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Department of the Prime Minister and Cabinet

BEHAVIOURAL ECONOMICS TEAM OF THE AUSTRALIAN GOVERNMENT

Guide to developing behavioural interventions for randomised controlled trials

Nine guiding questions

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The views expressed in this paper are those of the authors and do not necessarily reflect those of the Department of the Prime Minister and Cabinet or the Australian Government.

Guide to developing behavioural interventions for randomised controlled trials: Nine guiding questions

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Note: This guide is designed to aid in the discovery and diagnosis phases of the development of a behavioural randomised controlled trial only. It fits within BETA's broader project framework which addresses important considerations including trial design, ethics and programme management.

Introduction

Behavioural Economics Team of the Australian Government

The Behavioural Economics Team of the Australian Government (BETA) is a joint initiative across the Australian Public Service. Its mission is to build behavioural economics capability across the public service and drive its use in policy development and service delivery design by testing what works, where and in what context. It will achieve this by working with its partner agencies to:

- build the APS capability needed to support greater use of behavioural economics in policy making and service delivery
- provide behavioural economics expertise on a number of projects that apply and test policy, programme and administrative designs
- establish links between the APS and the behavioural economics research and practitioner community, here and overseas.

BETA approach

Rather than expecting people to redesign their lives around government, BETA's work encourages people-centred design, which means: simpler, clearer and faster public services.

Traditional policy makers assume people will always make the best decision possible, and have no shortage of willpower. However, research and evidence tells us this isn't always the case.

There is often a gap between what people intend to do and what they actually end up doing. For example, when people are in 'auto-pilot' we know they will often use shortcuts and rely on biases and stereotypes to make decisions and, in some cases, people won't act on their best intentions due to choice overload and complexity.

That's why it's important to put real human behaviour at the centre of policy and programme design. Designing policy based on a better understanding of human behaviour goes hand-in-hand with our commitment to build our understanding of what works and when we need to adapt our approach. Context is incredibly important in decision-making, and so it should be in our policy making and service delivery.

We are making sure our government policies, programmes and services reflect real decision-making and achieve the best possible outcomes for Australians.

Experience has shown that inexpensive improvements based on a better understanding of human behaviour can increase efficiency within the public service and help people put their good intentions into action. Initiatives like plain packaging of cigarettes, *mysuper* and pre-filled tax forms were designed with real human behaviour in mind.

BETA's projects typically involve two core pillars:

1. Designing behaviourally-informed interventions
2. Testing those interventions using randomised control trials (RCTs)

By way of introduction, as outlined below there are four overall components to any behaviourally-informed project with an RCT. This is a policy-making approach that starts with the outcomes of interest, then explores the causal behaviour before developing interventions and testing them.

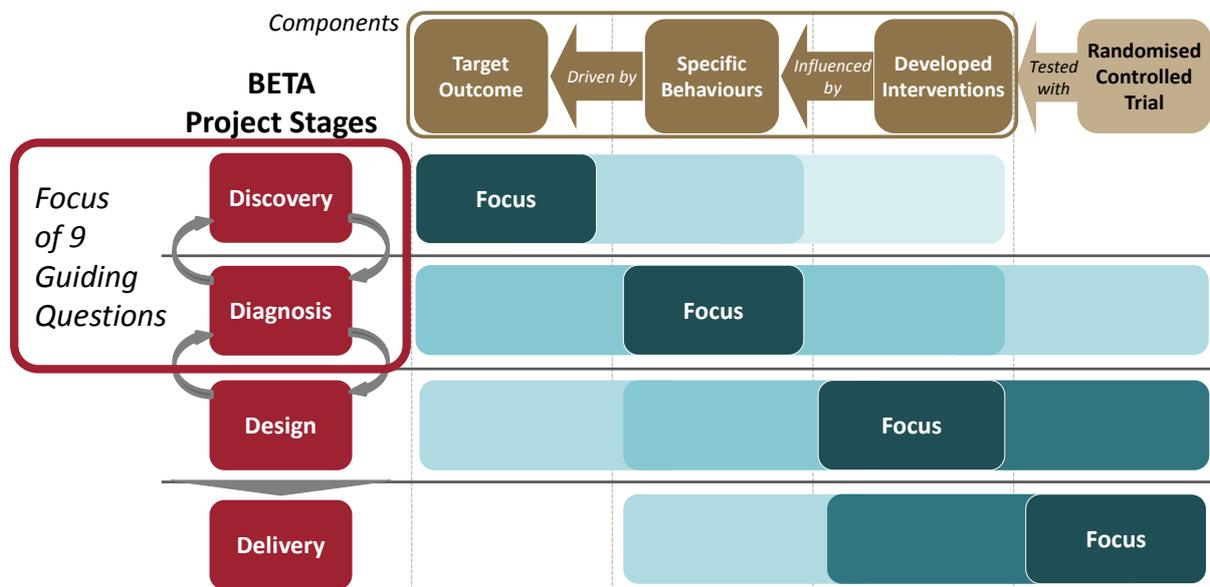


These components are not worked on separately, but throughout BETA’s four project stages:

- **Discovery:** identify the policy problem and conduct initial discovery work to understand the context, target population and behaviours.
- **Diagnosis:** conduct desktop research, review data and materials and conduct fieldwork to define the behavioural problem and propose targeted interventions.
- **Design:** design interventions in detail and design a trial to test their efficacy.
- **Delivery:** implement, analyse and report on the trial.

