CHAPTER 1

Introduction

Abstract This chapter introduces the book and the topic of systems mapping. We explain our motivation for writing the book, what 'systems mapping' means to us, our focus on causal approaches, and what methods are included, and which are not, in the book. We also explore how these methods are related to one another. We begin to consider how systems mapping can be useful in research and practice, before making the case for why we believe it is worth thinking about now.

Keywords Systems mapping • Modelling • Complexity • Policy • Systems

This book introduces systems mapping and outlines seven methods that allow us to develop causal models of systems. We focus on the practical realities of how and when to use these methods and consider wider issues such as what types of evidence and data to use in their construction, how to run workshops, and how to compare, choose, and combine methods. We do not cover all types of systems mapping, we almost entirely ignore those which do not focus on cause and influence in systems, nor do we delve into the deeper philosophical ideas underpinning their use.

Writing this book feels a bit like swimming in shark-infested waters. Not least because several people have told us that is indeed what we are

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doing! Some of these systems mapping methods, and the underlying ideas, have been around for some time and there are many people with strong views on them. Despite this, we believe there is much confusion around these methods. There is an underappreciation of their value, but also the large differences between methods. We do not wish to attempt to declare for once and for all what should or should not be called 'systems mapping', nor offer the definitive definition of any specific method. But we do hope to make the landscape of methods clearer, to help people find, understand, and use these methods more easily.

Our paths to systems mapping were not straightforward, neither were they similar. Pete was looking to broaden his methodological expertise after spending nearly six years using agent-based modelling in academic research; he wanted to find methods which were more accessible and usable in a range of contexts, that were less reliant on lots of data for validation, or lots of time or money to do. Whereas, Alex, moving from the natural to the social sciences, but with experience in participatory systems design, was looking for participatory methods that could be used in projects taking a complex systems approach. She was also looking for approaches that could work quickly under the pressure of expectant project partners, without empirical data, and with a large multi-disciplinary team.

Our relationships with systems mapping since have also not been simple. We have become frustrated at times, but we have always found ourselves drawn back, either through our own intellectual curiosity (or inertia!), or through the needs of stakeholders and research users. What has been consistent throughout is the ability of systems mapping approaches to provide us with academically stimulating ideas and to do this in an intuitive way which generates usable and timely insights, and value to the people we work with.

Why Did We Write This Book and Who Is It For?

At times, it has been hard to work with systems mapping. Some people see it as one simple method and miss the wealth of different approaches and what they can do. Others see the detail of one or two approaches and go deep into only those. Systems mapping is also often subsumed into the world of 'systems thinking', somewhat hidden by that wider philosophy on how to understand, be, and act in the world.

Put simply, systems mapping is a hard space to navigate. As we learnt and applied our knowledge, we often felt a little lost, without the right

tools to guide us. This book is an attempt to solve that. In one sense, it is written for our former selves; it is what might have helped us accelerate our learning and practice more quickly.

It is also hopefully for you. For people who are thinking that systems mapping might be useful in their work but who are not sure where to start. Or people who want to use a particular method but need to ground this in a wider context, need some help to get started, and don't want to miss any opportunities to do it well. It is also for those who are familiar with one method but who would like an overview of what others exist or might be useful in different problem contexts. Or for those who have heard about systems mapping and would like to get a sense of what it is about.

This book is intentionally practical and pragmatic. We are not preaching from the 'High-Church of systems mapping' but pounding the streets. We are looking for ways forward, trying to shine some light on dark alleys, looking for ways to improve ourselves. This introductory chapter asks, 'what is systems mapping?' and 'why look at it now?' and tries to be honest about the breadth and noise in the answers to these questions. From here, we embark on seven mini-adventures, exploring systems mapping methods in detail.

What Is Systems Mapping?

