



Aggregation Type

One of the parameters for a KPI (Scoreboard) or Measure (QuickScore) is **Aggregation Type**. This needs to be set to ensure when **viewing** your data, using a calendar period longer than the calendar type selected, the results are calculated correctly correct for the 'view' calendar.

The screenshot shows the 'Create Measure' interface. At the top, there are tabs for 'Overview' and 'Measures'. A 'View Calendar' button is highlighted with a red box and an arrow pointing to it. Below this, there are fields for 'Name', 'Description', and 'Type' (set to 'Measure'). The 'MEASURE DETAILS' section includes 'Scoring Type' (Goal/Red Flag), 'Calendar' (Monthly), 'Data Type' (# Number), 'Aggregation Type' (with a dropdown menu open showing options: Sum, Average, Geometric Mean, Last Value (already aggregated)), 'Decimal Precision' (Default), 'Red Flag' (Manual), and 'Goal' (Manual). A red arrow points from the 'Aggregation Type' dropdown to the text 'Aggregation Type' in a red box.

Aggregation type has four possible values:

1. **Sum** - Values added monthly will be summed up when viewed quarterly or yearly e.g. Revenue is usually defined as sum.
2. **Average** - Values added monthly will be averaged when viewed quarterly or yearly - e.g. % Customer Satisfaction is usually averaged.
3. **Geometric Mean** - This is a special aggregation often used by statisticians to deal with large variances, see next page for more details.
4. **Last Value** - For values added monthly, the last value added will be used when viewed quarterly or yearly - e.g. Cumulative Sales is usually set to last value.



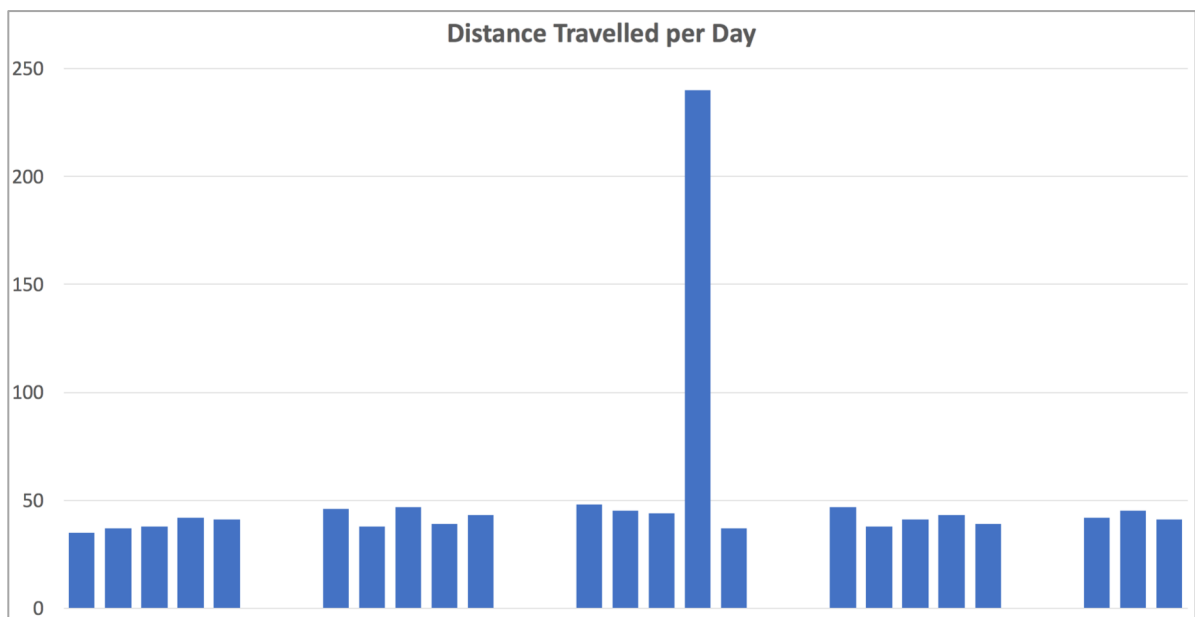
Geometric Mean

The geometric mean is a special way of calculating the average of multiple numbers used in various statistical models. The technical definition of geometric mean is: The n th root of a product of n numbers.

In practice, the mathematics is fairly simple. With the “average” aggregation type, three numbers are aggregated using $(a + b + c)/3$. For geometric mean, the equation is $\sqrt{a * b * c}$.

A geometric Mean is often used to deal with cases where there may be ‘outliers’ that skew the data artificially.

For example; let’s say you want to know the “Average number of miles travelled per day” by a truck driver that usually delivers locally. Typically you would record the number of miles per day over a period of one month and divide by the number of ‘driver days’ to give an average.



In the example shown above, we can see on day 18 the driver travelled over 240 miles. This is an ‘outlier’ and not usual. When included in an ‘Average’ calculation the result is skewed and although the ‘normal’ average should be around 40 miles, the calculated average is 51 miles.

By using a Geometric Mean calculation, the result is 44.7 miles, thus returning a more accurate ‘average’ for this type of measure.