As outlined in the diagram below, each phase will see the focus of the team move from identifying the target outcome, to exploring the causal behaviour, to developing behaviourally-informed interventions, to running a trial of those interventions. While each stage has a different focus, the process is not linear until the trial is launched. It will be necessary to think about trial design early and be open to reconsidering the behavioural diagnosis during the design phase.

This guide is designed to primarily help with the *discovery* and *diagnosis* phases.



For an introduction to RCTs, see BETA’s Guidance Note 1 in the [Appendix](#).

Initial discovery questions:

1. What is the outcome of interest?

Any behavioural project is organised around understanding and intervening in the behaviours driving specific, identified outcomes. The outcome should be specific (to a behaviour), measured (quantified), assignable (to participation in the intervention or control group), realistic (given resources) and time-related (when they will be achieved). Ideally outcomes will be aligned with government priorities and have a clear public good component. Examples of well-defined outcomes include:

- Improve school attendance among students currently in bottom 25% of attendance in primary schools by 10 percentage points in term 1 2017.
- Reduce credit card debt among remote households with existing credit card debt over \$30,000 by 15% by July 2017.
- Improve return-to-work rate within 6 months for individuals injured at work by 15%.

This outcome might relate most directly to an individual (e.g. student, patient, taxpayer etc), an organisation (e.g. a school, a hospital, a business) or an area (e.g. a household, street, suburb or region). For the purposes of this document, we have used the word 'individual' as that is the most common focus of outcomes, and individuals are most often the level at which decisions get made. However, this approach and analysis can easily apply to broader groups of people.

2. Can we accurately, directly measure the outcome using existing data?

It is critical for the viability of an RCT that the outcome can be measured. While RCTs may utilise the collection of novel data, such trials typically take longer and are more expensive. There are many important outcomes measured in existing datasets across government agencies in Australia. Focusing on those outcomes already measured will reduce the cost of a trial, increase the viability of delivering the trial, and allow resources to be focused on other elements of the project.

In thinking about the available data, consider:

- Do we have data on the **outcome** of interest in a single, existing dataset to which we have access?
- If not, can we readily combine existing datasets to which we have access?
- Do we have access to accurate, existing data on the **behaviour** of interest as well?
- Do we have data on which individuals might receive an intervention? (noting that this depends on the ultimate intervention)
- Can we track specific individuals through the process? Can we link outcomes, behaviours and interventions to specific individuals directly?

Note: if we cannot track the individuals who do and do not receive the intervention through to their outcomes, it is much more challenging to design an RCT.

3. Can we deliver standardised interventions to a reasonably large randomised population?

Standardised channel

It is important for RCTs that everybody receiving an intervention receives a consistent and standardised intervention. There may be three interventions being tested against a control group, but everybody receiving the first intervention must see the same thing, and everybody seeing the second intervention must see the same thing and so on. Otherwise it will not be possible to meaningfully interpret the results of the trial. That is because possibly the intervention would have been *more* effective if everybody had received the same treatment, but possibly it would have been *less* effective. If interventions are not standardised in their delivery, the interpretation of results becomes much more speculative.

Accordingly, some channels for interventions are more generally suited to RCTs, for example: webpages, SMSs, letters, signs or forms & processes. Interventions delivered through people can work with RCTs; however quality assurance measures will be important to ensure all participants receive the same intervention. Such RCTs are typically more expensive and entail higher levels of delivery risk.

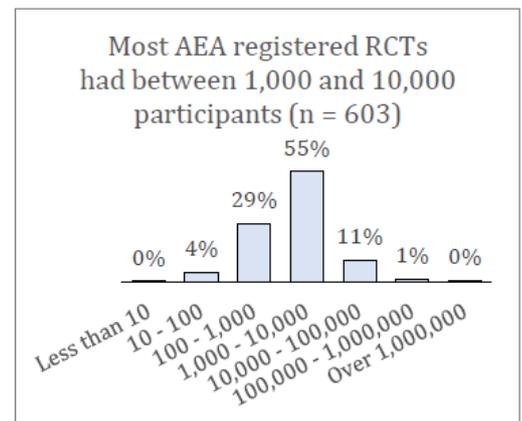
Accordingly, it is helpful at this stage to list out:

- What channels does the agency have to intervene in the behaviour?
- Which channels already exist, and could be easily modified?

Reasonably large population

As a rule: The more people involved in a trial, the easier it is to detect if the intervention made any difference. It is possible to assess if an intervention is better than a control condition with lower numbers, but where possible, bigger trials are preferred. To illustrate how this manifests, the image on the right shows the trial size of 603 RCTs registered with the American Economic Association - 55% had between 1,000 and 10,000 participants.

Accordingly, interventions that are delivered differently by individual are more common than those delivered differently by larger units such as: per school, per hospital, per community etc. That is because for example, an intervention in a district of a school system may be randomised at either the level of the individual student, allowing a sample size of 15,000 students, or at the level of the school, allowing a sample size of only 150 schools. The consideration in favour of large sample sizes should be weighed against other considerations like spill-over: many educational interventions could not realistically or meaningfully be randomised and delivered at the student level, with classmates or siblings being involved in different arms of the same trial. For that reason sample size may be sacrificed and a trial designed to be randomised at the level of the household, classroom, school or community.



Sample sizes of RCTs on AEA RCT Registry

Randomised

BETA will provide advice and support to agencies as required to randomise participants for trials, noting that there are different approaches available.