Let's be honest, systems mapping means lots of different things; it is broad and ill-defined. We are not going to 'fix' that here (if we even think it needs fixing). We support inclusive and broad definitions in general, and think they are inevitable when it comes to systems mapping. But that breadth and inclusivity should not come at the cost of clarity. We still need to know where we are at, and what is on either side of us.

In time-honoured academic fashion, let's start by breaking this down into its component parts, and first asking what is a 'system'? There is no simple answer to this question. We regularly see arguments about whether something is a system or not, whether a system mapping exercise has taken enough care thinking about what the system it is mapping, or even whether we should be mapping problems not systems at all. While these concerns are important, it is possible to define almost anything as a system with enough mental gymnastics. Moreover, what the 'right' system definition for you is will always be context dependent. This means we would rather proceed with thinking about what your system is, rather than dwelling on

what a system is. Your system might be the system you are part of, and you wish to understand, or the system which you are going to map, hopefully with some purpose in mind.

Nonetheless, given that others have considered what a system is, it's worth looking at a couple of our favourite definitions. Williams and Hummelbrunner (2011) suggest that there are a few distinctions we can all agree on: (i) that systems are made up of some set of elements; (ii) that systems also constitute the links between elements, whether they are processes or interrelationships; and (iii) that systems have some boundary, and this is central to their definition. They accept, as we do, that this set of distinctions could mean almost anything, so they suggest focusing on what is distinctive about seeing the world with a systems lens, rather than dwelling on definitions.

Meadows (2008) takes this definition one step further, bringing in the ideas of purpose and organisation, suggesting a system is an 'interconnected set of elements that is coherently organised in a way that achieves something' (pg. 11). The idea of a system purpose, and using it to help define your system, and perhaps your mapping exercise, is useful but slippery. It will likely require you to have a broad definition of a purpose, to include functions, services, or value that a system may provide.

The second component of 'systems mapping' is 'mapping'. So, what is a 'map'? Here we bump into an unfortunate historical quirk of terminology. In the systems mapping world, 'map' is used synonymously with 'model'. They are both reasonably intuitive words, but there has been a lot of thought about what a model is, and separately, what a map is, some of which has ideas in common, but plenty which does not. Maps are normally thought of in the cartographic, geographic sense, a representation of a physical space. There is fascinating literature on considering what these types of maps are and how they shape our thinking. Some of this is useful when thinking about models and system maps, but some of it is a distraction.

More useful, we think, is the history of thought on modelling and, within this, asking 'what is a model?' As with systems, there are many definitions and types of model, but there is a little more consistency and a settled general definition. We would characterise this definition as this: a model is a purposeful simplification of some aspect or perception of reality. 'All models are wrong, but some are useful' (Box and Draper, 1987) is the modelling cliché to end all modelling clichés, but it is instructive. The simplifications a model makes in its representation of reality mean it is

inherently 'wrong' (i.e. it is not reality), but if these simplifications serve some purpose, then there is a decent chance that they are useful.

So now we know what a system is, and what a map is. Do we know what a system map is? Not quite. We should stop talking in the abstract and show you with examples, but first we need to introduce a few common components of systems maps:

- **Network**: in its simplest sense, a network is a set of boxes connected by lines. In system maps, these lines are often directed, that is, they are arrows from one box to another.
- **Nodes**: the 'boxes' in a network are normally referred to as nodes.
- **Edges**: the connections, lines, or arrows between boxes are normally referred to as edges.

All except one of the methods in this book always have a network of nodes and edges, representing cause and influence between factors in a system, at their core. These networks of cause and influence are the model (i.e. the map) of the system.

What Systems Mapping Methods Are in This Book?

