




The Beer Game on Steroids (BGOS)

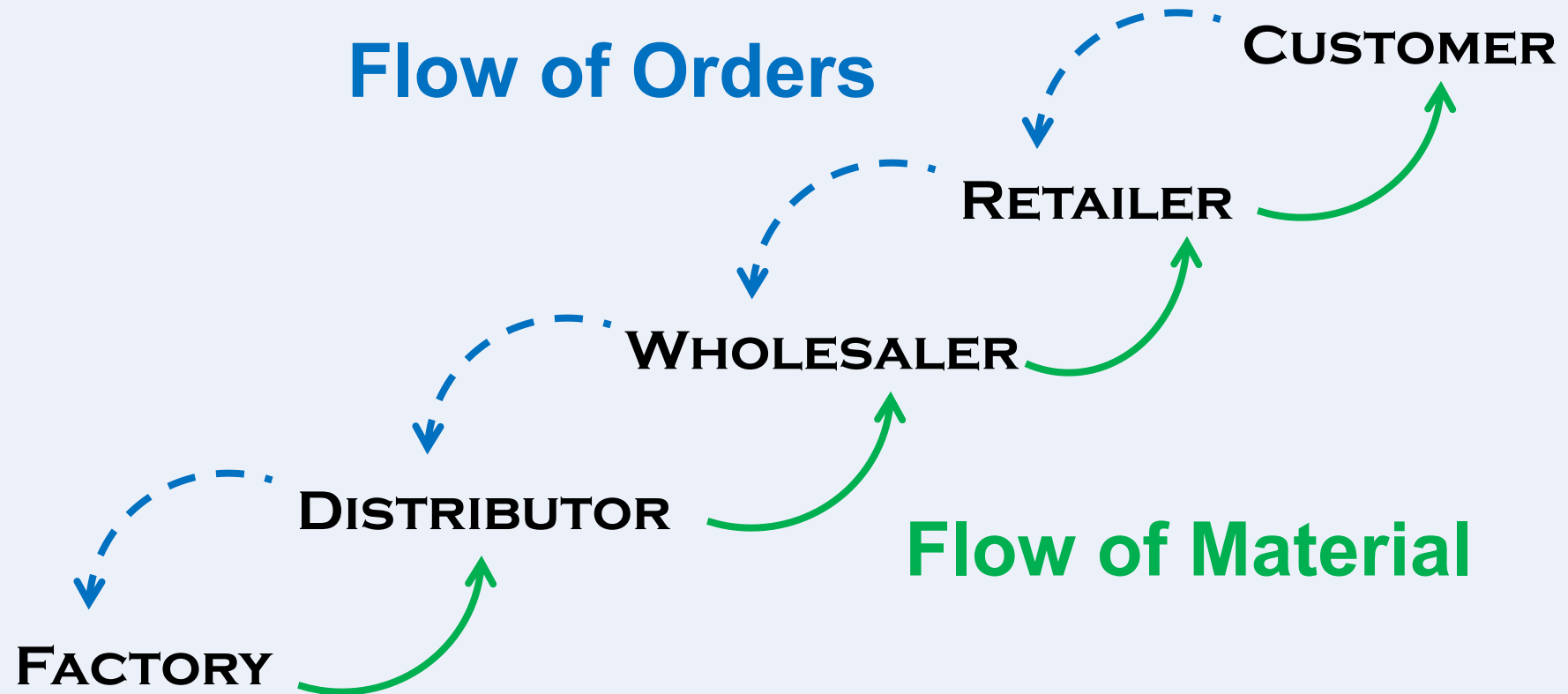
**A Free Simulation Tool for Teaching
Supply Chain Dynamics**

J. Chris White

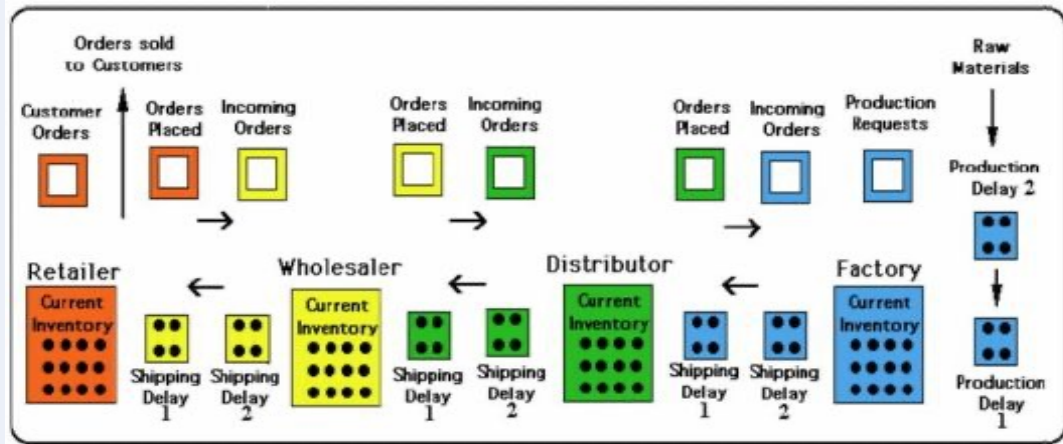
Where to get files and information:

File / Item	Link
BGOS website (all decks can be requested)	BeerGameOnSteroids.com <i>scmblox.com/beer-game-on-steroids</i>
BGOS LinkedIn page (has all decks for you to grab)	www.linkedin.com/company/beer-game-on-steroids
BGOS installation file (or email me and I'll provide it)	https://www.dropbox.com/scl/fi/slh72u322brxjqmpmz7uk/BGOSInstaller.msi?rlkey=ccwjhju63vcn1pmagoqs887u1&e=2&st=p14w4q59&dl=0
J. Chris White	jchriswhite@gmail.com <i>www.linkedin.com/in/j-chris-white-4417b61/</i>
	scmblox.com

The Basic Beer Game



In-Person Beer Game Example



**Multiple online versions:
search “online beer game”**

The Beer Game



Students at MIT Sloan School of Management playing the beer game, a role-playing simulation designed to teach principles of management science

Photo Credit: Courtesy of MIT Sloan School of Management

Lessons from the Beer Game

- **No matter who plays the game, the results are the same:**
 - **Most teams end up 10X to 20X the optimal results.**
 - **Bullwhip effect: small fluctuations at the Retailer grow to large fluctuations for the Factory.**
 - **Everyone attempting to optimize their own performance leads to failure.**
 - **Even with the best intentions, the result is failure.**

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 - **Feedback loops (e.g., inventory policies)**
 - **Delays (e.g., shipping, late information)**

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The *structure* of a supply chain determines its *performance*.

