

The fair price of causal information

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Canberra, September 2017
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The logo for ARTD CONSULTANTS features a blue curved line above the text. 'ARTD' is in blue and 'CONSULTANTS' is in green.

What is this all about

1. You should only pay for the amount of information that is actually going to be used to make a decision
2. It is possible to work out the marginal utility of information created from evaluation i.e. a cost benefit ratio of a method



3. What follows is some initial thinking about the key factors to inform a choice of method - its just a heuristic

'Scientific' evaluation?

1. We must start with the serious question of are we practicing science or accountability?
2. Science is about explaining the way the world works and the value of our interventions into it
3. A method is not 'scientific' ipso facto
4. A method is scientific if it is testing a theory
5. A method is not scientific if it is measuring what happened and to what extent – that is history.

When is an RCT scientific?

When it is testing a theory.

- **Mature and stable** interventions
- **Effective targeting** to those who stand to benefit
- **Large expected effects** or effects relatively unaffected by context
- **Large sample sizes** relative to the size of effect and the variability between units
- **Reproducible intervention** defined in terms of abstract causal mechanisms in context.
- Usually easier to test parts of a program theory

Being smart about using RCTs

- RCT is not necessary for accountability
- RCT is not usually sufficient for learning
- RCT is often an expensive middle option – especially considering other methods of causal inference



Australian Government
Department of Industry,
Innovation and Science

Office of the
Chief Economist



Choosing appropriate designs and
methods for impact evaluation
2015

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A four axis approach to reducing uncertainty about the value of an intervention

1. Type of decision or question being asked
– scientific or accountability?
2. Resources available i.e. time, money, skills
3. Degree of attribution required (internal validity)
4. Extent of generalizability required (external validity)

Fair price of causal information

Level of decision making

Meta-analysis of RCTs

Warranting a program as effective (science)

RCT with new data

Quasi-experimental (Bayesian probability, Regression etc.) with admin data

RCT with admin data

Monitoring system-wide changes with admin data

Monitoring system-wide changes with new data

Warranting a grantee or provider as effective (accountability)

RCT with new data

NB Assumptions for RCTs/ Meta-analysis

- Estimated effect size & sample size (for sensitivity)
- Stable/ mature/ abstract mechanisms (for specificity)

\$

Testing a casual mechanism (science)

RCT with new data

Theory-informed or realist RCT with admin data

Realist quasi-experimental with new data

Theory-informed or realist RCT with new data

Qualitative research

Realist intra-program variation with new data

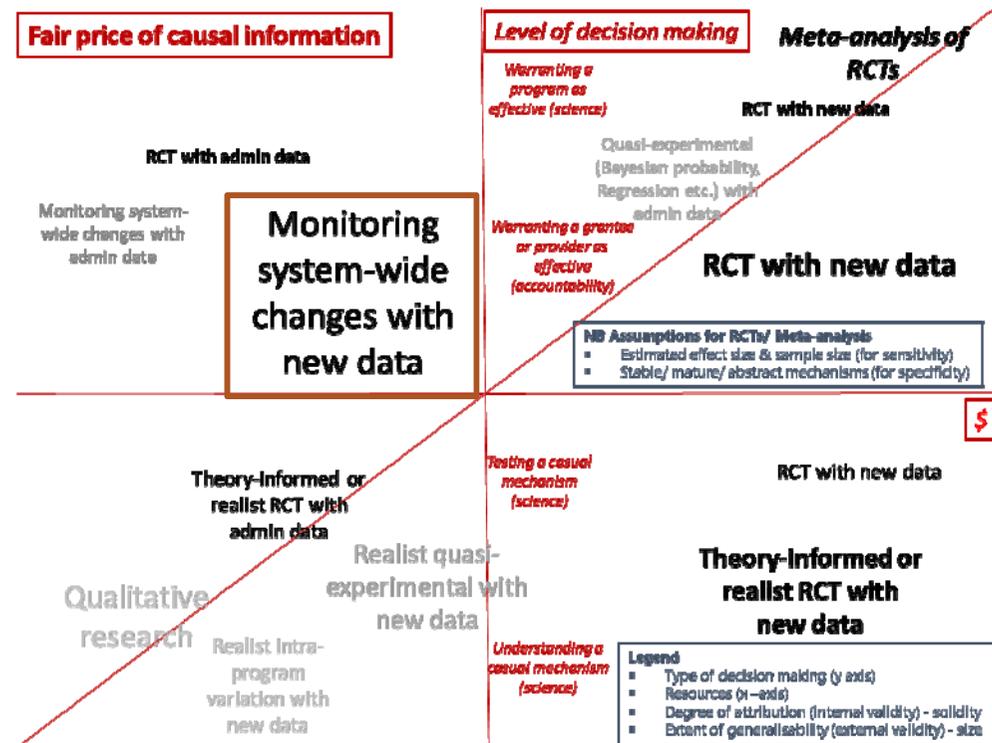
Understanding a casual mechanism (science)

