



The 5 principles of responding to uncertainty

By Jim Tompkins

I assume you are reading this column in *ISE* magazine because you, like me, are a STEM (science, technology, engineering and mathematics) professional. Here are two general observations:

- STEM professionals like certainty and having control. We dislike uncertainty and being out of control. The pandemic has been hard on STEM professionals because it has created uncertainty and made having control more difficult.
- The more a person deals with uncertainty, the better they get at it. The more a person deals with certainty, the less able they are to deal with uncertainty. STEM professionals work best with certainty and not well with uncertainty.

I am a STEM professional with a doctorate in industrial engineering and have had a career in designing and implementing supply chain solutions. But interestingly, in my pursuit of retail supply chain solutions, I have come face to face with the mother of all uncertainties: the holiday peak season. My experience allows me to see that the opposite of a steady-state solution – and the opposite of certainty – is the shopping period from Thanksgiving Day through Dec. 23. I have dealt with that uncertainty for several decades, so although I am a STEM professional, I have significant experience with uncertainty.

So what have I learned? Given the

reality of the last year, here are the five principles of responding to uncertainty:

Accept uncertainty. Uncertainty is a reality today. Trying to pretend it does not exist or trying to control it will result in increased frustration. The first step to successfully dealing with uncertainty is accepting that it is undeniable and impacts us all.

Sensitivity analysis is inadequate. The traditional ISE approach of attempting to address uncertainty via sen-

The first step to successfully dealing with uncertainty is accepting that it is undeniable and impacts us all.

sitivity analysis worked well when the deviations around the norm were 10% to 30%. But the changes that occurred during the pandemic were more like 100% to 300% or, even more, a total change in how business worked. So going forward, it is not about testing the sensitivity around optimal but rather testing totally different scenarios that are not based on past performance.

Optionality, not optimality. A foundation of our ISE profession is to seek optimal solutions. Optimal solutions, however, are dependent on the certainty of the requirements. As the requirements of a solution vary widely under uncertainty, we need to find flexible solutions that offer a series of options to

optimize our performance over a range of scenarios. Therefore, optionality is preferred over optimality.

Thinking outside of the box. Given the level of uncertainty in today's world, we must abandon the conventional thinking, assumptions and paradigms of the past and open our minds to new ways of thinking and problem-solving despite uncertainty.

Willingness to experiment. There is no success without learning from mistakes. In fact, the quickest way to success is to increase your rate of making mistakes. In uncertain times, we need to be willing to experiment, make mistakes and learn from them.

The pandemic has changed both our lives and our profession.

We need to both be aware of and respond to these changes. Undoubtedly, one of the most difficult changes scientists, technologists, engineers and mathematicians face is our ability to respond to uncertainty and not having control. Facing these difficult changes and adopting the five principles of responding to uncertainty will help STEM and ISE professionals and their organizations prosper in these uncertain times. ❖

Jim Tompkins, founder and chairman of Tompkins International and Tompkins Ventures, has written or contributed to more than 30 books. He is an IISE member and writes the Creating Supply Chain Excellence blog. Contact him at jtompkins@tompkinsventures.com.