

Lecture Notes in Business Information Processing

167

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Lean Enterprise Software and Systems

4th International Conference, LESS 2013
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Proceedings

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Preface

The Lean Enterprise Software and Systems (LESS) conference was the first scientific conference dedicated to advancing the “lean enterprise software and systems” body of knowledge. It fostered interactions between practitioners and researchers by joining the lean product development and agile software development communities. Now the conference has been established as a conference series and has expanded to become a conference that stretches across disciplines to look at issues such as beyond budgeting. The LESS 2013 conference now welcomes this broad, multidisciplinary community to Galway, Ireland, during December 1–4 to continue this tradition and expand the conference agenda to incorporate emerging research areas such as portfolio management, open innovation, and general enterprise transformation.

The 2013 LESS conference had a number of submission formats to cater for diverse academic and industry research activity. Industry submissions attracted several leading consultants and practitioners from large companies. All of the full and short paper proposals (irrespective of whether they were academic or industry based) were reviewed by at least two Program Committee members. All talk proposals were reviewed by track chairs. Track chairs were fully empowered to design their tracks. The LESS conferences will continue to build upon this value of trust and empowerment of communities to develop novel, engaging avenues. The selected papers represent a diverse range of experiences, studies, and theoretical angles. The selected talks represent some of the most eminent speakers from their respective communities. LESS 2013 was organized in four tracks: (1) lean software development, (2) quality and performance, (3) case studies, and (4) emerging developments. The conference also hosted a range of other engaging avenues including tutorials, workshops, panels, open spaces, lightning talks, and social networking programs.

LESS offers several avenues for knowledge exchange to create a highly collaborative environment. Each year, we aim to bring novelty to a program that fosters collaboration, letting new ideas thrive during and after the conference. This year we achieved this through a number of distinctive initiatives.

To increase the dissemination of the work post-conference, we will publish selected, substantially revised research in a special issue of the *Journal of Enterprise Transformation* (JET). JET is designed to provide a forum for original articles on trends, new findings, and ongoing research (both theory and application) related to enterprise transformation and brings together interdisciplinary research across areas such as management, industrial and systems engineering, information systems, organizational behavior, political science, and economics.

We would like to extend our deep gratitude to all those who contributed to the organization of the LESS 2013 event. The authors, the sponsors, the chairs, the reviewers, and all the volunteers: without their help this event would have

not been possible. Furthermore, we thank the lean, agile, and beyond budgeting communities, whose integral role made this conference an exciting platform for sharing and presenting innovative research.

We hope that you enjoy the proceedings of the LESS 2013 conference.

December 2013

Brian Fitzgerald
Kieran Conboy
Ken Power
Ricardo Valerdi
Lorraine Morgan
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Lean Development of Muscular Software

(Keynote)

David Lorge Parnas

President, Middle Road Software, Inc.
Professor Emeritus, University of Limerick, Ireland
Professor Emeritus, McMaster University, Canada

Lean management concepts evolved in a manufacturing environment. When manufacturing cars, cameras or computers, a lean organization devotes most of its energy to producing product for customers. Everything else can be viewed as waste and waste should be minimized.

When lean concepts are applied to software development, it is natural to view the code as the product and to treat anything else as waste. However, software development is design, not manufacturing. Further, the code is only one of the products that are needed. The code that is delivered is not even a permanent product. It is frequently updated. The real product is a continuously upgraded service.

This talk discusses some implications of the basic lean principles when applied to software development. It argues that preparing and using design documents that are precise and complete is an implementation of Lean principles that will reduce waste and result in a more successful product. It then illustrates such documents and outlines how they can be produced and used.

About David Lorge Parnas

Dr. David Lorge Parnas has been studying industrial software development since 1969. Many of his papers have been found to have lasting value. For example, a paper written 25 years ago, based on a study of avionics software, was recently awarded a SIGSOFT IMPACT award.

Dr. Parnas has won more than 20 awards for his contributions. In 2007, Parnas was proud to share the IEEE Computer Society's one-time sixtieth anniversary award with computer pioneer Professor Maurice Wilkes of Cambridge University.

He received his B.S., M.S. and Ph.D. in Electrical Engineering from Carnegie Mellon University. and honorary doctorates from the ETH in Zurich (Switzerland), the Catholic University of Louvain (Belgium), the University of Italian Switzerland (Lugano), and the Technische Universität Wien (Austria). He is licensed as a Professional Engineer in Ontario.

Dr Parnas is a Fellow of the Royal Society of Canada (RSC), the Association for Computing Machinery (ACM), the Canadian Academy of Engineering (CAE), the Gesellschaft für Informatik (GI) in Germany and the IEEE. He is a Member of the Royal Irish Academy.

