

MRP vs. Traditional Quota Sampling

Advanced brand tracking overtakes traditional quota sampling due to its ability to distinguish real-world changes and provide accurate results with a very low margin of error.



History

About MRP

PAGE 5

Methodology

How MRP Enhances Data Quality

PAGE 6

Case Study

MRP versus Quota Sampling

PAGE 11

Welcome

Latana is the world's first advanced brand tracker fuelled by AI technology. We focus on pushing boundaries to bring a new level of quality brand tracking to the world. The precise data our brand tracker provides accurately shows companies the real-word impact brought by brand campaigns and enables them to make better marketing decisions.

www.latana.com

We also regularly share our thoughts on marketing and brands.

www.latana.com/articles

Written by Sean Violante, Brian Callander and Jakob Ludewig,
Data Scientists at Latana

© 2020 Latana

We'll spare you the legal mumbo jumbo. But please don't share this book without giving us appropriate credit and a link. Got questions? Head over to latana.com and get in touch through our chatbot or content form.

Join Latana on Social Media



Content

P. 4	Foreword
P. 5	A Brief History of MRP Election Polling MRP and Brand Tracking
P. 6	How MRP Enhances Data Quality Data Smoothing Stable Sample Composition How Machine-Based Learning Drives Better Brand Tracking
P. 11	MRP vs. Quota Sampling Case Study
	Conclusion

Foreword

Brands are making big-budget marketing decisions based on guesswork rather than fact.

***Margin of error:** a statistic expressing the amount of random sampling error in the results of a survey.

MULTILEVEL REGRESSION AND POSTSTRATIFICATION



Brand is perception and that perception drives human behavior. If companies can understand human behavior, then they can predict consumer behavior. Therefore, brand is the foundation on which all great companies are built. It can also make or break a company as it grows and expands.

At [Latana](#), we believe world-class brand insights should be available to all companies and can be done at scale. Because without insight, there can be no improvement. We provide companies with the insights they need to grow a great brand.

Many companies are already working with different brand tracking technologies in order to better understand the behavior of their target audience. However, what these companies may not realize is that the insights they derive from their tracking are skewed. The brand insights they receive have big margins of error*, especially where niche audiences are being tracked. In addition, insights are derived from noise in the sample rather than real-world changes and data quality isn't taken into consideration. Ultimately, brands are making big-budget marketing decisions based on guesswork rather than fact.

- ▶ We set out to solve this problem for brands and built AI-powered brand tracking fuelled by [Multilevel Regression and Poststratification](#) (MRP). Traditional quota sampling poses strict requirements on the data that can be used. MRP is much more robust and thus enables cheaper and faster data collection, while maintaining high precision and higher accuracy reflecting real world-changes instead of noise in the sample. The contrast between both forms of brand tracking is immense. In fact, we can go as far as saying it is the difference between building a functional brand and building a legendary brand.

This paper clarifies the difference between traditional quota sampling and MRP-based brand tracking, and the benefits from the latter that can help accelerate brand growth. We hope it will be a valuable source of information on your journey towards becoming a legendary brand.

A Brief History of MRP



Thomas Bayes, 1702 - 1761
English mathematician, statistician,
philosopher and Presbyterian pastor.

Thomas Bayes was an English statistician and philosopher who formulated the Bayes' theorem upon which MRP is based. The theorem was first presented in the work "An Essay towards solving a Problem in the Doctrine of Chances", which was read to the Royal Society in 1763 after Bayes' death.

The Bayes' theorem determines the probability of an event. The main advantage is that it gives the full probability distribution i.e. better uncertainty estimates. Therefore, the theorem allows for a more accurate risk analysis than a simple assumption that is typical of the population as a whole.

ELECTION POLLING

- ▶ MRP was first used in the US to estimate US-state-level voter preference in 2009. However, the process gained popularity after it was used to estimate the outcome of the 2012 US presidential election based on a survey of Xbox users, where it was able to mitigate the problem of highly skewed data and provide good results despite some bad data being collected. MRP was also used to successfully predict the 2016 election victory of Donald Trump and the overall outcome of the 2017 UK general election.

While in the past research was a battle of finding a sample of people representative of the whole population, MRP records a lot of data about the respondents and uses it to create a model of how various groups of people are likely to vote. MRP enables you to make granular predictions by assuming that certain demographics in one segment have similar preferences to the same demographic in another segment, eliminating the need for large samples in every constituency.

MRP AND BRAND TRACKING

- ▶ In 2019, Latana became the first brand tracker to apply MRP (Multilevel Regression and Poststratification) to brand tracking. MRP is a machine learning algorithm that enables dynamic modeling, which means it can control more variables and maintain higher levels of accuracy for niche audiences.

