HEALOGIX

Adaptive Toolbox™
FROM HEALOGIX

WHITE PAPER

Changing the Habits of the People You Target

UNDERSTANDING DECISIONS IS CENTRAL TO MARKETING

Large economic and political forces are re-shaping the entire healthcare industry. This wave of change is still in its early stages and will affect and constrain the opportunities for the marketing of biopharmaceuticals, medical devices, and diagnostics* for years to come. Despite these changes, two requisites will remain important – in all likelihood becoming *even more important* – to marketers:

- Understanding how providers and patients make healthcare decisions
- Knowing how to influence those decisions.

HOW DO PEOPLE MAKE DECISIONS?

Classical Theory

The concept of rationality and rational choice dates back to Aristotle, who taught that the human is a "rational animal," distinguished from all other animals by the ability to think, speak, and determine the difference between what's right and wrong, beneficial and harmful. Enlightenment philosophers developed the idea further. Adam Smith, considered the father of modern economics, further concluded that the sum of self-interested, individual decisions across the society constitutes the "invisible hand" that guides the economy toward maximum collective wealth.

John Stuart Mill, building on the work of Smith, Hume, Locke, and Bentham, was the first to use the term "home economicus" or "economic human," the concept that humans are rational and self-interested decision-makers. As the social sciences ascended, the economic human concept of rationality was further developed into theory, most notably in the "rational choice theory" or "rational action theory," which has been a fundamental tenet in economics, political science, and sociology ever since.

In rational choice theory, "rationality" means that a person balances costs against benefits to arrive at an action or choice that maximizes personal advantage. In the nineteenth and twentieth centuries, probability theory added a layer of complexity and richness to rational choice theory without fundamentally challenging the basic utility optimization idea at its foundation. The application of probability theory produced a Nobel Prize in Economics in 2000 for Daniel L. McFadden for his development of theory and methods for analyzing discrete choice.

** For the sake of brevity, we will use the term "healthcare" or "healthcare product(s)" in the remainder of this white paper when referring generally to the marketing of biopharmaceuticals, medical devices, and diagnostics (equipment or tests/services)*

How does this relate to market research?

For more than 30 years the gold standard for predicting adoption and assessing trade-off preferences in decision making rests on rational choice theory and assumes that the cognitive process is rational and deliberative.

Specifically, these methodologies assume a compensatory cognitive process in which features of competing alternatives are traded off to determine which alternative is best. A decision is made when the alternatives have been thoroughly considered, and the one optimizing utility for the decision maker has been selected.

The Emergence of Behavioral Economics

In the 1950s Herbert Simon published a series of articles, most notably "A Behavioral Model of Rational Choice", in which he challenged the primacy of rational choice theory. Simon believed that rationality is "bounded" by three crucial barriers:

1) Decision makers cannot gain access to all of the relevant information
2) They cannot process this much information effectively, even if it were available
3) They cannot possibly comprehend all the consequences of many possible decisions.

Simon, who won the 1978 Nobel in Economics, proposed that instead of maximizing benefits and minimizing costs, people "satisfice" (combining "satisfy" and "suffice"). That is, they settle on a decision option that is "good enough." Simon suggested that people employ rules of thumb – decision shortcuts – to help them satisfice.

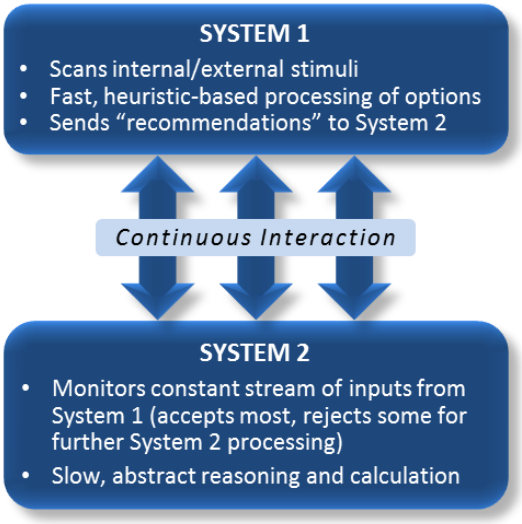
In the early 1970s, psychologists Daniel Kahneman and Amos Tversky, building on Simon's ideas, began publishing a series of papers on how biases and heuristics lead to systematic errors in decisions. Perhaps the most famous theory developed by Kahneman and Tversky is Prospect Theory, published in 1979, which presented a dramatic challenge to classical rational-choice utility theory. Prospect theory posits that, instead of maximizing total utility, people assess potential gains and losses and use heuristics to make decisions. Since these seminal days, Richard Thaler, Paul Slovic, Thomas Gilovich, and many others have contributed to this growing body of empirically based work that came to be known as "behavioral economics" (BE).

