

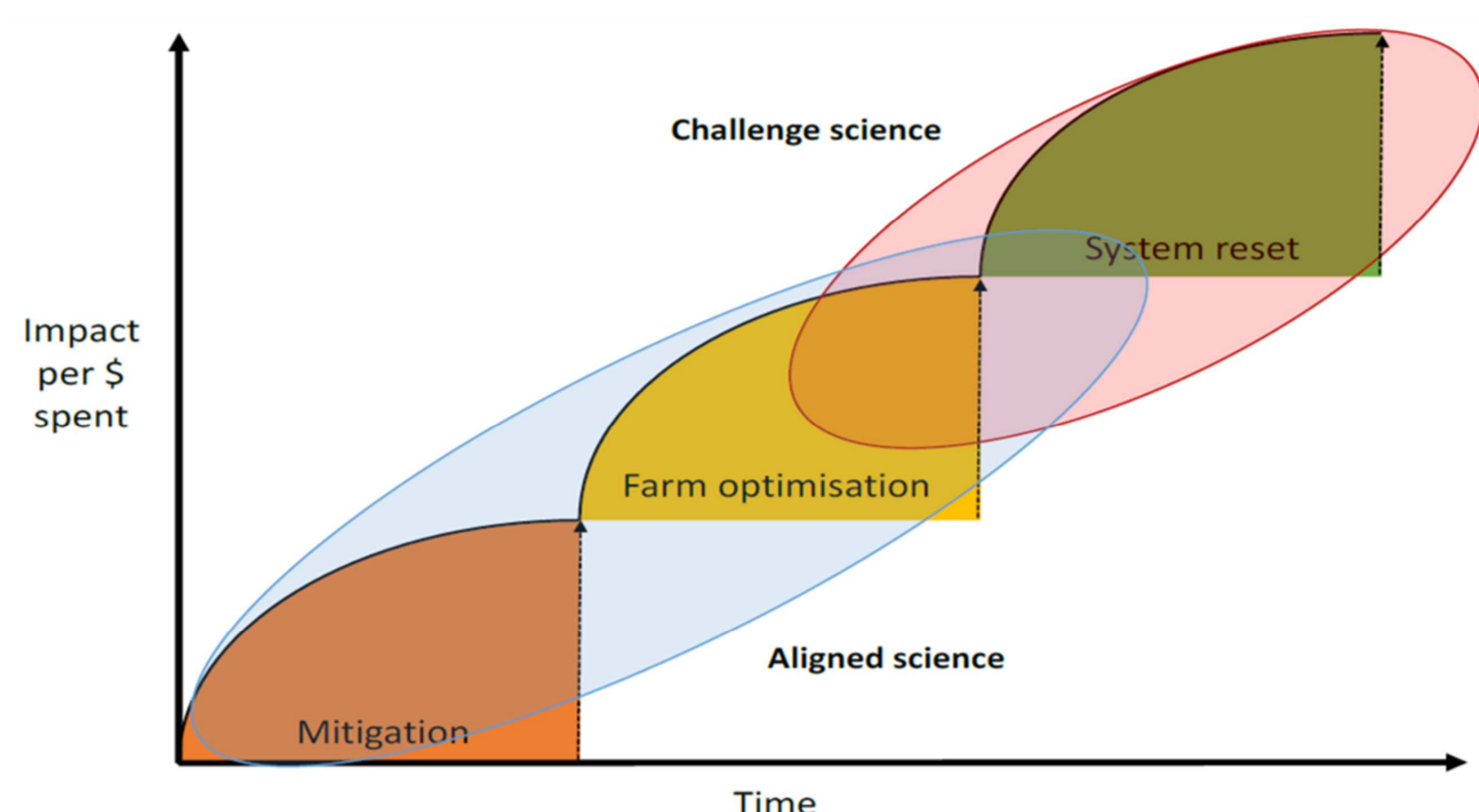
Next Generation Farming Systems - Transformation by Design

