Workshop 1 - Purpose and Building Blocks

25 May 2021 – 1000-1300 CET (0900-1200 BST)

Triple Access Planning
for Uncertain Futures

Introductions and scene setting
1000-1015

Purpose of the workshop series
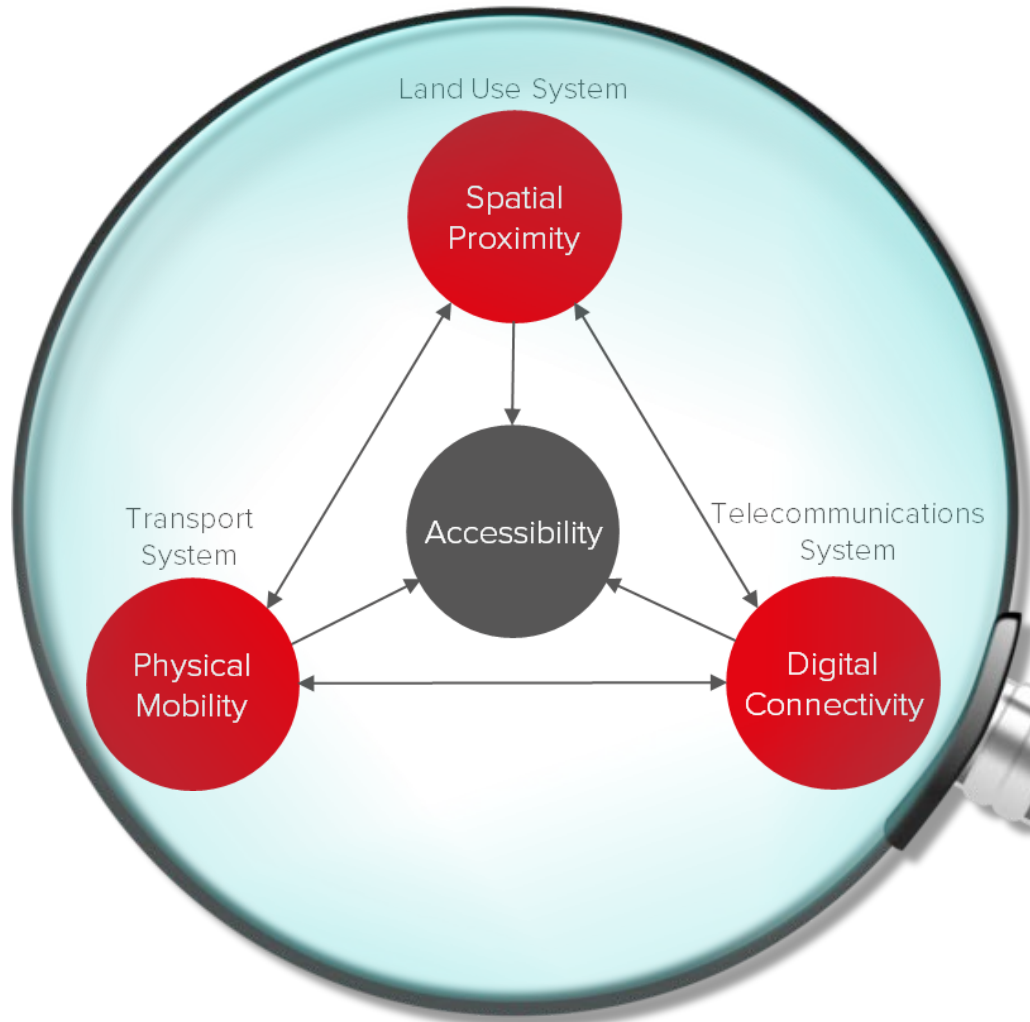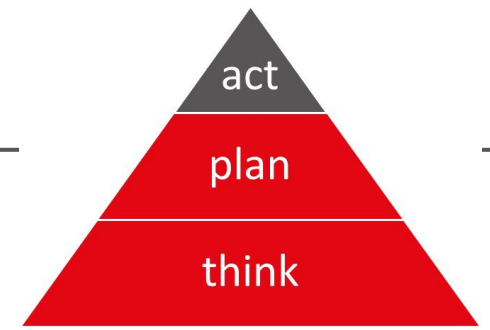
- *Thinking* together about the Triple Access System

- Developing a deeper appreciation and understanding of the *variables* affecting triple access and the *links* between them

- Producing a representation of the system of systems as a Causal Loop Diagram

Workshop series overview

Number	Title	Date	Time
1	Purpose and building blocks	25 May	1000-1300 CET
2	Access requiring spatial proximity	8 June	1000-1300 CET
3	Access requiring digital connectivity	15 June	1000-1300 CET
4	Access requiring physical mobility	22 June	1400-1500 CET
5	System of systems	29 June	1000-1300 CET

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Agenda (1000-1300 CET)

1000	**Introductions and scene setting**
1015	**Introduction to soft systems thinking and Causal Loop Diagrams**
1040	**Clarifying our focal question**
1120	**Break**
1140	**Identifying key variables relevant to the focal question**
1220	**Reflecting on the variables and their clarity of definition**
1250	**Next steps**
1300	**Close**

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Terms of engagement

- Be active not passive (this is a *work*shop!) – ensure your views are captured
- Listening (not just hearing) is important as well as talking
- Keep an open mind and beware of unconscious biases
- Do challenge but in a constructive manner
- Allow yourself to be facilitated
- Highlight ambiguity but don't seek perfection
- Please respect the Chatham House Rule
- Have fun

