

Impressions Reporting Variance

Small differences between identical digital MOVE reports are expected and reflect normal modelling behaviour; not changes in delivery or performance.

When running a report for digital signs in MOVE, you may observe differences in impressions and reach reported between identical runs using the same schedule and parameters.

This behaviour is expected within MOVE's reporting framework. It does not indicate a change in campaign delivery, asset performance, or system error.

This occurs because when the report is run to determine impressions MOVE calculates which respondents within the VAC will 'see' the digital ad play. When the report is re-run a different respondent who was present in the signs hourly VAC audience data is chosen. And because the population weights vary by respondent (to ensure accurate population profiles at a geographical level) a variation in total audience reported can occur.

Example Campaign

Total Impressions

100,000

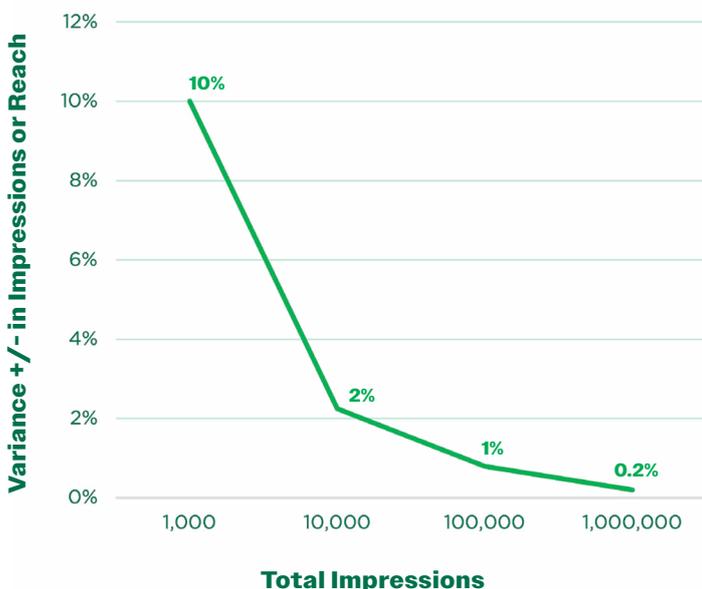
Average Variation

+/-1%

1% reach is reported as **0.9%** or **1.1%** next time the report is run. For campaigns of a million impressions the variance will be on average **0.2%**

The degree of variance on total impressions or reach between reports is linked to the total impressions in the report as highlighted by the chart below.

Average Variance in Impressions Reporting



More Detail

Variance in digital results reported is caused by the stochastic approach required to report digital audience against each synthetic respondent, and the difference in population weight each synthetic respondent has.

MOVE has a total hourly audience against each sign. For digital campaigns the reporting software needs to

calculate how many are present when the digital campaign is on the screen.

To calculate if a synthetic respondent in the hourly audience is part of the impressions (i.e. present when the digital campaign was being displayed), MOVE calculates the overlap between the respondent's audience dwell and a virtual loop for the sign (virtual loop determined by the ad play and share of time of the campaign). This overlap will be a value between 0.1 and 1, with 1 meaning all respondents were present when the digital campaign was on the screen.

Example Respondent

Dwell

30s

Virtual Loop

60s

6 sec ad play and 10% SOT

Overlap is **0.5 (30/60)**, meaning a **50%** probability they were present when the campaign is on screen.

The reporting software then uses a random number generator to produce a number from 0.1 to 1 to determine whether the respondent is included as part of the audience. If the random number generated is less than or equal to 0.5 the respondent from the above example becomes part of the digital audience, and if it is higher than 0.5 they are excluded.

This occurs against every single respondent in the campaign's audience each time the report is run, and because the population weight attached to each synthetic respondent varies, a different outcome could be calculated for each report run.

How Do Synthetic Population Weights Vary?

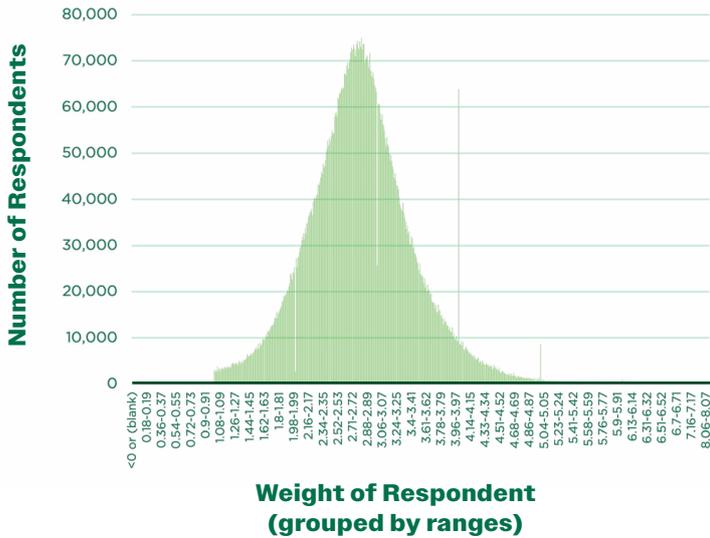
MOVE uses a synthetic population to represent Australians aged 14+, reflecting demographic profile and home location. This creates a virtual population of approximately 22.7 million people.

For computational efficiency and modelling accuracy, MOVE's underlying audience movements operate on a 10 percent sample of the population, equating to about

2.2 million individuals. Each respondent equals on average 10 Australians of the same demographic profile within the same SA1 through a calibrated statistical weight.

This sample is split in the audience file to 40 percent, to enable more granularity in reporting. The end result is an average of approximately 2.76 Australians per respondent, however as the chart below shows there is a wide distribution of weights across all respondents combined.

Synthetic Population Weight Distribution



What Does This Mean For Your Campaigns?

Minor variation between identical reports is methodologically expected, statistically valid, scale dependent, and not performance related.

At meaningful campaign volumes, relative variance becomes negligible. This behaviour reflects modelling mechanics, not delivery change.

As a result:

- Slightly different respondents may be captured between report runs
- Each respondent carries a different weight
- Small shifts in selected respondents can produce small shifts in total VAC

Variance is therefore influenced by:

- The weight distribution of the selected demographic
- The number of contributing respondents
- Small shifts in selected respondents can produce small shifts in total VAC

This is a natural outcome of stochastic modelling.