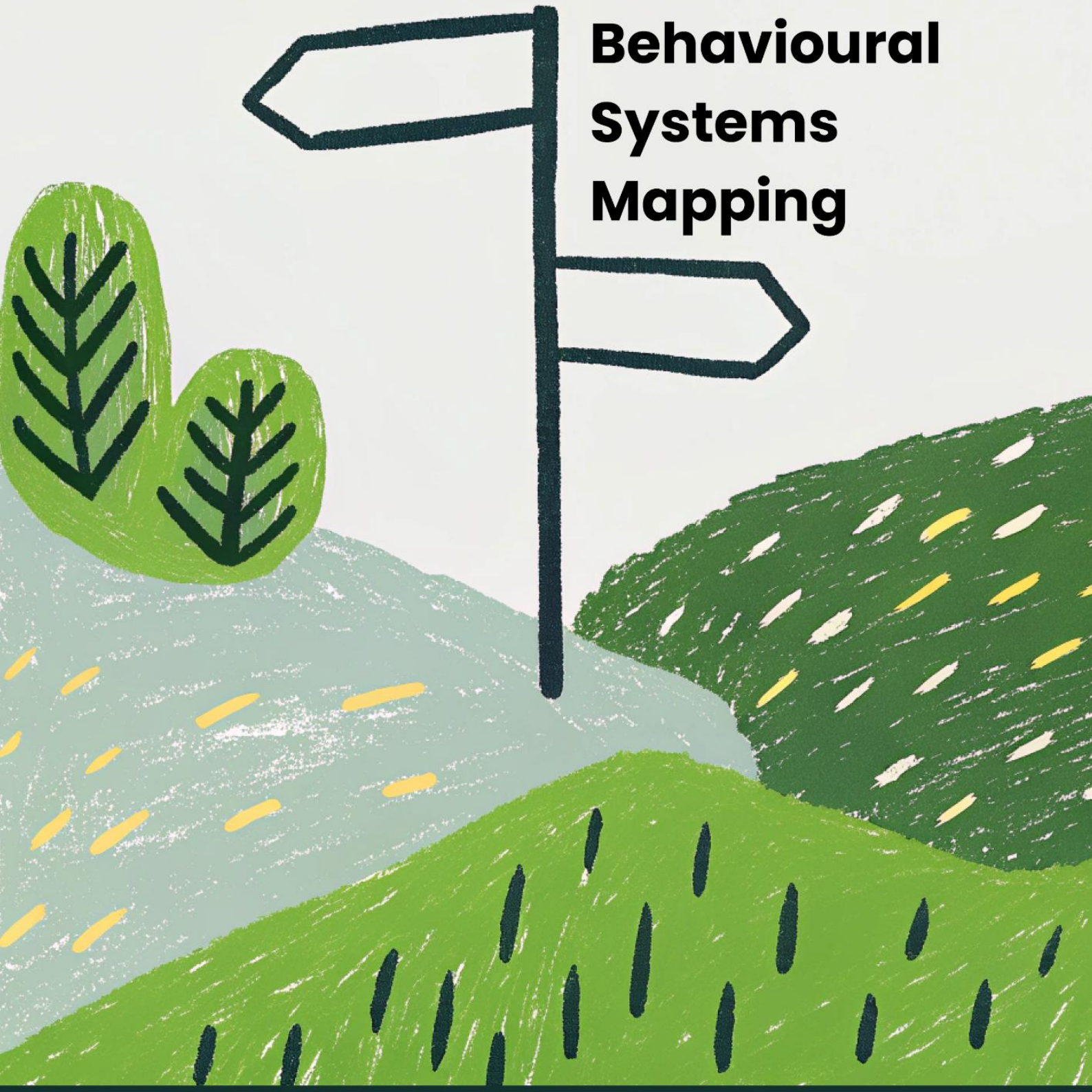

Behavioural Systems Mapping

A guide for local government and the third sector

About the research

A neighbourhood approach to digital inclusion of older people: trialling Behavioural Systems Mapping in five communities was a project undertaken to explore how Behavioural Systems Mapping (BSM) can help councils and community partners design more effective, place-based strategies to improve digital inclusion for older people (aged 60+). Older adults remain one of the UK's most digitally excluded groups, facing barriers such as low confidence, limited skills, accessibility challenges and lack of trust in technology. The project aimed to understand how BSM can be used to help teams create strategies and interventions that are better designed to overcome the systemic barriers to digital inclusion that older people in the UK currently face.

The funding and partnership

This project was funded by the Department for Science, Innovation and Technology Digital Inclusion Innovation Fund. The partnership consisted of DG Cities, the Royal Borough of Greenwich, Haringey Council, Ealing Council, Leicester City Council, and North East Lincolnshire Council, with expert support from Dr Elise Crayton, Dr Lucy Porter, Dr Vivi Antonopoulou, Dr Ayse Allison on behalf of the Centre for Behaviour Change University College London.

About the authors

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Acknowledgements

We would like to thank everyone who participated in the BSM process and shared their expertise and experiences on digital inclusion in the neighbourhoods, and the London Office of Technology and Innovation who supported the development and delivery of this project. We are also very grateful to those who provided feedback on the methodology, both during the workshops and in follow-up discussion. This report was shaped by the contributions from the BSM process and with inputs from across the partnership. The discussions and reflections shared by partners and participants were invaluable in

improving our understanding of not just digital inclusion but of the BSM methodology itself.

Recommended citation

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About this guide

Welcome to *Behavioural Systems Mapping: A guide for the public sector*. We have intentionally designed this guide to be highly accessible and easy to apply, stripping away heavy academic jargon so you can put these concepts into practice right away. Whether your team is tackling public health inequalities, environmental sustainability, or digital inclusion, our goal is to empower public sector professionals to confidently try out Behavioural Systems Mapping (BSM) on their own projects. By breaking the methodology down into clear, actionable steps, we hope this guide provides the practical tools you need to map complex local challenges, uncover hidden behavioural drivers, and design interventions that create genuine, systemic change.

Explore the research

This guide was developed as a result of the project **A neighbourhood approach to digital inclusion of older people: trialling Behavioural Systems Mapping in five communities.** The report is available at https://behavioural-systems.dgcities.com/

How to read this guide

If you are new to Behavioural Systems Mapping (BSM) and want to understand the core concepts before applying it, read:

- 'Overview of the method' for a summary of BSM and when it could be useful.
- 'Introduction to systems thinking and behavioural science' for the key concepts that underpin the method.
- 'When to use Behavioural Systems Mapping' to decide whether this approach is suitable for your project.

If you are looking for examples of where this approach might be useful, read:

- 'Systems and systems thinking' for examples of complex systems in digital inclusion and neighbourhood work.
- 'Introduction to behavioural science' for public sector use cases.
- 'Summary' for a concise explanation of what BSM is (and what it is not).

If you are planning on running a BSM workshop, read:

- 'Step-by-step process' for the full description of the method.
- 'Workshop Series Overview' to understand how to structure workshops and between-session synthesis.

If you are looking for practical tools and advice you can implement right away, read:

- 'Checklist: What Needs To Be In Place Before You Start' to assess readiness.
- 'Tools and Techniques' for workshop formats, mapping tools and facilitation options.
- 'References, resources and further reading' for additional materials.

If you are looking for a practical application of the methodology detailed in this guide in the context of digital inclusion, see our full report on the DSIT-funded project **A neighbourhood approach to digital inclusion of older people: trialling Behavioural Systems Mapping in five communities:**

- https://behavioural-systems.dgcities.com/

Overview

Teams across the public and third sectors work with complexity every day. From crafting policies through to designing services and delivering them on the front line, teams interact with and shape the complex systems in which people live and work. Understanding complexity and creating change within it is a demanding and challenging task that requires collaboration, dexterity, and the ability to lead through uncertainty.

Of the complex systems public and third sector must work in there are few as complex or important as neighbourhoods, and in the recent past local government and the health system has renewed its focus on neighbourhood thinking. Neighbourhoods are unique, highly complex, interconnected ecosystems where individual, social, economic, and physical factors constantly interact. Local authorities and third-sector organisations are tasked with driving positive change in these ever-changing environments, yet they frequently face severe resource constraints, rapidly shifting priorities and circumstances, and capability gaps.

Traditional, linear approaches to policy and intervention design often fail because they treat these complex, systemic problems as isolated issues to be "solved" rather than interconnected systems to be managed. When interventions ignore the complex realities and interdependencies of a neighbourhood, they risk falling short. Instead, there is an urgent need for new approaches rooted in systems thinking that recognise how local institutions, services, and communities interact.

To overcome these limitations, we must shift our focus to how human behaviour and systemic structures interact. Rather than locating responsibility for change solely at the individual level, in isolation from the system we are in, we need instead to recognise that our actions are heavily constrained or enabled by our surrounding environment. Whether a council is trying to increase local recycling rates, reduce domestic energy consumption, or improve public health outcomes, success depends on understanding *why* both people and institutional actors behave the way they do. Understanding this is at the core of Behavioural Systems Mapping (BSM).

BSM is a flexible and adaptive method for examining how actors, behaviours (or actions), and drivers (or influences on behaviours) interact within a system. It is highly reliant on the knowledge and experience of those using it. At its core, it is a deeply participatory and accessible method designed to bring diverse stakeholders into the room to collaboratively build and refine our understanding of a system. Because it is highly participatory, BSM is also uniquely positioned to support Citizen Science[1] initiatives. By

[1] In its 'Principles for Citizen Science', UCL defines Citizen Science as follows: "Citizen science is research undertaken by members of the public, often in collaboration with or under the direction of academic and

empowering residents to act as co-researchers who map their own neighbourhoods, it may be possible to democratise the policy design process, ensuring that interventions are not just rigorously designed, but culturally accepted and co-owned by the communities they are meant to serve.

Ultimately, local government and the third-sector are the ideal testing ground for this kind of public sector innovation. Councils and their community partners operate at the nexus of evidence, policy and the day-to-day lives of people, and possess the convening power to bring communities together to tackle important issues. BSM is not a silver bullet, but rather one of many tools available to us. We believe that by embracing this approach, public sector teams and their third sector partners can move beyond fragmented and under-effective systems towards more resilient, high-impact approaches that lead to systems, including neighbourhoods, that are more resilient, adaptive and built around the needs of the communities that define them.

This guide is designed to help any practitioner across our public and third sectors to explore, learn and try out BSM for themselves.

research institutions or similar. Citizen science is a very diverse practice, encompassing various forms, depths and aims of collaboration between academic and community researchers and a broad range of disciplines."

Introduction to systems thinking and behavioural science

Systems and systems thinking

What is a system?

A system is a set of elements or parts interconnected in such a way that they produce their own patterns of behaviour over time. Systems can vary in their complexity: from simple to highly complex.

The most complex systems behave in a way that is greater than the sum of their parts. It is difficult to understand a complex system by only understanding the elements that make it up. Instead, it needs to be viewed as a whole.

Some complex systems in the public sector include:

- Neighbourhoods, which will include elements like infrastructure, housing, education, and businesses;
- Healthcare systems, which include NHS, public health, primary care networks, third sector charities and community groups.

Likewise in complex systems, underlying patterns known as feedback loops mean that causes and effects are not always linear or easy to separate. Actions can produce consequences that then feed back into the system and shape future behaviours.

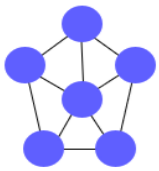
A useful tool for understanding systems is "systems thinking". The UK Civil Service defines systems thinking as:

> "Systems thinking is a framework for seeing the interconnections in a system and a discipline for seeing and understanding the whole system; the 'structures' that underlie complex situations.
>
> It is a collection of tools and approaches that help support us in thinking systemically about our work. Systems thinking is particularly powerful when applied to complex systems. By creating simple models of complex systems, systems thinking can be a useful building block towards understanding and visualising data flows within a system."

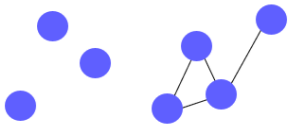
How do I know if I'm working with a complex system?

Knowing when you're working with a complex system is important if you are going to choose the right methods to help your work. Complex systems have various characteristics or attributes which make them easier to spot. These are:

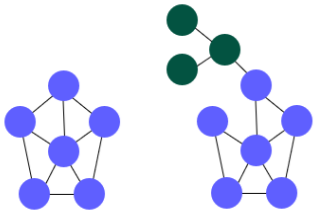
Figure 1: System characteristics



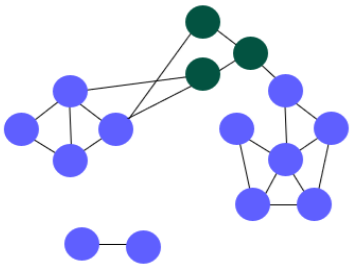
Interconnectedness: are parts of the system entangled in such a way that a change in one part will affect a seemingly unrelated part? E.g. will bad air quality reduce local retail footfall?



Emergent: does the system have properties – including behaviours – which its individual constituent parts do not? Emergent properties result from the interactions in the system.



Non-linearity: does the system include non-linear relationships e.g. could a small change trigger a significant shift, or a major intervention produce very little change? Non-linear relationships make complex systems inherently unpredictable.[2]



Dynamic and adaptive: complex systems change over time and are influenced by their environment (and other systems). Complex systems rarely have a central controller setting the parameters - instead, parts respond to local rules, and the system adapts to changes over time.[3]

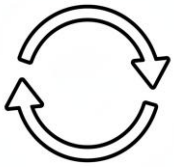
[2] Cilliers, P (1998). Complexity and Postmodernism: Understanding Complex Systems.

[3] Holland, J.H. (1995). Hidden Order: How Adaptation Builds Complexity.

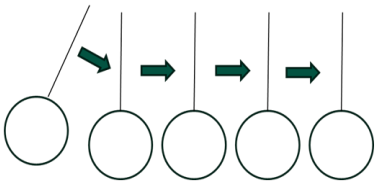
What are systems thinking methods?

