Applications Artificial Intelligence Applications and Decision Support Systems Systems Analysis and Specification and Internet and Electronic Commerce Every paper had at least two reviewers drawn from 10 countries The papers included in this book were recommended by the reviewers On behalf of the conference organising committee we would like to thank all the members of the Programme Committee for their work in reviewing and selecting the papers that appear in this volume We would also like to thank all the authors who have submitted their papers to this conference and would like to apologise to the authors that we were unable to include and wish them success next year

Software and Data Technologies Maria José Escalona, José Cordeiro, Boris Shishkov, 2013-01-03 This book constitutes the proceedings of the 6th International Conference on Software and Data Technologies ICSoft 2011 held in Seville Spain in July 2011 The 13 revised full papers presented together with 4 invited papers were carefully reviewed and selected from 220 submissions The papers are organized in topical sections on enterprise software technology software engineering distributed systems data management knowledge based systems

Software Maintenance - A Management

Perspective Phaneendra Nath Vellanky, 2007-10-23 Computer systems play an important role in our society Software drives those systems Massive investments of time and resources are made in developing and implementing these systems Maintenance is inevitable It is hard and costly Considerable resources are required to keep the systems active and dependable We cannot maintain software unless maintainability characters are built into the products and processes There is

an urgent need to reinforce software development practices based on quality and reliability principles Though maintenance is a mini development lifecycle it has its own problems Maintenance issues need corresponding tools and techniques to address them Software professionals are key players in maintenance While development is an art and science maintenance is a craft We need to develop maintenance personnel to master this craft Technology impact is very high in systems world today We can no longer conduct business in the way we did before That calls for reengineering systems and software Even reengineered software needs maintenance soon after its implementation We have to take business knowledge procedures and data into the newly reengineered world Software maintenance people can play an important role in this migration process Software technology is moving into global and distributed networking environments Client server systems and object orientation are on their way Massively parallel processing systems and networking resources are changing database services into corporate data warehouses Software engineering environments rapid application development tools are changing the way we used to develop and maintain software Software maintenance is moving from code maintenance to design maintenance even onto specification maintenance Modifications today are made at specification level regenerating the software components testing and integrating them with the system Eventually software maintenance has to manage the evolution and evolutionary characteristics of software systems Software professionals have to maintain not only the software but the momentum of change in systems and software In this study we observe various issues tools and techniques and the emerging trends in software technology with particular reference to maintenance We are not searching for specific solutions We are identifying issues and finding ways to manage them live with them and control their negative impact

Building Tightly Integrated Software Development Environments: The IPSEN Approach Manfred Nagl,1996-11-13 This coherently written book is the final report on the IPSEN project on Integrated Software Project Support Environments devoted to the integration of tools for the development and maintenance of large software systems The theoretical and application oriented findings of this comprehensive project are presented in the following chapters Overview introduction classification and global approach The outside perspective tools environments their integration and user interface Internal conceptual modeling graph grammar specifications Realization derivation of efficient tools Current and future work open problems Conclusion summary evaluation and vision Also included is a comprehensive bibliography listing more than 1300 entries and a detailed index

ALF: a Framework for Builing Process-centered Software Engineering Environments G. Canals,N. Boudjlida,J. C. Derniame,1994

[Database Systems For Advanced Applications '97 - Proceedings Of The 5th International Conference On Database Systems For Advanced Applications](#) Rodney Topor,Katsumi Tanaka,1997-03-15 This volume contains the proceedings of the Fifth International Conference on Database Systems for Advanced Applications DASFAA 97 DASFAA 97 focused on advanced database technologies and their applications The 55 papers in this volume cover a wide range of areas in the field of database systems and applications including the rapidly emerging areas of the Internet

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Environment Christopher M. Lott, 1996 Process-centered Development Environments Alan M. Christie, 1993 The issue of process verification is thus also explored The success of PCDEs rests heavily on end user acceptance Because of this the report concludes with a review of user oriented process and social issues relevant to the successful adoption of PCDEs

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