

Simulation-Based Enterprise Management

Model Driven from Business Process to Simulation

Guide to Simulation-Based Disciplines pp 261-289

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- Gregory Zacharewicz (1) Email author (gregory.zacharewicz@ims-bordeaux.fr)
- Amir Pirayesh-Neghab (2)
- Marco Seregni (3)
- Yves Ducq (1)
- Guy Doumeingts (1) (2)

1. Laboratory IMS CNRS Production Engineering Team, Talence Cedex, France
2. INTEROP-VLab, Brussels, Belgium
3. Department of Management, Economics and Industrial Engineering, Politecnico Di Milano, Milan, Italy

Chapter

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Abstract

Industrial enterprises are gradually integrating Modeling & Simulation (M&S) approaches to support their management processes and to keep themselves competitive in the market by handling and connecting more efficiently their key information. On the one hand, several modeling solutions exist, with different views or abstraction levels, which are not always compatible; on the other hand, the usage of simulation for enterprise management should be aligned with the nature of decision-making. This hinders the choice of an adapted M&S solution. To facilitate the resolution of this issue, this chapter mainly proposes to apply Model Driven Service Engineering Architecture (MDSEA), which guides the usage of M&S for enterprise management at business/technical levels or with static/dynamic points of view. In its first part, the chapter focuses on different state-of-the-art elements (e.g., Enterprise Modeling, Discrete Event Simulation, etc.) which support the development of a *simulation-aided decision making cycle* for enterprise management. Simulation models involved in this cycle can be gradually created from transformation of high-level or static models. An example of such transformation is described in the second part of this chapter. The objective is to move from BPMN 2.0 (Business Process Model and Notation) to DEVS (Discrete Event Specification) which is a simulation-ready language. The second part ends by presenting a use-case and the implemented open-source software, called Service Lifecycle Management Tool Box (SLMToolBox). The chapter is concluded by discussing the propositions and the perspectives, particularly simulation of decision models for enterprise management.

Keywords

Simulation Enterprise management M&S Enterprise modeling
 Business process MDE MDI MDA MDSEA GRAI
 Hierarchical decomposition Decision aid DEVS BPMN EA* SLMTool box
 Model transformation ATL Interoperability System

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