



Explore Field Guide

A practical tool to map
and unpack behaviour

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If you have ever been tasked with influencing a behaviour, you will know that it is critical to understand that behaviour in context. You need to understand the issues faced by the people affected. At BIT, we refer to the process of understanding behaviour in context as Exploring. Exploring aims to discover what people do and why....

In Behavioural Insights projects, Exploring has a clear purpose. By understanding how the environment influences people's behaviour and how behaviour plays out in a given system or context you can identify effective solutions to change behaviour. It is the second stage of the Behavioural Insights Team's methodology, TESTS, which stands for:

- **Target:** Identify and prioritise the specific behaviours to change.
- **Explore:** Understand the context of these behaviours.
- **Solution:** Design your solution.
- **Trial:** Test your solution to see if it works.
- **Scale:** Find ways of bringing a successful solution to new contexts

The TESTS process involves opening your mind to a range of ideas, before tightening your focus as you seek, tune and refine solutions to trial and scale up. The longer Explore guide describes a number of tools that allow you to understand people's thoughts, attitudes, values, personality traits, intentions and motivations. We would recommend looking at the longer guide before you start on our own Explore adventure, but this Field Guide is a short workbook to help you on your way!

Good luck!

Alex, Karen & Rory



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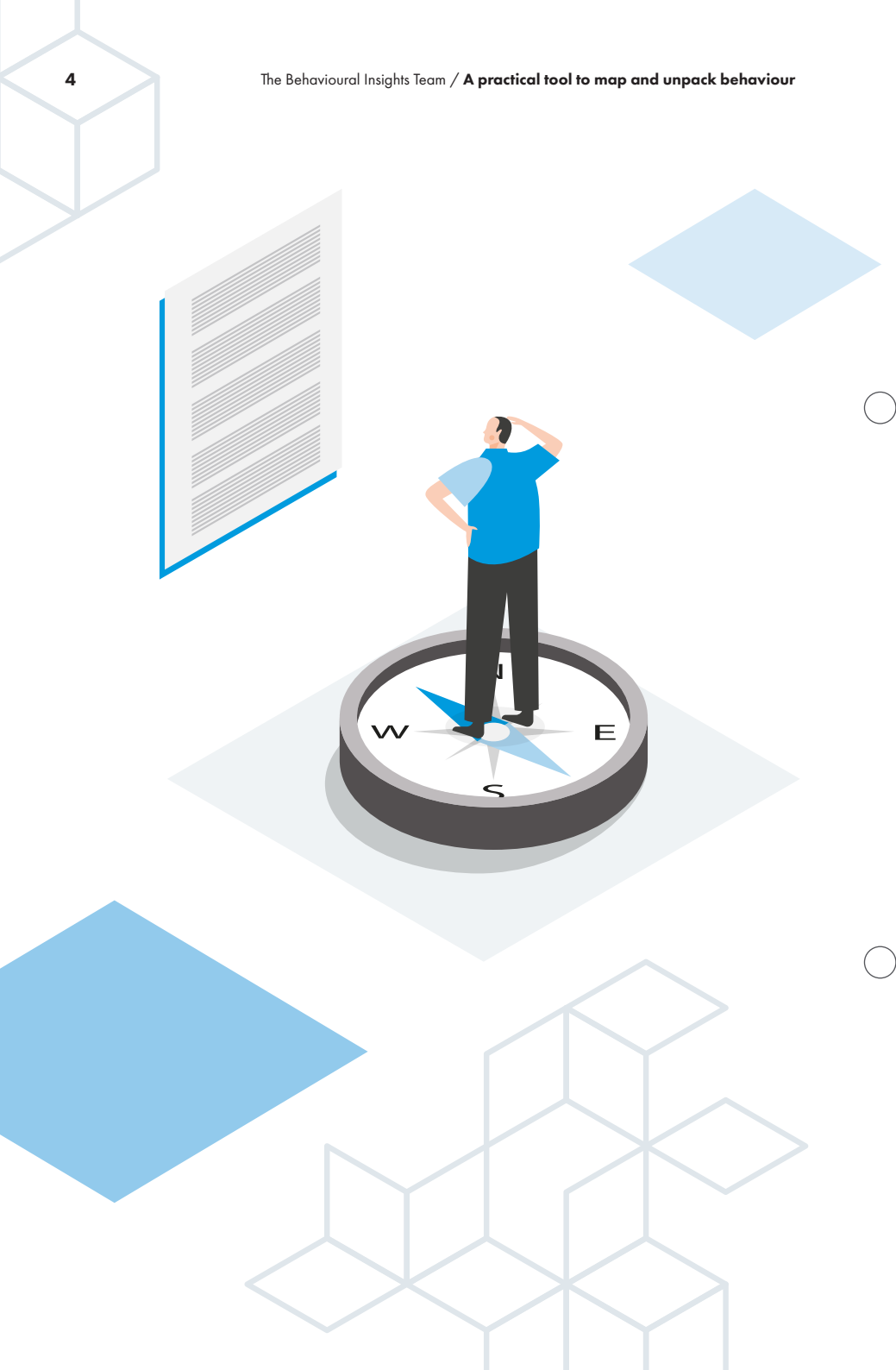
How to use this guide

This guide is split into two sections. The first section covers what you need to do before you get started and the following sections cover the four Explore tools.