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Introductions icebreaker

# Introduction to soft systems thinking and Causal Loop Diagrams
1015-1040
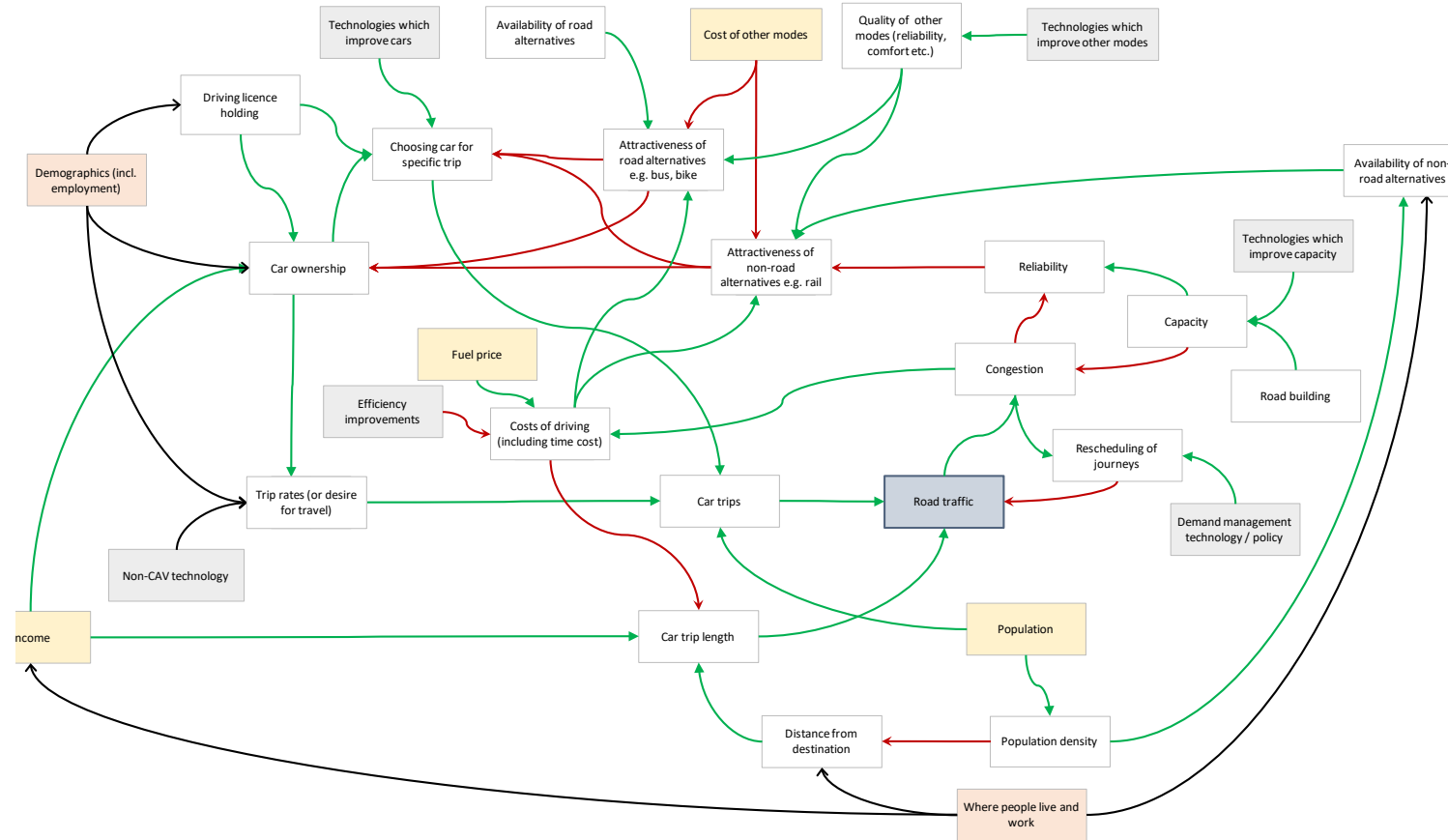
SYSTEMS THINKING – A SIMPLE, BUT POWERFUL TOOL FOR UNDERSTANDING COMPLEXITY

ADAM JONES

DfT

Who ARE We?

- **Adam Jones** (Operational Research, DfT). I lead a cross-government Systems Thinking Interest Group (STIG) with the following goals:

- 1. **Awareness** - To increase awareness of Systems Thinking across central government. Make Systems Thinking a fundamental 'Go-To' approach that decision makers in government expect to see

- 2. **Capability** - To increase the number of technical practitioners and facilitators in the Government Operational Research Service (GORS) and beyond

- 3. **Network** - To create a forum where one can share (or ask for) advice and experiences on best practice of applications of Systems Thinking

- I work with Cabinet Office's Systems Unit to develop the Journey - guidance for policy makers on how to bring systems thinking into their work.
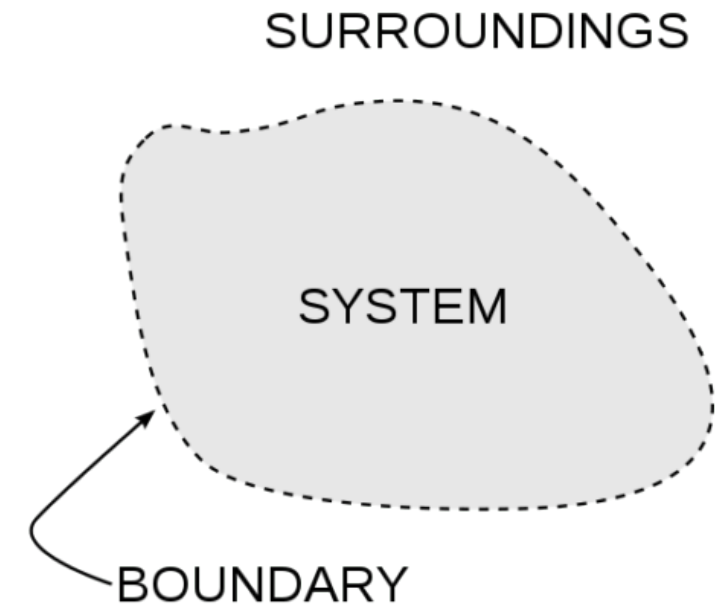
WHAT IS A SYSTEM?

