SDP1: New strategies to overcome drug shortages

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eahp
european association
of hospital pharmacists

- Bern University of Applied Sciences Industrial Engineering and Management Science

Disclosure of conflicts of interest

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- Otherwise, nothing to declare
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Psychiatrische Universitätsklinik Zürich

Universität Zürich

Medikamenten-Versorgungsengpässe (Medicines Shortages) in der Schweiz

Ursachen und Lösungsansätze – Bericht zuhanden politischer Akteure und der interessierten Öffentlichkeit

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(Downloadmöglichkeiten: Projektdatenbank des SNF[5] und EAHP-Website[6])

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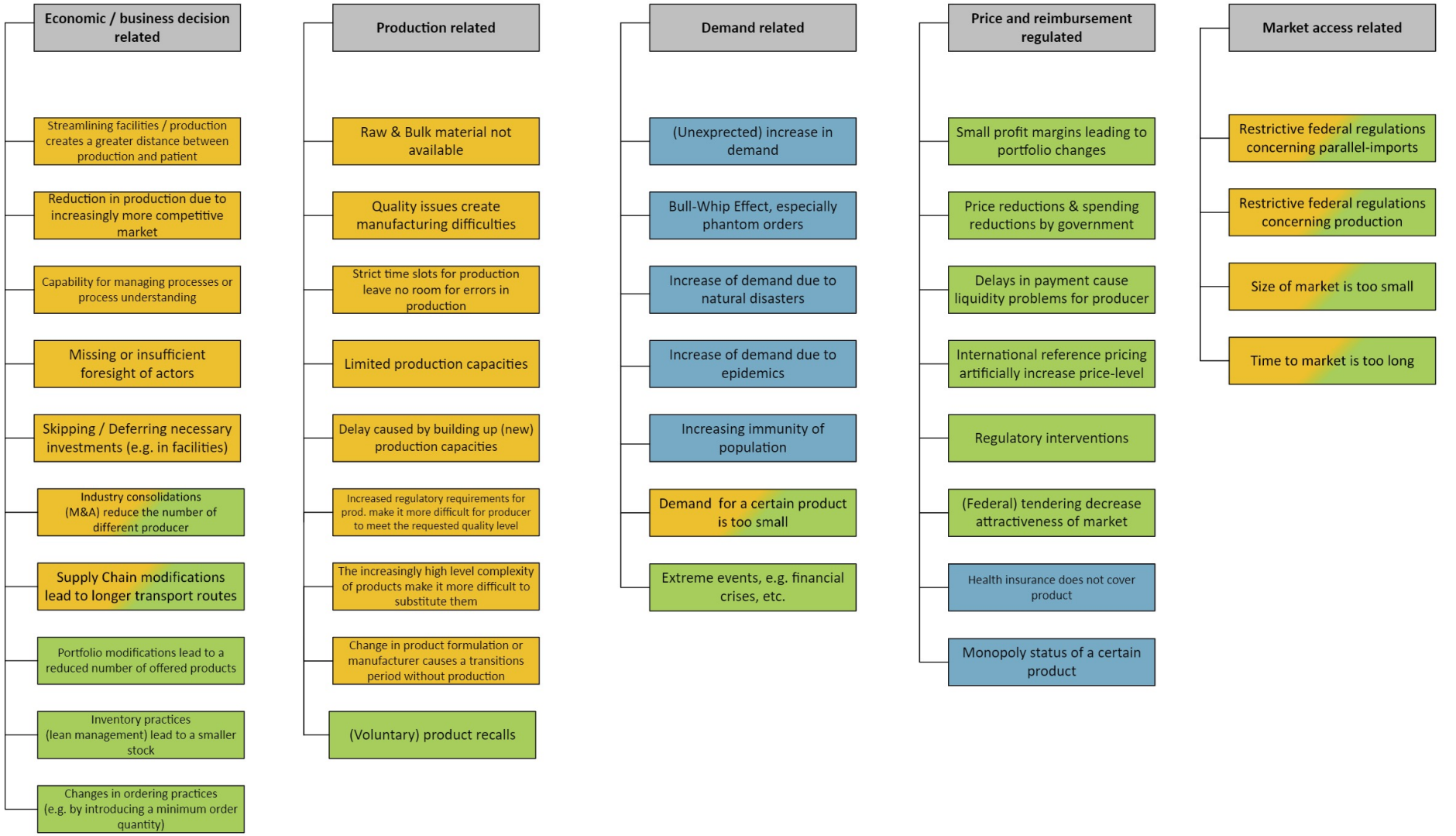
[5] http://p3.snf.ch/project-174566
[6] https://www.eahp.eu/events/academy/academy-seminar-2018-warsaw-poland/PresentationsS1

