

'Improving health and well-being: a guide to using behavioural science in policy and practice'

# Behavioural Diagnosis: Mapping insights and selecting intervention functions



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Review Date: October 2024

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## Behavioural Science Unit:

The Public Health Wales Behavioural Science Unit provides specialist expertise on behavioural science, and enables and supports the application of it, to improve health & wellbeing in Wales. The Unit is part of the World Health Organisation (WHO) Collaborating Centre on Investment in Health and Well-being.

For further information, or support around the application of behavioural science to improve and protect health and well-being in Wales please get in touch.

Mae'r ddogfen hon ar gael yn Gymraeg / This document is available in Welsh

Some aspects of this tool have been previously published, and are owned by others. Their content has been translated, with retention of some of the originally published language and design.

ISBN: 978-1-83766-259-3

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Acknowledgement to Public Health Wales NHS Trust to be stated. Many thanks to the individuals and teams who supported this work by sharing their insights and experiences.

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We are interested to hear about your experience of applying behavioural science – in the spirit of all share – all learn, so please do share your quick reflections on using this tool with us via : [PHW.behaviourchange@wales.nhs.uk](mailto:PHW.behaviourchange@wales.nhs.uk)

# Purpose of this tool

Applying behavioural science helps to optimise the impact of activities, services, policies, and communications. Developing such interventions that account for, or aim to influence, behaviour involves several steps, as shown in Figure.1; these steps are fully described in the [‘Improving health and wellbeing: a guide to using behavioural science in policy and practice’](#).

In [tool 1](#) we guided you through how to identify, prioritise and specify a target behaviour, in a target population, or ppopulation segment. In [tool 2](#) we covered how to gather actionable insights about your target behaviour and target population. This tool focuses on step three, selecting from the menu of intervention options, to best respond to those insights – and support the development of impactful (behaviour-changing) interventions.

You may be picking up this guide after having read or used tools 1 and/or 2, if so, you should have: (a) a behavioural specification with clearly defined target behaviour and population (b) behavioural insights specific to your behaviour and population. If you haven’t read or used tools 1 and 2 but have some behavioural insights that you’d like to use, this tool will work for you too.

In this tool, we’ll start by reviewing the insights you have, before exploring which types of **intervention functions** could be useful for changing your target behaviour using the COM-B model (West et al., 2020) and Behaviour Change Wheel (Mitchie et al., 2014).

## By the time you’ve completed the tool, you’ll have:

- 1 A list of barriers and facilitators mapped onto the COM-B model
- 2 Identified what needs to change to influence the target behaviour in the target population
- 3 Prioritised barriers and/or facilitators to focus on using the APEASE criteria
- 4 Prioritised appropriate intervention functions using the APEASE criteria

This tool is followed by tools 4, 5 and 6. In tool 4 we talk through different implementation types—these are the ways that we can deliver a behaviour change intervention. In tool 5, we explore how to build, develop or adapt interventions using behaviour change techniques. Behaviour change techniques are the theory and evidence-based ‘active ingredients’ of an intervention. If you’ve completed tools 3, 4 and 5 you’ll have either a new, or revised intervention, that has been developed using evidence-based behavioural science models and frameworks. The final tool, tool 6, will cover how to implement and evaluate your intervention.

