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Daniel H. Pink, author, *When* and *Drive*

THE DECISION MAKER'S PLAYBOOK

SIMON MUELLER
JULIA DHAR

12 Mental Tactics for Thinking More Clearly, Navigating Uncertainty and Making Smarter Choices

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Praise for *The Decision Maker's Playbook*

'Each day, we make dozens, if not hundreds, of decisions. But every time we decide, we're bedevilled by biases that distort our thinking and direct us down blind alleys. In this timely work, Mueller and Dahr identify the roadblocks to efficient problem-finding and decision-making, and then prescribe solutions to overcome our worst instincts. This book is a must-have for all decision makers. And who isn't a decision maker?'

Daniel H. Pink, author of *When and Drive*

'Demands on leaders continue to increase. We all need tools to make the ideal choice in less-than-ideal conditions. Mueller and Dhar have the toolkit. Consider this your guide to doing big things well.'

Hon. Bill English, former Prime Minister of New Zealand

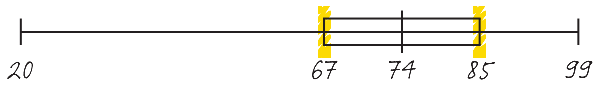
'Not happy with the quality of your decisions? Read this book. It's a treasure trove of tools for thinking more clearly.'

Rolf Dobelli, author of the million-copy bestseller *The Art of Thinking Clearly*

'This engaging book contains an impressive, sweeping survey of the traps surrounding decision making and practical ways of avoiding them. The authors' playful approach makes it easy to engage in the exploration of a wide range of practical tools.'

Enrique Rueda-Sabater, former Head of Strategy, The World Bank

- The first quartile of the data set (Q1) and the third quartile in the data set (in this case 67 and 85, respectively).



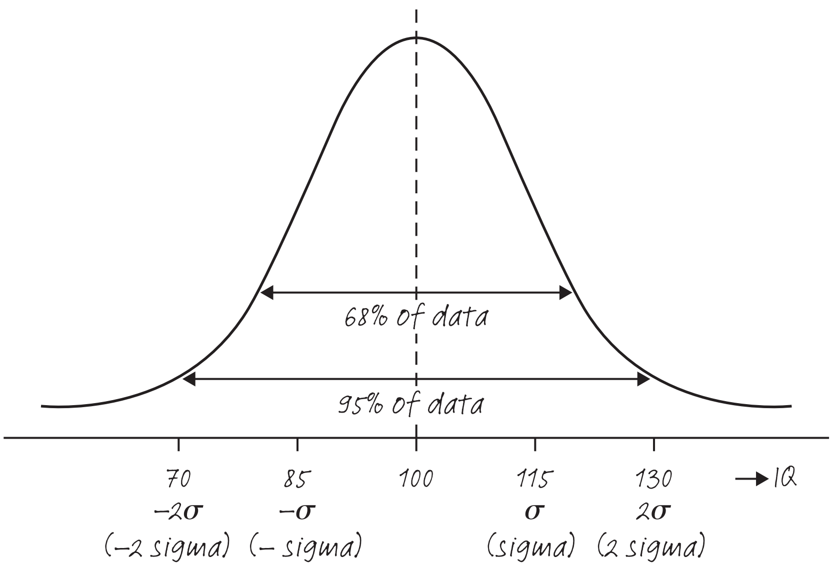
The data exercises we've just described take almost no time. In a small data set, you can perform them by hand like we did here. In a large data set, data analysis packages (Microsoft Excel, SPSS, Stata, R) will allow you to compute them almost instantly. For those of you who manage people who do the data analysis, asking for these quick descriptive overviews before any other work starts gives you a reality check on the data that you are working with.

These three tools (x–y scatter plot, histograms and box and whiskers plots) can be a powerful help in getting to grips with your data. Imagine for a moment that you are a call centre manager and that the data we used above represents the average minutes of idle time each of your staff has between calls. It is now very easy to identify leaders and laggards and see the variation in performance among your team. In our box and whiskers plot, our teacher has immediately segmented his data. No longer does he have 30 students, but 4 clusters of performers who might each require a different approach.

DISTRIBUTE YOUR DATA

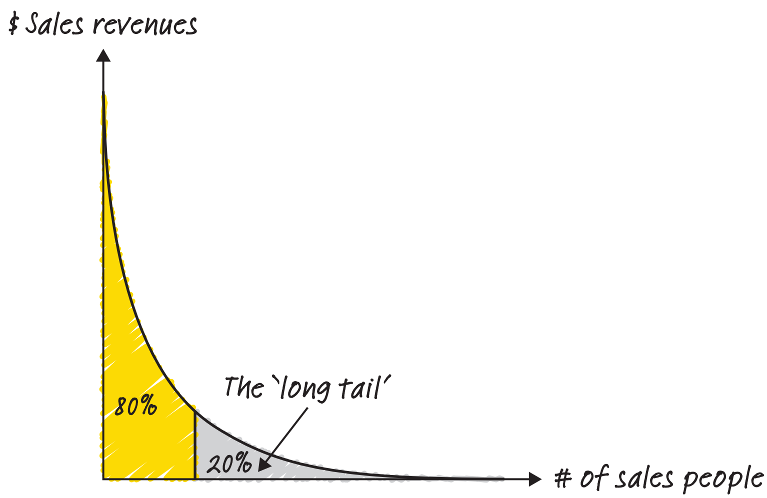
Now that you've seen how values in one example are distributed, we want to introduce you to some common distributions (that is, the shapes that our data can take), and to help you anticipate where you might see them.[39] By knowing the most common types of distributions and the conditions under which they are most likely to occur, you can make inferences about the likelihood of having observed what you, in fact, *did* observe. Even more importantly, knowing the typical distributions will help you make a better guess about those data points you haven't yet observed. Understanding the distribution of your data is how you move beyond single observations to identifying patterns.