Systems thinking is a family of methods which provide a useful framework to understand these complex structures as a complete whole, rather than just isolated components. This differs from linear thinking, which looks at individual problems and solves them. Systems thinking provides a lens that sees problems as components of systems. [4]

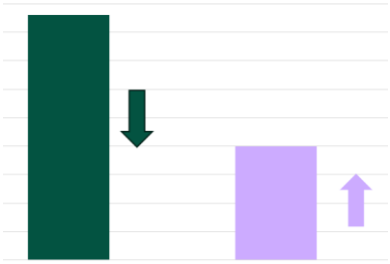
Figure 2: System thinking methods



Feedback loops: feedback can be reinforcing or balancing. Reinforcing loops amplify an existing direction or trend in the system, whereas balancing loops stabilise the system and may, in some cases, create resistance to change.



Causality: understanding how one variable impacts another over time helps to describe the nature of the system.



Stocks and flows: systems consist of stocks (elements which accumulate or deplete) and flows (rates of change of elements).

Delays and non-linearities: delays can occur between when an action happens and when its impact is realised.

[4] Athal, K. (2025). Mastering systems thinking: the key to solving complex problems.

The UK Civil Service guide to complex systems includes a useful checklist to understand if a systems thinking approach would be useful[5], adapted from a guide by the Omidyar Group[6].

Table 1: Systems thinking checklist

	Not complex	**Complex**
The problem	The problem is well understood. We know what causes it, and there is solid evidence that our proposed actions will have the intended effects.	We are not really sure we understand the problem, let alone the solution.
The stakeholders	There is a high level of consensus among stakeholders and experts about what to do.	There is a significant diversity of opinion and even conflict among stakeholders and experts about what to do.
Predictability of policy setting	The problem is relatively self-contained and not intertwined with its broader environment which is stable and predictable.	There are many diverse and dynamic interconnections between the problem and the broader environment which itself is unstable and dynamic (political, economic etc).
Time-horizon	It is a short-term goal.	We are aiming to make sustained change at a broad scale.

[5] Government Office for Science (2023). Introduction to systems thinking civil servants.

[6] Omidyar Group (2016). Systems Practice Workbook.

Behavioural Science

As West and Gould (2022) define it, behavioural science is the scientific study of behaviour – what enables it, what prevents it, and how best to elicit and maintain it[7].It is an interdisciplinary approach that draws on insights from psychology, economics, sociology, philosophy, and neuroscience to understand why people do what they do or why they sometimes act differently from what we might expect.

In public policy and service design, behavioural science can help us move beyond assumptions of what people 'should' do - instead, it encourages us to look more closely at the factors that shape behaviour in context. These factors can include ingrained habits, knowledge, social norms, physical environments, institutional processes, and the way services are designed.

Outcomes are often shaped by many small decisions and actions taken by different people and organisations over time. For example, whether an older resident uses an online council service is often not simply a matter of personal preference. It may also depend on whether they have access to a device, whether the service is accessible and easy to use, whether they have support from others, whether they trust the technology, and whether using it feels worthwhile or necessary in their daily life.

A behavioural science approach can therefore help practitioners identify:

- Specific behaviours that matter for an outcome
- Barriers and enablers influencing those behaviours
- Where interventions are most likely to support meaningful change

Rather than focusing only on changing individual behaviours and their related outcomes, behavioural science helps us understand where behaviours come from in the first place. It moves beyond surface-level assumptions about awareness or motivation and instead examines the underlying factors that shape behaviour in practice. This makes it especially useful when working on complex problems, where the actions of residents, frontline staff, organisations, and institutions all interact.

Behavioural Science in Local Government and Public Health

Behavioural science has been practiced in local government for many years, and offers a powerful, evidence-based approach to move beyond traditional policy levers by focusing on the cognitive and social drivers of human action. In local government and the third sector, applying these insights helps councils design environments and communications

[7] West, R. & Gould, R. (2022). *Improving health and wellbeing: A guide to using behavioural science in policy and practice*. Public Health Wales.

that can encourage more sustainable and healthier choices - such as active travel or smoking cessation - by re-shaping the decisions that individuals make daily.

When applied to “neighbourhood thinking”, behavioural science can help local authorities and partners develop services that better meet the needs of residents and wider communities. Furthermore, in operational services like waste and recycling, understanding where friction in decision making occurs can mean councils can effectively boost recycling rates and reduce issues like fly tipping - which frustrate residents and harm communities.

Whilst there are many potential benefits of the approach, one major one lies in its ability to deliver cost-effective, preventative, and sustainable change by working with human nature rather than against it. The UK public sector is uniquely suited to apply these concepts because local authorities operate at the intersection of policy and many facets of people’s lives - and, as a result, have the potential to support people to make better choices.

Diverse use-cases

Behavioural science is increasingly used across local government and public health because many of the challenges these sectors face depend on behaviour. This includes behaviours of residents, but also behaviours of staff, service providers, organisations, and systems.

Examples might include:

- Attending screening or vaccination appointments
- Accessing community support services
- Using digital public services
- Engaging in active travel
- Stopping littering in public spaces

In these contexts, behavioural science can help practitioners understand why policies or services are not having the intended effect, and where targeted changes might make a difference.

Behavioural science helps practitioners specify behaviours and understand the individual, social, organisational and environmental influences shaping them. Combined with systems thinking, it can also show how these behaviours interact within wider local systems. This is where approaches such as BSM can be particularly valuable: they bring together behavioural diagnosis, systems understanding, and participatory insight to support more coordinated and context-sensitive action.

The COM-B Model

One of the most widely used frameworks in behavioural science is the COM-B model (Capability, Opportunity and Motivation model of Behaviour). COM-B was developed by Susan Michie, Maartje van Stralen, and Robert West as part of the Behaviour Change Wheel, a broader framework for understanding behaviour and designing interventions[8].

The COM-B model proposes that for any behaviour to occur, three conditions must be in place:

- **Capability** – the individual, group, or organisation must be able to do it
- **Opportunity** – the individual, group, or organisation must have the chance to do it
- **Motivation** – the individual, group, or organisation must want or need to do it

These three components interact to produce Behaviour.

In simple terms, COM-B helps us ask: what needs to change for this behaviour to happen?

This is useful because it provides a structured way to diagnose behaviour before jumping to solutions. For example, when frontline health workers don't refer patients (e.g. to smoking cessation programmes), the issue may not just be forgetfulness or time pressure. It could instead be the case that the referral software is difficult to use or that they have not received adequate conversational training to effectively communicate with patients. COM-B helps make these different influences visible.

Understanding Capability, Opportunity, and Motivation

Each part of the COM-B model includes two sub-categories, which help explain the different factors that influence behaviour:

COM-B Component	Sub-category	What this includes	Example
Capability	*Physical*	Physical skill, strength, stamina, or dexterity	An individual experiencing difficulties with vision, mobility, or using a device to access an online NHS service.
	Psychological	Knowledge, memory, attention, understanding, and decision-making skills	An individual having the digital knowledge needed to use an online NHS service.

[8] Michie, S., Van Stralen, M. M., & West, R. (2011). The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation Science*, 6(1), 42.

Opportunity	*Physical*	Time, resources, access, tools, and features of the environment	A community organisation lacking enough devices or a stable internet connection to support members to access a new digital service.
	Social	Social norms, relationships, support from others, and cultural expectations	A community organisation operating in a context where trusted support networks are absent or local norms discourage digital engagement.
Motivation	*Automatic*	Conscious goals, plans, beliefs, and intentions	An individual believing that going online is useful and important for their day-to-day life.
	Reflective	Emotions, habits, impulses, and routines	An organisation continuing to rely on paper-based processes because of established routines and a preference for familiar ways of working.

Using COM-B in Practice

COM-B helps practitioners by giving them a starting point for understanding behaviour in context. It can be used to:

- Identify what is making a behaviour easier or harder to engage in
- Distinguish between different types of barriers and enablers for this behaviour and how they interact with one another
- Support the design of interventions that respond to real-world conditions rather than assumptions

In practice, COM-B is often used as a diagnostic framework. This means starting with a behaviour of interest and then asking questions related to its three components, such as:

- Does the individual, group or organisation have the knowledge and skills to do this?
- Does the individual, group or organisation have access to the right tools, time, and support?

- Does the individual, group or organisation value the behaviour, and does it fit with their habits, emotions, or priorities?

These questions can be applied to residents, professionals, organisations, and institutions alike. For example, behavioural science can be used not only to understand whether and how residents use digital services, but also whether service providers design accessible digital offers, whether local organisations signpost residents effectively, or whether frontline staff refer people to appropriate support.

Applying COM-B in Behavioural Systems Mapping

In BSM, we focus not just on what people do but also on what shapes those actions across a network of actors and organisations. COM-B is useful here because it encourages a broader understanding of behaviour; it helps move beyond explanations that focus only on individuals' attitudes or awareness and instead prompts us to consider a wider range of influences, including service design, institutional pressures, and environmental constraints. Within a Behavioural Systems Map, COM-B can therefore help participants think through questions like:

- What makes this behaviour possible or difficult?
- Is the issue one of knowledge or skill?
- Is the environment making the behaviour harder?
- Are social relationships influencing what happens?
- Are emotions, habits, or beliefs playing a role?

Importantly, in participatory settings, COM-B does not always need to be used as a rigid classification tool. It can also be used more flexibly as a prompt for discussion, helping participants consider different influences on behaviour without requiring them to categorise everything formally during the workshop itself.

What is Behavioural Systems Mapping?

BSM is a structured method for understanding complex problems by examining the behaviours that shape them and the systems in which those behaviours take place. It is designed to help practitioners move beyond isolated explanations of issues and instead build a more complete picture of how different parts of a system interact.

At its core, BSM brings together an understanding of who is involved, what they do, and what influences those actions. These elements are mapped visually to show how behaviours connect across a system and how different actors and conditions interact over time. The resulting map is not intended to be a perfect or exhaustive representation of reality. Instead, it acts as a practical tool to support discussion, sense-making, and decision-making.

In the context of digital inclusion, for example, BSM can help stakeholders explore how the actions of residents, service providers, and organisations interact with factors such as access, confidence, service design, and support networks. By making these relationships explicit, BSM helps identify where change may be most effective and where efforts may need to be coordinated across multiple actors.

Three Complementary Approaches

BSM combines three complementary approaches: behavioural science, systems thinking, and participatory methods. Each plays a distinct role in shaping how the method works in practice.

Behavioural Science

Behavioural science provides the foundation for identifying and understanding behaviour within the system. A key strength of this approach is that it encourages practitioners to move beyond surface-level explanations and instead examine the underlying drivers of behaviour.

In practice, this means shifting from general statements such as “people are not engaging” to more specific questions about what people are doing and why. This includes exploring the conditions that make behaviours possible, difficult, or unlikely to occur.

Within BSM, behavioural science is used to:

- Define behaviours clearly and in observable terms
- Identify the barriers and enablers influencing those behaviours
- Support the design of interventions grounded in what actually shapes behaviour

Models such as COM-B can be used to guide this process, helping ensure that a wide range of influences - including skills, resources, social context, and motivation - are considered.

Systems Thinking

Systems thinking provides a way of understanding how behaviours are shaped by the wider system in which they occur. In complex policy areas, behaviours are rarely independent; instead, they are interconnected and influenced by multiple actors, organisations, and processes.

Taking a systems perspective helps practitioners step back and consider how different parts of the system interact. It also highlights that actions taken in one area may have effects elsewhere, sometimes in unexpected ways.

Within BSM, systems thinking helps to:

- Identify interdependencies between actors and behaviours
- Understand how behaviours form complex chains and interactions
- Recognise that change in one part of the system may enable or constrain change elsewhere

This perspective is particularly important in areas such as digital inclusion or public health challenges, where outcomes are shaped by interactions across services, institutions, and communities rather than by a single intervention.

Participatory Approaches

A defining feature of BSM is that it can be conducted in different ways, depending on the context and available resources. In some cases, maps may be developed by researchers using data from interviews, surveys, or existing evidence. In this guide, we outline the process when carried out collaboratively with stakeholders through participatory workshops.

A participatory approach shifts the process from analysing a system externally to building an understanding from within. Rather than relying solely on collected data, it brings together people who are part of the system to contribute their knowledge, experience, and perspectives in real time.

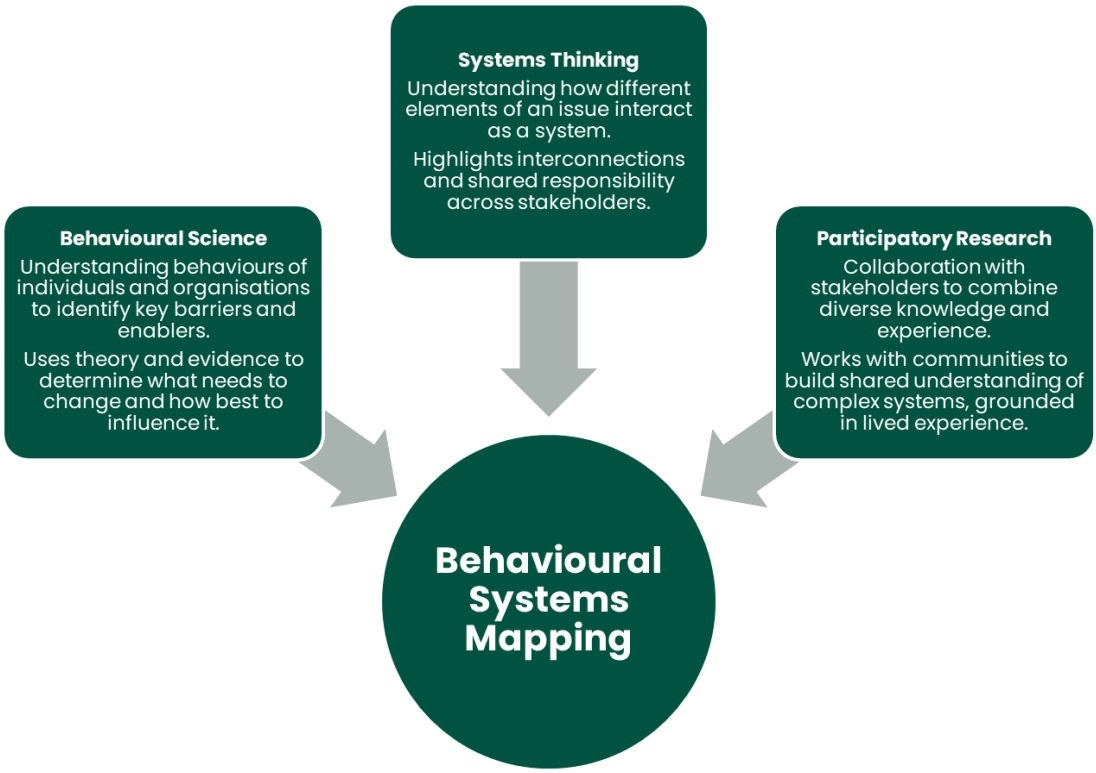
There is no fixed set of participants for BSM; those involved will depend on the issue being explored and the context in which the method is applied. Participants may include practitioners, service providers, community organisations, and others involved in delivering or shaping services. Where appropriate, residents or service users can also be involved - particularly when the method is adapted to ensure it is accessible, inclusive, and meaningful for those taking part.

