

# REA AND SYSTEM DYNAMICS FOR SCM

## POSITION PAPER FOR

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The similarity between System Dynamics, Agent Based modelling and REA modelling allow some of the results from these two scientific areas to be transferred into and shared with REA modelling.

Supply chain management for complex productions involves complex models, strategies and policies. Tools for planning and prediction of effects of these strategies are needed.

- It is shown how System Dynamics models can be translated into REA models and hence the results from System Dynamics can be transferred over to REA.
- System dynamic modelling focuses on stock levels, flows and the concepts of feedback within the model. These feedback loops can be expressed in REA models as contracts and policies.
- Some results from the System Dynamics literature are highlighted and the learning points from these models are related to REA modelling.
- It is argued why planning based on REA models without feedback loops will very likely fail to meet the requirements for effective planning in complex production environments.
- The REA model with the introduced feedback loops can be simulated with the tools from System Dynamics.
- Examples of Simulations of REA models with the approach of System Dynamic are shown and conclusions on policies for order and inventory management are discussed.

Measures for operational & structural complexity and the “Management Flight simulators” from System Dynamics are shown and proposed as high-level management information vehicles for REA based systems for supply chain management.

Jesper Kiehn ([Jkiehn@microsoft.com](mailto:Jkiehn@microsoft.com)) is a Program Manager for Microsoft Business Framework in Copenhagen. Jesper has made a submission of a Bill Gates Think Week paper with a proposal for a business modelling language. The submission to Bill Gates got feedback from Bill and received attention in the organization. Currently he is working on getting the proposal accepted. He formerly worked for Price Waterhouse as implementation specialist for mid market ERP systems.