SURROUNDINGS

SYSTEM

BOUNDARY
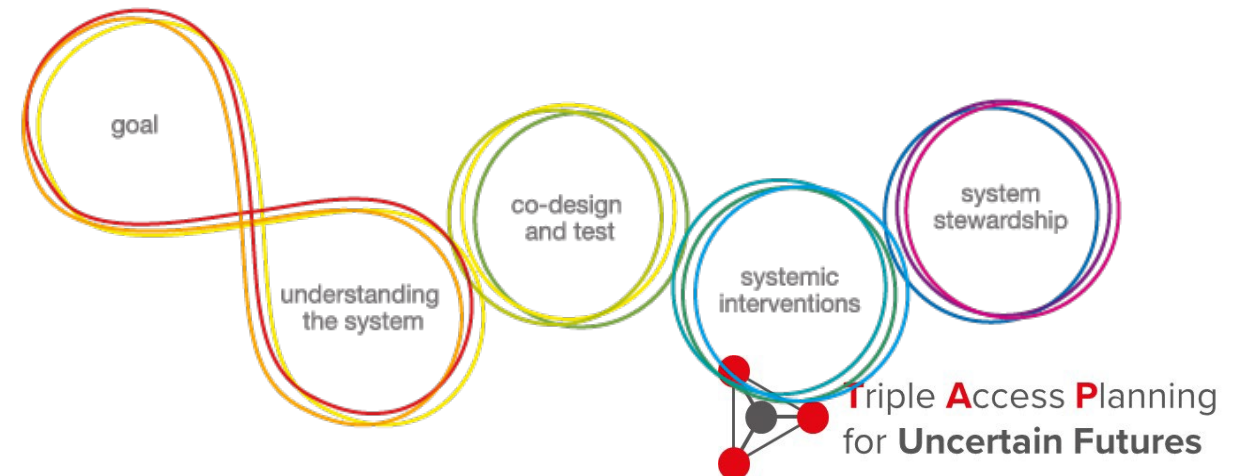
- *'A system is a set of elements or parts interconnected in such a way that they produce their own pattern of behaviour over time'* - Donella Meadows
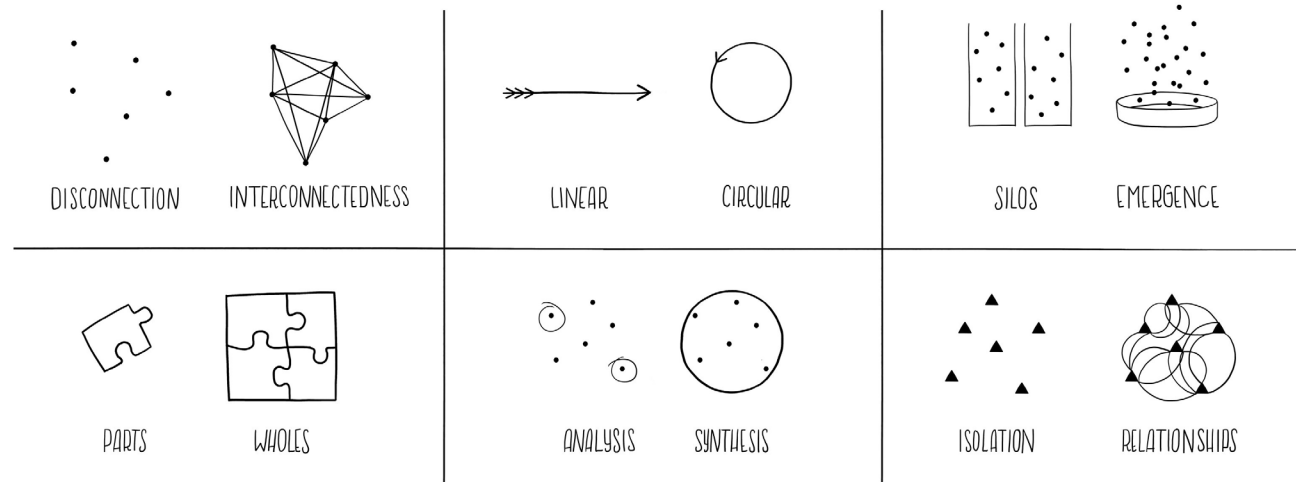
A system

- Does something

- Is connected

- Is interdependent

- Involves people

- Is dynamic

- Is complex

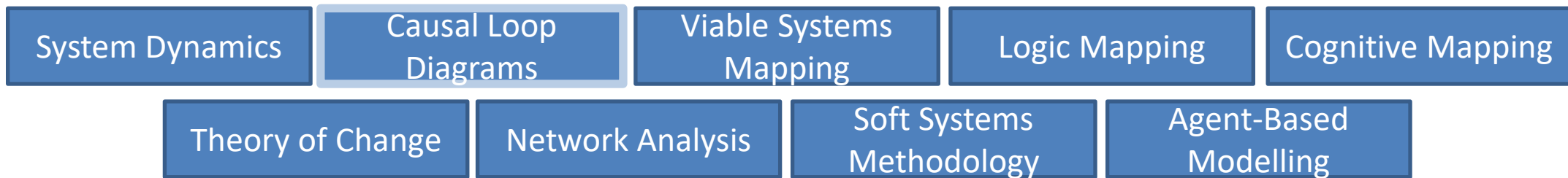- Is influenced by its environment

- Is a mental model!

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WHAT IS SYSTEMS THINKING?

- *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.*

SYSTEMS THINKING – APPROACHES & TOOLS

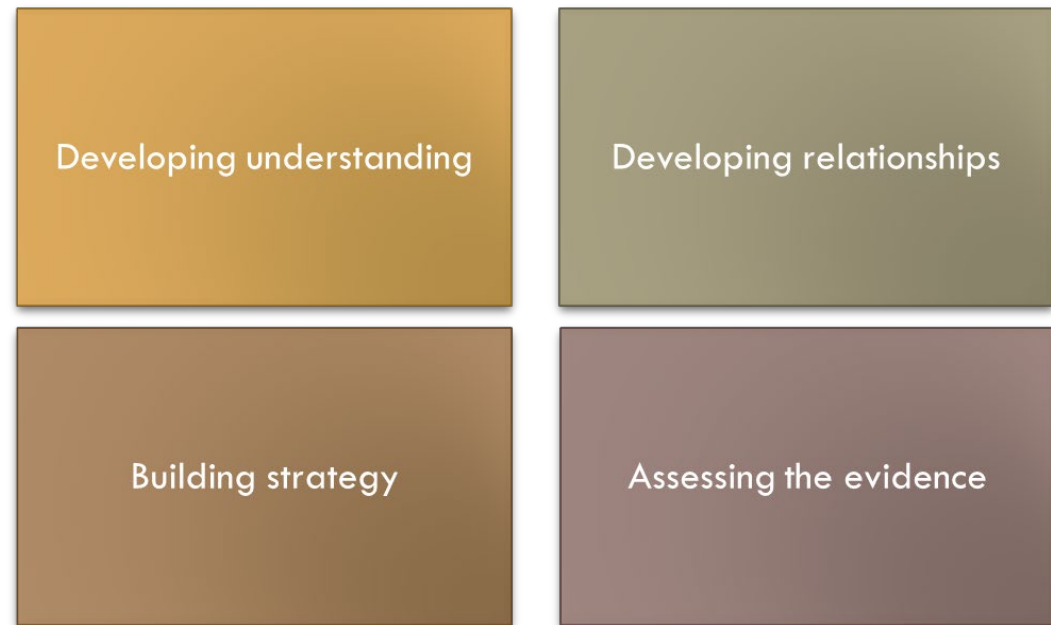- - Term covers a broad range of approaches, concepts and tools

System Dynamics	Causal Loop Diagrams	Viable Systems Mapping	Logic Mapping	Cognitive Mapping
	Theory of Change	Network Analysis	Soft Systems Methodology	Agent-Based Modelling

- - Focus on Causal Loop Diagrams today

- - Part of "soft OR"

- - Involves people – facilitation skills important

Events

Patterns

Structure

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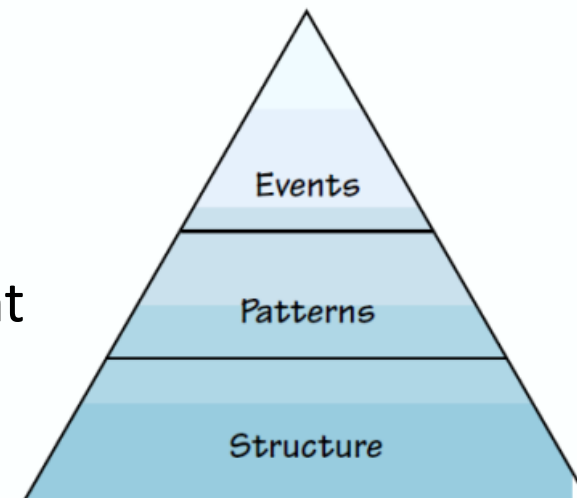
Why CAUSAL LOOP DIAGRAMS?

