

# Handling Complexity in Policy Evaluation

## Introducing the new Magenta Book 2020 Supplementary Guide

Martha Bicket, University of Surrey



# Background

- ❖ CECAN was asked to produce a Supplementary Guide for the 2020 revision of the Magenta Book, on complexity
- ❖ It is published by HM Treasury and accompanies the 2020 edition of the Magenta Book
- ❖ *Handling Complexity in Policy Evaluation* is based on three years' research and development of evaluation methods by CECAN

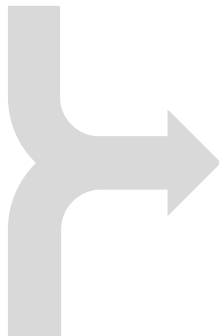
# Developing the guide



# Developing the guide



Review existing literature



CECAN input

- Team
- Fellows
- Events
- Case studies

Author meetings & workshops

- Relevant characteristics of complexity

- Real-world examples of complexity

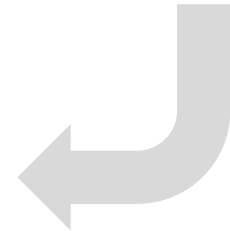
Developing the guide

External input

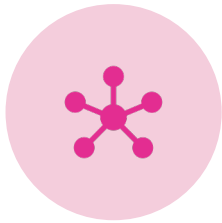
- Advisory group

- Methods experts

- Magenta Book 2020 drafting team



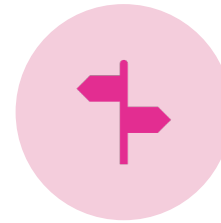
# Inside the Supplementary Guide



**WHAT IS  
COMPLEXITY**



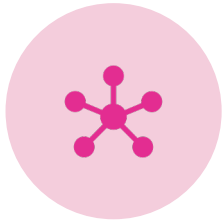
**THE CHALLENGES  
OF COMPLEXITY TO  
EVALUATION**



**COMMISSIONING  
AND MANAGING  
EVALUATIONS**



**SELECTING  
COMPLEXITY-  
APPROPRIATE  
APPROACHES**

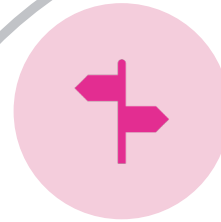


**WHAT IS  
COMPLEXITY**

“what you should know”



**THE CHALLENGES  
OF COMPLEXITY TO  
EVALUATION**

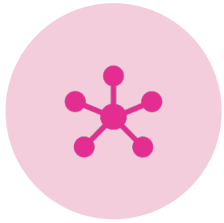


**COMMISSIONING  
AND MANAGING  
EVALUATIONS**



**SELECTING  
COMPLEXITY-  
APPROPRIATE  
APPROACHES**

“what you can do”



**WHAT IS  
COMPLEXITY**



**THE CHALLENGES  
OF COMPLEXITY TO  
EVALUATION**

*“what you should know”*



**WHAT IS COMPLEXITY  
& WHY DOES IT MATTER?**



# What is complexity?



*A complex system*

is made up of **many diverse components**

that **interact** with each other

in **nonlinear** ways

and can **adapt**

*(complex adaptive systems)*

# Simple, complicated, complex



# 3 complexity guide highlights

## Highlight 3: Methods and approaches tables

## Highlight 2: Questions for commissioners and managers

### Understanding

- E.g.: To what extent does the policy or programme, or its context, demonstrate any of the features of complexity?

... to reconsider the data collection methods, in order to  
...ents that might emerge during the evaluation?

...ion broad enough to allow for initial exploratory activities,  
...tation of these as new information emerges?

...ngs

...on findings given an indication of the complexity of the  
... might impact on the findings or recommendations?

← methods and approaches

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- feasibility 'fit'
- specialist skills needed
- levels of resource needed





