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How to apply behavioral science & AI to **11 essential** pharma market research projects

Step-by-step instructions to level up pharma market research with behavioral science and artificial intelligence
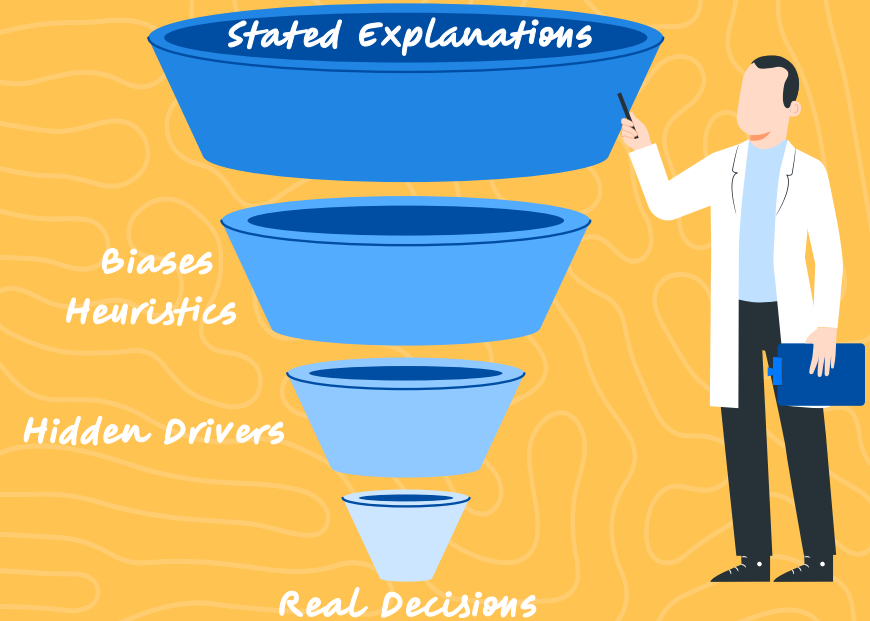
About behavioral science in market research

Market research teams working at pharmaceutical companies are always looking for best practices in innovative techniques that can elevate market research insights.

In the past 10 years, behavioral science has emerged as a powerful tool for market researchers to utilize in almost all of their projects. Behavioral science is a 3-time Nobel Prize-winning field of research on how humans make decisions.

It is estimated that more than 95% of the decisions humans make are driven by quick mental shortcuts that they accumulate through experiences. Even when we have ample time to think through our decisions, we still use these mental shortcuts (also known as decision heuristics) to make most of our decisions.

Stated Explanations

Biases Heuristics

Hidden Drivers

Real Decisions

Physicians and patients also make decisions using heuristics and the field of behavioral science helps us understand how they're making decisions that are not apparent or obvious to them. In qualitative and quantitative market research, historically we have assumed that the explanations that customers provide for their behaviors and their decision-making are reliable and accurate.

Behavioral Science has revealed that what people say is not what they do and conventional market research is simply not sufficient to uncover the hidden and subconscious drivers of decision-making.

Behavioral science use cases in market research

Better research hypotheses

Behavioral Science can be used as an effective tool to develop hypotheses for market research. It can help predict customer behaviors in advance of interviews or surveys and can even be used to develop research questions and explore different ways to understand customer behavior.

Deeper qualitative insights

Behavioral Science offers an excellent approach to new interviewing techniques that can be used to uncover deeper insights on how HCPs and patients make treatment decisions. Using a variety of projective techniques, moderators can probe into specific decision heuristics and biases of the respondents and assess the impact of each bias on their treatment decisions.

Fine-tuned research stimuli

A lot of market research involves testing some marketing stimuli with customers and eliciting their feedback. Behavioral Science is an excellent tool to fine-tune stimuli for market research and develop the most effective concepts, claims, messages, vis aid slides, etc. that surgically address the decision heuristics and biases that customers use to interpret marketing information.
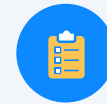
More robust quantitative insights

Behavioral Science opens up new avenues for quantitative surveys, including opportunities to create behavioral design of experiments, behavioral conjoint or maxdiff exercises, and even System 1-type survey questions designed to get subconscious responses. In addition to stated responses to survey questions, other behavioral measures like response time, number of clicks, gaze tracking, biometrics, etc can also be used to get more robust insights from quantitative research.