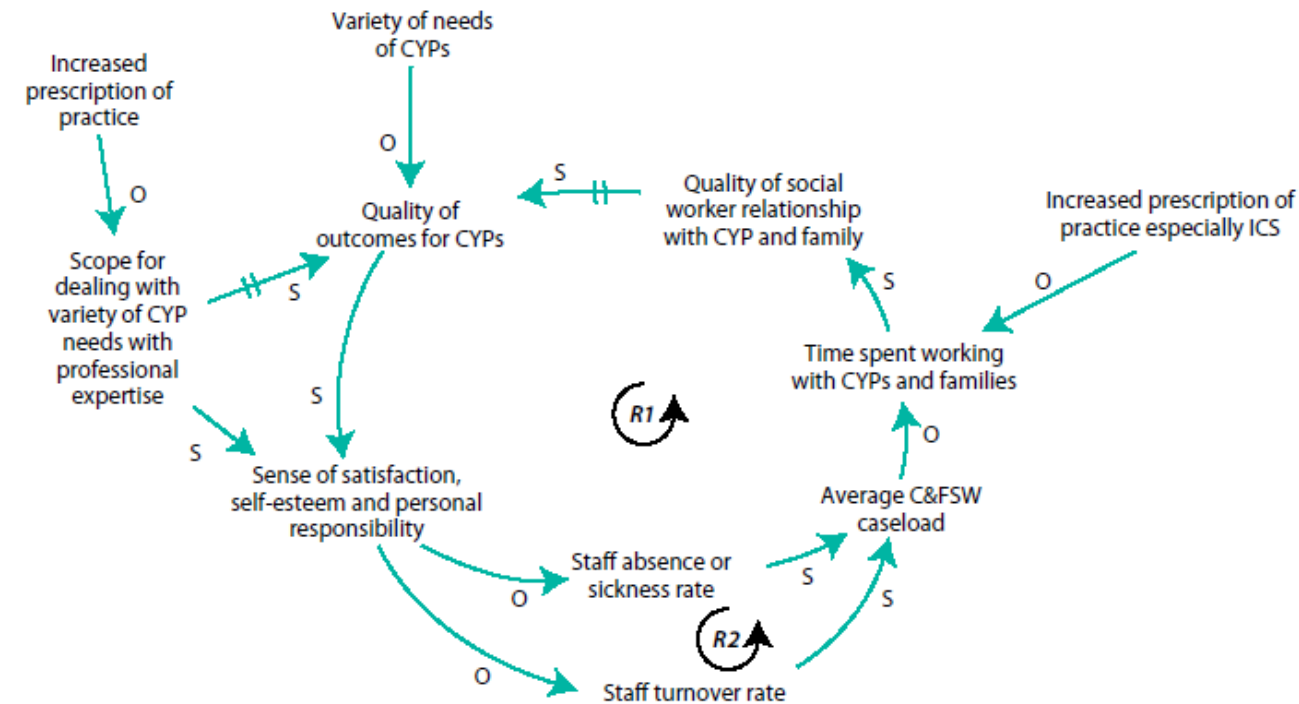- **1. Helps you <u>visualise</u> the relationships you already know (and have researched)**
- **2. Can <u>identify</u> feedback loops and unintended consequences**
- **3. Aids the <u>prioritisation of research </u>(what are the critical things we don't know enough about?)**

Developing understanding	Developing relationships
Building strategy	Assessing the evidence

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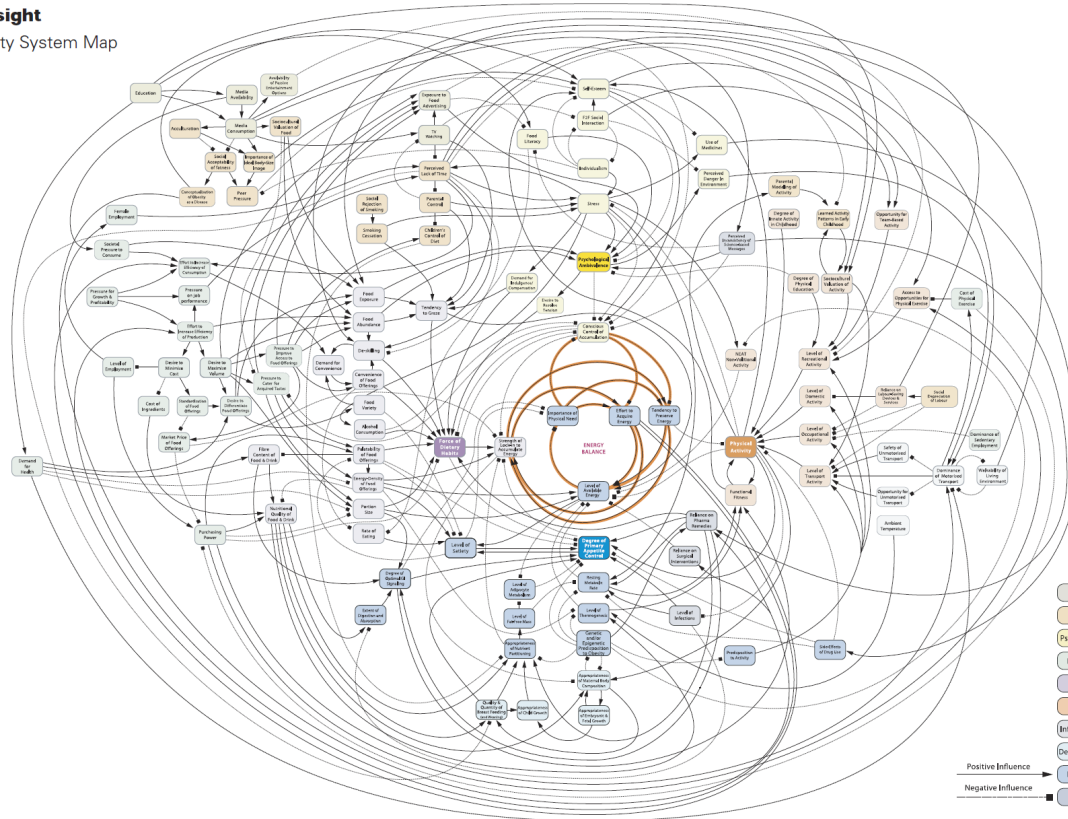# EXAMPLE – THE MUNRO REVIEW OF CHILD PROTECTION