A standard RCT will involve a specific population being randomly allocated into a treatment group to receive an intervention, or a control group to continue to receive the existing services.

Depending on the trial, it may be preferable to stratify a sample before randomising (divide into sections of shared significant common characteristics). This can ensure that important sub-groups in the population are equally represented in intervention groups and the control group.

For large-scale projects, where there is more demand than supply, it may be optimal to use lottery-based access to the service. Such lotteries reduce the potential for explicit or systemic bias to influence any selection criteria, and have the benefit of being a transparent, consistent decision rule. In addition, it allows the government to learn much more about the actual effectiveness of the programme. There are numerous examples of governments around the world using lotteries in these contexts, including [Moving to Opportunity](#) and the [Oregon Health Insurance Experiment](#) in the USA, and [PROGRESA](#) (conditional cash transfer programme) in Mexico.

For projects on services with universal coverage, it may be an option to use randomised step-wise rollouts. This allows for all individuals to access the programme in time, and for the government to learn whether the programme is effective and good value for money. An example of this approach is the [Back-to-Work programme](#) run by the Behavioural Insights Team and the UK Department of Work and Pensions.

Agencies should note that there may be some policy areas where it is not legally permitted to randomise access to an intervention (e.g. elements of employment law). That is rarely the case and there are many randomisation approaches that can account for legal and ethical concerns.

4. Is an intervention in this space feasible?

Feasibility will be a critical consideration in designing specific interventions for trials. However, even before designing interventions, it is important to consider feasibility in a more general sense. Early feasibility considerations include:

- Alignment with agency and government priorities
- Recent policy/programme history
- Agency capacity and capability
- Cross-agency and cross-jurisdictional opportunities and constraints
- Budget environment
- Opportunity for learning within the APS

Diagnosis (behaviour and intervention) questions:

5. How can we (get out of the office to) better understand the behaviour?

For policies and programmes to represent more accurate models of human behaviour they need to be informed by how people actually behave. It is important that the behaviour is analysed and interventions identified with inputs from outside departmental policy offices, and informed by the voices of end-users and front-line workers, i.e. not just policy designers.

To better understand the experience and behaviour of those involved (both users of a service or policy, and front-line workers) and to test emerging intervention designs, it may help to utilise:

- Interviews
- Observations
- Shadowing/Immersion
- Surveys
- Focus Groups
- Online panels to test effectiveness and response to new materials
- Data Science (to focus in on certain groups)
- Other human-centred design methodologies ([see here](#) and [here](#))

This consideration is important because without such research, it is more likely that behaviours are inaccurately diagnosed and less effective interventions are designed.

6. Specifically, what behaviour is leading to the outcome?

Try to put yourself in the situation of the typical individual who is making the critical decision(s) and then think about:

What are the most important behavioural challenges that may be driving the behaviour?

If you think there are multiple types of people who will be making the decision, consider each of these in turn. This question will be difficult to answer fully in isolation of further research. To help answer this question, we have compiled the below list of behavioural diagnostic questions. As you work through the questions, consider:

Which is likely the most important barrier to good choices in this context?

The following table is designed to cover the wide range of behavioural findings and interventions that have been identified and tested in behavioural work around the world. Not all questions will be relevant, but working through them will help the project team be sure they have considered more fully the decisions being made.

Table: Questions to aid the exploration and understanding of behaviour

In thinking about the decisions being made that lead to the outcomes, try to understand:

Questions	if yes,	Possible implications
Who is involved in the decision?		
<ul style="list-style-type: none"> Is there a group that makes the decision more than others? 	▶	Tailor interventions to a specific group
<ul style="list-style-type: none"> Are people making decisions alone? In groups? 	▶	Consider interventions that operate at a collective (e.g. signs) v individual (e.g. SMS) level
<ul style="list-style-type: none"> Is anybody making a decision on someone else's behalf? 	▶	Work to intervene with the actual decision maker
<ul style="list-style-type: none"> Is someone able to exert significant influence over the decision maker? Are peers influential? 	▶	Consider the 'messenger' of an intervention and the role of social networks
What is the context for the decision?		
<ul style="list-style-type: none"> Does the decision receive much attention? 	▶	Consider ways to attract attention to the decision
<ul style="list-style-type: none"> Does the decision require willpower or self-control (for example smoking, dieting or exercising)? 	▶	Consider planning prompts, reminders, commitment devices, temptation bundling, or changing the timing of the decision
<ul style="list-style-type: none"> Is there a difficult or complicated application process? 	▶	Consider if the form can be pre-populated. Consider if the form can be made simpler / fewer fields / sentences and words shortened
<ul style="list-style-type: none"> Has the individual made this decision before? Has the individual made any statements about the decision that they would make in this circumstance or a similar one? 	▶	Consider prompting a new public commitment or promise
<ul style="list-style-type: none"> Is something being considered which the individual already owns? 	▶	Consider how stronger attachments to existing owned property (in comparison to possible new property) may be influencing choices
<ul style="list-style-type: none"> Is the individual primed to reciprocate a given action? 	▶	Consider providing a gift or offer to prompt reciprocity
When is the decision being made?		
<ul style="list-style-type: none"> Are there immediate benefits of making a good decision? Or are they delayed? 	▶	Consider trying to bring forward the benefits of making a good decision into the present
<ul style="list-style-type: none"> Is there a moment or event motivating an individual to make a decision or act on a decision? 	▶	Consider interventions that prompt the decision or action