Reconciling Rational and Heuristic-Based Decision Making

In time the empirical findings from a variety of social science disciplines gave rise to new theories of cognition, particularly multi-system theories. Kahneman, who won the 2002 Nobel in Economics for his work on prospect theory, describes human cognition as having "two systems," which he describes simply as "System 1" and "System 2."

The diagram depicts in very simplified terms how Systems 1 and 2 work together to process internal needs/drives and external stimuli to make decisions. Kahneman asserts that the empirical evidence is now overwhelming for the idea that many decisions – a majority, he believes – are "recommended" by System 1 using heuristics that have been developed and selected by experience for each kind of decision situation.

System 2 reserves for itself for those decisions that require our more deliberate, rational capacity, which require substantial cognitive effort and time. System 2's analytic capacity is only engaged when absolutely necessary.



There is growing consensus among both behavioral economists and social psychologists that fast, heuristic-based processing accounts for much of human decision making. Various terms have been used to describe this non-compensatory processing, including "habit-based decisions," "fast and frugal decisions," and others, but they all refer to decisions that are:

- Made quickly
- Non-compensatory
- Based on heuristics (in which repeated use of the same heuristics may be called "habits")
- Because they are based on heuristics, these decisions involve bias, as some information is ignored.

The Opportunity for Market Research

Many important questions for healthcare market research can be informed by studying the heuristics used in healthcare decision making. For example:

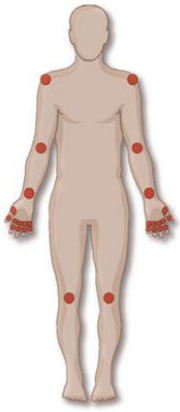
- In what kinds of situations are healthcare decision makers using heuristics (System 1), and when are they slowing down to use a deliberative, compensatory process (System 2)?
- When they use heuristics, which ones do they use, and how does it affect their decisions?
- Which heuristics are providers and patients using, and in what decision situations?
- Can we employ heuristics to get better results or a bigger bang for our market research buck?
- When we do research ignoring heuristics, are we introducing error into our results?
- How does the use of heuristics by those in our targeted populations affect our ability to influence them?

We believe that the breadth of theory and evidence from behavioral economics will ultimately pervade market research: both its aims and methods. Eventually all of the questions above will have solid answers backed by substantial practical application of the theories. For now, we are at the beginning of what will be an extended journey, during which a series of specific market research applications of BE will be introduced, refined, and move into the mainstream.

If heuristics account for a substantial portion of the decisions people make, then market research should spend at least as much time studying them as it does studying deliberative, compensatory decision making.

Case Study: Rheumatoid Arthritis Clinical Decisions

Situation



A Healogix client with a new rheumatoid arthritis treatment in development needed an in-depth understanding of clinical decisions and how they are made. The increasingly crowded market for disease-modifying antirheumatic drugs (DMARDs) presents strong challenges to new products seeking to break into providers' treatment algorithms.

The client felt that complex, compensatory decisions could not prevail in many cases: there were too many treatment options and more time pressure than ever in the clinical setting. They had done some "emotional drivers" research but found it wanting in insight and actionability and were open to anything new that would help them understand the decision making process. Healogix proposed primary research designed to peel the onion of clinical decision making beyond the fully rational (in the sense of rational choice theory).