Tool	Description	Ideal for	Efficient at providing
Interviews and focus groups 	Speaking with people to investigate their views, experiences, values, emotions and motivations.	Researching complex issues that require in-depth understanding, or sensitive issues that require delicate handling.	In-depth information about what people say they do and why they say they do it.
Observe and/or participate 	Doing or seeing something yourself, for example signing up for a government service, or watching how a service is delivered.	Trying to understand a culture, process or service, or examining people's behaviour and interactions.	In-depth information about people's observed behaviour.
Survey 	Surveying a large number of people to get an understanding of how an issue affects them.	Contrasting and comparing different people's perspectives and experiences.	Information about what a range of people say they do and why they say they do it.
Administrative Data Analysis 	Looking at data to find relationships, patterns, and trends.	Getting an understanding of an issue from a large sample and understanding what people are doing from the system's point of view.	Information about the range of people's observed behaviour.

Part 1





Getting started

Getting started

When Exploring, preparation is key. Your plan may change as you go along, but the planning process is indispensable. The four steps below will help you structure your plan.

1. Understand what you already 'know'
2. Understand what you want to find out
3. Understand what you have at your disposal
4. Draw up a plan

1. Understanding what you already 'know'

You will start your Explore project with some preconceptions. It is important to document these. This serves two functions. Firstly, you will be able to critically evaluate these later and secondly, you will be able to get everyone in your team on the same page. A one hour meeting with your team will help get everyone on the same page and identify blindspots, assumptions, differences in terminology and misconceptions.

What do you already know about the system you are Exploring?

2. Understand what you want to find out

This is the most important step for any Explore work. In this step you should articulate what you hope to learn and why you want to learn it. Your questions might include one or two broad overarching questions and a number of more focused questions that sit underneath these. You might iterate or refine these throughout the Explore process, but it is important to have a broad sense of what you want to find out before you start.

What do you want to find out about the system?

Broad question 1:

Focus question 1.1

Focus question 1.2

Focus question 1.3



Broad question 2:

Focus question 2.1

Focus question 2.2

Focus question 2.3



Remember that you can (and should) always come back to these!

3. Understand what you have at your disposal

In this stage you should review your problem, resources, timelines and where your stakeholders stand to ensure your project has a clear purpose, and you have the buy-in, people, and budget to do it. You should identify these systematically.

What resources do you have at your disposal?

Who do you have on your team?

What skills do you have at your disposal?

What budget does your project have?

What level of institutional support do you have?

When does this project need to be completed?

4. Listing your stakeholders

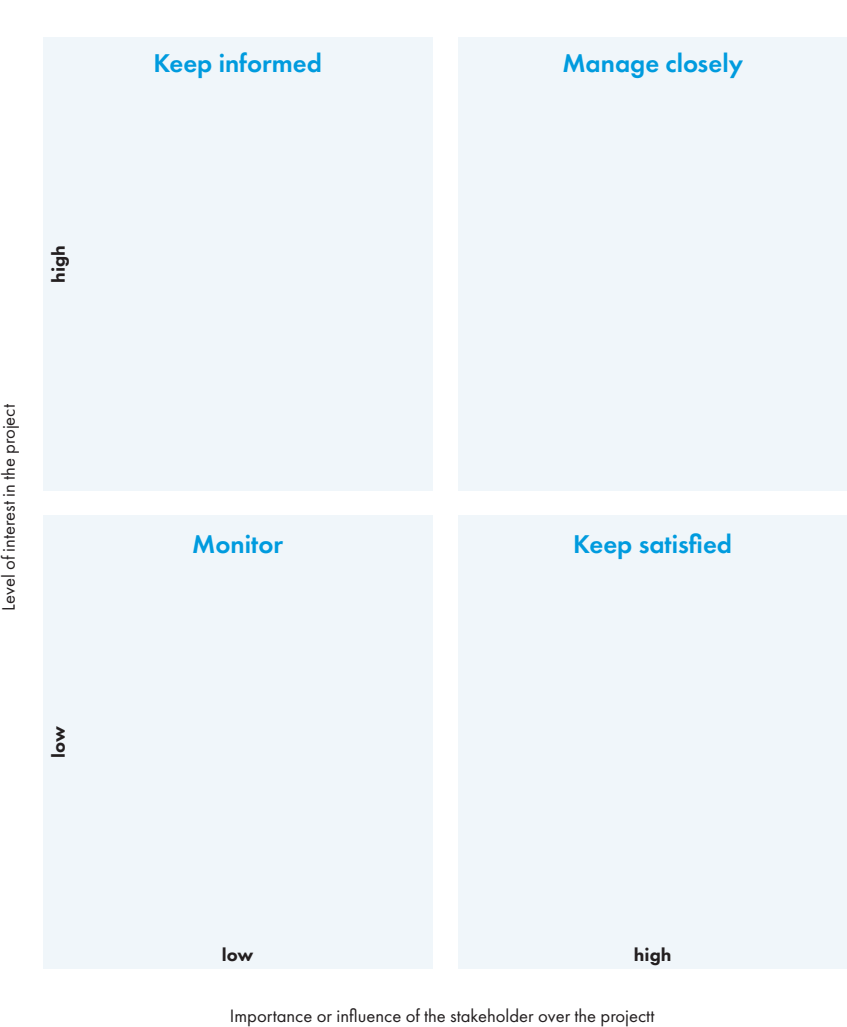
Write out your stakeholders in your table below.

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Mapping your stakeholders

Once you have listed out your stakeholders, you should work out how much influence they have over your project (i.e. are they the key decision-maker?) and how much interest they have in your project. The matrix below will help you plot out where they sit and how you should engage them.

Shareholder matrix



5. Draw up a plan:

Once you have worked out your questions are, taken stock of what you have to answer them, mapped out your stakeholders, you can create a plan for how you will use your resources. Your plan should answer the following questions:

- What?**
The combination of tools and techniques you will use to answer your Explore questions.
- Who?**
The groups, organisations or individuals you will speak to, observe, survey or collect data from. See the overview of different types of sample on page 14 for inspiration.
- When?**
Your timeframe and schedule.
- Where?**
The locations where you will conduct your exploration.
- How?**
The way you will carry out your exploration, including how you present and introduce yourself, and how your Explore questions and chosen tools will help answer them (for example, specific interview and survey questions).