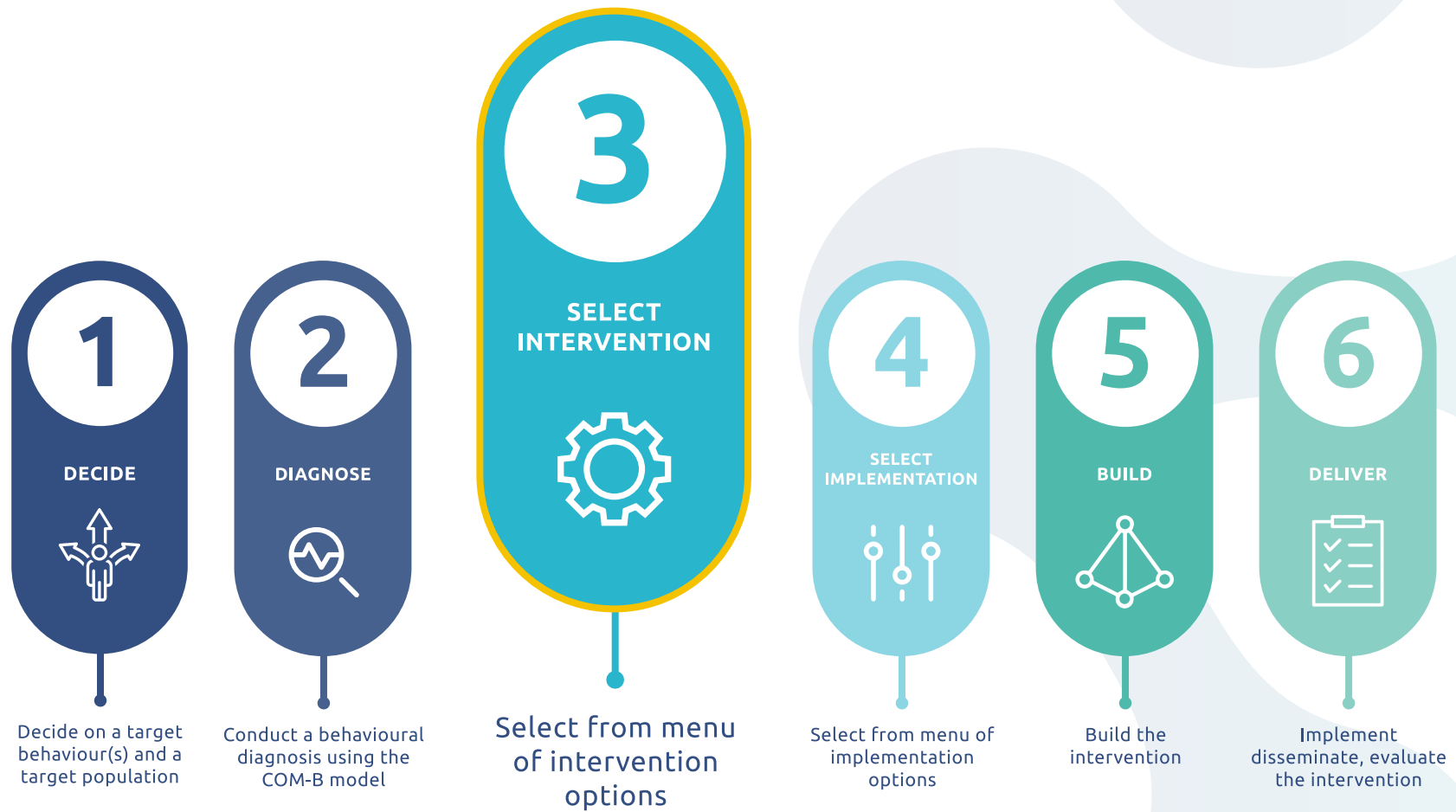


Figure 1. Six steps to developing an intervention

Principles 2 to 5 are particularly important at this step, considering (but not relying on) interventions that are proven; remaining open-minded to which intervention function will give the best return; and involving experts and stakeholders where possible [at a level proportionate to time and resources available].

