The value of rational thinking and evidence-based decision making seems foundational to an effective use of “big data”, analytics and data-driven decision support, but should we assume managers always want to use evidence and facts? Are there situations that call for alternative decision-making methods? Further, can we assume growing data volumes and data analytics enhance evidence-based decision making?

The term evidence refers to the facts and information that prove or substantiate an assertion or a conclusion. Supposedly “big data” and data analytics will provide more and better evidence for decision making. In a decision process, evidence is summarized by the reasons for concluding that something is true or false. Evidence, even if inconclusive, can be supplemented by reasonable assumptions.

Effective decision making specifically refers to making decisions that result in attaining desired goals relevant to an initial or original decision question. Ideally, an evidence-based decision process uses the best available facts in a structured thinking methodology that helps make choices to attain those relevant goals. An evidence-based decision process must be comprehensive, systematic and thoughtful. The process must elicit facts and evidence that are used to inform a reasoned choice among relevant alternatives.

One criticism of evidence-based decision making is that it creates an over-reliance or excessive dependence upon quantification and quantitative data. More data and “big data” does not guarantee better evidence or better evidence-based decision processes. Data analysts need to make certain the evidence is relevant to the decision question and that the “facts” can be verified as “true”.

A possible solution to over-reliance on data is more discussion and deliberation. Deliberation is recommended as a step or a phase of a dialogic, multi-perspective, and discursive process for reaching decisions. Ideally a deliberative decision-making process is evidence-based, not focused just on personal opinion. Informed decision making requires unbiased facts, expert analysis and thoughtful commentary.

Rational decision behavior is goal-oriented in reaching a decision, and many managers and responsible decision makers attempt to be rational, wise and thoughtful in their decision-making. Behavior is guided by the expected consequences of a given alternative. When making a choice based upon analysis and reasoning a decision maker believes that a chosen alternative will result in achieving one or more desired goals. Rational decision behavior can be supported and encouraged by a decision support application that helps humans consider both data and its rational analysis. The design of such a system includes epistemological and technical design factors.

Data Scientists and decision support builders should try to reinforce the intended rationality of the targeted user, must also work to avoid introducing “irrationality” into the analysis and decision process. Technologists may rarely dwell in the depths of the philosophical foundations of decision support, analytics and decision making, but any presumptions we make about the rationality of decision makers affects the degree to which people will be assisted by our data, tools and reports.

So, to those who build systems and analyze data, we encourage more thoughtfully designed systems and careful analysis. Ask: What do you assume about your targeted decision makers? Are they sophisticated, rational managers? Are your targeted decision makers trying to make evidence-based decisions? Are data relevant and might analysis uncover patterns, relationships, or correlations that can best be approached with analogy-based reasoning or another implicit reasoning tool?