May **2018**

Ipsos

Cognitive Battlefield

Part I: A framework for assessing optimal engagement strategies

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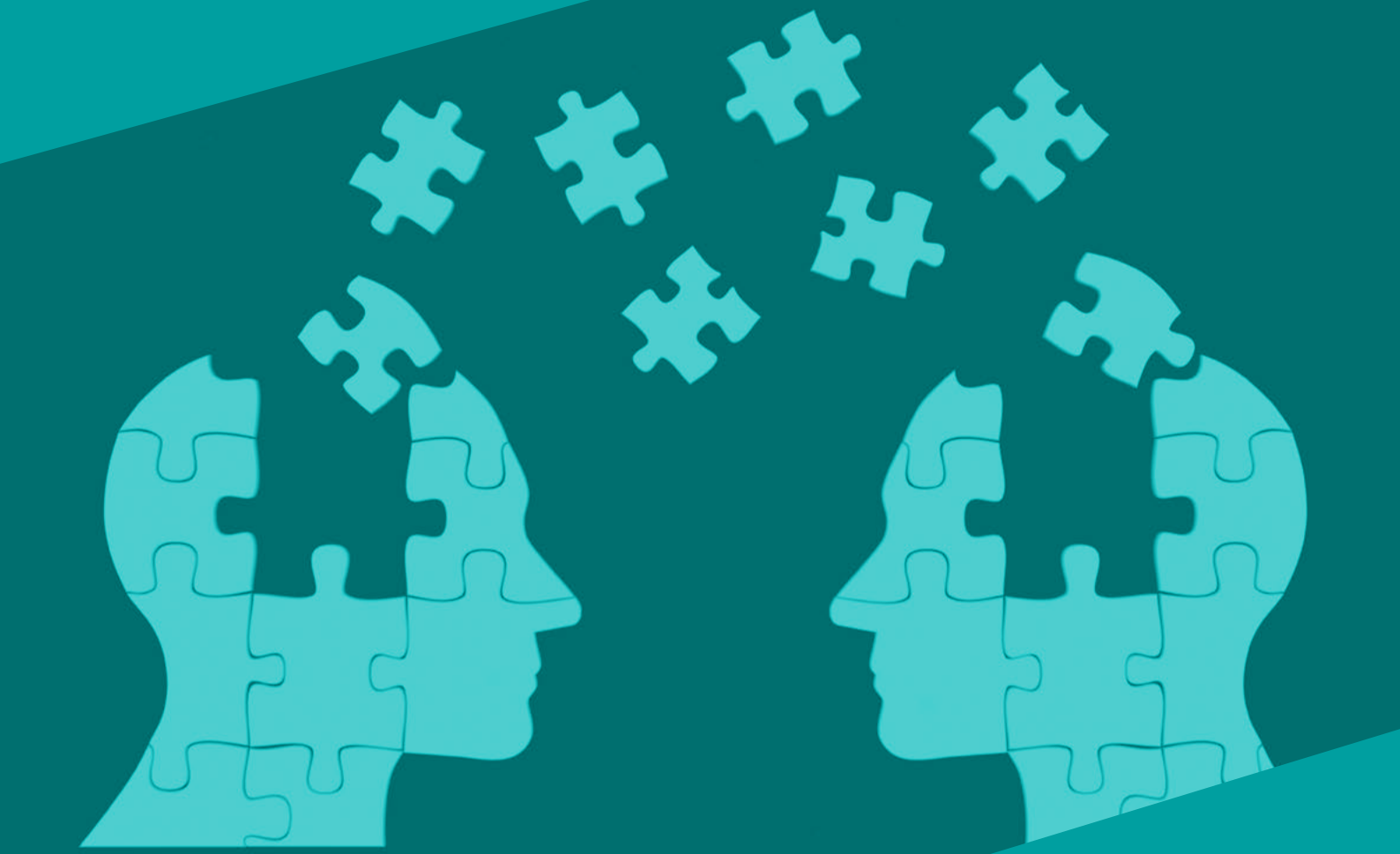


GAME CHANGERS

The amount and pace of verbal and written information that people exchange on a daily basis has increased dramatically over the past decade. A major question of our time is how people's attitudes, behaviors, and decision-making are influenced by the plethora of information and communication they are exposed to. The extent and nature of this influence depends on multiple factors, including the importance that people place on the information and the way the information is communicated.