As a result, Latana is the first company to devise a brand tracking solution that guarantees deeper insights and more reliable results than quota sampling. That means brand tracking software which:

- Produces lower margins of error
- Allows deep audience segmentation so brands can track even the most niche demographics
- Provides better quality insights that are more closely aligned to real-world changes

How MRP Enhances Data Quality

DATA SMOOTHING

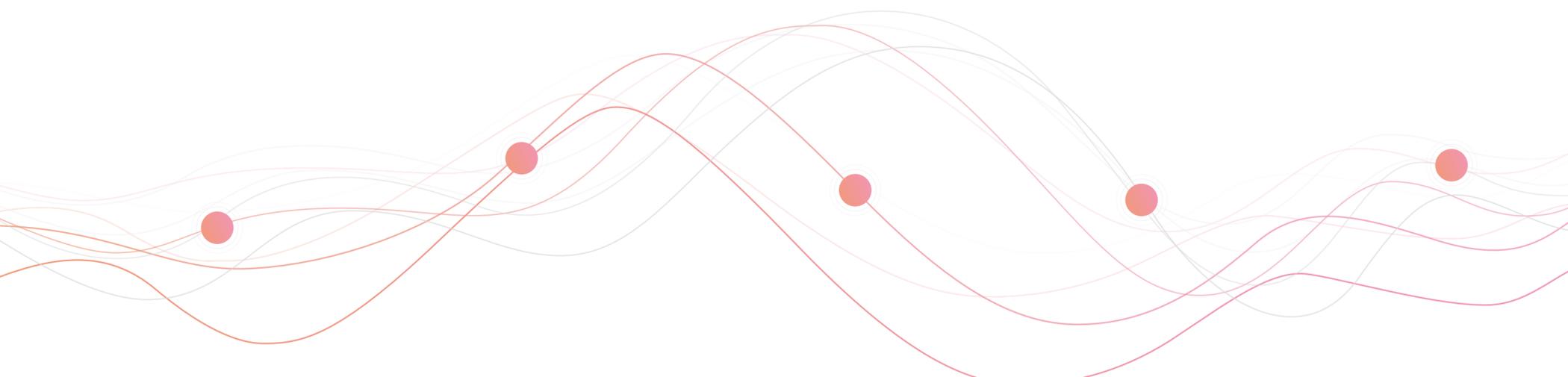
▶ Our algorithm knows that brand tracking waves are related and is able to tell the difference between outliers and real-world effects. The algorithm reduces the noise to provide data that more closely aligns with real-world changes. This is called data smoothing. What does that mean for brand tracking users?

- A reduction of noise in datasets across the general population and segmented audience groups
- Corrected skews in the sample
- A stable sample composition
- The ability to capture real-world changes

This means that brands are able to make marketing decisions based on fact, as well as truly see where their budget and brand campaigns are making a positive impact.

STABLE SAMPLE COMPOSITION

▶ Our algorithm uses many audience characteristics to estimate niche segments. Not only does this make our insights more accurate than quota sampling, but it also ensures stable sample composition for those hard-to-reach niche audiences.

