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Software Process Change

International Software Process Workshop and International Workshop on Software Process Simulation and Modeling, SPW/ProSim 2006 Shanghai, China, May 2006, Proceedings

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Preface

This volume contains papers presented at the first joint conference of the Software Process Workshop and the International Workshop on Software Process Simulation and Modeling (SPW/ProSim 2006) held in Shanghai, P.R. China, on May 20-21, 2006.

The theme of SPW/ProSim 2006 was "Software Process Change – Meeting the Challenge." Software developers are under ever-increasing pressure to deliver their products more quickly and with higher levels of quality. These demands are set in a dynamic context of frequently changing technologies, limited resources and globally distributed development teams. At the same time, global competition is forcing organizations that develop software to cut costs by rationalizing processes, outsourcing part or all of their activities, reusing existing software in new or modified applications and evolving existing systems to meet new needs, while still minimizing the risk of projects failing to deliver.

To address these difficulties, new or modified processes are emerging, including agile methods and plan-based product line development. Open Source, COTS and community-developed software are becoming more popular. Outsourcing coupled with 24/7 development demands well-defined processes and interfaces to support the coordination of organizationally and geographically separated teams. All of these challenges combine to increase demands on the efficiency and effectiveness of software processes.

For the first time, in 2006 two successful series of conferences combined efforts to address these and other related questions. Previous Software Process Workshops have provided a high-quality forum for assessing current and emerging software process capabilities, and for obtaining insights into worthwhile directions in software process research. ProSim is the leading event for researchers and practitioners focusing on the simulation and modeling of software processes.

In response to the call for papers, 225 submissions were received from 17 different countries and regions: Australia, Belgium, Canada, China, France, Germany, Hong Kong, India, Italy, Japan, Korea, Mexico, Pakistan, Spain, Taiwan, UK, and USA. Every paper was rigorously reviewed and held to very high-quality standards, and finally 34 papers were accepted as regular papers for presentation at the workshop, representing a 15% acceptance rate for regular papers.

The papers were clustered around topics and presented in seven regular sessions, each consisting of two threads. Topics included Process Tailoring and Decision-Support, Process Tools and Metrics, Process Management, Process Representation, Analysis and Modeling, Process Simulation Modeling, Process Simulation Applications, and Experience Reports.

The SPW/ProSim2006 program was highlighted by four keynote speeches, delivered by (in alphabetical order): Barry Boehm (University of Southern California: "A Value-Based Software Process Framework"), Ross Jeffery (University of New South Wales: "Exploring the Business Process–Software Process Relationship"), Mingshu Li (Institute of Software at the Chinese Academy of Sciences: "3-D Integrated Software

Development Processes: A New Benchmark"), and Leon J. Osterweil (University of Massachusetts Amherst: "Ubiquitous Process Engineering: Applying Software Process Technology to Other Domains").

A conference such as this can only succeed as a team effort. All of this work would not have been possible without the dedication and professional work of many colleagues. We wish to express our gratitude to all contributors for submitting papers. Their work forms the basis for the success of the workshop. We also would like to thank the Program Committee members and reviewers because their work is the guarantee for the high quality of the workshop. Particular thanks also go to the keynote speakers for their excellent presentations. Finally, we also would like to thank the members of the Steering Committee for their advice, encouragement and support.

We wish to express our thanks to the organizers for their hard work. The workshop was sponsored by the Institute of Software, the Chinese Academy of Sciences (ISCAS) and the ISCAS Laboratory for Internet Software Technologies, and the Shanghai Municipal Informatization Commission (SMIC). We also wish to thank the 28th International Conference on Software Engineering (ICSE 2006) for sponsoring this meeting as an ICSE Co-Located Event. Finally, we acknowledge the editorial support from Springer for the publication of this proceeding.

For further information, please visit our website at http://www.cnsqa.com/~spwprosim2006.

