Avoiding Corporate Crises

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"This is not a pipe" says Rene Magritte's famous painting in French under his realistic depiction of a pipe. Magritte painted a series on this concept whose point was that no matter how true-to-life we depict an object—either in words or with images—we never do capture the reality itself. What we do capture is a model—a system of postulates, data, and inferences presented as mathematical/verbal/pictorial description of an entity or a state of being.

When companies and/or people forget that models—no matter how well they are crafted with numbers, words, and/or images—are not reality, crises occur. The Cuban Missile Crisis, the subject of my blog ***Your Office—The Next Cuban Missile Crisis?***, describes a real incident between two governments where different government departments were using different models to take actions that could have easily led to nuclear war…and these actions were undertaken without the knowledge of the leaders of those nations.

Emanuel Derman in his recent book *Models. Behaving. Badly*. provides many more examples of disaster in economics, politics, social policies, movements, and finance resulting from when leaders confuse models with reality.

"Models project multidimensional reality onto smaller, more manageable spaces where regularities appear and then, in that smaller space, allow us to extrapolate and interpolate from the observed to the unknown.

At some point, of course, the extrapolation will break down."

Derman is currently a Professor and Director of Financial Engineering at Columbia University, the former Managing Director and a top quant at Goldman Sachs where he was one of the co-developers of the Black-Derman-Toy interest rate model; and a renown physicist in his previous career. What makes his book *Models. Behaving. Badly*. so useful to corporate leaders is his advice on how to use models, which include the following thoughts:

- *"Given the inevitable unreliability of models and the limited truth or likely falseness of the assumptions they're based on, the best strategy is to use them sparingly and to make as few assumptions as possible."*
- Ask frequently: How wrong and in what way could this model become unreliable?
- Know what has been assumed and what has not even been considered in the creation of a model. Do you have the ability to adjust the output of the model to reflect these

omissions and changes in assumptions? If not, perhaps a different model that provides you that level of adjustment would be a better choice.
- The formulation of something mathematically does not make it necessarily accurate in depicting reality, especially if it involves human beings.

Another excellent source of information for corporate leaders trying to avoid crises is Eric J. McNulty's 11/11/14 article *The Complexity of Complexity* where he discusses ways to take those models you use (spreadsheets, process flow diagrams, organizational charts, etc.) that are "*linear, orderly, and rooted in simplicity: cause and effect are clear; relationships are precisely delineated; messy variables are discounted [and] plans lay out a step-by-step march toward a predetermined end*" and apply them in *"the real world (and real work") [that] is often nonlinear, disorderly, and unpredictable*." His suggestion: understand complexity.

McNulty then mentions two approaches that he has found useful, the first being Dr. Warren Weaver's framework of:

- **Simplicity**: challenges with between one and four variables.
- **Disorganized complexity**: challenges requiring statistical analysis to understand because of the larger number of independent variables.

McNulty adds another designation to Dr. Weaver's—**organized complexity**, the state where there's more variables than simplicity but fewer than in disorganized complexity BUT there's an interdependency between the variables. Hmm…this organized complexity sounds the most like the real world I know, doesn't it? In fact, McNulty thinks so, too, and says that success in large organizations requires understanding those interdependencies and relationships.

The other framework McNulty mentions is the understanding complexity portion of Peter Senge's systems thinking method encapsulated in his 2006 book, *The Fifth Discipline: The Art and Practice of the Learning Organization*. Senge looks at **detail complexity**—challenges arising from a large number of variables—versus **dynamic complexity**, which are challenges arising from the relationships between the variables where cause and effect might not be clear and may vary over time.

In summary, using models to simplify the inherently complex is a useful tool. Looking at a painting of a pipe, after all, does enable me to reflect upon my memories of pipe smoking: the hardness of the pipe's surface, the aroma of the pipe tobacco burning, the way the smoke wafts upward in the breeze, etc. However, the danger lies in confusing the word with the thing, the map with the territory, the mathematical model with the complexity of the real world.

Therefore, one way to avoid mishaps and crises is to remember to study the relationships within and external to your current organization to consider the possible ways people are likely to act and interact AFTER devising a plan but before and during implementation.

Putting this thought in your pipe and smoking it is highly likely to counter any chances of pipedreams ruining your plans.