Reference Behaviour Patterns: A Brief Introduction

A systems approach is concerned with change over time and where those changes are able to be quantified, they are often shown as time series graphs. Population graphs are a common example of data that is shown as a time series graph.
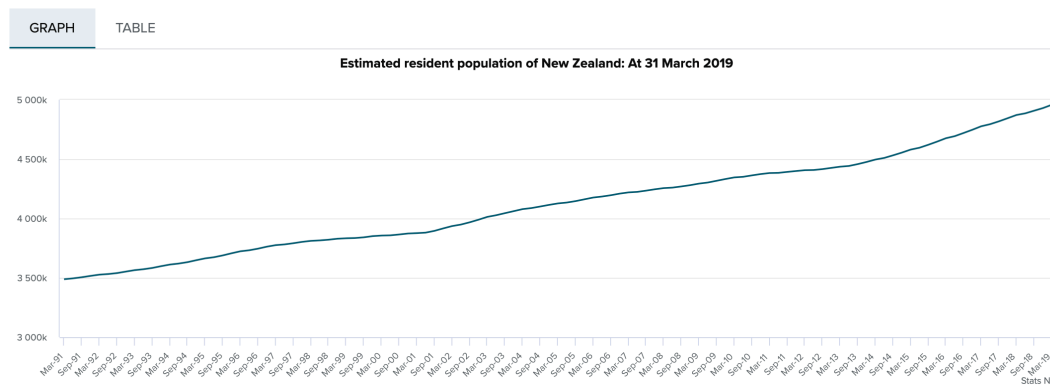

Figure 1: Accessed at https://www.stats.govt.nz/topics/population [11 July 2019]

But simply having variable change over time does not make it a dynamic problem. What makes it a dynamic problem is the fact that the performance of a variable is affected by both the input from another variable and the current state or condition of that variable. The current state maybe such that only a small amount of additional input can have a significant impact, the proverbial 'straw that broke the camel's back'. It wasn't the straw however, but 20 years of hard work and the current very fragile sate of the camel's back. So fragile that it only took another straw to break it. It also wasn't the meat pie and the accompanying beer at the pub that caused the heart attack. It was years of eating high sugar and high fat foods with little exercise that caused the heart attack. So, inputs are important, but in a dynamic problem, it is also the current state that needs to be taken into account.

Dynamic problems are harder to manage because of this. When we look at data, we tend to look for correlations - in fact it is the primary focus of statistics, to find correlations between different sets of data. Because correlation thinking is so ingrained in our thinking, we need tools to help us think carefully about issues that are affected by the passage of time. Reference Behaviour Patterns (RBPS) is one of those. [NOTE: RBPs are also referred to as Reference Modes, and Behaviour Over Time]

RBPs are a tool to focus our attention. In health and social service systems 'everything is connected to everything else' and unless we are careful, we can get lost in a world of connections. This issue is often referred to in the systems literature as the importance of 'modelling problems, not systems.' We can't consider everything, so we need focus our attention on key areas of system behaviour.

While it is sometimes the case that one RBP will capture the key issue of concern, multiple RBPs are often needed as a narrow focus on one variable can have disastrous consequences. One common example is the pursuit of cost reduction at the expense of service quality. Cutting costs by cutting staff or cutting services is easy. Cutting costs while maintaining, or even improving, quality is a much tougher challenge. The increasing use of frameworks such as the Triple, and Quadruple, Bottom Line is a reflection of the need to look at multiple variables when looking to improve services. It is no longer enough to drive forward on one at the expense of others. So, if one is looking at Mental Health services, for example, it would be important to develop RBPs that looked at key variables for client experiences, overall population health, unit costs and staff performance. All interact with each other to deliver Mental Health services.

It is important to state however that a RBP is NOT a new piece of jargon for time series data. RBPs are ways of defining a problem; they are abstractions. Time series data can inform our thinking, but people often see different things in the same data set. Our concern here is to help people think through the patterns of behaviour. It is the pattern that is central to the problem definition and it is the pattern that is likely to be the focus of change efforts, the effect of which will be seen in a different future pattern.

Creating a Reference Behaviour Pattern

A RBP is not difficult to create, but it is important to ensure that it contains key information. The steps outline below will ensure that this happens. Think about a project you are involved in, or a particular issue of concern and work through the following 6 steps:

1. What is the key change you'd expect to see if [........] was really effective
2. Use that change to provide a name for the graph
3. Draw a graph of this change, showing the pattern it has followed historically, how it is likely to develop if things carry on as they are, and how you'd expect it to change if [.....] was successful[1]
4. Make sure you provide a scale i.e. what measure will you use to assess if a difference is being made
5. Make sure you provide a timespan
6. Make sure you draw the graph to include the i) historical pattern, the ii) 'feared' future pattern and the iii) 'preferred' future pattern
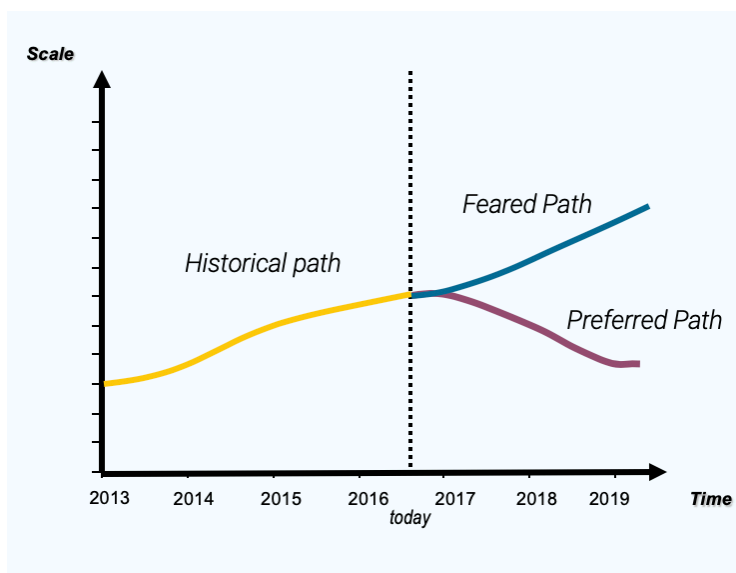

Figure 2: Basic structure of a RBP

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[1] if the issue you are exploring does not have a history, for example a new service, then start with the position today and focus on the two future paths