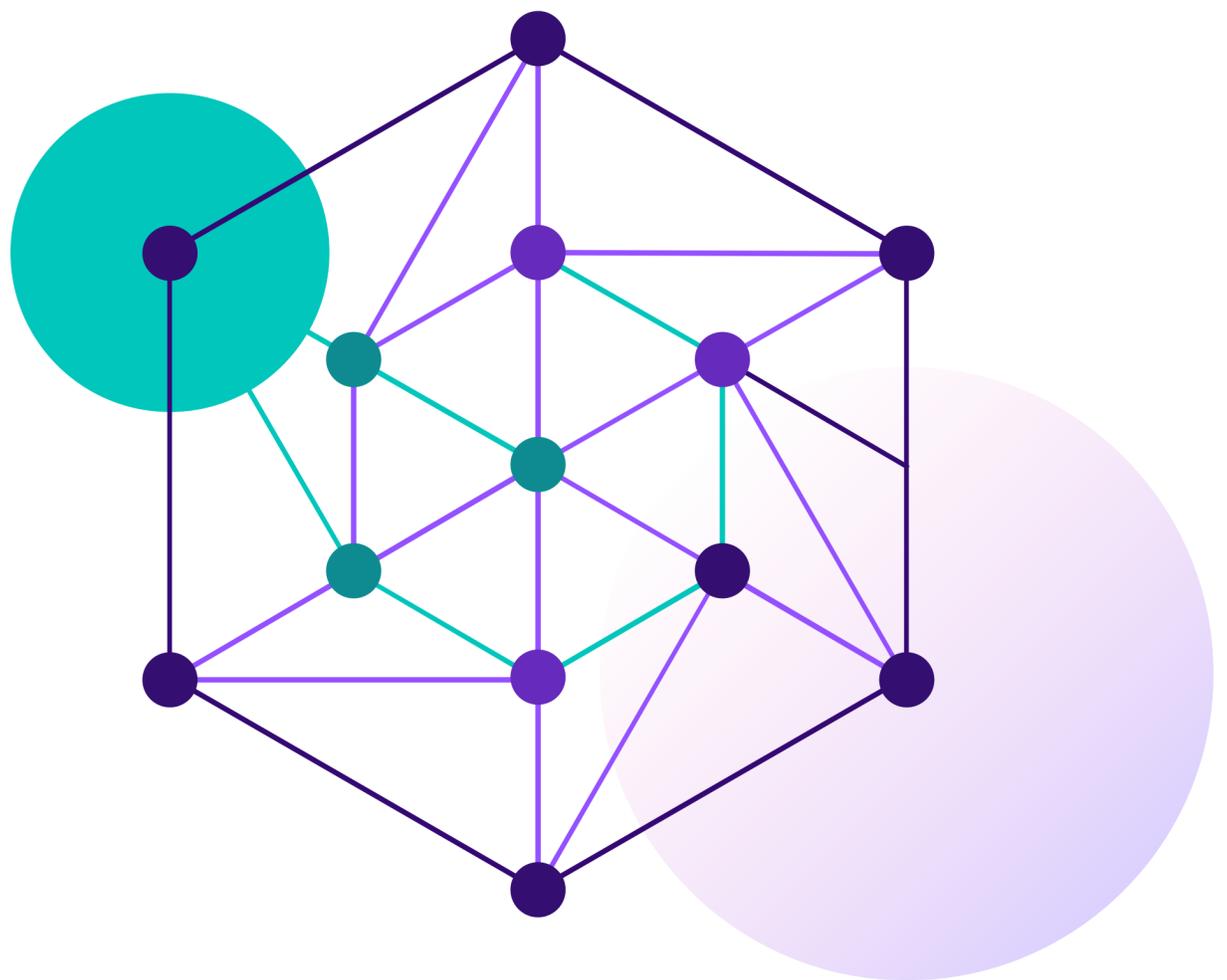


HOW MACHINE-BASED LEARNING DRIVES BETTER BRAND TRACKING

- ▶ Imagine spending an hour a day counting passing people in order to predict how many people pass by during the entire day. Your guess would probably be inaccurate because one hour of observation does not provide an overall picture. But what if you repeated this exercise every day for a month? Your prediction by the end of the month would be a lot better. Why? Because as humans, we learn over time. We start to notice patterns (traffic increases during rush hour, fewer people when it rains) and are able to understand the different factors that contribute to what we are trying to measure.

This process is almost entirely missing from traditional survey-research methodologies and is a problem because it is common to have variations in survey respondents on a daily basis, especially when tracking niche audiences. That's why we use MRP to learn about an audience over time.

As a result, our algorithm already knows that a particular audience has a certain level of brand awareness. So even if on a particular day the survey didn't reach a large number of this audience, the algorithm can infer information based on both what it already knows from previous months and from other segments that are similar/had similar behaviour in the past. This accumulated information helps improve the prediction and guarantees that results don't depend entirely on a small amount of new information.



MRP vs. Quota Sampling

MRP-led brand tracking enables deep segmentation, allowing brands to dig deep into niche audiences, while maintaining high levels of accuracy within the data.

When it comes down to it, companies want quality brand data they can rely upon. Sadly, despite being around for many years now, quota sampling can't meet this need. Data quality is about accuracy and precision. In traditional quota sampling, this is difficult to achieve due to the limitations in variable controls (segments like age, gender, and location). As a result, the data jumps and results in many outliers that are not accurate or relevant.

The data delivered to brands from quota sampling is raw data, with very limited processing. Ultimately quota sampling is less trustworthy due to limited accuracy. In addition, it provides limited data reach, meaning brands can't segment the data to gain insights regarding niche target audiences. On the flip side, survey responses gathered by Latana are treated by the MRP algorithm to enable dynamic modeling. This means more variables can be controlled, resulting in higher quality and more trustworthy data.

In other words: MRP is a surgical operation, not a cosmetic one. It doesn't only "smoothen" curves like a 'moving average' or a 'Kalman filter' would do. It surgically looks at the sample composition and creates a model that corrects for fundamental skews in the sample, to distinguish between signal and noise in the data. This way, the model is able to get rid of "jumps" in the data that are due to sample composition - and final results are much closer to capturing real-world changes. Most importantly for brands, MRP-led brand tracking enables deep segmentation, allowing brands to dig deep into niche audiences, while maintaining high levels of accuracy within the data.

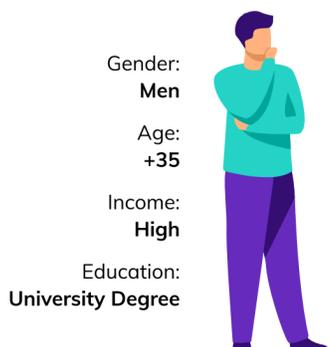
EXEMPLIFYING MRP VS. QUOTA SAMPLING

▶ Assume you have a new perfume brand with a target audience of men aged 35+ with a high income and a university degree. You send out a survey to gather insights about your brand and 1,000 respondents answer. For some reason, the survey is slightly biased toward women and only 400 men have answered. Out of these 400, only 100 respondents are aged 35+. If out of these 100 respondents only 10% are high-earners with a university degree, your target sample consists of only 10 people.

