

## **HOW AGENT-BASED MODELING CAN BENEFIT YOUR SYSTEM DYNAMIC AND DISCRETE EVENT MODELS**

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### **ABSTRACT**

More often, the problem cannot completely conform to one of the three existing modeling paradigms (discrete event, system dynamics, or agent based modeling). Thinking in terms of a single-method modeling language, the modeler inevitably either starts using workarounds (unnatural and cumbersome constructs), or just leaves part of the problem outside the scope of the model (treats it as exogenous). If our goal is to capture business, economic, and social systems in their interaction, this becomes a serious limitation. In this paper, we offer an overview of most used multi-method (or multi-paradigm) model architectures, discuss the technical aspects of linking different methods within one model, and consider the benefits of integrating agent based modeling into system dynamics and discrete event models. The modeling language of AnyLogic is used throughout the paper.