Normal distribution



This is the distribution you are most likely to be familiar with (commonly called the 'bell curve' for its shape, or also the Gaussian curve after the famous mathematician and physicist Carl Friedrich Gauss). It's one of the most prevalent distributions that occur in natural history. For example, distribution of human heights or IQs typically take the form of a bell curve. The mean IQ of the population is standardised at 100. This means you can expect 68% of the population to have IQs between 85 and 115, and 95% between 70 and 130. In other words, it's extremely unlikely for a randomly picked person to have an IQ above 130 or below 70.

Pareto distribution



You might have heard of the 80:20 rule. It's the idea that 80% of the sales are made by 20% of the sales people or that 80% of the complaints are caused by 20% of customers. This broad phenomenon is captured by the pareto principle. When you see a distribution like this, you're seeing a story where a relatively small number of the inputs are responsible for a relatively large share of the output.

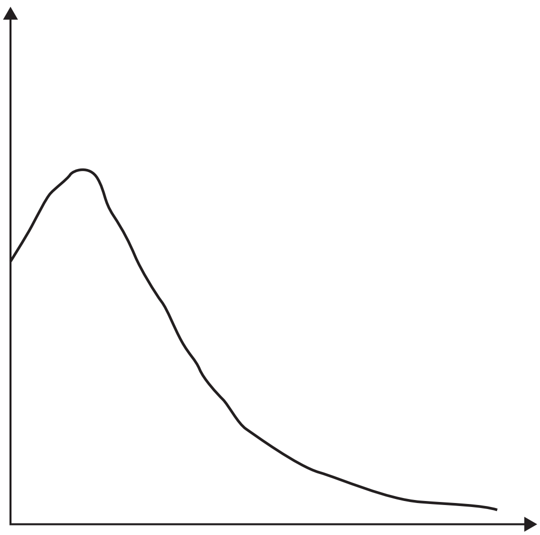
Where can you see this distribution in action? Many communities (especially online – think of Wikipedia or YouTube) are powered by super-users. Super-users are individuals who spend much of their personal time and energy on a platform. Your super-users are your outliers in that they sit outside (sometimes very far outside) the two standard deviations described above. But their impact can be disproportionate.

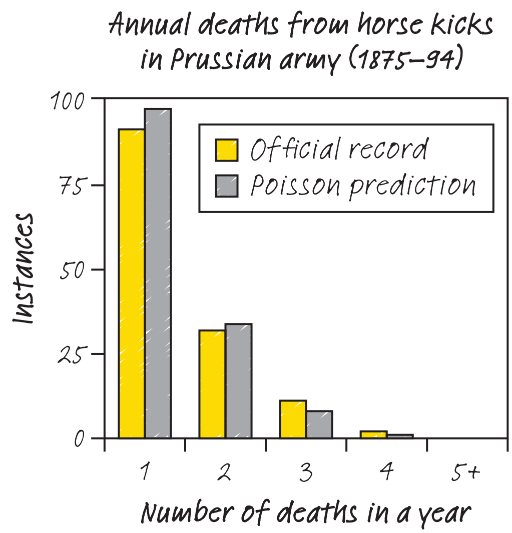
For instance, in 2015, the well-known blog Priceonomics reported that Wikipedia had some serious outliers: "Of Wikipedia's 26 million registered users, roughly 125,000 (less than 0.5%) are 'active' editors. Of these 125,000, only some 12,000 have made more than 50 edits over the past six months."[40]

As you think about your average customer, you should also ask yourself, who are your power-users and what do they contribute? How well are you serving or appreciating these statistical outliers? Does the change you are contemplating work for them?

Poisson distribution

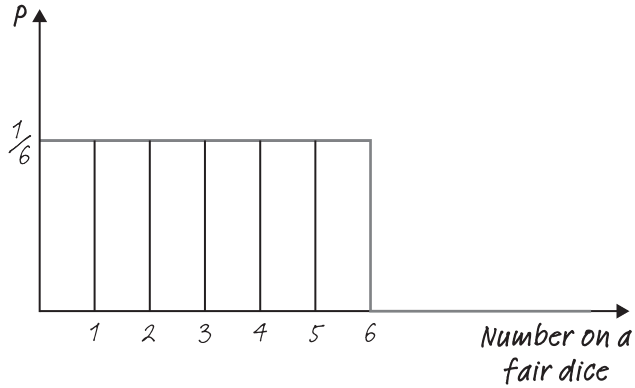
Whenever you estimate the number of events per unit of time, area or volume, you will be using the Poisson distribution. One of the first real-world datasets that contained a Poisson distribution was a list of Prussian soldiers accidentally killed by a horse-kick between 1875 and 1894. Other examples include the arrivals of customers in a retail store per hour, the number of customers who call about a problem per month or the number of aeroplane crashes per one million flight hours.





Uniform distribution

The uniform (also called rectangular) distribution is the simplest of all distributions. Typical examples are the serial number on a randomly selected dollar note, or the number that comes up when you roll a fair dice or when you spin a roulette wheel.



THE BOTTOM LINE

The data you use to kick off your analysis will determine how useful your results are – and whether they are useful at all. Make sure that your data is good quality, and form hypotheses to make sense of your information. Always look for ways to go beyond the average and see the full picture of your data (by looking at descriptive statistics and forming views about the underlying distribution of your data). That's where the real insight is.