

WEEK 1 INTRODUCTION

1.5 HOW DO WE USE DATA ANALYSIS by Chris Wild

I'm Tracy Meek from the Department of Statistics at the University of Auckland. I'm the facilitator of Data to Insight. Data is being generated everywhere, all the time, and in a huge variety of ways. For instance, in retailing insights from data can radically change a company's fortunes.

Catherine Bentham| Marketing scientist

One of my clients came to me-- a major manufacturer-- and they were losing market share to their main competitor. And they had no idea why. So what we did was we went out and talked to customers face-to-face and online. And we asked them about the product. We asked them what were the key attributes that were important to them. And we analysed the data and were able to develop a model where we looked at the important attributes that drove sales.

What that revealed to us was that some customers had questions about the durability of the product that wasn't answered on the packaging. So as a consequence, we took the results back to the client and they revamped their packaging to address this question. As a result, sales skyrocketed and the client was very happy.

Tracey Meek

Data can also be used to help judges and juries make informed decisions.

James Curran, Forensic statistician

I'm often called into court to help judges and juries assess the evidential value of a piece of evidence-- a numerical value -- and to do that in an objective way. So statistics lets us to give an air of objectivity rather than just an opinion. And by that, I mean we can get somebody to carry out the same procedure using the same data and arrive at the same answer, whereas if somebody's giving an opinion, then two experts might be giving different opinions and juries are not well-enough equipped with the expert knowledge to decide whose information is more correct or more important. And it's not just juries, judges and lawyers feel this way as well.

Tracey Meek

You might be surprised to find this even in something as unpredictable as sport, insights from data can help you create a winning formula.

David Scott| Expert in probability

I use data analysis to predict the outcome of rugby and rugby league games and it turns out to be highly effective. So amateurs, they just use some sort of gut feeling. They might take into account the weather, the composition of the team, whether they like the coach. Who knows? They combine that somehow and they come up with a prediction in some way that's just-- well, it's a mystery to me.

I use data. So I look at past games. I look at whether a team was playing home or away, I look at the margin, and I use that to develop ratings for each of the teams. And then each week, I update those ratings. And from those, I can predict the outcome of the game and the likely margin. So the idea really is that I can show that statistics is useful in everyday life, even simple methods like the ones that I use.

Tracey Meek

Even hospitals make clever use of data to cut costs and to keep patients moving through the system.

Ilze Ziedens|Expert in complex systems

We used data analysis to help the heart unit at Auckland City Hospital fix a bottleneck in their system. This bottleneck was causing nearly 30% of elective heart surgeries to be cancelled at the very last minute. And this wasn't just costly for the hospital, but was also very, very stressful for patients and their families.

So we built a model of the patient flow through the intensive-care unit. And we fed into this model all kinds of data: the data of the arrival times of patients, the kind of treatment they needed, how long they spent in the unit. And then also staff rosters and the schedules for elective surgery.

And then we used this model to simulate all kinds of “what if” scenarios-- a whole range of them-- to see what the best way would be to reduce cancellations. The hospital then made some changes and the cancellation rate fell from nearly 30% to 10%.

It was very exciting for me and for my students to collaborate on a project that made a really positive difference to people's lives.

Tracey Meek

These were just a few quick examples of how analysts use data to improve the world we live in. Now it's your turn.