## Highlight 1: Complexity images and examples

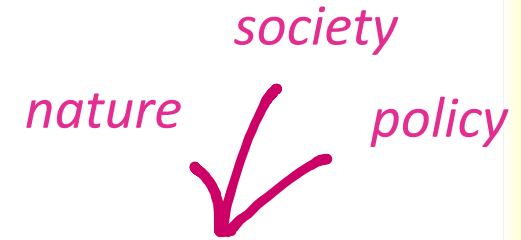
Accessible  
definition

nature society  
policy  
Illustrative examples

Properties of complex systems, illustrated

Property of Complex System	Definition	Examples
 <p>Tipping points</p>	<p>Closely linked to the idea of 'domains of stability', tipping points refer to the threshold beyond which a system goes through rapid change into a different state. It can be seen in situations in which change has initially been quite slow, but suddenly increases in pace.</p>	<ul style="list-style-type: none"> <li>• In the natural world: A forest ecosystem may be stable over a large range of average rainfall, but may rapidly become desert as rainfall decreases beyond a certain threshold.</li> <li>• Social world example: The gradual, then sudden, gentrification of a neighbourhood results in underlying social unrest suddenly increasing, leading to a regime change and social media 'storms' in which minority opinions become the majority.</li> <li>• In the policy world: the sale of solar panels to households increased very slowly over several years until suddenly taking off in response to a change in feed in tariffs and word of mouth (across neighbourhoods).</li> </ul>
 <p>Path dependency</p>	<p>The future development of a complex system depends on its history - how it got to its present state - as well as where it is currently. The order in which policy instruments or decisions are introduced may affect their cumulative impact.</p>	<ul style="list-style-type: none"> <li>• Natural world example: Evolution is a highly path-dependent process. Organisms cannot radically change from their predecessors but change and modify themselves by mutations of adaptations that already exist. This is why evolution seldom finds optimal solutions.</li> <li>• Social world example: The health over the whole of the lifespan of an individual can be influenced by the diet and wellbeing of their parents and the conditions under which they were born and brought up (one of the causes of health inequality).</li> <li>• In the policy world: The choice of an organisation to lead a new policy initiative, and their history and reputation, may have a powerful influence over the way in which the policy is delivered, and how other organisations behave in relation to the policy.</li> </ul>

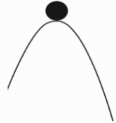
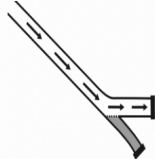
# Highlight 1: Complexity images and examples



Accessible  
definition

Illustrative examples

Properties  
of complex  
systems,  
illustrated

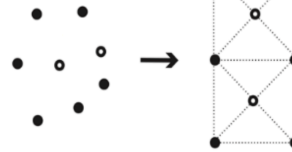
Property of Complex System <sup>5</sup>	Definition	Examples
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# Properties complex systems may exhibit

✘ Adaptation



✘ Emergence



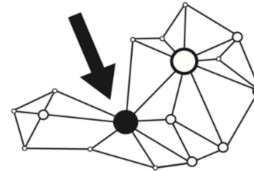
✘ Self-organisation

✘ Unexpected indirect effects

✘ Feedback (and feedback loops)



✘ Levers and hubs



✘ Non-linearity

✘ Domains of stability



✘ Tipping points

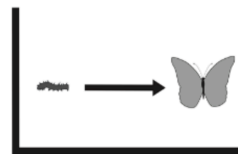
✘ Path dependency



✘ Openness



✘ Change over time



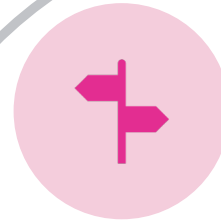
# When working with complex systems

- ❖ Complex systems can be a challenge to manage
- ❖ Evaluation is crucial in helping to understand and navigate this complexity

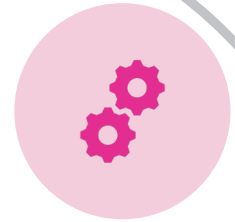
# Complexity introduces additional challenges for evaluation

✘ E.g.

- Complex systems can be particularly sensitive to context and to how the boundary and scope of the evaluation are defined
- Complexity can make it hard to determine causality
- Because complex systems are constantly changing, the design of the evaluation may also need to change over its course
- Change may continue in difficult to predict ways after the evaluation has finished



**COMMISSIONING  
AND MANAGING  
EVALUATIONS**



**SELECTING  
COMPLEXITY-  
APPROPRIATE  
APPROACHES**

**“what you can do”**





**COMPLEXITY-APPROPRIATE  
EVALUATION**

# Commissioning and managing evaluations

- ✘ The Magenta book identifies a number of key stages in planning and managing an evaluation