A participatory approach can help to:

- Draw on local knowledge and lived experience
- Surface different perspectives and assumptions
- Build a shared understanding of the issue
- Increase ownership of the outputs and proposed actions

In addition to generating insights, this collaborative process can help strengthen relationships between stakeholders and improve alignment across organisations in the system.

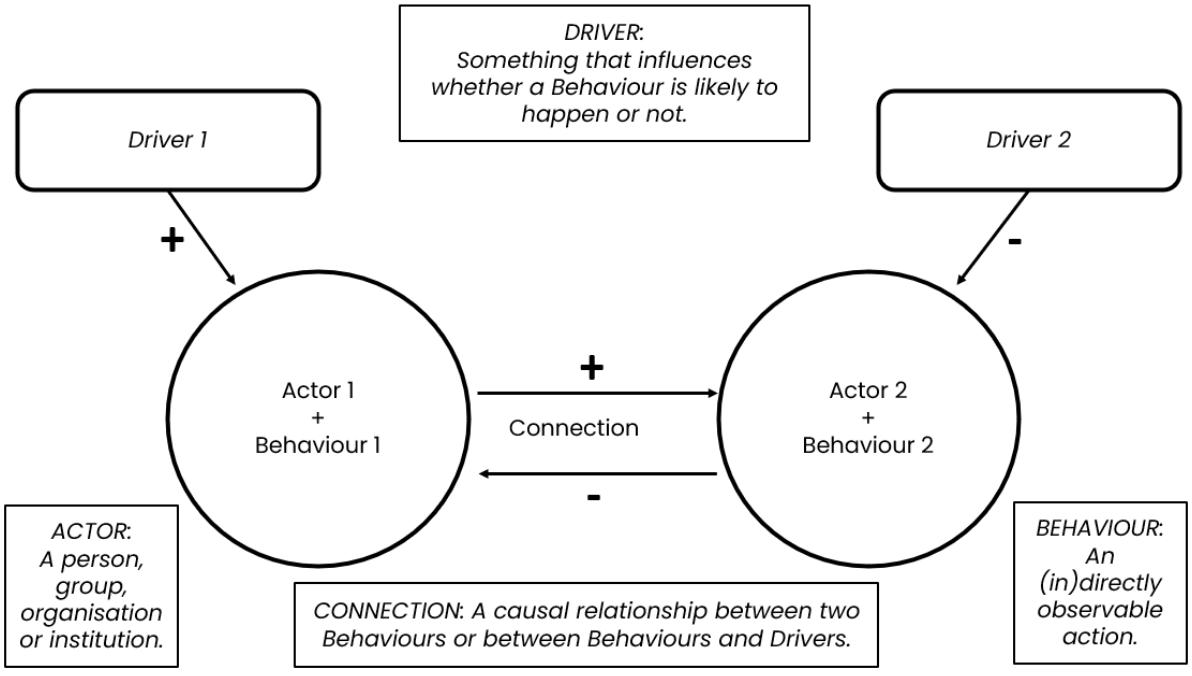
Figure 3: Three components of Behavioural Systems Mapping



Core Components: The A-B-C-D of Behavioural Systems Mapping

BSM is built around four core components: Actors, Behaviours, Connections, and Drivers. Together, these provide a simple but powerful structure for analysing complex systems through a behavioural lens.

Figure 4: BSM Core Components



Actors (Who)

Actors are the people, groups, organisations, or institutions that play a role in the system.

Identifying Actors helps define who is involved in shaping outcomes and whose Behaviours need to be understood. Actors can exist at different levels of the system and may include both formal and informal roles. In many cases, Actors will have different levels of influence or involvement, and their importance may vary depending on the system objective.

Examples of Actors include:

- Residents or service users
- Local authorities and public services
- Community organisations and charities
- Healthcare providers
- Local businesses or informal groups

Behaviours (What)

Behaviours are the actions that Actors take which are relevant to the issue being explored.

A Behaviour is a concrete action - something that can be described in terms of what someone does or does not do. Focusing on Behaviours helps make the analysis more specific and actionable: rather than simply describing general issues such as “low engagement” or “lack of support”, BSM encourages practitioners to identify the concrete actions that contribute to these outcomes.

Examples of Behaviours include:

- Residents attending a local digital skills lesson on how to use online services
- Community organisations promoting vaccination clinics through trusted local networks
- Frontline health workers referring patients to a smoking cessation programme
- Local authority transport teams installing secure cycle parking near transport hubs
- Housing providers carrying out home visits to identify damp and mould issues

Breaking Behaviours down into smaller steps can also help reveal important points of friction or opportunity within the system.

Connections

Connections describe how Behaviours relate to and influence one another, as well as how Behaviours and Drivers relate to and influence one another.

In complex systems, Behaviours rarely occur in isolation; instead, they form sequences or chains, where one Behaviour increases or decreases the likelihood of another. Mapping

these relationships helps reveal how change might spread through the system, and where bottlenecks or reinforcing patterns may exist. Likewise, Drivers – by definition – influence Behaviours and vice-versa.

Connections can indicate:

- Behaviours / Drivers increasing the likelihood of another Behaviour / Driver (positive connection)
- Behaviours / Drivers decreasing the likelihood of another Behaviour / Driver (negative connection)
- Mixed or uncertain effects depending on context

Drivers (Why)

Drivers are the factors that influence the likelihood of whether a Behaviour happens or not.

They are not Behaviours themselves, but the conditions, constraints, or influences that shape Behaviours. Identifying Drivers is a key part of moving beyond surface-level explanations and understanding why Behaviours occur in practice.

Drivers may include:

- Access to resources (e.g. money, materials, trained staff)
- Knowledge, skills, or confidence
- Time constraints or competing priorities
- Social support or expectations
- Features of service design or organisational processes

When to Use Behavioural Systems Mapping

In the Strategy / Policy Design Phase

BSM can be particularly valuable at an early stage, when a problem is not yet fully understood or when there is a need to define priorities. By mapping Actors, their Behaviours and the associated Drivers, BSM helps clarify how a system currently operates and where change might be most effective. This can support more informed and targeted strategy development.

BSM is particularly powerful at providing a space to explore, design and test new policies or strategies with others. For policymakers this can mean ideas are explored in detail before they are developed further or rolled out, potentially saving time and money in the process.

Some good questions to help at the early stage and inform your BSM approach could include:

- Who is most impacted by the problem we are targeting, and who are the main stakeholders shaping this impact (positively and negatively)?
- What actions are having the most impact on people or groups in our system?
- If we were to change the system for the better, who would benefit? And who might lose out?

To Create Shared Understanding

BSM is well suited to bringing together stakeholders with different roles and perspectives to develop a shared understanding of a system. The process of mapping encourages discussion, reflection, and alignment, helping participants see how their work connects to that of others.

It can help to:

- Align different perspectives and experiences
- Surface assumptions and knowledge gaps
- Create a shared language for discussing complex issues

For Strategic Diagnosis

BSM can be used as a diagnostic tool to examine how a system functions in practice. This involves looking at how Behaviours interact, where barriers arise, and how different parts of the system influence one another. This type of diagnosis is particularly useful when:

- Developing new strategies and plans
- Exploring process or system change to understand dependencies
- Assessing stakeholder characteristics (e.g. relationships, collaborations, tensions)

To Design, Refine and Evaluate Interventions

BSM can support intervention design by identifying where change is most likely to have an impact within the system. By understanding how Behaviours are connected, practitioners can develop interventions that target key leverage points rather than isolated issues; ensuring interventions are grounded in system realities.

BSM may also be used after interventions have been implemented, to reflect on how the system has changed and what has been learned. Maps can be revisited and updated over time, helping teams understand how Behaviours and relationships evolve. In this context, BSM can facilitate the analysis of why an intervention did or did not work and identify the causes of unintended consequences

Summary

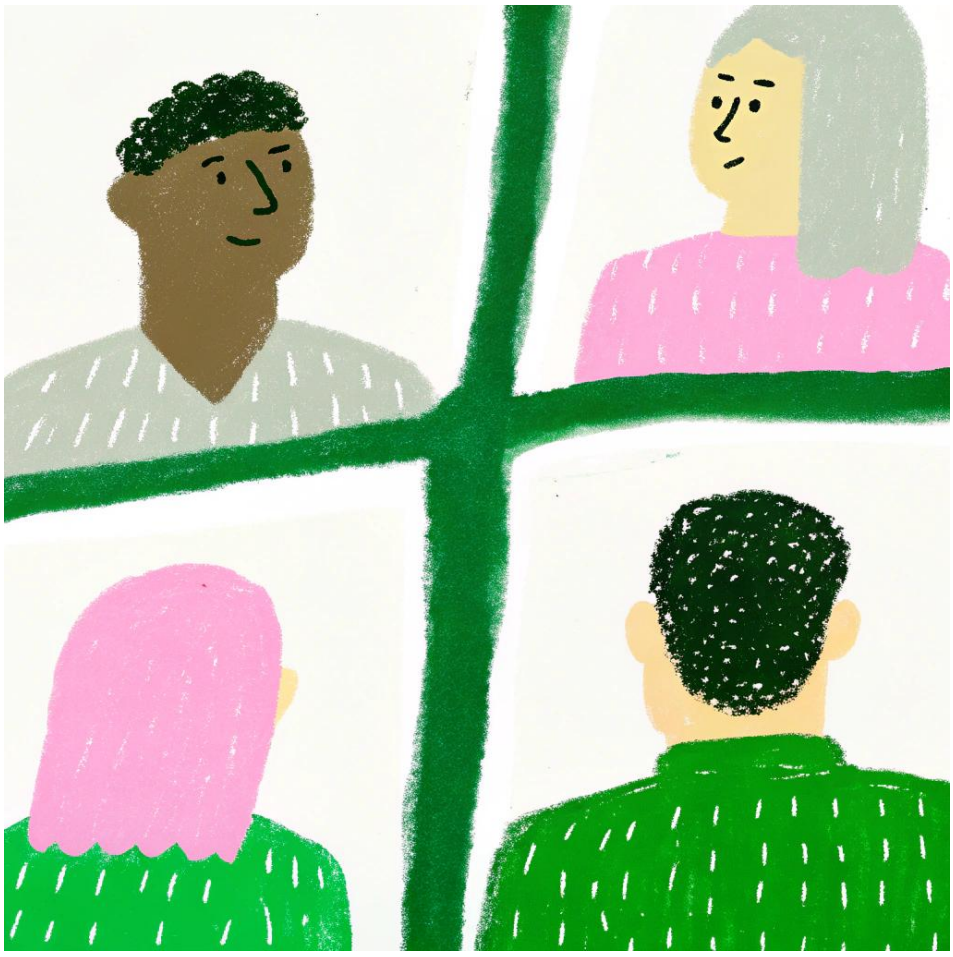
To support a clear and consistent understanding of the method, it is helpful to set out what BSM is intended to do - and what it is not.

BSM is:

- **A structured way to understand complexity.**
  It breaks down a system into Actors, Behaviours, Connections, and Drivers, making it easier to see how different parts interact.
- **A way of understanding where Behaviours come from.**
  It moves beyond surface-level explanations and focuses on the underlying factors that shape Behaviour in practice.
- **A tool for identifying opportunities for change.**
  By mapping Connections and Drivers, it helps highlight leverage points where interventions may have the greatest impact.
- **A participatory process grounded in local insight.**
  It brings together stakeholders to build a shared understanding of the system, drawing on lived and professional experience.
- **A foundation for more targeted action.**
  It supports the development of interventions that reflect how the system actually works.

BSM is not:

- **A complete or objective picture of reality.**
  The map reflects the perspectives of those involved and is always a simplified representation of a complex system.
- **A purely technical or data-led exercise.**
  While it can incorporate quantitative evidence, it relies on stakeholder insight, interpretation, and discussion.
- **A linear problem-solving method.**
  The process is iterative, and understanding develops over time rather than in a fixed sequence.
- **A guarantee of solutions.**
  It helps identify where change may be effective, but interventions still need to be tested, refined, and implemented.
- **A static output.**
  A systems map captures a moment in time and should be revisited and updated as new insights emerge.



Step-by-step process

Overview of the Method

This section sets out one way to plan and run a BSM exercise from start to finish. It draws on our experience of delivering a four-workshop series across multiple neighbourhoods, as well as reflections from participants on what worked well, what was difficult, and what future users of the method would need in order to apply it themselves.

The success of a BSM project depends not only on what happens during workshops, but also on what happens between them. The quality of the method relies heavily on careful facilitation and thoughtful synthesis throughout. For that reason, the process described below includes both workshop activities and the behind-the-scenes work required to organise, interpret, and refine the map over time.

At a high level, BSM involves five core stages:

1. Defining the system objective and boundaries
2. Identifying the Actors in the system
3. Mapping the Behaviours of those Actors (and their Connections to one another)
4. Identifying Drivers of the mapped Behaviours (and their Connections to the Behaviours and vice-versa)
5. Using the map to identify leverage points and generate intervention ideas

Where possible, these stages should be supported by preparation before the mapping begins, reflection and synthesis between stages, and some form of validation or refinement after the map has been developed or intermittently throughout its development. We propose a set of complementary methods that can enhance the quality of a Behavioural Systems Map at the end of this section.