Causal Loop Diagram exploring systemic impact of efforts to improve social work through increased prescription of practice

Developed in collaboration with Dr David Lane, London School of Economics and Political Science.
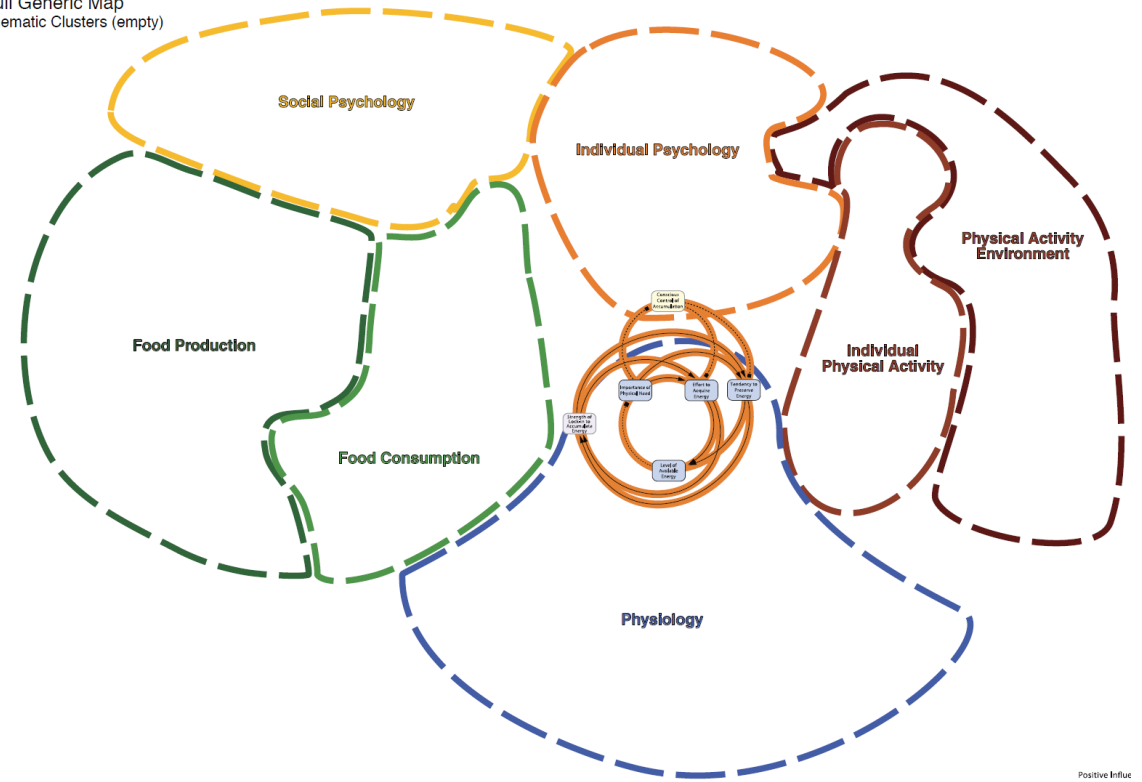
https://www.gov.uk/government/publications/munro-review-of-child-protection-final-report-a-child-centred-system

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EXAMPLE – FORESIGHT OBESITY SYSTEM MAP

https://www.gov.uk/government/publications/reducing-obesity-obesity-system-map

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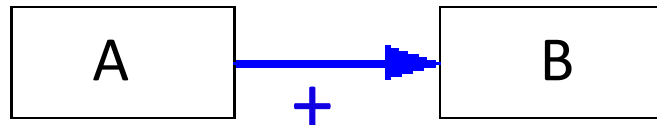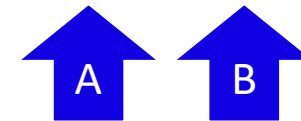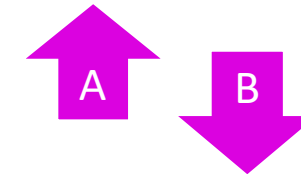
causal loop diagrams - NOTATION

A

Factor – this needs to be something that can increase or decrease. Use nouns not verbs.

A —+→ B

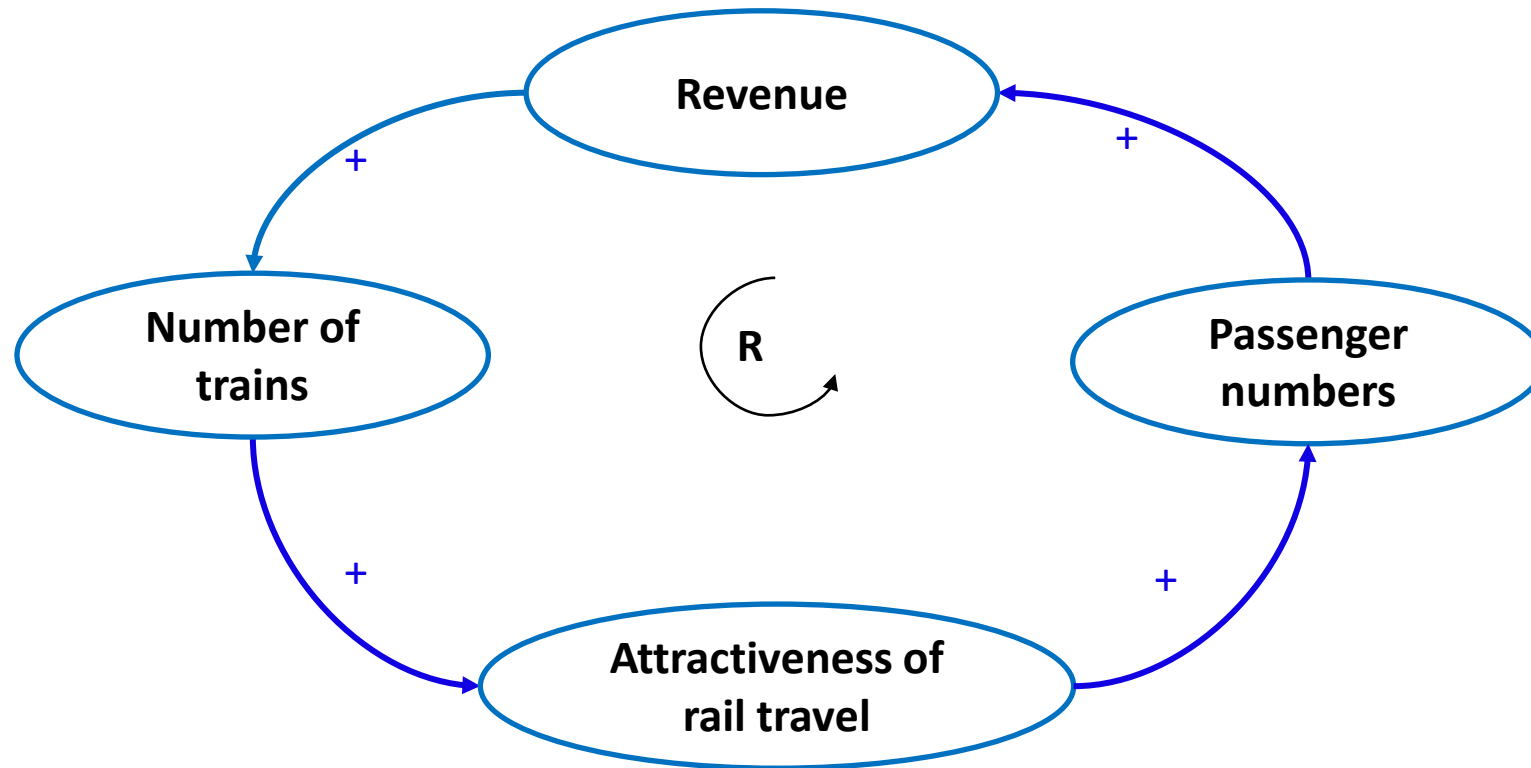Positive (same direction) relationship
As A increases, B increases