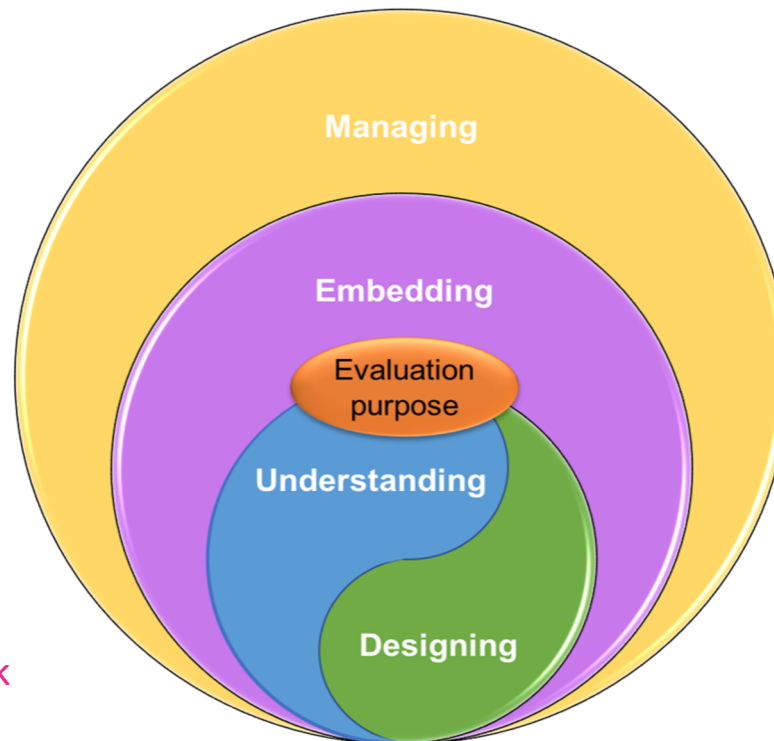


- ✘ When handling complexity, the stages may be less clear cut

# Commissioning and managing evaluations

when handling complexity

- Throughout planning and delivering both the intervention itself and the evaluation, a central task is to gain insight into the system itself, and respond to new learning and developments as these emerge



Defra Complexity  
Evaluation Framework

# Commissioning and managing evaluations

when handling complexity

✘ In this chapter:

- Commissioning and managing a complex evaluation
- Building understanding of the policy/intervention and context
- Designing an evaluation
  - Evaluation purpose
  - System attributes
  - Feasible designs
- Resourcing an evaluation
  - Budget and proportionality
  - Expertise
  - Access to data
  - Time and timing
- Dissemination and embedding learning

# Commissioning and managing evaluations

when handling complexity

## ✘ Key points:

- Evaluation can help with managing an intervention
- Evaluative activities should be integrated with policy design and implementation
- Including key stakeholders in planning and ‘mapping’ helps to increase understanding of complexity and any challenges this might pose
- Stakeholders may have different views on complexity and appropriate evaluation strategies, so expectations and assumptions will need to be managed carefully
- Governance and management of evaluations need to be flexible to respond to emergence, adaptation, or as new understanding develops

# Highlight 2:

## Questions for commissioners and managers

### Understanding

- E.g. To what extent does the policy or programme, or its context, demonstrate any of the features of complexity?

### Evaluation design

- E.g. Have opportunities been built in to reconsider the data collection methods, in order to accommodate any unexpected elements that might emerge during the evaluation?

### Conducting the evaluation

- E.g. Is the commissioning specification broad enough to allow for initial exploratory activities, new evaluation approaches and adaptation of these as new information emerges?