There are seven systems mapping methods that we go into detail on; they all focus on, or at least allow us to consider, causal patterns. In alphabetical order, here are brief introductory descriptions of each:

1. **Bayesian Belief Networks**: a network of variables representing their conditional dependencies (i.e. the likelihood of the variable taking different states depending on the states of the variables that influence them). The networks follow a strict acyclic structure (i.e. no feedbacks), and nodes tend to be restricted to maximum two incoming arrows. These maps are analysed using the conditional probabilities to compute the potential impact of changes to certain variables, or the influence of certain variables given an observed outcome. These maps can look relatively simple, but they have numbers in, and if you don't like probability, you might not like them.
2. **Causal Loop Diagrams**: networks of variables and causal influences, which normally focus on feedback loops of different lengths and are built around a 'core system engine'. Maps vary in their complexity and size and are not typically exposed to any formal analysis

but are often the first stage in a System Dynamics model. These are popular, and you have likely seen one before.

3. **Fuzzy Cognitive Mapping**: networks of factors and their causal connections. They are especially suited to participatory contexts, and often multiple versions are created to capture diverse mental models of a system. Described as 'semi-quantitative', factors and connections are usually given values, and the impacts of changes in a factor value on the rest of the map are computed in different ways.
4. **Participatory Systems Mapping**: a network of factors and their causal connections, annotated with salient information from stakeholders (e.g. what is important, what might change). Maps tend to be large and complex. Analysed using network analysis and information from stakeholders to extract noteworthy submaps and narratives.
5. **Rich Pictures**: a free-form drawing approach in which participants are asked to draw the situation or system under consideration as they wish, with no or only a handful or gentle prompts. This method is part of the wider group of Soft Systems Methodologies.
6. **System Dynamics**: a network of stocks (numeric values for key variables) and flows (changes in a stock usually represented by a differential equation), and the factors that influence these. Normally, these maps are fully specified quantitatively and used to simulate future dynamics. This is a popular method with a well-established community.
7. **Theory of Change maps**: networks of concepts usually following a flow from inputs, activities, outputs, and outcomes to final impacts. Maps vary in their complexity and how narrowly they focus on one intervention and its logic, but they are always built around some intervention or action. Maps are often annotated and focused on unearthing assumptions in the impact of interventions.

This is not an exhaustive list of system mapping methods—far from it. This list reflects our preferences and biases, and our intention of exploring methods which represent causality and influence in a system, and methods which can be used in a participatory way. Below, we list some of the methods which we do not include in this book, but which are nonetheless potentially useful and relevant for you.

How Do These Methods Relate to One Another?

Let us now consider some of the broad characteristics of the methods that we focus on and how they fit together. To do this, we use three related conceptual spaces in Figs. 1.1, 1.2, and 1.3 and position the methods within these; one on their overall focus and nature (Fig. 1.1), second on their mode and ease of use (Fig. 1.2), and third on the outputs and analysis they produce (Fig. 1.3). It is important to note that these placements are debatable and could misrepresent individual projects' use of a method. However, we believe they give a rough sense of where these methods sit in relation to one another, and more importantly, what some of the most important axes on which to differentiate them are.