Overview and Purpose of BGOS

- **What is BGOS?**
 - **Free supply chain simulation tool.**
 - **Drag-drop-connect multiple entities in a supply system of any size.**
 - **Each entity can be modified to alter the way it behaves and reacts.**

Overview and Purpose of BGOS

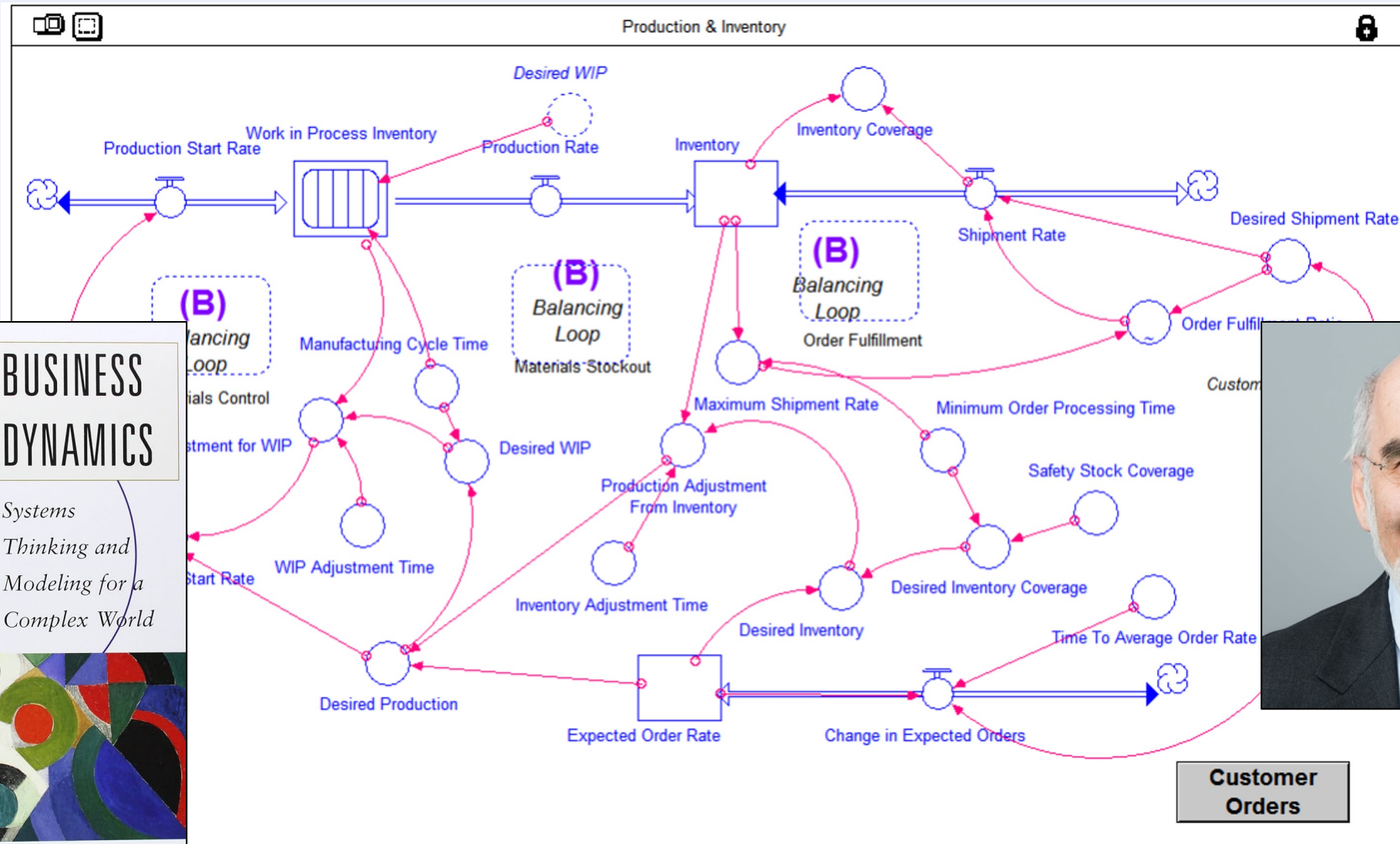
- **What is BGOS?**
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 - **Drag-drop-connect multiple entities in a supply system of any size.**
 - **Each entity can be modified to alter the way it behaves and reacts.**
- **What is the purpose of BGOS?**
 - **Create more complex supply chains.**
 - **Explore how supply chains under a variety of conditions.**
 - **Increase a student's intuition of supply chain "physics" due to *structure*.**

Typical Instruction Approach

- **Student teams play the original Beer Game.**
- **Student teams build the original Beer Game in BGOS.**
- **Student teams run additional scenarios to observe more dynamics.**
 - **Ex: Impose additional demand patterns.**
 - **Ex: Modify the processing times of entities in the chain.**
- **Student teams expand on the original Beer Game to observe more dynamics.**
 - **Ex: Add an additional distribution center in the chain.**
 - **Ex: Add a second factory in the chain with its own distributors.**
- **Student teams report their findings and what they learned.**