Our three-part series provides a practical method for assessing the impact of information on people's decision-making:

- Part I presents a framework for understanding and assessing the decision-making process based on the multi-attribute model
- Part II will cover the mechanisms of information processing and how it intersects with the decision-making framework
- Part III will illustrate the role of social media in shaping people's perception and decision-making

While we do not specifically address the role of technology in Part I, technology is increasingly part of the information landscape and has implications for the speed, quantity, and quality of the information we consume. For instance, we evaluate information based on the validity of the source. When information is consumed through social media channels, the true source of the information is often obscured. This will be addressed in more detail in Part II and III of the series.

Overview

The multi-attribute model is an established framework for understanding how people make evaluations and decisions. The model asks, "what are people's priorities?" and, "how do actors or objects align with these priorities?" Understanding priorities is essential as they drive decision-making and behavior. Moreover, priorities, especially the top priorities, remain relatively stable over time. While the multi-attribute model is not new, it is invaluable for determining:

- Optimal communication strategies
- Whether actors are behaving in optimal ways (or not)
- How possible scenarios may unfold

Theoretical basis

The multi-attribute model has its roots in marketing, economics, and psychology, and has typically been used to determine people's attitudes and behaviors.[1] In the marketing context, it has been used to determine whether people will buy a product (e.g., Coca-Cola).[2] In the economics context, it has been used to determine the behavior of groups (e.g., social choice processes).[3] In the psychology context, it has been used to predict people's engagement in health-related actions (e.g., smoking cessation).[4]

The idea is that when people are making decisions, they don't just judge each choice in and of itself. Instead, people consider multiple factors, or attributes, when developing an overall opinion or decision.[5] For example, when choosing a political candidate, the attributes under consideration may include key sociopolitical issues, such as the economy and family values. A person's ultimate decision depends on how important the different attributes are to them and how the choices stack up against each other on these attributes. Understanding this decision-making process is essential for determining the most optimal engagement strategies.

The multi-attribute model consists of three components:

1. **Attributes:** When people think about an actor, a number of different attributes likely come to mind. Attributes are the characteristics or features associated with an object or actor, including all possible variations across different contexts and situations. An object can be anything from a product, person or country to a political campaign. The attributes that people think about reflect their perceptions of the object, not necessarily facts about the object.
2. **Rankings:** Not every attribute is created equal. People prioritize or place different levels of importance on different attributes. For example, a person may believe that it is much more important to fight poverty than to avoid corruption. The importance, or ranking, that people place on an attribute is represented by (a) in the equation.
3. **Ratings:** Ratings reflect the extent to which an object embodies a particular attribute. The rating of the object on each attribute is represented by (b) in the equation.

$$\sum_{i=1}^{n} a_i b_i$$

An individual's preferences can be represented by the weighted aggregation of rankings and ratings, as shown in the equation above. The rankings (a) act as a "weight" that modifies the ratings (b) based on the level of priority placed on each attribute. This means that high ranking attributes have much greater influence than low ranking attributes. The summation sign captures the aggregation across attributes (n) for a specific object. The higher the score, the greater the preference for that object. More complex weighting schemes can also be applied, as is done with multiple criteria decision analysis,[6] however, this goes beyond the scope of this paper. Scores can be averaged across individuals to create overall preference scores for a population.

