Chapter 8.8
Agile SPI: Software Process Agile Improvement—A Colombian Approach to Software Process Improvement in Small Software Organizations

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ABSTRACT

This chapter presents Agile SPI, a framework in which the main goal is to motivate small and medium size enterprises (SMEs) towards improving and certifying their software development processes. This framework was born in the SIMEP-SW project where a software process improvement model for supporting process improvement in the

Colombian software industry context was built. We present Agile SPI, its origin, development, principles, architecture, main components, and the initial experiences.

INTRODUCTION

Nowadays, the software industry represents an important economical activity; it offers different possibilities for business and it aims to be a great opportunity for developing countries. In Latin American countries, the software industry is usually immature; companies face an undisciplined process and that means quality is unpredictable (Mayer&Bunge, 2004). Not only will it be impossible to plan and manage quality without a mature environment, but also when we achieve it, we will not know why and we could not repeat it (Hurtado, Pino, & Vidal, 2006). The Latin American software industry has grown smoothly, so the generation of strategies for achieving the software process improvement (SPI) environment that would allow organizations to take advantage of effective software processes. Software quality assurance through software process improvement is one of the strategies software companies could engage in with two goals: the first one is to improve the quality process so that they can get into a new market, and the second one is the need for their processes, like administrative units, to become more efficient and effective (Pino, Garcia, Ruiz, & Piattini, 2006).

One of the characteristics of the Latin American software industry is that it is mainly formed by small and medium size enterprises (SMEs). Most of these companies did not have a defined software process improvement project basically due to the great initial investment required and the disadvantage of their personnel competitiveness on the software process areas. The special characteristics of small companies cause that processes improvement programmes must be applied of a way particular and visibly different from the typical way the great organizations do it, this is not as simple as the fact to consider these programmes as versions to minor scale of great organizations (Richardson, 2001; Storey, 1982).

Agile SPI (Hurtado et al., 2006) is a framework SPI based on a strategy for institutionalization the software process in the small organizations context. For the process to be sustained, process behaviour needs to be integrated into the organization's culture. A process is institutionalized when it is followed consistently and performed naturally by everyone involved in performing the process activities. This will happen when the SME has in place a framework for software process improvement appropriate, for that reason Agile SPI is composed by three components:

- Two light models, a light reference model and an evaluation model, with a set of processes which are typically used by the Colombian small software organizations.
- Agile process for supporting a project SPI. A process SPI model for guiding a SPI program of way agile. A process definition model for supporting the implementations of improvements.

In the context of the SIMEP_SW[1] project, a pilot experience was carried out in order to validate the theoretical results of this research. Some programs SPI in a Colombian software development companies was implemented according to the guidelines suggested by Agile SPI. The results were analysed for validating our model and improving it.

In the second section is presented the background. The third section presents the Agile SPI origins including a description of the SIMEP-SW project and its developing. Agile SPI, its principles, architecture and main components are presented in the fourth section. The study cases are presented in the fifth section. Finally, the sixth section presents the main conclusions and describes perspectives.