

## What To Think About When Interpreting Data

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- Some philosophers have asserted that we are the sum total of the decisions we make.
- The analysis of data, also known as analytics, allows us to make informed decisions, backed by evidence.
- In the absence of analytics, it is possible to feel that there is insufficient information to make an informed decision.
- It is also possible to feel overwhelmed by the amount of data, to the extent of failing to make decisions.
- However, whilst the use of analytics may seem impressive, it would be foolish to let the data dictate the decisions to be made.
- The quality and quantity of data affect the results of an analysis.
- The validity of analytical results is dependent on the integrity and competence of the analyst.
- Analytical results should be used more as a basis for decision-making rather than the prescription.

Everything in life is founded on a decision. Decisions are made every single moment we are alive. Some decisions are trivial, whilst others determine the subsequent future of nations, companies, and generations to come. Some philosophers have even asserted that we are the sum total of the decisions we make. This then makes good decision making vital to any success we may seek. But how can we consistently make good decisions when we have so many to make on a daily basis?

The analysis of data, also known as analytics, allows us to make informed decisions, backed by evidence. Trends and patterns that had never even been suspected are discovered. The use of analytics gives insight. Consider that daily we receive a plethora of information. Some which is useful and other which is counterproductive. Some requiring immediate action and other which is not so urgent. Some which is important and other which is not so important. Some which is easy to understand and other which is difficult to decipher.

In the absence of analytics, it is possible to feel that there is insufficient information to make an informed decision. This may occur as a result of not knowing which information applies to the specific situation, as well as how to utilise it productively. The use of analytics can make sense of the raw data and provide an awareness of the wealth at one's disposal.

It is also possible to feel overwhelmed by the amount of data, to the extent of failing to make decisions. It is usually difficult to pick a starting point when every point looks like a good place to start. This presents a common behavioural finance issue, the effect of options, where increasing the number of options increases the difficulty of making a decision. There are also times where the information received contradicts other information received, making it difficult to figure out which set of information applies to the current situation. Without analytics, a gut feeling will likely influence the decision made.

However, when it comes to the crunch and the decision determines life or death, the application of a coin toss may not be so appropriate. Analytics may offer perspectives that show some method in all of the madness. At the very least, it shows a starting point for the decision making process.

However, **whilst the use of analytics may seem impressive, it would be foolish to let the data dictate the decisions to be made.** A common misconception is that basing all decisions on results derived from data will yield intended results. However, this is not always true. To begin with, analytical analysis is not always exhaustive and relies on many assumptions. For example, it is based on a sample of data, some of which will never occur in that manner again. Analytics banks on the assumption that the past shall repeat itself, and that sample data is representative of the whole population. However, things are persistently evolving and changing. New information is consistently dispelling myths and concepts long believed to be true. If these factors are not incorporated into the design of the analytical model, then the model will be limited only to similar conditions and environments to those present at the time of data collection and analysis.

Furthermore, the results of any analysis are only as good as the data collected and inputted. The popular acronym GIGO (Garbage In Garbage Out) comes to mind. It simply emphasises the fact that the quality of data used in an analysis determines the accuracy and credibility of the results. Analytics results are only as good as the analyst and the data used in the analysis. A flawed collection and analysis system will produce flawed results. Without realising, the results from the analysis of this flawed data may give false confidence when spuriously putting two and two together to make five.

Also, the amount of data one uses in an analysis affects the outcome. Too little data might not provide sufficient information to draw useful conclusions. Whilst, too much data could include outdated data which could distort the analysis and give impertinent results.

Moreover, the validity of analytical results is dependent on the integrity and competence of the analyst. There are many ways in which data can be manipulated to produce results in line with an analyst's expectations. An analyst may choose to use tests that support their stance or expectation, whilst overlooking key assumptions which invalidate that analysis. Also, some analysts may not have a good understanding of the importance of the test. For example, a common mistake is to conclude that simply because a correlation relationship exists between variables, therefore, a causal relationship also exists between them. However, this is not always the case. A correlation analysis is performed to find out whether or not a relationship between variables exists, as well as to quantify the strength of the relationship. In contrast, a causal relationship exists where the change in one variable leads to a change in another. For example, correlation analysis can show that a relationship exists between the number of trees in an area and the number of break-ins, as well as between the consumption of ice cream and the number of drowning casualties. However, it would be incorrect to then conclude that to combat the break-ins in an area, more trees should be planted. Or that if people stopped eating ice cream then fewer people would drown. Such conclusions are as absurd as they sound and they fuel the famous statistical mantra, "Correlation does not imply causation". In the first example, it is possible that areas with many trees are often populated by the high-class population who can afford reliable security, thus growing trees in an area notorious for its crime will unlikely slow break-in rates. In the second example, it is clear that both these actions usually occur in hot weather. When it is hot, people usually consume ice cream or

go swimming in an attempt to cool themselves down, and unfortunately whilst swimming one may drown. The two may have a relationship, but it is not a causal one, as changing one does not directly change the other. After a correlation analysis is performed, other tests and investigations need to be undertaken to prove the cause and effect relationship. It thus requires an analyst with sound technical qualities to know the difference and how to administer and interpret the results.

It is clear that for the analyses performed to offer substantial value, there is a need for constant supervision and extra care should be taken when interpreting the results. A competent analyst is thus required to input relevant unimpaired data and subsequently, interpret results and make corrective actions if required. The use of analytics helps overcome basing decisions on intuition and gut feelings, which is usually very inadequate and unreliable. Analytics results should only be used to offer insights and substance to the decisions we make. Analytics should be used more as a basis for decision-making rather than the prescription.

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