The importance of rankings

One of the biggest strengths of the model is identifying those attributes that are more or less impactful. While various types of procedures have been developed for scoring, weighting, and aggregation,[6] the ranking or prioritization of attributes remains the most important aspect of the model. People largely act, or intend to act, according to their priorities. Moreover, priorities tend to be stable in the short-term, especially for those things with which people have familiarity and experience.[7,8] If priorities change, they often do so gradually over time.[9] In an *Ipsos Global Advisor* survey asking people to rank the most important issue facing their country, there was at least a .95 correlation rate between the level of importance month to month for the top-rated issue. This high correlation rate was observed for more than 25 different countries surveyed. The finding demonstrates that the rankings, especially the top rankings, remain relatively stable over time.

Given the static nature of the rankings, people's priorities once known can inform: (1) optimal communication strategies, (2) whether actors are behaving in optimal ways (or not), and (3) how possible scenarios may unfold. In order to be most effective, messaging and communications should be built around the top priorities, and any peripheral topics should be linked as much as possible to those same priorities. If actors do not embody the top priorities, then they are not behaving in the most optimal way. When comparing actors, whichever actor embodies the top priorities the most will be the most preferred.

Practical application

The multi-attribute model does not posit that people painstakingly list out priorities and consciously calculate scores for objects. Instead, it serves as a mental model to approximate a decision-making process that may occur largely outside of someone's awareness. A large body of research supports the model's utility in estimating people's actions and decision-making. While deviations and exceptions do exist, the model is especially well-suited for estimating purposeful choices and general tendencies of groups of people.[10]

The model has been widely studied and applied to a multitude of topics across psychology, marketing, and economics. In psychology, variations of the model have been applied to exercise,[11] conservation,[12] food choices,[13] condom use,[14,15] smoking,[16] alcohol consumption,[17] and occupational choice,[18] among many others. In marketing, it has been applied to financial investments,[19] customer referrals,[20] consumer buying behaviors of a range of products.[21] In economics, the model has been used to determine market forces, committee decisions, and resource allocation.[22] It has also been incorporated into decision support applications, mathematical programming, and computational algorithms. [23,24,25]

The model captures people's subjective perceptions of their situation and their environment. Research has found that people make most decisions based on their perceptions, which may be biased or flawed.[26,27] This is in contrast to the rational-choice models that assume people always make prudent or logical decisions. Because the multi-attribute model is based on people's subjective rankings and ratings, it accounts for the influence of context.[28] For instance, countries' unemployment rates are highly correlated with people's rankings of economic issues. People who ranked economic issues as a high priority tend to live in countries with high unemployment rates.[29] This makes the model particularly applicable for real-world sociopolitical and socioeconomic situations in which public perceptions play an important role.

What it is not

It's important to be clear about what the multi-attribute model is and is not.

First, this model does not aim to explain how people choose to rank or rate attributes. What a person decides to prioritize may be influenced by any number of things, including past experiences, situational context, environmental factors, and personal characteristics. This model does not explain how these things influence priorities.

Second, the multi-attribute model is not an information processing model.[30] It does not explain how people take in, organize, store, remember, or retrieve information. It also doesn't describe the role of biases, heuristics, or emotions. Information processing models provide a micro level view of decision-making, whereas the multi-attribute model provides a macro-level view of decision-making after the information has been processed and heuristics applied.

Third, this model does not explain how to change people's decision-making. While the results of the model can inform strategies to influence decision-making, the model itself does not include persuasion, social influence, or message framing.

Applying the model to electoral outcomes: Case of Brazilian President Lula

To showcase how the multi-attribute model can be used, we present Ipsos polling data on Brazil's former president, Luiz Inácio Lula da Silva. Lula served as president of Brazil from 2003 to 2011. He was re-elected in 2006 despite the Mensalão vote-buying scandal that broke at the end of his first term. Ipsos conducted national surveys in 2005 and 2006 with Brazilians where they ranked the importance of 15 policy issues (i.e., attributes) and then rated Lula (i.e., the actor) on how well he was doing on each issue. The polling data is analyzed in the context of the multi-attribute model and demonstrates the shift in public perception of Lula before and after the Mensalão scandal. The model also provides a guide for the type of strategic communications that would repair Lula's public image.

a. Rankings

Let's start first with the rankings, which are the most important part of the multi-attribute model. In 2005, before the Mensalão scandal, the policy issue of "fighting corruption" was considered a relatively low priority, ranking 8th out of 15 policy issues. However, after the scandal in 2006, "fighting corruption" jumped up to the third most important priority. This showcases how public priorities can shift in predictable ways according to external events.