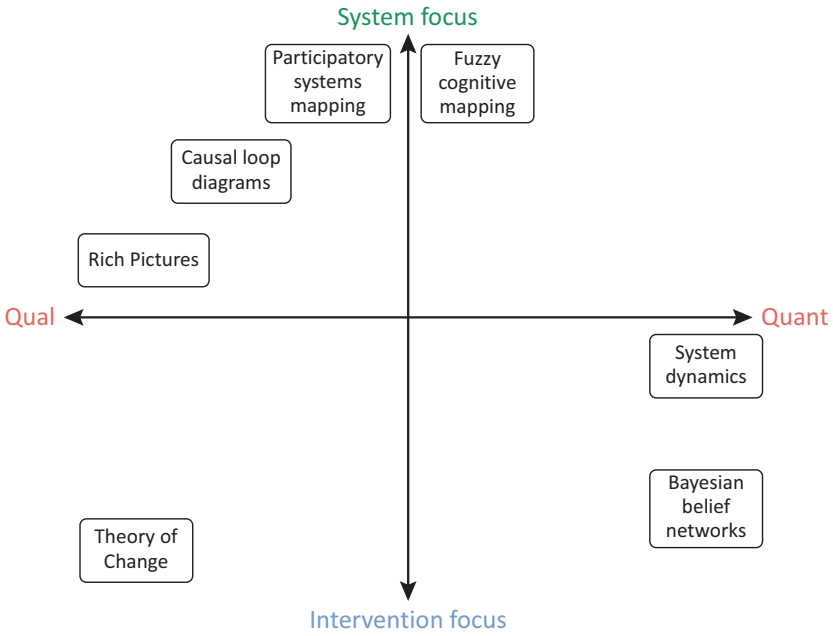

Fig. 1.1 The methods in this book placed on a 'system focus—intervention focus' axis (i.e. does the method emphasise more focus on the whole system or on an intervention), and a 'qualitative—quantitative' axis. Source: authors' creation

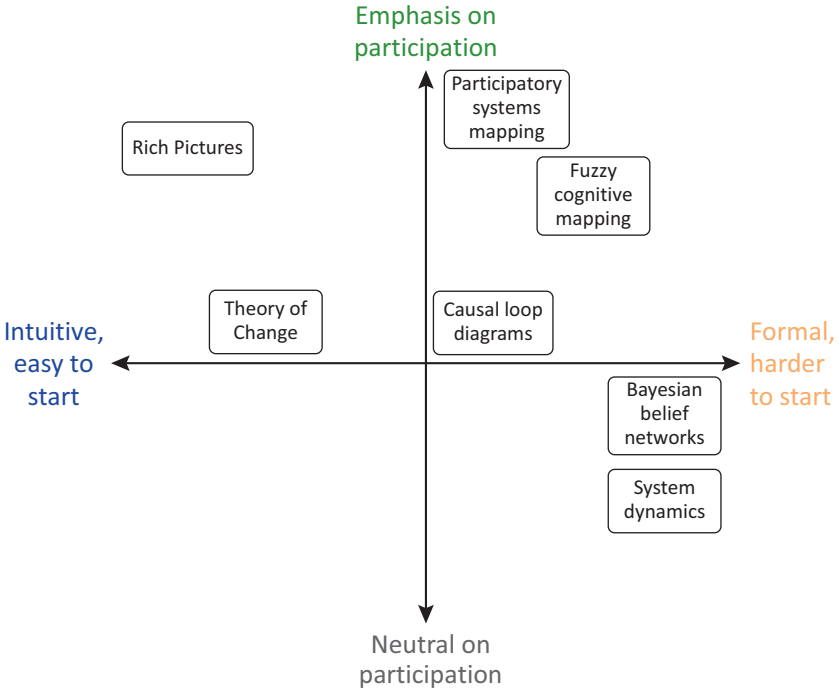

Fig. 1.2 The methods in this book placed on an 'emphasis on participation' spectrum, and an 'intuitive, easy to start—formal, harder to start' spectrum. Source: authors' creation

Figures 1.1, 1.2, and 1.3 give us a quick sense of where the methods sit, but it is possible to elaborate on this further; in Table 11.1 on comparing, choosing, and combining methods, we do this by describing these distinctions, and a few more, in further detail.

What Methods Are Not in This Book?

Because of our focus on methods that consider causality in a system, there are many methods which can be classed as 'systems mapping' which we do not include. This does not mean they are not important, or that we do not value them. Below we attempt to outline those we are aware of and point you in the direction of useful resources.