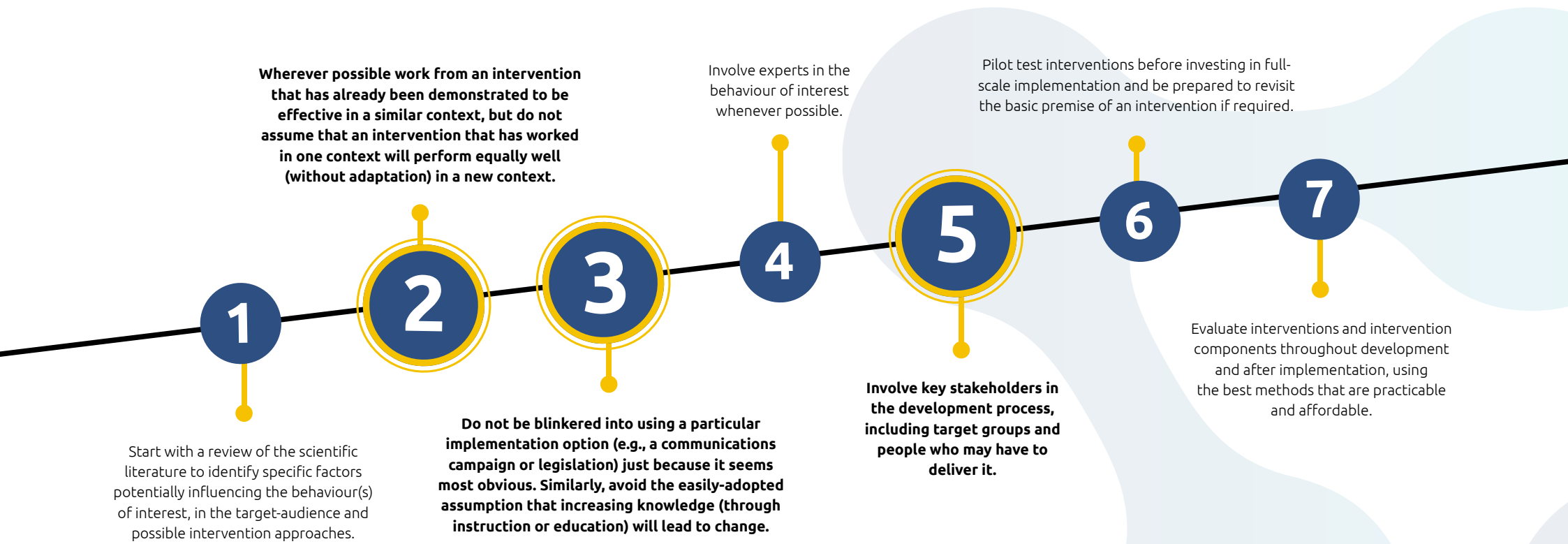


Figure.2. Principles to apply during the development process

# Behavioural specification

To effectively use behavioural insights to inform our interventions, we must be clear on the behaviour we are trying to change. We talk more about this in [tool 1](#). Let's recap your target behaviour and target population below, if you've used [tool 1](#) you should already have your answers, if you haven't this is a good opportunity to confirm your target behaviour and population.



**WHO** needs to change/  
adopt the behaviour?



**WHAT** does the person/group/  
population need to do?  
What is the behaviour (observable and  
measurable action) and how does it need to  
change (start, stop, increase, decrease)



**WHEN** will they do it?  
When do they need to change/  
adopt the behaviour? And possibly  
for how long?



**WHERE** will they do it?  
Where will they change/  
adopt the behaviour?

# Identified barriers and/or facilitators

Now we're clear on the target behaviour and population, we can review the behavioural insights you've gathered about the target behaviour. Within [tool 2](#) we suggest using the COM-B model to guide the way you gather your insights. That's because we need to understand the full range of barriers and facilitators, relating to capability, opportunity, or motivation that need to be influenced for the desired behaviour to occur. We're going to explore that in more detail now, so don't worry if you haven't done that yet.

Firstly, using the insight you've collected through either primary or secondary data collection, list all the barriers to the target behaviour that you have identified. Next, list all the facilitators to the target behaviour that you have identified:

## Barriers to target behaviour:

A barrier is something that stops, or makes it difficult for, your target group to complete the behaviour

## Facilitator to target behaviour:

A facilitator is something that enables, or makes it easier for, your target group to complete the behaviour

# Mapping behavioural insights onto the COM-B model

The COM-B model suggests that an individual, or a target population, must have the capability, opportunity, and motivation to change their behaviour. Using our list of barriers and facilitators, we can now map them onto the COM-B model to help us understand which intervention function might be most appropriate to use to change the desired behaviour. Often, we'll find that there are several barriers and/or facilitators included within capability, opportunity and motivation.