“Widget” Production Model

(Ref: Sterman, J.D., *Business Dynamics*, 2000, Ch. 18, used w/permission)



BUSINESS
DYNAMICS

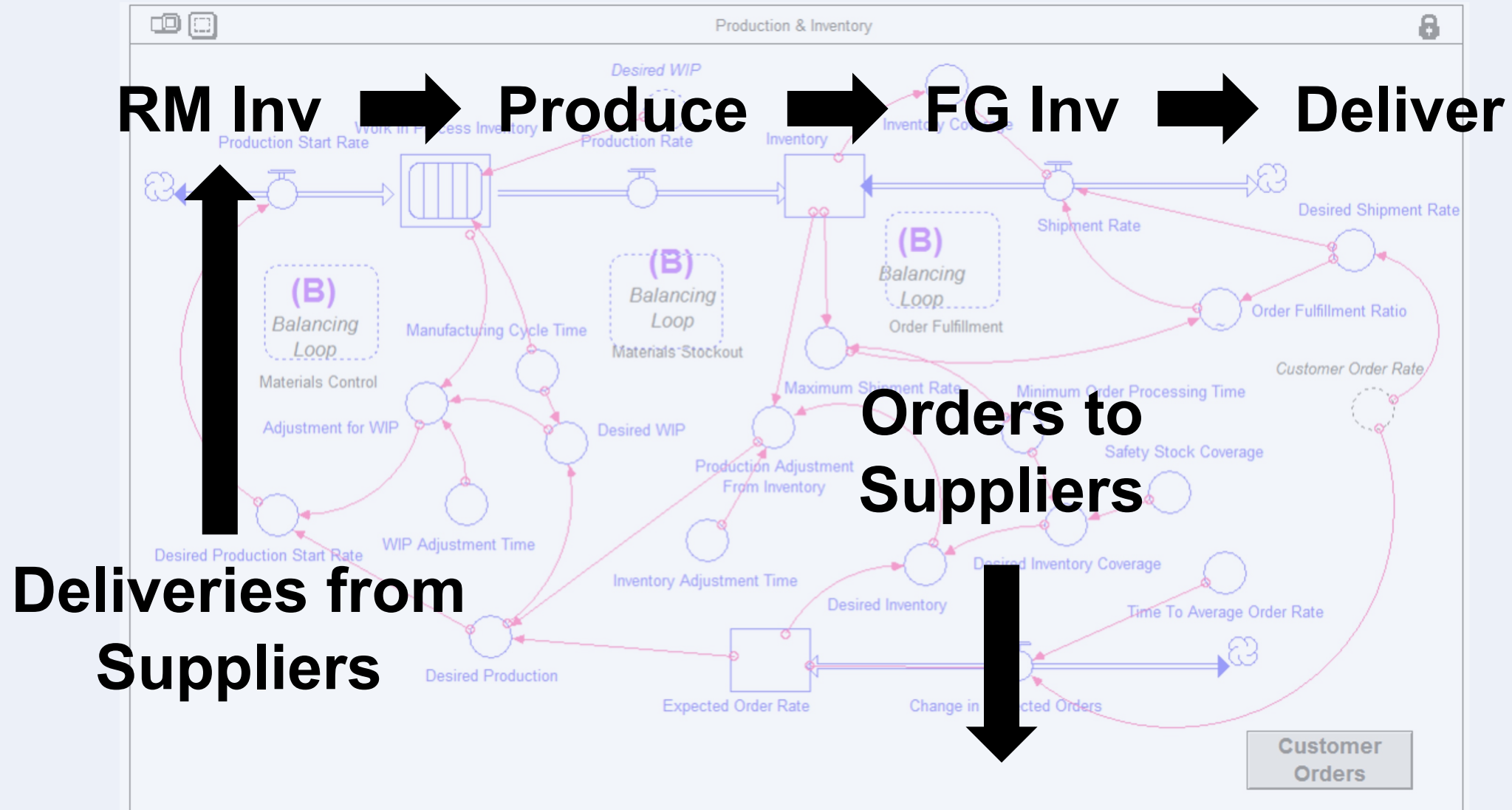
Systems
Thinking and
Modeling for a
Complex World