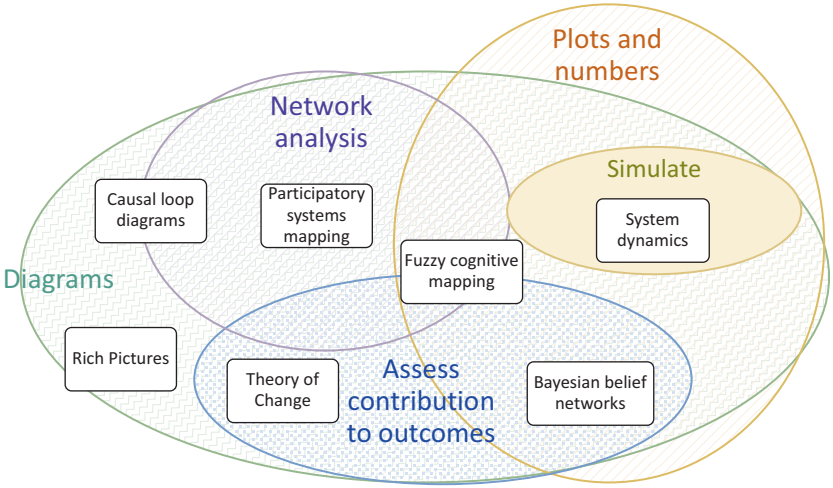

Fig. 1.3 The methods in this book positioned in a Venn diagram by the types of outputs and analysis they produce. Source: authors' creation

Before that, it is worth pointing out some of the different terminology and names that are used elsewhere for methods that are in this book; a selection is listed in Table 1.1. You might find yourself looking for these in this book and being disappointed not to find them—fear not, they are here, just under a different name. There are also a few terms, similar to 'systems mapping', that get used in a loose way and can refer to almost any of the methods in this book, such as 'mind mapping', 'cognitive mapping', 'causal mapping', or 'causal diagram'. We dare not try to unpick the various uses and history of these terms in detail; suffice to say, when you read them elsewhere, make sure to check what they are referring to.

Now let's turn to the methods not included in this book. Table 1.2 overviews these with a brief description, explanation of why they did not meet our criteria, and where you can find more information.

Beyond individual methods or suites of methods, there are several overarching schools of practice, or research sub-disciplines, which offer potential value for systems mapping. We do not cover these in this book because they are covered well elsewhere and they are entire ways of understanding and acting in their own right, not specific mapping methods. Nonetheless, they contain many techniques, tools, and approaches with much in

Table 1.1 Different terminology for the methods covered in this book

Name used in the book	*Other terms sometimes used to refer to the method (note, there is an overlap between these and, in fact, many of the terms are also separate methods in their own right)*
Bayesian Belief Networks	Bayesian networks, probability networks, dependency models, influence diagrams, directed graphical models, causal probabilistic models, and Theory of Change maps.
Causal Loop Diagrams	Influence diagrams, system maps, sign graphs, Participatory Systems Mapping. You may also see these referred to as System Dynamics models because of their use in the early stages of building System Dynamics models.
Fuzzy Cognitive Mapping	None.
Participatory Systems Mapping	None, though there are approaches based on Causal Loop Diagrams that are sometimes referred to as Participatory Systems Mapping.
Rich Pictures	None, though Rich Pictures is part of Soft Systems Methodology, so you may see this used.
System Dynamics	None.
Theory of Change maps	Programme theory, intervention theory, logic mapping, logic models, results chain, and outcome mapping.

common with systems mapping, so you may find them useful to explore for inspiration, both on individual methods and on wider philosophy. They include the following:

- **Participatory (action) research**: there are large literature on participatory research and 'participatory action research' that foreground the participation and co-production of research with communities and stakeholder groups. These contain many dozens of workshop and focus group methods and techniques, many of which are quick and easy to use, which may be of value to you. They also provide the wider framing, philosophy, and motivation on why it is worthwhile approaching topics from a participatory angle. See Cornwall and Jewkes (1995) or McIntyre (2007) for more.
- **Design thinking and methods**: similarly, there is a large literature and practice around design principles, thinking and methods, and applying these to policy issues and other problems beyond the common understandings of product or industrial design. These approaches include numerous methods for structuring thinking and bring peoples' views to bear on an issue. See the UK Policy Lab

Table 1.2 Methods often referred to as systems mapping which are not in this book

