

# *: What is the impact of decision support on cognitive biases, decision style and risk attitudes?*

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Cognitive bias, decision styles and risk attitudes impact the use and effectiveness of decision support and analytics. Analytics, decision aids, and decision support systems (DSS) are intended to improve the quality of decisions. This is the dilemma, use help and perhaps make better decisions, reject help and perhaps make worse decisions. The decision to use aids, help and support becomes central. Cognitive biases are recognized, but remediation is usually not incorporated in design and development of the tools. A single rational decision style, whether used by individuals or a group, has been used as the most appropriate decision support framework and this choice limits the support that can be provided. Finally, risk attitudes are rarely considered in building decision support and in preparing analyses, yet risk is an increasingly important and unresolved issue in many decision situations.

Cognitive bias patterns are sometimes positive and reinforce rational decision making behavior, other patterns lead to poor or less than optimal choices. Five common cognitive biases include:

1. Anchoring and Adjustment Bias -- Tendency to make decisions based on an initial item of data.
2. Availability Bias -- Managers use information that is readily available from memory to make judgements.
3. Confirmation Bias -- People seek information to support their point of view and discount data that does not support it.
4. Hindsight Bias -- Tendency of people to view a past event as having been more predictable than it really was.
5. Representativeness Bias -- Tendency to generalize from a small sample or a single event.

We are often biased to see the World as we want to see the World.

Four common styles of decision making are directive/dictatorial, analytical, conceptual and behavioral. Each style uses a different method of examining solutions. Another typology identifies

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two decision making modes: intuitive or analytical. These styles are also referred to, respectively, as Type 1 and Type 2 processes. Type 2 analytical processes are generally reliable, low risk, and effective, but also slow and resource intensive. According to the Vroom-Yetton methodology we can divide decision making styles into autocratic, consultative and group styles.

Some propositions: Risk aversion, risk seeking, and risk neutral attitudes of decision makers are influenced by individual differences. Many managers are risk averse and analytics and decision support can reinforce and sometimes reduce risk aversion. Decision style determines and influences the amount and type of cognitive bias in a decision process and the need for decision support. Risk attitudes and habit influence a decision makers decision style and the decision support that is used in a specific decision situation. Decision support can reinforce positive cognitive biases and increase the likelihood of using an effective decision style.

### Conclusions

The impact of cognitive biases, decision style and risk attitudes can be altered by decision support, analytics and data-based results. Decision support is at the center of gravity of a conceptual triangle of human characteristics anchored by cognitive biases, decision style and risk attitudes. One hopes that decision support can balance these competing forces and lead to better decisions.

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