Different types of samples

This table will help you determine which sample to use for your project.

Type	Description	Why use them?
Representative sample	A subset of people who are used to represent a wider population of people.	You want to use this subset to make inferences about the wider population.
Homogeneous sample	People in the same group with the same characteristics	You only care about the behaviour of a very specific group.
Stratified sample	People who are fairly homogeneous, but vary in a particular dimension. For example, the school year.	You care about a specific group, but want variance within that group.
Deviant sample	People who are extreme or unusual cases. For example, people who are very good or very bad at their jobs.	By looking at people who are exceptionally good/bad at what they do, you might learn of specific effective/poor practices.
Heterogeneous sample	People who differ from each other on an important attribute. This might be a specific behaviour of interest.	You want to understand the range of behaviours that people show.
Typical cases	People who are deemed 'normal' or 'average' in a specific context.	Even asking someone to provide a 'normal' sample will tell you a lot about the way in which others see the system.
Convenience sample	People who you can get hold of.	Recruitment can be difficult and speaking to someone is usually better than speaking to no one (as long as you understand that their views may not be representative).



What tools & techniques are you going use?

Who are you going to speak to, observe or collect data from?

When are you doing your Explore work?

Where are you doing your Explore work?

How are you going to answer your Explore questions?

Why have you chosen these particular methods?

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Part 2 : The Explore Tools





Interviews and focus groups

The four steps of Interviewing

Step 1: Choose your format

Both interviews and focus groups can be used to understand the views of participants, but have different strengths and weaknesses. Interviews are best used when you want to get deeper insights from individuals. If you want to understand how people interact with each other or you want to establish where there is consensus and where there is disagreement, then a focus group can be helpful.

Step 2: Identify your participants

Start by identifying who you want to speak to. If you want to understand a range of opinions, investigate a diversity of experiences and views. Interviewing 100 people with the same background can give you less information than 10 with different backgrounds. You should then think about the number of people you want to speak to. Speak to more people, if 1) your research question is multi-faceted, 2) your population of interest has a diverse range of characteristics, or 3) there is little pre-existing literature on the topic.

Step 3: Write your interview questions

You should decide how tightly you want to script your interviews. Most of the interviews or focus groups BIT does use a semi-structured format. When writing your interview questions, first refer to your Explore questions to give you direction. (But don't use your Explore questions as your interview questions!)

The number of questions you write will depend on the length of your interviews or focus groups. Semi-structured interviews are generally within a range of 25-60 minutes. Focus groups tend to last slightly longer, at about 1.5 to 2 hours. To get the most out of focus groups, have a skilled moderator to steer the conversation, keep participants on topic and encourage everyone to speak up. Having a note taker is critical to ensuring that all insights from a focus group are documented.

Once you have written your questions, think about the order in which you will ask them. To quickly build rapport, start with broad questions, before building to specific, personal ones. Design an interview so that the user-experience of your interview does not jar. Avoid quick transitions from topics that might make someone happy to ones that might make them sad, or from neutral topics to ones that are emotionally charged.

Step 4: Conduct your interviews or focus groups.

Building rapport with your interviewees is critical. You can make sure that your interviewee feels comfortable by making it clear that the interview will be de-identified and they can stop at any time. Offer them a choice of interview locations that are neutral, convenient and where they feel relaxed, or give them the option to talk on the phone; or dress in a way that does not unnecessarily emphasise the power differential (for example, avoid wearing a business suit to a community event).

Probe interesting answers, but sensitively. Where appropriate, let your interviewee lead the discussion to issues that matter to them most. While asking questions, pay attention to your participant’s emotions and reactions. When these do not match what they are saying, probe deeper to find out why. Make sure that you look engaged in their responses in a neutral but supportive manner. Remain neutral to everything the participant says.

Although it can be tempting to paraphrase what people are saying, be careful. It can often confuse participants or might be interpreted as you correcting the participant. Also, never interrupt your interviewee. Wait until a natural pause in the conversation and then gently bring the conversation back to the topics in your interview guide. Silence or pauses can be an important part of a discussion. Resist the temptation to talk. Often your interviewee is thinking and will elaborate if given time.

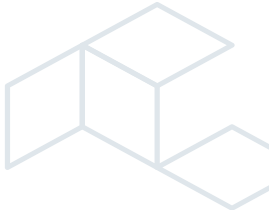
If you are not recording, take notes, or if appropriate have someone else there to take notes. Type up complete notes as soon as possible afterwards. Try to include your interviewee’s non-verbal reactions. Remember that whenever you are recording an interview, make sure that your interviewee has agreed to being recorded and knows how the recording will be used.



How to structure a typical semi-structured interview

The table below is a useful guide to structuring an interview.

Type	Why use them?
5-min Introduction	Outline the purpose of the interview or focus group and set the tone. For example, by stressing that there are no right or wrong answers and encouraging the participant to be open and honest. If you have not already obtained consent from your participants, do so here. If you have already obtained consent, it is worth confirming it here.
10-min Warm up	Build rapport through common areas of interest by asking simple, introductory questions. For example, if you are interviewing frontline staff, you could ask them to describe their role and what they like best about it.
15-20 min Deep dive	Ask deeper and more difficult questions, seek specifics, and probe interesting avenues of conversation. A good rule of thumb is to have five key questions, which form the ‘spine’ of your interview. If you are asking sensitive questions, also try to ask them in the middle of the interview. This will allow you to return to a ‘normal’ subject by the end.
10-min Wrap up	This is where you can start wrapping up the interview. Thank the participants for their time and give them the opportunity to add anything that you haven’t already covered. You can also ask them if there was something that they expected you to ask, but didn’t. Ending an interview too abruptly will mean that you miss insights. If possible, also ask if you can contact participants with any follow up questions. This can be useful as you may discover new questions to ask as your exploration continues.