John D. Sterman



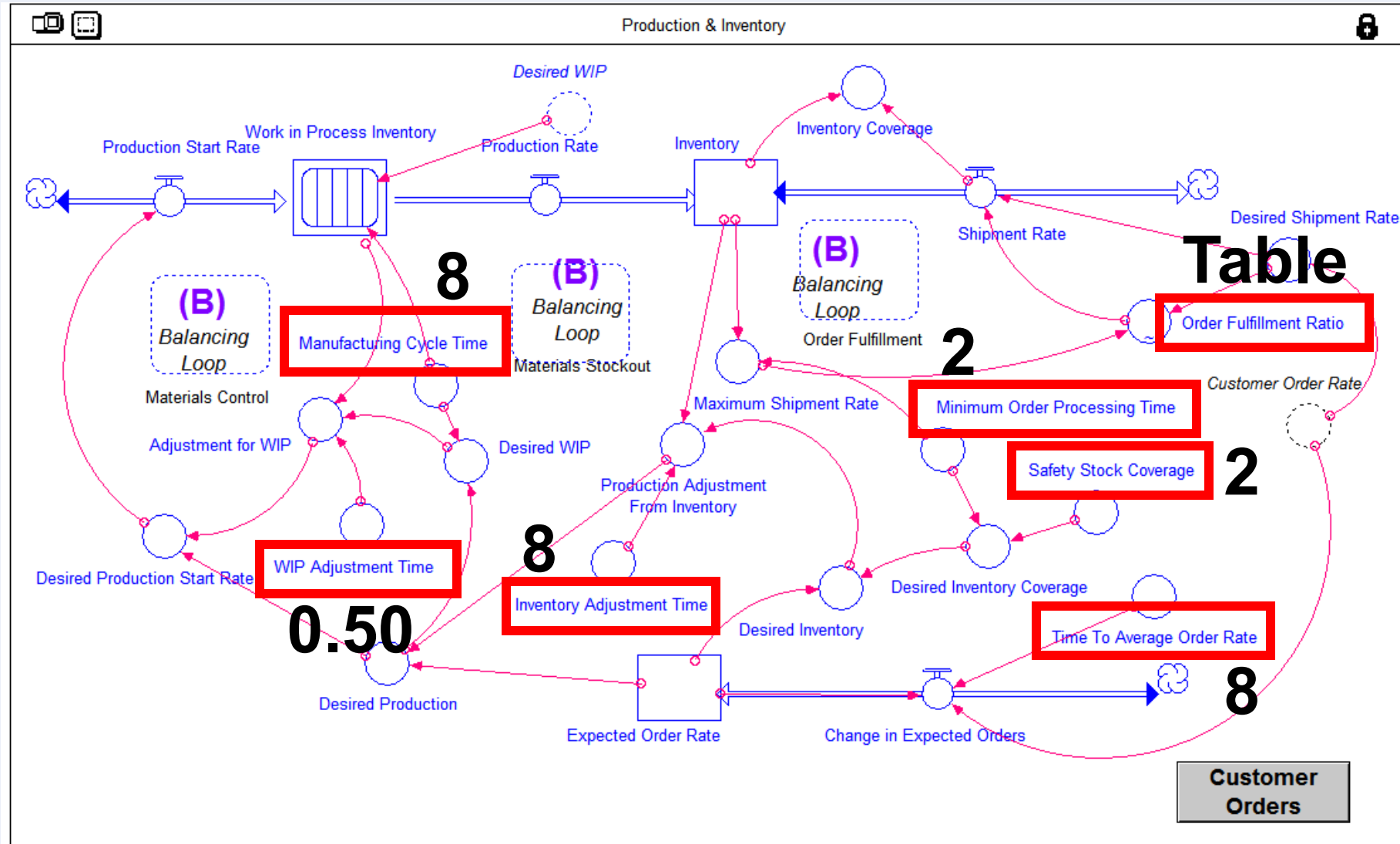
“Widget” Production Model

(Ref: Sterman, J.D., *Business Dynamics*, 2000, Ch. 18, used w/permission)



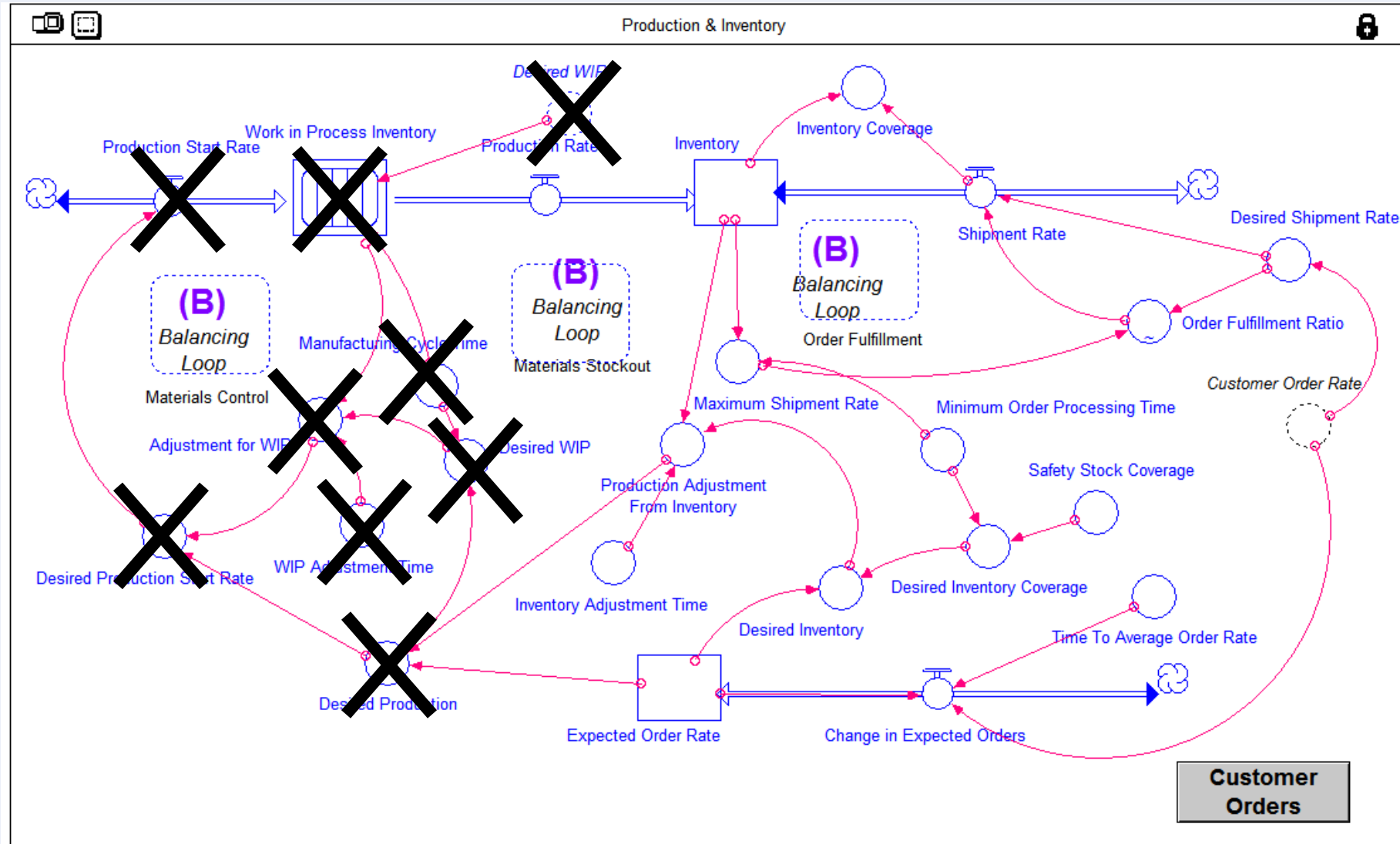
“Widget” Production Model – Default

(Ref: Sterman, J.D., *Business Dynamics*, 2000, Ch. 18, used w/permission)