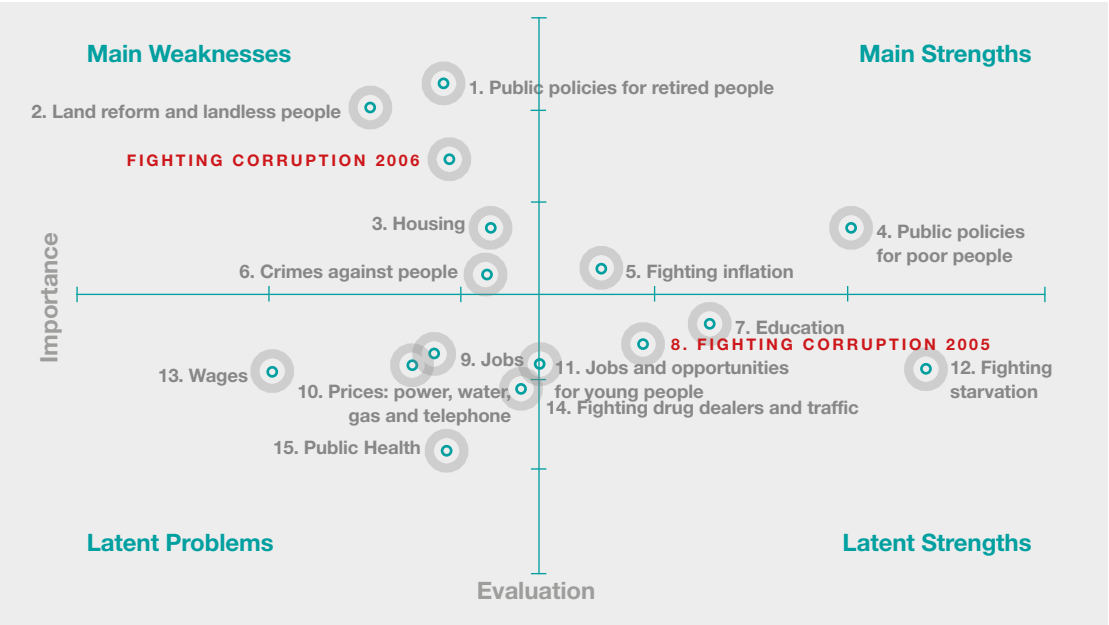
b. Ratings

Next, we can use the ratings to conduct an analysis of Lula's standing. In 2005, the public perceived him as someone who was strong on "fighting corruption" – this was the 4th highest rating out of all the policy issues. However, by 2006, this strength shifted to a weakness with the public rating him low on "fighting corruption." This illustrates how the Mensalão scandal changed the public's perception of Lula as someone who fought corruption to someone who engaged in corruption.

c. Strategic quadrant analysis

When we plot ratings against rankings, we get a more in-depth assessment of the impact of the scandal. "Fighting corruption" shifted from a latent strength of Lula's in 2005 to a main weakness in 2006. Latent strengths are issues with high ratings and low rankings. In other words, these issues are seen as strengths of the actor (e.g., Lula), but low priorities to the public. Generally, low rankings do not have much influence on an actor's public image, even if it's a strength of the actor, since the public does not consider it to be important. However, the Mensalão scandal changed both the rating and ranking of "fighting corruption" so that it became one of Lula's main weaknesses. The ranking increased, making it a higher public priority, and Lula's rating for it decreased making it a salient weakness.