Machine learning/Artificial intelligence in market research

Machine learning and artificial intelligence systems are impacting the market research and insights industry just like they are impacting many others. So far, the use of machine learning and AI in market research can be organized into the following categories:

Predictive AI

ML algorithms that have been trained on past market research data sets to make predictions for similar research in the future. Such algorithms can even be used to replace some types of primary market research if the predictive accuracy is strong. In other cases, they can be used to create propensity models that can apply learnings from quant surveys to a larger real-world dataset, which is very helpful in making segmentation actionable.

Causal AI

Causal AI is a type of artificial intelligence designed to look for causal relationships between variables in a data set. Using causal AI on quant market research data sets can help identify the true drivers of physician preference for specific brands and even quantify the impact of each variable on preference/market share. In other words, Causal AI can be a more effective way of doing stated versus derived analysis in quantitative research.

Generative AI

Generative AI has become popular with the advent of large language models and has already transformed many market research workflows. From transcribing and summarizing qualitative interviews, generating survey questions, coding open-ends, creating synthetic respondents, generating cross-tabs, creating summary videos and presentation decks and much more.

Treatment landscape research

How to apply behavioral science

- Use the **System 1/2/3 model** in qualitative research to understand how HCPs use slow vs. fast thinking to make treatment decisions.

- Incorporate **choice architecture techniques** into a treatment simulation exercise in quantitative research to better understand hidden drivers of treatment decisions.

How to apply ML/Artificial intelligence

- **Agent-based simulations + Reinforcement learning models** can be used to simulate future treatment scenarios with the introduction of new classes/ therapies and anticipate shifts in treatment behaviors.

- Use **LLMs** to analyze medical literature text, create disease state summaries and conduct meta-analyses of past studies.

Buying process research

How to apply behavioral science

- Use qualitative research to probe into the **heuristics and biases** that drive the decisions of each stakeholder involved in the disease state.

- Use **behavioral experiments** in surveys to map current vs. desired behaviors of key stakeholders and map the behavior change challenge for each one.

How to apply ML/Artificial intelligence

- Use **Causal AI** on patient claims datasets to predict the triggers for events like changes in treatment, referral, additional testing, etc.

Market structure study

How to apply behavioral science

- Infuse **priming and immersive techniques** in interviewing HCPs during chart audit reviews.

- Explore cognitive constraints that influence HCP behaviors when reviewing charts for different patient types.

How to apply ML/Artificial intelligence

- Use **predictive AI models** on EHR/EMR data (if available) to detect predictive signals for how different patient types are treated.

Segmentation research

How to apply behavioral science

- Include survey questions/exercises in quant segmentation research to map **heuristics, biases, emotions, metaphors,** etc. to create a more complete profile for each segment.

- Explore **cognitive constraints** that influence HCP behaviors when reviewing charts for different patient types.

How to apply ML/Artificial intelligence

- Use **ML clustering algorithms** like Nearest Neighbor, DBScan, SAM, etc. to create and evaluate many segment solutions quickly from survey data.

- Use **ML look-alike algorithms** to project survey data to real-world datasets like HCP target lists, audience databases, etc.

TPP (Target Product Profile) testing
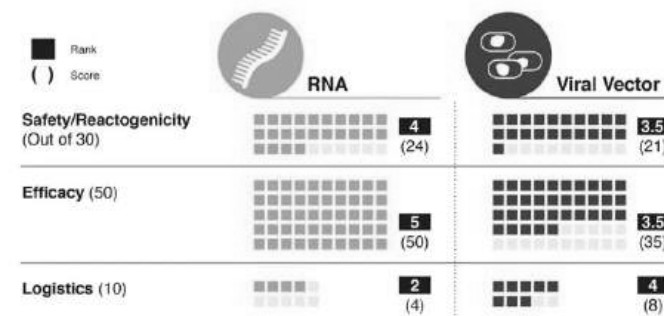
How to apply behavioral science

- Finetune the efficacy, safety, and MOA claims in the TPP using behavioral science so that language in the claims addresses the most important decision heuristics and biases that drive decision-making in the disease state.

- Explore **cognitive constraints** that influence HCP behaviors when review charts for different patient types.

How to apply ML/Artificial intelligence

- Use **ML clustering algorithms** like Nearest Neighbor, DBScan, SAM, etc. to create and evaluate many segment solutions quickly from survey data.

- Use **ML look alike algorithms** to project survey data to real-world datasets like HCP target lists, audience databases, etc.