The problem in quota sampling is that it is very hard for such a small sample to gather reliable results about the general population. If we assume that 20% of our target audience have seen an ad for the perfume brand (which we do not know), we expect that on average 2 people from the small sample belong to this group. But in such small samples, tiny variations (one person more or less) result in a big over or underestimation of the estimate for our general population.

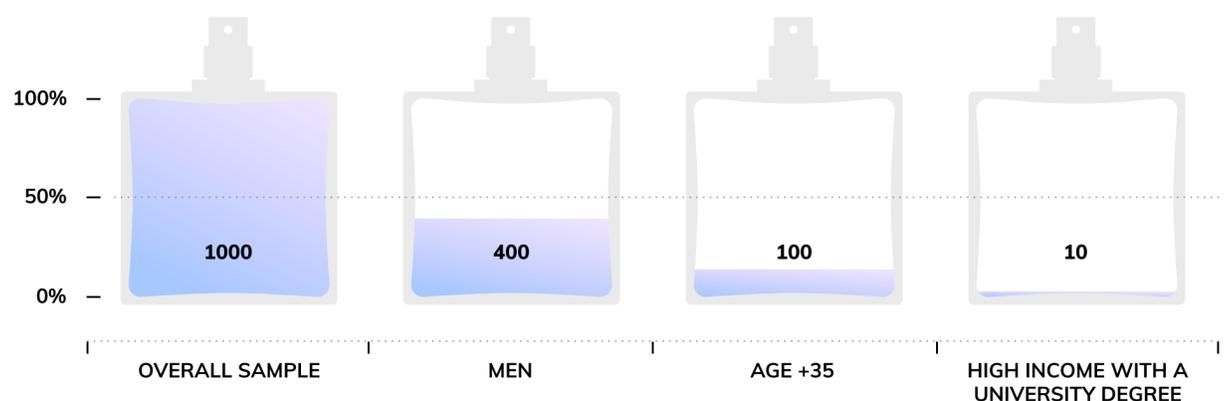
The above is what happens when traditional quota sampling is used. On the flip side, MRP doesn't look at a target segment in isolation but knows that it should be similar to other men and other high-earners with a university degree in the same age group. It can therefore infer information about your target audience from related demographic groups and can detect if your sample over or underestimates brand popularity simply by chance or if it is an actual trend that can also be observed to some degree in related demographics. This makes MRP much more robust and it has been shown in various studies that it can reliably estimate niche target audiences even from biased data.

Target audience

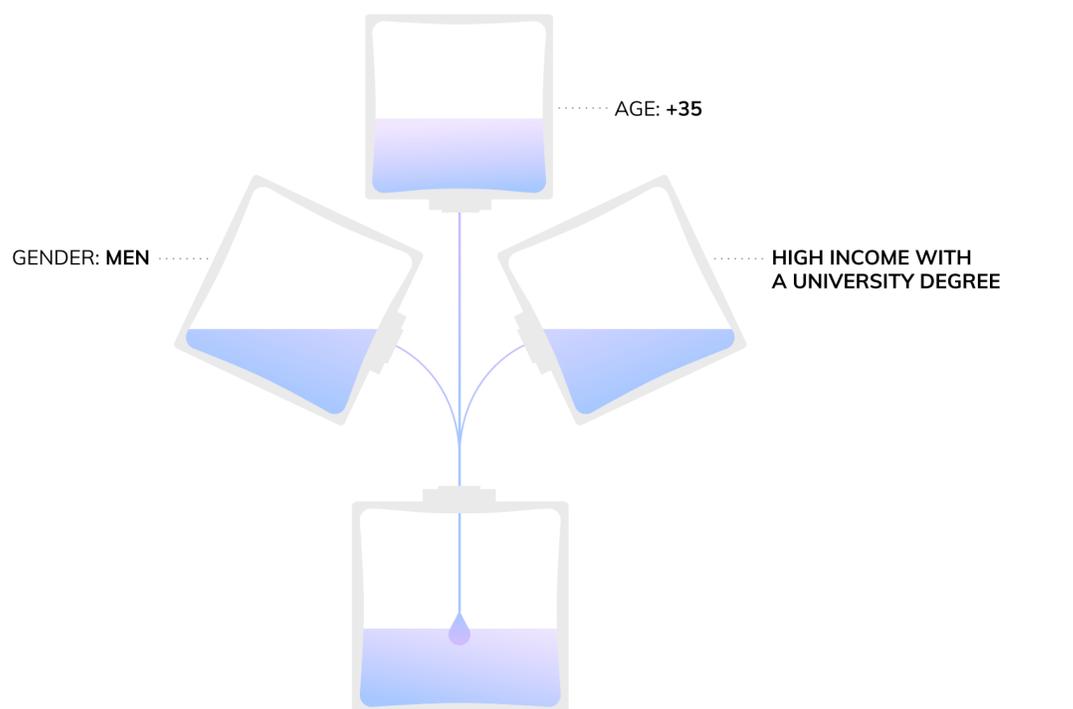


MRP can infer information about your target audience from related demographic groups and can detect if your sample over or underestimates brand popularity simply by chance or if it is an actual trend that can also be observed to some degree in related demographics.

