Chapter VIII
MoProSoft®: A Software Process Model for Small Enterprises

Hanna Oktaba
Universidad Nacional Autónoma de México, Mexico

Ana Vázquez
Asociación Mexicana para la Calidad en Ingeniería de Software, Mexico

ABSTRACT

This chapter introduces MoProSoft as a new software process model specific for small enterprises and EvalProSoft as its corresponding assessment method. It resumes the reasons for its creation and the basic characteristics of both. It also includes the results of four pilots in very small Mexican enterprises, as well as its selection as the base documents for the development of an international standard. The authors wanted to share this experience to make clear that software process improvement in small enterprises is possible through simplified versions of good practices created by and for big transnational companies.

INTRODUCTION

A total of 92% of software companies in Mexico have less than 100 people, therefore most of the times it is difficult to perform software process improvement (SPI) “by the book” in our companies. First of all, there is almost no SPI literacy available on the bookstore shelves in Mexico; our engineers have to learn SPI in expensive books which have to be bought through the Internet and are written in English, narrating experiences of huge transnational companies. The same happens with standards, which are written by wealthy countries and address the needs of their big companies. Developed and wealthy countries like the USA and Japan are always leading standards creation, while Latin-American countries almost never have representation there. Those books and standards...
are written by companies with plenty of financial resources and hundreds of employees with huge projects for customers like the Department of Defense of the U.S., while a successful story of a company with only 10 employees with only one client and almost no resources to perform SPI is almost never known.

In this context, the Mexican government launched a program to promote the software industry in 2002; and one of its challenges was to perform massive process improvement for very small companies with limited resources, funding, and people. At that time, the average process capability level of the software development companies was 0.9 in 0 to 5 ISO/IEC 15504 (ISO/IEC, 2003) scale (Secretaría de Economía, 2004). A formal selection of a process model to improve these levels was performed, but there were no standards or models suitable for the Mexican industry, which led to the creation of a new one. In the following sections, we describe the highlights of the history.

THE SELECTION OF A STANDARD

The government and the industry defined the selection criteria which were applied to evaluate the suitability of the most popular standards and reference models in Mexico at that time: SW-CMM® (SEI, 1995), CMMI® (Chrissis, Konrad, & Shrum, 2003), ISO/IEC 12207 (ISO/IEC, 2002), ISO 9000 (ISO, 2000), and ISO/IEC 15504 (ISO/IEC, 2003).

The suitability criteria for the software process reference model and assessment method were defined by the Mexican industry as:

C1. Proper for small and medium enterprise (SME) with low processes maturity level.
C3. Permissible as a national standard.
C4. Specific for software development and maintenance organizations.
C5. Defined as a set of processes based on internationally recognized practices.

Those criteria were applied to evaluate the suitability of the selected standards and models. Table 1 resumes the evaluation results. The “Yes/No” value means that the standard or model fulfills/does not fulfill the criteria. The question mark (?) means that there is no evidence to make the decision.

The ISO 9000 is not specific for software development organizations (C4) and it is not defined as a set of processes (C5). On the other hand, there exist examples of its adoption by Mexican SMEs with reasonable costs (C1, C2) and it is already a national standard (C3). SW-CMM or Capability Maturity Model Integration (CMMI) models fulfill the criteria C1, because they apply to organizations of any size, independent of the organization’s maturity level starting point. Also they are specific for software development entities (C4) and defined as a set of (key) process areas (C5). Nevertheless, the cost of its adoption and assessments is one of its drawbacks (C2). Finally, due to Mexican bylaws, those models cannot be accepted as national standards (C3).

The problem with ISO/IEC 12207 and ISO/IEC 15504 was that new versions of both were released at that time and there were few experiences of its adoption and assessment (El Emam & Briand, 1997), so its suitability for small enterprises (C1) and its adoption cost (C2) were unknown. Both could be national standards (C3) and are specific for software development organizations (C4). ISO/IEC 12207 is defined as a set of pro-

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