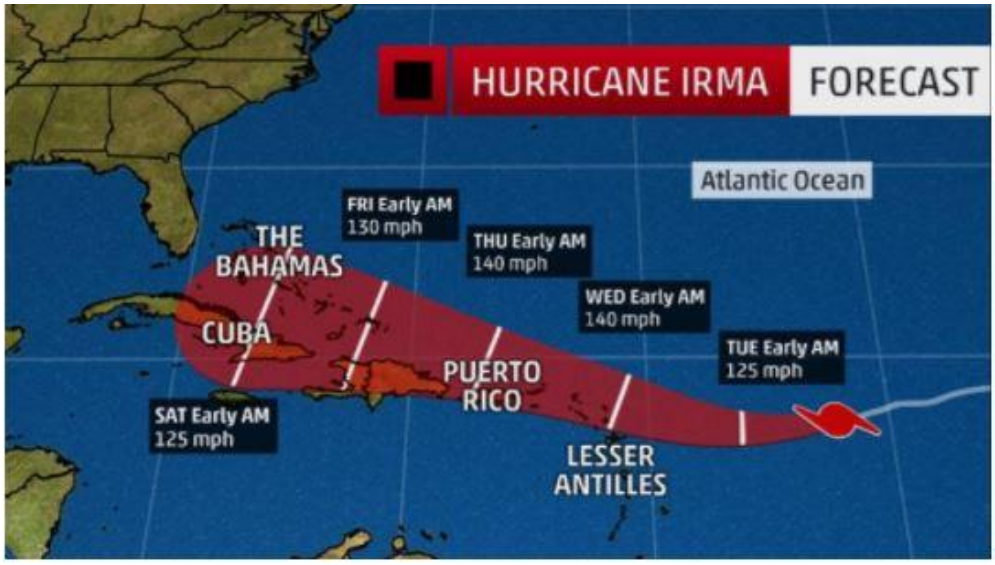

An earlier version of this article appeared in Linked In at the following address:

https://www.linkedin.com/pulse/how-wide-your-companys-cone-uncertainty-jerry-scherer/?lipi=urn%3Ali%3Apage%3Ad_flagship3_profile_view_base_post_details%3BGL3lbzchQ0CQJtL%2F69URig%3D%3D

How Wide Is Your Company's Cone of Uncertainty?

Unless you've been on the Moon during hurricane season, there's no question that you've heard and seen superb reporting concerning these weather events that have devastated Texas, Florida and many areas of the Caribbean. And you 've undoubtedly heard references to the "cone of uncertainty" -- a graphic representation of the simulated path of these storms. The center line represents its most likely path, while the space on either side of the line allows for variability depending upon a myriad of conditions (such as wind velocity, direction, landfall, etc.) that the storms may encounter. Clearly, its starting point is its then current location and the cone forms as possible alternative paths arise on either side of its most likely projected path.

A business has a cone of uncertainty too! Think about it.

A business creates a plan or a forecast or a budget. The starting point for any of these documents is where the business is at that time. Then it begins to make assumptions about what the future holds. It will consider key internal drivers of the plan (revenue, production, expenses, cash flow, etc.), new products and markets, as well as key external drivers (interest rates, inflation rates, legislative changes, etc.). All of these are fraught with uncertainty. Does the business simply plow ahead and make single point estimates for each of the elements of uncertainty? I say NO, it should not!

That type of forecasting is called deterministic. It essentially says that each of the variables appearing in the forecast will occur precisely as we have forecasted them. Now, of course, offsets may occur that will result in actual materializing as forecast. But, I believe that the chances of that happening are between “slim and none.”

I say it makes sense to do stochastic forecasting where you give effect to the range of uncertainty in each of those elements by using probability distributions for the uncertain values and then use Monte Carlo simulation to run thousands of iterations of the plan. What will emerge is your "cone of uncertainty" showing a range of all possible outcomes as well as the likelihood that any one of those outcomes could occur.

Clearly, during the planning process, different views of likely revenue levels, cost structures, production throughput, plant capacity, raw material prices and availability, legislative actions and the like will be

considered by those intimately involved in crafting the plan. Why is it then that these elements are distilled into one outcome for each when they can easily be considered with their full range of uncertainty? It would also be appropriate to consider correlations between variables such that the plan could not permit anomalies between them. For example, you would not consider having growth in housing starts when you are forecasting increases in interest rates.

One of the objections that I hear most often is that we don't know what probability distribution to use. If there is historical data available, a distribution fitting tool may be utilized to suggest the distribution which best fits that data set. Another idea is to use commonly accepted distributions (triangular, uniform, normal, pert) and monitor results going forward.

Create a plan that you won't stuff into a drawer! Create a plan that you can monitor throughout the year and that you can make modifications to as new information becomes available. Don't wait for the next storm season to be reminded about your "cone of uncertainty."

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