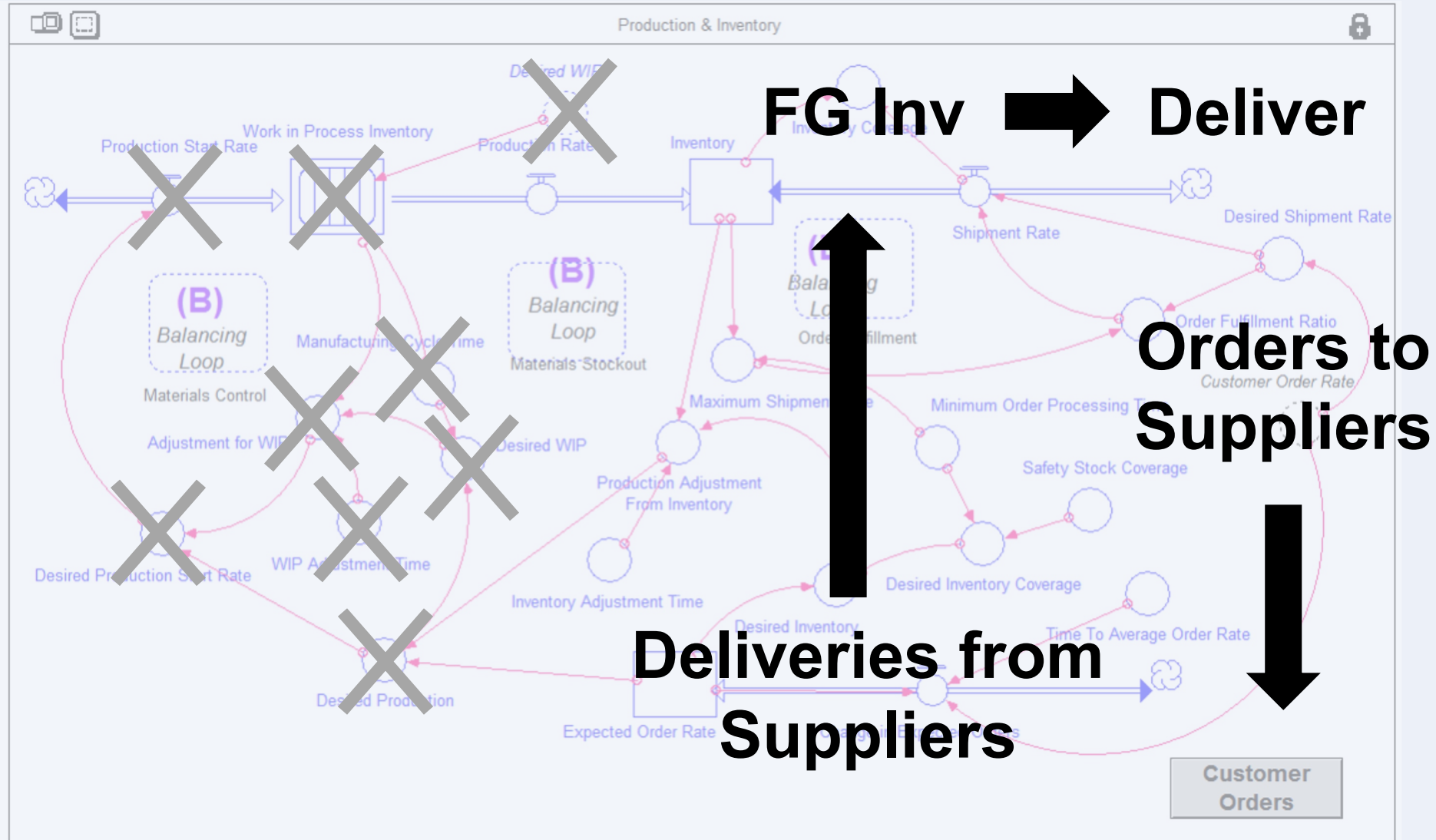
“Widget” Warehouse Model

(Ref: Sterman, J.D., *Business Dynamics*, 2000, Ch. 18, used w/permission)