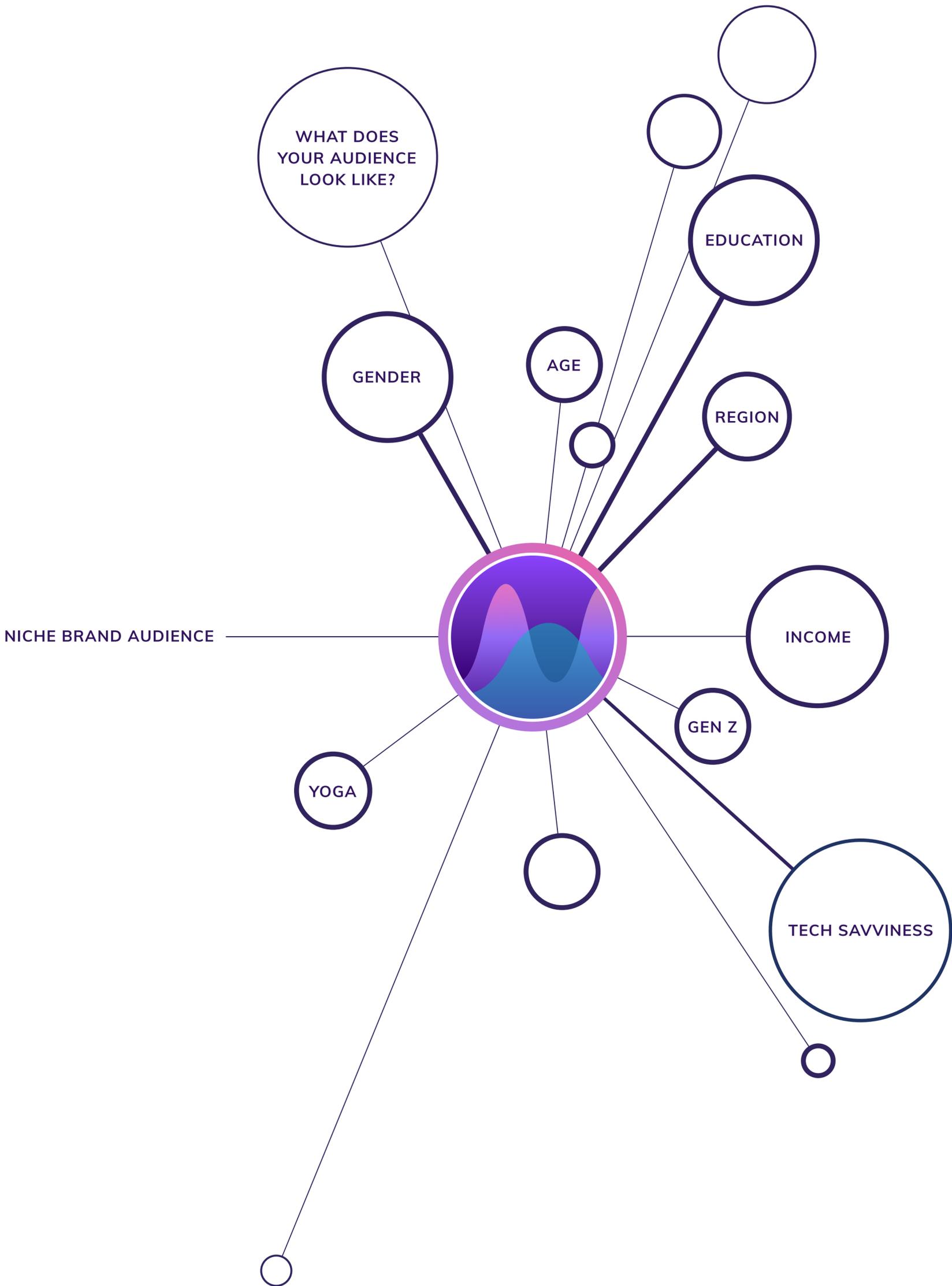
Quota Sampling



MRP



DEEP AUDIENCE SEGMENTATION



Case Study

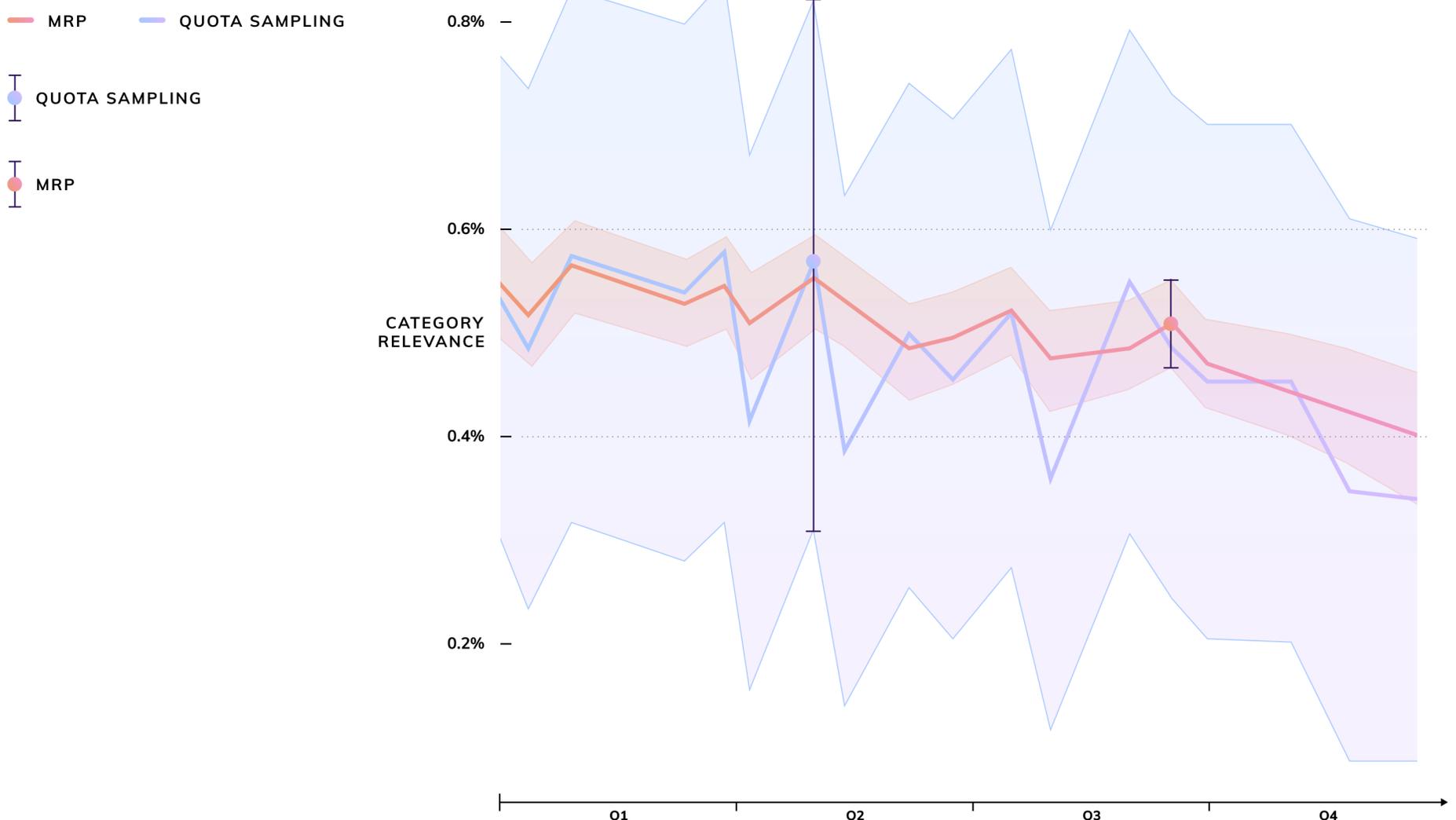
How Latana Utilized MRP to Showcase Real-World Data Effects for a Fortune 500

Latana successfully reduced jumps in outlier data, making the data more closely aligned with real-world changes.

