**Virtual Word Background: Excellent Beverage & Beer Distributors**

To: You

From: Danny Wilco <[dwilco@ebbd.com](mailto:dwilco@ebbd.com)>

Subject: Ordering product for EBBD from the Kentucky Hooch and Beer Company

I thought it important to give you some important information regarding the ordering process with which you’ll be working. First, there are about 20 retailers to which we are currently distributing the Kentucky Swamp Brew. They send in their orders on Monday, which we aggregate into a total order amount. On Tuesday, we send in our orders to KHBC. Of course, KHBC processes these orders into its order queue and determines what to ship to us. I assume the amount that KHBC ships is based on some decision formula they have for the orders from all of their distributors and how much of the product they have available to ship any particular week. That said, we usually get our shipments from KHBC on Wednesdays – I think they actually start the shipment on Fridays or Mondays and it takes a few days to get to us. When received, we unload the beer into our warehouse, create the delivery lists for each of our customers, load the product on our trucks, and deliver our retail customers’ order on either Thursday or Friday.

We want our customers to get their beer so they are stocked up for the weekend. After all, they can’t sell what they don’t have!

One other thing: I don’t know whether it’s true or not, but we’ve heard that KHBC may have a capacity problem – i.e., the company can’t seem to produce enough beer. KHBC is becoming more popular, especially in this region – they cater to the college crowd and 20 to 30 year old group. I just wanted to pass this on to you.

Let me know if you have any questions.

~DW, VP LogOps.

Learning Wizard

**Beer Distribution** is big business in the US and worldwide. Brewers need to get their brews to the people who want to drink it. Carry-outs, grocery stores, bars, and pubs all provide the product in bottles, cans, and kegs at the retail level. But it is the distributor who handles it between the brewer and the consumer. Read here about the beer distribution system in the US.

What is a beer distributor? (2006). *National Beer Wholesalers Association*. Retrieved from <http://nbwa.org/about/what-is-a-beer-distributor>

**System Dynamics**

The movement of material is the most fundamental aspect of logistics. And this creates inventory, which is the accumulation of material in batches or in queues. This inventory has a cost associated with it, both from the cost of the material to cost of holding it as inventory. There are also costs of moving the material as well as processing it if that is part of the operations as in manufacturing.

This fundamental aspect of logistics, inventory, can be modeled using system dynamics concepts. So first, you should become familiar with the basic concepts of system dynamics: flows (and rates of flow), and levels.

This is Ch. 2, A Modeling Approach, from Arizona State University’s (ASU) System Dynamics Methods: A Quick Introduction page, which is part of its System Dynamics Resources. This chapter explains the concepts of stocks and flows. Chapter 1 gives you an overview of system dynamics cause and effect modeling using Causal Loop diagrams. But Ch. 2 is the basic fundamentals of systems. Please feel free to read deeper into any of these resources.

Kirkwood, C. (1998). A modeling approach (Ch. 2). In *System Dynamics Methods: A Quick Introduction*. Retrieved from <http://www.public.asu.edu/~kirkwood/sysdyn/SDIntro/ch-2.pdf>

**The Bull Whip Effect**

The Bullwhip Effect occurs when the demand order variability in the supply chain is amplified as they moved up the supply chain. Distorted information from one end of a supply chain to the other can lead to tremendous inefficiencies. This is a classic article about this phenomenon.

Padmanabhan, H.L.L., & Whang, S. (1997). [The bullwhip effect in supply chains](http://www4.hcmut.edu.vn/~ndlong/QLXD-HD/mat/05_The_Bullwhip_Effect_in_Supply_Chains.pdf). *Sloan Management Review, 38(*3).

*Background Exercise*: Run the EBBD simulation and become familiar with the Basic Scenario and the Basic Bull Whip Scenario. Go the simulation at <http://forio.com/simulate/jelson/excellentbeerdistrib>

Read the information on Page 1, then go to Page 2. Choose the Base Scenario. The click on the Advance button. The sim advances one week and then a Run Sim button appears. Click the Run Sim button to run the simulation for the remaining 23 weeks. You will see the results in the Table. If you choose the Weekly Orders Graph Tab, you will see a graph of the EBBD Weekly Orders.

**INTRODUCTION AND HOW TO DO SIMULATIONS & CASE 1:** - WATCH THESE VIDEOS IN YOUTUBE

There are two videos in YouTube to help introduce you to LOG501, Case 1, and using the EBBD Simulation.

Part 1: <http://youtu.be/WvSggJC1SrQ>

Part 2: <http://youtu.be/NOK4-P56RF8>