

# First International Workshop on Hybrid dEveLopmENt Approaches in Software Systems Development

Marco Kuhrmann  
Clausthal University of Technology  
Institute for Applied Software  
Systems Engineering  
Goslar, Germany  
kuhrmann@acm.org

Philipp Diebold  
Fraunhofer Institute for Experimental  
Software Engineering  
Process Engineering  
Kaiserslautern, Germany  
philipp.diebold@iese.fhg.de

Jürgen Münch  
Reutlingen University  
Business Informatics & Herman  
Hollerith Center  
Böblingen, Germany  
j.muench@computer.org

## ABSTRACT

A software process is the game plan to organize project teams and run projects. Yet, it still is a challenge to select the appropriate development approach for the respective context. A multitude of development approaches compete for the users' favor, but there is no silver bullet serving all possible setups. Moreover, recent research as well as experience from practice shows companies utilizing different development approaches to assemble the best-fitting approach for the respective company: a more traditional process provides the basic framework to serve the organization, while project teams embody this framework with more agile (and/or lean) practices to keep their flexibility. The first HELENA workshop aims to bring together the community to discuss recent findings and to steer future work.

## CCS CONCEPTS

• **General and reference** → **Surveys and overviews**; • **Software and its engineering** → **Software development methods**; *Software organization and properties*; *Designing software*; *Software development techniques*; *Programming teams*;

## KEYWORDS

Agile software development; software process; hybrid development approaches; survey

### ACM Reference format:

Marco Kuhrmann, Philipp Diebold, and Jürgen Münch. 2017. First International Workshop on Hybrid dEveLopmENt Approaches in Software Systems Development. In *Proceedings of 2017 International Conference on Software and Systems Process, Paris, France, July 2017 (ICSSP'17-WORKSHOPS)*, 2 pages. <https://doi.org/10.1145/3084100.3087677>

## 1 INTRODUCTION

A software process is the game plan to organize project teams and run projects. Yet, it still is a challenge to select the appropriate development approach for the respective context. Since there is no “Silver Bullet” [1] in software development, software engineers are on the quest for suitable development approaches, yet facing a huge variety of contextual factors influencing the definition of

appropriate development processes [2, 7]. Consequently, a variety of development approaches compete for the users' favor, but there is no “Silver Bullet” serving all possible setups. Moreover, recent research as well as experience from practice shows companies utilizing different development approaches to assemble the best-fitting approach for the respective company: a more traditional process provides the basic framework to serve the organization, while project teams embody this framework with more agile (and/or lean) practices to keep their flexibility.

### 1.1 The HELENA Project

Accepting West's claim that the “Water-Scrum-Fall” has become reality [6], in 2015 we conducted a systematic review to investigate the current state-of-practice in software process use [5]. Among others, we found a considerable imbalance in the research concerning traditional and agile software & system development. Eventually, we teamed up founding the HELENA initiative, which aims to study the use of “Hybrid dEveLopmENt Approaches in software systems development”. This initiative grew to a real project involving more than 60 researchers from (currently) 21 countries (cf. Table 2). Initial results—in particular from the HELENA trails and the first stage of the study—have been presented at the annual meeting of the *Software Process* special interest group of the German Computer Society [4], and will be presented at the *International Conference on Software System Process (ICSSP) 2017* [3].

### 1.2 The 1<sup>st</sup> HELENA Workshop

This 1<sup>st</sup> HELENA workshop primarily focuses on the community work initiated at ICSSP 2016 (Austin, Texas); in particular, the HELENA survey. Currently, the HELENA community comprises more than 60 (academic) contributors from (currently) 21 countries. In this workshop, we aim at bringing together all academic and industry contributors and further interested people to:

- (1) Report the current state and (tentative) outcomes of the HELENA survey (from a global and regional perspective)
- (2) Develop a work program and define next steps within the whole community
- (3) Build working groups, which work on selected (sub-)topics of interest
- (4) Create a research agenda for hybrid development

## 2 WORKSHOP ORGANIZATION

The 1<sup>st</sup> HELENA workshop is a 1-day workshop aiming at bringing together all the contributors of the HELENA project. Table 1

shows the general workshop schedule. Besides the reports on the current state of the work in the different regions all across the globe, a key activity in the workshop is working in *Breakout Sessions*. These sessions aim at identifying topics of interest that allow for (i) continuing the survey research, and (ii) to form working groups within the HELENA team. Eventually, this workshop will also develop a research agenda to steer further work on the use of hybrid development approaches.