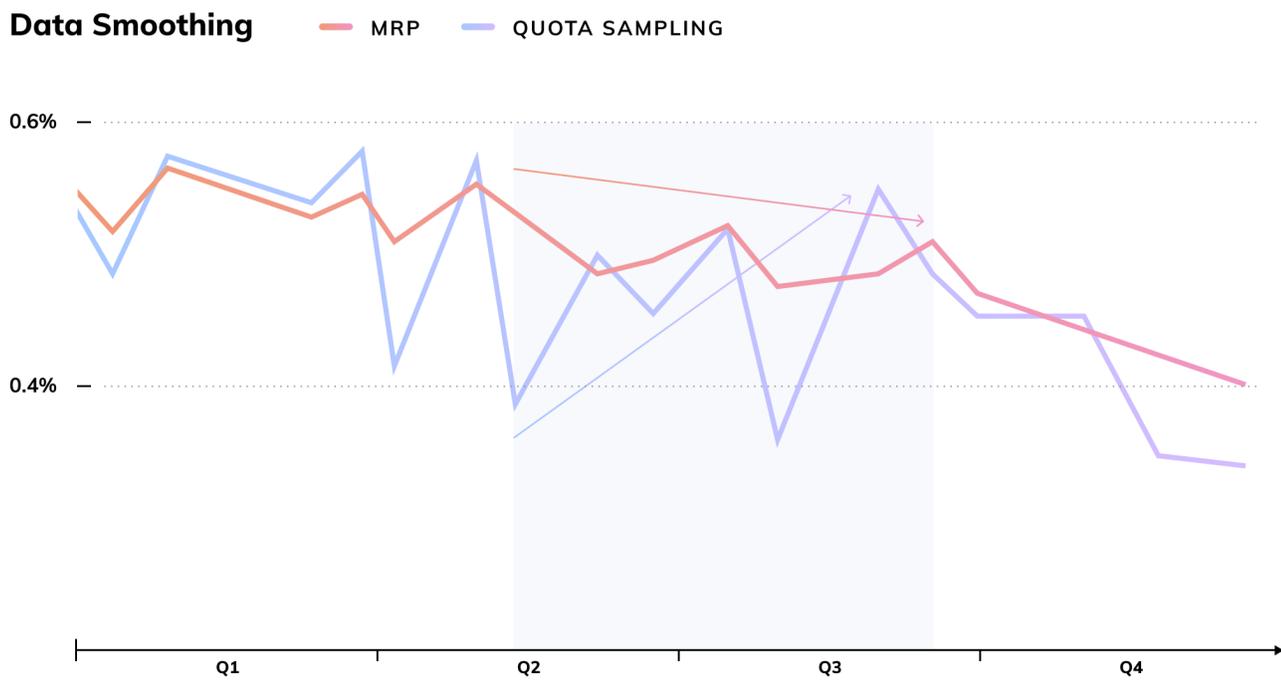
Latana recently worked with a multinational corporation to deliver more reliable data on brand awareness. The company needed a solution that would maintain stable samples for tracking research and high precision in niche audiences (e.g. active buyers), thereby separating real-world change from noise (high uncertainty due to low sample size or sample instability over time).

MRP modeled the outcome on the basis of gender, age, education, urbanicity, and purchase history. It built a model for the effect of the different variables on brand awareness and ensured that this effect changes smoothly across waves (i.e. the estimates are smoothed consistently at each level of detail).

This ensured that the data received by the company was more stable, accurate, and precise than data that would have been provided by simple quota sampling. If the survey responses were calculated and smoothed just for the general population data, different and less reliable results would have occurred. The difference between quota sampling data and MRP treated data can be seen in the charts below.