Key tip: Use the methods flexibility to your advantage.

BSM is a structured but flexible method. In practice, it works best when treated as an iterative process rather than a rigid sequence. The steps we outline provide a clear route through the method, but they are neither definitive nor exhaustive; in real-world projects, you may need to revisit earlier decisions, refine parts of the map as new insights emerge - or adapt the activities and workshop structure altogether to suit the context, the participants, and the scale of the system being explored.

Designing the Approach to BSM

BSM can be applied in different ways depending on the purpose of the work, the available evidence, and the level of stakeholder involvement. In practice, approaches likely vary along a spectrum from those that primarily draw on existing data and researcher synthesis of this data (for example in cases where data is readily available but access to community stakeholders is limited) to those primarily that involve stakeholders in co-producing the map. The questions and options below present a broad outline of this spectrum to support practitioners in designing an approach that fits their local context:

Table 2: Designing the approach to Behavioural Systems Mapping

Design question	**Option A (Focus on researcher synthesis)**	**Option B (Hybrid)**	**Option C (Focus on co-production)**
Where does the primary knowledge come from?	Existing evidence (e.g. prior interviews, surveys, published literature, administrative data)	Combination of existing evidence and stakeholder input (e.g. administrative data and participatory mapping)	Direct stakeholder knowledge generated in real time (e.g. participatory mapping, targeted interviews)
What is the role of stakeholders in the mapping process?	Researchers synthesise and develop an initial map; stakeholders may input/validate.	Researchers construct a draft map and refine it iteratively with stakeholders	Stakeholders co-create the map in facilitated sessions, with researchers supporting
What is the primary purpose of stakeholder involvement?	Sense-checking and validation	Interpretation, refinement, and contextualisation	Co-production, shared understanding, and/or capability-building
Useful when…	**There is a strong evidence base, limited time, or constrained access to stakeholders.**	**There is a strong need for contextual evaluation or for improving evidence, e.g. when a group is underrepresented in existing evidence.**	**There is insufficient existing evidence; or when shared ownership, relationship- and capability-building are key aims.**

It is important to note that the above questions options are broad guidelines and by no means an exhaustive list of the different ways in which BSM can be applied. In practice, most projects likely incorporate a mix of researcher synthesis and participatory refinement workshops, and the core methodological logic remains consistent; what varies is the proximity to stakeholder knowledge, the degree of co-production, and the purpose of participation within the process.

Tools and Techniques

BSM can be delivered using a range of formats and tools. The choice will depend on the scale of the exercise, the type of participants involved, available resources; and whether the priority is collaborative participation, analytical depth, or both.

Workshops and Facilitated Discussion

Workshops are one of the ways of doing participatory BSM: they can be used to generate Actors, Behaviours, Drivers, and intervention ideas as well as to review or validate draft maps.

Enabling participants to surface different perspectives and assumptions and build on one another's ideas in real time creates shared ownership of the process and outputs, and supports collective ideation around complex issues. However, workshops also have limitations. Participants may vary in confidence, familiarity with the method, or comfort with abstract mapping tasks. In addition to this, group discussion can also move quickly and without careful facilitation, important insights may be lost or the process might drift from the activity at hand.

For this reason, facilitated discussion should always be supported by clear prompts, a visible structure for the activity, careful note-taking or recording, and dedicated time for synthesis after each session.

Online Mapping

Online mapping can work well when participants are geographically dispersed, when there is a lack of a suitable venue, and when digital collaboration is familiar to the group.

A live visual platform such as MIRO or KUMU can help participants engage with the evolving map in real time: comments and edits can be captured directly on the board during workshops, and outputs can be revisited and refined asynchronously between workshops.

However, online mapping can create barriers for some participants. Digital collaboration platforms may feel unfamiliar, visually overwhelming, or cognitively demanding - especially when you are working with a large map. If using an online format, it is therefore important to assess participants' comfort with the platform in advance and provide support where needed.

In-Person Mapping

In-person mapping may be more intuitive for participants who are less comfortable with digital tools or who engage better through discussion and physical materials.

Printed activity sheets, sticky notes, pens, and large printed map sections can make the process feel more tangible and accessible. In-person sessions may also allow for more informal discussion and easier relationship-building between participants.

However, in-person mapping requires additional set up, and creation of resources - and after the workshop also generates a synthesis burden: outputs created on paper or post it notes need to be captured, interpreted, and transferred into a digital or more permanent form between sessions.

Validation Interviews and Follow-Up Conversations

Validation of the map does not need to happen exclusively during workshops. Follow-up interviews or smaller discussions can be used to:

- Sense-check part of the maps
- Fill knowledge gaps
- Validate Behaviours or Drivers with people who were not part of the mapping workshops
- Refine interventions
- Bring in resident or service user perspectives

This can be especially useful where participants in the workshop do not feel confident representing the experiences of residents or service users, or for sections of the map where additional specialist knowledge is needed.

Visualising Maps

The map itself needs to be usable. This means that decisions about visualisation are upfront methodological decisions rather than just post-hoc design choices.

Useful visualisation practices include:

- Distinguishing clearly (and visually) between Actor-Behaviour nodes and Drivers
- Clustering related Actor-Behaviour nodes into broad themes
- Using consistent labels and legends
- Using visual cues for positive, negative, and unclear Connections
- Presenting the map in manageable sections during review

Depending on the purpose, it may also be helpful to produce more than one version of the map:

- A full working map for analysis
- A simplified map for communication (especially with those who were not involved in the mapping process)
- Specific layers of the full map for specific audiences
- Printable sections or cluster views for workshop use
- A short guide explaining how to read and interpret the map

Checklist: What Needs To Be In Place Before You Start?

Before beginning a BSM project, it is useful to assess whether the conditions are right for the method, and what preparation may be needed.

A complex and dynamic system

BSM is most useful where the issue involves multiple interacting Actors, Behaviours, and Drivers. It is less useful for simple, isolated, or highly linear problems.

You may want to ask yourself:

- Is the issue shaped by more than one Actor or organisation?
- Are the causes and solutions contested, unclear, or interconnected?
- Is there a risk that a narrow intervention would miss important parts of the picture?

Multiple stakeholders and perspectives

The method works best when there are different perspectives to bring together. These may come from practitioners, local community organisations, or service users.

You may want to ask yourself:

- Who understands different parts of this system?
- Whose perspective is missing from our current understanding?
- Who would need to be involved for the map to feel credible and useful?

A clear research objective, or at least a starting question

You do not need to know exactly what the map will look like before you start, but you do need an initial question or focus.

You may want to ask yourself:

- What issue are we trying to understand?
- What behaviour-related outcome are we interested in?
- What level of the system are we focusing on?

Time and commitment

BSM takes time to do well. This includes planning, workshop delivery, synthesis, review, and refinement.

You may want to ask yourself:

- Do participants have time to engage across the process, not just in one session?
- Do facilitators have time to synthesise outputs between stages?
- Is there enough time to reflect, validate, and refine?

Asynchronous reflection tasks are often difficult for participants to prioritise. Short facilitated check-ins between workshops may work better than relying on individual review tasks alone.

Stakeholder buy-in

Participants need to understand the purpose of the exercise, what will be expected of them, and how the outputs may be used.

You may want to ask yourself:

- Do stakeholders understand the value of taking part?
- Is there clarity on what happens after the workshops?
- Do participants trust that what they contribute will be captured and used?

Clear upfront expectations are critical. This includes expectations about roles, inter-workshop tasks, how decisions will be made, and how the outputs may inform action.

Community engagement

Where possible, BSM should be informed by the perspectives of those affected by the system being mapped.

You may want to ask yourself:

- Have residents already been engaged in research on this topic?
- If not, how will their perspectives be incorporated?
- At what points should emerging insights be validated?

Resident perspectives do not need to be limited to the end of the process. They can usefully inform preparation, Behaviour mapping, Driver validation, and intervention refinement.

Setting up the Process

Good setup makes the rest of the process much easier. Before moving into the five mapping steps, it is worth putting time into preparation.

This may include:

- Clarifying the initial research question or challenge
- Gathering existing evidence or contextual insights
- Identifying stakeholders and deciding who to involve
- Assessing readiness and local context
- Planning the delivery format
- Preparing materials, prompts, and facilitation roles
- Scheduling workshops and reflection points in advance

A useful early exercise is a readiness check. This is not about deciding whether an area is "ready" or "not ready", but about understanding what groundwork is needed. For example:

- How well is the local issue already understood?
- What do we already know about the community, services, and support landscape?
- What is still unknown?
- Who needs to be in the room?
- What additional evidence or insight would help before starting?
- What format is likely to work best locally?

It is also worth planning the roles needed to deliver the exercise well. At minimum, these should include:

- A facilitator
- A note-taker
- Someone responsible for map synthesis between sessions

Including a non-participating note-taker or observer is valuable. This role can capture detail while the facilitator focuses on the group, and can support the quality of synthesis afterwards.

Research and insights before mapping

Mapping can be improved with up-front data analysis and synthesis to ensure that as much is known about the system before mapping begins. For example, you may want to look at the following:

- Service user feedback, complaints data, or enquiries that describe the issue
- Geospatial data about the location and distribution of organisations, assets, and characteristics
- Survey data that may provide more information about the problem-area

Workshop Series Overview

As outlined above, BSM can be built on systematic review data or from interview or survey data, we focus here on a structured process that combines facilitated workshops with analysis and synthesis between sessions. While workshops are where ideas are generated and challenged, a significant portion of the analytical and refinement work happens behind the scenes.

For this reason, each step in this guide distinguishes between what happens *during the workshop*, and what happens before and after - or *behind the scenes* - as both are essential to producing a usable and meaningful map.

Throughout we also note useful points for reflection at the beginning of workshops, to bring participants back into the mapping process and capture any reflections.

Step 1: Define the System Objective and Set the Boundary

In this step, we will:

- Onboard participants to the process.
- Define what the system is trying to achieve.
- Draw the system boundary and decide what sits inside or outside the scope of the map.

Introduction

The first step in BSM is to define what the system is trying to achieve and what sits inside or outside the scope of the map. This step is foundational. The quality and manageability of the final map depend heavily on whether the objective is clear and whether the boundaries are appropriate.

The system objective is the shared goal the map is working toward. It helps determine which Actors and Behaviours are relevant. The system boundary defines what parts of the system are in scope for the exercise and what parts are outside it.

In practice, these two tasks are difficult to separate from one another and they often need to be developed together, as well as revisited throughout the entire process. They also provide an essential anchor for later stages of the method: a clearly defined objective and boundary help ensure that Actor, Behaviour, Connection, and Driver mapping remain focused and interpretable as the map becomes more complex.

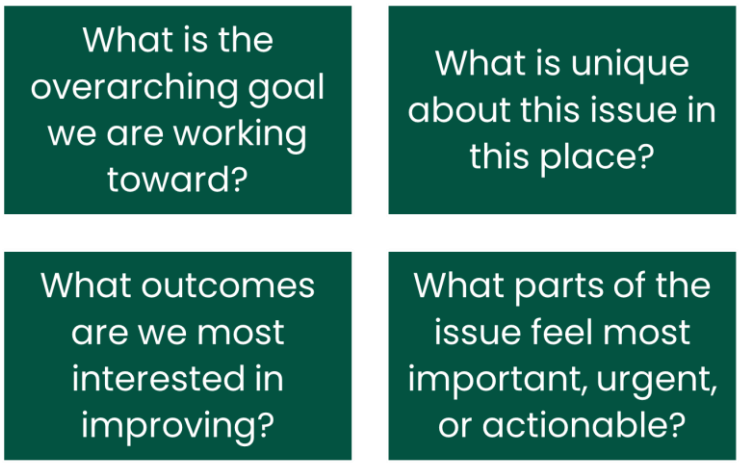
Methods & Process

During the Workshop

During the workshop, the primary goal is to develop a shared understanding of what the group is trying to achieve and what should be considered part of the system. This typically begins with a broad discussion of the issue followed by a gradual narrowing of focus.

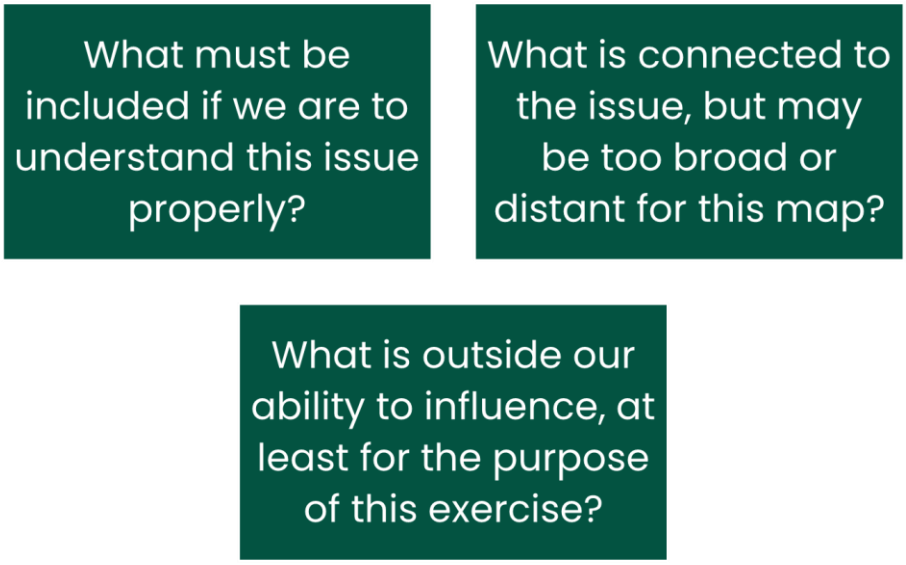
Facilitators should first of all guide participants from general issues toward a more specific and actionable system objective.

