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# Evaluation of Novel Approaches to Software Engineering

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# Preface

Software engineering is understood as a broad term linking science, traditional engineering, art and management and is additionally conditioned by social and external factors (conditioned to the point that brilliant engineering solutions based on strong science, showing artistic creativity and skillfully managed can still fail for reasons beyond the control of the development team).

Modern software engineering needs a paradigm shift commensurate with a change of the computing paradigm from:

1. Algorithms to interactions (and from procedural to object-oriented programming)
2. Systems development to systems integration
3. Products to services

Traditional software engineering struggles to address this paradigm shift to interactions, integration, and services. It offers only incomplete and disconnected methods for building information systems with fragmentary ability to dynamically accommodate change and to grow gracefully. The principal objective of contemporary software engineering should therefore be to try to redefine the entire discipline and offer a complete set of methods, tools and techniques to address challenges ahead that will shape the information systems of the future.

This book is a peer-reviewed collection of papers, modified and extended for the purpose of this publication, but originally presented at two successive conferences: ENASE 2008 and ENASE 2009 (ref. http://www.enase.org/). The mission of the ENASE (Evaluation of Novel Approaches to Software Engineering) conference series is to be a prime international forum to discuss and publish research findings and IT industry experiences with relation to the evaluation of novel approaches to software engineering. By comparing novel approaches with established traditional practices and by evaluating them against software quality criteria, the ENASE conference series advances knowledge and research in software engineering, identifies the most hopeful trends and proposes new directions for consideration by researchers and practitioners involved in large-scale software development and integration.

The high quality of this volume is attested twofold. Firstly, all papers submitted to ENASE were subject to stringent reviews that resulted in acceptance rates of 25% or less. Secondly, only selected papers were considered for this volume and only after considering revisions, modifications and extensions.

The book's content is placed within the entire framework of software engineering activities, but with particular emphasis on experience reports and evaluations (qualitative and quantitative) of existing approaches as well as new ideas and proposals for improvements. The book is dedicated to managing one of the most important challenges that society is facing – how to ensure that humans can understand, control

and gracefully evolve complex software systems. A related aim of the book is to ensure the uptake of the presented research through further knowledge-transfer activities by researchers, educators, project managers and IT practitioners.

January 2010

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