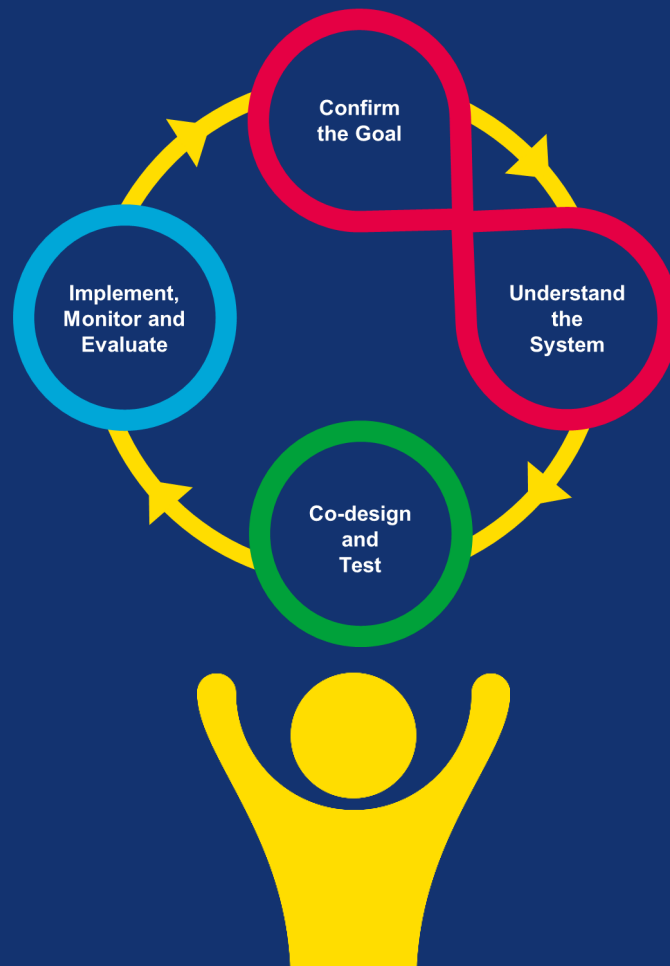




Department for
Business, Energy
& Industrial Strategy

Systems Leadership Guide

How to be a Systems Leader



What are systems approaches?

A system is a set of **observed elements or parts interconnected** in such a way that they produce their own pattern of behaviour over time.

For example: a Government department, a community, the Carbon Cycle.

Systems approaches are a **framework for seeing the interconnections** in a system and a **discipline for seeing and understanding the system as a whole**. They help to reveal the 'structures' that underlie volatile, uncertain, complex and ambiguous situations.

What is systems leadership?

Systems approaches are **essential for delivering a credible, viable, and adaptive plan** to achieve complex challenges like net zero that help manage risks and **ensure wider societal goals are delivered**.

Systems leadership is about **building a culture in which systems approaches can flourish**.

Systems leaders set the tone for an organisation to work more systemically and encourage staff to embed systems approaches in their work.

When dealing with complexity, it can be easier to jump to suggesting solutions to ill-defined problems without analysing the causes of these problems. Systems approaches shift the focus towards understanding issues and developing goals that fulfil multiple goals rather than one single goal. This enables solutions to emerge that address the causes of problems rather than treating the symptoms.



A systems leader will:



Influence other leaders to shift the collective focus in the right direction and develop and maintain cross-departmental and cross-directorate relationships so there are shared understanding of goals and of the system.



Encourage the use of systems principles and tools for complex problems by promoting collaboration across traditional siloes, within or outside the team.

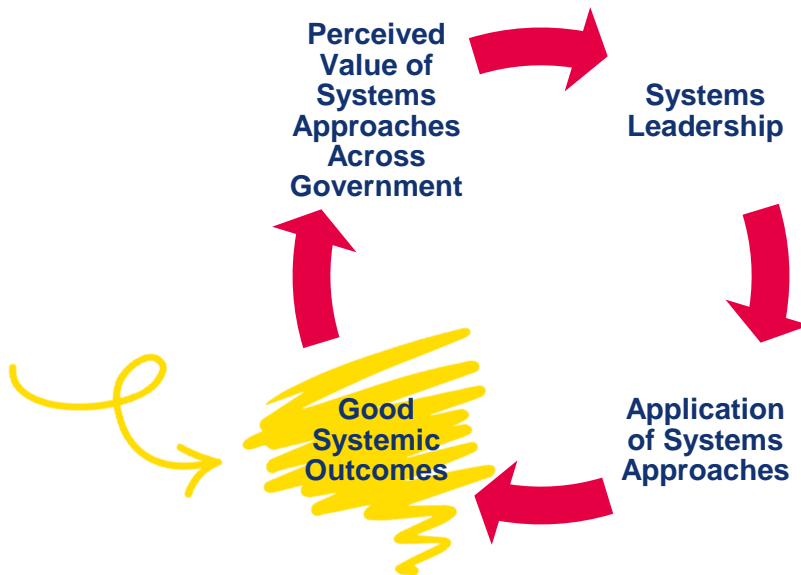


Think about the wider system and ask questions that explore the possible impact of certain actions on the wider system.



