A Summary of the Workshop on Pilot Implementation for Testing Human-Work Interaction Designs

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Abstract. Pilot implementations are field tests of properly engineered, yet unfinished, systems. By exposing systems to their intended environment, pilot implementations emphasize realism and collect real-use feedback for system finalization. While practitioners recognize pilot implementations as a means of testing the fit between a system and its use environment, pilot implementations have received less attention from researchers in human-computer interaction. The workshop on pilot implementation for testing human-work interaction designs aimed to instill research interest in pilot implementation and to provide a forum for discussing and maturing such research. The seven workshop papers included in this post-proceedings volume span a variety of angles on pilot implementation. They contribute valuable insights but also leave open questions. Collectively, they provide illustrative case studies and inspiration for further research.

Keywords: Pilot implementation, Field test, Human work interaction design.

1   Introduction

The workshop on pilot implementation for testing human-work interaction designs was organized by Working Group 6 – Human Work Interaction Design – under IFIP TC13. Working Group 6 contends that the integration of work analysis and interaction design is pivotal to the successful development and implementation of workplace systems [1]. Pilot implementations contribute to this integration by being an in situ method for working to ensure the usefulness and adoption of systems.

The aim and focus of the workshop were laid out in the workshop description [8]. In brief, the aim was to help make pilot implementation a more mature method by collecting case studies of pilot implementations and by analyzing the strengths, weaknesses, opportunities, threats, and open questions related to pilot implementation. This summary of the workshop provides a framing for the case studies presented at the workshop. The workshop papers report from the individual case studies. The analysis of strengths, weaknesses, opportunities, threats, and open questions will be reported in a separate paper authored jointly by workshop participants.

2 Pilot Implementation

A pilot implementation is "*a field test of a properly engineered, yet unfinished system in its intended environment, using real data, and aiming – through real-use experience – to explore the value of the system, improve or assess its design, and reduce implementation risk*" [7]. Four points may serve to unpack this definition:

- Pilot systems are, by definition, not fully developed. While properly engineered, they are unfinished. Contrary to mock-ups and prototypes, a pilot system is sufficiently complete to be tested in the field rather than the lab. Contrary to full-scale implementation, a pilot implementation is conducted to get feedback for the finalization of the system.
- By being tests, pilot implementations are limited in scope and time. The site of the pilot implementation will involve only some of the intended users of the system, and they will stop using the pilot system at a pre-specified date. The pre-specified end date creates a decision point: What should happen after the pilot implementation?
- Pilot implementations are conducted in the intended use environment. This characteristic of pilot implementations sets them apart from usability tests, which are normally conducted in the lab. Compared to usability tests in the lab, pilot implementations emphasize realism and allow for evaluating organizational usability [3].
- Pilot implementations are conducted to learn about the fit between the system and its use environment. This characteristic sets pilot implementation apart from full-scale implementation. While full-scale implementations are conducted to realize benefit from the new system through continued use, pilot implementations are conducted to learn through temporary use.

By recognizing the technical as well as the social, organizational, and contextual qualities of systems, pilot implementations are a means of bridging the gap between technical development and organizational implementation. They are conducted in the final stages of technical development [16] or in the preparations for organizational implementation [6]. While pilot implementations are not restricted to information systems, a literature on pilot implementation as a method for developing and implementing information systems is emerging [e.g., 7, 9, 10, 12, 13, 16, 19].

3 Contributed Papers

Of the eleven papers presented at the workshop, seven are included in this post-proceedings volume. All papers have been revised and extended after they were presented and discussed at the workshop.