Control of learning success

- Statement: One of the root causes (of shortages) are different (local) definitions of what a shortage situation constitutes. (true / false?)
- Statement: Simulation modeling is not an adequate methodology to address shortage situations (true / false ?)
- Statement: It is possible to avoid shortage situations in a sustainable way from the perspective of an individual position in the supply chain (true / false ?)

Causes for medicine shortages



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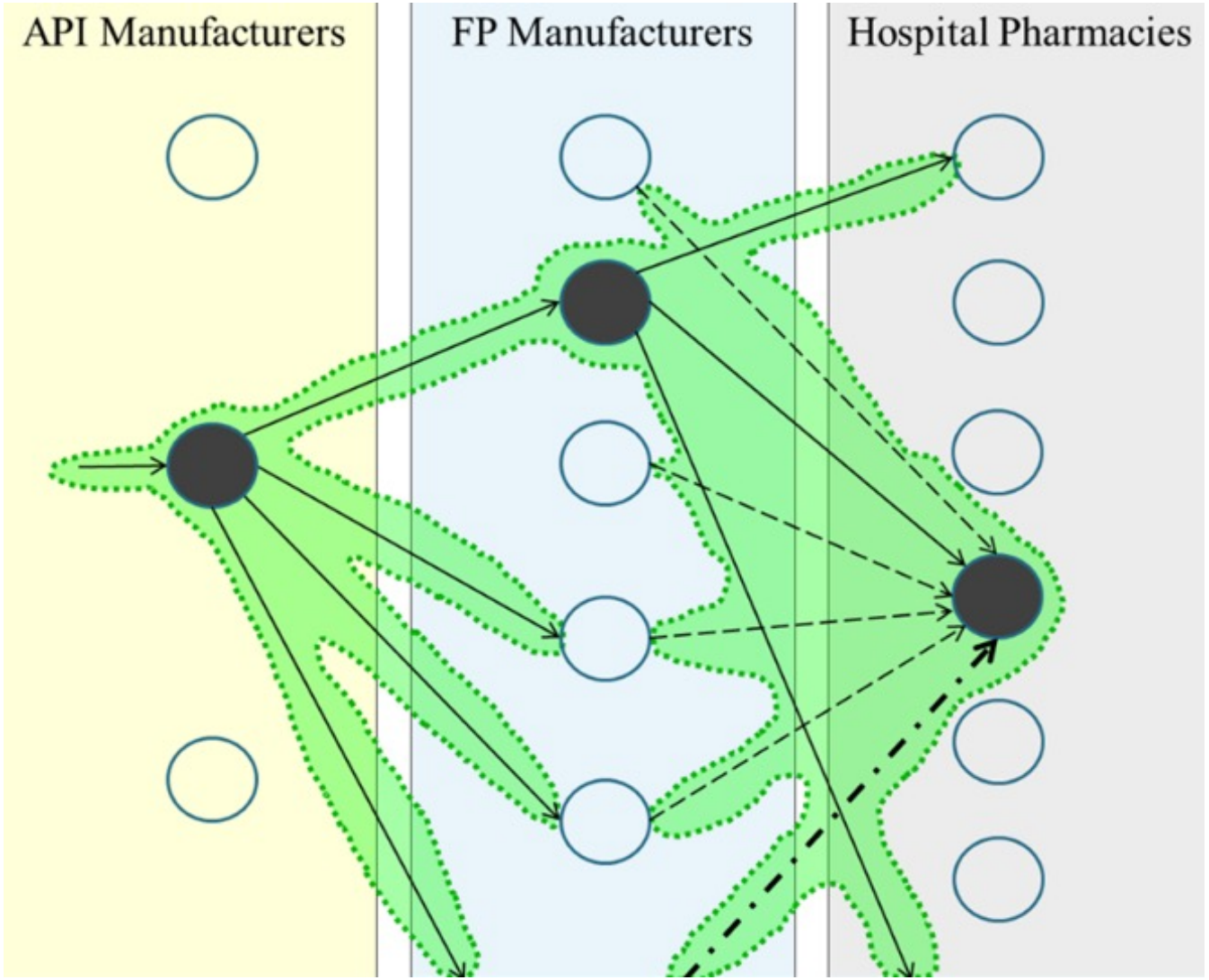
Affecting Production
Affecting Supply
Affecting Demand