Legend

- Type of decision making (y axis)
- Resources (x -axis)
- Degree of attribution (internal validity) - solidity
- Extent of generalisability (external validity) - size

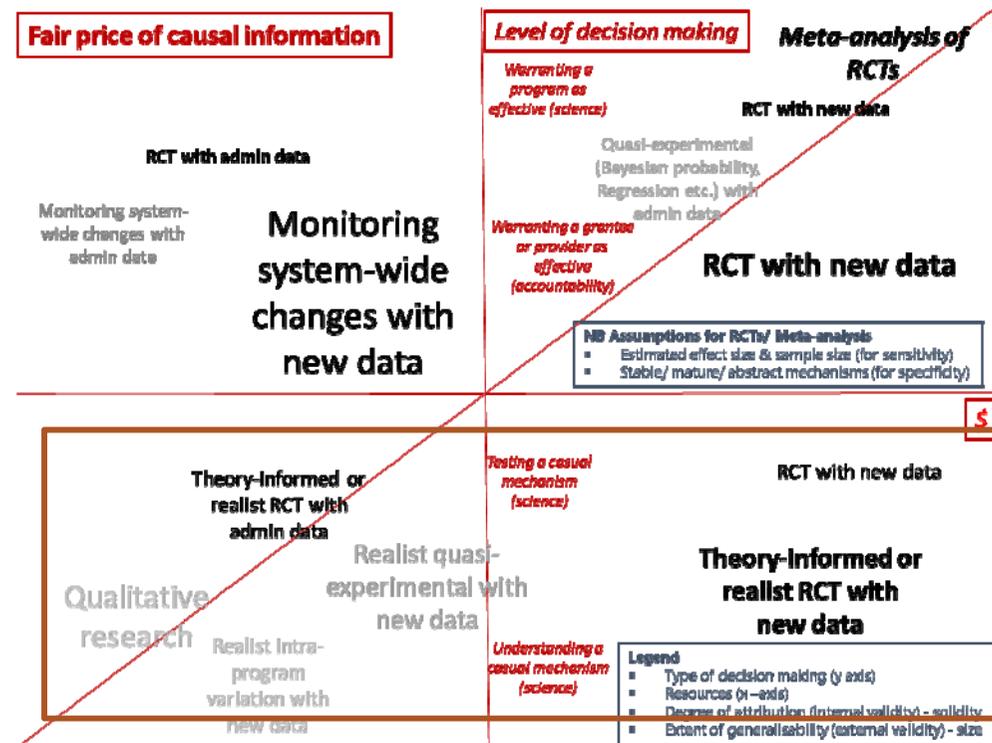
Examples

- I have been funding a non-for profit agency to deliver a youth job skills program – how much should I spend to determine if they should keep their funding?