For example: If we want to encourage more working adults to actively travel to the office by cycling, and the behavioural insights we have gathered indicate that the key barriers are limited time (opportunity), lack of safe route to get to work (opportunity) and nowhere to store the bike safely once at work (opportunity) it becomes clear that the intervention needs to target opportunity (the social and physical environment). In other words, an intervention that aimed to increase knowledge (capability) by sending emails to staff about the benefits of cycling to work would likely be ineffective for changing behaviour. Whilst this can seem obvious, this process can often highlight a mismatch between the barrier(s) and how we are currently addressing the problem.

When this is the case, we can prioritise the barrier(s) we want to address or facilitator(s) that we want to enhance by using the APEASE criteria; we'll cover that later. Before we do that, we need to map your identified barriers and facilitators onto the COM-B model. Drawing from your two lists, use the table and explanations on the following pages to sort your barriers and enablers into the COM-B domains.

## How do I know if my barrier/facilitator relates to capability, opportunity or motivation?

If you've structured your insight gathering using the COM-B model, deciding where to put your barriers and/or facilitators might feel straightforward. Sometimes though, it can be difficult to decide which barriers and/or facilitators go where. Where possible, a barrier/facilitator should only map to one COM-B domain, but there may be occasions where it's difficult to decide – In this case, it may be useful to discuss with peers, and if a consensus can't be reached, then the barrier or facilitator can be mapped to two domains, but bear this in mind when you're developing your intervention. To help support you with your decision-making, we've included a brief overview of capability, opportunity and motivation below – You can read a more detailed explanation of the model in ['Improving health and wellbeing: a guide to using behavioural science in policy and practice'](#).



COM-B Domain	Barriers	Facilitators
<p><b>Physical Capability</b> Physical skills</p>		
<p><b>Psychological Capability</b> Knowledge, cognitive and interpersonal skills, memory/attention/decision processes. behavioural regulation</p>		
<p><b>Reflective Motivation</b> Intention, goals, social/professional role and identity, beliefs about capabilities and consequences, optimism</p>		
<p><b>Automatic Motivation</b> Reinforcement, emotions</p>		
<p><b>Physical Opportunity</b> Environmental context, resources</p>		
<p><b>Social Opportunity</b> Social influences</p>		

Physical capability	Psychological capability
Having the physique needed for the behaviour	Awareness of the behaviour and how to perform it
Having the co-ordination, dexterity and physical skills needed for the behaviour	Understanding the consequences of the behaviour
Having the physical strength needed for the behaviour	Having the psychological skills and judgement (e.g. reasoning ability, memory capacity) needed to perform the behaviour
Having the sensory abilities needed for the behaviour	Having the mental resilience to perform the behaviour
Having the physical stamina needed for the behaviour	Having the self-regulatory abilities and techniques needed to perform the behaviour
Physical opportunity	Social opportunity
Having enough time to enact the behaviour	Social support for the behaviour
Having access to the resources needed for the behaviour (e.g. money, equipment, materials, infrastructure, service provision)	Social norms and formal rules relating to the behaviour
Having access to the spaces and locations needed for the behaviour	Social cues that prompt the behaviour
Having physical cues that prompt the behaviour	A linguistic and conceptual framework that is supportive of the behaviour
Reflective motivation	Automatic motivation
Forming, remembering and enacting plans	Emotions and drives
Making evaluative judgements	Feelings of desire (wants and needs)
Making conscious decisions	Habits and instincts

Example - Below is an example of what your table might look like if your behaviour was...

