# Ready, steady, go– what makes a good outcome?

The Office of Rail and Road (ORR) commissioned Economic Insight to undertake a cross-sector comparison of outcomes frameworks to inform the approach that Highways Monitor (a function within the ORR) should take when providing advice on future outcomes for Highways England. One of our key findings was that the appropriateness of any outcome measure depends on the extent to which it is: (i) valued by users; (ii) controllable by the provider; and (iii) measureable. At present, however, the evidence base available to assess outcomes against these criteria in highways is limited. Therefore, looking ahead to the next Road Investment Strategy, we think it is critical to explore ways in which that evidence base can be improved. This Insight discusses the type of evidence that could be developed to inform 'good' outcomes.

## Background and context

The Infrastructure Act 2015[1] (the Act) created Highways England as a government owned company (formerly the Highways Agency) and gave it responsibility for managing England's Strategic Road Network (SRN) consisting of motorways and main 'A' roads. A key responsibility of Highways England is to deliver Road Investment Strategies (RIS) as set out by the Secretary of State. The first RIS (RIS1) which covered the period 2015/16 – 2019/20; included a *Performance Specification* describing the outcomes Highways England is expected to deliver (defined in terms of eight high level outcome areas, with associated key, performance indicators and requirements). Collectively, this Performance Specification functions as the outcomes framework for Highways England.

The Act further established Highways Monitor (a function within the Office of Rail and Road – ORR) as the independent regulator of Highways England. Key functions of Highways Monitor include: (i) providing advice to the Secretary of State as to the extent to which the RIS is *"challenging and deliverable"*; and also (ii) monitoring Highways England's performance against the outcomes and targets contained in the RIS. Accordingly, Highways Monitor plays an important role in advising on what outcomes and targets Highways England should be set.

In the above context, the ORR asked Economic Insight to undertake a cross-sector comparison of outcomes frameworks to inform Highways Monitor's approach to advising on the outcomes framework for the next RIS (RIS2). Our final report[2] was published on July 1st and included a review of some 15 outcomes frameworks across a diverse set of sectors, including amongst others: healthcare, water, transport, energy, post, and education.

At a headline level, we found that it was not practical, nor appropriate, to draw absolute conclusions as to what a "good" outcomes framework for highways might look like based on a comparison of alternative approaches. This is because we found that the effective design of any framework fundamentally depends on the objectives and role its trying to meet, which can differ materially across frameworks for entirely legitimate reasons. For example, frameworks can be designed to *monitor* outcomes and outputs, or alternatively, can be designed to *incentivise* changes in behaviour in order to determine the outcomes themselves. Similarly, frameworks might be designed to help achieve *value for money* (i.e. doing more for less); or alternatively, might be used to help determine the best *allocation of limited resources.*

In addition to the above, we also found the level of prescriptively varies amongst frameworks and based on our

[1] *'The Infrastructure Act.' HM Government (12th February 2015).*

[2] *'A cross-sector review of outcomes frameworks: a report for the ORR.' Economic Insight (July 2016).*

review there is no direct read across as to: (i) the "right" number of outcomes; (ii) how "detailed" outcome measures should be; and / or (iii) whether and what targets should be set in relation to those outcomes. Helpfully, however, our review did allow us to identify:

- what ***questions*** one needs to ask to determine an appropriate framework design; and relatedly
- what ***evidence and analysis*** might be required in order to inform the answers to those questions.

## What makes a good outcome?

A key issue at the heart of any outcomes frameworks design is determining 'what' outcomes should be included. Based on our research, we further took the view that there are three criteria that should be applied to determine this in relation to highways. These are:

» whether customers / users of highways or other stakeholders **'value'** the outc**ome** in question;

» whether the outcome (and associated measure) is **controllable** (i.e. the extent to which Highways England's activities directly influence the outcome); and

» whether the **outcome is measurable** (either directly or indirectly through relevant KPIs).

At this time, however, we found that there is limited evidence and information as to the extent to which the existing outcomes included with the outcomes framework for RIS1 do, or do not, meet the above criteria. This is not a criticism; but, rather, reflects the fact that highways regulation is at a relatively early stage of development – and one would naturally expect an evolution over time. Moreover, it also does not imply that the existing outcomes are not appropriate - merely that the underlying evidence base is insufficient to determine one way or the other.

Accordingly, as the industry begins to look ahead to RIS2, the more interesting (and constructive) questions relate to "how" the evidence base could be developed in order to ensure that the outcomes included are as robust as possible. The remainder of this insight focuses on what evidence could be developed to inform the above questions.

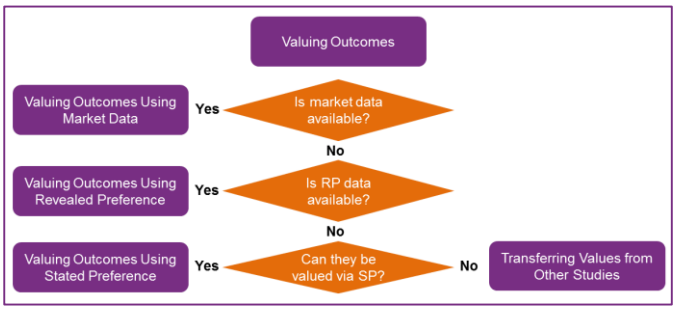
## A road to value

Focusing on the first of the three criteria listed above (i.e. determining whether, and the extent to which, users "value" the outcome in question), we think there are three main avenues that the ORR, or other relevant stakeholders, should explore:

- stated preferences approaches;
- revealed preferences approaches; and
- experimental methods.

There are pros and cons to each of these, and so it becomes vital to think carefully about which method is appropriate under which circumstances (as illustrated by the figure below) – a theme we expand on in the following.