Questions	if yes,	Possible implications
<ul style="list-style-type: none"> Do specific moments or events motivate an individual to act on the decision? 	▶	Consider interventions that are attached to or are proximate to the moments or events that prompt the decision
<ul style="list-style-type: none"> Are there likely to be subconscious influences priming certain decisions? 	▶	Investigate the decision making context to better understand what the person sees, hears and does when making the decision
<ul style="list-style-type: none"> Is the individual fatigued when making the decision (either mentally or physically) 	▶	Consider prompting the decision at other times, or looking to help reduce the fatigue
<ul style="list-style-type: none"> Is the individual likely to be in a specific emotional state when making the decision? 	▶	Consider trying to delay the decision to a time when the individual is less likely to be influenced by unrelated emotions, or designing an intervention to mitigate adverse effects of an emotional state, e.g. through gratitude
How are choices presented or viewed?		
<ul style="list-style-type: none"> Are there a large number of options? 	▶	Consider reducing how many options are seen at once
<ul style="list-style-type: none"> What is the default option (that will take effect if an individual decides to do nothing)? 	▶	Consider changing the default and having individuals opt-out. A less strong option is requiring a choice to be made in order for a process to continue
<ul style="list-style-type: none"> Is one option more salient than another? More easily recognisable? Easier to choose or understand? 	▶	Consider tailoring a given option to be more salient. Consider working to increase the recognisability of an option. Ensure options are easy to comprehend and think carefully about which is presented first
<ul style="list-style-type: none"> Is one category of money being treated differently to another category of money? (i.e. mental accounting) 	▶	Either consider trying to prompt the individual to move away from mental accounts, or to move towards them
What information are they getting?		
<ul style="list-style-type: none"> Is specific knowledge or expertise needed to make a decision? 	▶	Consider if the individual is provided with the information or assistance they need given their expertise
<ul style="list-style-type: none"> Is information communicated in only one way (e.g. visually, verbally or in text)? 	▶	Consider supplementing one form of communication (e.g. text) with another form (e.g. verbally or visually)
<ul style="list-style-type: none"> Is the information presented in the optimal sequence? 	▶	The information presented first and last is most likely to be retained. Consider reorganising the information
<ul style="list-style-type: none"> Are there numbers involved that may be more compelling if calculated differently? (e.g. Total expected lifetime electricity cost instead of unit cost in \$/MwH) 	▶	Consider reframing the numbers to be more accessible and memorable (e.g. on labelling)

Questions	if yes,	Possible implications
<ul style="list-style-type: none"> Who is delivering messages to the individual? Who is giving advice or direction? 	▶	Consider which messenger might be most effective – for example, an industry group.
<ul style="list-style-type: none"> Does the individual receive feedback? Immediately? 	▶	Consider ways to provide immediate feedback
Why is the decision being made?		
<ul style="list-style-type: none"> Is there a short-term gain being advanced? Is the short-term being disproportionately over-valued? 	▶	Consider ways to prime longer-term thinking: planning, commitment devices, reminders, social norms, reciprocity, framing, gratitude
<ul style="list-style-type: none"> Is the individual overestimating the likelihood of low probability events? 	▶	Consider ways to reframe probabilities and expected outcomes. Consider ways to prime higher probability events.
<ul style="list-style-type: none"> Is the individual being unrealistically optimistic? Unrealistically overconfident? 	▶	Consider ways to help the individual understand their relevant 'base rate'. E.g. X% of people with your level of credit card debt pay-off their debt within 20 years without a payment plan
<ul style="list-style-type: none"> Is the individual's positive self-image being threatened? 	▶	Consider interventions that promote behaviour change while preserving and promoting positive self-identity. This might include prompting reflection on positive attributes
<ul style="list-style-type: none"> Are decisions being made that align with the individual's 'best intentions'? i.e. That the individual thinks they 'should not' make? 	▶	If not, consider supporting the individual using: goals, planning, deadlines, reminders, commitment devices, implementation prompts, change decision context (to when less depleted)
<ul style="list-style-type: none"> Is the individual being heavily influenced by the status quo or aversion to change? 	▶	Consider ways to frame the status quo as an active choice, to be assessed with more distance. Consider prompts of people in similar situations who changed for the better
<ul style="list-style-type: none"> Are there clear incentives? Are some more prominent than others? 	▶	Consider what conventional incentives can be provided, including monetary reward. Consider whether existing incentives can be better emphasised
<ul style="list-style-type: none"> Are there associated costs (e.g. financial or social)? 	▶	Consider what support the individual may need if they do change to reduce side-effects
<ul style="list-style-type: none"> Is honesty being relied upon? 	▶	Consider asking the individual to consider and commit to honest disclosure at the beginning instead of end of a process
<ul style="list-style-type: none"> What are the social norms of the context? Could they be misidentified? 	▶	Consider informing individuals of the relevant social norms

7. What is our theory, step-by-step, of the current behaviour?

Summarising the research done in addressing the previous question, push to write down your theory of specifically what the current behaviour is and why it is happening. This discipline will encourage a more focussed intervention with greater likelihood of clear measurement and an effective intervention.

If the problem being analysed relates to an existing policy or programme, it may help to ask:

- What is the causal theory underlying the existing policy or programme – that is, how is it supposed to affect behaviours of individuals and improve outcomes? Where is it breaking down?