Ranking according to Closeness to TPP criteria

		RNA	Viral Vector
■ Rank			
( ) Score			
Safety/Reactogenicity (Out of 30)		4 (24)	3.5 (21)
Efficacy (50)		5 (50)	3.5 (35)
Logistics (10)		2 (4)	4 (8)

Notes: Ranking scale 1-5: 1 = does not satisfy, 2 = weakly satisfies, 3 = adequately satisfies, 4 = strongly satisfies, 5 = satis Weighting factors, in parentheses) are 30, 50, 10, 10 for the respective categories.

Demand forecasting research

How to apply behavioral science

- Use the **science of super forecasting** to complement survey and analogue-modeling based forecasting approaches to get more real-world forecasts.

- Insert questions in forecasting surveys to estimate the **judgment errors** of each respondent and use respondent-level correction of overestimation in forecasting research.

How to apply ML/Artificial intelligence

- Apply ML algorithms and network theory to **simulate the diffusion of information** on new drugs through HCP sociometric networks and predict adoption based on network diffusion scenarios.

- Insert questions in forecasting surveys to estimate the **judgment errors** of each respondent and use respondent-level correction of overestimation in forecasting research.

Sales per year (% of peak sales)

Year of marketing
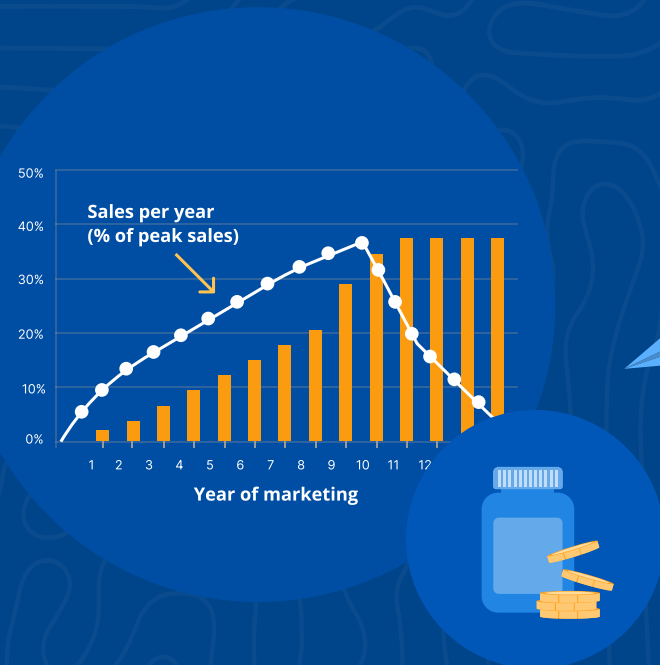
Drivers of choice while choosing a treatment for X disease	Overall (n=101)
Highly important choice drivers	
Increases XYZ level	133
Reduction in XYZ	126
Ease in administration	125
Important choice drivers	
Improved XYZ profile	111
Control of XYZ	110
Control of XYZ	109
Lowering XYZ count	107
XYZ avoidance	106

Choice drivers research

How to apply behavioral science

- Use **choice architecture principles** from behavioral science to brainstorm **human-level choice drivers** for testing (e.g. choosing close to 100% certainty on less important measures vs. some uncertainty on more important measures).

- Use a **behavioral conjoint design of experiments** in the survey to not only capture the hierarchy of individual choice driver statements, but also the **underlying choice architecture principle** behind each statement. (e.g. zero heartburn for X% of patients is based on decision heuristic called Certainty Illusion).