Strategic quadrant analysis: Lula's resilient reputation profile



Despite this shift, Lula still won re-election in 2006. By understanding the public's priorities and his perceived strengths, Lula was able to reframe his campaign strategy and messaging. He re-aligned his campaign to focus on the policy issues that were both top priorities to the public (i.e., high rankings) and his strengths (i.e., high ratings). The rankings are particularly important for framing communications as they have the greatest impact on public image. As such, all messaging, including peripheral issues, should be tied as much as possible to these high priorities. According to the quadrant analysis, Lula's main strengths (i.e., high rankings and high ratings) were public policies for the poor and fighting inflation. By focusing his messaging on these policies, he distanced himself from the Mensalão scandal and enhanced his public image. This demonstrates how the multi-attribute model can serve as a guide for messaging and strategic communications.

Of course, Lula's political opponents may use the same strategy to bolster their own campaign messaging. The context, including consideration of alternative actors (e.g., other political candidates), influences people's course of action. Therefore, whether Brazilians ultimately vote for Lula depends not only on Lula's overall score (i.e., the combination of rankings and ratings), but also on the overall scores of his opponents. The multi-attribute model offers a way to compare the favorability of two or more actors.

Conclusion

The framework of the multi-attribute model can be applied to any number of topics. Traditionally, polls and surveys have been used to rank order priorities and rate objects, but there are now many other types of data that can be used, such as social media data. The results of the model can inform future strategy, whether it would be enhancing the image of a political candidate, making a product more appealing, or encouraging health behaviors. The rankings can inform the engagement strategy as the level of importance indicates what will engage people and what won't. The ratings provide an assessment of the object by indicating which object is effective or acting in an optimal way, and which one is not.

The next part of our Cognitive Battlefield series will focus on strategies to influence decision-making, including message framing. It will dive deeper into how people process information and, in turn, how such processing ultimately influences our attitudes and behaviors.

References

1. Lancaster, K.J. (1966). A new approach to consumer theory. The Journal of Political Economy, 74(2), 132-157.

2. Wilkie, W.L. & Pessemier, E.A. (1973). Issues in marketing's use of multi-attribute attitude models. Journal of Marketing Research, 10(4), 428-441.

3. Plott, C.R. (1996). Rational individual behavior in markets and social choice processes: The discovered preference hypothesis. In K.J. Arrow, E. Colombatto, M. Perlman, & C. Schmidt (Eds.), The rational foundations of economic behavior (pp. 225-250). New York: St. Martin's.

4. Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention and behavior: An introduction to theory and research. Reading, MA: Addison-Wesley.

5. Nelson, P. (1999). Multiattribute utility models. In P. Earl, & S. Kemp (Eds.) The elgar companion to consumer research and economic psychology (pp. 392-400). Cheltenham, UK: Edward Elgar.

6. Belton, V., & Stewart, T. J. (2002). Multiple criteria decision analysis: An integrated approach. Boston: Kluwer.

7. Plott, C.R. (1996). Rational individual behavior in markets and social choice processes: The discovered preference hypothesis. In K.J. Arrow, E. Colombatto, M. Perlman, & C. Schmidt (Eds.), The rational foundations of economic behavior (pp. 225-250). New York: St. Martin's.

8. Bettman, J.R., Luce, M.F., & Payne, J.W. (1998). Constructive consumer choice processes. Journal of Consumer Research, 25, 187-217.

9. Jennings, W., & Wlezien, C. (2011). Distinguishing between most important problems and issues? Public Opinion Quarterly, 75, 545-555.

10. Armitage, C.J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. British Journal of Social Psychology, 40, 471-499.

11. Hagger, M.S., Chatzisarantis, N.L.D., & Biddle, S.J.H. (2002). A meta-analytic review of the theories of reasoned action and planned behavior in physical activity: Predictive validity and the contribution of additional variables. Exercise Psychology, 24, 3-32.

