Agile Commitments: Enhancing Business Risk Management in Agile Development Projects

Mauricio Concha, Marcello Visconti, and Hernán Astudillo

Departamento de Informática
Universidad Técnica Federico Santa María, Valparaíso, Chile
{mconcha,visconti,hernan}@inf.utfsm.cl

Abstract. Agile methods focus on customer satisfaction and delivering business value early, however if flexibility and adaptability are not managed during the development project, agile methods could not assure achieving the overall business expectations. Customers require risk visibility over the main aspects that define its expectations: functionality (scope), budget, time-to-market, and product quality. These risks must be controlled and monitored during the project in order to introduce mitigation actions if needed. In this article, we propose an agile commitments framework based on the definition and follow-up of commitments between customer and developer. This framework aims to improving risk management by enhancing business expectation risk visibility, and also providing a negotiation baseline between customers and developers.

Keywords: Agile development, commitment management, risk management.

1 Introduction

Software is a strategic element to support the business process within organizations, thus software alignment to business goals is an important aspect to be managed. Customer business expectations lead to the development of software, and those expectations are defined at the beginning by the customer in terms of: functionality (scope), time-to-market, budget, and product quality. Those are the aspects the customer is interested in and if some of those items are missing during the project it will cause an unsuccessful project. Flexibility and adaptability are some of the main advantages claimed by agile methods to produce high quality software, however if flexibility and adaptability are not managed during the project, the agile methods could not assure the achievement of all business expectations. Therefore, it is necessary to introduce a risk based approach in order to improve risk management in an agile project.

With the purpose of supporting this risk factor in agile methods, we have defined an approach and a process framework oriented to complement the agile methods with *commitment management*. We have named this approach "Agile Commitments", which finally will provide risk visibility and control to the customer during the whole project. Also, commitment management will provide a baseline for contract negotiation between customer and developers.

G. Concas et al. (Eds.): XP 2007, LNCS 4536, pp. 149–152, 2007.

We can mention some related work oriented to defining business goals for the project, and to establish the relationship between customer and developers: Agile Contracts [1] [3], Agile Procurement [4], and Risk-Driven Method for XP Release Planning [7].

2 Commitment Management for Agile Methods

Commitment management is an approach that uses commitments between customer and developers to define a list of agreements as baseline for the project, with the goal of mitigating the risk of losing sight of the original project motivations [2]. The commitment specification defines all agreements and a common view of the project among stakeholders. Commitment management is the specification, formalization, and follow-up of commitments during the whole project, with the purpose of aligning the final product with the business strategy and goals that motivate the software project. The term *commitment* is used to refer to goals, forms of cooperation, responsibilities, decisions, and so on, that stakeholders agree upon in a project; commitments scope may include all critical aspects in the project.

The commitment management process has been characterized in the following process areas [2]:

- **Business motivation.** Why is the Project being developed?
- **Project goals definition.** What is delivered and accomplished, when and for how much?
- **Process specification.** How is the Project developed?
- **Risk management.** What are the risks and what do we do?

3 Agile Commitments Framework

The specific objectives of this process framework are to:

- Define and specify the commitments between participants.
- Define and agree on the underlying motivations.
- Manage and control the agreed-upon commitments during the whole project.
- Improve risk management through risk visibility on the business expectation elements: functionality (scope), quality, budget, and time-to-market.
- Provide a negotiation baseline for customer and developers.

The agile commitments framework is made up of two components: a **conceptual schema framework,** which is the conceptual definition of the framework, and describes how the framework is structured; and an **instantiation guideline for project level**, which is a guide to be used by managers in order to implement the agile commitments in a particular project [8].

The framework is divided in 4 process areas, and each one divided in specific goals (see Table 1).