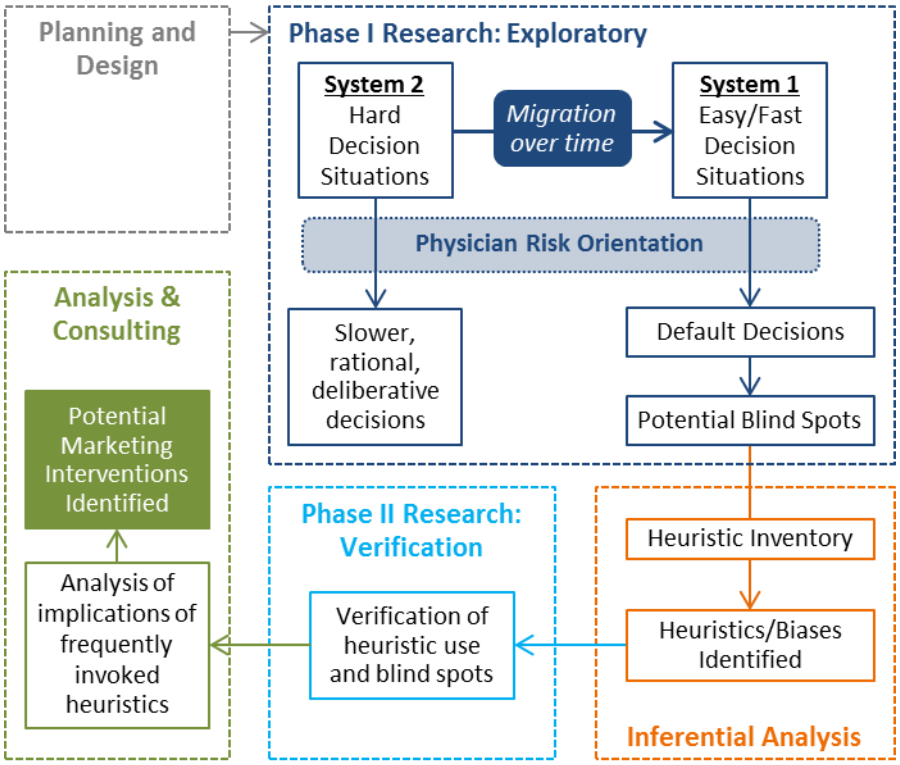
Methodology

After some discussion of methodological pros and cons in the context of client budget constraints, we decided on one-on-one interviews with rheumatologists in two phases of data collection. Typically a project with these objectives would require 2-4 dozen interviews with clinicians, depending on the number of specialties involved and other factors. A project of this type typically requires 6-8 weeks. The major phases of work in the project are as follows, with the numbered steps corresponding to the numbered boxes in the diagram that follows:

1. Phase I interviews: describe the relevant range of clinical situations and the associated hard and easy decisions and associated feelings about risk
2. Interim Analysis: identify the heuristics most likely to be in play in these clinical decisions
3. Phase II interviews: verify the heuristics used in the most relevant clinical decisions and their potential downsides [deleted period at the end here]
4. Post-field Analysis and Consulting: identify marketing interventions to influence heuristic-driven decisions.

The Interviews and the Analysis

The schematic illustrates how Adaptive Toolbox "peels the onion." In the phase I research we asked participating rheumatologists to distinguish and describe clinical decisions that are easy (made quickly) from those that are more difficult, requiring more time and deliberation. To cover the range of client-relevant decision scenarios, we circled back to scenarios not mentioned unaided and asked specifically about each one. Aspects of risk perception and attitudes were woven into conversations about what makes these clinical decisions easy or hard. For every scenario, we identified the provider's "go-to" treatment and probed to uncover their potential downsides.



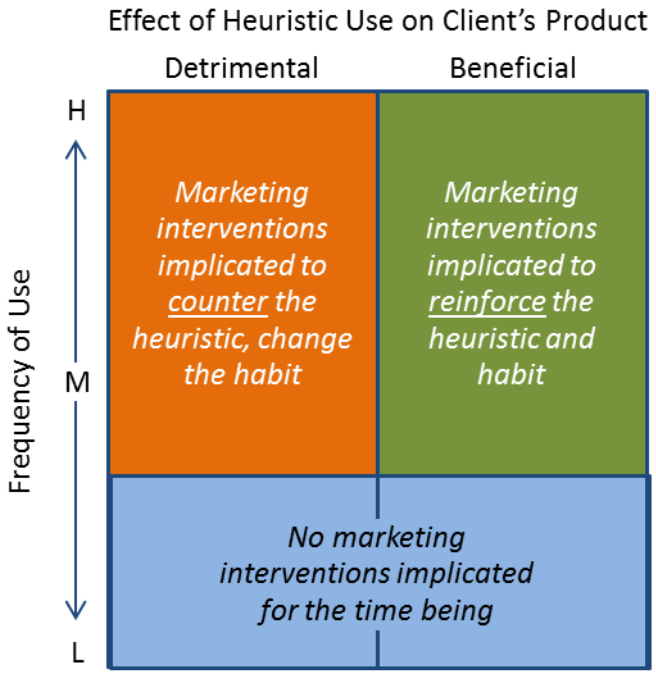
During and after the phase I fieldwork, we used inferential analysis to hypothesize which heuristics were being invoked in the "easy" provider decisions. This process was facilitated by both our category knowledge and heuristic inventory.