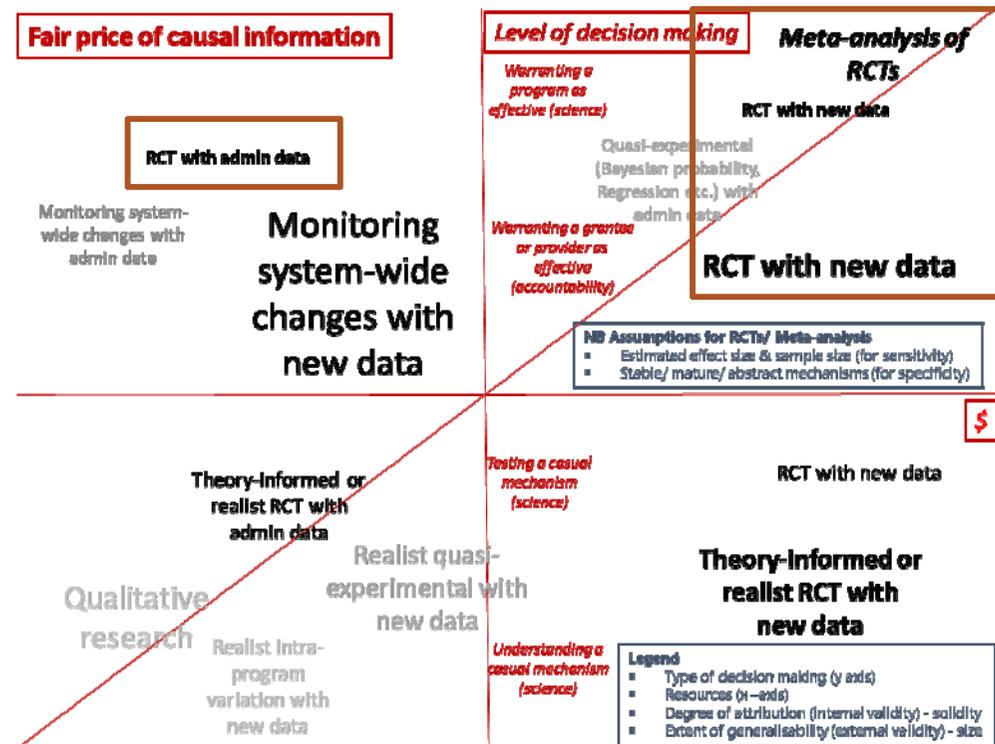
Examples

- I have a promising program and I want to understand how it works and which parts have the most causal power so I can replicate these parts to work for different target groups



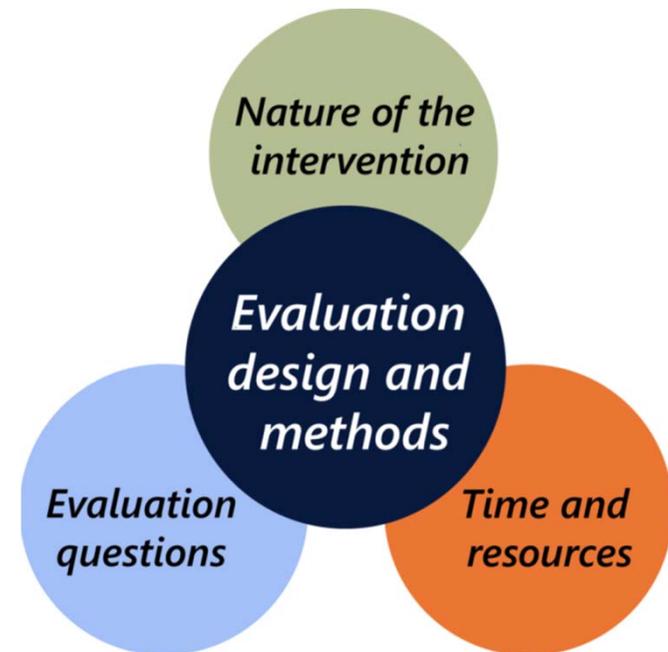
Examples

- I have a promising program and I want to roll-it out to more providers and locations



It is the mark of an educated mind to rest satisfied with the degree of precision which the nature of the subject admits and not to seek exactness where only an approximation is possible - Aristotle 314 BC

Better an approximate answer to the right question, than a precise answer to a question no one cares about
– Chris Milne 2014 AD



What is noteworthy about this approach?

1. This is not about impact or formative evaluation – here the unit of analysis is always the program and what happened.
2. Instead this is about the degree of uncertainty to be resolved – this can be for accountability (what happened) or for science (what is likely to work in the future).
3. It does not preface a certain method without knowing what the question is that needs to be (and can be) answered.
4. It can lead you to select relatively cheap methods with a big pay-off – rather than an expensive method that doesn't help with decisions that need to be made!
5. From a scientific perspective a key idea is that whole programs are difficult to understand as casual entities – it often makes more sense to look at parts of the program with casual powers, or the combination of factors.

What do we mean by 'caused'

- The presence of something is invariably followed by the presence of something else (**successionist**) [simple change]
- The configuration of certain somethings *immediately* brings about a new something (**configurationalist**) [complicated change]
- The presence of something with certain latent powers in contact with the latent powers of something else creates a new something (**generative**) [complex change]