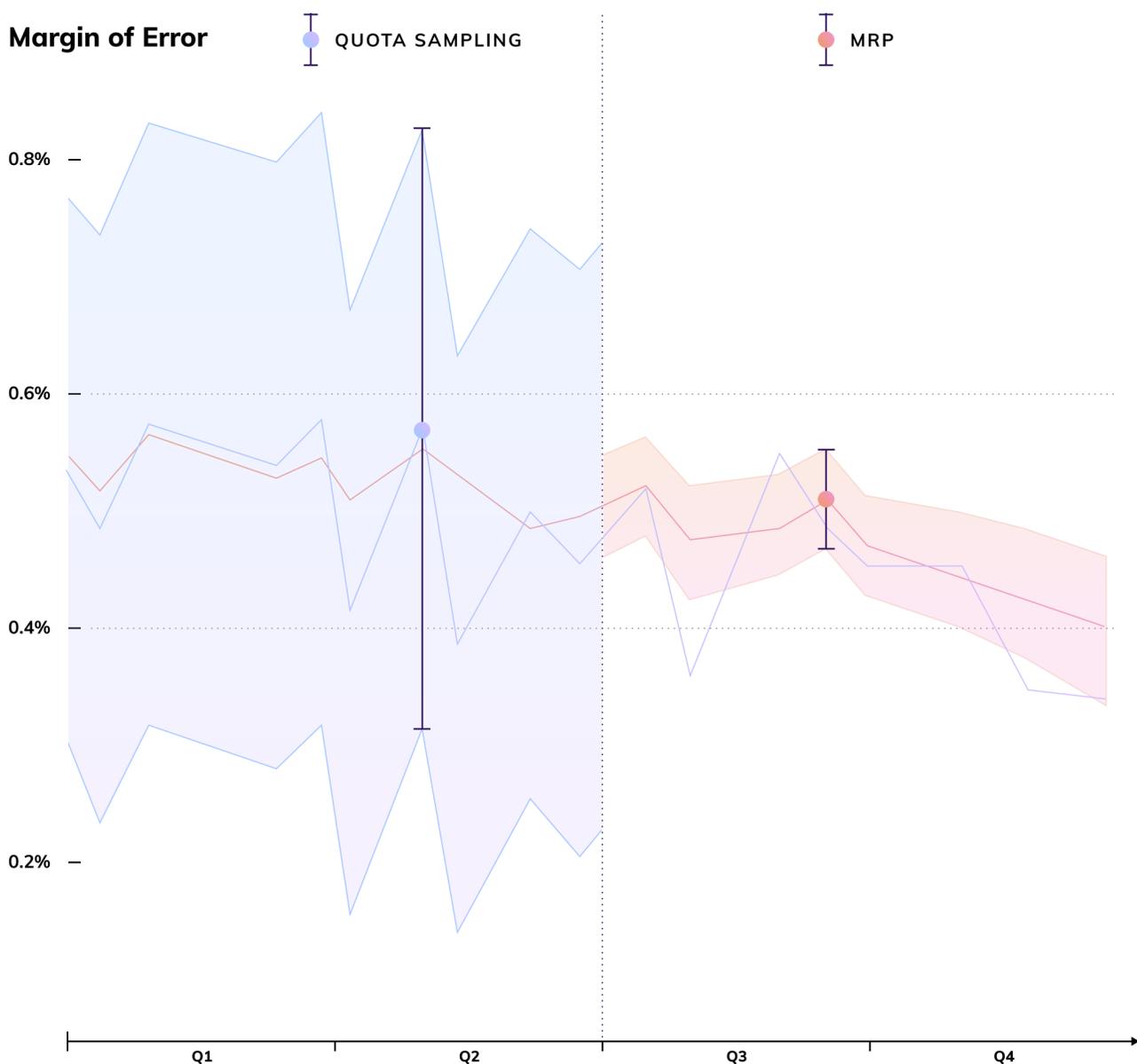


Deep Dive



Data Smoothing

While quota sampling delivers difficult-to-interpret data, MRP tells a concise story with a clear call to action. It does not do so by purely smoothing the results but rather by correcting systematic shifts in sample composition that quota sampling cannot control for.

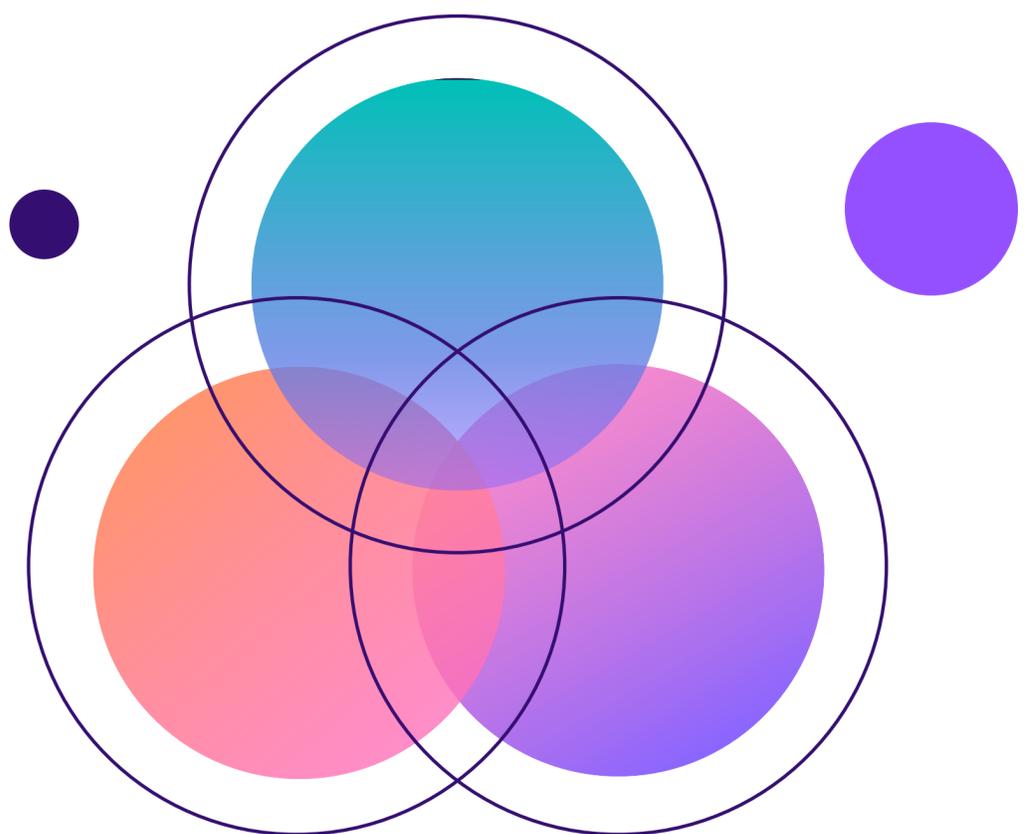


Margin of Error

By significantly decreasing the margin of error in tracking research, MRP boosts confidence in the data and allows for convincing analyses and conclusions.

Conclusion

Standing on the shoulders of already existing technology, Latana has devised an advanced brand tracking solution that solves a major problem for brands - it eliminates skewed data. Brand tracking software that runs using the MRP algorithm process of data smoothing cancels out unnecessary noise and ensures the brand is left with data that truly affects real-world changes within its target audience. As a result, the brand is able to make marketing decisions based on reliable insights and overall is able to drive better brand performance than if they were using traditional quota sampling.





AI-Powered Brand Tracking Make Better Brand and Marketing Decisions



To start a conversation about the business value of
MRP in your organization, contact:

For General Enquiries: hello@latana.com

For Sales: sales@latana.com

For PR/Partnerships: marketing@latana.com