Useful prompts include:



Once a draft system objective has been developed, participants should also begin to explore the system boundary - that is, which parts of the system should be included in the system map and which should be left out. This is most effective when framed as a practical scoping exercise rather than an abstract concept: boundaries may include not only Actors and organisations but also key processes, relationships, resources, policies and wider environmental and contextual factors that shape how the system functions. Where helpful, this discussion can be supported by simple structures such as “in / out / unsure” categories to translate abstract boundary setting into more tangible decisions.

Useful prompts include:



At this stage, it can also be helpful to signal that later steps will involve mapping Actors, Behaviours, Connections, and Drivers and how this makes the map grow exponentially. This can help participants understand why defining a clear scope now is important.

If time is limited, facilitators may choose to combine this step with early Actor or Behaviour mapping.

Behind the Scenes

System objectives and boundaries often require significant refinement outside the session.

To help generate valuable input, facilitators may before the workshop prepare:

- Draft objectives based on prior research or stakeholder input
- Initial assumptions about the system scope

After the workshop, these inputs should be revisited and consolidated, especially since each participant may offer their own unique perspective on the objective and boundary but a consensus may not have been reached. This includes refining the wording, highlighting inconsistencies and resolving them where possible, and ensuring the objective and boundary are specific enough to guide later steps. The goal is to arrive at a draft version that can be shared with the participants and iteratively refined as the map evolves.

What To Watch Out For

Participants often find the system boundary conceptually difficult. They may interpret boundaries geographically or purely in terms of which individual Actors should be included, rather than as a tool for deciding scope.

Objectives also tend to become too broad. Broad objectives can feel inclusive and ambitious at first, but they usually lead to maps that become too large and difficult to use later. Likewise, narrow objectives may lead to the exclusion of important elements of the system.

A further challenge is that participants' views of what matters most are shaped by their own role, knowledge, and priorities. This is not a problem, but it does mean the facilitator needs to help the group move from many perspectives toward a shared focus.

Tips & Good Practice

A useful principle at this stage is to prioritise clarity over completeness: the aim is not to capture everything that matters but to define a system that can be meaningfully explored. To do so, you may want to:

- Aim for an objective that is specific enough to guide decisions on what needs to be included in the system and what does not
- Treat boundaries as a practical scoping tool, not an attempt to represent everything that may matter for the problem at hand
- Spend sufficient time on this step up front, and revisit both the objective and boundaries at regular stages throughout the process
- If the group struggles with boundary-setting, consider using participant input to inform a facilitator-led refinement afterwards
- Keep asking the question: will including this make the map more useful or just bigger?

Keep in mind that every additional element included at this stage will increase the number of Actors, Behaviours, Connections, and Drivers that need to be mapped later.

Step 2: Actor Mapping

In this step we will:

- Review and reflect on the map to date (including the system objective and boundaries).
- Identify the Actors of the system.
- Categorise Actors by their position in the system.

Introduction

Once a working objective and boundary are in place, the next step is to identify the Actors involved in the system.

Actors are the people, groups, organisations, or institutions that influence or are affected by the issue. This step defines whose Behaviours will be mapped and whose role in the system is relevant to the objective.

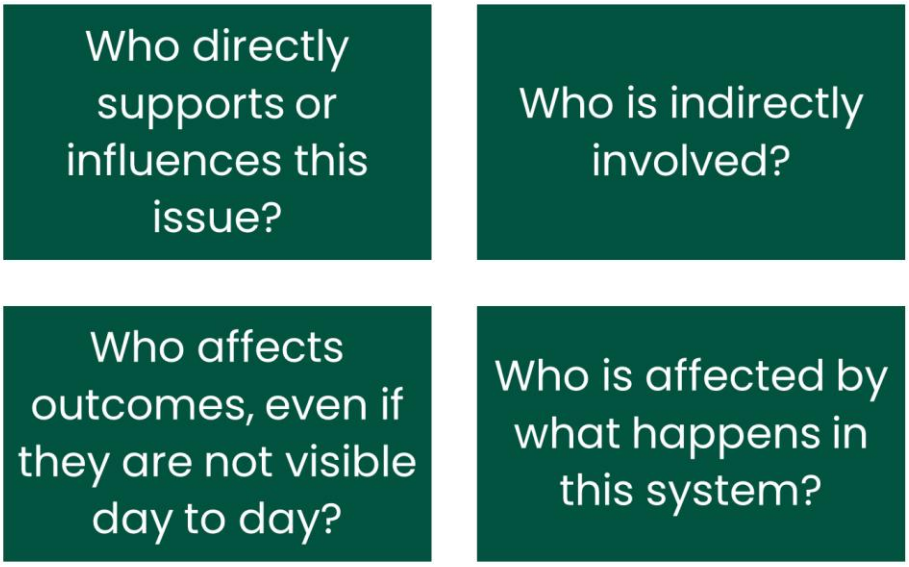
Actor mapping often begins as an expansive exercise, but it is necessary to prioritise and structure the list. Decisions at this point will have a direct impact on the complexity and usability of the final map.

Methods & Process

During the Workshop

A good way to start Actor mapping is with an open idea-generation exercise, where participants are encouraged to identify all Actors relevant to the system objective that sit within the system boundary. It can be helpful - both for the idea-generation exercise and for later steps - to match Actors to relevant pre-defined categories (e.g. council teams, VCSEs, healthcare institutions, local businesses…) or themes (e.g. strategy, social connection, information flows, receiving support…).

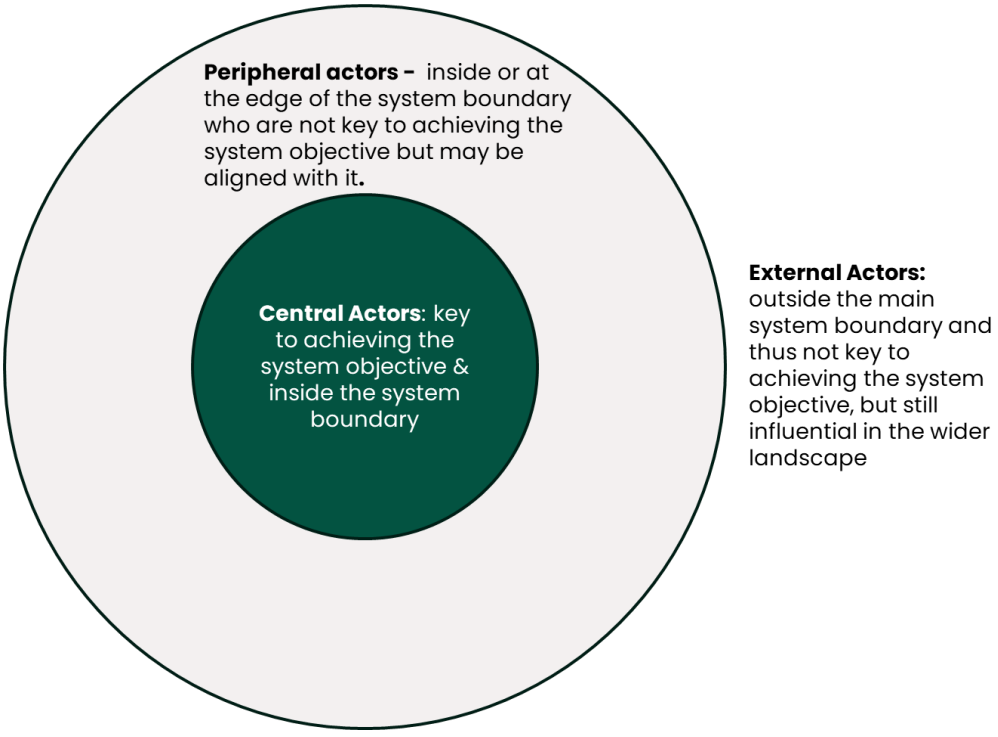
Useful prompts include:



However, idea-generation exercises often produce a large number of Actors, especially with bigger workshop groups; and a large number of Actors typically translates into a large number of Behaviours and Drivers, which can quickly lead to the map becoming unmanageable. Alongside categories or themes, it is therefore also helpful to have participants sort Actors according to their relevance to the objective and their relation to the system boundary.

One useful such classification may be as outlined below in Figure 5:

Figure 5: Classification of System Actors



Introducing this classification early helps participants move from a long, unstructured list to a more manageable set of key Actors to focus on during future mapping stages, without losing sight of the complex network of Actors that shape the system. While this classification can happen during post-workshop synthesis, it is useful to get input from participants as the system experts into which Actors matter most.

In some cases, particularly where time is limited or where the system objective and boundary are narrow and include only a small number of Actors, Actor mapping can be combined with initial Behaviour mapping: asking "What does this Actor actually do in relation to the objective?" can help clarify which Actors are truly central, while also beginning the transition into the next stage.

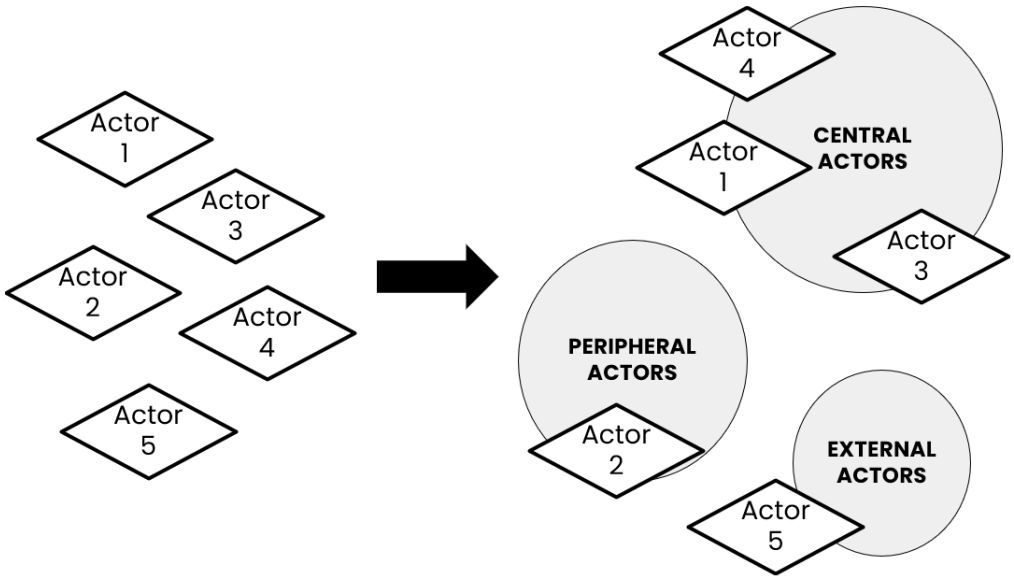
Where helpful, facilitators can also begin to listen for early indications of how Actors relate to one another in practice; these relationships are not formally mapped at this stage but can provide useful context for later Behaviour and Connection mapping.

Behind the Scenes

Following the workshop, facilitators should refine and consolidate the Actor list. This includes removing duplicates, clarifying roles, grouping conceptually similar Actors together and reassessing the classification of Actors based on the discussion.

It is also at this stage that facilitators should make deliberate decisions about limiting the number of central Actors: keeping this number manageable (around 5 - 10) significantly reduces complexity in later stages. As noted above, Actors that are removed from the central category should not be discarded. Instead, they can be retained as peripheral or external Actors, providing context without overloading the main map.

Figure 6: Classifying Actors



What To Watch Out For

The workshop is an important opportunity to surface knowledge gaps. It is common for participants to identify Actors that are widely recognised as important, but whose specific role is not well understood; this is a useful insight to record that can inform later engagement or research.

Similarly, central Actors are often interpreted as those that are most visible or locally present; however, influence within a system may depend just as much on relationships, tensions, or indirect effects. Detailed insights from workshop discussions - including informal narratives about who interacts with whom - can therefore help identify which Actors are truly central to the system.

Tips & Good Practice

A simple rule of thumb to keep in mind is: less is more. Future users should not be afraid to work with a smaller number of relevant Actors if that makes the rest of the process more manageable. To achieve this, you may want to:

- Prioritise relevance to the system objective, not just general importance
- Use Actor categories, themes and classifications early to reduce overload later
- Do not assume “local” or “well-known” automatically means central
- Be willing to move Actors out of the central group if doing so improves clarity of the map
- Keep a record of peripheral and external Actors even if they are removed from the main map
- If time is tight, combine Actor and Behaviour mapping by asking what each Actor actually does in relation to the objective

Remember that each central Actor is likely to generate multiple Behaviours and associated Connections and Drivers. Keeping the number of central Actors manageable is one of the most effective ways to maintain a usable and interpretable map.

Step 3: Behaviour & Connection Mapping

In this step we will:

- Review and reflect on the map to date (including the system objective and boundaries).
- Explore and define Behaviours.
- Assign Behaviours to Actors.
- Ideate chains of Behaviours.
- Define Connections between Actors and their Behaviours.

Introduction

Once Actors have been identified and prioritised, the next step is to map the Behaviours that matter within the system.

This marks an important shift from a stakeholder-focused view to a behavioural one. The purpose is not simply to understand who is involved, but to identify *what* they actually do that influences the system objective. Crucially, Behaviours are not viewed in isolation but as interconnected: Behaviours influence one another in positive and negative ways, forming a behavioural network that the map seeks to represent.

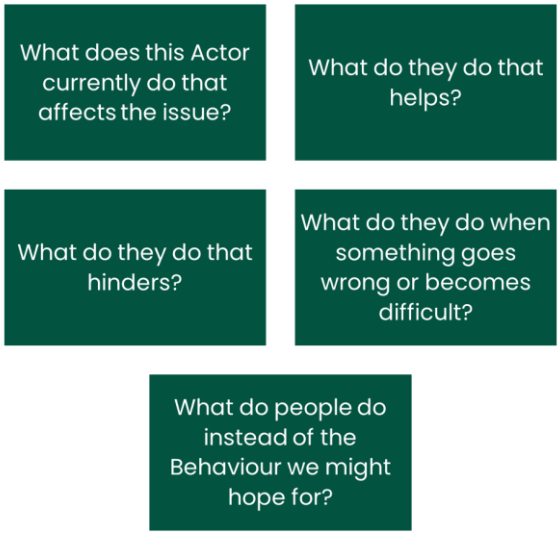
These interconnected Behaviours form the backbone of the map. We will later map what drives these Behaviours using the COM-B model.

