

Software Best Practice 4

ESSI Practitioners' Reports

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Software Process Improvement: Metrics, Measurement, and Process Modelling

Software Best Practice 4

With 46 Figures and 30 Tables



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Foreword

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Under the 4th Framework of European Research, the European Systems and Software Initiative (ESSI) was part of the ESPRIT Programme. This initiative funded more than 470 projects in the area of software and system process improvements. The majority of these projects were process improvement experiments carrying out and taking up new development processes, methods and technology within the software development process of a company. In addition, nodes (centres of expertise), European networks (organisations managing local activities), training and dissemination actions complemented the process improvement experiments.

ESSI aimed at improving the software development capabilities of European enterprises. It focused on best practice and helped European companies to develop world class skills and associated technologies to build the increasingly complex and varied systems needed to compete in the marketplace.

The dissemination activities were designed to build a forum, at European level, to exchange information and knowledge gained within process improvement experiments. Their major objective was to spread the message and the results of experiments to a wider audience, through a variety of different channels.

The European Experience Exchange (EUREX) project has been one of these dissemination activities within the European Systems and Software Initiative. EUREX has collected the results of practitioner reports from numerous workshops in Europe and presents, in this series of books, the results of Best Practice achievements in European Companies over the last few years.

EUREX assessed, classified and categorised the outcome of process improvement experiments. The theme based books will present the results of the particular problem areas. These reports are designed to help other companies facing software process improvement problems.

The results of the various projects collected in these books should encourage many companies facing similar problems to start some improvements on their own. Within the Information Society Technology (IST) programme under the 5th Framework of European Research, new take up and best practices activities will be launched in various Key Actions to encourage the companies in improving their business areas.

Preface

M. Haug
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In 1993, I was invited by Rainer Zimmermann and David Talbot to participate in the industrial consultation group for the then-new ESSI initiative. Coming from a Software Engineering background and having been responsible for industrial software production for more than 20 years, I was fascinated by the idea of tackling the ubiquitous software quality problem in a fresh new way, in helping not only a particular organisation to improve their software process, but to create the framework for an exchange of the experience gained among those organisations and beyond, to spread this experience throughout the European Software Industry.

While serving as an evaluator and reviewer to the Commission within the ESSI initiative, I had the opportunity to have a more or less superficial look at more than 100 Process Improvement Experiments (PIEs) at workshops, conferences and reviews. Consequently, the desire to collect and consolidate information about and experience from *all* of the more than 300 PIEs in a more organised way became immanent. In short, the idea for EUREX was born.

EUREX is an ESSI dissemination project. The budget limitations applicable to such projects did not allow us to conduct reviews or interviews of all of the more than 300 projects. Therefore, a distributed and staged approach was taken: a set of regional workshops became the platform to collect the information. The results of these 18 workshops held in Europe over a period of two years, together with contributions from representative PIEs and with expert articles rounding out the experience reports, is now in your hands: a series of books focussing on the central problem domains of Software Process Improvement.

Each of the books concentrates on a technical problem domain within the software engineering process, e.g. software testing, verification and quality management in Vol. 1. All of the books have a common structure:

Part I SPI, ESSI, EUREX describes the context of the European Software and Systems Initiative and the EUREX project. While Part I is similar in all books, the problem domains are differentiated for the reader. It consists of the chapters:

- 1 Software Process Improvement
- 2 The EUREX project
- 3 The EUREX taxonomy.

In Part II we present the collected findings and experiences of the process improvement experiments that dealt with issues related to the problem domain addressed by the book. Part II consists of the chapters:

- 4 Perspectives
- 5 Resources for Practitioners
- 6 Experience Reports
- 7 Lessons from the EUREX Workshops
- 8 Significant Results

Part III offers summary information for all the experiments that fall into the problem domain. These summaries, collected from publicly available sources, provide the reader with a wealth of information about each of the large number of projects undertaken. Part III includes the chapters:

- 9 Table of PIEs
- 10 Summaries of Process Improvement Experiment Reports

A book editor managed each of the books, compiling the contributions and writing the connecting chapters and paragraphs. Much of the material originates in papers written by the PIE organisations for presentation at EUREX workshops or for public documentation like the Final Reports. Whenever an author could be identified, we attribute the contributions to him or her. If it was not possible to identify a specific author, the source of the information is provided. If a chapter is without explicit reference to an author or a source, the book editor wrote it.

Many people contributed to EUREX^{P1}, more than I can express my appreciation to in such a short notice. Representative for all of them, my special thanks go to the following teams: David Talbot and Rainer Zimmermann (CEC) who made the ESSI initiative happen; Mechthild Rohen, Brian Holmes, Corinna Amting and Knud Lonsted, our Project Officers within the CEC, who accompanied the project patiently and gave valuable advice; Luisa Consolini and Elisabetta Papini, the Italian EUREX team, Manu de Uriarte, Jon Gómez and Iñaki Gómez, the Spanish EUREX team, Gilles Vallet and Olivier Bécart, the French EUREX team, Lars Bergman and Terttu Orci, the Nordic EUREX team and Wilhelm Braunschöber, Bernhard Kölmel and Jörn Eisenbiegler, the German EUREX team; Eric W. Olsen has patiently reviewed numerous versions of all contributions; Carola, Sebastian and Julian have spent several hundred hours on shaping the various contributions into a consistent presentation. Last but certainly not least, Ingeborg Mayer and Hans Wössner continuously supported our efforts with their professional publishing know-how; Gabriele Fischer and Ulrike Drechsler patiently reviewed the many versions of the typoscripts.

The biggest reward for all of us will be, if you – the reader – find something in these pages useful to you and your organisation, or, even better, if we motivate you to implement Software Process Improvement within your organisation.

^{P1} Opinions in these books are expressed solely on the behalf of the authors. The European Commission accepts no responsibility or liability whatsoever for the content.

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