Manufacturing ETC
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They Call It System Dynamics

What is system dynamics? One might define system dynamics as an approach to understanding the behavior of complex systems over time.

System Dynamics was created by MIT Professor Jay Forrester in the mid-1950s. During this period of time, managers at General Electric were perplexed because employment at their appliance plants in Kentucky exhibited a significant three-year cycle and the “business cycle” did not seem to be very significant in explaining this instability.

Unlike others who study the world by breaking it up into smaller and smaller pieces, Forrester’s system dynamics looked at things as a whole. The idea is to understand how all the objects in a system interact with one another. The objects and people in a system interact though “feedback” loops, where a change in one variable affects other variables over time.

An example of this is money in a bank account. Money in the bank earns interest, which increases the size of the account. Now that the account is larger, it earns even more interest, which adds more money to the account. This goes on and on. Another example of a simple feedback loop which we have all experienced is adjusting the water tap to reach a desired temperature. You turn the faucet, feel the temperature, and compare it to the desired temperature. You continue to adjust the water, with smaller and smaller adjustments, until you reach the desired temperature.

What system dynamics attempts to do is understand the basic structure of a system, and thus understand the behavior it can produce. Many of these systems and problems which are analyzed can be built as models on a computer. System dynamics takes advantage of the fact that a computer model can be of much greater complexity and carry out more simultaneous calculations than can the mental model of the human mind.

Through the use of a simulation, you will be part of the production, warehousing, and distribution decision making process. You will experience first-hand how your decision will impact the entire system.