Chapter 3

Using the Social Web Environment for Pattern Engineering

Pankaj Kamthan
Concordia University, Canada

ABSTRACT

There are a number of disciplines that depend on the lessons based on history and human creativity while solving problems. In the last two decades, patterns have emerged as a notable problem-solving approach in various disciplines, including science and engineering. The relationships between people, patterns, and technology have evolved over the years. In particular, the changes in the technological environment affect communication, education, production, publication, and management of patterns. This chapter proposes the use of the Social Web in supporting the human and social aspects of pattern engineering. In doing so, the prospects of integrating the technologies/applications underlying the Social Web in the activities and artifacts of pattern engineering are illustrated by a variety of examples, and the concerns in doing so are highlighted.

INTRODUCTION

The reliance on the time-invariant knowledge garnered from experience can be important for any creative endeavor. A pattern is one such type of conceptually reusable explicit knowledge (Buschmann, Henney, & Schmidt, 2007b).

The origins of patterns came in urban planning and architecture in the 1970s (Alexander, Ishikawa, & Silverstein, 1977; Alexander, 1979), followed by object-oriented software design in the late 1980s and the early 1990s (Gamma et
al., 1995). In the past two decades, patterns have found applications in various domains of interest (Rising, 2000; Henninger & Corrêa, 2007).

The use of patterns has become increasingly pervasive. For example, patterns have been used for the construction of high-quality distributed software architectures (Buschmann, Henney, & Schmidt, 2007a), electronic commerce applications (Kamthan, 2009c), electronic learning applications (Dernl, 2005), mobile interaction design (Ballard, 2007; Tidwell, 2011), secure systems software (Schumacher et al., 2006), use case models (Kamthan, 2009a), Web Applications (Kamthan, 2008; Van Duyne, Landay, & Hong, 2007), and social media applications (Crumlish & Malone, 2009; Tidwell, 2011), to name a few. For novices, patterns are means of guidance; for experts, they are means of reference.

There are anthropological and sociological aspects of patterns (Coplien, 1996; Iba, 2007) that can flourish by an appropriate involvement of technology. The Social Web, or as it is more commonly referred to by the pseudonym Web 2.0 (O’Reilly, 2005), is the perceived evolution of the Web in a direction that is driven by ‘collective intelligence’, realized by information technology, and characterized by user participation, openness, and network effects. The purpose of this chapter is to assess the viability of the Social Web environment in serving as an ecosystem for pattern engineering. For the sake of this chapter, the Social Web environment includes Social Web technologies, applications based on those technologies, and tools for managing them.

The rest of the chapter is organized as follows. The background necessary for the discussion that follows is first presented. This is followed by stating the human-centric activities and artifacts of pattern engineering, and the implications of the Social Web environment. Next, directions for future research are outlined. Finally, concluding remarks are given.

BACKGROUND

This section presents the necessary terminology related to patterns, people involved in patterns, and a perspective of the Social Web.

A Model for the Pattern Domain

The pattern domain is the universe of discourse for all things related to patterns. The pattern body of knowledge (PBOK) is the set of fundamental concepts, activities, and results that characterize the pattern domain. In the last two decades or so, the PBOK has grown and the scope of concepts in it has broadened.

There is currently no single source, reference model, or standard for the PBOK. Therefore, this section relies on selected publications (Appleton, 1997; Meszaros & Doble, 1998; Buschmann, Henney, & Schmidt, 2007b) that can be considered as authoritative.

Basic Concepts

There are certain basic concepts in PBOK that are of interest.

Pattern. A pattern is an empirically proven solution to a recurring problem that occurs in a particular context.

Anti-Pattern. An anti-pattern suggests a ‘negative’ solution to a given problem. It occurs when the context of the problem is not understood or the underlying forces are not optimally balanced.

Pattern Language. It may not be feasible to provide a single solution to a ‘large’ problem. In such a case, the problem can be partitioned into a manageable collection of smaller problems. A pattern language is a collection of patterns that are closely related to each other through their individual contexts and contribute towards a common goal. Thus, a pattern language solves a larger problem than that possible by any individual pattern.