He is the author of more than 275 papers and reports. Many have been repeatedly republished and are considered classics. A collection of his papers can be found in:

Hoffman, D.M., Weiss, D.M. (eds.), “***Software Fundamentals: Collected Papers by David L. Parnas***”, Addison-Wesley, 2001, 664 pgs., ISBN 0-201-70369-6.

Dr. Parnas is Professor Emeritus at McMaster University in Hamilton Canada, and at the University of Limerick Ireland and also an Honorary Professor at Ji Lin University in China. He is President of Middle Road Software in Ottawa, Ontario.

LESS 2013 Doctoral Symposium

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The LESS 2013 Doctoral Symposium provided doctoral students with an opportunity to present their research work in a relaxed and supportive environment, receive feedback and suggestions from experienced senior researchers as well as fellow PhD students. It is also a good occasion to discuss concerns about their research plan, supervision, publication venues, future job market and other issues that may concern them. The doctoral symposium also provided a good opportunity to network with peers and future colleagues.

Doctoral students engaged in research on Lean and Agile development and related areas were encouraged to submit their research proposals to the symposium. Proposals included the description of the research problem and its significance, a brief review of related literature and how the proposed research fits in the existing research, description of proposed research methodology, results achieved so far and future plan.

Eligible candidates were those who already defined the research questions and theoretical basis, developed research methodologies and started their empirical work. Meanwhile, at the time of the symposium they were expected to have at least 6 to 12 months work remaining before expected completion.

Based on these requirements we accepted five research proposals which covered a variety of topics include agile and lean thinking for safety-critical software development, cloud strategy and organizational agility, collaborative prioritization of requirements for multi-requestor-systems, measuring strategic alignment in portfolios of complex dynamic IT projects, and development of a new model for managing complex software development with a high degree of uncertainty.

The doctoral symposium was run in an interactive manner with an agile structure. The goal was to provide a better learning experience for the students, and also help them to engage with other conference attendees to provide constructive feedback on their research. In addition to the three academic committee members, other researchers and practitioners were welcome to join the symposium and provide feedback to the research presented at the symposium.

Table of Contents

Lean Software Development

The Early Stage Software Startup Development Model: A Framework for Operationalizing Lean Principles in Software Startups	1
<i>Jan Bosch, Helena Holmström Olsson, Jens Björk, and Jens Ljungblad</i>	
Lean Software Development – What Exactly Are We Talking About? . . .	16
<i>Oisín Cawley, Xiaofeng Wang, and Ita Richardson</i>	
Lean Software Development Measures and Indicators - A Systematic Mapping Study	32
<i>Markus Feyh and Kai Petersen</i>	

Quality and Performance

Bringing Total Quality in to Software Teams: A Frame for Higher Performance	48
<i>Petri Kettunen</i>	
Improving Development Visibility and Flow in Large Operational Organizations	65
<i>Jo Ann Lane and Richard Turner</i>	
A Brief History of Budgeting: Reflections on Beyond Budgeting, Its Link to Performance Management and Its Appropriateness for Software Development	81
<i>Garry Lohan</i>	
Case Study in Responsive Web Design: Pragmatic Agile and Hero Team Approach - Time and Cost Savings with Quality Improvement . . .	106
<i>Maarit Laanti, Tommi Laitila, Mikko Mustakallio, and Jukka-Pekka Kääriäinen</i>	

Case Studies

Success Factors in New Service Development - Digia Flowd Analysis . . .	122
<i>Raija Kuusela and Sari Vilminko</i>	
Creating Minimum Viable Products in Industry-Academia Collaborations	137
<i>Jürgen Münch, Fabian Fagerholm, Patrik Johnson, Janne Pirttilahti, Juha Torkkel, and Janne Järvinen</i>	

Towards Data-Driven Product Development: A Multiple Case Study on Post-deployment Data Usage in Software-Intensive Embedded Systems	152
<i>Helena Holmström Olsson and Jan Bosch</i>	
Feature Prioritization Based on Mock-Purchase: A Mobile Case Study	165
<i>Alexander-Derek Rein and Jürgen Münch</i>	
 Emerging Developments	
Fuzzy Cognitive Maps as Decision Support Tools for Investigating Critical Agile Adoption Factors	180
<i>Efi Papatheocharous, Jaana Nyffjord, and Elpiniki Papageorgiou</i>	
Agile Project – An Oxymoron? Proposing an Unproject Leadership Model for Complex Space	194
<i>Juha Rikkilä, Xiaofeng Wang, and Pekka Abrahamsson</i>	
Exploring the Tensions between Software Project Portfolio Management and Agile Methods: A Research in Progress Paper	210
<i>Roger Sweetman and Kieran Conboy</i>	
Author Index	219