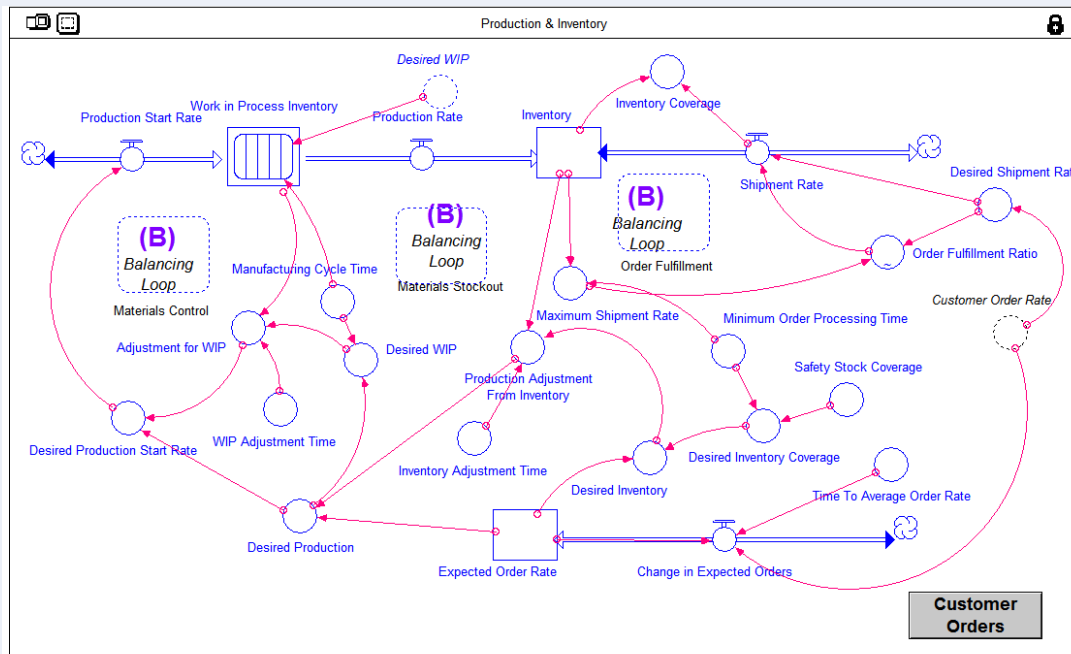


Widget Warehouse Model

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Simulation “agent” model



BGOS “icon”



BGOS Interface

SimBLOX Studio Model Creator - [* Beer Game 2]

Home View Layout Templates Analysis

Alignment Zoom Comments

Brix Palettes

BeerBRIX

Factory

Warehouse

Customer

Root

Filter:None

Factory

Wholesaler

Distributor

Retailer

Customer

Properties

Definition

Inventory Adjustment Time	8 Weeks
Manufacturing Cycle Time	8 Weeks
Minimum Order Processing Time	2 Weeks
Order Distributions	(Edit value...)
Order Fulfillment Ratio	(Edit value...)
Safety Stock Coverage	2 Weeks
Time to Average Order Rate	8 Weeks
WIP Adjustment Time	0.5

Display

Image System.Drawing.Bitmap

Identity

name	Factory
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Simulation Controller

Document: Beer Game 2

Component Property Message

start

Microsoft Office O...

Desktop

SimBLOX Studio Mode...

Microsoft PowerPoint ...

