
Towards a data model to describe future usages of industrial systems to integrate Health and Safety in early design phase.

Amandine Demarziani , Alain Etienne¹, and Bruno Daille-Lefevre*²

¹Laboratoire de Conception Fabrication Commande (LCFC) – Université de Lorraine : EA4495, Arts et Métiers ParisTech – Arts et Métiers ParisTech, centre de Metz, 4 rue Augustin Fresnel 57070 METZ – Technopôle, France

²Institut national de recherche et de sécurité (INRS) – Institut National de Recherche et de Sécurité – 1, rue du Morvan, CS 60027, 54519 Vandoeuvre cedex, France

Résumé

The design of industrial systems usually focuses on technical issues and does not sufficiently consider the future users nor their use of this technical system. This design lack can lead to dangerous working situations when machines are not used as initially prescribed or when the designers forgot to prescribe a usage. The aim of the work explained in this article is to help designers to describe future user tasks and usages of the machines during their design process as accurate and structured as possible. To do so, this research proposes both an operational and computable data model based on future users' activities and several ways to process the design data to guide machine designers. After describing the component of this descriptive model, this article illustrates the software prototype developed on it. Several data processing examples are used to underline the relevance of this approach and the direct benefits of this kind of tool for the designers.

*Intervenant