Chapter IX

How to Improve Your Company’s Effort Estimation Practices

Abstract

Numerous Web development companies worldwide do not employ formal techniques to estimate effort for new projects, thus relying on expert-based opinion (McDonald & Welland, 2001; Mendes, Mosley, & Counsell, 2005). In addition, many Web companies do not gather any data on past projects, which can later be used to estimate effort for new projects, and as a consequence they are not aware of how effort is used throughout their projects and if it could be used more effectively. This chapter provides a set of guidelines we believe can be of benefit to Web companies to help them improve their effort estimation practices. Our guidelines are particularly targeted at small Web development companies.

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Introduction

Expert-based effort estimation represents the process by which effort for a new project to be developed is estimated by subjective means, and is often based on previous experience from developing or managing similar projects. This is by far the most used technique for Web effort estimation (Mendes et al., 2005; McDonal and Welland, 2001). Estimates can be suggested by a project manager or by a group of people mixing project managers and developers, usually by means of a brainstorming session.

Within the context of Web development, our experience suggests that expert-based effort estimates are obtained using one of the following mechanisms.

- An estimate that is based on a detailed effort breakdown taking into account all the lowest level parts of an application or tasks. These lowest level parts and tasks are each attributed effort estimates, which are then combined into higher level estimates until we finally obtain an estimate that is the sum of all lower level estimates. Each part or task can represent a functional (the application must provide a shopping cart) or nonfunctional (the application must offer a high level of security) requirement. Such type of estimation is called bottom-up. Each estimate can be an educated guess, based on previous experience, or a mix of both.

- An estimate representing an overall process or product. A total estimate is suggested and used to calculate estimates for the component parts as relative portions of the whole. Each component part, as with the bottom-up estimation, will be related to a functional or nonfunctional requirement. This type of estimation is called top-down. As with bottom-up effort estimates, each estimate can also be an educated guess, based on previous experience, or a combination of both.

- An estimate that corresponds to a client’s budget, which has been pre-agreed upon. From this point on, a top-down approach is used to identify the components that are to be delivered. This estimate will be based on the company’s average or fixed rate for Web development projects.

All the three different ways to derive an effort estimate above mentioned will also be influenced by the type of process model used by a Web company. In general a software development process (and Web development is no exception) produces what is named a software life cycle (or process model), which in general comprises the following phases (Abernethy et al., 2007; Bennett, McRobb, & Farmer, 2002).
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