

# The Role of Statistics in Business Decision-Making

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This video provides real-world application that explains the role of statistics in business decision making. The video addresses the following: how this applies to you, how data is utilized in the workplace for making more informed decisions, and why this information is important.



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## TAGS

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My name is Erin Gong and I am an Evaluation and Visitor Studies Consultant for a museums and libraries. Statistics is looking at and understanding and interpreting data using math. Data is pretty simple, it's a collection of values or measurements. So, if I walk out on a college campus and ask the first 52 people I see how tall they are, I now have data. It's a collection of values, the values is heights of 50 people. You know, you've got your collection of data and let's say it's a spreadsheet and it's got 50 columns and 500 rows. And, you know, I open that up and I say, okay, tell me what this means. Like, our brains just aren't wired to think that way. But, you can use math and the tools of statistics to really take that data and sit and interpret it into some meaningful results that you can wrap your head around. Probability theory is starting with a known population and you're looking at random events within that population. Let's say your company is really focusing in on a specific geographic area. So, you're looking at a certain city, the population of the city is 50,000 and let's just pretend that you know the income of everybody in that city. So, what probability theory does, is it takes random draws within that. So it says, okay, let's say there's 50,000 people, let's pull 500. And let's see what their income, what their average income is. Now, let's put them back in and now let's draw again, we'll do another 500, just random sampling. What's their average income? It keeps making those random draws from a known population and then it studies the patterns that emerge from that. Sampling theory is talking about okay, let's say you have that same population, but we don't know what people's income is. We have no idea, we've got a city, it's got 50,000 people in it, we don't know their income. So, we can sample from that and we can get—we can know the mean from our sample of 500. We can know that number, but we still don't know the mean of the population. Using probability theory with statistics, it's kind of this really cool magic black box, that lets you say okay, I pulled a random sample. What's—how confident am I that this small random sample that I got is true to the actual population mean? And that's where the power comes from statistics. You can learn a lot from a small sample about a population that you don't know anything about. You're going to see statistics being used with product development, with trying to do quality controls. So, you know, thinking about testing cars for safety, you're not going to crash test all of the cars because you won't have any cars to sell. But you'll take a sample, right, and then you have to be confident that that sample is indicative of the whole population. Businesses are all about metrics. If you have, if you're using metrics to try to understand how you do your business better, you've got to have someone who knows how to get the metric. And how to measure over time and how to display that information in a way that makes sense to people and that's what statistics does for you. I've seen some—none museum that I worked for where they could predict with amazing accuracy, depending on the time of day, the day of the week, the time of year, anything, the weather outside, how many people were going to be at their museum that day. So they used it to predict, you know, what their flow is going to be like that day. Then they could, because they knew that, they could also, you know, have adequate staffing. They could have the right, sort of cleaning crew going through the museum today, all to kind of make the visitor experience a better thing. And to use their resources wisely, so they weren't overstaffing on days when there wasn't anyone at the museum. As a parent, all of my kids are going to know statistics. Because I have just seen it used so many times and it's a very clear, hard skill. It's like the most practical math you can ever do.