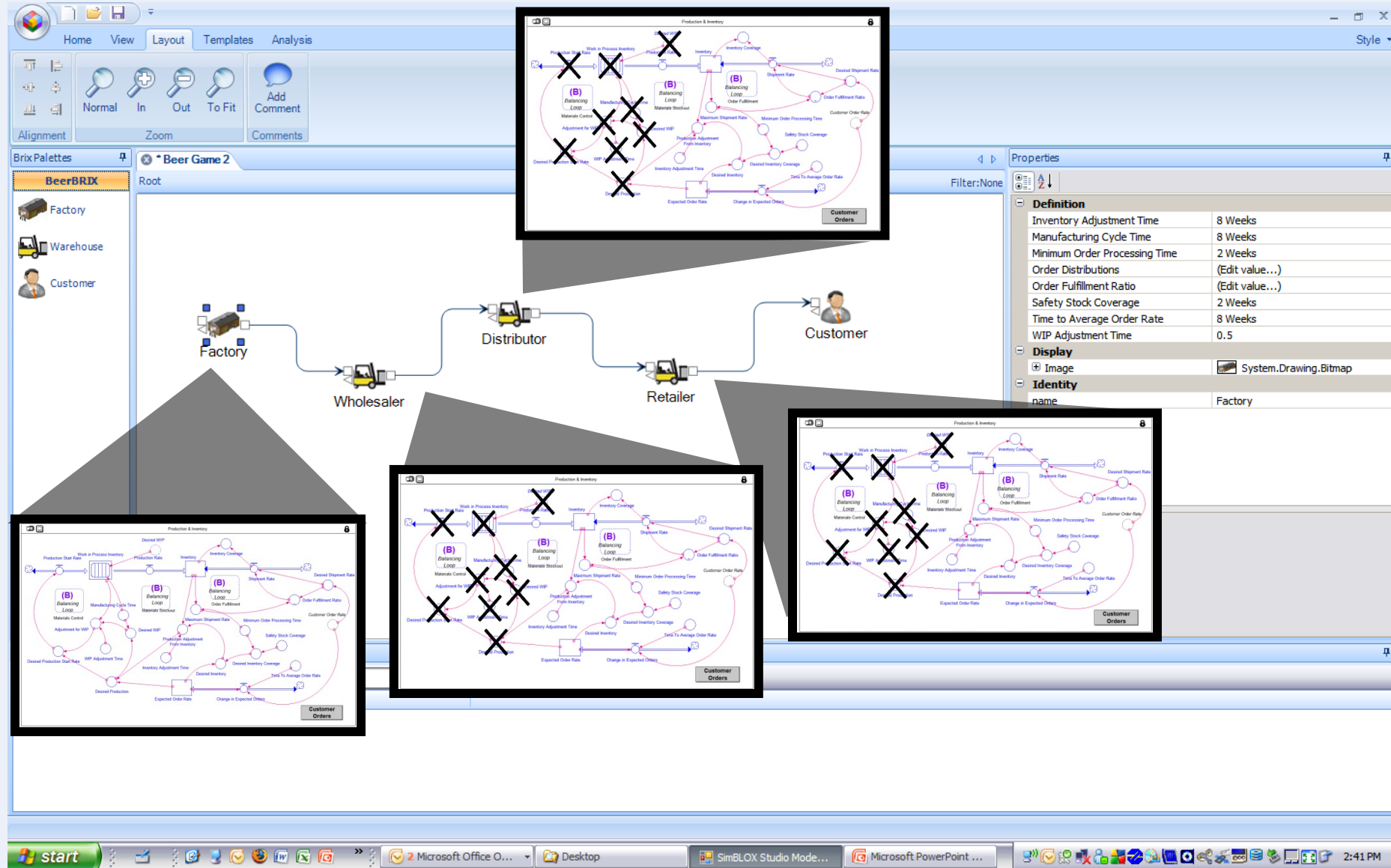
2:41 PM

Icons

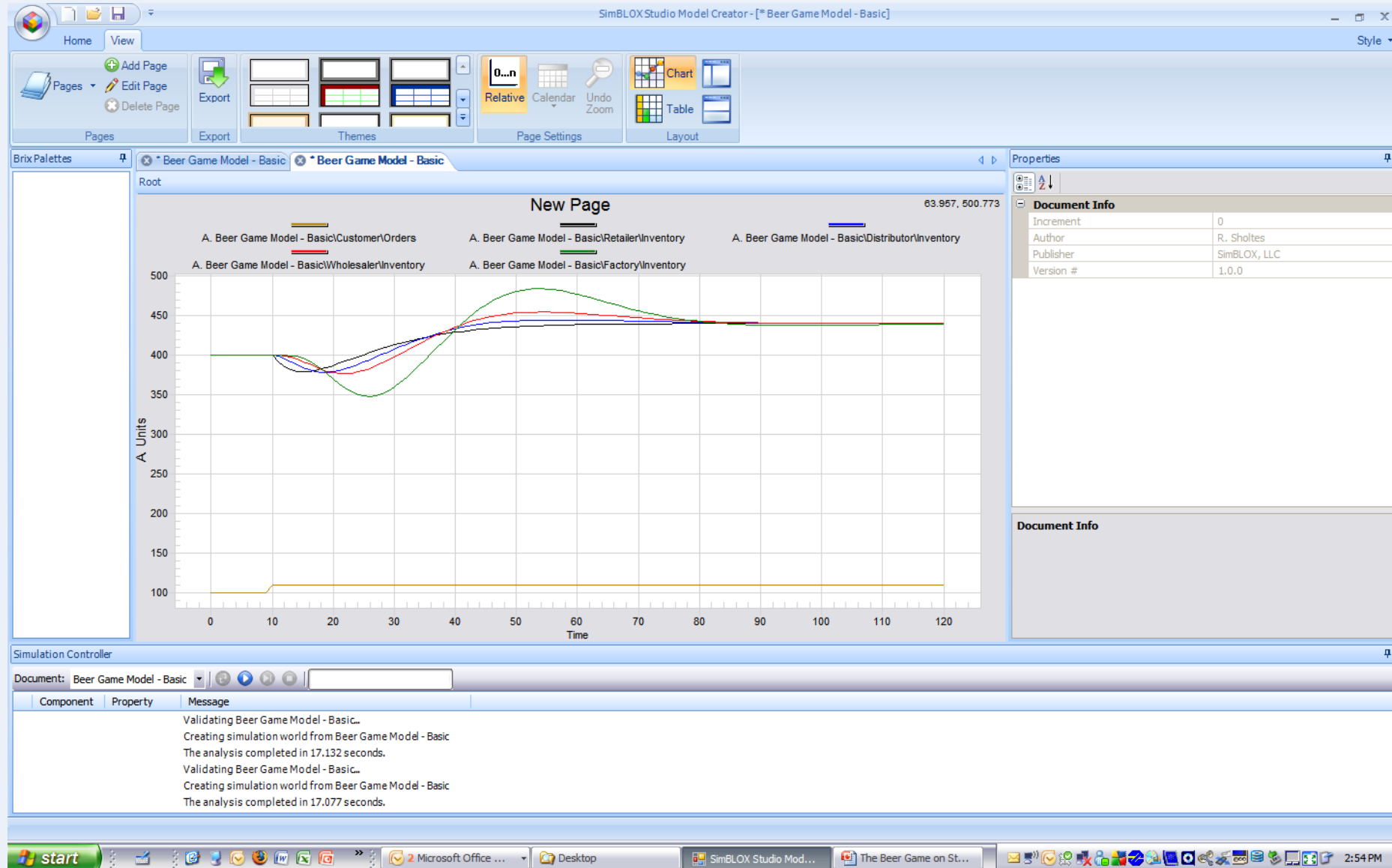
Drag-and-drop icons to build larger model

