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ABSTRACT
Agile software development has become well known to the community and is nowadays frequently used for the development of different kinds of software systems. Agile methods are widely spread and often adapted to the context-specific needs. The adaptations constitute reductions and/or extensions of agile practices. Yet, we have limited knowledge about the impact of some of the individual practices, which is crucial to justify organizational changes. To systemize the knowledge of the impact of agile practices, we launch this workshop and invite researchers and practitioners to work on a documenting and accumulating their experiences in a knowledge base.

Categories and Subject Descriptors
D.2.9 [Software Engineering Management]: Software process models.

General Terms
Measurement, Documentation, Standardization.

Keywords
Software processes, software process improvement (SPI), agile, agile development, agile practices, impact model, causal model, knowledge base.

1. MOTIVATION AND PROBLEM
Agile Software Development has become a commonly used software development methodology for various domains [6]. Yet, there are some domains, especially in the field of embedded reactive systems which is dominated by complex and distributed processes with many contractors, where agile is often not accepted at all. Those who adapt agile methods, such as Scrum, perform many changes so that the methods and principles fit their context [3].

Adaptations of agile methods often manifest on the lower level of granularity, because specific (agile) practices of the different methods, such as pair programming, are replaced, extended, changed and/or avoided. If looking at the huge diversity of agile methods that appeared during the last decades [1], the publication landscape has become wide and full of very specific-purpose agile practices. But only for a small part of the large number of practices, such as pair programming, there is trustworthy evidence available about their impact on different aspects [2][5], e.g. development process, people, work products, and quality. Such evidence is, however, crucial for a founded and justifiable decision of which agile practices to use, and which practices improve software development processes in response to which context-specific characteristic.

To address these research gaps, the primary purpose of the 1st Workshop on Impact of Agile Practices is to discuss our current state of evidence on the impact of agile practices, and develop ideas regarding the necessary progress, in particular, initiating the work on a knowledge base of some sort that intends to accumulate the evidence of impacts of agile practices. In this summary, we present the detailed workshop plan including ideas and topics in Section 2 and expected workshop outcomes in Section 3.

2. WORKSHOP IDEAS & TOPICS
There is a need of identifying and systematizing the impacts of agile practices for improving software processes in a goal-oriented and context-specific manner. Since there is only limited experience published so far, we lack knowledge about which experience has been achieved in which contexts. Thus, the first workshop is conducted as an interactive discussion for the elaboration of initial ideas of how to collect evidence on the impact of agile practices. To accommodate this, the workshop is organized as follows:

- The workshop starts with providing a short introduction into the general topic and its motivation.
- After the initial introduction, the workshop organizers as well as selected participants present their experience, motivation, ideas or expectations in relation to the different topics of the workshop.
- The presentation round is followed by the main part of the workshop, the group discussions in an interactive open-space manner. The starting topics are the meta-model, elaboration and structuring of existing impacts of agile practices, collection of the new impacts of agile practices, and their operationalization.
- The results of the different working groups are then presented and discussed.
- Finally, a short summary and conclusion is given by the workshop organizers based on the different findings of the workshop to elaborate future work as a community strategy w.r.t. continuous data collection, dissemination, publications, and follow-up meetings.

The topics described in the following sub-sections outline the rationale for the main four topics as the scope of the workshop on the impact of agile practices.

2.1 Meta-Model
A meta-model serves as a foundation to define (1) how to structure the content elaborated within the community and (2) how to share the results within the community or public.

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For this reason, we use the Agile Practices Impact Model of Diebold and Zehler [4] as a starting point to define such a meta-model for the impact of agile practices, taking advantage of the already proposed concept, terms, and relations.

2.2 Elaboration and Structuring of Existing Impacts of Agile Practices
To succeed with understanding the impact of agile practices, it is important to structure the already existing experiences (agile practices and their impacts) be it reported evidences or personal practical experiences. The major challenges to overcome are related to the diversity of different data sources which range from scientifically published evidence, such as systematic literature reviews (SLRs), surveys, experience reports, and existing grey literature to personal experience.

In addition to the use of existing sources, we discuss the option of designing and launching our own survey project within the community, similar as done on requirements engineering (RE) via the NaPiRE-survey project1. In this case, further thoughts on how and where to spread such a survey to collect necessary and reasonable data are shared.

2.3 Collection of the New Impacts of Agile Practices
One task we opt for during the workshop is to initiate the collection of the evidences on the impact of selected agile practices. This can be done through a aforementioned survey (see section 2.2). We discuss how to structure and report such evidences using the constructs and rules defined by the meta-model (see section 2.1). The primary scope is not to conduct a regular (exhaustive) data collection, but to provide one exemplary instantiation of the meta-model (Sect. 2.1) and to discuss whether the structure for collecting and reporting impacts is suitable and sustainable for future usage.

2.4 Operationalization and Usage of the Impacts of Agile Practices
In contrast to the other three topics, which deal to a certain extent with the collection of the impacts of agile practices, this topic focuses on the operationalization and usage of the impacts in the industrial practice. We believe it is important for practitioners who participate in the workshop to get some practical guidance on which agile practices can be implemented in which way in a specific context. To support this, we engage them in discussing the ways of establishing a measurement program in the companies to accumulate the effect/impact of agile practices in their use. This trustworthy impact could then be reintegrated into the existing evidenced base.

3. WORKSHOP OUTCOME
Ideas elaborated and discussed during the workshop lay the ground for a set of more or less technical outputs:

- List of already known, readily available data sources, e.g. [2] and [5] as evidence for pair programming, or contacts of practitioners with personal experience;
- Ideas of how to collect further data regarding the impact of agile practices;
- Strategy of operationalization / implementation of agile practices in different industrial contexts.

In addition to those more technical outputs, there are further aspects that are a part of the workshop or the follow-up work, which we summarize next.

3.1 Community
Since we are aware of the breadth of the area concerned, i.e. collection and maintenance of the impacts of agile practices, the workshop provides a common forum and a stimulus to establish a community working on different aspects related to the impact of agile practices (e.g. specific agile practices, specific aspects w.r.t. collection, measurement or maintenance of the evidence, or specific contexts). The annual workshop shall form the basis for a long-term collaboration between the community members.

3.2 Roadmap and Strategy
In addition to the community building, we aim for establishing a roadmap and strategy for the community. This concerns formulating guidance and agreed plan of the future research activities, including regular meetings and collaboration platform to support distributed working (e.g. shared workspace, online meetings) as well as a possible location and time for a follow-up workshop. In summary, we derive a coarse strategy as well as a list of To-Do’s for the next meeting(s) and workshops.

Finally, the dissemination of the results of the workshop to support the visibility of the community is discussed. Hence, the roadmap shall encompass a publication plan.

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5. REFERENCES

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1 See re-survey.org