Methods & Process

During the Workshop

During the workshop, the focus should be on identifying specific and observable Behaviours for each Actor. Participants should be encouraged to move beyond general descriptions and instead articulate concrete chains of actions.

Useful prompts include:



It is often useful to begin with one group - for example, residents or service users - before expanding to organisations and institutions. This helps build confidence and establishes a consistent level of detail.

Participants should also be encouraged to identify multiple Behaviours per Actor while recognising that not all Behaviours will carry equal importance. Where necessary, facilitators can guide the group to prioritise Behaviours based on factors such as impact, frequency, or relevance to the system objective.

A recurring challenge at this stage is the tendency for participants to move toward solutions or desired future Behaviours. While this is a natural part of discussion, facilitators should gently steer the group back toward what currently happens in the system, while capturing early intervention ideas for later stages.

Throughout the session, it is important to keep the system objective and boundaries visible and build in frequent reminders. This helps prevent drift and ensures that Behaviours remain relevant to the focus of the map.

During Behaviour mapping, facilitators should also listen carefully for narratives that imply relationships between

Key tip: Describing Behaviours as chains of actions

To move beyond generic descriptions, it's useful to think of Behaviour-chains that describe how actions of Actors link to one another.

An example may be:

A young person sees many job postings that require coding skills.

Local college promotes current open courses via Instagram.

As a result...

The young person attends a free online training workshop offered by the local College.

The young person applies to a job posting that requires coding skills.

Behaviours, even if these are not formally mapped together with participants. In most cases, it is not practical to ask the group to fully map Behaviour-to-Behaviour Connections during the workshop itself, particularly when the map is expanding and becoming complex. Instead, the purpose of the in-workshop discussion is to elicit the raw material needed to infer those Connections afterwards.

Behind the Scenes

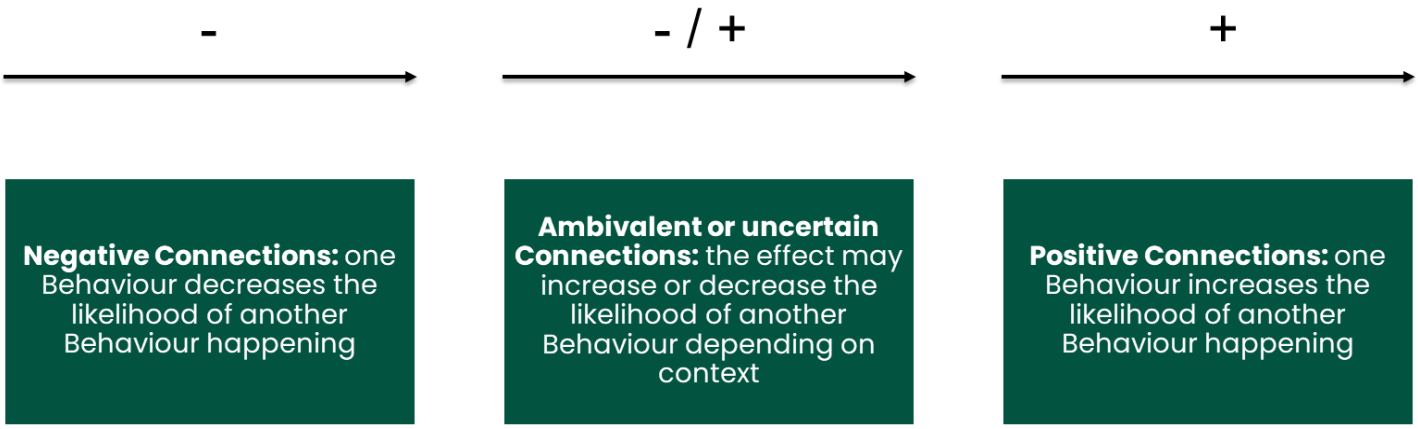
Between workshops, the behavioural data generated in sessions needs to be structured and synthesised.

The first step is to combine actors and Behaviours into Actor-Behaviour nodes, ensuring consistency in phrasing and removing duplicates. This often involves consolidating similar Behaviours that have been expressed in slightly different ways.

Once this has been done, nodes can be grouped into broad thematic clusters. These clusters act as an organisational layer, helping to structure the map and make it more navigable for both facilitators and participants. The aim here is not to create perfect categories but to establish a level of structure that supports map construction, participant review, and later communication.

At this stage, facilitators should also begin drafting Connections between Actor-Behaviour nodes. These Behaviour-to-Behaviour Connections describe how one Behaviour influences the likelihood of another. In practice, Connections may be represented as:

Figure 7: Connection types



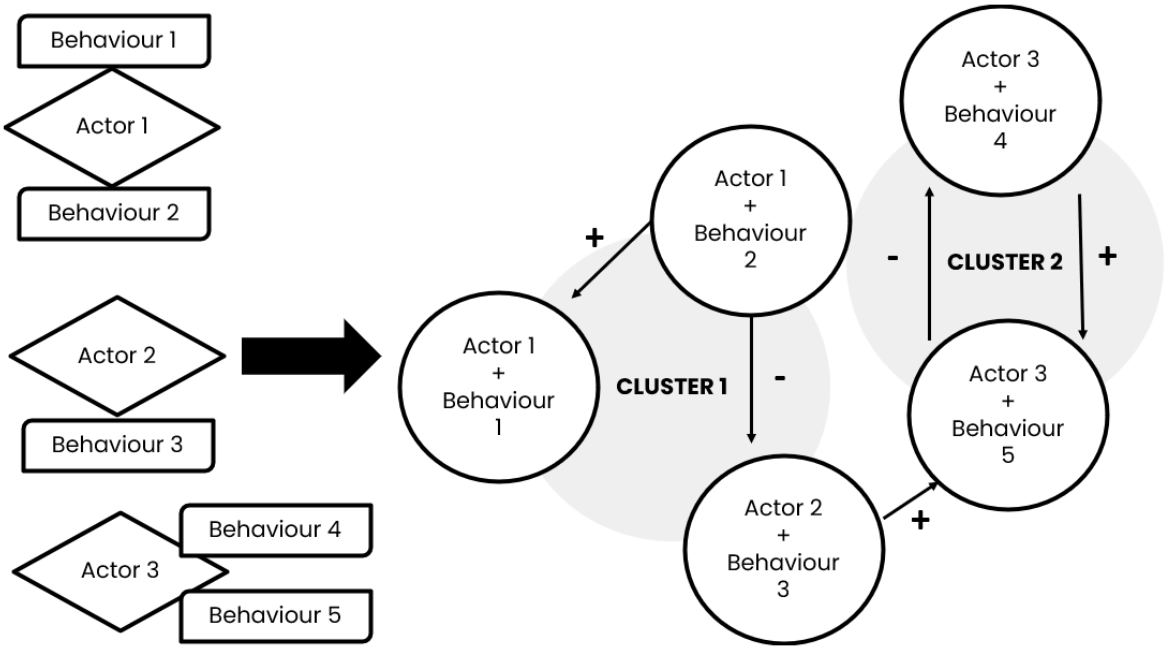
These Connections will often need to be inferred from workshop narratives rather than directly stated by participants. This means facilitators need to review notes carefully and then translate these into explicit links on the map. In some cases, Connections may also

be bidirectional or uncertain; rather than forcing simplicity, it is often better to retain this ambiguity and revisit it later with participants.

Finally, facilitators should also revisit the system objective and boundaries. Some behaviours may fall outside the intended scope or reflect tangential discussions during the workshop. These should be removed from the core map, while still being recorded separately where useful.

Clusters can also be used to support reflection between workshops. Presenting the map in smaller sections (whether visually or as lists) makes it easier for participants to engage with and validate the emerging structure; including both Behaviours and the draft Connections between them. Participants can be invited to sense-check whether important Behaviours are missing, whether labels accurately reflect what was discussed, and whether the mapped Connections reflect the system as they understand it.

Figure 8: Clustering Behaviours



What To Watch Out For

This stage can be quite complex for participants who are new to the mapping process - below we have outlined what to look out for:

Table 3: Keeping on track

Challenge / issue	**What you can do**
Mixing current behaviours with future behaviours: Participants may drift from current Behaviours into desired future Behaviours or intervention ideas. This is understandable, but it can create confusion later if the map mixes what currently happens with what should happen.	• Set clear rules for Behaviour mapping from the start • Pay attention to narratives around Behaviours that indicate whether or to what degree these are happening currently • If desired future Behaviours or intervention ideas come up, record them in your notes but gently redirect participants - for example by asking "What is currently happening that is preventing this Behaviour?" or "Who is involved in making this Behaviour happen and what is currently stopping them from doing so?"
Positive bias: There may also be a tendency to focus mainly on positive or supportive Behaviours, especially when discussing organisations in the room	• Explicitly include prompts asking for negative or hindering Behaviours (if possible, in a dedicated exercise) • Ensure that participants understand the purpose of the mapping exercise as helping various parts of the system improve - it is not about assigning blame • Anonymise draft contributions to the map and then later revisit during open group discussion
Understanding clusters: Participants may also need support in understanding that clusters are simply an organisational device rather than fixed parts of the system.	• Show the map as a whole and where clusters sit within in • Emphasise important Connections between clusters while keeping focus on the cluster at hand • Remind participants that cluster-by-cluster analysis is a temporary tool and they will later be able to review the map as a whole
Lack of lived experience: Another recurring issue is that participants may not feel	• Ask participants to bring data and examples from their work with the user group

able to confidently describe the Behaviours of residents or service users without direct insight from those groups.	• Undertake community engagement or user research before the workshops
Mapping connections when the system is large: Connections between Behaviours are also difficult to map during the workshop unless the system is relatively small. If participants are asked to do too much of this in real time, the exercise can become conceptually overwhelming.	• Explain clearly that workshop discussions are generating the evidence for Connections • Prepare prompts before the workshop that draw out narratives between Behaviours that can be later translated into Connections • Examples of this could be: "What happens to Behaviour A if Behaviour B increases / decreases?" or "In order for Behaviour A to happen, which other Behaviours need to happen first?"

Tips & Good Practice

Behaviours should be phrased in a way that makes them easy to interpret and connect later. It is also important to treat clustering as a practical tool rather than a definitive structure. Clusters are there to support navigation and analysis, not to impose rigid categories on the system. It helps to:

- Focus primarily on Behaviours that currently exist in the system
- Phrase Behaviours clearly and concretely
- Encourage participants to include Behaviours that hinder or unintentionally contribute to the problem
- Where appropriate, break larger Behaviours into smaller steps
- Listen carefully for narratives that imply Behaviour-to-Behaviour Connections
- Validate Behaviours relating to residents or service users with those groups wherever possible
- Present draft maps in smaller sections when asking participants to review Connections
- Capture early solution ideas, but park them for later

Step 4: Driver & Connection Mapping

In this step we will:

- Review and reflect on the map to date (including the system objective and boundaries).
- Explore and define Drivers of Behaviours.
- Ideate different categories of Drivers using COM-B.
- Connect Drivers to Actor-Behaviour nodes.

Introduction

Once the main Behaviours in the system have been identified and the draft Behaviour-to-Behaviour Connections reviewed, the next step is to identify the Drivers that influence whether those Behaviours happen or not.

This stage adds a further layer of explanation to the map. If Behaviour mapping helps us understand what happens in the system, Driver mapping helps us understand why it happens. Drivers are the conditions, constraints, and influences that shape the likelihood of a Behaviour occurring. Mapping these Drivers - and their Connections to Behaviours - adds the analytical depth that makes BSM particularly useful for diagnosis and intervention design.

In practice, this is often one of the most demanding stages of the process because participants need to review an increasingly detailed map while also distinguishing carefully between Behaviours and Drivers, which can be conceptually difficult.

Methods & Process

During the Workshop

During the workshop, participants should first have time to familiarise themselves with and refine the existing draft map. This is best done by presenting the map cluster by cluster or layer by layer, allowing participants to review Behaviours and Behaviour-to-Behaviour Connections in smaller, more manageable sections. At this stage, participants can be invited to sense-check the map by identifying missing Behaviours, clarifying labels, and reviewing whether mapped Connections reflect the system as they understand it. This review is especially important because many of the Connections will have been drafted behind the scenes by facilitators on the basis of workshop narratives rather than mapped live by the group.

Once participants are familiar with the map, the focus can shift to identifying Drivers. The workshop should frame Drivers as factors that influence whether a Behaviour happens or not, rather than as actions in themselves. A useful way to support this discussion is through the COM-B model, which prompts participants to consider whether and how a

Behaviour is shaped by Capability, Opportunity, and Motivation. Importantly, participants do not need to formally classify Drivers into the COM-B categories during the workshop; especially when time is limited or this is their first encounter with behavioural science or this particular framework. Instead, COM-B should be used as a diagnostic tool to widen the discussion and encourage participants to think across a broad range of influences.

Useful prompts include:

As with Behaviour-to-Behaviour Connections, it is usually not realistic to fully map all Driver-to-Behaviour Connections live unless the map is very small. The workshop should therefore focus on eliciting high-quality discussion and surfacing candidate Drivers, as well as clarifying the nature of their influence. Facilitators should listen for whether a Driver appears to increase the likelihood of a Behaviour, decrease it, or have a more mixed or context-dependent effect.

Behind the Scenes

Facilitators need to review the Drivers identified during the workshop, remove duplicates, refine labels, and integrate them into the map in a consistent way. They also need to draw Connections between Drivers and Actor-Behaviours nodes, indicating whether a Driver increases or decreases the likelihood of a Behaviour happening, or has an ambivalent or uncertain relationship to it. This also includes identifying Drivers that influence multiple Behaviours and deciding how best to represent this without overcomplicating the map.