**Who:**  
children and adults within a household.

**What:**  
appropriately dispose of waste via recycling, general waste and food waste.

**When:**  
each time an item needs to be disposed of. Where: at home.

**Where:**  
at home needs to be dropped down so similar to the rest

COM-B Domain	Barriers	Facilitators
<b>Physical Capability</b> Physical skills	It's physically difficult to carry my recycling out onto the street	
<b>Psychological Capability</b> Knowledge, cognitive and interpersonal skills, memory/attention/decision processes. behavioural regulation	I don't know how to contact my local council to order new bins I'm not sure which day they come to collect the recycling I don't know which types of plastics can be recycled	I know that recycling is important to prolong the life of the planet
<b>Reflective Motivation</b> Intention, goals, social/professional role and identity, beliefs about capabilities and consequences, optimism	I don't plan putting the recycling out into my day/week I don't see the point in recycling Recycling doesn't make a difference so why bother?	I need to do my bit so it's important to recycle properly I should do my bit' rather than 'I need to do my bit
<b>Automatic Motivation</b> Reinforcement, emotions	I often throw things in the bin without thinking It's too much hassle It's too confusing	I want to recycle more Recycling makes me feel good I've got into the habit of recycling so I don't even think about it Habit
<b>Physical Opportunity</b> Environmental context, resources	I don't have time to recycle I don't have space for the different bins in my kitchen I don't have the right bins to recycle	I sometimes see reminders on our facebook group to put out the recycling I label my bins so I know what to put into them
<b>Social Opportunity</b> Social influences	Most people on my street don't recycle	My friends often recycle

**What needs to change, a summary:**

Now that you've mapped the barriers and facilitators onto the COM-B model, you can identify what needs to change, for your desired behaviour to occur. You can summarise that here:

# Prioritising barriers and/or facilitators

Once we've gathered our behavioural insight, we may be left with multiple barriers and/or facilitators to address, in which case you'll need to prioritise which barriers and/or facilitators to target'.

The APEASE criteria provides a helpful framework to consider throughout the decision-making process. We can use the APEASE criteria to help us prioritise a barrier to address or facilitator to enhance. Involving your key stakeholders in this activity will help to ensure your answers draw on the collective knowledge and experience available. This process of involvement will depend on the resources available to you. For example, you may only have time to talk with topic matter experts. On the other end of the spectrum, if you have more time and resources, you may be able to meet with members of your target population and work through the criteria together. How you apply the APEASE criteria is up to you, you may want to write your answers into the text boxes with a description of your thinking, or you may want to rate your agreed response to each question (5 being acceptable/agreeable, 0 being unacceptable/disagreeable), you may wish to score independently, or with stakeholders and/or subject matter experts.

APEASE Criteria	Description	Example Barrier – <i>I don't know how [to contact my local council] to order new bins</i>
<b>Acceptability</b> (high/medium/low or 5-0)	Is action on this barrier/facilitator acceptable to important stakeholders, e.g., the target group, those delivering the intervention, funders? Awareness of the behaviour and how to perform it	<i>The target population want to know this information, the council will already have a contact email or web page to visit (4)</i>
<b>Practicability</b> (high/medium/low or 5-0)	Is the barrier/facilitator able to be targeted at the required scale, with the required quality for as long as will be required?	<i>The local council can provide information on how to contact them should new bins need re-ordering, this could be done via email, letter, leaflet, their website (5)</i>
<b>Effectiveness</b> (high/medium/low or 5-0)	Will targeting this barrier/facilitator achieve the policy objectives and provide value for money?	<i>Not having the right bins for recycling is also a barrier to changing behaviour, but there is no guarantee the target population will order the new bins when they have information about how (3)</i>
<b>Affordability</b> (yes/no or (5-0)	Can targeting this barrier/facilitator be achieved within an available budget?	<i>The council can decide how to share the information based on cost (5)</i>
<b>Spill over effects</b> (positive/negative/none or 5-0)	What effects, good or bad, will targeting this barrier/facilitator have beyond the target behaviour?	<i>The target population may contact the council about other issues (bills, local area etc) if they didn't know how to contact them beforehand (3)</i>
<b>Equity</b> (increase/decrease/none or 5-0)	What impact will targeting this barrier/facilitator have on health and social inequities?	<i>Those without internet, or access to council's website may not be able to order new bins if the only method to contact the council is online (3)</i>

### Your turn...

Who needs to change/adopt the behaviour?.....

What does the person/group/population need to do?.....

When will they do it?.....

Where will they do it?.....



