ABSTRACT

In the past few years, Siemens has gained considerable experience using agile processes with several projects of varying size, duration, and complexity. We have observed an emerging pattern of quality assurance goals and practices across these experiences. We will provide background information on the various projects upon which our experiences are based, as well as on the agile processes used for them. Following the brief discussion of goals and practices, this chapter will present the lessons learned from the successes and failures in practicing quality assurance in agile projects. We aim at informing fellow agile developers and researchers about our methods for achieving quality goals, as well as providing an understanding of the current state of quality assurance in agile practices.
INTRODUCTION

Since the declaration of the agile manifesto (Beck et al., 2001) in February 2001, agile software development methods have enjoyed a proliferation leading to the spawning of variants and a proselytizing of agile methods as silver bullets (Brooks, 1987). Many Siemens organizations are turning to agile methods in order to shorten product development timelines. Siemens Corporate Research (SCR), the R&D center for Siemens in the U.S., has even formed its own agile development group. This chapter will discuss project experiences that this SCR group has been involved in to show how quality is approached in agile development.

The background section that follows will provide an overview of seven projects in which in-house agile processes were used. Next, there will be a discussion of common quality assurance (QA) goals and practices amongst these projects. This discussion will lead up to the section on lessons that we have learned so far and then conclusions for improving QA in future agile projects.

BACKGROUND

Within this section, we introduce two Siemens in-house agile processes, along with seven projects in which they were employed. The first process, named S-RaP (an acronym for Siemens Rapid Prototyping), is a UI (user interface)-centered workflow-oriented approach that targets primarily the exploration of complex business requirements. The second process, entitled UPXS, is a combination of traditional and agile practices (Unified Process (Jacobson, Booch, & Rumbaugh, 1999), eXtreme Programming (Beck, 1999), and Scrum (Schwaber & Beedle, 2001)) that aims to

Figure 1. S-RaP process model (Nelson & Kim, 2004) (image by Kathleen Datta)