Agile Software Development

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Editors

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Current Research and Future Directions

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Foreword

Agile software development is the most important paradigm that has swept the software development world over the last decade. Even if it does not represent the most popular software development approach in actual use, it has certainly become of the most talked about. Its vocabulary and prime ideas have already started spilling over into other fields, project management in particular.

Agile software development also carries the unique distinction of being the source of continued debate since its inception. The controversy surrounding it simply doesn't want to die out. Few other movements have pitted detractors and advocates against each other so passionately, so religiously.

But why? Shouldn't a decade be enough to settle at least the fundamental arguments? Those arguments should be getting pretty old by now if it were not for two reasons that still fuel the debate.

The first reason is the inherent fuzziness of the topic. Agile software development is multi-faceted and poorly delimited. As such the paradigm doesn't lend itself to a crisp definition, let alone straightforward study. Is agility a general development philosophy? Is it about dealing with change and uncertainty? Is it a project management philosophy? A way of working with software development teams? A way of working inside software development teams? A way of thinking about software? A set of technical practices that target better quality and higher productivity? A set of collaboration practices that cater to the needs of customers and end users? A set of principles and values of professional conduct? A way of life? A rebellion? A religion? A cultural revolution of the software intellectuals? Well, it's all of the above and none of the above at the same time. That the scope of agile software development is nebulous and dependent on personal and contextual interpretation makes it a hard nut to crack in systematic means. Misconceptions both by detractors and advocates find fertile ground to take hold, amplify and multiply in an unproductive cycle. When a topic is that fuzzy, understanding the boundaries and what lies inside those boundaries become almost as important as understanding the intricacies of the individual constituents.

The second reason is poor dissemination and insufficient synthesis of fragmented research results. It's not that our knowledge of the different facets of agile software development has not expanded significantly over the past years. It has, thanks to the still ongoing research efforts that have undertaken the difficult task of dissecting the elastic anatomy of agile software development. Alas, the scattered results of these efforts are neither well publicized nor readily available to the questioning reader. The world simply doesn't know what we collectively know about agile software development. Worse it doesn't know what we still don't know about it.

This book contributes to the agile debate by addressing both sources of the agile confusion: fuzzy, multi-faceted scope and poor, unconsolidated dissemination of efforts representing the collective understanding of an expert community. The

book represents a comprehensive snapshot of the knowledge accumulated over many years of research by those working closely with the industry, collecting data, observing practitioners in the field, synthesizing insights, devising theories, trying new methods to investigate core issues, and gathering clues to overcome outstanding challenges. It's your one-stop resource to agile software development research with contributions by the best people in the community, by people who know what they're talking about. Enjoy it. Digest it. Use it.

Ottawa, March 2010

Hakan Erdogmus, Kalemun Research Inc.

Preface

Principles of agile software development have a large impact on how software is developed. Some have characterized the change towards agile development as a paradigm shift, leading the focus to topics that have not been addressed or understood in traditional development.

It is therefore important to address what defines and characterizes agile development, what are the historical roots? How do the different principles, processes and methods work in practice, how does agile development affect various groups who are participating in software development? What new challenges arise when using agile development, and what challenges will the methods be unable to solve?

The transition to agile software development has been driven by practitioners, more or less informed by research results, mainly from fields not traditionally focusing on software development. However, researchers focusing on agile software development have a role in developing an understanding of how agile development methods work. Further, why they do or do not work, and in which situations or environment they work better or worse.

This book seeks to show the current state of research on agile software development through an introduction and ten invited contributions on some of the main research fields and by some of the main researchers. The chapters both show the main results in each subfield, and in addition explain what these results mean to practitioners as well as for future research in the field.

The book is aimed at reflective practitioners and researchers, and we hope the book also can serve for graduate courses at universities.

We are very grateful to the chapter authors who have contributed with important overview articles in their own research areas, and also are presenting their chapters at the 11th International Conference on Agile Software Development (XP2010). The editing of this book was supported by the EVISOFT project, which is partially funded by the Research Council of Norway under Grant 174390/I40.

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