In the phase II interviews we verified the hypothesized heuristics with a different sample of rheumatologists.

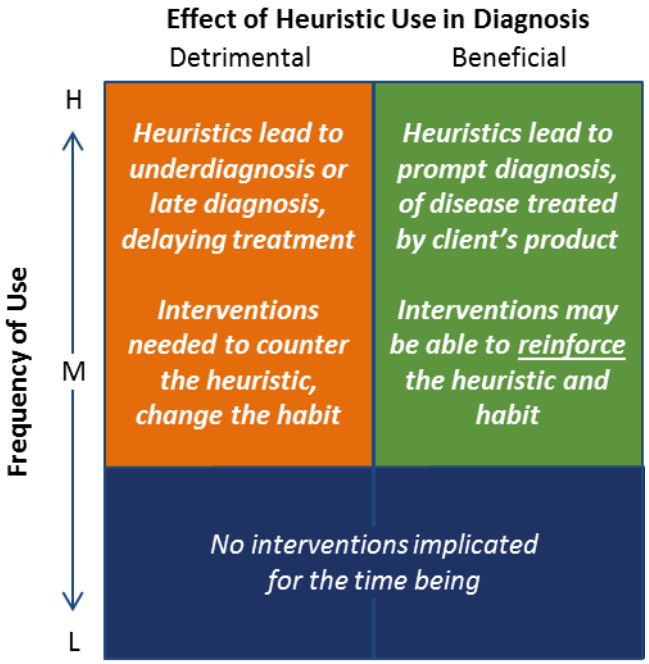
It is important to note that the word "heuristic" was not used in the interviews. Instead, we used representative "fleeting thought proxies," (FTP) plausibly associated with each heuristic, to enable us to identify whether the heuristic was invoked. Having identified a given heuristic as sometimes used, the rheumatologists were able to state the clinical situation triggers that might invoke it, how frequently this occurred, and the potential downsides of acting on the heuristic. In discussing the potential downsides, we identified information that had been ignored or skimmed over in this kind of fast and frugal decision process.

Results and Client Marketing Interventions

From a strategy perspective, heuristics can be either detrimental or beneficial to a given product. Prospect theory informs us that a physician's "go-to" treatment for a given clinical scenario is "protected" by heuristics associated with minimizing risk and potential "losses" (downsides). But there are other heuristics at work, some of which favor the use of products to which the physician had a recent exposure and/or were heavily sampled (i.e., the availability heuristic). There are also heuristics, typically employed more frequently by individuals who are generally less risk averse, that bias them to try new things. The general strategic alternatives are illustrated below.



Similarly, heuristics in the diagnostic process can be either detrimental or beneficial to a client's product, as illustrated below.



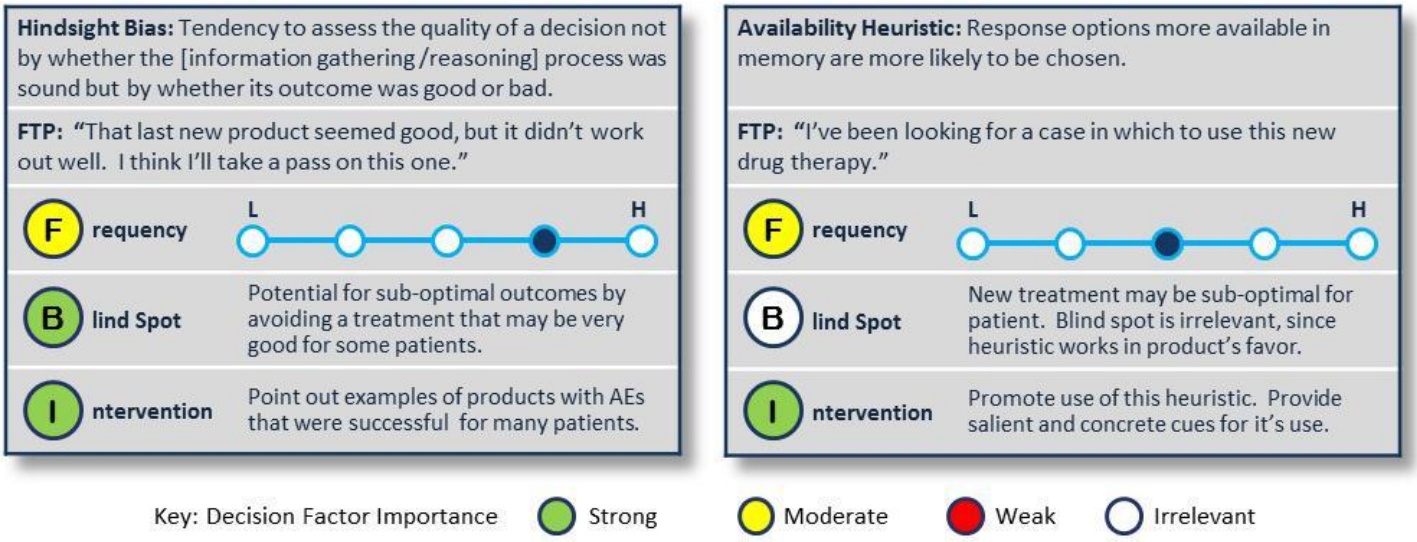
Our interim analysis hypothesized 12 heuristics that might be utilized in the RA clinical decision situations under study. The phase II verification research suggested that 8 of these were invoked with moderate or higher frequency, suggesting that some marketing intervention might be warranted. Of these eight, seven were detrimental to the client's product, and one was beneficial.