### Using and disseminating findings

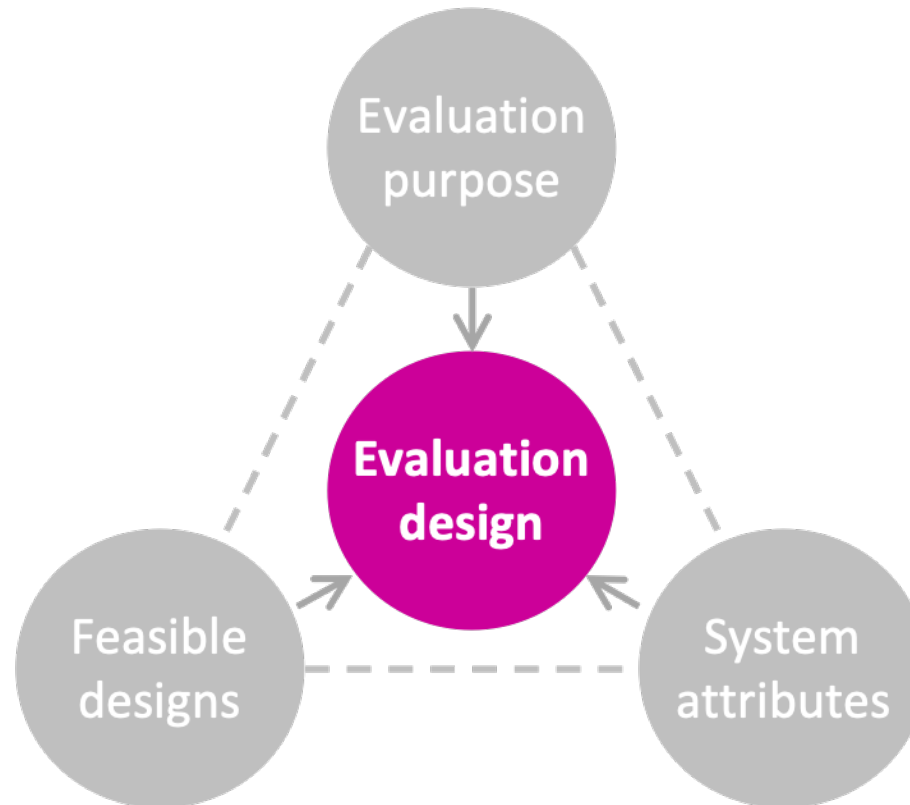
- E.g. Were recipients of the evaluation findings given an indication of the complexity of the policy or programme, and how this might impact on the findings or recommendations?

# Selecting complexity-appropriate approaches

## ✘ Key points:

- A wide range of approaches are available
- There is no simple, mechanistic way of selecting the right ones for your needs
- Hybrid designs likely to be most useful
- Methodological requirements may only emerge over time
- Evaluators and commissioners should regularly review the design to determine how well it is working and whether it should be modified

# Selecting complexity-appropriate approaches



Adapted from:

[www.bond.org.uk/data/files/Impact\\_Evaluation\\_Guide\\_0515.pdf](http://www.bond.org.uk/data/files/Impact_Evaluation_Guide_0515.pdf)



# Highlight 3: Methods and approaches tables

Table 4 (p46)

evaluation questions

methods and approaches

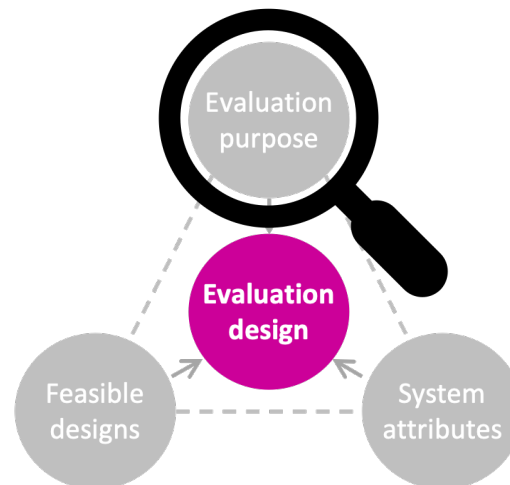
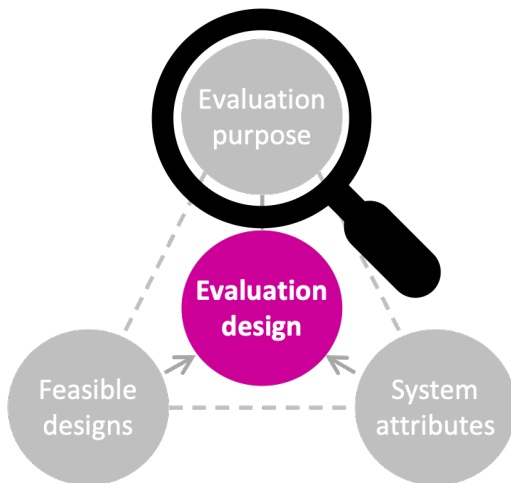


