The ART of Predicting the Future
by Don Koestler

Did you ever wonder about what techniques people use to predict the future? Previous articles focused on the importance of choices in achieving success. Choosing would be easy if we had certain knowledge of future events.

Have you ever wondered how the 'experts' make their predictions?
Do they use astrology, a crystal ball, tea leaves, or other techniques that have been around a long time?
How about economists who make predictions about the upcoming financial conditions or scientists who predict global warming is the result of a buildup of carbon dioxide in the atmosphere – what techniques do they use?

As you reflect on these questions, you will come to realize that all their predictions are based on models people have developed to describe the systems they are interested in.
So, it turns out that models are at the root of our success and failure.
If this is the case, it would be important for us to understand some fundamentals about models and the systems they describe.

There are basically two approaches to creating a model: one based on an empirical data and one based on the expert's knowledge of the fundamentals of the system.
Empirical models - With the advent of mammoth computing capability, developing empirical models has become relatively easy – data is analyzed and correlated. If the first attempt doesn't succeed, more parameters are added until a correlation appears to have been achieved.
First principle models - These are usually developed by people who have studied in a field for many years and claim a fundamental understanding of the systems they are working with.

In either case, the models are basically the expert's assumptions about the system and how it works. No matter how loudly the experts proclaim the merits of their model, there is only one way to validate a model and that is with unbiased experimental data. And this seems to be one of the rarest commodities of our times.

Why is this so?
It is virtually impossible to run controlled experiments on complex systems with a high degree of certainty.
A good example of this is the prediction that global warming is caused by increasing levels of carbon dioxide in the atmosphere. This prediction is based on an unverified model. No amount of retrospective data will verify the model - Neither will popular acclaim by well-meaning advocates who don't have a clue about the science involved - Neither will statements made by renowned scientists who have a vested interest in promoting their research and their political agenda.

The only way to prove the carbon dioxide/global warming model would be to operate the earth at two fixed levels of carbon dioxide for a significant period of time (probably a couple of hundred years) and measure the impact on the earth's temperature. And of course during this time we would have to hold all the other variables, like the amount of energy radiated from the sun, constant

So you can see what the problem is – there is no way we can know with certainty that global warming is caused by an increase in the carbon dioxide in the atmosphere – maybe it is, maybe it isn't. My advice is to regard with suspicion anyone who claims to know.

Of course, this is the main advice on any model – know the basis for it and who is promoting it. The good news is that models can be developed as long as we understand the systems we are dealing with and realize that all models are based on assumptions and must be verified with real experimental, not retrospective, data.

Don Koestler is President of DJ Koestler, LLC, a company dedicated to teaching and consulting in concepts related to personal and organizational high performance. He is currently an Adjunct Professor in the Engineering Management Masters Degree program at Drexel University. Prior to that he held management and leadership positions at Rohm and Haas Co.for over 40 years.
He is a graduate of Villanova University with a degree in Chemical Engineering.