How to apply ML/Artificial intelligence

- Use a **genetic/evolutionary algorithm to analyze the conjoint utility scores** and simulate the impact of changing attributes vs. levels for each choice driver. This technique is especially helpful if a lot of choice driver statements were tested in the survey and the utility scores are close for many statements.
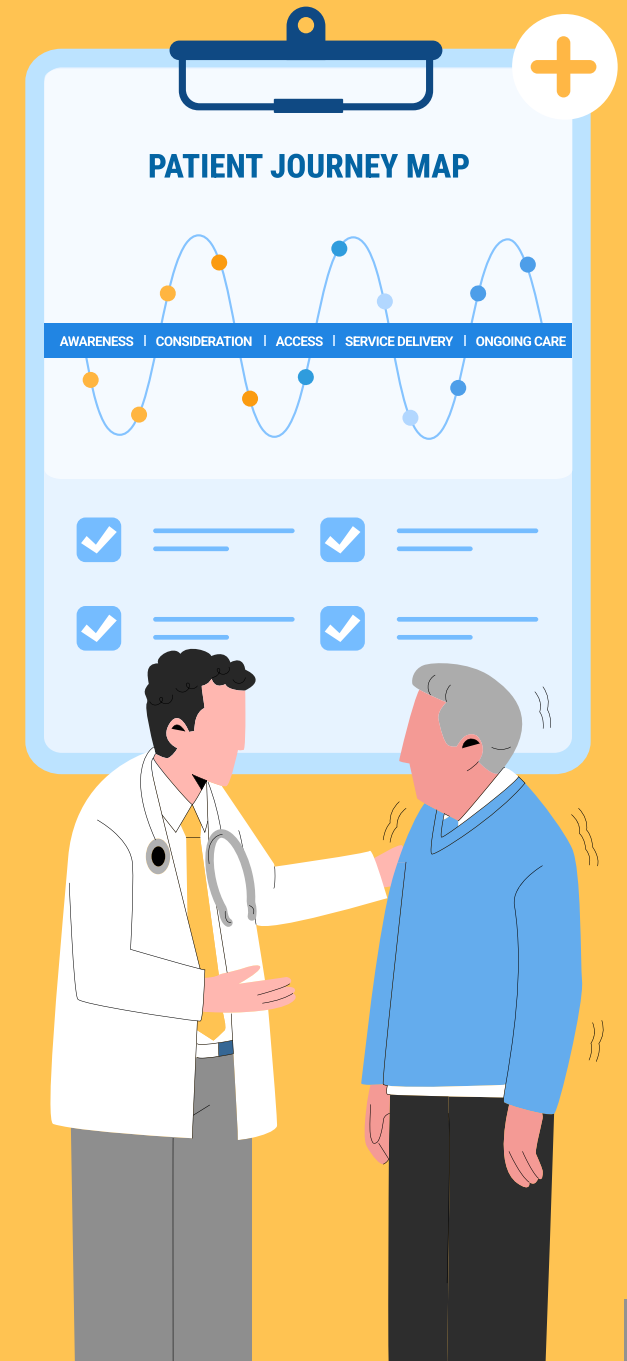
Patient journey mapping

How to apply behavioral science

- Use System 1 based qualitative interviewing to understand the **heuristics and biases** that serve as hidden drivers of patient decision-making along every stage of the journey. (e.g. psoriasis patients are driven by the Spotlight Effect in the early stages of their condition and consequently waste years using topicals because they provide fast symptom relief).

- Apply **behavioral rules to patient-level data** from EHR/EMR systems, patient chart audits, or other longitudinal databases and **assign different heuristics and biases to each patient** based on the behavioral rules. (e.g. patients who have never/rarely switched treatments can be driven by a decision heuristic called the Rule of Consistency).

How to apply ML/Artificial intelligence

- Use **social listening and LLMs to analyze unstructured patient conversations** in the disease state, identify patient needs/pain points, extract patient emotions and sentiment, quantify use of mis or disinformation by bad actors, etc.

- Build machine learning propensity models based on **digital channel journey data** on different patient segments and use models to **find patient twins in targeting databases** like Epsilon, Acxiom, KBM, etc.

PATIENT JOURNEY MAP

AWARENESS | CONSIDERATION | ACCESS | SERVICE DELIVERY | ONGOING CARE

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Message testing

How to apply behavioral science

- Write messages using behavioral science principles, **fine-tuning the phrasing** in each message to **talk to a specific heuristic or bias** that drives decision-making in the disease.

- Use qualitative interviewing questions to **probe into the underlying heuristics** behind each message to understand its true behavior change potential.

- Use a **behavioral conjoint design of experiments** to test messages in quant research - to get a hierarchy of messages and the underlying heuristics behind messages.

How to apply ML/Artificial intelligence

- Use genetic/evolutionary algorithms to **analyze utility data from quant message testing studies** and identify the optimal message bundles and story flow out of trillions of possibilities.

- Use rules-based AI to **identify the best message story flows for different channels** based on channel content preferences and constraints.

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Brand tracker/ATU studies

How to apply behavioral science

- Add a new battery of attribute statements to assess all brands in the disease state on **human-level choice drivers** based on behavioral science. (e.g. an attribute statement based on Optimism Bias would read something like, "Helps me imagine a more hopeful future in treating this condition).