Designing your first interview guide

Introduction: How will you introduce yourself & the project?

Warm up questions: Write some 'easy' ones to kick things off

Deep dive questions: Don't forget to include some prompts!

Wrap up: How will you end the interview?

Is there anything you'd like to add?

Do you have any questions for me?



Types of questions to avoid in interviews

Check if your guide has any of these.

Question type	Why you should avoid this	Example of what not to ask
Leading questions	This question assumes that job seekers don't meet the minimum, which might not be true.	Why do many job seekers not meet their minimum job search activities?
Questions containing social norms	By highlighting what most people think, you are encouraging people to go with the majority.	Many job seekers say that they should be able to claim their benefits online. What do you think?
Closed 'yes' or 'no' questions	This limits the responses people can give.	Do you think that job centre advisors should apply for jobs directly for job seekers?
Double-barrelled questions, i.e. two questions in one	Respondents may get confused or only answer one part of the question.	How often do you look for work and update your CV?
Complex, difficult to understand questions	This question may just confuse your interviewee.	Behavioural science provides compelling evidence that commitment devices can increase self-control and reduce the intention-action gap. Can you think of examples of this from your own life?

Five probes to continue further down a line of questioning

Use these probes to dig deeper.

Probe type	Example
Clarification	'What did you mean when you said [DIRECT QUOTE]?'
Details	'Can you tell me more about ____?'
Variations	'How has ____ changed over time?'
Counterfactuals	'What if ____?'
Steering the conversation	'You mentioned ____ earlier, can you tell me more about that?'

Interviews and focus groups: Additional tools

Card sort: ‘Card sorts’ are designed to help participants think through their feelings. In them, they first write their priorities or concerns on individual cards, before ranking them in order of importance. Alternatively, if you have a good sense of the key issues at hand, you can prepare the cards before the interview – although it is still worth having a few blanks available.

Visualisations: Mental mapping activities are designed to help you get a sense of a participant's world. In them, you ask participants to sketch out locations or relationships. You can use paper, photography, diaries or other forms of creative tools.

Pre-interview participant tasks: Ask staff and end users to record their experiences through visual or written diaries before you interview them. You can then use their diary entries as prompts during your interview, to help them talk through their experience, and remember details that they otherwise might overlook.

Low fidelity prototyping: When low fidelity prototyping, you show participants a prototype of an early solution and observe how they interact with it. An example of a lo-fi prototype could be a simple sketch of what your solution looks like. If you are designing a service or a process (rather than a product), then you can sketch out a process map and conduct role plays to identify difficult parts of a conversation, or create comicstrip-like storyboards which detail what happens over multiple interactions.

Citizens' Juries or Forums: In a citizens' jury, a representative group is randomly selected from the general public to participate. They are given balanced briefing materials about an issue, and over several days they come together to discuss it. At the end of the event, they then put forward recommendations for future actions or directions.



Notes

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Observation & Participation

The three steps to Observe and/or Participate

Step 1: Choose a technique

Before you start doing anything, you should be clear on whether you will be experiencing a system vicariously, through observation or experiencing it directly, through participation. The former involves seeing how end users experience a process or service or how frontline staff deliver it and the latter involves going through a process or service to experience it as an end user. You may also decide to do both.

Step 2: Plan your field visits

If you are looking at an online service, you can conduct your observations from home. However, if you are heading out into the field, you need to identify the best locations to visit. You should start by looking at what you already know based on existing questions and data. Consider visiting:

- Different parts of the system
- Sites with different operating models
- A mix of high and low performance sites
- A mix of familiar and unfamiliar sites.

You should also spend some time developing an observation sheet or a coding Framework. This can either be very rigid (and more quantitative) or more flexible (and more qualitative). We've provided a little guide to help you develop a qualitative observation guide on the next page.

You should also work out if and how you are going to notify people that are observing them. Make sure that you understand your legal and ethical obligations and remember that notifying people that you are observing them will affect how they behave around you. You might be able to avoid this through repeat visits.

Step 3: Conduct your observations

Once you have planned your field visit (or service safari), you are ready to go. From now on, you just need to notice and record. It is really easy to spend all of your time furiously scribbling down your observations and miss some key insights. Similarly, it is easy to forget your observations because you were so deeply immersed in your site visit. Finding a balance comes with experience and practice.

An observation guide should help. If you find that your observation guide is getting in the way, then you should amend your guide. It is often worth piloting an observation guide before committing to it.

Developing a qualitative observation sheet (using EAST)

What behaviour(s) are you observing?

What makes this behaviour EASY or hard for people?

What makes this behaviour ATTRACTIVE or unattractive for people?

Are there any SOCIAL norms in relation to this behaviour?



Are there any factors related to the TIMELINESS of when people need to undertake this behaviour?

What to watch out for while participating or observing

1. The small steps in the process or service. From your preparation, you should have an idea of how a process works in theory, but this is your chance to find out how it works in reality. Pay special attention to things that seem so obvious to the actors in a process that they are not documented.
2. Emotions. Pay attention to body language, facial expressions and tone of voice to understand how a process or service makes people feel. If you are participating, your own emotions can be very revealing too.
3. The surroundings. The physical space where a process or service takes place and how it is configured can have an effect on behaviour.
4. Staff and end user interactions. Their length, frequency and content can affect how personalised or user-friendly a process or service feels, which can alter how engaged either party is with it.
5. Existing communications. Letters, forms and scripts that are related to the service or process are all potential intervention avenues.

