Chapter I

Agile Software Development in Practice

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Abstract

This chapter explores agile information practices of information systems development and argues that their history is much longer than what is generally believed today. We take an interpretive and critical view of the phenomenon. We made an empirical study of two companies that apply an XP-style development approach throughout the information systems development life cycle. The results of our research suggest that XP is a combination of best practices of traditional information systems development methods. It is hindered by its reliance on talented individuals, which makes its large-scale deployment as a general-purpose method difficult. We claim that XP can be useful for small colocated teams of skilled domain experts and implementers who are able to communicate well with the end users. However, these skilled and motivated individuals with high working morale can exhibit high productivity regardless of the methods used if they are not overly constrained by bureaucracy.
Introduction: From Methodologies to Methods and Agility

Ever since the first major software systems were developed, a chronic “software crisis” has been seen either looming ahead or haunting the community (Brooks, 1975). Solutions have been sought mostly in raising the productivity of programmers, making systems less defective (e.g., process management and development approaches; Boehm, 1988; McConnell, 1996), and developing systems by methods that treat the end users as equals to the designers in the development process (e.g., participatory design, PD; Bjerkenes & Bratteteig, 1995; Grudin, 1991). In this chapter, we first discuss these approaches for organizing information systems development (ISD). This leads us to a discussion of agile software development methods that have emerged as a fresh alternative for the more rigid life-cycle-based approaches in recent years.

Extreme programming (XP) tries to address end-user participation and increased quality of work by emphasizing the use of professional work practices and ethical software development. The waterfall model emerged as a systematic, sequential solution to software development problems (Brooks, 1975; Hirschheim, Klein, & Lyytinen, 2003). The IS product was not delivered until the whole linear sequence had been completed. As projects became larger and more complex, problems like stagnant requirements and badly structured programming started to arise.

Overlapping the phases (Fairley, 1985; Pressman, 2000; Sommerville, 2001) and the introduction of the more incremental spiral model (Boehm, 1988; Iivari, 1990a, 1990b) resolved many of the difficulties mentioned earlier. This model presents the software process as a spiral, where each of the loops can be considered to represent one fundamental development step. Thus, the innermost loop might be concerned with requirements engineering, the next with design, and so on (Sommerville). The spiral model assumes a risk-driven approach to the software development rather than a primarily document-driven (waterfall) or code-driven (prototyping) approach (Boehm). Each cycle incrementally increases the system’s degree of definition and simultaneously decreases its degree of risk (Boehm, Egyed, Kwan, Port, & Madachy, 1998).

The iterative models were augmented with more dynamic approaches with less bureaucracy. For example, in incremental development, software is developed
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