Method(s)	*Description*	*Why not in this book?*	*Further reading or information*
Causal (cognitive) mapping, causal mapping, cognitive mapping.	A collection of tightly related methods for building aggregated causal maps, typically from individual primary interview and survey data, or secondary documentary data.	These methods are arguably all indirectly included via Fuzzy Cognitive Mapping. They sometimes emphasise developing representations of individual mental models rather than representations of systems. These are the methods we most likely would have included had we expanded our focus.	Laukkanen and Wang (2015), Ackermann and Alexander (2016), Axelrod (1976).
(Group) Concept mapping	A method for organising and visualising concepts and ideas among a group of people.	Not focused on a causal understanding of a system.	Kane and Trochim (2007)
Cultural-Historical Activity Theory (a.k.a Activity Theory, Activity Systems, CHAT)	A detailed systems approach, coming from a cognitive psychology starting point, which focuses on learning and the interaction between peoples' feelings and beliefs and their environment.	Not focused on causal understanding of systems. A broader approach.	Williams (2021) for introduction. Foot (2014)
Cynefin	A decision support approach that facilitates exploration and appraisal of different responses or action in situations. Known for the famous 'complex, complicated, chaotic, clear, confusion' quadrant diagram.	Not focused on causal understanding of systems. Broader approach to action in systems.	Williams (2021) for introduction.

(*continued*)

Table 1.2 (continued)

Method(s)	*Description*	*Why not in this book?*	*Further reading or information*
Giga-mapping	An inclusive approach to mapping the relationships and entities and processes in a system, often with very complex diagrams. Roots in systems-oriented design (SOD)	Not focused on causal description alone.	https://www.systemsorienteddesign.net/index.php/giga-mapping
Log frames, logical frameworks	Used to describe a general approach and specific matrix technique for planning and evaluating projects.	Typically not depicted with networks, but matrices/tables. Similar to Theory of Change in some ways.	https://www.betterevaluation.org/en/evaluation-options/logframe
Mind mapping	Can refer to a range of different types of processes and diagrams, but typically involves relatively free-form connection of entities, processes, and concepts in a radial or tree-like structure.	Not focused specifically on cause.	Buzan (2006)
Outcome mapping	Used to refer to a range of processes and diagrams which connect interventions with their outcomes in a similar way to Theory of Change and log frames.	Often interchangeable with Theory of Change.	https://www.betterevaluation.org/en/plan/approach/outcome_mapping
ParEvo	Participatory method for developing stories of past histories or future scenarios using tree-like diagrams of sequences of events.	Focused on stories and narratives rather than causal models.	https://parevo.org/

Path analysis	An early (1920s) approach to describing the dependencies between variables graphically.	Focused on visual representation of statistical analysis rather than causal modelling.	Wright (1934)
Participatory mapping	A range of methods which develop geographical maps of places in participatory ways to represent the spatial knowledge of people.	Not causal.	Corbett (2009)
Social network analysis	Method for representing and analysing social connections using networks.	Not causal.	Knoke and Yang (2008)
Spray diagram	Generic approach to showing connections between elements or concepts related to an issue. Often in a radial or tree-like structure.	Not focused on causal relationships.	https://www.open.edu/openlearn/science-maths-technology/engineering-technology/spray-diagrams
Stakeholder/actor mapping	Range of approaches to visualising or listing stakeholders/actors in a systems and attributes and/or connections between them.	Not causal.	Too many equally valid references to pick one—a simple search will return many results.
Viable systems model	A systems approach which explores minimum requirements for a system (often some form of collective action, e.g. an organisation) to maintain or produce itself, using diagrams.	Not focused on causal modelling, broader approach to topic of viable systems.	Williams (2021) for an introduction.

(https://openpolicy.blog.gov.uk/) and their Open Policy Making Toolkit for more.