A ↑ B ↑

A —-→ B

Negative (opposite direction) relationship
As A increases, B decreases

A ↑ B ↓

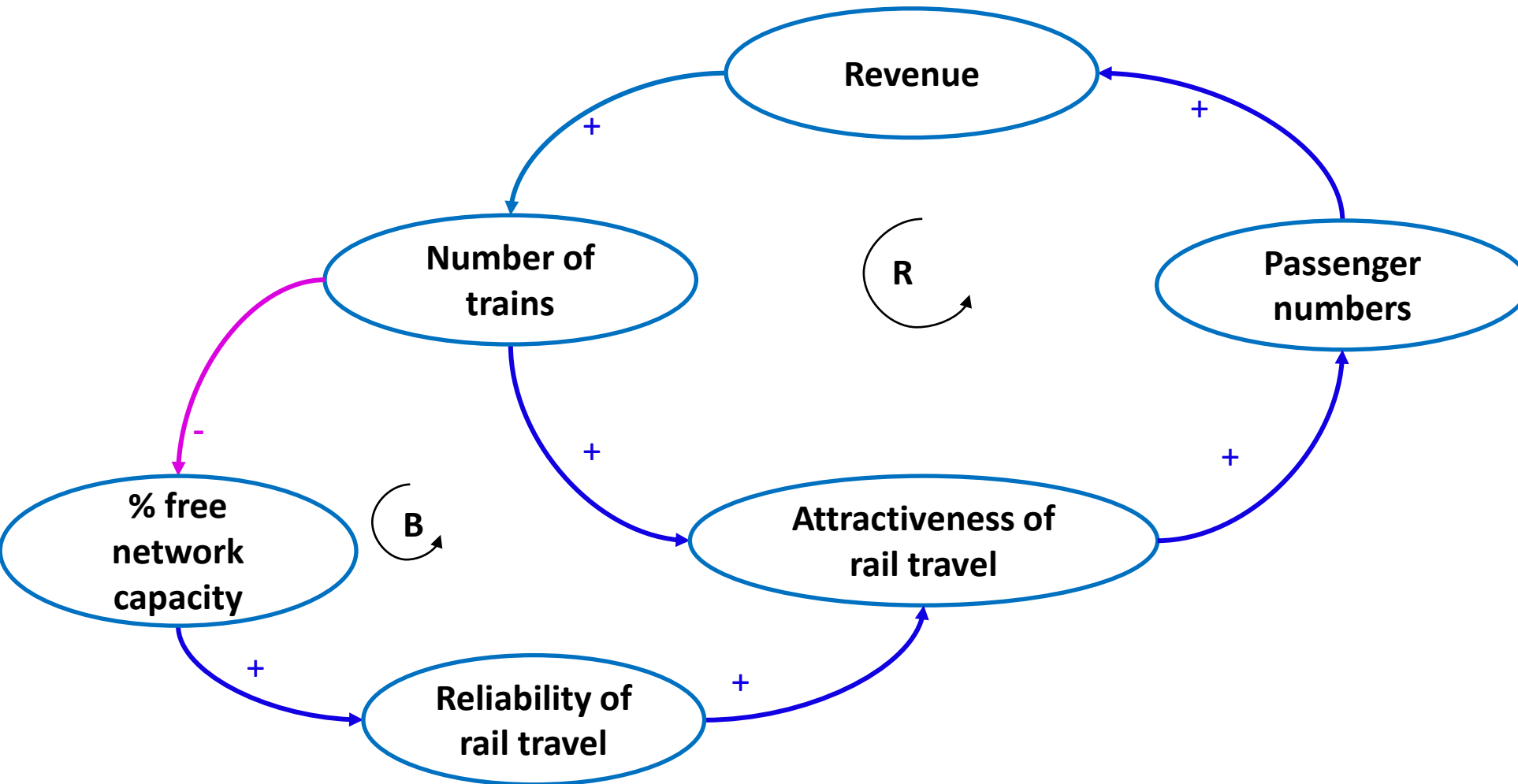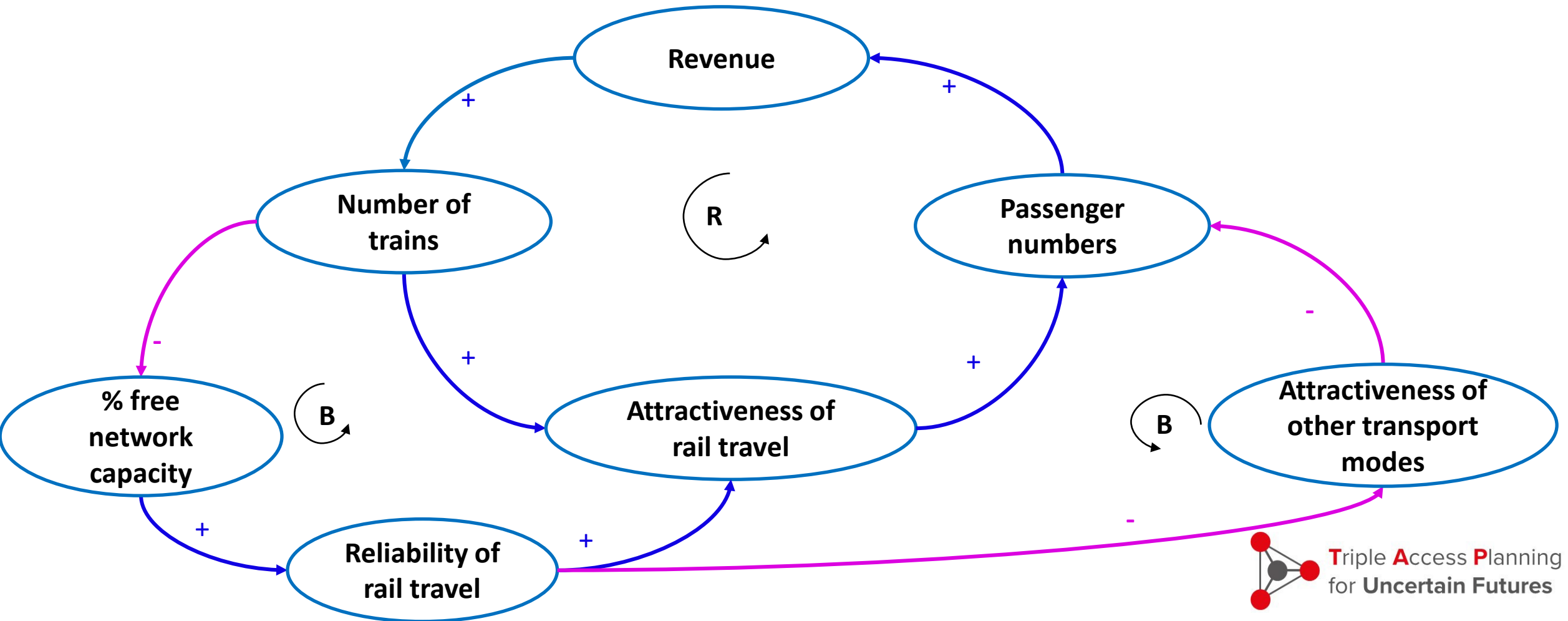Triple Access Planning
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A simple example of a causal loop diagram
What Drives Revenue for a Rail Company?

