

iProd: intelligent management of product heterogeneous data in the product development process

Massimo D'Auria, Silvia Poles and Roberto d'Ippolito ¹

Abstract. The product development process (PDP) in innovative companies is becoming more and more complex, encompassing many diverse activities, and involving a big number of actors, spread across different professions, teams and organizations. One of the major problems is that development activities usually depend on many different inputs and influencing factors, and that the information that is needed in order to make the best possible decisions is either not documented or embodied in data that is spread over many different IT-systems. Hence, a suitable knowledge management approach is required that must ensure the availability and the usability of required information. The authors suggest that this approach be based on a common semantic metamodel for representing engineering knowledge and that it should be applicable to companies from different industries. As a common reference model a generic, formalized PDP model is suggested that all required engineering knowledge can be associated with.

This paper presents results from the EC 7th Framework joint research project iProd. The project aims at improving the efficiency and quality of the Product Development Process (PDP) by providing an IT-supported knowledge management approach. In order to reach that goal, a flexible, service oriented, customer driven software framework is developed that applies semantic web, data integration and process integration and automation technologies and that 'maps' knowledge available in external systems (like PDM, requirements management systems, etc.) to a central knowledge metamodel, thus making it available in a semantically interpretable format without duplicating it. This will allow for intelligently supporting knowledge-intensive engineering activities by providing context-based decision support. In order to showcase the potentials of this approach for Enterprise Integration and Interoperability, different real use cases have been identified together with the project's industrial end users and will serve as a basis for the development of demonstrators. In this paper one of these use cases is presented.

iProd addresses the PDP in a general way for manufacturing companies, but aims to prove the approach and methodologies in three well defined application areas, i.e., the aerospace, the automotive and the home appliances industries. These three areas generate the largest impact in European economy and are addressed here as the main targets for the iProd application.

Keywords: product development process, Enterprise systems integration and interoperability, process modeling, ontology.

¹ Noesis Solutions N.V., Gaston Geenslaan 11, B4 – B3001 Leuven, Belgium - Corresponding author: silvia.poles@gmail.com