- **Permaculture/systems design:** related to design thinking above are specific schools of thought which focus on the participatory design and management of whole complex systems, their components, and interactions between them for sustainability. Although these approaches are most often applied to the design of geographically located systems, in particular socio-ecological systems with an emphasis on agroecology, they include many useful generalisable tools. The design philosophy of working with systems and the design cycle and process and systems mapping methods used within are particularly useful and have inspired our thinking. See Holmgren (2002) and https://knowledgebase.permaculture.org.uk/design

How Can Systems Mapping Be Useful?

The range of systems mapping methods, from those which are infinitely flexible to those which emphasise participation, those which discipline thinking, and those which allow calculation and simulation, hints at the plethora of ways in which systems mapping can be useful. There is no generic quick answer as to why you would use systems mapping, how it would generate value, and be useful to you. Rather, there is a long list of answers which depend on the context of the system or issue you are working on—your goals, needs, skills and capacity—and whether you are generating value from the process of mapping, from just the end product, or both. This list tends to revolve around five broad types of use, which also apply to most types of modelling or analysis. They are:

1. **Helping us think:** system maps of all types force us to be more specific about our assumptions, beliefs, and understanding of a system. At the very least they force us to 'put it down on paper'. Many types of systems mapping also force us to structure our ideas using some set of rules or symbols (i.e. creating boxes and lines to represent concepts and their relationships). This will introduce simplifications and abstractions, but it will also make explicit our mental models. This, often simple, process disciplines our thinking and exposes it to scrutiny, even if it is only the scrutiny of our own reflections and the structure imposed by the method. Helping us to think

is the most fundamental value systems mapping brings. You basically cannot avoid having it do this to you!

2. **Helping us orient ourselves:** a systems mapping process will often also help us orient ourselves to a system or issue. This is where the word 'map' is particularly apt. Whether a map helps us see our, and others', positions in the system, or whether it helps us quickly develop a fuller understanding of an issue, we will be better oriented to it. This helps people navigate the system better, be aware of what else to think about when considering one part of a map, or know who is affected and so should be included in discussions.
3. **Helping us synthesise and connect information:** the more flexible types of mapping are particularly good at bringing together different types of data, evidence, and information. They can all be used to inform the development of a map, making connections that would not otherwise be possible. Different types of visualisation, hyperlinking, and map structure can also be used to help people return to the information underlying a map.
4. **Helping us communicate:** whether we build maps in groups, or alone, and then share them, all system maps should help us communicate our mental models and representations of systems. This is an often-underestimated benefit of mapping in groups; the process of mapping with others, and the discussions it generates, unearths a multitude of assumptions which can then also be challenged and unpicked. The richness and depth of discussion, while maintaining structure and focus, is often a surprise to first-time participants. The end product of a mapping process can also help us communicate our ideas about a system. Maps can become repositories for our knowledge which can be accessed again and again by others, and updated, becoming a living document. However, it is worth noting that system maps are sometimes referred to as 'horrendograms', and much worse (!), when they show us the complexity of a system in an unfiltered manner. People think in different ways, and there are many people who prefer to use more structure or simplification to communicate or learn. There are cases in which system maps can be unhelpful communication tools if used naively. We say 'naively' because there are many ways, within each method, to avoid this, and to help people 'enter' a map, build understanding, and navigate a potentially overwhelming systems map.

5. **Helping us extrapolate from assumptions to implications:** systems mapping approaches which can be turned into simulations, or which can be analysed in a formal way, also allow us to follow through from the assumptions we have embedded in them, to their implications. The most obvious example is System Dynamics, which allows us to simulate the dynamics of a system. In effect, this allows us to attempt to look forward, to see how the structure and assumptions we have created play out over time. Using models in this way, to 'predict' or 'forecast', is generally well understood, but people sometimes think of systems mapping as more static and are unable to do this. In a related but different way, Bayesian Belief Networks allow us to follow through the implications of the many conditional dependencies we embed in them, to consider what impact a change might bring, or what contributed to an observed outcome. Other approaches provide ways to consolidate and sense check the combined and often contradictory effects of multiple influences on distal factors. Whether by computing numerical values representing potential combined effects of change on outcomes in relative terms (e.g. Fuzzy Cognitive Mapping), or by visualising causal pathways between a changed factor and outcomes, allowing us to think through the multiple indirect effects (e.g. Participatory Systems Mapping).