March 2006

David M. Raffo
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Workshop on Software Process Simulation and Modeling 2006

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Keynotes

Process Tailoring and Decision-Support

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Experience Report

A Value-Based Software Process Framework

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Abstract. This paper presents a value-based software process framework that has been derived from the 4+1 theory of value-based software engineering (VBSE). The value-based process framework integrates the four component theories – dependency, utility, decision, and control, to the central theory W, and orients itself as a 7-step process guide to practice value-based software engineering. We also illustrate applying the process framework to a supply chain organization through a case study analysis.

1 Introduction

In this paper we present a value-based software process framework that has been derived from the 4+1 theory of value-based software engineering (VBSE) as described in [2]. The value-based process framework presented here integrates the four component theories of the 4+1 theory – dependency, utility, decision, and control theories – to the central theory W, and orients itself as a 7-step process guide to practice VBSE. We also illustrate applying the theory and process framework to a supply chain organization through a case study analysis.

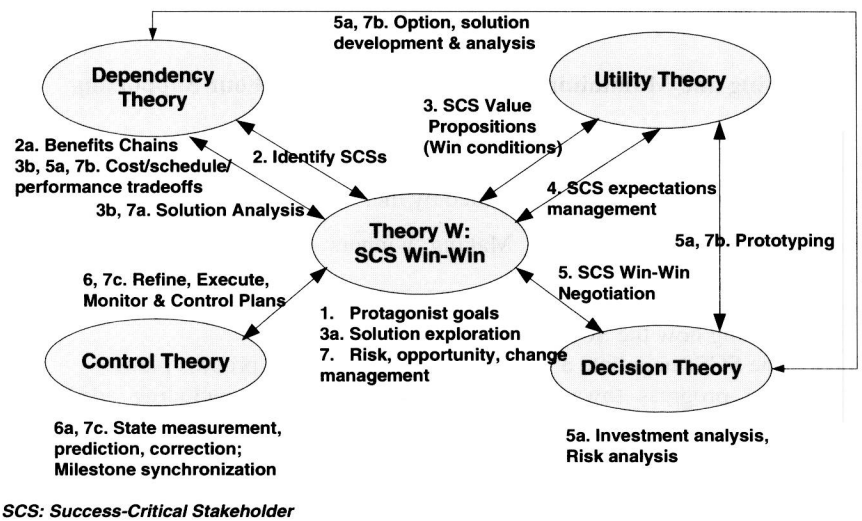

Fig. 1. The VBSE Theory and Process Framework

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2 The "4+1" Theory of VBSE

Figure 1 summarizes the "4+1" structure of the VBSE theory. The engine in the center is the success-critical stakeholder (SCS) win-win Theory W [5], which addresses the questions of "what values are important?" and "how is success assured?" for a given software engineering enterprise. The four additional theories that it draws upon are dependency theory (how do dependencies affect value realization? On what stakeholders does success depend), utility theory (how important are the values?), decision theory (how do stakeholders' values determine decisions?), and control theory (how to adapt to change and control value realization?).

2.1 The Central Engine: Theory W

The core of Theory W is the Enterprise Success Theorem: *"Your enterprise will succeed if and only if it makes winners of your success-critical stakeholders"*. An informal proof follows in Table 1, and further explained in [2].

Table 1. Informal proof of the Enterprise Success Theorem

Proof of "if"	Proof of "only if"
1. Everyone significant is a winner. 2. Nobody significant is left to complain.	1. Nobody wants to lose. 2. Prospective losers will refuse to participate, or will counterattack. 3. The usual result is lose-lose.

The proof of "if" is reasonably clear. The full proof of "only if" requires further explanation, which is provided in [2].

2.2 Achieving and Maintaining a Win-Win State: The Four Supporting Theories

However, the Enterprise Success Theorem does not tell us how to achieve and maintain a win-win state. This is provided by the:

WinWin Achievement Theorem: Making winners of your success-critical stakeholders requires:
1. Identifying all of the success-critical stakeholders (SCSs).
2. Understanding how the SCSs want to win.
3. Having the SCSs negotiate a win-win set of product and process plans.
4. Controlling progress toward SCS win-win realization, including adaptation to change.

Identifying all of the success-critical stakeholders involves the organizational and human aspects of dependency theory [12][7] and techniques such as the DMR Consulting Group's Results Chains [16].