In the post-research analysis, we labeled as "blind spots" the combinations of potential downside and overlooked information that had been identified by the rheumatologists. To facilitate rapid learning and communication within the client's organization, we created simple "FBI" graphics for each of the eight relevant heuristics, showing its Frequency, its Blind Spot, and the best Intervention.

Communicating Results: "FBI" Charts

For each heuristic that warranted possible marketing intervention we prepared an "FBI" to help communicate the issue and opportunity clearly within the client organization. The example FBI graphics below represent two of the eight that represented opportunities for intervention.

Hindsight Bias was found to occur with moderate frequency and would be detrimental to the chances of gaining post-launch traction for the client's product. The implication was for marketing interventions designed to counter the effect of this heuristic. The **Availability Heuristic** validated as moderate frequency. This decision shortcut potentially benefits the client's product with the proper supporting marketing interventions, which we recommended and the client subsequently developed and implemented.



Conclusions

Fast, heuristic-based, non-compensatory decisions are a significant aspect of clinician and patient decision making. These "fast and frugal" decisions have definite upsides that explain their prevalence in human behavior:

- They make highly efficient use of time and cognitive resources
- They deliver acceptable outcomes in a majority of decisions.

Heuristics literally allow us to get through the hundreds of decisions we make in a typical day, usually without even remembering them. Nevertheless, heuristic-based, "System 1" decisions also have inherent downsides: potential sub-optimal outcomes from overlooked information or from ignored probabilities of downstream consequences. When decision makers sense that a given decision is difficult or that there is a significant probability of a bad outcome, they reject System 1's heuristic-based recommendation and switch on the more deliberative, rational machinery.

The "blind spots" inherent in heuristic-based, Sy*st*em 1 decisions offer leverage points to the marketer. Once specific decision habits have been identified and described, healthcare product marketers can develop and execute specific tactics to *change* the decision processes (often by triggering the engagement of System 2) that work against their brand and to reinforce habits that help the brand.

Purpose-designed market research can identify the biases and blind spots most at play in a given decision context. Then specific tactics can be developed to disrupt or reinforce current habits in the brand's favor.

HEALOGIX

Healogix is a global, research-based strategic consultancy specializing in the healthcare industry. Built on a business model leveraging deep, diverse senior executive experience, Healogix delivers comprehensive insights and recommendations to clients that go beyond simply reporting results.

We execute both qualitative and quantitative engagements in highly specialized therapeutic areas, pulling insights together into a cohesive story. Each project is staffed with high-level research and industry professionals, utilizing the optimal methodology to derive the answers needed within budget.

We use "Adaptive Toolbox," a phrase first used to describe the large set of heuristics that decision-makers employ situationally, for the range of activities we are engaged in to study heuristics-based decision-making. Adaptive Toolbox – IQD™ is our methodology designed to identify, understand, and help influence quick, heuristic-based decisions.

We have a proven track record of delivering mission-critical results and recommendations that help our clients develop strategies and achieve business objectives.

For further information about Healogix or the Adaptive Toolbox, please contact:

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