Stocks, Flows and Variables

I'm going to be making use of a visual modeling language consisting of stocks, flows, and variables. Spreadsheet-based models are probably more familiar. However, their logic can be hard to follow. I think you'll find our visual approach more intuitive.

Stocks, flows, and variables clarify how the key resources that drive performance change over time. Boxes represent stocks. Stocks are also known as resources, accumulations, and levels. The thick arrows leading into and out of stocks are called inflows and outflows.

The *only* way you can change the level of a stock is by *doing* something to increase the rate of inflow and/or slow the rate of outflow.

Think of the level of the water in a bathtub. If the inflow from the tap is greater than the outflow through the drain, the level of the water will go up. Conversely, if the outflow is greater than the inflow, the level of the water will go down.

We try to be specific about labeling the rate of inflows and outflows. A rate is expressed as units per time period. For example, customers might terminate their relationship with your business at a rate of two customers per month.

Information travels along the skinny arrows in these diagrams. You might think of them as wires transmitting information about the level of a stock, the rate of a flow, or the value of a variable.

Stocks can be tangible and countable, like clients, or they can be intangible and hard to measure, like trust.

It isn't important to designate everything in your model as either a stock or flow. Often, it's useful to identify other variables as they relate to stocks and flows.

Using special software, we can augment this type of visual representation with numerical values and mathematical relationships that make explicit our assumptions about cause and effect. In turn, that enables us to simulate those relationships over time and observe how performance plays out.

By seeing the connections among stocks, flows, and variables and simulated changes over time, we're able to ask better questions faster than might otherwise be the case. Better questions help us learn, adapt, and succeed.