Simulation Model purpose: OncoMedSCM

- OncoMedSCM is a **causal model** for the supply chain of essential consumer goods (medicine)
- The most common primary and secondary causes of oncology drug shortages were derived from the literature.
- A structural overview of the supply chain consisting of three stages of raw materials (API) and finished products (FP) to a hospital pharmacy (HP).
- Due to the unavailability of large amounts of data, there was no traditional reference mode was available, the validation of the structural model provided the necessary confidence in the validity of the model, which can show eleven primary causes and eight secondary causes of bottlenecks (scenario or policy variables).
- Access to the research paper: https://www.springerprofessional.de/resilience-as-basis-for-sustainability-shortages-in-production-s/16079080

Assumptions in our model/Boundary



Manufacturer of hospital pharmacy with market access to country/area of interest

Modelled manufacturer or hospital pharmacy

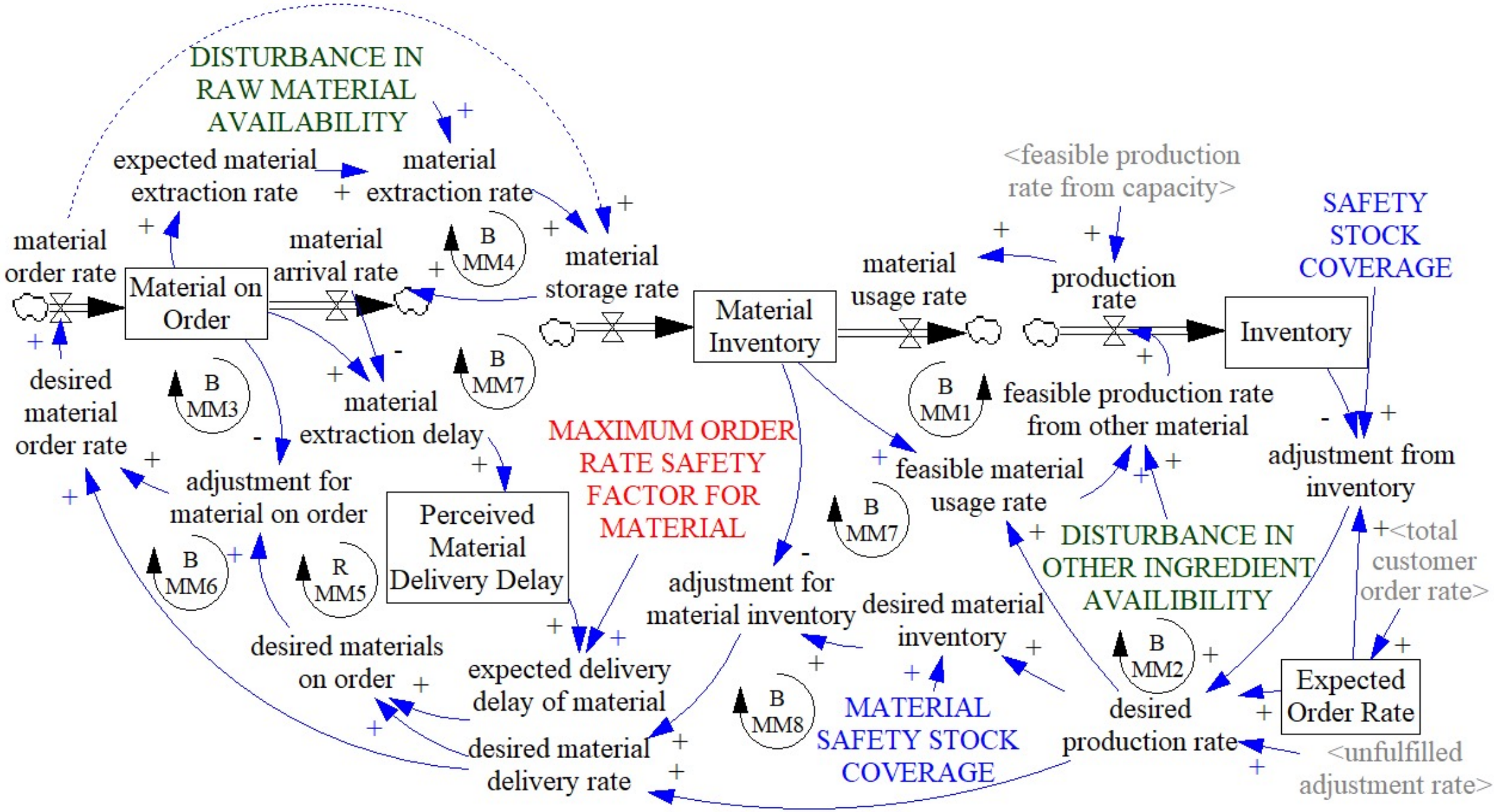
Model boundary

Supply of physical goods produced by modelled manufacturer

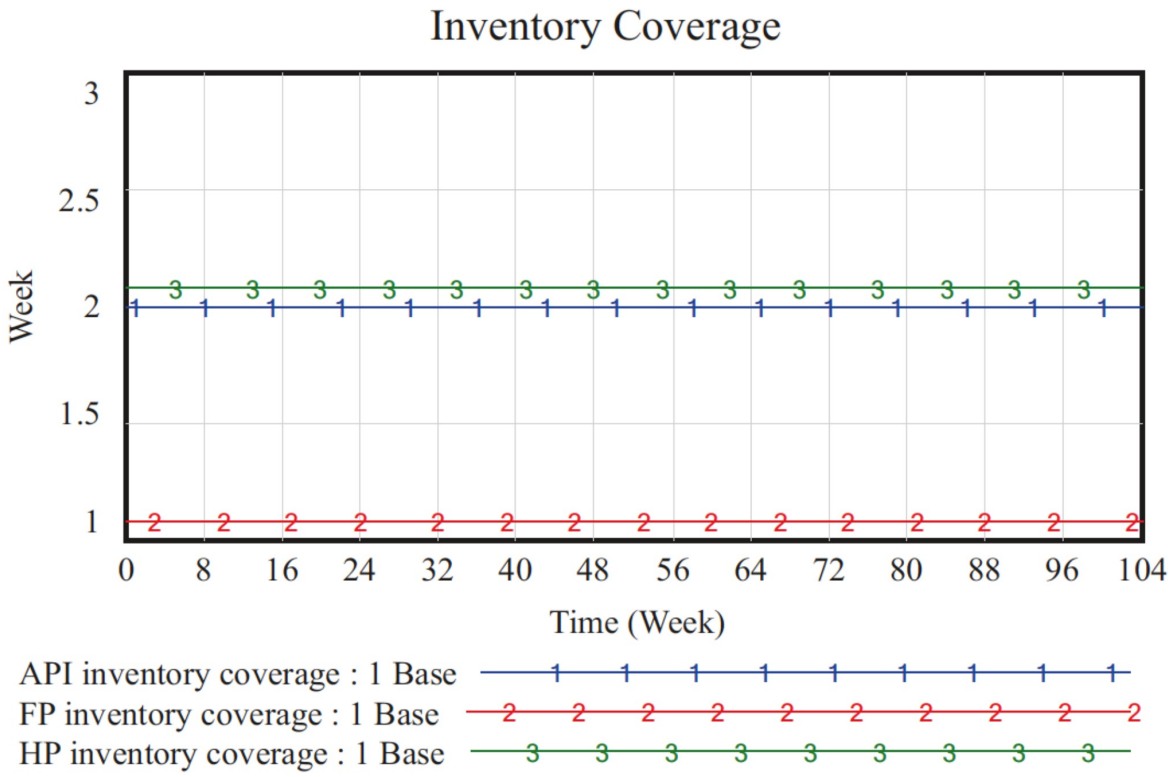
Supply of goods produced by any other manufacturer in the given market segment