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A simple example of a causal loop diagram
## *What Drives Revenue for a Rail Company?*

WORKSHOP: create a causal loop diagram
What are the key factors and interdependencies influencing the demand for public transport as the UK emerges from lockdown?

➢ What are the factors? Causes? Effects?

➢ How do they link?
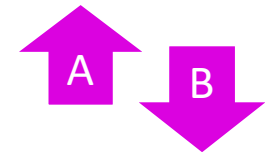
➢ Are there any loops?

A

Factor – this needs to be something that can increase or decrease. Use nouns not verbs.

A ——+——→ B

Positive (same direction) relationship
As A increases, B increases

A ——–——→ B
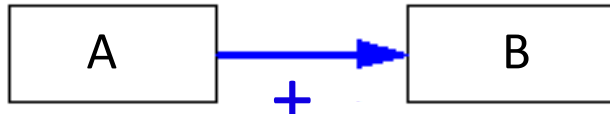
Negative (opposite direction) relationship
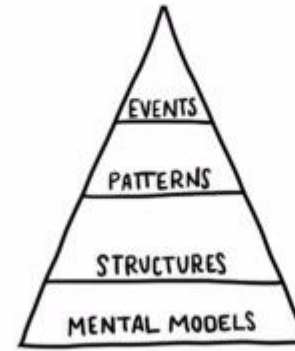As A increases, B decreases

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Any Questions?

TYPES OF SYSTEM MAPPING
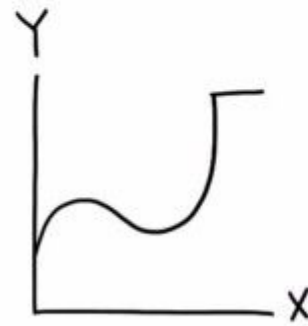
BEHAVIOUR OVER TIME GRAPHS

ICEBERG MODEL
- EVENTS
- PATTERNS
- STRUCTURES
- MENTAL MODELS
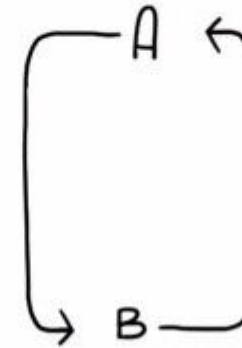
CAUSAL LOOP DIAGRAMS

CONNECTED CIRCLES
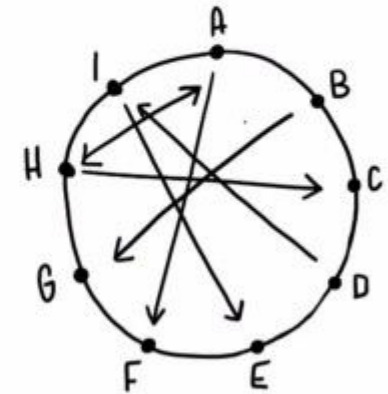
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Further insights

(from Adam Jones and Charles Featherstone – with my responsibility for any misrepresentation)