Two papers analyze pilot implementations that have been completed and now provide the involved organizations with a basis for deciding whether to proceed with full-scale implementation. These pilot implementations have gone through planning, technical configuration, organizational adaptation, pilot use, and learning [7]. The papers focus on what has been learned and show that important learning may result from the period of pilot use as well as from the preparations leading up to it. In addition, some

of the learning may already become apparent during the pilot implementation and influence how it proceeds. The two papers in this group are:

- Pereira et al. [14], who have pilot implemented a social media campaign to enlist more students in a university master program. The campaign ran for two consecutive years and involved creating two blogs and regularly posting on these blogs and on social media. Key learnings from the pilot implementation are that social media posts have a much larger audience than blog posts and that the campaign probably contributed to a substantial increase in new students.
- Herbæk et al. [5], who analyze how a company pilot implemented a self-service system directed at the company itself and its customers. The main contribution of the pilot implementation is to cause organizational alignment and, thereby, smoothen the transition into using the system. As part of this alignment, the company revised its incentive structures. A mismatch between the system and the incentive structures could have been a severe adoption barrier.

A group of four of the papers presented at the workshop studies the pilot implementation of systems developed for a market, rather than a specific customer organization [4]. These pilot implementations focus on testing a technological system in an operational setting to evaluate whether it delivers accurate and useful outputs. Organizational issues are not considered. With this focus, these papers investigate pilot implementations that have many similarities with usability tests. A couple of the papers appear to use the terms pilot implementation and usability test interchangeably, thereby blurring a distinction that warrants attention. It may be argued that a test of the social, organizational, and contextual issues associated with using the systems will also be needed before a decision about their full-scale implementation can be made. Three papers from this group are included in this post-proceedings volume:

- Mathesul et al. [11], who investigate a system that generates images from textual descriptions. Eleven users participated individually in the pilot implementation and provided their feedback. On the basis of the feedback, the development team plans to improve the resolution of the images and to provide better options for choosing among the generated images.
- Pradhan et al. [15], who have tested a web application for detecting hateful content in social media posts. Twelve users provided real-world input to the application and rated their user experience and the accuracy of the classifications made by the application. The test shows that the accuracy needs to be improved before the application is ready for operational use.
- Wawage and Deshpande [18], who have pilot implemented an app for improving traffic safety. The app classifies driver behavior on the basis of smartphone sensor data. A single driver used the app for seven days. The app achieved high classification accuracy, but the paper does not explain how the app will contribute to the inherently sociotechnical challenge of improving traffic safety.

A group of three of the papers presented at the workshop studies pilot implementation in relation to systems that are in the process of being designed in a specific organizational context. These papers focus on understanding the needs of users and organizations and on matching these needs with system functionality. This focus has a lot in common with the analysis phase in systems development. In contrast, the papers largely bypass technical issues. The role of the pilot implementation varies in this group of papers, but all three papers are mainly situated in the preparation phase of a pilot implementation, that is, before the period of pilot use. The preparation phase is far from trivial and may generate important learning before the pilot system enters the period of pilot use [12]. This post-proceedings volume includes one paper from this group:

- Saadati et al. [17], who have conducted co-design workshops at an airport as a precursor to future pilot implementations of autonomous technologies. The airport has experience with pilot implementations (trials, in their terminology) but considers them a suboptimal method. The co-design workshops serve to elicit workplace needs and clarify which technologies to select for further consideration and pilot implementation.

Finally, two of the papers presented at the workshop approach pilot implementation from a conceptual point of view, rather than through a case study. One of these papers is included in this post-proceedings volume:

- Clemmensen [2], who starts from the premise that pilot implementations entail a move from the technical toward the social and discusses the components of this move. Pilot implementations are theorized as adaptive sociotechnical interventions. These interventions interject change in the relations between work practices and information systems. At the same time, the interventions should themselves be changeable to allow for adapting the use of the pilot system to local circumstances.

4 Conclusion

Pilot implementations are recognized among practitioners as a means of testing the fit between a system and its use environment. However, they have received less interest from researchers in human-computer interaction than, for example, usability tests. The papers from the workshop on pilot implementation for testing human-work interaction designs provide illustrative case studies and inspiration for further research.

Acknowledgments

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