

: *What is logical decision-making?*

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Many adjectives are used to modify the compound word decision making or decision-making. For example, creative, ethical, intuitive, and rational modify decision-making. Another modifier is logic or logical. Logical decision-making or using logic in decision-making is regarded as an important skill for many professions. In these professions, experts and specialists apply their knowledge in a given area using logic in decision processes to make informed decisions. For example, medical decision-makers often arrive at a diagnosis and then select an appropriate treatment. The phrase logical decision-making refers to a systematic reasoning process that results in decisions that make sense given the available facts.

The related and more frequently used concept of rational decision making refers to a logical, multistep model for making a choice that follows an ordered path that starts with problem identification through alternative generation, evaluation, and choice. There is another term that has a similar meaning -- evidence-based decision-making. Some argue for encouraging data-based decision-making (Power & Heavin, 2018). Other decision-making types with a seemingly opposite meaning include impulsive decision-making, emotional decision-making, and principle-based decision-making. We have many terms for decision-making processes. Is logical decision-making a better or more useful term for the desired process? Can people learn logical decision-making?

Logical decision-making refers to using logic to make choices. A logical decision-maker uses evidence and develops arguments and reasons to draw conclusions and make decisions. Practicing logical decision-making seems more limited in scope and a more realistic goal than "rational" decision-making.

Changing Minds (changingminds.org) explains logical decision-making. "When we use logic to make decisions, we seek to exclude emotions, using only rational methods, and perhaps even mathematical tools. The foundation of such decisions is the principle of utility, whereby the value of each option is assessed by assigning criteria (often weighted)." The site notes "A totally emotional decision is typically very fast."

Rational decision-making is normative and the process assumes a decision-maker has full or perfect knowledge about the alternatives. Simon (1979) notes "The classical theory of omniscient rationality is strikingly simple and beautiful. Moreover, it allows us to predict (correctly or not) human behavior without stirring out of our armchairs to observe what such behavior is like. All the predictive power comes from characterizing the shape of the environment in which the behavior takes place. The environment, combined with the assumptions of perfect rationality, fully determines the behavior (p.

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496)."

Actual decision situations often vary from what is assumed necessary for rational decision-making. For example, naturalistic decision-making research (Klein, 2008) shows "When people need to make a decision they can quickly match the situation to the patterns they have learned. If they find a clear match, they can carry out the most typical course of action. In that way, people can successfully make extremely rapid decisions (p. 457)." Research also shows that in situations with higher time pressure, higher stakes, or increased ambiguities, experts may use intuitive decision-making processes rather than structured approaches. They may follow a recognition primed decision process that fits prior personal experiences and decide quickly without weighing or evaluating alternatives.

According to Klein (2016), "NDM studies found that experienced decision makers recognize patterns and don't compare options. They evaluate an option by imagining how it would play out." Klein described a Recognition Primed Decision (RPD) Model of Rapid Decision Making. In this model, a decision-maker is assumed to generate a possible course of action, compare it to the constraints imposed by the situation, and then select the first course of action that is not rejected

According to Liebowitz (2014), "In the age of Big Data and analytics, it is easy to overlook the importance of intuition for reaching well-grounded decisions. Yet the evidence for 'gut feel' is compelling. A recent research study at Tel Aviv University found that executives who relied on their intuition were 90 percent accurate in their decisions. A 2016 University of Cambridge study found that hedge fund traders who relied on their intuition outperformed those who did not use intuition."

The *Star Trek* TV series have a number of characters that practice or display logical decision-making. The character Commander Spock, portrayed by Leonard Nimoy, is the exemplar of an entire race of supra-logical people known as Vulcans. The android Commander Data portrayed by Brent Spiner is a human appearing, self-aware, computational AI being with an emotion chip who makes logical decisions. These two fictional characters help us understand the benefits and limitations of logical decision-making.

Logical decision-making is considered by many as the opposite of emotional decision-making. The Upfront Analytics Team (2015) argues however "To be frank, without emotion, humans would be fairly incapable of making any decision; let alone a logical one."

Logical decision-making can be absorbing, complex, interesting and subject to error and fallacy.

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One may argue that logical decision-making is an unattainable ideal that does not describe human decision-making behavior, but logical decision-making seems worth striving for even if in the end we must satisfice and accept an alternative that is "good enough". Logical decision-making is evidence and data-based decision-making.

Managers should follow six steps to help make evidence-based, logical decisions. First, ask an appropriate, answerable question. Second, acquire relevant evidence. Third, evaluate the trustworthiness, validity, impact, and applicability of the evidence. Fourth, aggregate and understand the data and evidence. Fifth, apply and use the evidence to make a logical decision. Sixth and finally, evaluate the consequences and outcome(s) from the decision.

Perhaps we should strive to be more like Commander Data or Commander Spock. As Spock says: "Logic is the beginning of wisdom, ... not the end."

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