

Dealing with uncertainty

Uncertainty and risk abound in the policy world, and we often have to deal with new situations and new solutions to old problems. This is one of the challenges of providing policy advice.

We've written previous masterclasses on risk¹ and dealing with the uncertainties associated with data and evidence.² From what we see in the papers we review, how risk and uncertainty are dealt with is very mixed. Sometimes considerable effort has been put into acknowledging potential risks and having clear mitigation strategies to address them. Major risk factors are also built into the options assessment and policy design. At the other end of the spectrum, there is little or no discussion of risks.

However, the papers done during the height of the COVID-19 pandemic were often great examples of making policy in an era of uncertainties.³ Early on, no one knew much about how COVID-19 was spread, the best treatment options, the impact on all aspects of the economy – or what would happen in the aftermath of lockdowns and border closures. Policy advice acknowledged those uncertainties. And the advice was revisited and revised when more data, information and evidence came to light, e.g. a move to mask-wearing.

Similarly, the current economic situation is very different from what we've been experiencing in recent years, creating uncertainty. Climate change impacts are also in this camp.

So we thought it was worth picking up this topic again from a slightly different perspective. The aim is to provide a simple framework as an aid in preparing advice.

Known knowns through to unknown unknowns

Donald Rumsfeld⁴ in 2002, when talking about the intelligence picture ahead of the Iraq War in 2003, talked about uncertainty:

“Reports that say that something hasn't happened are always interesting to me, because as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns—the ones we don't know we don't know. And if one looks throughout the history of our country and other free countries, it is the latter category that tends to be the difficult ones.”

While history may not view the subsequent decisions made in this situation favourably, this is a fabulous distillation of a useful framework for thinking about uncertainty.

¹ See Masterclass No. 5 Risk https://www.nzier.org.nz/hubfs/Masterclasses/Central%20Government/brief_no_5_masterclass_risk.pdf

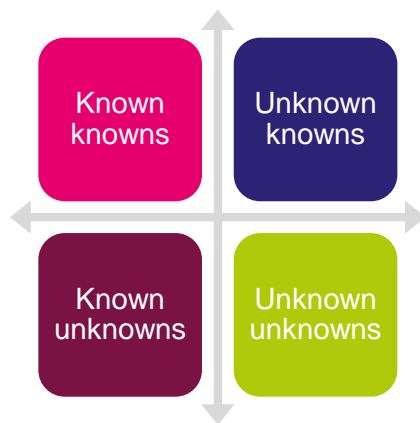
² See Masterclass No. 20 Presenting evidence <https://www.nzier.org.nz/hubfs/Masterclasses/Central%20Government/Brief%2020%20Presenting%20Evidence%20-%202022.pdf>

³ A useful discussion of the thinking about uncertainty together with an example of thoughtful application is in NZIER Insight 85 COVID-19: Moving between alert levels and into the future at <https://www.nzier.org.nz/publications/pandemic-uncertainty-nzier-points-to-key-planning-issues-nzier-insight-85>

⁴ <https://www.youtube.com/watch?v=REWeBzGuzCc>

Donald Rumsfeld wasn't the first to think about this sort of concept. And it's since been further elaborated on by scholars and academics. It's been built into project management and policy development processes, particularly for major projects. It's even been used in a documentary film and as the title for Rumsfeld's memoir.⁵

Figure 1 It can be shown visually



Source: NZIER

Known knows – are facts. Things we have clear data and evidence about. Things we know and understand. The most straightforward – but still not entirely straightforward, of course.

Known unknowns – things that might occur, but we don't know much about the likelihood, scale or impact. These are frequent in policy analysis, where data is often sparse.

The former Treasury Secretary Gabs Makhoul covered a number of known unknowns in a 2019 talk.⁶ More could now be added to his list – including the future of AI.

A risk framework is useful for considering these matters. Past experience and experience in other jurisdictions or similar sectors can help build understanding.

You could reasonably expect to identify these things and have a strategy to manage them within policy development and implementation. The classic personal example is whether or not a bus might be cancelled, impacting your trip to work.

Unknown knows – this concept has been more recently developed (and isn't quite explained by Donald Rumsfeld).

One way of thinking about these things is as 'blind spots' – things that were known by someone but not known by (or considered relevant by) the policy advisors/decision-makers. It has been argued that these can be wilful blind spots, e.g. a failure to acknowledge particular evidence or perspectives.⁷ Unconscious biases may also fit into this category.

Unknown unknowns – things that we don't know we don't know. The essence of the Rumsfeld quote. In this example, he was talking about plans and capabilities that the Saddam Hussein regime may or may not have had. They are things you can't anticipate.

Going back to the COVID-19 pandemic – most people, organisations and businesses didn't anticipate what was coming and the impacts it would have. Or, more specifically, some of the more unusual morbidities associated with COVID-19, a seemingly respiratory illness, e.g. blood clots. Or how the housing market escalated in value during the epidemic – where analysts predicted exactly the opposite. Another example might be an unexpected adverse reaction to a pharmaceutical drug early in development. As this adverse reaction is better understood, this might become a known unknown and therefore use restricted, or side-effects acknowledged.

⁵ Known and Unknown: A memoir
<https://www.penguinrandomhouse.com/books/304431/known-and-unknown-by-donald-rumsfeld/>

⁶ <https://www.treasury.govt.nz/publications/speech/managing-known-unknowns-public-policy-and-economic-management-twenty-first-century>

⁷ Work of Kahneman and Tversky, like their 1982 piece Judgement under uncertainty in *Science*, discusses various forms of bias in decision-making. See the original article:
<https://www2.psych.ubc.ca/~schaller/Psyc590Readings/TverskyKahneman1974.pdf>

But there are ways of managing these in the policy development process

The first step is to apply this framework to the policy issues and the options you are thinking about to address the issue. Applying this framework can be included as part of an options assessment or a more detailed assessment of the preferred option to refine it further and shape implementation.

Secondly, there are strategies to manage elements in each sector of the matrix – see Table 1.

It’s complex

Dealing with uncertainty is tricky and even harder if a problem or policy is complex, multi-faceted and new.

But keep at it. Policy advisors cannot choose the issues they must tackle, and uncertainty will continue.

Table 1 Strategies for dealing with types of uncertainty

| Element | Strategy |
|------------------|---|
| Known knowns | Evidenced-based policy Careful options consideration Thoughtful implementation |
| Known unknowns | Risk analysis and mitigation strategies Research – especially looking at what has been done before and done in other places/ sectors Trials/prototyping – and evaluation Monitoring, reporting and corrective action Insurance/risk pooling |
| Unknown knowns | Seeking diverse views and perspectives Considering alternatives Free and frank advice Research Expert advice Consultation/Engagement |
| Unknown unknowns | Building in contingencies (both time and cost) for unknown risks Monitoring, reporting and corrective action Insurance/risk pooling Scenario planning |

Source: NZIER

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