Introduction to Systems Thinking

What is it?

Systems thinking – in simple terms – is a way of looking at things in terms of the connections between concepts, rather than the concept or thing itself.

For example, **applying a 'systems lens'** to a forest means you are examining how the trees, animal, soil, and weather work together to create the ecosystem of that place. It's about **seeing the connections and relationships between different elements** rather than just looking at each one (e.g. a tree) in isolation from the things around it.

Systems thinking is a way in which we can think through and understand complex problems. It challenges us to consider the range of factors (helpful and unhelpful) that occur within a place or a context, and what we can do about it. It's about recognising that complexity is driven by a network of influences, and that rarely will the solution come down to a single factor.

Conversely, traditional forms of analysis use a reductionist or mechanistic approach to understanding problems. In simple terms, it's about deconstructing a problem into its individual parts and analysing it in isolation from the system.

A common example is to fix traffic congestion through adding more lanes to a road. While it is a logical approach, it does not consider the other factors that both influence car use behaviour, but also the flow-on impacts (e.g. environmental) from the addition of those lanes.

Systems thinking is a mindset. This means that there are many different tools and approaches that can be used to apply it. One of these is Causal Loop Diagrams (CLDs), which visually represents the cause-and-effect relationships within a system.

Causal Loop Diagrams

CLDs is both a process and a product that results in a visual representation of how different elements within a system influence each other. They typically centre around a particular 'focus' – usually a question, problem, or opportunity. They consist of different elements (a circle) that represents a factor, and then arrows that indicate the direction of influence. Factors can both be influenced, and influence other factors.

Typically, in a CLD each connection is framed as 'increasing' or 'decreasing' the next element. For example:
· *Increasing the number of lanes on a road decreases the commute time*
· *Decreased commute time means increased time with family*
· *Increased time with family increases social connectedness.*

This is one 'thread' within a CLD. Each factor above will have other connections influencing them, and influence others. Our goal is to work together to develop our understanding of how systems behaviour.

By developing them collaboratively, we can build a shared understanding of the bigger picture that results in particular outcomes. This then allows for greater strategic planning, and modelling of the potential impacts that result from our interventions, and the flow-on effects throughout the rest of the system.