An example of such a theory is from Todd Rogers & Avi Feller who developed an intervention to improve attendance in US schools. The theory of the existing behaviour was:

- There were preventable student absences occurring.
- These absences were in part driven by parents of those students holding up to two false beliefs:
 1. **That their child doesn't miss that much school.**
 - Many parents underestimated their child's total absences (on average by a factor of 2: estimated days absent: 9.6, actual: 17.8)
 2. **That their child misses a *relatively* average amount of school.**
 - Many parents of high-absence students were unaware of their student's level of relative absence in comparison to classmates.

Rogers & Feller designed an intervention to specifically target these two false beliefs.

8. What interventions might influence the behaviour?

Understanding better the behavioural dimensions of the behaviour of interest, the following questions can help identify potential behaviourally-informed interventions:

Change the question being asked

Can we change the default (what happens if no decision is made)?

- People are strongly inclined to go with defaults or pre-set options.
- Making a given option the default choice can often increase the likelihood that it is selected. Defaults are generally best used when the relevant group has substantially consistent preferences and circumstances.
- Beware that default settings can signal recommendations by government, even if such recommendations are not suited to all people. Further, defaults can lead to a perceived reduction in the need to engage with a decision: e.g. a potential downside of mandatory super is that people may feel less need to engage in super planning because it is already done for them.

Can we introduce a required choice or prompted choice?

- A required choice requires an individual to make a decision in order to continue with a given process or service (for example, most airlines force customers to say yes or no to travel insurance in order to book a ticket). A prompted choice merely asks that a choice be made. Required choices are generally considered more appropriate for high-stakes choices, when the highest level of consideration and engagement is most valuable.

Can we reduce the number of options that are presented at once?

- Reducing the number of options presented at a time can avoid choice overload, which can lead to procrastination, avoidance, dissatisfaction and possibly mistakes.

Can we provide decision aids?

- Particularly when a choice is complex, providing tools or decision aids to individuals can help them better find the best option. For example, provide people with retirement income projection tools based on a given contribution rate to superannuation.

Is framing a choice as a loss or a gain helpful?

- People prefer to avoid losses. We even prefer to avoid losses in exchange for equal-sized gains, relative to a reference point. In addition, people tend to be more risk-taking when they feel they have incurred or are about to incur losses. Sometimes just rewording a message can result in a different choice.

Change the information being provided

Can we provide new information?

- Sometimes information provision can be sufficient to influence behaviour. This is particularly the case when the information targets and corrects people's false beliefs. Note however that too much information can be harmful to decision-making and obscure otherwise salient information.

Can we provide personalised information?

- Especially when the 'optimal' choice is different for each person, providing personalised information can help improve decisions. For example, Kling et al. (2012) found that individualized information on lower-cost drug plans lead to greater switching to lower-cost plans than merely providing generic information about the opportunity to switch drug plans.

Can we reframe the same information to be easier to comprehend?

- Some units are harder to comprehend accurately than others. For example, Australian credit card statements [must now tell consumers](#) not just what their debt is and what the minimum repayment is, but also how long it would take to pay off that balance only paying those minimum repayments.

Help people follow-through on good intentions

Can we provide checklists?

- Checklists can reduce errors due to memory failure, and are best used when shortcuts might be adopted due to fatigue, high stress or complexity ([see here](#)). For this reason checklists are a staple for airline pilots and increasingly, [surgeons](#).

Can we help people set goals?

- Goals tend to improve performance by: 1. directing attention, 2. increasing effort and 3. prolonging effort and increasing persistence. Effective goals require: 1. commitment, 2. feedback, and 3. to be feasible.

Can we help people make plans? Or make implementation intentions?

- Extensive research into plan-making has found that plan-making is most effective when: people intend to follow-through, are focussed on positive consequences of success and have considered potential obstacles. It also helps if the task is reasonably complicated, with some obstacles to be overcome, and if the plans involve concrete details and are stated publicly.

Can we provide implementation prompts?

- These encourage people to plan the specific steps they will take to complete a task. (e.g. “What time will you leave the office to get your flu vaccination? What route will you take to get there?”) Such prompts can help to overcome procrastination and forgetfulness.

Can we provide deadlines or interim deadlines?

- Deadlines can motivate people to take actions. Without them, we are at greater risk of procrastination or myopic planning.

Can we provide reminders?

- Reminders make it easier to complete a task by providing cues that the task still needs to be completed.

Can we intervene when people are most likely to make the choice they think they ‘should’ make?

People are **less** likely to make the choice they generally think they ‘**should**’ make when they:

- Are cognitively taxed – that is they have just had to think hard about something
- Have depleted willpower – for example hospital workers have been found to comply more with handwashing requirements in hour 1 than hour 12 of a shift.
- Are evaluating options separately (a ‘should’ v a ‘want’) instead of together

Can we provide people with the option of a commitment device?

- A commitment device allows people to voluntarily have restrictions imposed on them until they have accomplished a goal (e.g. a piggy bank). Stronger commitment devices have less mutable consequences (e.g. Antabuse (anti-alcohol drug) is a commitment device with serious, immutable consequences (if I drink, I become very, very sick)).

Can we provide people social accountability?

- The prospect of being publicly accountable for actions can be a powerful motivator. Some public commitments at the beginning of a new diet can help individuals persist with that diet. At a government level, accountability can be used in lieu of other policy levers, for example, the [ATO publishing the names](#) of private companies with revenues over \$200m who paid no tax in 2013-14.