Ensure positive changes towards shared goals are sustained through monitoring and evaluating progress towards them.

What is the long-term effect of systems leadership?



Your role as a systems leader is important because it increases the visibility of, and support for, systems thinking, behaviours, and approaches. This will encourage wider application of systems thinking, behaviours and approaches, leading to more systemic outcomes, benefiting individuals and teams across the policy and analyst professions as well as the wider society. As these benefits are realised, the perceived value of systems approaches will grow, leading more people to be interested in adopting the role of systems leaders.

Where and when can systems approaches have an impact?

Systems approaches are for complex problems; they can have impact in a variety of areas and stages of a project e.g.

1. Scoping new policy
2. Managing changing timelines and delays
3. Identifying delivery risks
4. Designing policy
5. Developing robust appraisal and evaluation
6. Feeding into strategy development

Although there are ways to use systems approaches throughout the lifecycle of a project, engaging with systems early on will likely have more impact than at the end.



How do you know you're doing it right?



Your and your teams' **objectives are set with consideration of the wider system and wider societal goals**, and outcomes are focused on the system in question. This means you're building systems thinking into government processes.



You and your teams are comfortable not always being right, not always having the answer, and instead **embrace the uncertainties and complexities in your systems**. You're looking to other perspectives for input and collaboration and not simply succeeding in your own silo.



You're **asking different kinds of questions than you asked before** e.g. "What are the range of probable/plausible/possible scenarios?", "What are the wider system implications of that action?" You're showing consideration for new and innovative solutions.



You and your team are **regularly engaging, listening to, and collaborating with, people across systems** (including the public, academics, and the third sector) through facilitated discussion, workshops, and informal dialogue. You're paying attention to different perspectives.



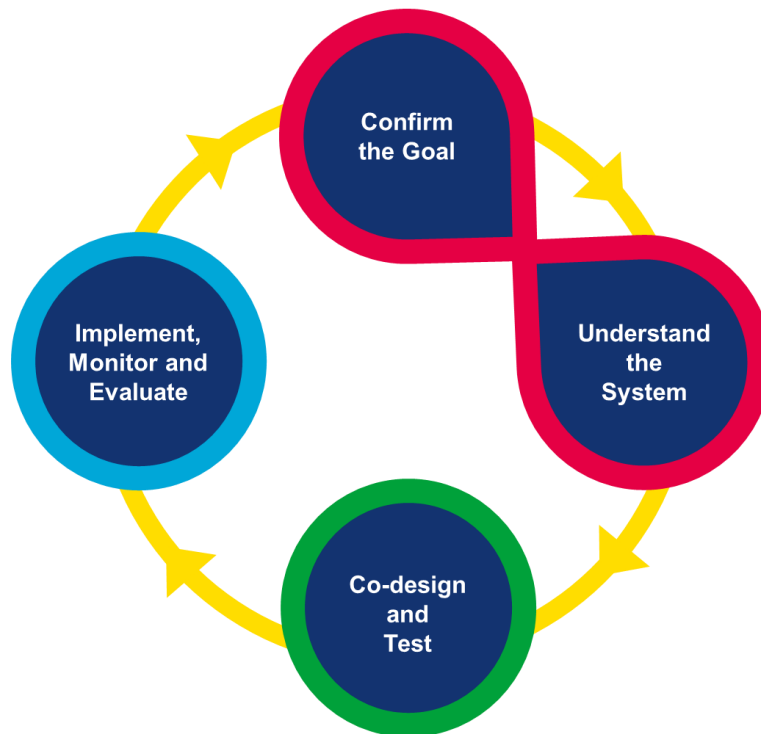
You're beginning to **identify system archetypes** (like the 'Tragedy of the Commons') and using your knowledge of these to anticipate and resolve issues in your system. You're thinking about the whole system holistically.



You're **encouraging a culture of systems mapping** to help identify where the most appropriate leverage points for intervention are and avoid unintended consequences. You're up-skilling your colleagues in applying systems approaches.

Systems Principles

When applying systems approaches to complex areas the following principles help to structure thinking around a certain issue and offer a helpful guide when starting on your systems journey. They are grounded in the idea that good systems leadership seeks to understand the structural causes of a problem before co-designing and testing solutions that truly address important problem causes.



Step 1: Confirm the Goal:

Identify the key issues and establish a collaborating community with shared goals, while ensuring wider societal goals.