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evaluation questions

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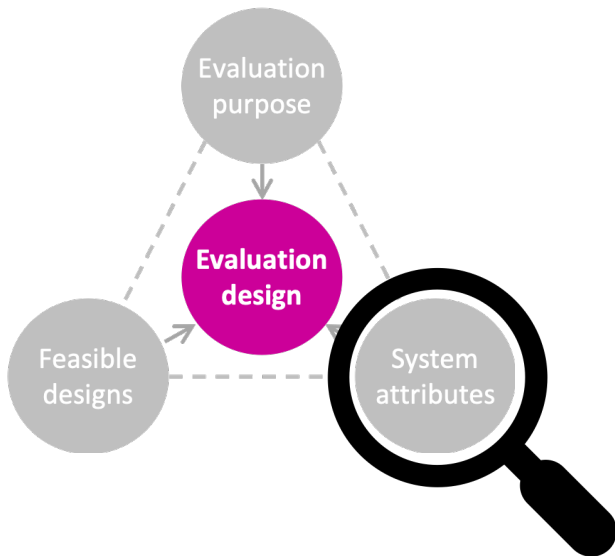


Evaluation question	Approach / method	Benefits
What is important to different groups, who can champion change?	<b>Most significant change</b> <b>Participatory system mapping</b>	Most significant change aims to clarify the value of change. Participatory system mapping helps build a system map. Structures conversations around delivering change, clarifying what is possible. If begun at the outset, it provides a framework for design piloting and full implementation.
What levers are generating change, what may be inhibiting change?	<b>Big data and associated methods</b>	Might ultimately allow for more targeted interventions. Can provide near real-time feedback.
How well was the policy implemented? How can this be improved?	<b>Participatory, adaptive approaches</b>	Generates trust and identifies champions for change.
Is the policy making a difference, by how much?	<b>Experimental approaches</b>	Provides robust evidence of difference, and to what extent.
	<b>Statistical association approaches</b>	Weaker than experimental approaches. Not possible to define a counterfactual.

Table 5 (p47)

**complexity challenges**

**methods and approaches**

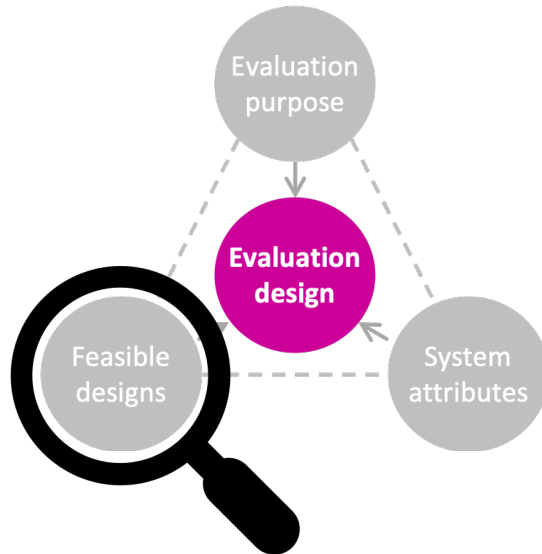


<b>Complexity challenge</b>	<b>Approach / method</b>	<b>How it helps</b>
<b>Sensitivity to context</b>	<b>Generative causation, configurational and system mapping and modelling</b>	Treats context as a variable rather than a factor to be isolated. The complexity of complex systems is often a function of context.
<b>Openness/ open system</b>	<b>System mapping</b>	Can guide division of change into multiple programmes into modules without losing sight of the whole system and between the system and its environment
<b>Multiple interactions and influences</b> <b>Long, indirect causal chains linking inputs to impacts</b>	<b>System mapping and modelling</b>	Can capture the key interactions and guide construction of models of change. Provides a framework for assessing the relative importance of relationships and impacts
<b>Continual change, difficult to predict outcomes arising from e.g. feedbacks, non-linearity, tipping points, thresholds, emergence, path dependence</b>	<b>Computational system modelling</b> <b>Predictive modelling approaches</b> <b>Scenario analysis</b>	Provides exploratory and “theoretically-informed” (widely agreed and accepted agent based modelling of the surface) Computational system modelling, can be used to explore what would have happened

Table 6 (p49)

methods and approaches

feasibility and resources



- feasibility 'fit'
- specialist skills needed
- levels of resource needed

Approach	More feasible if ...	Less feasible if ...	Specialist skills and resources
Configurational approaches	Consistent information is available on (at least a small number of) factors that are assumed to affect the outcome	Fewer than 5 or 10 cases available for analysis	Software products are available to handle the mathematics required so that specialist skills are not required in this respect Collection of consistent information for large numbers of cases can be resource intensive
Experimental approaches	Groups of recipients and non-recipients can be established that are similar except for their receipt of the intervention, for example: <ul style="list-style-type: none"> <li>• a pilot can be undertaken at the start including data collection in non-policy areas</li> </ul>	The relationship between outcomes of interest and drivers of interest is complex, with many potential confounding factors Small effect expected or effect builds up gradually over an extended period	Interpretation of experimental results for complex systems and for different contexts, will generally require some understanding of theory-based approaches Systems mapping can help identify parts of the system that are sufficiently isolated to allow an effective experimental design

