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METHODOLOGICAL TOOLS INTEGRATION FOR ENGINEERING DESIGN

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1. Introduction and related problems

In order to remain competitive, companies must design products faster, better and cheaper. To efficiently carry out the innovation phases upstream product design, they have at their disposal numerous tools and methods.[Pahl 2007] Moreover, those tools are increasingly deployed exogenously in organizations. Thus, firms open up to external companies. Methodological tools and information are no longer developed only by internal networks of actors from a company but also by extended networks with external companies. This association of internal and external networks takes place in complex environments [Simon 1969]. As a consequence, in order to enhance innovation performance, it is not sufficient for exogenous solutions to be highly performing. Only a small percentage of the implementation of these solutions succeeds [Restrepo 2005]. To successfully integrate those solutions, it is necessary for external partners of the company to take into account company specificities at the relevant moment of the solution implementation.

This should help company to integrate and to appropriate itself the methodological tools, and thus to make those tools objects of performance. This paper focuses on the different phases of the implementation of methodological tools. Thus, it aims at characterizing the appropriation process. That should lead the company to appropriate itself these tools and to improve its performance while doing engineering design. Finally, this paper presents first elements about how to take appropriation elements into account in exogenous innovation tools integration.

6. Concrete conclusion and future work

This paper is a first step towards the structuring and the characterisation of appropriation elements for methodological tools integration. Framework for future research is proposed. The aim of this work is to improve IT provider deployment process, in order that customers better integrate and appropriate methodological tools for design. Research method for this project is given in order to analyse and evaluate existing system, and then to design a "process that enhance tool integration".

In this paper, three integration levels are underlined. Nonetheless, it can be noticed that at least two other levels can be analyzed and taken into account. Firstly, in order to lead its customer, the IT provider should firstly appropriate its way of working. It is necessary for provider to well understand

their customer internal process. In addition, while the provider company has designed its appropriation strategy, there is an other appropriation level. In fact, provider employees should appropriate this strategy in order to correctly apply it.

The provider tools integration process must be design as part of a whole system including its customer. For that purpose, bridges between the deployment process of tools integrator firms and the one of the receiving company may be pointed out. Further research works on specific elements are given. Notably, research will focus on the development of further heuristics for appropriation elements.

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