Step 2: Understand the System

Reach a shared understanding of the system with that community, including important barriers that may prevent goal achievement.

Step 3: Co-Design and Test

Co-design and test ideas for interventions using an understanding of the system, its structure, possible leverage points, and with a focus on long term progress towards the shared goal.

Step 4: Implement, Monitor and Evaluate

Implement high-leverage, systemic interventions. Engage in continuous monitoring, evaluating, and learning.

Different Systems Approaches

There are a variety of systems approaches and choosing the best approach to use will depend on understanding whether there is a need for a hard or a soft approach, or a bit of both.

As a systems leader, you will primarily deal with soft systems. However, there will also be instances that require some interaction with hard systems which may provide information on a specific, bounded issue.

Soft Systems



Hard Systems



Focus on people and their behaviour (e.g. the education system, a project team).

Focus on physical or technological systems (e.g. an IT system, a car).

May be comprised of a mixture of individuals, technologies, and physical systems, but the component parts are complex and not easily quantified.

May be related to people and their behaviour but entities within the system are more easily quantified.

Assume organisational problems are complex, 'messy', or poorly defined, that individual stakeholders interpret problems differently and there is no objective reality.

Assume objective reality of systems in the world with a clearly defined problem that can be solved.

Are discursive approaches to problem-solving i.e., based on experience and dialogue.

Use quantitative models to approach problem-solving that are more commonly the remit of system engineers.

Focus more heavily on human factors such as motivations, incentives, biases.

Focus on technical factors foremost such as replacing parts, optimising processes.

Tend to outcomes which result in mutually beneficial collaboration, better understanding of the system and identification of win-wins rather than searching for a single 'solution'.

Result in a known outcome that gives a quantified solution.

Use your role to contribute to a transformative approach to policy and delivery, where government showcases systemic understanding and leadership.

Frequently Asked Questions

Where do I start?

The Systems Thinking Journey is a guide for civil servants to learn to apply systems approaches to their work. This is a good place to start contextualising systems within government work.

If I only do one thing, what should that be?

Co-design and evaluate solutions that take into consideration shared goals as well as the systems causal structures.

What actions can I take with my team?

Use the principles in the Systems Thinking Journey to review your work programme and team objectives. For example, you could include a question about the wider system implications of your intervention in your evaluation plan. Alternatively, create a team objective that is focused on building a shared understanding of the system you are working in. Seek out a Community of Practice in your department and use it connect with other colleagues and learn how to better apply systems approaches. Familiarising yourself with the Archetypes (e.g. 'Eroding Goals') may also help.

Do systems approaches necessarily take a long time?

The Systems Thinking Journey offers both light touch (e.g. a discussion about goals or about problem causes) and fully embedded (e.g. systems policy design) options for using systems approaches. So even if you are short on time, you can still bring a systemic lens to your work. Systems approaches are not designed to add unnecessary 'process' to time pressured civil servants. Instead, they offer a means of generating more effective and sustainable solutions saving you time in the future as you create more robust interventions.

Do I need quantitative data to deliver something with systems thinking?

It depends what you are doing. Some challenges are better suited to using quantitative data such as generating potential scenarios for the long-term energy system whole system energy models like (with our whole systems energy model, UK TIMES) where relevant data is available. At other times, quantitative data may be desirable but the practicalities of gathering and analysing it are unrealistic so reframing the challenge using soft systems approaches will yield better results. Many of the challenges we face in government are organisational or behavioural and therefore are better suited to using soft systems approaches such as how to recognise competing motivations or to mitigate biases. Either way, quantitative data is not a pre-requisite to doing systems work; see the difference between Hard and Soft Systems on page 4.

Do I need to have any technical expertise in systems thinking to be a systems thinker or to use systems approaches?