- Add System 1 techniques to the survey and capture subconscious brand associations for all brands using Implicit Testing.

- Collect audio/video feedback from respondents on their experience with each brand to derive emotions out of the A/V.

How to apply ML/Artificial intelligence

- Use emotions AI for voice tonal analysis of audio and microfacial expression analysis of video responses to map the emotional experiences of each brand.

- Append respondent-level NRx/TRx data to the brand tracker/ATU data set and build causal AI models to identify strong correlates of actual vs. stated behaviors.
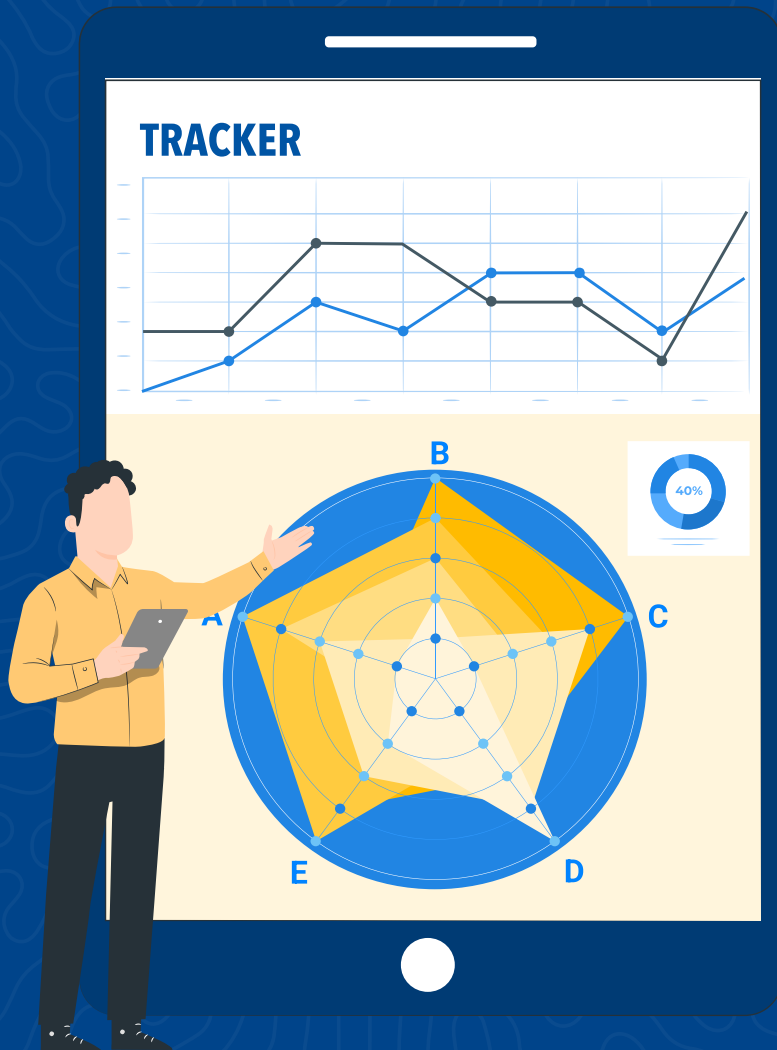
Message recall/Salesforce effectiveness tracker

How to apply behavioral science

- Use System 1/2 survey techniques to measure Slow vs. Fast message recall of core messages in quant research.

- Use behavioral science survey questions that probe into cognitive biases that affect memory and "adjust" every respondent's message recall scores for overestimation.

How to apply ML/Artificial intelligence

- Append HCP level NRx/TRx data to quant survey file and use causal AI to correlate actual HCP Behavior Change with recall of core messages.

- Use emotions AI technologies (microfacial expression analysis, voice tonal analysis and text analytics) on virtual detail videos to predict the effectiveness of each rep. This can complement the survey-based rep effectiveness data, but is scalable to include all reps.

Message Recall

About Newristics

Newristics is the market leader in optimizing go-to-market communications for pharma brands.

Using innovative market research, ML analytics and consulting services. Combining the power of behavioral science and ML/AI, Newristics optimizes GTM communications for **Top 20/20** pharma companies and **200+** brands.

Interested in learning more about Newristics? Reach out to **info@newristics.com** or visit **www.newristics.com**

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