Be more timely

Can we adjust immediate costs or benefits?

- People are typically more persuaded by immediate costs and benefits than delayed costs or benefits. It is worth considering any opportunity to amend immediate costs and benefits.

Can we capitalise on ‘fresh starts’?

- People tend to make decisions more in their long-term interest (e.g. exercise, diet) during ‘fresh-starts’: at the beginning of New Year’s, months, weeks, jobs etc.

Make it easier

Can we make it easier? (We almost always can)

- Simplify language and processes. This may include breaking complexity into smaller, more simple parts. On this point, BIT UK have described that “*Resistance to change is often a product not of disagreement or of scepticism, but of perceived difficulty – or of ambiguity.*”
- Look for opportunities to reduce the effort required to take up a service or complete a process.
- Tools to help simplify language include [Hemingway Editor](#) and [Readability Score](#).

Can we add partitions?

- An individual’s speed of consumption may be able to be decreased by physically partitioning into smaller units. When something is divided into smaller units (e.g. individually wrapped candy), we confront additional decision points which prompt further consideration.

Influence the decision

Can we convey that most people perform the desired behaviour? (i.e. use social norms)

- As described by the UK BIT who pioneered this application in Government in tax letters: “*Describing what most people do in a particular situation encourages others to do the same. Similarly, policy makers should be wary of inadvertently reinforcing a problematic behaviour by emphasising its high prevalence.*”
- Works best when: 1. Uncertainty about the norm, 2. Similarity with the comparison group, and 3. Realistic to achieve (it may backfire if it is perceived to be out of reach).

Can we encourage people to make a commitment to others?

- We often use social commitments to entrench ourselves in our commitment to a given path. In many cases, the more social, the more entrenched.

Can we make an offer and seek reciprocation?

- We have a tendency to reciprocate the actions of others. E.g. mailing a survey for completion with cash inside as pre-emptive thankyou increases response rate.

Can we seek initial commitments?

- We are strongly inclined to choose to be consistent with pre-existing commitments (even weakly-made ones).

Can social influence be leveraged?

- That is, can a social group, friendship group, or mentor be considered to affect the decision?
- Further, we are more likely to be influenced by people we like. This might be a function of similarity to us, compliments, physical attractiveness, contact and cooperation, or conditioning and association.

Can we emphasise authority?

- Symbols of authority may persuade people to act in compliance with the authority figure, or in reactance to an authority figure (in the opposite). Authority figures may be the government, employers, parents, doctors etc.

Can an option be framed as scarce?

- People assign more value to opportunities when they are less available/limited.

9. What is our theory, step-by-step, of how and why that intervention will change the behaviour?

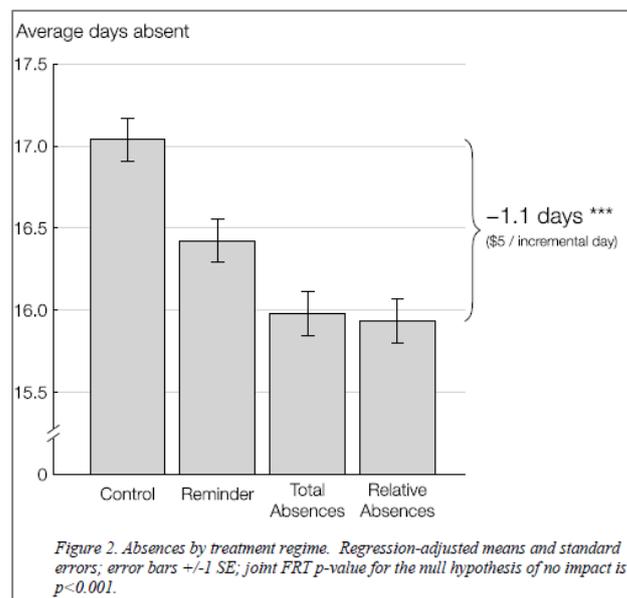
Next, articulate the specific theory of why the intervention might change the specific behaviour that is driving the outcome of interest. This again will focus the project in on specific interventions for specific behaviours.

To continue the Rogers & Feller example, they developed three mail-based, personalised interventions with the following theory:

1. *Reminders* – these reminded parents of the importance of absences and of their ability to influence them.
2. *Personalised Information on Total Absences* – these added information to the reminder letters about students' total absences.
3. *Personalised Information on Relative Absences* – these added comparative information to the above letters about the modal number of absences among target students' classmates.

The theory was that these reminders would target the false beliefs in the parents by providing personalised disconfirming information, make student attendance more salient and important to parents and accordingly see parents be more likely to act to reduce avoidable absences.

The results of this study were compelling. As shown below, the most effective version reduced total absences by 6% (and chronic absenteeism by over 10% relative to a control group).



Source: Todd Rogers and Avi Feller, *Reducing Student Absences at Scale, Working Paper Draft*, http://scholar.harvard.edu/files/todd_rogers/files/reducing.pdf?m=1456421204, 2016

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APPENDIX: BETA GUIDANCE NOTE 1: RANDOMISED CONTROLLED TRIALS

What do randomised controlled trials have to do with BETA's work?

Traditionally policy makers assume that people always make the best decision possible in terms of personal material rewards, and have no shortage of willpower. However, behavioural insights (research from the fields of behavioural economics, psychology and science) tells us that this isn't always so.