**Figure 1. Valuing outcomes**




***Stated preferences approaches***

Stated preferences approaches, such as surveys, can be useful in getting users views as to whether they value certain outcomes and additionally, whether they value some above others. For example, Highways England could survey road users and ask them to rank whether they care more about safety, smooth traffic flows or encouraging economic growth. The issue with surveys is that respondents don't necessarily *"put their money where their mouth is";* and as such, even if it appears that they particularly value an outcome, this may not be the case in reality.

***Revealed preferences approaches***

Revealed preference approaches try and address the issue around respondents not doing what they say they will. There are various different revealed preference methods, including: the travel cost method, hedonic pricing and the avertive behaviour method.

In order to determine whether users particularly value an outcome (for example, such as in relation to RIS1 – the 'delivering better environmental outcomes' outcome, where one of the KPIs is "number of Noise Important Areas mitigated"), both the avertive behaviour method and the hedonic pricing method could prove quite useful. The avertive behaviour method is based on the notion that, if people can "take action" to avoid an adverse outcome, or risk, then this can be used to implicitly value the adverse outcome. Specifically, the avertive behaviour method will often involve costs (both direct and indirect) that would not otherwise be incurred. If these can be observed and measured, a valuation can be derived. So, for example, if people who live in noisy areas from major transport sources tend to buy triple glazed windows or invest in sound insulation in their houses (or buy more earplugs than people living in quieter areas), this cost could inform the valuation of mitigating noise. Similarly, the hedonic pricing method starts from the premise that the value of a good is determined by a range of characteristics. Therefore, so long as you can observe: (i) the prices charged for the good; and (ii) the characteristics, ultimately you can identify the underlying value of each characteristic. This method is commonly applied to the housing market**,** as the value of property clearly depends on various component characteristics (e.g. its size, number of bedrooms, but also external environmental factors associated with its location –

such as pollution, noise and so on). Therefore, hedonic pricing can be a helpful means of valuing environmental resources. The direct application to determining whether this outcome is valuable for the customers would be to compare whether house prices in Noise Important Areas are lower than in quieter areas, for example, all else equal.

***Experimental methods***

Finally, another way to determine whether an outcome is of value to the users, would be to pursue experimental methods, such as laboratory experiments or field trials. For example, in the water sector we have developed lab-experiments designed to estimate consumers' willingness-to-pay to reduce the risk of receiving coloured (but safe) water. The basic idea is that consumers have to choose between purchasing a bottle of water from a stand with a low risk of colouration or from a (lower-priced) stand with a higher risk of colouration. The choices consumers make reveal their preference for clear water and what they're willing-to-pay to avoid colouration. Similar techniques could be used in other sectors, such as highways.

## A matter of control

A further recommendation to the ORR was that work should be taken forward to better understand the extent to which the outcomes and related KPIs are, or are not, directly influenced by Highways England.

The logic for why *controllability* is an essential criterion for determining the appropriateness of outcomes is clear. In particular, as noted previously, an outcomes framework may be intended to either 'monitor' and/or 'incentivise' the performance of the delivery company (Highways England). In cases where the outcome identified is outside of the company's control, it would clearly fulfil neither function – and so would be entirely unhelpful.

The above naturally raises the question of "how" the ORR might develop evidence and analysis to inform the question of controllability in relation to RIS2. Here, the main approaches would seem to include:

- regression analysis; and
- mapping investments to outcomes.

In practice, there are a range of analytical techniques that could be used to help inform the degree of 'controllability' over outcomes and related KPIs. Below, we set out in more detail how forms of statistical and econometrics analysis could be utilised to examine the relationship between Highways England's activities, outputs, and outcomes. We recognise that the feasibility of this may vary across the outcomes areas, but consider it to be sufficiently important that we would strongly recommend the ORR explore this topic further.

***Regression analysis***

One of the techniques we could apply to determine whether Highways England's actions are having an impact on, say KSIs, is regression analysis, a technique often to determine price effects. The outcome variable, in this case KSIs, would be affected by a range of other factors (other than Highways England's actions, such as investment in the SRN), such as for example:

- the volume of road journeys;
- journey patterns;
- road quality;
- weather;
- day of the week;
- holiday season;
- etc.

Were we to run this analysis and it showed that among other factors, Highways England's investments in the SRN have a negative effect on KSIs (i.e. for a 1% change increase in Highways England investment, KSIs would reduce by x%), this would indicate that Highways England does indeed have some control over KSIs. Alternatively, as investments do not directly translate into improvement in the SRN in the year of investment (i.e. big capital projects), we would also be able to analyse the effect of lags on KSIs, say, we could analyse whether an investment in the SRN by Highways England that occurred five years ago has had an impact on the outcome variable of interest - KSIs.

***Mapping investments to outcomes***

Finally, the ORR could consider whether mapping outcomes and outputs to individual investments (at a detailed level) would improve the robustness of its outcomes and monitoring framework. This would likely inform an assessment of: (i) which of those investments are appropriate in the first place; and (ii) the appropriateness of the investment (i.e. if an investment does not map to any relevant outcome, this might call into question why that investment is required).

## Conclusion

Overall, one of our key recommendations was that more evidence is required in order to ensure that any outcomes (and targets) proposed within RIS2 are appropriate. Specifically, stakeholders will need to understand the extent to which the outcomes are: *valued, controllable and measureable.*

Addressing these issues is not straightforward. However, there are many analytical techniques that could be drawn up to help make progress – and the trick is to focus in on those most likely to yield helpful results. Clearly we remain at a relatively early stage in the regulatory journey – both for RIS2 and for highways more widely. Nonetheless, the road ahead might be smoothened by making early progress in this critical area.

*Economic Insight advises clients on regulatory issues, including framework design and implementation.*

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