Input parameters for selected icon

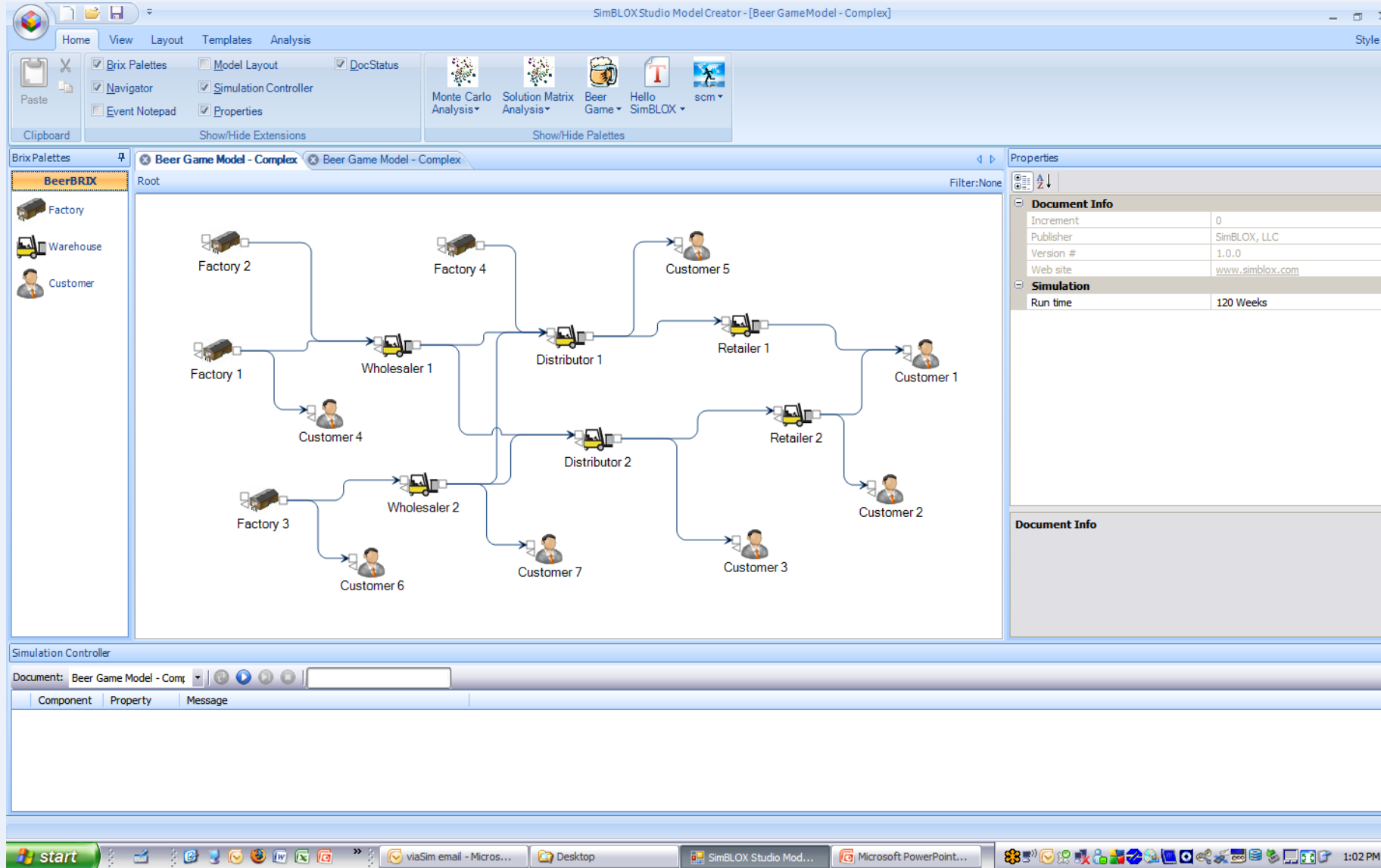
BGOS Interface



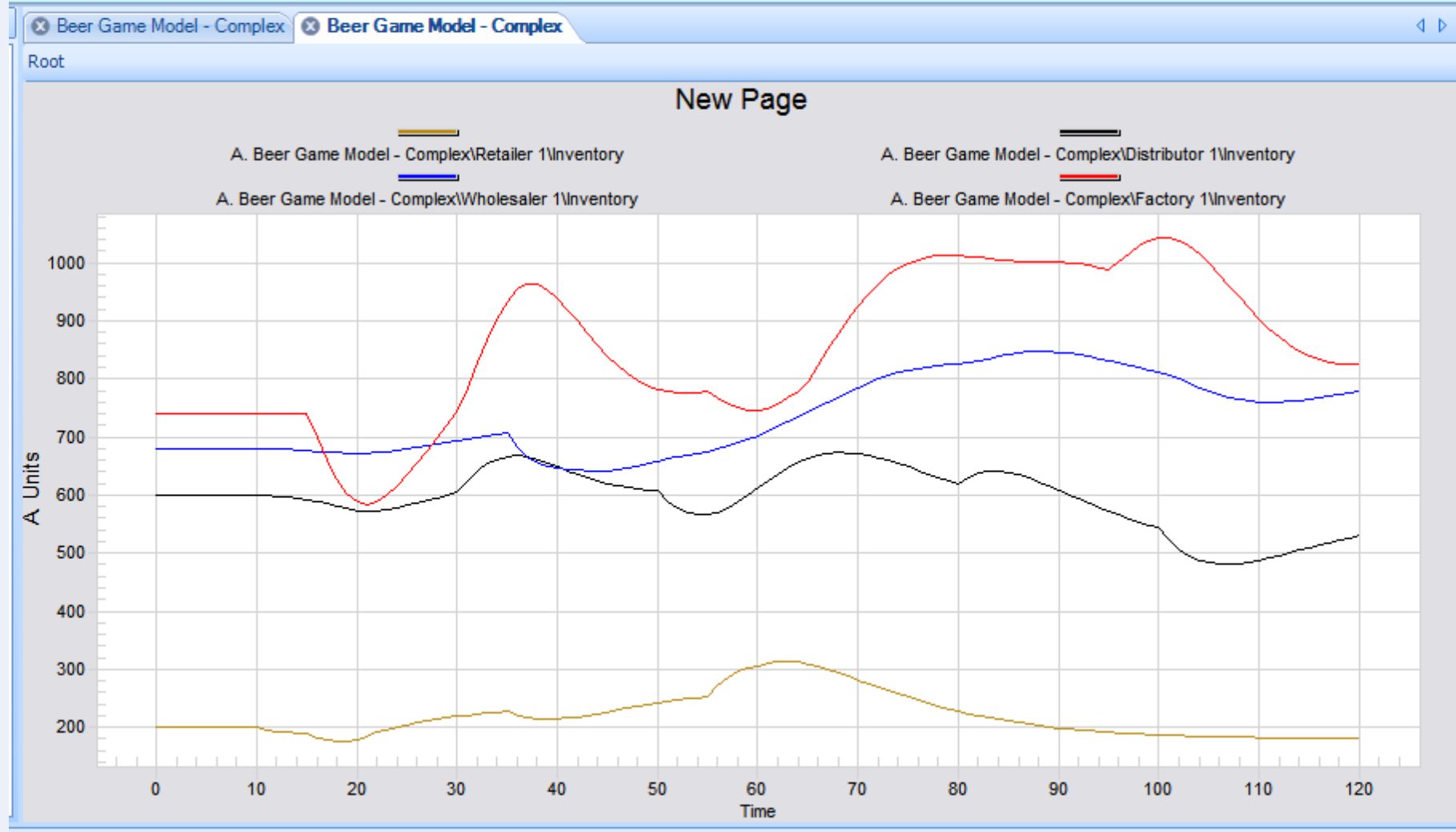
Basic Beer Game Simulation Results



More Complex Supply Chain



More Complex Supply Chain Results



Demo of the Beer Game

Thank you!!!

Questions?

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	scmblox.com