APEASE Criteria	Description	Barrier
<b>Acceptability</b> (high/medium/low or 5-0)	Is this barrier/facilitator acceptable to important stakeholders, e.g., the target group, those delivering the intervention, funders?	
<b>Practicability</b> (high/medium/low or 5-0)	Is the barrier/facilitator able to be targeted at the required scale, with the required quality for as long as will be required?	
<b>Effectiveness</b> (high/medium/low or 5-0)	Will targeting this barrier/facilitator achieve the policy objectives and provide value for money?	
<b>Affordability</b> (yes/no or (5-0)	Can targeting this barrier/facilitator be achieved within an available budget?	
<b>Spill over effects</b> (positive/negative/none or 5-0)	What effects, good or bad, will targeting this barrier/facilitator have beyond the target behaviour?	
<b>Equity</b> (increase/decrease/none or 5-0)	What impact will targeting this barrier/facilitator have on health and social inequities?	

Try to ensure capability and opportunity are in place before targeting motivation directly. There is no point in motivating people to do something they cannot do because of their ability or access to resources for example. Increasing the opportunity or capability to perform a behaviour can often also address the motivational barrier to do so.

It may also be necessary to prioritise your barriers/facilitators based on an intervention that is already in place, or an intervention that you know is planned for the future. For example, it might be that a communications campaign has already been planned and paid for, and therefore the barriers you choose to prioritise will most likely be required to relate to capability. Whatever stage you are starting from, there is value in considering how your behavioural insights map onto the COM-B model, to help ensure you address the right barriers and/or facilitators for the target population.

## Deciding on intervention functions

By now, you should have a good understanding of which COM-B domains your barriers and/or facilitators relate to. Now, we need to consider which barriers and/or facilitators are within our gift to change, as well as think about which may bring about the greatest gains. Before doing this, it's helpful to consider the different **intervention functions** that can be used to address barriers and/or enhance facilitators. Interventions are likely to be more effective when they use behaviour change models and frameworks, the Behaviour Change Wheel is an example of a behaviour change framework that helps to identify possible intervention functions based on the COM-B domains, as illustrated by the matrix here:

COM-B	Education	Persuasion	Incentivisation	Coercion	Training	Restriction	Environmental Restructuring	Modelling	Enablement
Physical Capability					✓				✓
Psychological Capability	✓				✓				✓
Reflective Motivation	✓	✓	✓	✓					
Automatic Motivation		✓	✓	✓	✓		✓	✓	✓
Physical Opportunity					✓	✓	✓		✓
Social Opportunity						✓	✓	✓	✓

Intervention functions are broad categories of means by which an intervention can change behaviour

Intervention function	Description	Examples
<b>Education</b>	Informing, explaining and showing in order to increase knowledge and understanding.	Provide leaflets to households including information about what type of waste should go into which type of bin.
<b>Persuasion</b>	Highlighting, arguing, discussing, proposing, requesting, pleading or helping to imagine in order to influence attractiveness.	Share images or videos of items that have been recycled and are now being reused as something else (and haven't gone into landfill)
<b>Incentivisation</b>	Introducing payment, some other extrinsic reward, or an expectation of a desired outcome, for a behaviour.	Provide funding for the local community to run recycling-based competitions where whoever has the least non-recyclable waste wins a voucher/prize
<b>Coercion</b>	Introducing a cost or expected negative outcome to prevent a behaviour or to induce someone to enact a behaviour.	Charging consumers 5p for a single-use plastic bag when shopping'
<b>Training</b>	Demonstrating, supervising, providing feedback and supporting practice in order to improve mental or physical skills, or build habits.	Provide training to members of the community who will become 'recycling champions' and can use their new skills to help others in the community to make recycling easier
<b>Restriction</b>	Creating boundaries around what behaviours are and are not acceptable by setting rules.	Introducing rules on what can and cannot be recycled at local waste/recycling centres
<b>Environmental restructuring</b>	Introducing, removing or altering objects in the physical environment or shaping the social environment to prompt, facilitate or prevent behaviours.	Making black bins for non-recyclable waste smaller, and collected less frequently
<b>Modelling</b>	Providing examples of behaviour for people to aspire to or imitate.	Identifying and showing influential figures (to the target population) recycling
<b>Enablement</b>	Providing or improving psychological, social or physical resources or treatments to support enactment of a behaviour.	Encouraging neighbours to support each other with recycling, such as reminding each other to take the right bin out, or doing it for a neighbour who is away/unwell



Using the APEASE criteria to prioritise intervention function(s):

As you did with using the APEASE criteria to prioritise the barriers and/or facilitators, we can use the same approach to identify appropriate intervention functions.

