

Toward a Framework for Software Development across Organisational Boundaries

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Abstract. Since Agile software development has departed from traditional approaches like the Waterfall model, much research has been conducted on adopting Agile software development for different projects, either distributed or collocated projects. However, little research has discussed the organisational boundaries between developers who use an Agile software development approach and their customers. The purpose of this PhD is to introduce Agile software development to those organisations that develop software products for different distributed customers, and also to study the potential impact of the Agile development introduced across those organisational boundaries. We will conduct a case study in Saudi Arabia using interviews as a qualitative method for research. Evaluation of the results could lead to a framework for developing software across organisational boundaries. This would ultimately address and accommodate key factors in software development across organisational boundaries using an Agile development approach. This research will help project managers and developers as well as stakeholders and users to understand Agile software development and the impact of adopting an Agile approach across organisational and cultural boundaries in their projects.

1 Research Motivation

Many organisations use traditional approaches like the Waterfall model to develop software products for different customers. Furthermore, some of those customers are located in distributed locations. These factors result in many different challenges in the development process, such as gathering analyses of customer requirements and testing a final product (e.g. user acceptance tests). Moreover, there are other problems in management, from the initial development of a software product to its completion and on-time delivery

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On the other hand, Agile software development is an iterative approach to developing software incrementally, which facilitates developing and producing software in a shorter time than a plan-based approach to software development. Furthermore, through its practices Agile software development promotes iteration and flexibility in software development, values that are emphasised in the Agile Manifesto [1]. The previous challenges of traditional approaches as well the flexibility of an Agile development approach were the main motivations for asking these questions:

1. How can we introduce Agile software development principles to develop software products across organisational boundaries?
2. How would Agile software development improve/help in the development process for software products across organisational boundaries?
3. How would the proposed framework help/support people in the development process across organisational boundaries?

2 Research Objectives

The main objectives of this PhD are to answer the research questions in the previous section by introducing Agile software development to organisations that develop software products for distributed customers. In addition, we will study the organisational boundaries between software developers and customers' organisations to determine the challenges of using the Agile development approach to develop software in this domain. At this point, we will propose a framework to address and accommodate the key factors of software development using the Agile development approach across organisational boundaries, as well as a guide for project managers and stakeholders to help them adopt one of the Agile methodologies, such as Scrum.

3 Research Methodology and Current State

In this project, we will interview people involved in software development companies like project managers and developers, as well as users and stakeholders. We will make a case study of one software development company that develops software products using the Waterfall model and specialise those software products for several distributed customers. All of the customers have a local development group that customises and adapts the software to suit local needs using an Agile approach. Therefore, in this scenario there are both organisational and cultural boundaries to consider in development, as well as the specialisation process for software products, as shown in Figure 1.

The previous research method will help us to understand the key challenges of development software for distributed customers. Consequently, this will help us to learn how we can introduce Agile software development to these organisations and help us to propose a framework that addresses the key components of using Agile software development to develop software products across organisational boundaries.

We have carried out a literature review including [2, 3, 4, 5], and proposed an initial framework (see Figure 2 on page 4) for the development of software across

organisational boundaries. The proposed framework consists of four components: communication, project management, knowledge management, and configuration management. These components cover management aspects as well as the software development process, such as documentation and testing.

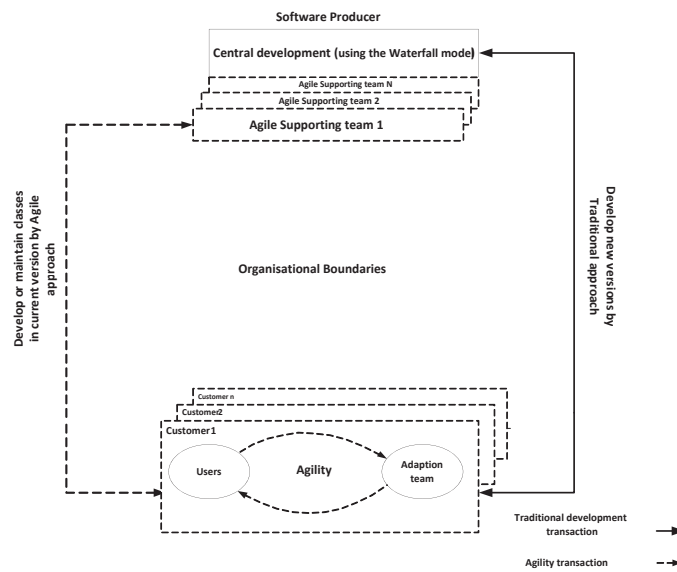


Figure 1: Agile approach across organisational boundaries between vendor and customers.

In terms of experimental work, we have made initial contact with a software development company in Saudi Arabia, and we were welcomed to collaborate with them in this research. Moreover, the first author worked as a coordinator between that company and one of its customers for three years.

The next step will be reviewing the initial proposed framework by conducting interviews with Agile people and practitioners to improve the proposed framework. Then we will start to collect project development data from the potential case study to understand the current environment of development across organisational and cultural boundaries. This will help us introduce Agile software development to the same domain. Finally, we will analyse and evaluate the data and the proposed framework to discuss the results of this project.

4 Significance of the Research

This research and the proposed framework will help project managers and developers as well as stakeholders and users to understand Agile software development, and its

impact on organisational boundaries, if they adopt the Agile development approach in their projects, in particular where some teams are still working in a traditional way.

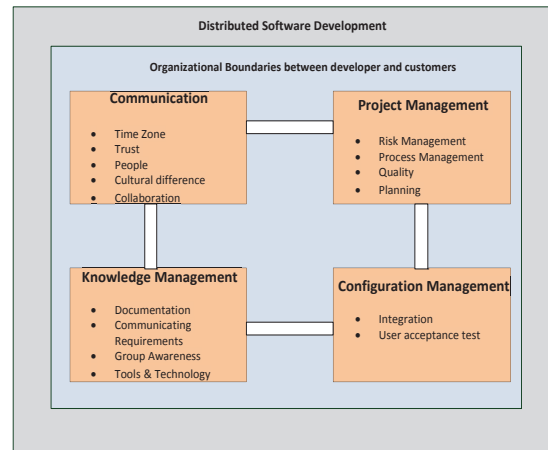


Figure 2: Initial framework for development software products across organisational boundaries using an Agile approach.

5 References

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