There is often a gap between what people intend to do and what they actually end up doing. Sometimes people won't act on their best intentions because they feel overloaded with choices or because of 'friction costs'. And when people operate in 'autopilot' mode, behavioural insights tell us that people are more prone to use rules of thumb and stereotypes, and rely on biases. For example, we dislike losses more than we like gains of an equivalent amount, we use any available reference points to compare options, follow the herd and care about fairness. This can lead to us making decisions that we ourselves acknowledge to be less than the best.

This is why it is important to put real human behaviour at the centre of policy and programme design and to rigorously test policy designs to build our understanding of what works and when we need to adapt our approach. This is where randomised controlled trials (RCTs), play a critical role in BETA's work.

What is a randomised control trial and how does it work?

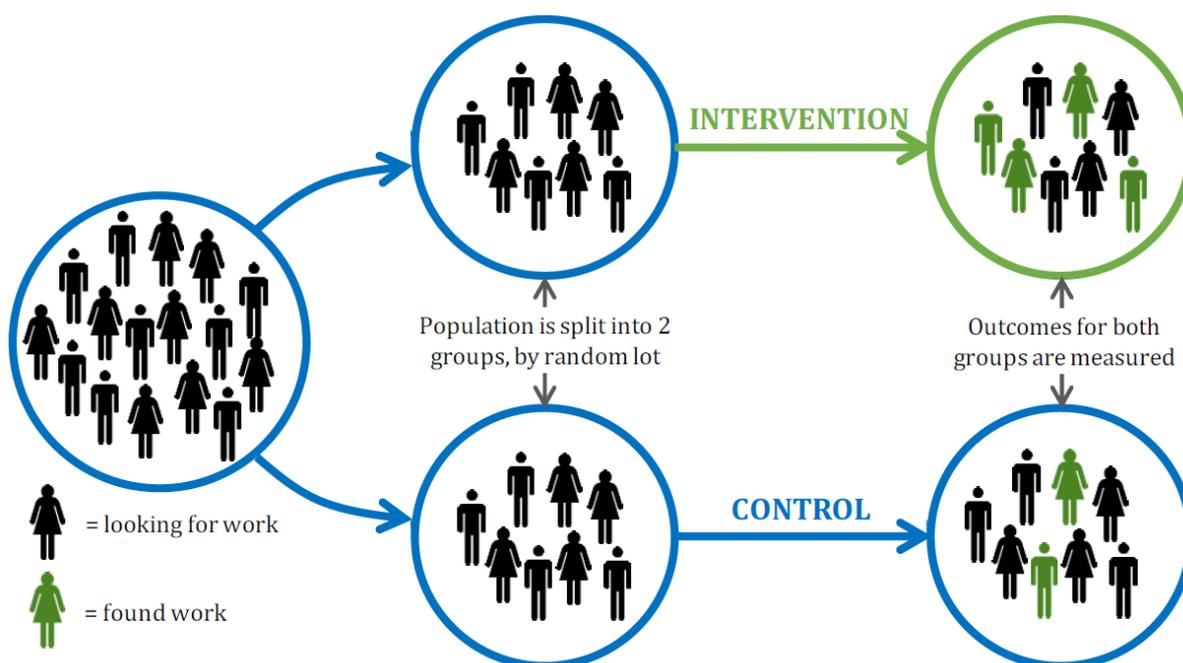
Randomised controlled trials work by randomly assigning individuals or other units (e.g. schools) into different groups – usually there are one or more 'treatment' groups that participate in a new intervention/s being tested, and a 'control' group that does not. Outcomes for both groups are measured, and because the only difference between the groups is the intervention that has been applied, any difference in outcomes can be attributed to the intervention. Figure 1 shows the basic design of an RCT in the context of a new 'back to work programme'.

Testing the impact of behavioural interventions allows us to compare the cost effectiveness of different approaches and decide which interventions to scale up and which interventions are ineffective and should be adapted.

Why does randomisation matter and how is it different to other evaluation methods?

Randomisation ensures that each treatment or control group will be very similar in ways that are both observable and unobservable (see Box 1). Therefore, if there is a difference in outcomes, this can be attributed to the intervention itself. This is a key difference between other evaluation methods like 'before and after' evaluations and comparing participants and non-participants in an intervention (i.e. a programme).

FIGURE 1: BASIC DESIGN OF A RANDOMISED CONTROLLED TRIAL



Source: 'Test, Learn Adapt: Developing Public Policy with Randomised Controlled Trials', UK Cabinet Office Behavioural Insights Team

BOX 1: EXAMPLE OF HOW AN RCT GETS AROUND OBSERVABLE AND UNOBSERVABLE CONFOUNDS

Take the example of school attendance rates increasing following the introduction of a healthy lunch voucher programme implemented in some schools but not others. While it is tempting to attribute any gain in school attendance rates in participating schools to the new programme using a before and after evaluation or using a comparison with non-participating schools, this would ignore other relevant factors, e.g. reduced travel costs (observable) or the motivation of some parents to provide an education for their children (unobservable). An RCT could help to measure the impact of the healthy lunch voucher programme by randomly assigning schools into the treatment group (healthy lunch vouchers) and the control group (no healthy lunch vouchers) and then measuring and comparing the different rates of school attendance in the treatment schools and control schools.

When is it best to use a randomised controlled trial?