Why Think About Systems Mapping Now?

The systems and complexity sciences have been around since at least the mid twentieth century, arguably longer, and many of the methods in this book have also been around a decent while. Interest in these ideas and approaches, and attempts to apply them to real-world concerns, has come in waves over the last seventy or so years. There has been notable success but also false dawns, and plenty of scholars and practitioners have been sceptical about their value. In the past, the complexity and systems sciences have sometimes offered either highly technical 'black-box' modelling, appealing metaphors, and language which don't directly lead to action and are often misapplied, or overwhelming and paralysing complexity. These are serious problems, which many are now seeking to address, including us.

Despite these issues (and though we may be biased and myopic), we have observed a renewed interest in the last ten years or so and noted

many others making similar observations. It does not feel too outlandish to claim that we are at a high point of interest currently. We bump into fewer and fewer people who have not heard about these ideas, and more and more people actually approach us about them. This is the time of greatest opportunity but also the point at which failure to deliver, or failure to move beyond previous high-water marks, or past pitfalls, may see interest decline rapidly. There is still plenty of confusion and varied use of terminology, arguments over concepts, and underwhelming applications of methods, which can trip us up.

In the context of this current interest in systems thinking and complexity, systems mapping approaches, particularly causal mapping, are particularly useful 'gateway' tools. They can relatively quickly and straightforwardly capture some of the features of complex systems that matter on the ground when trying to understand and manage these systems. In particular, multicausality, indirect effects, the uncertain boundaries of open systems, feedbacks, and multiple stakeholder perspectives. However, other important complex system characteristics, such as emergent effects, need other modelling approaches. Systems mapping methods are highly usable, useful, and relatively intuitive ways to start engaging with real-world complex systems.

This book represents an attempt to help open up and organise (causal) systems mapping, such that people finding themselves carried along on this wave of interest have something solid to grasp onto and build from. To abuse the metaphor a bit more, we hope when the wave inevitably recedes, more of these ideas and methods, and most importantly the people who believe in them, have got a foothold on the beach and so are not dragged back. We also hope the book helps readers ensure the quality of their use and critique of these methods, so that we see fewer misguided, naïve, or poorly framed applications, and more innovation and combination in their use.

Finally, we hope the book will help users of these methods to navigate one of the biggest headwinds to their success; the increasingly fast-paced nature of work, research, and policy, and the increasing attention deficit of stakeholders and users. It used to be the case that you could organise a workshop over two days, and muddle your way through more easily, learning and adapting a method as you went. Now, if you are lucky, you get a half day of people's time, and since the pandemic, you may only have people's attendance virtually. This puts more pressure on these methods, and this means we need to be better prepared and more efficient at using them.

What's in the Rest of This Book?

Chapters 2 through to 8 cover the seven methods we dive into real detail on, they are roughly in order of the most qualitative through to the most quantitative. We try to build detailed but clear descriptions of what they are and how you can use them, but also reflect on what they are good and bad at, and how things can go wrong. Each of these chapters can be taken on its own, ignoring the rest of the book.

The three chapters after these are more cross-cutting. Chapter 9 considers how and what different types of knowledge and evidence can be used in systems mapping. Chapter 10 dives into the nuts-and-bolts practicalities of running workshops. Chapter 11 considers how we can compare, choose, and combine the methods in this book. Finally, Chap. 12 concludes, with a few final take-home messages, and our reflections on what we have learnt writing this book.

We hope you enjoy it and find it useful. We're always happy to talk systems mapping and get feedback, so feel free to get in touch.

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