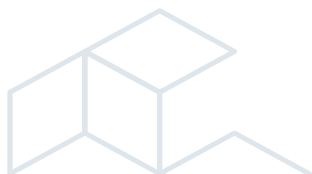
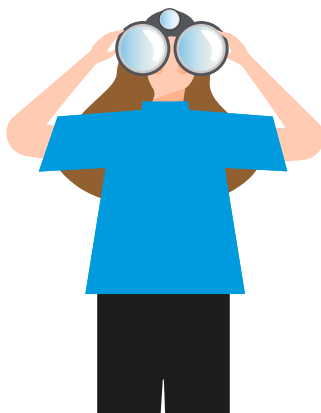
Observe & Participate: Additional tools

Demonstration or Usability Testing: Usability tests are designed to help you understand how people really act and to identify any barriers that stand in their way. In them, you ask people to show you the steps they take to do a task and then observe them doing it. Alternatively, you can also ask them to teach you how to do the task.

Empathy exercises: Empathy exercises are ways of simulating what an experience is like for others. For example, by wearing gloves when opening medication to understand the experience of people with reduced dexterity or taking photos or videos of the lower shelves of supermarkets or on a walk to school to see what is at eye-level for children. However, take care when drawing conclusions. Your lack of experience and skill might cause you to misidentify opportunities or misunderstand barriers. Ask for input from those with lived experience.

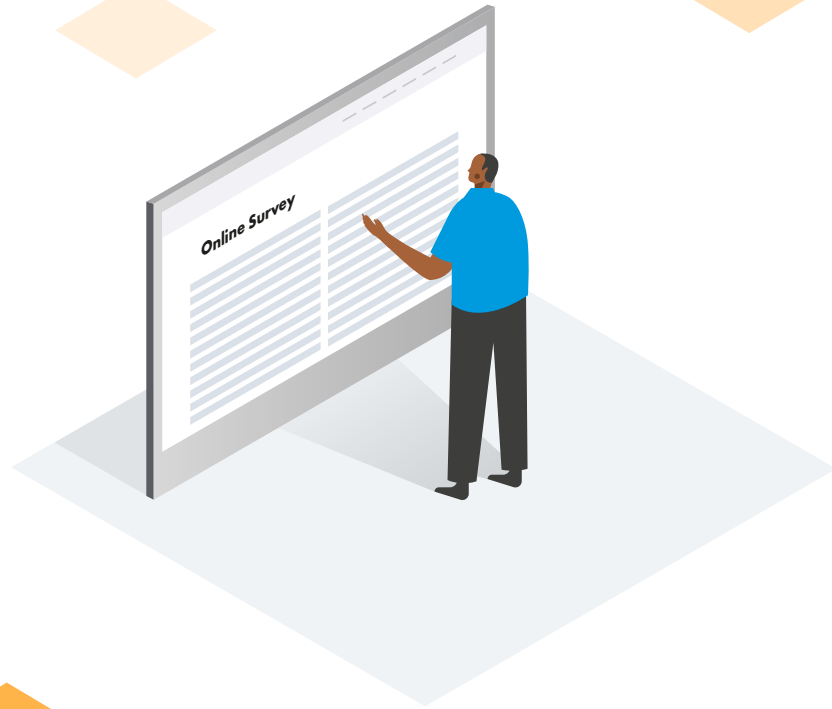
Online observation: Online observation can involve tracing the pathway of a hashtag; participating in or observing an online community; or using online spaces to learn more about our participants in the non-virtual world.

High fidelity prototyping: High fidelity prototypes are usually used when you want to iron out kinks in your process (rather than seeing whether the idea is worth pursuing at all - in which case you would use low fidelity prototyping). When prototyping, give participants a version of your solution and ask them to use it as they would in the field. The 'think aloud' technique is very useful in these sessions. This involves asking participants to say whatever comes into their mind as they interact with your prototype. This should include what they are looking at, thinking, doing, and feeling.



Notes

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Survey

The three steps of Survey

Step 1: Identify your sample

First, you need to identify who you will survey. Broadly speaking, the larger your sample, the better; but the right size for your project will depend on many factors. Speak to a statistician to understand what sample size you need. If you want to use your survey to make inferences about a wider population you should aim for a representative sample. If you want to achieve a representative sample, you want your sample to mirror the wider population as much as possible. You can use various techniques to do this. These are described in the longer Explore guide.

Step 2: Select your questions

Remember you usually only get one shot to ask your questions and cannot clarify or ask follow-ups. Therefore, your questions need to be clear. You want to minimise the likelihood that respondents interpret the questions differently from each other and differently from you.

Make sure that you are actually measuring what it is that you want to measure and try to pilot your questions by asking people how they would interpret them. If it is possible, try to use 'validated measures' that someone else has used before. If you decide to write your own questions, then use the checklist on the next page.

Step 3: Choose your format

Your final task is to choose how you will deliver your survey to respondents. The format you choose will have different pros and cons. The guide on the following page will help you choose. Regardless of the format you choose, once you've chosen your format, you then need to focus on how to increase response. Page 44 has some tricks and tips!