RCTs can tell us the impact of a policy or programme, which elements of a policy or programme are most effective, or which of two (or more) approaches to pursue. We can also use RCTs to examine if impacts differ across groups or communities.

RCTs are a powerful tool for isolating and reliably measuring the impact of policy interventions. However, RCTs cannot be used effectively to answer all policy questions. For example, RCTs cannot measure macro policy changes, such as the impact of a floating versus fixed exchange rate, a change in interest rate or in areas where an intervention must be applied universally and uniformly at all times.

Are RCTs costly to run?

The cost of running an RCT will depend on a range of factors, including:

- **The intervention:** an RCT will be more cost effective if the systems and processes necessary to deliver the intervention are already in place, for example existing letters, e-mails, websites, a counselling service or other interaction point with the target group that involves influencing behaviour or making a decision.
- **Data:** an RCT will be more cost effective if the data needed to measure the effectiveness of the intervention/s is already being collected and is easy to access and analyse. If new data is required to be collected or if other entities own the data this can add cost and time of running an RCT.
- **Partners:** in some cases, it is necessary to partner with other entities to run an RCT, for example when a service is provided by a third party, or where we want to test policy settings affecting the delivery of privately provided goods and services.

Running an RCT in government can often be relatively low cost. This is because government delivers policy and programmes to large groups of people (providing good sample sizes and statistical power), collects vast amounts of administrative data, and has many existing systems and processes in place to test interventions.

Overall the cost of any RCT should be weighed against the cost of not running an RCT. Policy makers should ask: 'What is the cost of not knowing what works?'

What are the ethics of RCTs?

There are sometimes concerns about the ethics of withholding a new intervention from a group of people that might benefit from it, by assigning them to a control group. This can be challenging in some cases. However, it is important to note that this occurs already when programmes are piloted before being scaled up and in many cases programmes are not delivered to all eligible individuals even when implemented at scale. If the overall ambition is to make the intervention available more broadly following proof of effectiveness, this involves a timing shift rather than long term exclusion.

Without running an RCT, we cannot be certain that recipients will benefit. Sometimes interventions that are believed to be effective, including those that draw on behavioural insights, can actually have the opposite result. See Box 3: Example 6 for an example of a programme that resulted in adverse outcomes.

BOX 2: HOW BETA IS WORKING TO BUILDING CAPABILITY IN RCTS

RCTs are being run by some agencies in the APS. But for many BETA partners, RCTs are very new territory. BETA is working with partner agencies to build capability by:

- Delivering introductory, intermediate and advanced training on RCTs for staff of our partner agencies.
- Partnering with agencies to provide advice and assistance on behavioural insights projects where RCTs will often be used to evaluate interventions.

BOX 3: EXAMPLES OF RCTS CONDUCTED IN PUBLIC POLICY

EXAMPLE 1: RETURN TO WORK

In NSW, injured employees returned to work 27% faster in the first 90 days in the treatment group compared to the control group. Treatments involved simplifying processes (simplification), encouraging workers to take responsibility for their recovery (pre-commitment) and using positive messages about returning to work rather than focussing on injury management (priming). More info at: <http://bi.dpc.nsw.gov.au/assets/Behavioural-Insights/Library/Applying-Behavioural-Insights-to-Return-to-Work.pdf>

EXAMPLE 2: REDUCING MEDICATION ERRORS

In the UK, the Behavioural Insights Team reports that a recent RCT demonstrated how a simple re-design of prescription charts (used by clinicians to record prescriptions made for patients) resulted in significantly lower error rates. This simple design change involved promoting clinicians to circle which dosage applied (e.g. microgram or milligram) rather than writing dosage measurements in free hand (simplification). More info at: <http://www.behaviouralinsights.co.uk/publications/the-behavioural-insights-team-update-report-2013-2015/>

EXAMPLE 3: COMPLETING COLLEGE ENROLMENTS

In the US, the Social and Behavioural Sciences Team tested messages drawing on behavioural insights to encourage students to complete their college enrolments. The trial involved a series of eight personalised text messages to low income students reminding them to complete the required tasks. This led to a 5.7 percentage point increase in college enrolment, from 66.4% to 72.1%. More info at: <https://sbst.gov/2015-annual-report/>

EXAMPLE 4: INCREASING RATES OF ORGAN DONATION

In the UK, the Behavioural Insights team ran a RCT to test which types of messages increase the likelihood of people signing up as organ donors. The results showed that in this context people are sensitive to loss aversion. Messages that are framed to highlight the loss of not becoming an organ donor (e.g. 'Three people die every day because there are not enough organ donors') is more effective than messages framed as a gain (e.g. 'You could save or transform up to 9 lives if you become an organ donor'). Messages emphasising reciprocity ('If you needed an organ transplant, would you have one? If so, please help others') were even more successful. More info at: <http://www.behaviouralinsights.co.uk/publications/the-behavioural-insights-team-update-report-2013-2015/>

EXAMPLE 5: SCARING JUVENILES STRAIGHT

In the US, non-randomised evaluations suggested the 'Scared Straight' deterred juvenile crime, but a series of rigorous RCTs revealed that the programme actually achieved the opposite. The treatment group - those who received the program - were 13% *more* likely to commit crime. The programme exposed children to the frightening realities of leading a life of crime, through interactions with serious criminals in custody. More info at: <http://www.campbellcollaboration.org/lib/project/3/>