



# The Psychology of Risk

By Ken Cottrill and James B. Rice, Jr

Ken Cottrill (kencott@mit.edu) is Global Communications Consultant, MIT Center for Transportation & Logistics (MIT CTL). James B. Rice, Jr. (jrice@mit.edu) is Deputy Director of MIT CTL.

Supply chain practitioners make countless decisions every day without really understanding the mental processes that underpin their choices. Recent studies on these cerebral interactions have shed light on the psychology of risk, an emerging factor in risk management decision making.

Operations leaders can help their teams—and themselves—to make more informed decisions and avoid common errors of judgment by being aware of these psychological influences.

The implications were discussed at a symposium titled *Advancing Supply Chain Risk Management: Emerging Challenges and Strategies*, which took place on the MIT campus in Cambridge, Mass., on October 10, 2012. More than 30 organizations attended the event, which was co-organized by the MIT Center for Transportation & Logistics and the Supply Chain Risk Leadership Council (SCRLC).

## Beyond Knee Jerks

To some extent, weighing the pros and cons of a situation and deciding on a reaction is an involuntary process, orchestrated by a small, almond-shaped bundle of cells called the amygdala. Buried deep within the brain, the amygdala is responsible for the famous “fight or flight” response to threats. This gut reaction is an essential part of our natural survival kit, but when a more measured response is required, it can lead us to make faulty decisions.

The role of this ancient nerve center is described in more detail in the book *How Risky Is It, Really?* by David Ropeik (McGraw-Hill, 2010). Much of the discussion about the psychology of risk at the roundtable was based on ideas from this book.

In addition to the influence of the brain’s wiring and chemistry, the life experiences and lessons that everyone carries around with them

also impact decision making. While this mass of information defines us as individuals, often it is not enough to make fully informed and balanced decisions. Even data-driven professionals such as supply chain managers can be swayed by this subjective influence.

Do you have the facts at your fingertips to, say, decide whether using pesticides or driving while texting pose the more serious threat to public health? When asked, you may well have an opinion. But lacking the time to amass all the relevant facts and figures that opinion is invariably based on incomplete data and the intricacies of your personal mental map.

## Logical Limits

This restricted view of life is called Bounded Rationality, and it affects decision making in a number of ways.

For example, in order to deal with complex situations and data, the human mind tends to simplify the task by categorizing the inputs. This helps to make the decision process manageable but does not always result in the best outcome. When dealing with complex risk, we tend to categorize or lump risks together in the same bucket based on characteristics such as industry or location that may have little to do with the threat level. Instead, we should be using risk-associated factors to segment ways in which supply chains can be disrupted.

Perhaps several years ago you had a bad experience with unreliable suppliers in a specialized sector of another industry, for instance. If you now have to source in the same sector, you will probably be doubly cautious having mentally categorized that sector as untrustworthy. But such an assumption may prevent you from properly evaluating the current risk based on pertinent operational criteria.

As professionals, we like to think that we dis-

passionately analyze every choice according to its own distinct merits. Yet these choices are often affected by how the relevant information is classified in our memory banks and how it is presented to us.

Anchoring and Adjustment is another mental shortcut we use that can introduce unwanted biases into the decision making process. An anchored value can be a figure we have retained in our heads that we unconsciously use as a point of reference when evaluating risk. But the front-of-mind figure is out of context when used to gauge an entirely different risk situation. A meeting to discuss the results of an evaluation study, say, may be dominated by one of the quantitative findings. You might walk away from the meeting with that figure implanted in your mind, and later on automatically use it as a reference when weighing a different set of options.

### Faulty Perception

In addition to these Bounded Rationality behavior patterns, humans have developed what Ropeik calls “psychological shorthand for quickly sensing what’s scary and what’s not.” We use these psychological factors, known as Perception Factors, to instinctively judge the character of a risk while we are consciously considering the associated factual data.

Trust is one of these factors, and it has a powerful influence on the way we view the world. Certain inputs, such as an angry face, immediately put us on guard as our survival instincts kick in. But there are many other facets of trustworthiness such as our political leanings—we tend to invest more trust in the opinions of politicians from our camp—and experiences that impress us.

Organizations are particularly prone to gaining and losing trust. A trucking company that fails to meet a very important delivery window makes matters worse by not admitting to the mistake and failing to acknowledge the gravity of the situation. At the shipper end, the supply chain manager mentally downgrades the carrier a few notches on the trustworthiness scale. The next time the manager has to decide on how to allocate loads, the decision will inevitably be colored by the negative experience. Yet it may be relatively easy for the trucking company to avoid this pitfall by taking corrective action.

Another example is the Risk Versus Benefit factor, where we focus on the benefits of a situation and downplay the associated risks. A supply chain illustration might be opting to take the benefit of lower costs and higher profits by outsourcing a manufacturing operation to China, while downplaying the harm to customer service.

In addition to these psychological influences, we are

susceptible to building an Optimum Bias into decisions. A general example is buying a lottery ticket even though the chances of winning are remote at best. Has your innate sense of optimism ever nudged you into, say, adding inventory, even though the chances are that a demand spike will not materialize as expected?

Control is a Perception Factor that can figure prominently in the supply chain domain, too. Sourcing from a supplier you have been working with for some time may give you a sense of control, for example, but to what extent are you dismissing other, more cost-effective opportunities that are less familiar?

### Joining Two Minds

Though this article has barely scratched the surface of the psychology of risk, we hope it has given a taste of how our mental makeup and decision processes can sway the choices that we make.

## Effectively linking the two sides of the corporate brain—the emotional/perceptual and the analytical—is a sure route to better decision making.

Supply chain practitioners need not become experts in the field. However, even a working knowledge of these psychological factors can improve decision making, and help managers to better deploy talent. The central issue is that decisions are not only based solely on facts and figures, but also on less tangible, much fuzzier emotional and attitudinal influences. This can be easy to overlook in a profession such as supply chain management where we put so much emphasis on data-driven analysis.

One attendee at the risk roundtable explained that the emotional/rational divide can also create tensions within the organization that impedes effective decision making. As part of an umbrella risk management program in his company, the attendee noted, senior executives are asked what challenges worry them the most. Their answers tend to be largely subjective, being based on how these individuals perceive threats to the company. But their feedback is frequently at odds with the data-based answers given by supply chain management to the same question.

As is the case at the individual level, linking these two sides of the corporate brain—the emotional/perceptual and the analytical—can be a major challenge. But making the connection is a sure route to better decision making.