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# **Tackling complexity using interlinked thinking: well-being as a case study**

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## Abstract

The world today is made up of a series of highly interconnected complex systems characterised by uncertainty. Human minds struggle with complexity, and the tools available to help us are limited. This often leads to reductionism, focusing on the parts rather than the whole. Working with individual parts ignores the dynamics that result from interdependencies between components. It is these interactions that determine the behaviour we experience in real world situations. This dissertation presents 'interlinked thinking' as a communication and analytical approach to help people work with, rather than ignore, complexity. It aims to build understanding of feedback loops and systems in a way that does not require expert modelling skills. It is a participatory process that allows people not familiar with systems thinking to have a structured dialogue on how components interrelate, and share their mental models. Links between components are debated and decided on in a workshop session. The resultant causal loop diagrams are transcribed to a matrix and an algorithm run to analyse the links in the system.

The interlinked thinking method was tested using three case studies to answer the principal research question: *Does understanding the relationships between indicators add value and progress sustainable well-being?* Well-being is multi-dimensional, and the complex behaviour of the well-being system does not come from individual indicators but from the interrelationships between indicators and resultant feedback loops. Participants who applied interlinked thinking confirmed value was gained from: (1) increased understanding of the indicators in the system; (2) more visible relationships; (3) expanding the toolkit to work with complexity; (4) an increased ability to bring important issues to the attention of decision-makers; (5) consideration of intervention impacts; and (6) encouraging integrated thinking.

Interlinked thinking can be replicated and used in any situation where having a better understanding of interconnectedness is important but time, resources, and modelling skills are limited.

Key words: interlinked thinking; systems thinking; sustainable well-being; causal loop diagrams; complexity; interconnected; feedback loops; mental model

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<sup>1</sup> Turkish proverb

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## Glossary

<b>Abbreviation</b>	<b>In Full</b>
ANS	Adjusted Net Savings
BRAINPOoL	Bringing Alternative Indicators into Policy
DGPI	Dynamic Genuine Progress Indicator
FEEM SI	Fondazione Eni Enrico Mattei Sustainability Index
GDP	Gross Domestic Product
GHG	Greenhouse gases
GNH	Gross National Happiness
GNP	Gross National Product
HDI	Human Development Index
HPI	Happy Planet Index
Hshld	Household
MSD	Ministry of Social Development
OECD	Organisation for Economic Co-operation and Development
PCA	Principal component analysis
PSM	Participatory Systems Mapping
QoL	Quality of Life
SNZ	Statistics New Zealand
SP2	Sustainable Pathways 2
SR	Social Report
SUPERU	Social Policy Evaluation and Research Unit
TNS	The Natural Step
UNDP	United Nations Development Program
WCED	World Commission on Environment and Development
WR	Wellington region
WR-GPI	Wellington Region Genuine Progress Index
WRS	Wellington Regional Strategy