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End-User Development

2nd International Symposium, IS-EUD 2009
Siegen, Germany, March 2-4, 2009
Proceedings

Volume Editors

Volkmar Pipek
University of Siegen
57068 Siegen, Germany
E-mail: volkmar.pipek@uni-siegen.de

Mary Beth Rosson
The Pennsylvania State University
University Park, PA 16802, USA
E-mail: mrosson@psu.edu

Boris de Ruyter
Philips Research Europe
5656 AE Eindhoven, The Netherlands
E-mail: Boris.de.Ruyter@philips.com

Volker Wulf
University of Siegen
57068 Siegen, Germany
E-mail: volker.wulf@fit.fraunhofer.de

Library of Congress Control Number: 2009921810

CR Subject Classification (1998): D.2, D.1, I.7, K.6

LNCS Sublibrary: SL 3 – Information Systems and Applications,
incl Internet/Web, and HCI

ISSN 0302-9743
ISBN-10 3-642-00425-3 Springer Berlin Heidelberg New York
ISBN-13 978-3-642-00425-4 Springer Berlin Heidelberg New York

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Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper SPIN: 12624331 06/3180 5 4 3 2 1 0

Preface

Work practices and organizational processes vary widely and evolve constantly. The technological infrastructure has to follow, allowing or even supporting these changes. Traditional approaches to software engineering reach their limits whenever the full spectrum of user requirements cannot be anticipated or the frequency of changes makes software reengineering cycles too clumsy to address all the needs of a specific field of application. Moreover, the increasing importance of ‘infrastructural’ aspects, particularly the mutual dependencies between technologies, usages, and domain competencies, calls for a differentiation of roles beyond the classical user–designer dichotomy.

End user development (EUD) addresses these issues by offering lightweight, use-time support which allows users to configure, adapt, and evolve their software by themselves. EUD is understood as a set of methods, techniques, and tools that allow users of software systems who are acting as non-professional software developers to create, modify, or extend a software artifact¹. While programming activities by non-professional actors are an essential focus, EUD also investigates related activities such as collective understanding and sense-making of use problems and solutions, the interaction among end users with regard to the introduction and diffusion of new configurations, or delegation patterns that may also partly involve professional designers.

EUD concepts have found widespread use in commercial software with some success: recording macros in word processors, setting up spreadsheets for calculations, defining e-mail-filters, configuring desktop widgets, or composing mesh-ups. Although these applications only realize a fraction of EUD potential and still suffer from many flaws, they illustrate why empowering end-users to develop their applications is such an important issue. It contributes to the economic performance of organizations that depend increasingly on their IT infrastructure and enables citizens to become active members of the information society.

EUD integrates different threads of discussions from human–computer interaction (HCI), software engineering (SE), computer–supported cooperative work (CSCW), and artificial intelligence (AI). Concepts such as tailorability, configurability, end-user programming, visual programming, natural programming, and programming by example already form a fruitful base, but they need to be better integrated and the synergy between them more fully exploited.

Driven by developments in the context of Web 2.0, the number of end-user developers compared to the number of software professionals will grow strongly. This underlines the importance of systematic research into EUD. The potential to provide EUD-based adaptation over the Internet may create a shift from the conventional few-to-many distribution model of software adaptations to a many-to-many model.

EUD can lead to considerable competitive advantage in adapting to dynamically changing (economic) environments. The increasing amount of software embedded

¹ Lieberman, H.; Paternó, F.; Wulf, V. (eds): End User Development, Springer, London 2006.

within consumer and professional products also points to a need in promoting EUD to enable effective use of these products. This momentum may also be picked up to improve software (re-)design based on user-driven innovation tools and strategies.

On the political level, EUD is important for full participation of citizens in the emerging information society. While techniques of Web 2.0 already contribute to a democratization of the creation of content, the modification of the software infrastructure is difficult for non-professional programmers. This often leads to a division of labor between those who produce and those who consume. EUD has the potential to counterbalance these effects.

The Second International Symposium on End User Development focused on an emergent discussion which so far has taken place in many different forums. In these proceedings, we document 12 full papers and two notes that report on the latest advances in the field. Full papers and notes were chosen in a quality-oriented selection process in which each contribution was reviewed by at least three members of the Program Committee.

We are grateful to the distinguished members of our Program Committee.

Six invited speakers shared their insights with us during the symposium. Their work has largely contributed to shaping EUD as a research field. We would like to thank Jörg Beringer (SAP), Margaret Burnett (Oregon State University), Pele Ehn (University of Malmo), Gerhard Fischer (University of Colorado), Yasmin Kafai (University of Pennsylvania), and Frank Piller (RWTH Aachen). Burnett's and Fischer's contributions are additionally documented in these proceedings.

Organizing an international symposium requires team effort over a considerable period of time. We would like to thank Gunnar Stevens (Fraunhofer FIT) and Christopher Scaffidi (Carnegie Mellon University), who put together the work-in-progress section. Andrea Bernards, Matthias Korn, Karin Ofterdinger, Marion Schulte, Martin Stein, Marcel Tweer, and Timm Wunderlich supported us in many different ways, such as maintaining the website, formatting the proceedings, or running the registration process. We are deeply indebted to their high engagement.

Finally, we are grateful to the sponsors of the symposium: the President of the University of Siegen, Philips Research, Sparkasse Siegen, the German Science Foundation's Research Centre on 'Media Upheavals' (DFG-FK 615), and the International Institute for Socio-Informatics (IISI).

January 2009

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