The OPEN Software Engineering Process Architecture: From Activities to Techniques

B. Henderson-Sellers
School of Computing Sciences, University of Technology, Sydney
Broadway, NSW, Australia

A.J.H. Simons
Department of Computer Science, University of Sheffield, Sheffield, Yorks, UK

The 1997 OPEN process metamodel was the first fully documented software engineering process architecture for object-oriented projects, predating the Catalysis method, Select Perspective and the still emerging Rational Unified Process by a number of years. The OPEN process metamodel is based on a three-tier architecture, in which process Activities are broken down into a number of distinct Tasks; and each Task may be achieved through the application of a number of approved Techniques. This paper describes the relationships between the three layers of the OPEN process metamodel and shows how OPEN’s Techniques contribute to a particular tailored process. As an exemplar, we describe Techniques relevant to late design and coding.

Keywords: process, software lifecycles, object-oriented methods, object-oriented techniques

1. INTRODUCTION

Software engineering requires the underpinning of a flexible and reliable, process-focussed methodology. A process tells you how to do things and how to manage and monitor the software development. In most of the second generation object-oriented (OO) software development methods (i.e. those published around 1994), there was, with a couple of exceptions OOSE (Jacobson et al, 1992 and MOSES (Henderson-Sellers and Edwards, 1994), little substantive support for process to the degree required by professional software engineers. Methods such as Coad and Yourdon (1991) and OMT (Rumbaugh et al, 1991) concentrated mainly on developing sets of diagrams rather than identifying the underpinning for their development in terms of project management issues such as timeboxing and version control. Booch (1991) focussed on notation that was applied by intuition, using a “round trip gestalt design” approach and, later (Booch, 1994), with macro- and micro-lifecycles. Some sequencing is implicit in OMT, although the general flavour is still that of a waterfall design approach. More recently, it has been shown (Simons and Graham, 1999) that an over-emphasis on design diagrams can give rise to cognitive misdirection.

From these two early, process-focussed methods (MOSES and OOSE) have grown two third generation OO methods: OPEN published in 1997 (Graham et al, 1997) and, more recently,