How to write good survey questions

- **Use simple language.** Using common words like ‘drink’, instead of words like ‘beverage’, makes it easier for respondents to understand your questions.
- **Use neutral language.** Avoid emotive or judgemental language. For example, ‘Rate this nutritional label on a scale of 1 to 10’ is better than asking, ‘How confusing do you find this nutritional label?’
- **Avoid homographs.** Words that are spelled the same, but have different meanings, can sometimes lead to confusion. Examples include words like tear, lie, and minute.
- **Be specific.** It is better to ask, ‘How many times did you leave the house this week?’ rather than ‘How often did you not adhere to self-isolation rules this week?’, as people may interpret what constitutes non-adherence differently.
- **Use a relevant reference period.** For example, ask how many soft drinks they drink each week, rather than each year as people are more likely to be able to remember what they do in a week compared to a year. Try to stick to the same reference period, or response scales, across questions.
- **Allow for disagreement:** People often agree just to avoid seeming disagreeable. It can sometimes be better to use an attitude scale (strongly agree to strongly disagree) rather than asking respondents how much they agree with a statement.
- **Work out if you need a neutral response option.** ‘Fence-sitters’ may skew your results if they are forced to choose between opposites. Avoid this by including a specific option for them. In some cases, it is important to push fence-sitters to pick a side; in that case, you might want to avoid the neutral option.
- **Provide a ‘Do not know’ option:** ‘Floaters’ are respondents who offer an answer, but would choose ‘Do not know’ if they could. In a typical survey sample there can be many respondents like this, so including this answer for them might be important.

The pros and cons of different survey formats

The table below will help you decide which method to use

Format	Pros	Cons
Postal	<ul style="list-style-type: none">• There is some evidence that they obtain a higher response rate than online surveys.	<ul style="list-style-type: none">• Expensive.
Phone	<ul style="list-style-type: none">• Can obtain responses from people less familiar with online data collection methods.• Respondents can ask for clarification and interviewers can ask probing questions.	<ul style="list-style-type: none">• Are resource intensive.• Fixed line phone surveys no longer representative; mobile numbers can be hard to obtain.• Response rates for phone surveys are dropping.
Face-to- face	<ul style="list-style-type: none">• Respondents can ask for clarification.• Interviewers can probe and use additional resources.	<ul style="list-style-type: none">• Very resource intensive.• Subject to interviewer bias.• Can remove the perceived anonymity of respondents.
Online	<ul style="list-style-type: none">• Low cost, with wide reach and fast turnaround times.• Offer greater control with the option to randomise or set mandatory questions.	<ul style="list-style-type: none">• Respondents cannot ask for clarification.• Can be hard to ensure the correct sample is reached.
Text/SMS	<ul style="list-style-type: none">• Low cost, with wide reach and fast turnaround times.• Forces you to ask only the most important questions.	<ul style="list-style-type: none">• Restricted to very short surveys.• Biases in response rates, reflect mobile phone use.
Digital feedback terminal	<ul style="list-style-type: none">• Can be targeted at specific moments/point of service.	<ul style="list-style-type: none">• Largely restricted to single question ratings.



How to increase response rates

- **Keep your survey short.** Reducing the length of your survey can have a big impact on response rates.
- **Make it easy to complete:** Only ask what you need to know, use simple language, auto-populate fields where possible, and break long lists down into shorter, discrete tasks.
- **Think about the survey's user experience:** Start the survey with easier questions. Leave difficult or demanding items to the end.
- **Make it mobile-friendly:** Ensure that your survey is optimised for mobile devices and avoid formats that are difficult to use on small touch screens.
- **Be clear in your ask.** Let people know how long it takes to complete your survey and make them aware of the deadline.
- **Grab their attention.** For online surveys, including a preview of the first question in the invitation increases response rates.
- **Use incentives.** Studies have also shown that lottery incentives with small chances of winning a large prize can be effective.
- **Make it timely.** Contacting respondents (for example, by SMS) ahead of sending or emailing them a questionnaire has been shown to boost response rates, as can sending reminders. With online surveys, the time of day can also make a difference. SMS and emails are more likely to be read and responded to if they are sent before or after work, or during lunch.



Survey: Additional tools

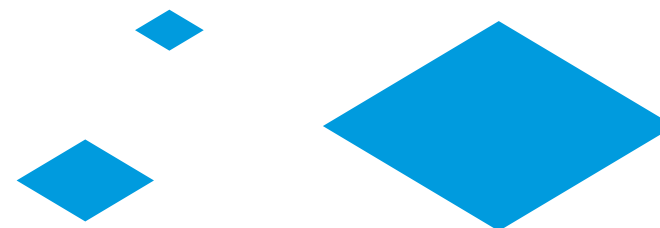
Online citizen panels: Sometimes used by governments and councils, online citizen panels allow people to provide policy advice on issues to do with their local communities through surveys, discussions, and other means. Studies have shown such panels to be effective in engaging communities that were previously labelled 'hard-to-reach' by government. One issue to watch out for, is that repeated questioning of the sample can make them less representative of the general population over time. This is sometimes corrected by gradually refreshing the panel, i.e., adding new respondents and gradually retiring long-standing ones.

Deliberative polling: Deliberative polls are designed to assess what public opinion on a particular issue might look like if citizens were given a chance to become more informed. It involves two representative groups of people chosen from the general public who either go through a deliberative process or act as a control group.

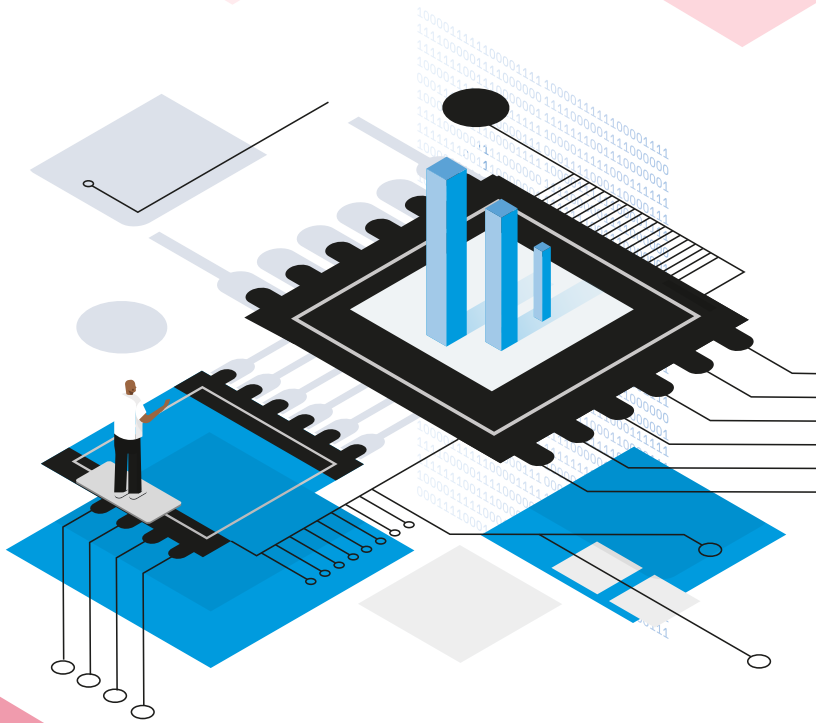
Online experimentation: Combining surveys with experiments can allow researchers to understand whether or not peoples' attitudes, preferences or intentions change after they have been presented with new information. Online experiments are:

1. **Fast.** Once an experiment has been designed, data can be collected in hours or days, rather than weeks or months.
2. **Easy to implement.** It can sometimes be difficult to get a partner to agree to run a field experiment, especially if they stand to lose if the trial has a negative result.
3. **Cost effective.** Although there are still costs associated with online experiments, they can be significantly cheaper than alternative experimental designs.

BIT's Predictiv platform can help you run online experiments very quickly.



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Administrative data analysis

The four steps of

Administrative data analysis

Step 1: Gather relevant data

Your first task is to pull together all the relevant data that you can. Look for sources you have direct access to, to colleagues and to other sources you discovered while Exploring. Always consider the legal and ethical implications of gathering this data.

When gathering data, try to identify someone with an in-depth understanding of the data being collected. This person may be able to tell you how each variable was recorded, help you determine its quality and trustworthiness, and may be able to give you a Data Dictionary that lists the variables in the dataset and describes their format. If possible, you should also observe how that data is collected and used within the organisations you are working with.

Step 2: Understand the data you have

Once you have identified what data you want and have gathered it, it is time to unpack what it can tell you, tidy it and transform it into something that you can analyse. This process can be broken down into these tasks:

- Identify the key variables
- Sense check and clean the key variables by looking for missing data, impossible or unexpected values
- Wrangle your data into the format that best suits your needs

Step 3: Visualise your data

Visualisation is often skipped, but is critical. There are two ways in which you can use visualisation. The first is discovery and the second is communication. Quick visualisations allow you to discover unexpected patterns. You can find these by investigating how strong any relationships between your variables are, how data are distributed (which can be a great sense check), and where there are outliers or clusters.

Visualisations can also be used to communicate your findings. This usually happens after you have used statistical techniques, but not always. Good visualisation is powerful, so you need to make sure that you can stand behind the findings that you are communicating.

The best method of communication will depend on what you are trying to communicate. If you are using the data visualisation to make a clear point, then a simple bar chart can be extremely effective. If you are using data visualisation as a method of exploration, then complexity may not be something to shy away from.

Step 4: Identify new insights using statistical techniques

After creating some initial visualisation, you can start to use statistical techniques to find new patterns and relationships; and uncover deeper insights. If you are not a data analyst, this is where enlisting one’s help can add a huge amount of value. Even if you outsource the analysis, however, you still have an important role to play – you need to guide them by asking the right questions.

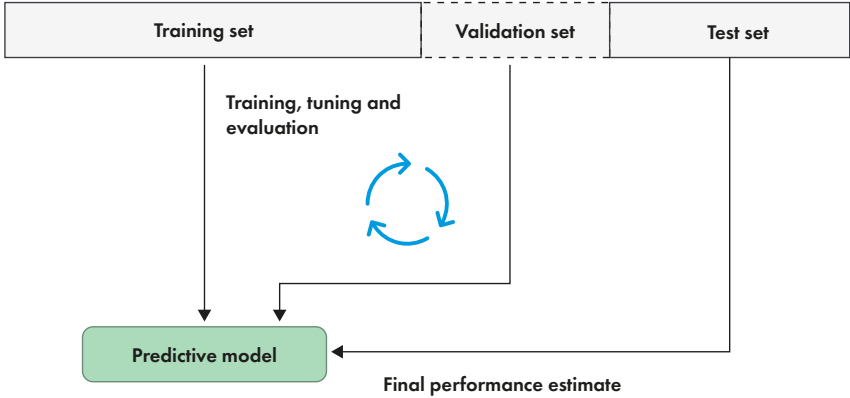
Throughout any analysis, a key thing to bear in mind is the adage that ‘correlation does not equal causation’. Although it can be tempting to jump from the finding that ‘A’ is strongly associated with ‘B’ to the conclusion that ‘A’ caused ‘B’, it is important to remember that there are other possibilities. It could be that ‘B’ caused ‘A’, or that it was caused by an unrelated factor. It could also just be a fluke.

The opposite — causation does not imply correlation — is also true. It is important to view your findings through your understanding of the system. Spurious correlations are common in Explore work, so you should use a theoretically driven approach to interpreting your data.



Administrative data analysis: Additional tools

Data science and machine learning for prediction: These techniques use algorithms to build complex statistical models to either make the best predictions about individuals’ outcomes (prediction) or to identify the best way to classify people into different groups based on hidden patterns (clustering or segmentation). A big risk for machine learning is that by trying out millions of predictive models, the machine might come up with an excellent ‘fit’ that is a total fluke. This is called ‘over-fitting’. To overcome it, analysts can split their data into three subsets. They ‘train’ the model on the first training set. They tune it with a second ‘validation’ set to see how well it does. Once the algorithm has been updated, they use the final test data, which they held back, to test it, helping them determine the model’s trustworthiness. Analysts will usually then state how well the model ‘predicted’ something about the test set.