12. Klockner, C.A. (2013). A comprehensive model of the psychology of environmental behaviour: A meta-analysis. Global Environmental Change, 23, 1028-1038.

13. Arvola, A., Vassallo, M., Dean, M., Lampila, P., Saba, A., et al. (2008). Predicting intentions to purchase organic food: The role of affective and moral attitudes in the theory of planned behaviour. Appetite, 50, 443-454.

14. Sheeran, P., & Orbell, S. (1998). Do intentions predict condom use? Meta-analysis and examination of six moderator variables. British Journal of Social Psychology, 37, 231–250.

15. Albarracín, D., Johnson, B. T., Fishbein, M., & Muellerleile, P. A. (2001). Theories of reasoned action and planned behavior as models of condom use: A meta-analysis. Psychological Bulletin, 127(1), 142-161.

16. Topa, G., & Moriano, J.A. (2010). Theory of planned behavior and smoking: meta-analysis and SEM model. Substance Abuse Rehabilitation, 1, 23-33.

17. Norman, P. (2011). The theory of planned behavior and binge drinking among undergraduate students: Assessing the impact of habit strength. Addictive Behaviors, 36, 502-507.

18. Kolvereid, L. (1996). Prediction of employment status choice intentions. Entrepreneurship Theory and Practice, 21, 47–57.

19. Pellinen, A., Tormakangas, K., Uusitalo, O., & Munnukka, J. (2015). Beliefs affecting additional investment intentions of mutual fund clients. Journal of Financial Services Marketing, 20, 62-73.

20. Park, K.B., & Park, M.J. (2017). Does the interactive quality of premium asset management service promote customers' referral intentions? The moderating effect of customer's asset size. International Journal of Bank Marketing, 35, 596-615.

21. Smith, J., Terry, D., Manstead, A., Louis, W., Kotterman, D., & Wolfs, J. (2008). The attitude-behavior relationship in consumer conduct: The role of norms, past behavior, and self-identity. The Journal of Social Psychology, 148(3), 311-33.

22. Plott, C.R. (1996). Rational individual behavior in markets and social choice processes: The discovered preference hypothesis. In K.J. Arrow, E. Colombatto, M. Perlman, & C. Schmidt (Eds.), The rational foundations of economic behavior (pp. 225-250). New York: St. Martin's.

23. Wallenius, J., Dyer, J.S., Fishburn, P.C., Steuer, R.E., Zionts, S., & Deb, K. (2008). Multiple criteria decision making, multiattribute utility theory: Recent accomplishments and what lies ahead. Management Science, 54, 1336-1349.

24. Butler, J. C., Dyer, J.S., & Jia, J. (2006). Using attributes to predict objectives in preference models. Decision Analysis, 3, 100-116.

25. Kasanen, E., Wallenius, H., Wallenius, J., & Zionts, S. (2000). A study of high-level managerial decision processes, with implications for MCDM research. Eur. J. Oper. Res., 120, 496-510.

26. Schley, D. R., & Peters, E. (2014). Assessing 'economic value': Symbolic number mapping predicts risky and riskless valuations. Psychological Science, 25, 753–761.

27. Frydman, C., & Nave, G. (2017). Extrapolative beliefs in perceptual and economic decisions: Evidence of a common mechanism. Management Science, 63, 2340 –2352.

28. Turner, B. M., Schley, D. R., Muller, C., & Tsetsos, K. (in press). Competing Theories of Multialternative, Multiattribute Preferential Choice. Psychological Review.

29. Jennings, W., & Wlezien, C. (2011). Distinguishing between most important problems and issues? Public Opinion Quarterly, 75, 545-555.

30. Taber, C.S. (2003). Information Processing and Public Opinion. In L. Huddy, D.O. Sears, & J.S. Levy (Eds.), The Oxford Handbook of Political Psychology (pp.433-476). Oxford, England: Oxford University Press.

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May **2018**

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