**Table 1: Overview of the workshops topics and schedule.**

Topic
<i>Introduction (Organizers)</i>
Reports from the regions
Report of the current state from a global perspective (Organizers)
Setup of working groups
Working groups breakout session
Working groups formation and consolidation (group-specific work plan)
Presentation of the working groups and their plans
Development of the HELENA Agenda and next steps
<i>Closing (Organizers)</i>

### 3 HELENA CONTRIBUTORS

HELENA involves a huge number of academic and industry contributors from (currently) 21 countries as shown in Table 2.

**Table 2: Overview of the countries and the number of researchers (#Col) currently participating in HELENA (in alphabetical order, status May 5, 2017).**

No.	Country	#Col	No.	Country	#Col
1	Argentina	2	12	Italy	4
2	Austria	3	13	Luxembourg <sup>a</sup>	1
3	Brazil	5	14	New Zealand	3
4	Canada	2	15	Norway	2
5	Chile	1	16	Spain	3
6	Costa Rica	1	17	Sweden	7
7	Denmark	4	18	Switzerland	2
8	Estonia	2	19	The Netherlands	1
9	Finnland	1	20	Turkey	2
10	Germany	11	21	UK	5
11	Ireland	7			

<sup>a</sup>: The Luxembourg member moved from Turkey to Luxembourg, yet continues heading the Turkish team.

Each of these 21 sites has a local head supporting the general organization team, and we owe special thanks to all our colleagues, who helped us quality assuring the survey instrument, translating the instrument, and spreading the word among their local peers.

The full list of all HELENA contributors can be depicted from: <https://helenastudy.wordpress.com/helena-team>.

### 4 FURTHER WORK

This HELENA workshop is only the first one, and we plan to organize further editions. Therefore, we cordially invite all interested

researchers and practitioners to join us in Paris and to discuss opportunities for further collaboration. HELENA is an open and still growing project, and we appreciate all kinds of support.

### ACKNOWLEDGMENTS

We want to thank the ICSSP 2017 Chairs and organization board for providing us with the opportunity to held this first workshop in conjunction with ICSSP 2017. We look forward to a fruitful and long-term collaboration with the ICSSP community.

### REFERENCES

- [1] Frederick P. Brooks. 1987. No Silver Bullet Essence and Accidents of Software Engineering. *IEEE Computer* 20, 4 (1987), 10–19.
- [2] Paul Clarke and Rory V. O'Connor. 2012. The Situational Factors That Affect the Software Development Process: Towards a Comprehensive Reference Framework. *Information and Software Technology* 54, 5 (May 2012), 433–447. DOI: <https://doi.org/10.1016/j.infsof.2011.12.003>
- [3] Marco Kuhrmann, Philipp Diebold, Jürgen Münch, Paolo Tell, Vahid Garousi, Michael Felderer, Kitija Trektore, Fergal McCaffery, Christian R. Prause, Eckhart Hanser, and Oliver Linssen. (in press) 2017. Hybrid Software and System Development in Practice: Waterfall, Scrum, and Beyond. In *Proceedings of the International Conference on Software System Process (ICSSP)*. ACM.
- [4] Marco Kuhrmann, Jürgen Münch, Philipp Diebold, Oliver Linssen, and Christian R. Prause. 2016. On the Use of Hybrid Development Approaches in Software and Systems Development: Construction and Test of the HELENA Survey. In *Proceedings of the Annual Special Interest Group Meeting Projektmanagement und Vorgehensmodelle (PVM) (Lecture Notes in Informatics (LNI))*, Vol. P-263. Gesellschaft für Informatik (GI), Bonn, 59–68.
- [5] Georgios Theocharis, Marco Kuhrmann, Jürgen Münch, and Philipp Diebold. 2015. Is Water-Scrum-Fall Reality? On the Use of Agile and Traditional Development Practices. In *International Conference on Product Focused Software Development and Process Improvement (Lecture Notes in Computer Science)*, Vol. 9459. Springer, Cham, 149–166.
- [6] Dave West, Mike Gilpin, Tom Grant, and Alissa Anderson. 2011. *Water-Scrum-Fall Is The Reality Of Agile For Most Organizations Today*. Technical Report. Forrester Research Inc.
- [7] Peng Xu and Balasubramaniam Ramesh. 2008. Using Process Tailoring to Manage Software Development Challenges. *IT Professional* 10, 4 (July 2008), 39–45. DOI: <https://doi.org/10.1109/MITP.2008.81>