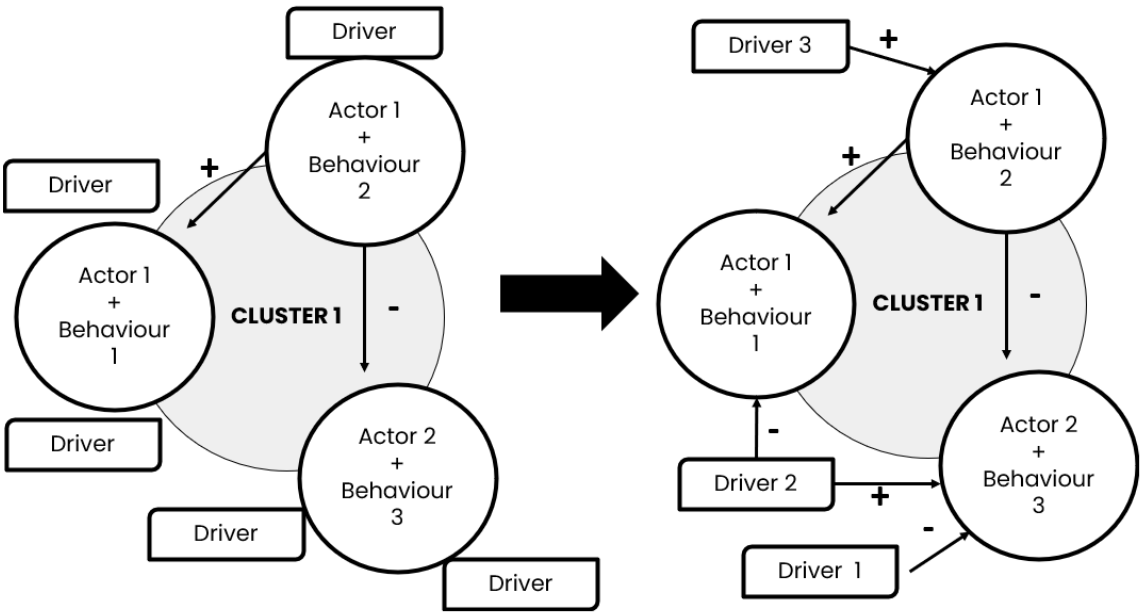
As with the previous stage, these Connections may need to be inferred and refined on the basis of workshop narratives rather than simply transcribed from what participants said

directly. This may involve working across multiple clusters, revisiting earlier map structure, and rearranging parts of the map to make cross-cutting influences visible.

It is also at this stage that facilitators need to make careful judgements about the distinction between Behaviours and Drivers. Some cases are straightforward, but others are more ambiguous. Where the distinction is unclear, it is often helpful to return to the system objective and ask what role the element plays in the system: is it best treated as an action that sits in a chain of Behaviours, or as a condition or influence that helps explain why Behaviours occur?

The resulting draft map should then be prepared for review. As before, this is easiest when participants are shown manageable sections of the map and asked to refine existing Drivers, add missing ones, and flag areas of uncertainty.

Figure 9: Developing Driver Connections



What To Watch Out For

This stage can quickly become overwhelming if the map is too large or if participants are expected to review too much at once.

A recurring challenge is that participants often move fluidly between describing Behaviours and describing Drivers. This is understandable because discussions of complex systems rarely fit into neat categories, but it can create ambiguity if not carefully managed.

Finally, facilitators should be cautious about asking participants to categorise Drivers within the COM-B framework during the workshops. In most cases, this adds cognitive

load without improving the quality of the mapping; instead, COM-B works best here as a tool for diagnosis rather than a formal workshop classification exercise.

Tips & Good Practice

Driver mapping is most effective when participants are reviewing a map they can already recognise and navigate. To support this, it helps to:

- Review the existing Behaviour map cluster by cluster before introducing Drivers
- Use COM-B as a prompting framework rather than a Driver classification task
- Listen for narratives that indicate whether a Driver increases, decreases, or conditionally affects a Behaviour
- Explain clearly how Drivers differ from Behaviours (and decide on a case-by-case basis when there is ambiguity on which better fits the map)
- Collapse similar Drivers where possible to reduce clutter
- Identify and highlight Drivers that recur across multiple Behaviours

Step 5: Identifying Leverage Points & Generating Intervention Ideas

In this step we will:

- Review and reflect on the map to date (including the system objective and boundaries).
- Explore leverage points: places where change is possible.
- Ideate intervention ideas.
- Evaluate the workshop process and capture lessons learned and improvements.

Introduction

Once the map has been developed, it can be used to identify where intervention may be most useful and what types of action might help shift the system. While the earlier stages are primarily concerned with understanding the system, this stage begins to translate that understanding into action.

This step focuses on identifying leverage points - places within the system where change could have meaningful effect - and then using those leverage points to generate intervention ideas. Leverage points may include highly connected Behaviours or Drivers, bottlenecks where progress becomes stuck, repeated barriers across the map, or areas that stakeholders recognise as especially important within their local context[9].

Methods & Process

During the Workshop

During the workshop, participants should first be invited to explore the map and identify potential leverage points. This can be done visually - for example by marking the map - while encouraging participants to explain why they

Key tip: Evaluation and learning

The final step is a great point to undertake reflection activity with participants. Some questions you may want to explore are:

What have we learned about the system and target group?

Are there any gaps remaining that need our attention?

What worked well during the process?

What was less effective, and how could we change it?

You may also want to undertake a post-workshop survey to explore parts of the process in more detail.

[9] In BSM, feedback loops are typically analysed explicitly to identify reinforcing dynamics and resistance, which are relevant for the identification of potential leverage points. In collaborative applications, however, systematically identifying feedback loops and leverage points may be challenging, particularly when the maps are large or workshops are time-limited. As a result, the approach we present here is simplified and primarily draws on stakeholder experience and judgement. Developing practical ways to incorporate a systematic feedback loop analysis into collaborative mapping is an important area for further methodological exploration.

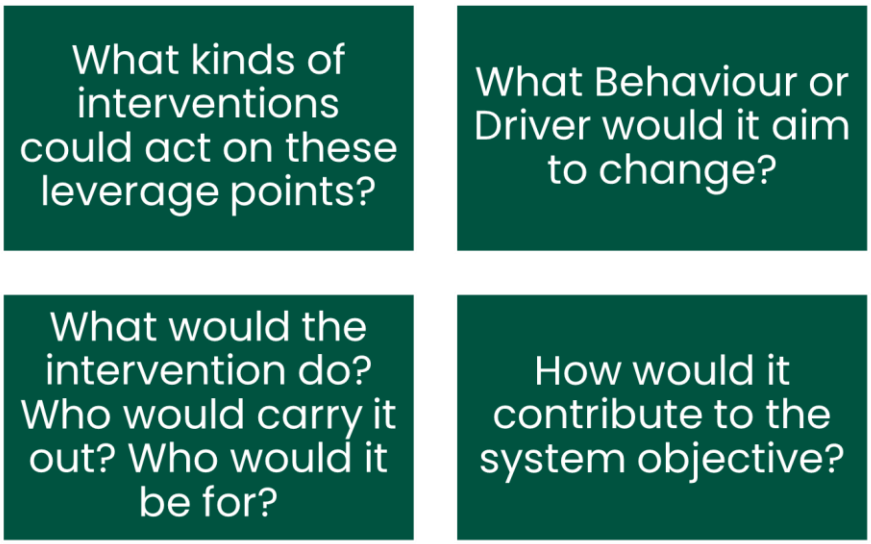
think intervening at a particular point could lead to wider change.

Useful prompts include:

- Where in the system are interventions likely to lead to meaningful change?
- Do any Actors in the system have influence over this? If so, who?
- Is this something that could be changed in practice?
- What would need to happen for this part of the system to shift?

Participants can then begin to generate intervention ideas based on the leverage points they have prioritised. It is often helpful to provide a simple structure for doing this, for example by asking participants to specify what the intervention would do, who would deliver it, who it would be for, and what Behaviour or Driver it is intended to influence. Early solution-oriented ideas that emerged in previous workshops can also be reintroduced at this point, provided they were captured and set aside earlier in the process.

Useful prompts include:



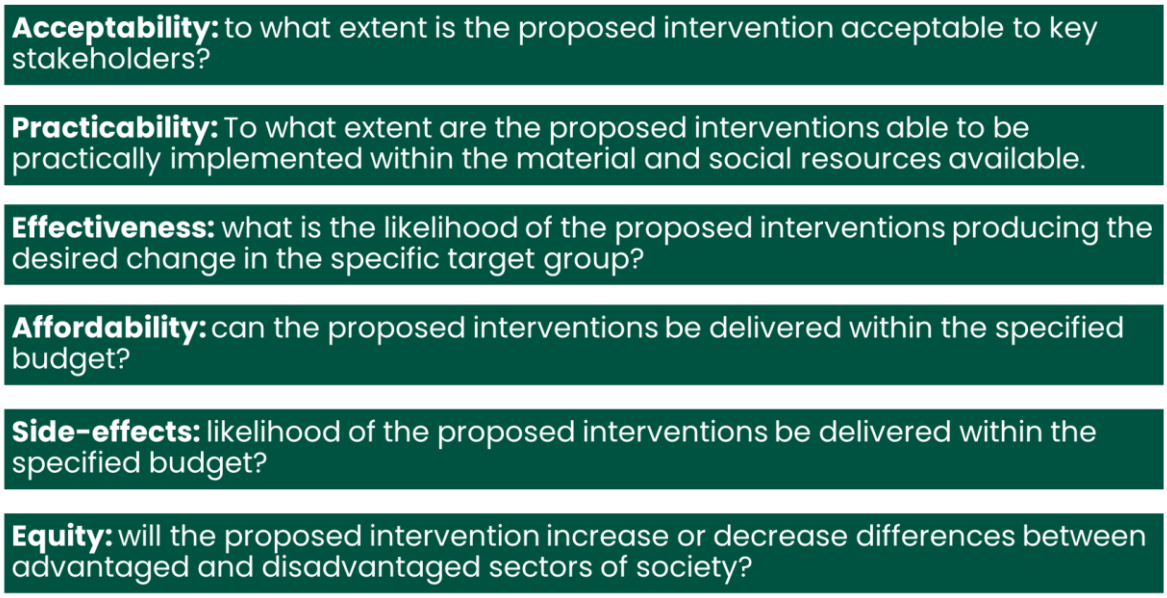
At this stage, the focus should remain on exploration rather than refinement. Facilitators should encourage an open and creative approach, while ensuring that ideas remain grounded in the map.

Behind the Scenes

This typically involves linking each idea back to the leverage point or points it addresses, identifying the relevant target Behaviours and Drivers, clarifying intended beneficiaries, and specifying who might lead delivery. Similar ideas can be combined into more coherent proposals, while less developed ideas can still be retained as part of a wider record of options. In practice, it is often useful to narrow a broad longlist into a smaller number of more developed draft interventions.

At this stage, a structured framework such as APEASE[10] can be useful in helping ensure that the interventions taken forward are not only theoretically promising, but also feasible, appropriate, and equitable within the local context. The APEASE framework can support with this where intervention options are rated, or benefits and challenges are identified, against each element to help select preferred interventions or adapt them:

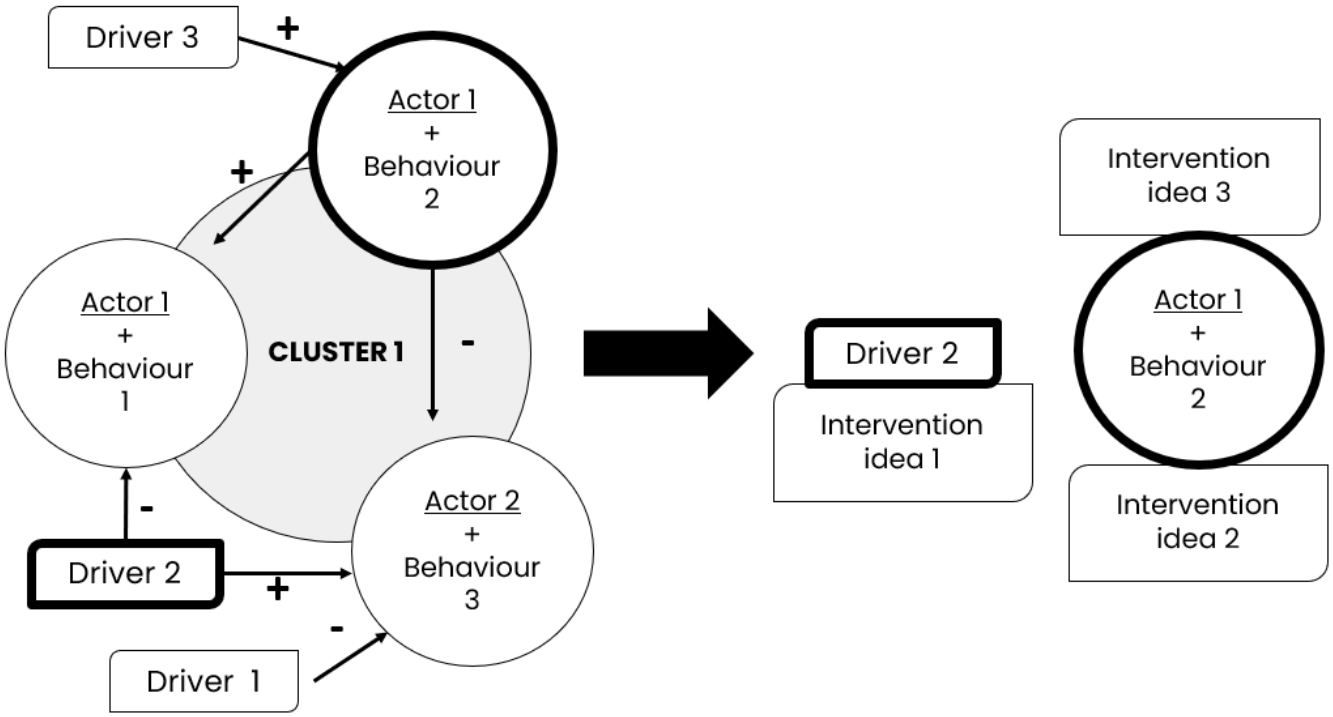
Figure 10: APEASE framework



Where ideas are developed further into more detailed proposals, it becomes important to define responsibilities, intended outcomes, and the link back to the map clearly. This helps keep interventions grounded in the diagnostic process and supports later implementation and evaluation.