APEASE Criteria	Description	Intervention function – Education
<b>Acceptability</b> (high/medium/low or 5-0)	Is this intervention function acceptable to important stakeholders, e.g., the target group, those delivering the intervention, funders?	<i>The target population have stated that they currently don't know this information, so providing education will address the identified barrier. The council already has this information saved, so it should be easy enough for them to share the information (5)</i>
<b>Practicability</b> (high/medium/low or 5-0)	Is this intervention function able to be targeted at the required scale, with the required quality for as long as will be required?	<i>Education can be provided at scale through existing lines of communication that the council has with its community (e.g., emails, social media, local meetings) (5)</i>
<b>Effectiveness</b> (high/medium/low or 5-0)	Will using this this intervention function achieve the policy objectives and provide value for money?	<i>It may be necessary to implement other intervention functions alongside the provision of education, as there were multiple barriers identified by the target population (2)</i>
<b>Affordability</b> (yes/no or (5-0)	Can using this intervention function be achieved within an available budget?	<i>The sharing of information through social media and email should be relatively low cost, but if signs/leaflets are required the cost will increase, however this should still be relatively low (4)</i>
<b>Spill over effects</b> (positive/negative/none or 5-0)	What effects, good or bad, will using this intervention function have beyond the target behaviour?	<i>The councils may have to provide more waste/recycle bins, which may be dependant on time/resource. There may be less waste to put into black bins, meaning they are collected less frequently, which may impact service provision (4)</i>
<b>Equity</b> (increase/decrease/none or 5-0)	What impact will using this intervention function have on health and social inequities?	<i>There is no guarantee that the information will reach everyone within the target population. As other barriers were identified, some people may still not be able to recycle even when they have an improved understanding of where to order new bins (4)</i>

### Your turn...

Who needs to change/adopt the behaviour?.....

What does the person/group/population need to do?.....

When will they do it?.....

Where will they do it?.....



APEASE Criteria	Description	Barrier
<b>Acceptability</b> (high/medium/low or 5-0)	Is this intervention function acceptable to important stakeholders, e.g., the target group, those delivering the intervention, funders?	
<b>Practicability</b> (high/medium/low or 5-0)	Is this intervention function able to be targeted at the required scale, with the required quality for as long as will be required?	
<b>Effectiveness</b> (high/medium/low or 5-0)	Will targeting this barrier/facilitator achieve the policy objectives and provide value for money?	
<b>Affordability</b> (yes/no or (5-0)	Can using this intervention function be achieved within an available budget?	
<b>Spill over effects</b> (positive/negative/none or 5-0)	What effects, good or bad, will using this intervention function have beyond the target behaviour?	
<b>Equity</b> (increase/decrease/none or 5-0)	What impact will using this intervention function have on health and social inequities?	

# Summary of intervention type selected

You can type these into the table below:

<b>One, or multiple, barriers and/or facilitators to address or enhance your target behaviour in your target population</b>	<b>One, or multiple, intervention functions to implement</b>

**Now, we need to decide on an intervention, how to implement it, and to choose the specific behaviour change techniques that will be used within it. We cover that in tools 4, and 5.**

## References

1. Michie S, Atkins L, West R. (2014) The Behaviour Change Wheel: A Guide to Designing Interventions. London: Silverback Publishing. [www.behaviourchangewheel.com](http://www.behaviourchangewheel.com)
2. West, Robert, and Susan Michie. "A brief introduction to the COM-B Model of behaviour and the PRIME Theory of motivation [v1]." Qeios (2020). downloadable version for reference 2. can be found via this link, for inclusion: <https://discovery.ucl.ac.uk/id/eprint/10095640/>
3. Michie S, Atkins L, West R. (2014) The Behaviour Change Wheel: A Guide to Designing Interventions. London: Silverback Publishing. [www.behaviourchangewheel.com](http://www.behaviourchangewheel.com)

## Additional resources

[BSU repository](#)