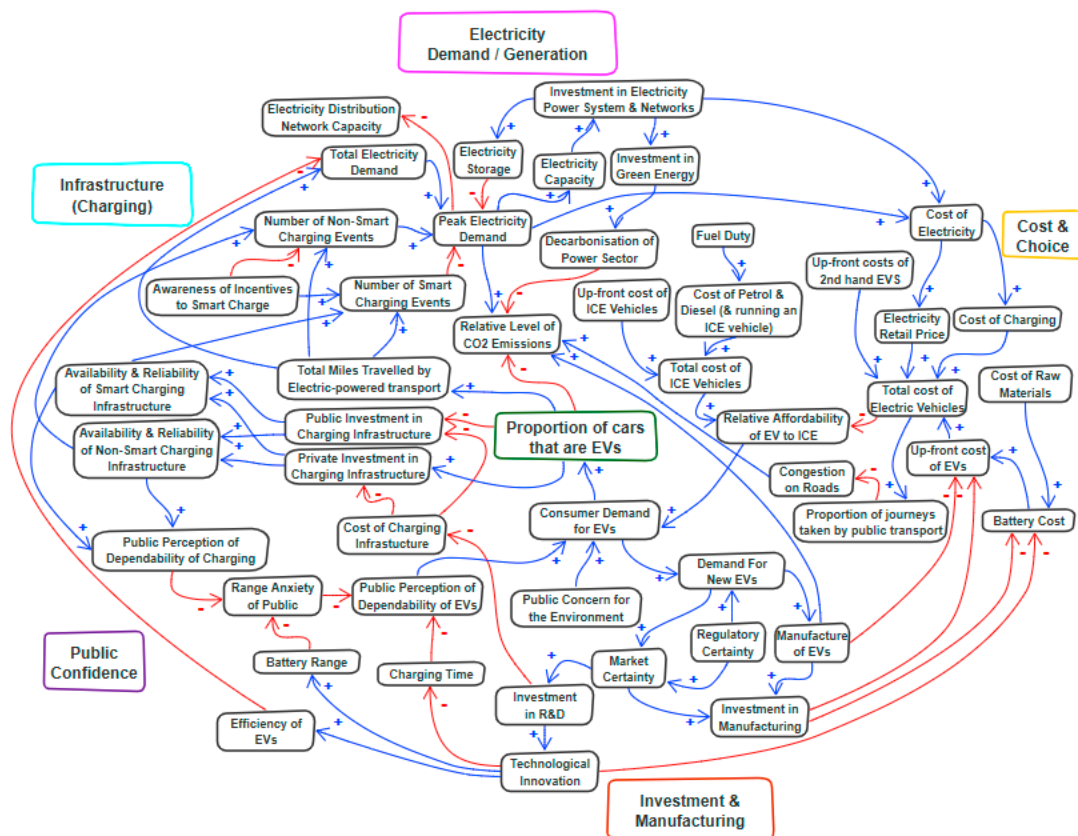
No. Although there are highly experienced systems thinking practitioners, the key principles are straightforward and accessible for everyone. If you are very new to systems thinking you may want guidance and support from someone more experienced. See below.

How is using systems approaches different to good policy making?

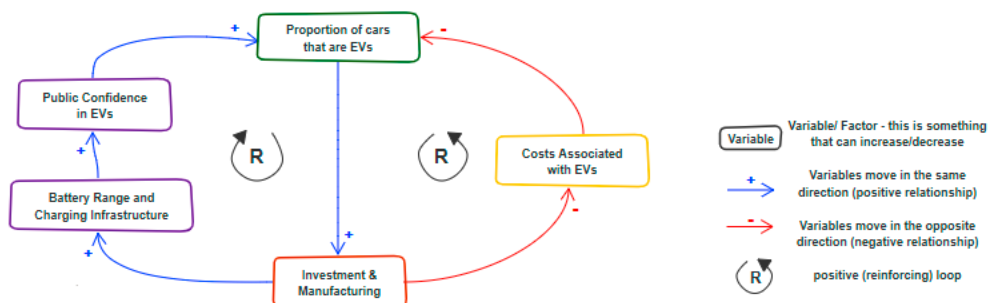
Systems approaches are recognised tools and techniques that are designed to engage with complexity, bring in different perspectives, and structure a problem. Using these will increase the likelihood of developing robust action and good policy making. See “How do you know you’re doing it right” on page 1 for specific differences.

What does a systems map look like?

This is an example of a map from the Net Zero Strategy on electric vehicles showing the key variables in the system and the relationships between them. A blue arrow signifies that as variable 1 increases, so does variable 2. Conversely, a red arrow indicates that as variable 1 increases, then variable 2 decreases.



Summary of Feedback Loops



Such maps can be employed as part of a soft systems approach to achieve greater shared understanding of a situation of interest, or as part of a hard systems approach as a step towards constructing a quantitative model of the behaviour of a system. There are a variety

of systems approaches available to serve different purposes, as referred to in [Systems Thinking: An Introductory Toolkit for Civil Servants](#). Many use systems models and maps.

Where do I go for technical support?

You can develop your systems leadership skills via “Leading with systems” training for Grade 7 and above on [Civil Service Learning](#).

The [Systems Thinking Interest Group \(STIG\)](#) is an inter-departmental learning group that runs mini-conferences and regular sessions on systems tools and approaches in a variety of contexts. This is a good place to be introduced to using systems approaches, to explore further reading and resources, and to meet colleagues with similar challenges.

The GORS L&D portal also offers [systems training](#) which you can find under ‘Soft OR’.

For more bespoke advice, contact the Net Zero Systems Team at NetZeroSystems@beis.gov.uk

Where has it worked well?

Explore some examples of successful governmental systems interventions in the [Systems Thinking Case Study Bank](#).