# Handling complexity in policy evaluation

## ❖ Who is it for?

- Analysts
- Evaluation practitioners
- Evaluation commissioners
- Policy-makers

## ❖ How and when to use it?

- Alongside the Magenta Book
- When policies / programmes / projects or their evaluations are complex

## ❖ Where to find it?

- [www.gov.uk/government/publications/the-magenta-book](http://www.gov.uk/government/publications/the-magenta-book)

# Handling Complexity in Policy Evaluation

## Magenta Book 2020 Supplementary Guide

CECAN has produced a *Supplementary Guide* for the 2020 revision of the Magenta Book.

The Magenta Book, published by HM Treasury, is the key UK Government resource on evaluation, setting out central government guidance on how to evaluate policies, projects and programmes. The *Magenta Book 2020 Supplementary Guide: Handling Complexity in Policy Evaluation* is based on three years' research and development of evaluation methods by CECAN. It is published by HM Treasury and accompanies the 2020 edition of the Magenta Book.

### What is the Supplementary Guide and why is it important?

Complex systems are all around us. Their characteristics make their behaviour hard to predict and they present challenges to policy making and evaluation. The *Supplementary Guide* explains what complexity is, its implications, and how evaluators and policy makers can plan, deliver and use complexity-appropriate evaluation to work with this complexity.

### Who is it for?

The *Supplementary Guide* is for policy makers, analysts and commissioners of evaluations, as well as evaluation practitioners including public sector evaluation contractors.

### How do I use it?

The *Supplementary Guide* is designed to be used alongside the Magenta Book. It provides further guidance on how to use evaluation appropriately as an effective management tool when policies, programmes, projects, or their evaluations are particularly challenging, intractable, or complex.

## Inside the Magenta Book 2020 Supplementary Guide —Handling Complexity in Policy Evaluation

### WHAT IS COMPLEXITY

An accessible introduction to complexity and why it matters for policy-making. Describes and illustrates the properties of complex systems with images, definitions and examples.

### THE CHALLENGES OF COMPLEXITY TO EVALUATION

Illustrates why and how complexity creates challenges for evaluation, with examples.

### COMMISSIONING AND MANAGING EVALUATIONS

How planning and managing can help to understand, anticipate and navigate the challenges posed by complexity. Includes a list of questions that commissioners can use to aid planning at each stage of the evaluation planning process.

### SELECTING COMPLEXITY-APPROPRIATE APPROACHES

How to choose the approach or combination of approaches appropriate for a particular evaluation. Contains several useful tables including:

- Answering evaluation questions – matching evaluation questions with methods and approaches.
- Tackling different aspects of complexity – matching complexity challenges with methods and approaches.
- Circumstances affecting feasibility – exploring the strengths and weaknesses of different methods and approaches, including the specialist skills and levels of resource required.

## DOWNLOAD

The Magenta Book 2020 *Supplementary Guide: Handling Complexity in Policy Evaluation* can be downloaded from:

[www.cecan.ac.uk/magenta-book-complexity-guide](http://www.cecan.ac.uk/magenta-book-complexity-guide)

The Centre for the Evaluation of Complexity Across the Nexus (CECAN) is a national research centre hosted by the University of Surrey that brings together a unique coalition of experts to address some of the greatest issues in policy making and evaluation.

# Handling Complexity in Policy Evaluation

Introducing the new Magenta Book 2020 Supplementary Guide

**Our experiences of developing the guide,  
and implications for evaluation practice  
and policymaking in the UK**

**In conversation:**

Martha Bicket, University of Surrey

Dione Hills, Tavistock Institute

Helen Wilkinson, Risk Solutions



# Handling Complexity in Policy Evaluation

Introducing the new Magenta Book 2020 Supplementary Guide

**To hear more about upcoming  
training and support options:**

<https://forms.gle/SoVxHqhHimdkjBEL8>



# Handling Complexity in Policy Evaluation

Introducing the new Magenta Book 2020 Supplementary Guide

## Q&A

Martha Bicket, University of Surrey

Dione Hills, Tavistock Institute

Helen Wilkinson, Risk Solutions



# THANK YOU

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