Incorporating new types of data: Contemporary techniques, however, can use computers to find meaning in words, audio files, images, or other materials. As a result, they can find patterns associated with specific outcomes. One area of promise is natural language processing (NLP). NLP is a field of study that looks at how we can help computers parse meaning from written or spoken language. One benefit of having the computer parse meaning from the written word is that computers can read far quicker than human beings and therefore can be used to understand patterns in very large bodies of text.

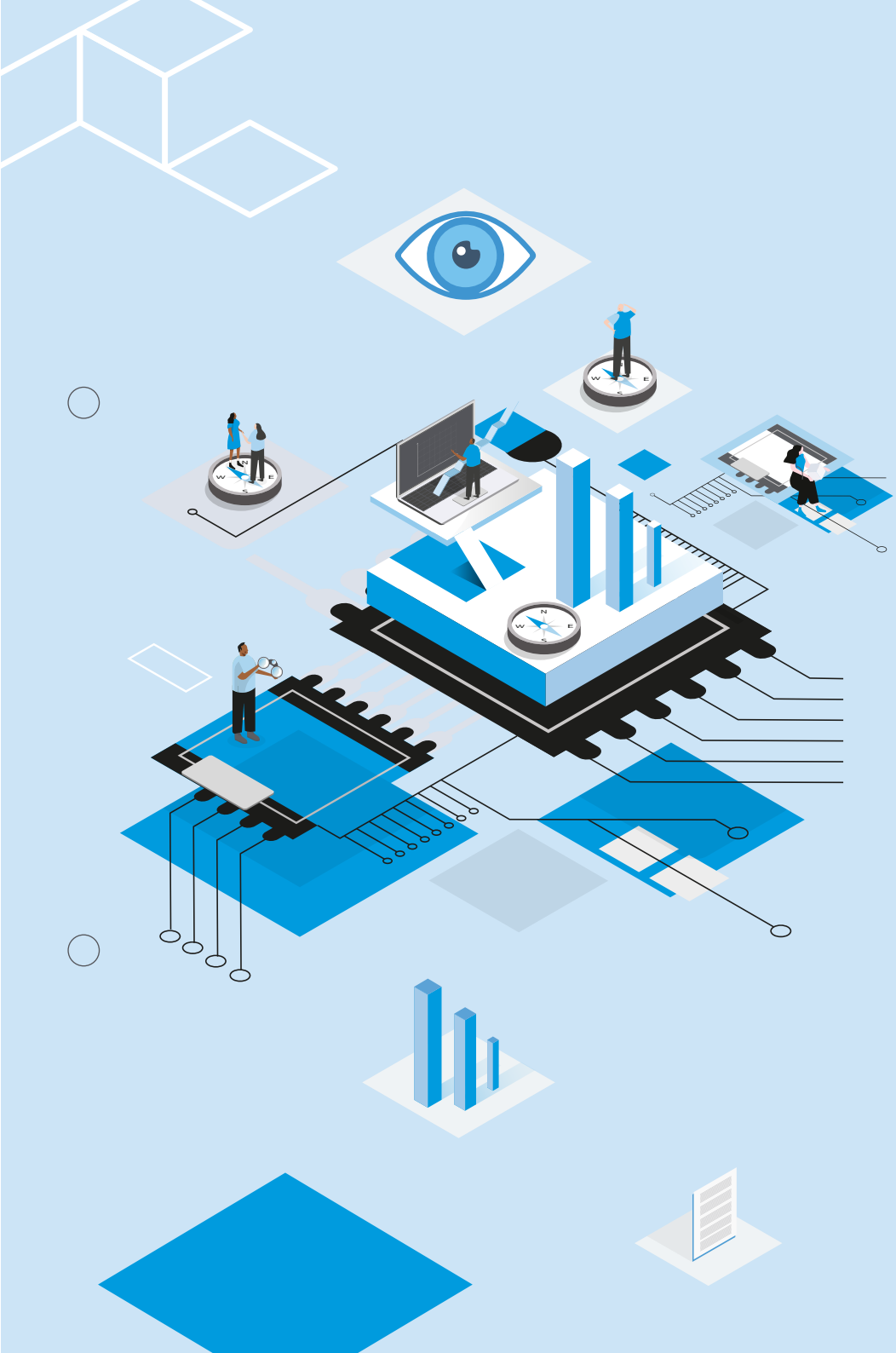


Notes

[illegible]

Relevant behavioural biases and concepts

Behavioural concept or bias	Implication for Explore work
Intentions-action gap - People may intend to do something, but fail to do it because of some situational factor.	Do not just rely on people's description of their intentions and assume that it will predict their behaviour. Use more objective data to validate behaviours.
Dual systems theory - We have two types of thinking: one fast and intuitive, the other slow and deliberative.	Certain patterns of behaviour should not be attributed to a person's personality but the type of decision they are undertaking.
Attribution bias - We make systematic errors when people evaluate or try to find reasons for their own and others' behaviors.	Don't assume that people's stated reasons for undertaking a behaviour are necessarily a complete explanation for their behaviour. Researchers should take care to avoid attribution bias when interpreting their own observations. Using a mixed methods approach that focuses on the person and situation can help here.
Confirmation bias - We will tend to seek out information that confirms our prior beliefs, rather than disproves them — even if we have been instructed to disprove them.	Try to test our hypotheses using administrative data analyses, rather than seek to confirm our prior beliefs.
Framing - The way in which we make decisions is biased by the way in which options are presented to us.	People may respond to survey questions differently depending on how questions are framed, so either use one framing device consistently or present the information using both frames at all times.





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