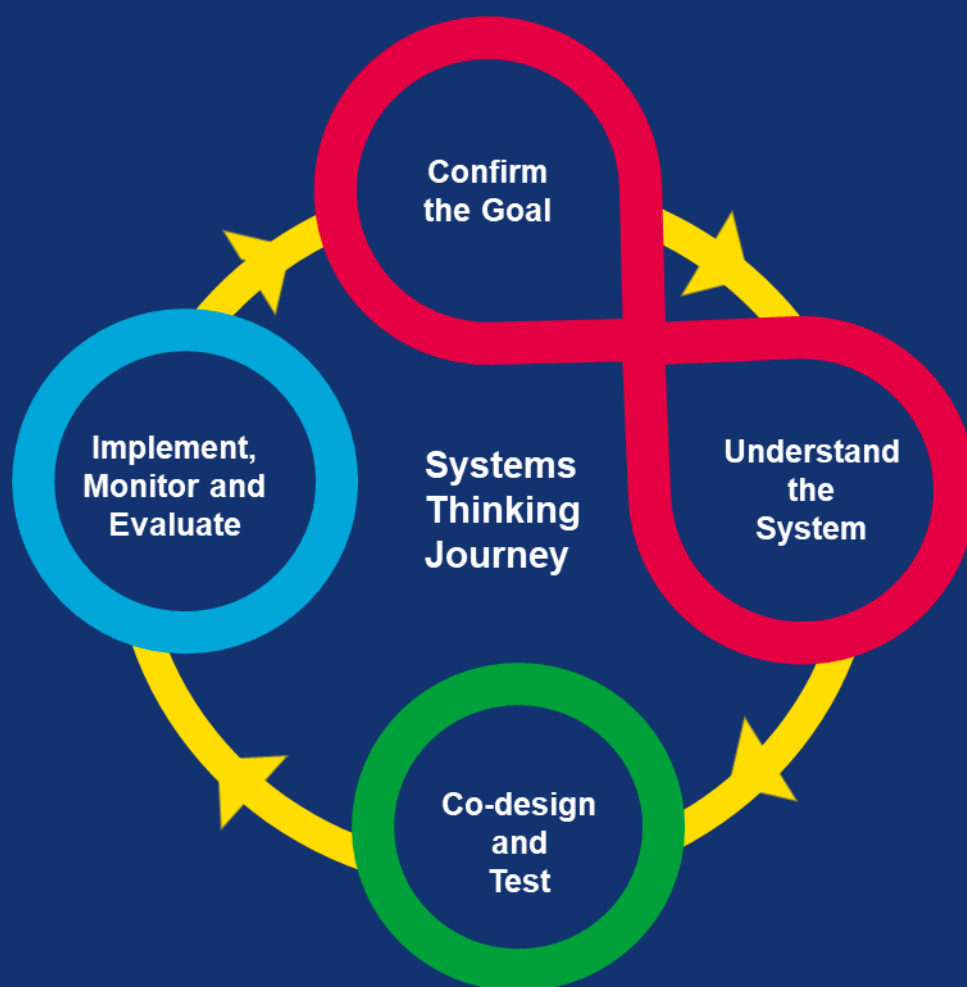







Government  
Office for Science

# Introduction to Systems Thinking for Civil Servants: Driving Improved Outcomes in Complex Situations



This introduction to systems thinking for civil servants is one component of a suite of documents that aim to act as a springboard into systems thinking for civil servants unfamiliar with this approach. In our documents we introduce a small sample of systems thinking concepts and tools, chosen due to their accessibility and alignment to civil service policy development, but which is by no means comprehensive. We hope this acts as a first step towards using systems thinking approaches to solve complex problems and we strongly encourage the reader to go on to explore the wider systems thinking field further.

		
<b>The Systems Thinking Journey</b>	<b>The Systems Thinking Toolkit</b>	<b>The Systems Thinking Case Study Bank</b>
<b>What:</b> Weaves systems thinking throughout the policy design process. Outlines how systems thinking complements existing guidance.	<b>What:</b> A step-by-step guide to 11 simple and accessible systems thinking tools. Includes illustrative examples and templates for each tool.	<b>What:</b> A collection of testimonials from a diverse group of civil servants across government.
<b>Who:</b> Designed as a first step into <b>understanding</b> Systems Thinking.	<b>Who:</b> Designed for those who want to <b>use</b> Systems Thinking.	<b>Who:</b> <b>Anyone</b> interested in examples of systems thinking in government.

## Why is systems thinking important for Civil Servants?

Government faces many challenges. Some of these are simple, where the objectives are clear, stakeholders' motivations align and possible solutions are relatively easily evaluated and implemented. However, many challenges, such as Levelling Up, can be difficult to define and understand, and ways of influencing them to improve outcomes are hard to design, evaluate and implement.