Table 1. Conceptual Schema Framework

Process Areas	Specifics Goals
Business Motivation	Strategic directions and intentions
	Business goals
	Time-to-market
Project Goal	Deliverables and Iterations (value added)
	Schedule and times
	Cost and budget
	Quality
Agile Process Specification	Project management
	Agile process definition (standard or framework)
	Conflict resolution procedures
	Change control procedures
Project Risk Management	Shared assumptions for the project
	Risk analysis and identification
	Scope of risk management
	Accepted risks
	Risk responsibility assignment

4 Achieving Continuous Risk Visibility During the Project

The monitoring of the commitment management framework must be oriented to measuring risk in a qualitative approach; thus, the main problem is to decide which risk metrics should be gathered during the project. For the agile framework, the different phases to assess risk and thus produce the risk visibility are:

- **Initial Scenario:** At the start of the project, all business value goals (functionality, time-to-market, budget, and quality) must be established in terms of *qualitative metrics*, as well as *potential losses* incurred if a business value goal is not met.
- **Current Risk:** The perceived risk at the moment of the measure; it is a subjective assessment. It can be measured using the *perceived probability*, and it must be measured along the whole project execution.
- **Risk Incurred:** The *probability of failure* that the project faced but eventually avoided. Therefore, the problems did not occur because the mitigation efforts worked.
- **Final Scenario:** At the end of the project, it is possible to *compare* the initial business goals taken in the "Initial Scenario" with the final values obtained for business goals (functionality, time-to-market, budget, and quality).

At the end of each project, two important metrics can be collected: the *total risk* incurred during the project for the business goals fulfillment, and the *variation in the final results* obtained for the business goals according to the customer evaluation.

5 Case Studies: Results Using the Agile Commitments Framework

The framework has been evaluated through a number of case studies [8] that allowed us to receive feedback from the customer side on two evaluation levels: 1) the conceptual level, where the framework has been assessed by IT professionals considered as experts in the area because of their expertise in project management; and 2) the project level, where the framework has been instantiated and used in real projects during the full life cycle of a number of academic projects as well as an industry project.

6 Conclusions

Agile methods can be aligned to business goals using commitments management as a complementary activity, to mitigate risk to business value expectations. In this article, we have defined an approach that can be used regardless the agile method implemented in the organization. The proposed solution corresponds to the integration between an agile method and a commitment management technique. Commitment management does not modify the essence of an agile method, commitment management only supports it with complementary practices, and we see at least four benefits from using the proposed agile commitments framework: 1) the agile commitments framework is well-defined and generalized for any agile method; 2) the framework provides a negotiation baseline for customers and developers, as an effective and *agile* alternative to contracts; 3) the framework improves risk management through risk visibility on the business expectation elements: functionality (scope), quality, budget, and time-to-market; and 4) the framework provides a risk-driven decision support tool to the customer during the whole development process.

References

1. Boehm, B., DeMarco, T.: Software Risk Management. IEEE Software (May/June 1997)
2. Kontio, J., Pitkanen, O., Sulonen, R.: Towards Better Software Projects and Contracts: Commitment Specifications in Software Development Projects. In: Procs. International Conference on Software Engineering (ICSE'98) (1998)
3. Beck, K., Cleal, D.: Optional Scope Contracts (1999)
4. Jamieson, D., Vinsen, K., Callender, G.: Agile Procurement: New Acquisition Approach to Agile Software Development (EUROMICRO –SEAA'05) (2005)
5. Schuh, P.: Integrating Agile Development in the Real World, Programming Series, Charles River Media (2005)
6. Hartmann, D., Dymond, R.: Appropriate Agile Measurement: Using Metrics and Diagnostics to Deliver Business Value. In: Procs. of AGILE, Conference (AGILE'06) (2006)
7. Li, M., et al.: A Risk-Driven Method for XP Release Planning, ICSE'06, Shanghai, China. (May 20–28, 2006)
8. Concha, M., Visconti, M., Astudillo, H.: Agile Commitments: Managing Business Expectation Risks in Agile Development Projects. Departamento de Informática, Universidad Técnica Federico Santa María, Technical Report 2007/03 (January 2007)