[10] APEASE is a decision-making framework that helps assess potential interventions against six criteria: Affordability, Practicability, Effectiveness, Acceptability, Side-effects, and Equity. It is commonly used to support the selection and adaptation of interventions in local contexts. For further information, see the BCW guide: Michie, S., Atkins, L., & West, R. (2014). *The behaviour change wheel: A guide to designing interventions.* Silverback Publishing.

Figure 11: Intervention ideation



What To Watch Out For

Intervention ideas usually arise much earlier in the process, often before the map has been fully developed. These ideas should be captured rather than suppressed but parked until this stage.

There is also a risk of moving too quickly from identifying an important area of the system to proposing an intervention without sufficiently considering feasibility or wider system effects: a leverage point may be influential but still difficult to act on. Conversely, an intervention may be deliverable in practice, but have only limited systemic impact.

Finally, the map itself should not be treated as fixed. Systems change over time, and interventions may need to be revisited as local circumstances, key Actors, or priorities shift.

Tips & Good Practice

The final stage works best when it builds directly and transparently on the map that participants have created. It helps to:

- Capture intervention ideas throughout the earlier stages and return to them here
- Prioritise local expertise when identifying leverage points, rather than relying only on formal indicators such as the number of Connections
- Encourage open and creative intervention idea generation before narrowing down options
- Use structured criteria such as APEASE to refine a longlist
- Limit the number of ideas developed in detail while keeping a record of those not taken forward at this time
- Define clearly who would deliver an intervention, who it is for, what it targets, and what outcome it is intended to support in the context of the map
- Where possible, validate and refine emerging interventions with residents or service users before finalising them

Summary / Additional Comments

Although presented here as five steps, BSM is best understood as a structured but iterative and flexible process. In practice, these steps do not always need to be carried out one after the other in a strict sequence: depending on the context, the scale of the system, and the time available, some stages may be combined - for example, Actor and Behaviour mapping may be carried out together or Behaviour and Driver identification may happen within the same workshop.

What matters most is not rigid adherence to the outlined step-by-step process but ensuring that each layer of the map is developed with enough clarity and reflection to support the next layer. Across all stages, both the quality of facilitation during workshops and the quality of synthesis between workshops are critical to producing a map that is interpretable and actionable.

Complementary Methods

BSM can be used as a standalone method to generate structured insight into a complex local system, but its value is significantly strengthened when combined with complementary qualitative and quantitative methods. In particular, geospatial analysis and community engagement help address two important limitations of BSM when used on its own: limited visibility of wider structural and geographic conditions, and limited direct insights into residents lived experience. Used together, these methods can provide a stronger foundation for defining the neighbourhood, understanding local context, testing assumptions, and refining interventions. Complementary methods work best when they are planned into the process from the outset rather than added retrospectively, and when there is sufficient capacity to integrate their findings into the mapping process as it evolves.

Geospatial Analysis

There are various tools and techniques, such as GIS mapping, alongside many and diverse quantitative and qualitative data sets that can be used to collate and present insights in a spatial manner. For example, socio-economic indicators can be presented as Opportunity Areas (OAs) and Lower Super Output Areas (LSOA); key assets, locations, experiences and sentiments can be mapped; and project topics and challenge statements can be reflected using Indices combining multiple indicators to identify risk areas.

Useful geospatial analysis enables the following:

- **Fills a geographic evidence gap.** Geospatial analysis adds information that BSM does not usually capture on its own, including the distribution of deprivation, health needs, language barriers, and the location and accessibility of key assets and services.
- **Helps define and justify the neighbourhood focus early on.** It can support neighbourhood selection, boundary setting, and early problem definition by showing where relevant risks, assets, and inequalities are concentrated.
- **Provides context for understanding where behaviours happen.** While BSM explains how Actors, Behaviours, and Drivers interact, geospatial analysis shows the physical and socio-economic context in which those Behaviours take place.
- **Supports more targeted intervention design.** By identifying where barriers and opportunities are geographically concentrated, geospatial analysis can help stakeholders think more precisely about where interventions should be located, which assets could be used, and which areas or groups may need tailored responses.

- **Best used before the first workshop and revisited during the process.** Ideally, geospatial analysis should be undertaken at the outset to inform neighbourhood selection, system objective setting, stakeholder identification, and workshop preparation. It can then be revisited during later stages to sense-check emerging findings and support intervention design.

Community Engagement

Overall, there is not a "one-size-fits-all" approach to community engagement to complement BSM. Rather, engagement should be scaled, designed and delivered based on the needs of the project and what works locally for community stakeholders to engage in fair and accessible ways, building on general good practice for engagement. Appropriate community engagement enables and requires the following:

- **Fills the lived experience and validation gap.** Community engagement provides direct insight into how residents actually experience the issue, what they do in practice, what support they trust, and what barriers matter most to them - all of which may be missing, assumed, or misinterpreted in stakeholder-led BSM.
- **Helps validate or challenge assumptions surfaced through workshops.** BSM often reveals plausible explanations for Behaviours, but community engagement is needed to test whether these explanations hold true for the people affected. This is particularly important where workshop participants are inferring resident motivations, preferences, or support needs.
- **Provides richer detail on behavioural preferences and support needs.** It can generate insight on how people want support delivered, what kinds of settings feel safe and acceptable, how they prefer to communicate, and what makes engagement feel worthwhile or off-putting.
- **Strengthens intervention design by grounding it in real needs.** Community engagement can help refine leverage points and intervention ideas so that they are not only systemically plausible but also useful, acceptable, and relevant to the target group.
- **Best used from the outset, and then repeatedly throughout the process.** Ideally, community engagement should begin before or alongside the first workshop so that resident insight informs the initial understanding of the system. It should then continue at key stages to validate Behaviours and Drivers, and refine intervention ideas.
- **Requires time, trust, and appropriate methods.** Good community engagement requires time, trusted relationships, recruitment routes, accessible methods, and enough flexibility to respond to what people share.

- **Requires careful design to be inclusive and ethical.** This includes choosing appropriate formats, avoiding overly technical language, considering access needs, compensating or valuing participation appropriately, and making sure people understand how their input will be used.
- **Requires capacity to feed insights back into the map.** Community engagement only complements BSM properly if findings are synthesised and used to revise Actor-Behaviour nodes, Drivers, leverage points, or intervention ideas. This requires analytical time between workshops.

Embedding and using a Behavioural Systems Map

Communicating the outputs of Behavioural Systems Mapping

BSM is highly effective in turning complex systems into a tool that can support stakeholders to understand and explore an issue or challenge. Communicating the outputs of the mapping process is important for several reasons:

- Maps are living documents that can evolve with stakeholder input. Communicating is an opportunity to invite engagement and ensure that maps are refined over time.
- Outputs can reveal and illuminate new data and insights that can support stakeholders to understand the system in more detail; highlighting opportunities or challenges for focus, and space for innovation.
- Disengaged or unknown stakeholders may be prompted to engage and participate through the communication process. Communicating outputs can act as a spark for stakeholders to engage and share their perspectives.
- Maps can help stakeholders move away from simply accepting the complexity of a system or problem, and towards exploring and utilising complexity in actions that can be taken - e.g. designing interventions. Doing so can help complex problems become more manageable.

As Behavioural Systems Maps are intended to inform strategy and practices it is important that they are designed to meet the needs of residents and service users. This may mean developing several versions of maps, or maps with specific focuses, to provide users with the detail they need for their area of interest. Making Behavioural Systems Maps useful in the public sector requires

Key tip: Inclusive and accessible communication

Ensuring diversity and inclusion in communication matters as it's important that stakeholders and communicators are able to engage in a way that best suits them. There are several steps that can be followed to ensure inclusivity:

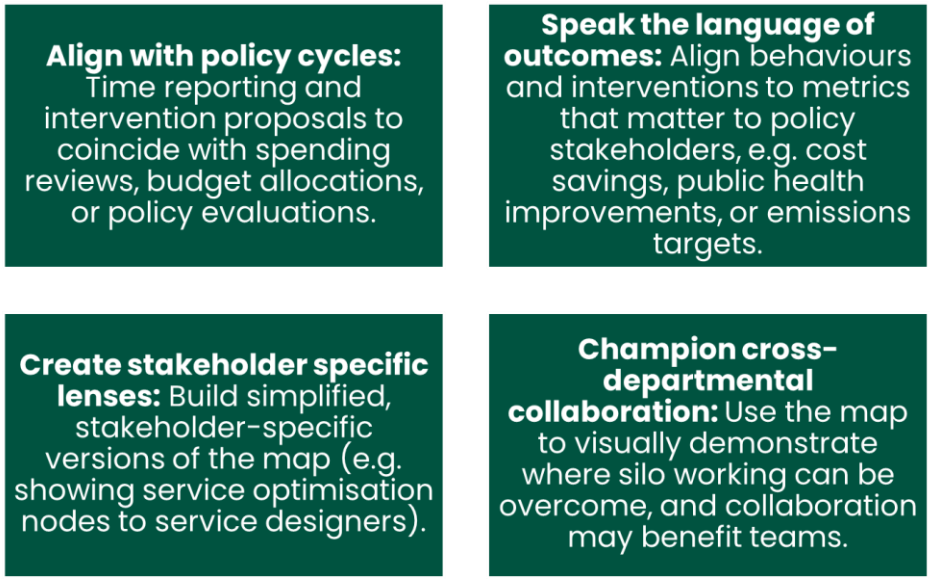
Work with partners to tailor to audience needs: when working with vulnerable groups ensure that stakeholders representing these groups can inform and support inclusivity, reviewing and refining where required.

Ensure representation of diverse voices: if using community engagement data or insights from geospatial analysis, ensure that data accurately represents the diversity of target groups.

Follow report accessibility standards: ensure that reports are accessible according to current accessibility standards. This will include ensuring readability, that figures and images are understandable, and that documents of different formats are made available.

appreciating and understanding the environment they are to be used in. Some top tips to do this include:

Figure 12: Communication top tips



Communicating a Behavioural Systems Map requires teams to act as translators of complex systems into clear, simple and practical elements for public sector stakeholders. By grounding the presentation in tangible behaviours, and creating simple diagrams that highlight clear interventions.

Table 4: Dos and Don'ts for communicating effectively

Dos	**Don'ts**
Do break down the map into useful layers or components that make it easy to digest.	**Don't** immediately present a "final" Behavioural Systems Map, this may confuse and overly burden your audience.
Do draw out stories as narrative examples, to highlight and clarify different components and complexities of the map.	**Don't** assume that your audience understands the user journey or nature of the system you're mapping.
Do continue to draw on the system objective to anchor the map as you communicate it. This helps to ground the audience in the purpose of the mapping process and its outcome.	**Don't** avoid challenging discussion points or map elements where there are conflicting ideas or opinions. These can be important points for clarification and may highlight useful phenomena.

Do provide a simple, accessible and user-friendly version for non-experts, including narrative versions of the map to help engagement.	**Don't** publish the map without undertaking a detailed audit of personal information and data from the map. Where required, gain consent.

Finally, it's important to remember that the map is just a starting point - and a process that can continually evolve. Doing so should help communication avoid "solving" through BSM, and instead using it as an illustration and prompts for more collaboration, innovation and alignment.

References, resources and further reading

The resources below provide further reading for those who would like to explore BSM and related methods in more depth. They include foundational behavioural science texts, practical guidance on systems mapping, participatory approaches, and applied examples that show how these methods can be used to understand complex challenges and design more effective interventions.

Author	Resource	Why It's Useful
Susan Michie, Lou Atkins, Robert West	*The Behaviour Change Wheel: A Guide to Developing Interventions*	A foundational and comprehensive guide to diagnosing behaviour and selecting evidence-based interventions using the BCW, COM-B, and APEASE. It is particularly useful after mapping because it helps translate system insights into practical behaviour change strategies.
Public Health England	*Achieving Behaviour Change: A Guide for Local Government and Partners*	A practical public-sector companion to core behavioural science methods. It shows how frameworks such as COM-B and APEASE can be applied in policy and service delivery contexts.
Robert West, Ashley Gould	*Improving Health and Wellbeing: A Guide to Using Behavioural Science in Policy and Practice*	A highly practical guide for policymakers and practitioners that explains how to apply behavioural science through a structured step-by-step intervention development process. It is especially useful for readers seeking clear, actionable methods that connect behavioural diagnosis, intervention design, implementation, and evaluation.
Kai Philip Bellmann	*A Stepwise Guide to Behavioural System Mapping*	One of the most directly relevant resources for this topic, offering a practical step-by-step methodology for building behavioural system maps. Especially useful for readers looking for an applied process from scoping through to validation.
John A. Parkinson, Ashley Gould, Nicky Knowles,	*Integrating Systems Thinking and Behavioural Science*	Explicitly bridges behavioural science and systems thinking, helping readers understand how the two fields can complement one another.

Jonathan West, Andrew M. Goodman		
Katie Blake, Michael Rigby, Hannah Armstrong-Moore, et al.	*Participatory Systems Mapping for Population Health Research, Policy and Practice: Guidance on Method Choice and Design*	Valuable for readers using participatory or co-design approaches. It helps users select suitable systems mapping methods and involve stakeholders effectively.
Joanna Hale, Christopher Jofeh, Paul Chadwick	*Decarbonising Existing Homes in Wales: a Participatory Behavioural Systems Mapping Approach*	This is a particularly useful applied example of BSM in practice, showing how participatory mapping can be used to understand the interacting barriers and opportunities involved in home decarbonisation. It is helpful for readers who want to see how BSM can inform real policy and delivery challenges in a complex, multi-actor setting.
UCL Centre of Behaviour Change (for Zero Waste Scotland)	*Causes of Litter and Flytipping: A behavioural systems mapping project using the System Effects Method*	A useful applied example of BSM for sustainability and circular economy contexts. It shows how behavioural and systems approaches can be combined for environmental change programmes.

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