Such challenges and opportunities involve many people and organisations with competing priorities and have a bearing on many adjacent policy areas. **The success of an intervention often relies on collective action taken across boundaries.** No single individual, agency or department can tackle a complex problem alone. Nor should they have to. Civil servants need

different tools and approaches to deliver desired outcomes in these complex situations – a systems thinking approach.

### **Our systems thinking definitions:**

A system is a set of elements or parts interconnected in such a way that they produce their own pattern of behaviour over time. **Systems thinking is a framework for seeing the interconnections in a system and a discipline for seeing and understanding the whole system; the 'structures' that underlie complex situations.** It is a collection of tools and approaches that help support us in thinking systemically about our work. Systems thinking is particularly powerful when applied to complex systems. By creating simple models of complex systems, systems thinking can be a useful building block towards understanding and visualising data flows within a system. While data visualisation and frameworks are outside of the scope of these documents, useful resources are signposted in the Systems Thinking Toolkit.

### **What is a complex system?**

Complex systems behave in a way that is greater than the sum of their parts – you can't understand the system just by looking at individual elements, it needs to be studied as a whole. Likewise **in complex systems there are underlying patterns – feedback loops – which mean that it becomes difficult to relate cause to effect and actions to consequences.**

Examples of these kinds of systems are the human brain, weather, economies. But a lot of policymaking is also complex and attempts to understand and influence policy need to take this complexity into account. Thus systems thinking is increasingly being promoted as a key tool for policymakers to be aware of.

## What are systems thinking tools and when do I use them?



There are multiple systems thinking tools and approaches available to help you navigate and work effectively within a complex problem. The systems thinking toolkit includes eleven of these and signposts to many more. **The tools described in the toolkit were chosen for their accessibility to all civil servants with no need for prior knowledge of systems thinking to use them.**

The tools map to four stages for policy design for a complex problem, as shown in the figure above. This iterative cycle was developed to align in part to the current policy development process described in existing publications such as [HM Treasury's Green Book](#). This alignment aims to be helpful to civil servants in understanding when to use systems thinking in policy development.

The inner loop shows four stages that all feed into and effect each other in policy design for complex problems. Each policy design stage should feed into the next and the cycle should be treated as iterative, i.e. monitoring and evaluation should be considered when confirming your goals. The outer loop shows how the 11 tools in the toolkit are grouped to each policy design stage. The tools are mapped to the policy design stages to keep **systems thinking as accessible and rooted in language and stages that civil servants are familiar with.**

**How to know when systems thinking is the right approach:** Identifying if your work is complex, and therefore a systems thinking approach is appropriate, is explored below. On the right are statements typical of complex problems, on the left are statements typical of projects that may be complicated, but that are still likely to obey a linear cause and effect when it comes to making changes. As you consider the problem, the stakeholders, the predictability of the policy setting and your ambition, see if you relate more to the right or left hand side statements. This should help inform whether or not systems thinking is the right approach for you and your team.

The prompts below help you identify if your work is complex and therefore would especially benefit from a systems thinking approach (adapted from Systems Practice by Omidyar group). **Which of the statements in the boxes below are more true for your project?**

The problem is well understood. We know what causes it, and there is solid evidence that our proposed actions will have the intended effects.

The problem  
↔

We are not really sure we understand the problem, let alone the solution.

There is a high level of consensus among stakeholders and experts about what to do.

The stakeholders  
↔

There is a significant diversity of opinion and even conflict among stakeholders and experts about what to do.

The problem is relatively self-contained and not intertwined with its broader environment which is stable and predictable.

Predictability of policy setting  
↔

There are many diverse and dynamic interconnections between the problem and the broader environment which itself is unstable and dynamic (political, economic etc).

It is a short-term goal.

Ambition  
↔

We are aiming to make sustained change at a broad scale.

I can probably apply other approaches to this problem.

Add it all up – is systems thinking the right approach?  
↔

Systems thinking could be highly useful for helping my team grapple with this messy problem.

### Conclusion and next steps:

Complex systems are by their nature dynamic and continuously changing. It might take time before changes are observed. However, by **wrapping a systems thinking approach around existing processes – introducing new tools and approaches to improve what you already do – you will increase the chance of delivering the right solution to the right problem.** You will have created a safety net to steward the system effectively and impactfully within this complexity to create intelligent, empathetic and impactful outcomes.

We hope this document has introduced you to what systems thinking is and when to use it. We now encourage you to **explore the other documents on systems thinking published by the Government Office for Science** which are outlined at the start of this document. These will help you deepen your understanding of key systems thinking concepts (The Systems Thinking Journey), introduce you to other systems thinking practitioners across government (The Case Study Bank) and help you use accessible systems thinking tools (The Systems Thinking Toolkit).