Chapter 15
Towards an Elastic Risk Management Methodology by Using Business to Software Unified Process (BSUP)

Pooya Khosraviyan Dehkordi
Islamic Azad University, Iran

Farshad Kyoomarsi
Islamic Azad University, Iran

ABSTRACT
Riskit is now a worldwide risk management methodology deployed by a number of expert software engineering communities since its first rollout by (Kontio et al., 1994, 1995, 1996, 1997 and 1998). Business to Software Unified Process (BSUP) has been the proprietary Business to software modeling approach introduced for the first time in 2003 (Nasiri et al., 2004 and 2007). In this paper the goal is to apply the capabilities inherent in BSUP to optimize Riskit process model. BSUP, UML 2.0 and Fuzzy Logic Concepts are widely used when ever the model is to be made.

INTRODUCTION
The Riskit method for software engineering risk management (Charette, 1989) is widely in use because of its sound theoretical foundation and its major focus on qualitative cognition of risks before their possible quantification (Carr et al., 1993), in addition to its capability to provide a defined process for conducting risk management. Today, it is being supported by various tools, techniques and also rich guidelines. But the fascinating feature may be that the use of Riskit does not preclude the use of other risk management approaches (Kontio et al., 1994, 1995, 1996 and 1997). Since the early days of software development (Basili et al., 1989 and 1992), risks had been perceived inevitable because of various unanticipated problems which cause development team to go over budget, miss deadlines, or finally deliver less than satisfactory artifacts and so on.

Although risks neither could be eliminated nor might be ignored, one may strictly monitor and manage them to control and mitigate their potential

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harmful effects. Reflective and proactive methods are alternatives to achieve the Goal. There are a few shortcomings which make the risk management process so sophisticated. The shortcomings of current methods are as follows:

- **Risk** (MacCrimmon et. al, 1986) is very seldom a crisp straightforward concept and mostly it is perceived as a non deterministic concept which is quite close to Fuzzy Logic concepts (Harris, 2006) and measures (Ganesh, 2006). This is also true while the impression of risk on various stakeholders is measured.
- Risks may influence each others in different ways. Risks may strengthen or diminish each other. This feature may make a very complicated scenario while analyzing the potential effects of risks.
- Clarity of methods and cost effectiveness of many current risk management methods are totally in doubts since they are costly perceived as complex or too costly to use.

**BACKGROUND**

**Riskit Methodology**

The Riskit method is considered to be a suitable solution to address the issues such as those listed above. Its main characteristics can be described by the following principles.

1. **The Riskit method provides precise and unambiguous definitions for risks.**

   The common definition of risks, either by dictionaries or every day usage, associate several different meanings to risk. It can refer to a possibility of loss (Anonymous, 1992), the actual loss that would result if the risk occurs (Anonymous, 1992), a factor or element that is associated with a threat (Anonymous, 1992), or a person that contributes to the possibility of loss (Anonymous, 1995). The dictionary definitions for risk are so broad that it is fair to define risk as anything that is related to the possibility of loss. Clearly, there is some value in having such a broad and encompassing concept to facilitate initial discussion about risk. However, we believe that this wide range of meanings associated to the word “risk” can also prevent adequate precision in more detailed analysis or risks unless this ambiguity is explicitly addressed and removed.

2. **The Riskit method results in explicit definition of objectives, constraints and other.**

   Risk is a relative concept; its definition depends on expectations that are associated with a situation. In order to analyze risks, it is necessary to formalize the expectations as well as possible. When expectations are recognized and defined, we refer to them as goals. While some goals cannot be stated precisely, at least they should be identified and documented as well as the information available allows. The Riskit method contains an explicit step and supporting templates to assist in the goal definition.

3. **The Riskit method is aimed at modeling and documenting risks qualitatively.**

   The Riskit method provides conceptual and graphical tools to model different aspects of risks qualitatively, instead of requiring quantitative estimation of risk probability and impact to take place early in the project. Given the difficulty of these estimations and the often ambiguous interpretations of risks – the margins of error in risk quantification are easily high. By emphasizing the qualitative understanding of risks, there is a better basis for understanding and communicating about risk.