



# Turas Tracker

*Transparent. Trustworthy. Tangible insights.*

Tracks survey metrics across waves—has brand perception shifted since the campaign launched? Analyses data collected over time to identify real trends, detect significant changes, and separate signal from noise using rigorous statistical testing.

## What This Module Does

When you measure the same metric across multiple time periods, every number will be different. The critical question is: "Is this change REAL, or is it just random variation from sampling?" Tracker answers this definitively.

Using wave-to-wave z-tests and t-tests with proper handling of weighted data, Tracker separates genuine trends from sampling noise—so you know which changes demand action and which are just fluctuation.

## What You Get

### Statistical Outputs

- **Wave-to-wave significance:** Tests if each consecutive change is statistically significant
- **Trend direction:** Identifies sustained patterns (improving, declining, stable)
- **Year-over-year comparisons:** Q1 2024 vs. Q1 2023 comparisons
- **Sample composition monitoring:** Detects demographic drift that might explain changes

### Report Formats

- **Detailed trend report:** Full wave history with significance markers
- **Wave history report:** Transposed view—waves as columns, metrics as rows
- **Dashboard report:** Key metrics only with visual trend indicators (in development)
- **Significance matrix:** Heatmap of all wave-pair comparisons (in development)

## How It Works

### For Proportions

Two-proportion Z-test compares percentages between waves. Calculates Z-statistic using pooled proportion and effective sample sizes. Compares to critical value (1.96 for 95% confidence).

### For Means

Two-sample t-test with pooled variance compares average scores. Accounts for different standard deviations between waves. Uses appropriate degrees of freedom.

### Interpreting Patterns

Consistent significant changes = real trend. No significant changes = stable (noise). Single spike = one-time event. Step change = new baseline established.

## Packages Used

All packages are peer-reviewed, open-source R packages available on CRAN.

Package	Why We Use It
<b>Base R stats</b>	T-tests, proportion tests, core statistical functions—universally validated
<b>future / future.apply</b>	Parallel processing for large multi-wave datasets
<b>openxlsx</b>	Professional Excel output with trend formatting

## Strengths

- ✓ **Statistically rigorous:** Proper significance tests for proportions and means
- ✓ **Handles weighting correctly:** Uses effective sample sizes for weighted data
- ✓ **Sample composition monitoring:** Detects demographic drift across waves
- ✓ **Flexible comparisons:** Wave-to-wave, YoY, QoQ, baseline
- ✓ **Multiple report formats:** Detailed, dashboard, matrix views
- ✓ **Efficient:** Parallel processing for large multi-wave datasets

## Limitations

- ⚠ **Requires multiple waves:** Need at least 3-4 waves for meaningful trend analysis
- ⚠ **Question consistency required:** Works best when questions don't change
- ⚠ **Sample size dependent:** Small waves produce unstable estimates
- ⚠ **No causal inference:** Shows WHAT changed, not WHY
- ⚠ **No forecasting:** Describes past/present trends, doesn't predict future

## Sample Size Requirements

Minimum  $n \geq 200$ -300 per wave for total-level tracking. Larger if tracking small subgroups. Consistent sample size across waves improves comparability. For subgroup tracking, need  $n \geq 100$  per subgroup per wave.

## Best Use Cases

### Ideal For

- ✓ Brand health tracking (awareness, consideration, preference)
- ✓ Customer satisfaction monitoring (NPS, CSAT over time)
- ✓ Campaign effectiveness measurement (pre/post)
- ✓ Market share tracking
- ✓ Any repeated measurement needing trend analysis

### Not Ideal For

- ⚠ Single-wave surveys (use Tabs instead)
- ⚠ When questions change between waves (breaks comparability – but note you can map question number changes)
- ⚠ Very small wave samples ( $< 100$ )
- ⚠ When you need causal attribution (use experimental design)

## Key Takeaways

- ✓ Not all changes are real—significance testing separates signal from noise
- ✓ Step changes (sudden shift to new level) differ from gradual trends
- ✓ Sample composition drift can create false trends—monitor demographics
- ✓ YoY comparisons control for seasonality
- ✓ Report effective  $n$  when data is weighted—precision matters

## The Bottom Line

Tracker is your statistical analyst for longitudinal survey data. It transforms multiple waves of measurements into clear trend insights, rigorously testing whether changes are real or just sampling noise. With built-in sample composition monitoring and proper handling of weighted data, it ensures you're reporting only changes you can trust. The difference between acting on signal vs. noise can save (or cost) your organisation millions.

## About The Research LampPost

Turas is developed and delivered by **The Research LampPost**, an organisational member of the Southern African Marketing Research Association (SAMRA). Duncan Brett is a SAMRA accredited researcher with 30+ years of market research experience. If you have questions about whether Turas is right for your project, if there is interest in the statistical documentation or module-specific information, or you would like a copy of our credentials, please get in touch at [duncan@researchlamppost.co.za](mailto:duncan@researchlamppost.co.za)

**Ready to discuss your project?**

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