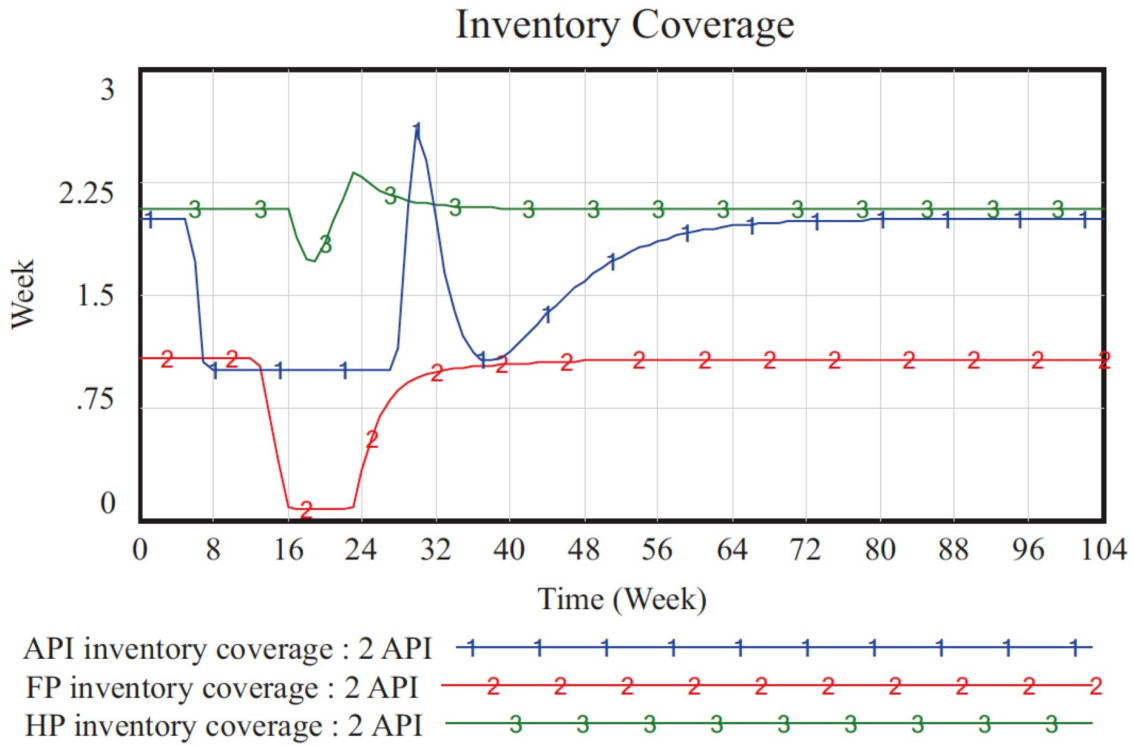
Supply of goods through parallel trade

A part of the model structure



Disruptions in manufacturing operations as a result of measures to remedy GMP quality deficiencies





Conclusions / Take Home Messages

- A sound simulation model of **essential supply chain dynamics** exist and can demonstrate major causes of shortages.
- What is needed are **additional real time series data** about the medicine production and supply aspects in the system.
- Better **access to ERP systems** of corporations.
- The subsequent evaluation should include the comparison and sensitivity analysis of all 11 primary and 8 secondary causes of bottlenecks.
- **Focus** to determine **leverage points** or identifying model segments that are most critical to security of supply.