Abstract

For a couple of decades, process quality has been considered one of the main factors in the delivery of high quality products. Multiple models and standards have emerged as a solution to this issue. However, for any company, the harmonization of diverse models with the aim at fulfilling its quality requirements is not an easy task to pursue. The difficulty fundamentally lies in the fact that there is a lack of specific guidelines, together with an evident inexistence of a homogeneous representation that could make the endeavour with regards to Software Engineering less intense. In order to address this challenge, this paper presents a Ontology of Process-reference Models, called PrMO. It defines a Common Structure of Process Elements (CSPE) as a means to support the harmonization of structural differences of multiple reference models, through the homogenization of their process structures. PrMO has been validated through instantiation of the information contained in different models, such as CMMI-(ACQ, DEV), ISO (9001, 27001, 27002, 20000-2), ITIL, COBIT, Risk IT, Val IT, BASEL II, amongst others. Both the common structure and the homogenization method are presented herein, along with an application example. A WEB tool to support the homogenization of models is also described, along with other uses which illustrate the advantages of PrMO. The proposed ontology could be extremely useful for organizations and consultants that plan to embark on the harmonization of multiple models.

Keywords

Harmonization of multiple models and standards, homogenization, mapping, integration, ontology, processes, software engineering.