Multi Echelon Optimization with upstream demand modeling

Syncron
Syncron is the global leader in inventory management software targeting the manufacturing aftermarket and distribution companies with customers like Volvo, Atlas Copco, Deutche Bahn etc. Headquartered in Stockholm with offices in Europe, US and Asia Syncron combines a passion for innovation, business process expertise, and a global collaborative workforce to deliver immediate and measurable improvements for its clients.

Thesis Background and Subject
Syncron and the LTH PM-institution has a long history of collaboration on Multi Echelon Optimization where Syncron have successfully implemented LTH’s multi echelon-model into its product.

One major obstacle for customers to adopt Syncron Multi Echelon Optimization is the occurrence of what is called “up-stream demand”, i.e. direct customer demand taking place at the upper echelons of a supply chain. As these locations typically receive lower service levels by the optimization algorithm this is not compatible with the service that direct customer demand is commonly modeled with in practice.

It is interesting to notice that this problem also addresses challenges that occurs with the increasing e-commerce business for manufacturing companies where demand is being directed towards central warehouses.

The upstream demand-problem was addressed in a master thesis 2015 by modeling a “critical level policy”. The thesis showed promising results but room for improvement. LTH has evaluated alternations of the model since and this master thesis should simulate, analyze and evaluate the updated model.

The thesis will be carried out together with Syncron, LTH and one of Syncron’s customers. It requires both the analytical skills to work with the direct problem, but also the professional skills to work in a multi-stake holder project with global companies. Simulation will be performed on real customer data.

Practicalities
Location: Stockholm or Malmö  
Compensation: Yes  
Desired time period: Autumn 2017  
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