- Look for decoupling points – it becomes easier to manage (aligns with our TAP model)
- Isolatability of sub-systems (which may not be those we start with) can be revealing
- Note the distinction between a single 'truth' and multiple representations of a system
- Important to understand the framing that different individuals may adopt (underlines value of clarity of focal question)
- Recognise the distinction between variables and the system structure – assuming the latter is rigid may limit capacity to imagine plausible future system states
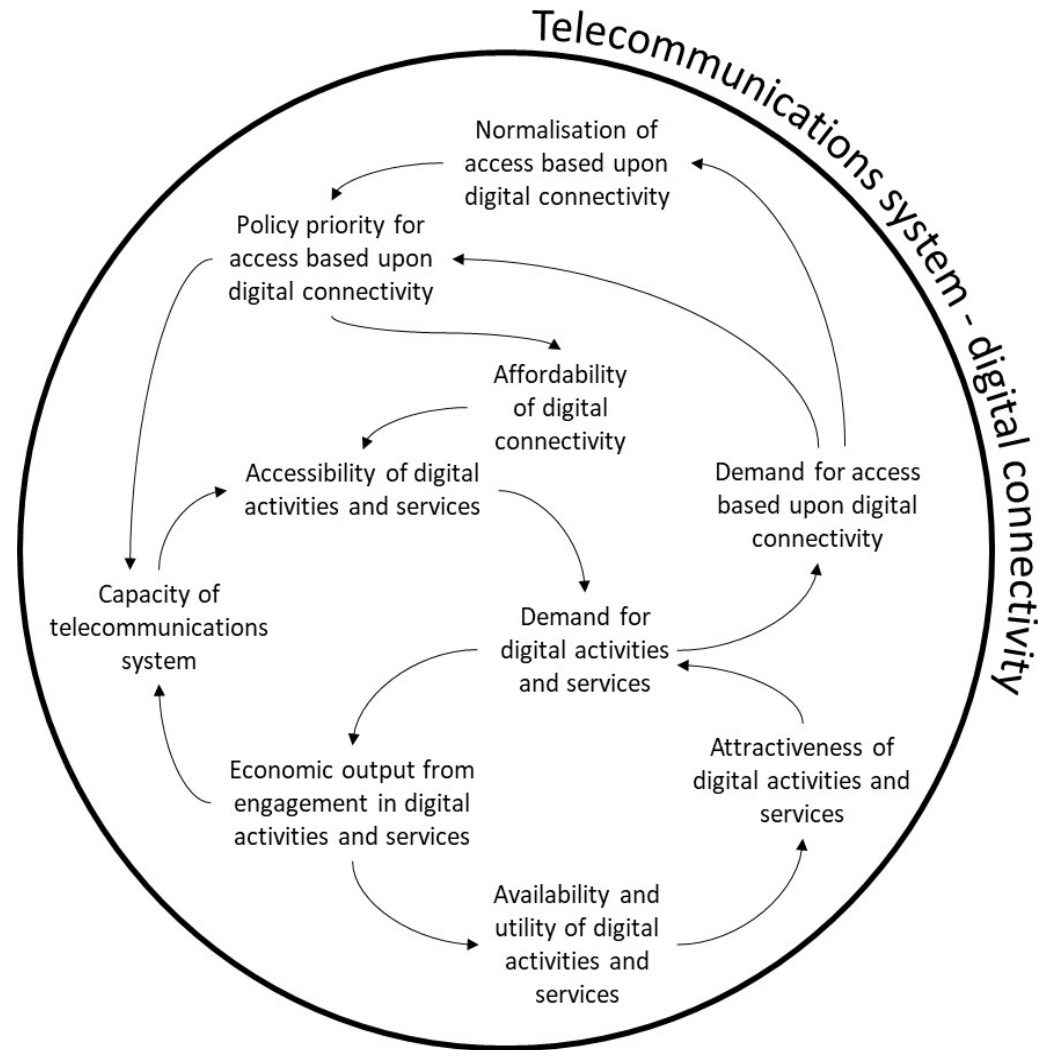- Take care to distinguish between ambiguity and uncertainty
- Doing any systems thinking is better than doing none at all – don't let perfect get in the way of good; don't try to be 'clever' for the sake of it
- It can be a fine balance between why systems thinking is valuable and why it has limitations
- (Starting with systems thinking for scenarios development may narrow the initial field of view which is a risk to more fully exposing uncertainty)

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Indicative sub-system Causal Loop Diagram for TAS

Telecommunications system - digital connectivity

Normalisation of access based upon digital connectivity

Policy priority for access based upon digital connectivity

Affordability of digital connectivity

Accessibility of digital activities and services

Demand for access based upon digital connectivity

Capacity of telecommunications system

Demand for digital activities and services

Economic output from engagement in digital activities and services

Attractiveness of digital activities and services

Availability and utility of digital activities and services

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Clarifying our focal question
1040-1120

An initial proposition...

What affects the way demand for access changes in an urban area (in a post-COVID world facing a climate emergency)?

Compare with earlier example: "What are the key factors and interdependencies influencing the demand for public transport as the UK emerges from lockdown?"
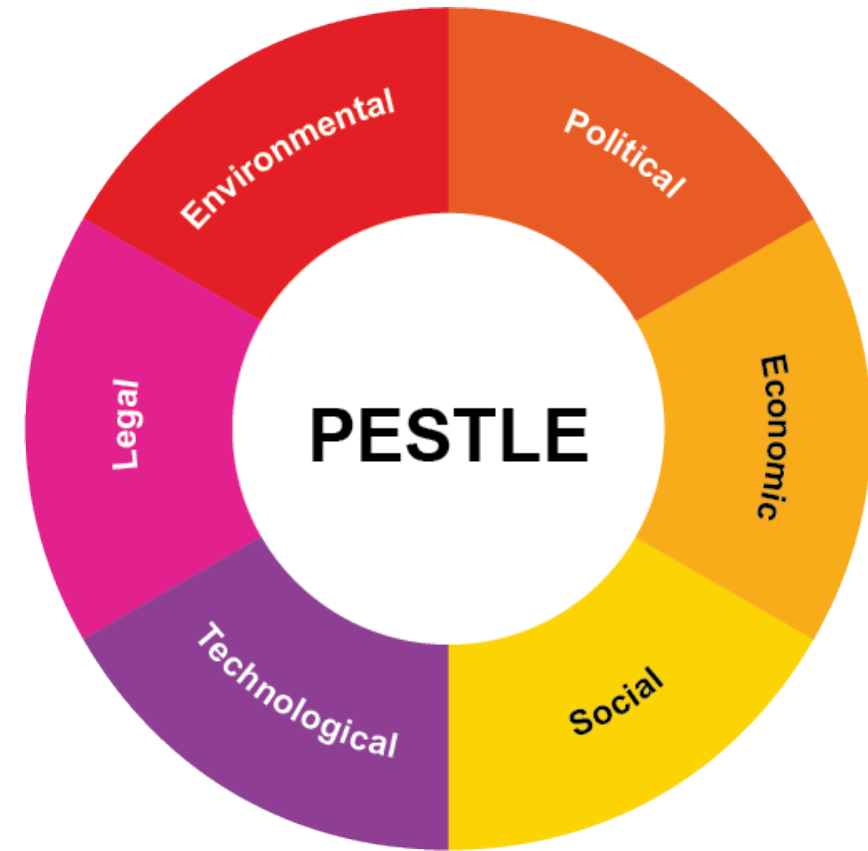
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Reflective thoughts on the focal question

Break
1120-1140

Identifying the key variables relevant to the focal question
1140-1220

Identifying candidate variables

PESTLE

- Think Transport, Land use, Telecommunications
- Think PESTLE
- Think laterally
- Remember variables are nouns which can go up or down
- Ambiguous variables are unhelpful

- Breakout groups – automatically transferred
- Each group has its own space to work in Miro
- Participants to create attributable post-it variables
- Groups to sense check their work
- Plenary feedback and discussion

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Reflecting on the variables and their clarity of definition
1220-1250

Close – THANK YOU!