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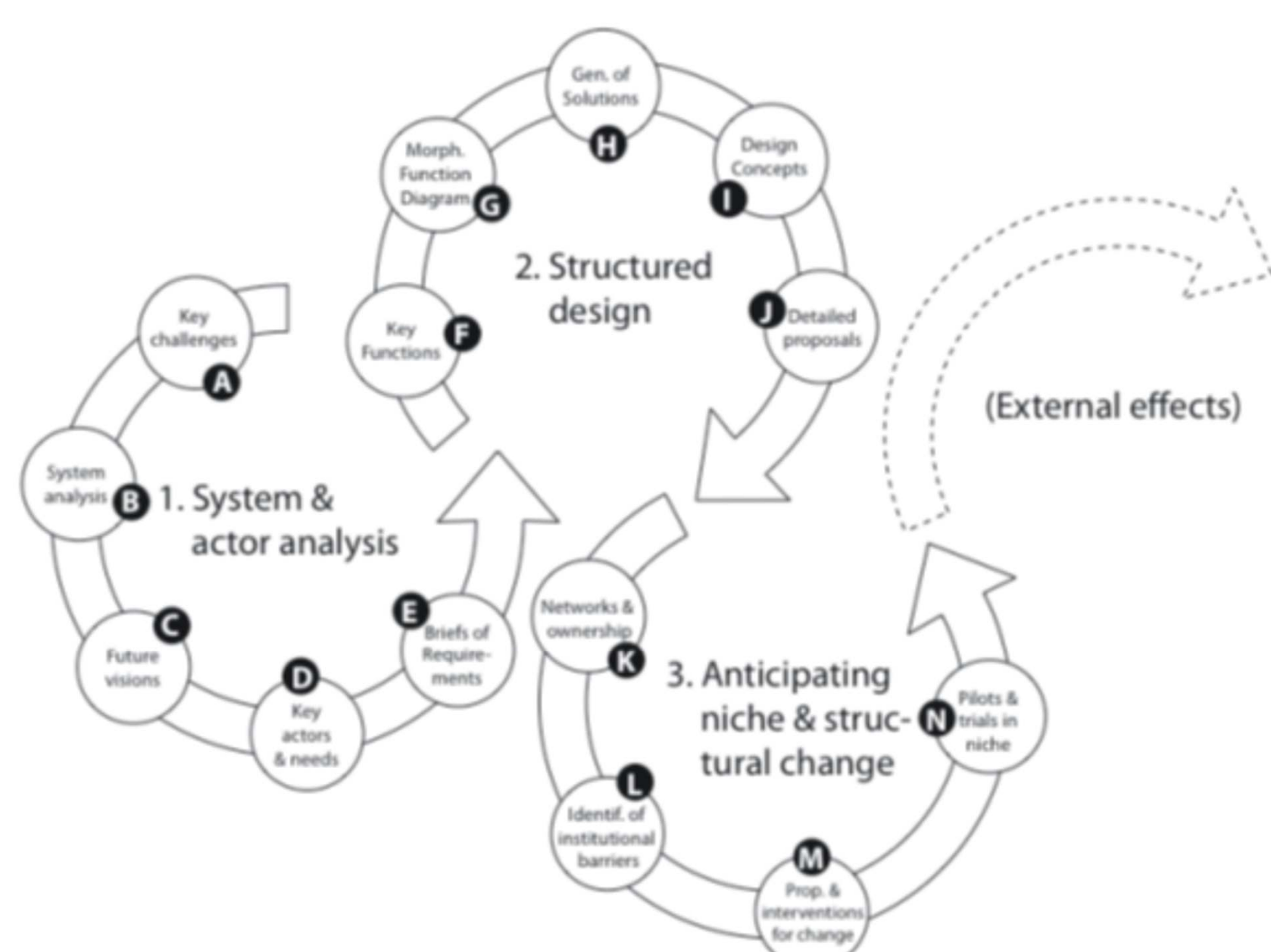
Introduction

- Primary Production sector exports are a critical part of the NZ economy. Production has grown significantly in the last 25 years – mainly through land use intensification.
- The environmental impact of agriculture has also grown. There is increasing public pressure on New Zealand's agricultural sectors to substantially reduce their environmental footprint, especially with respect to water quality.
- There is an increasing focus on driving efficiency gains in agricultural production systems but 'business as usual' approaches will not deliver the magnitude of change demanded.
- More ambitious, transformational change is required = "Next Generation Systems" (NGS).

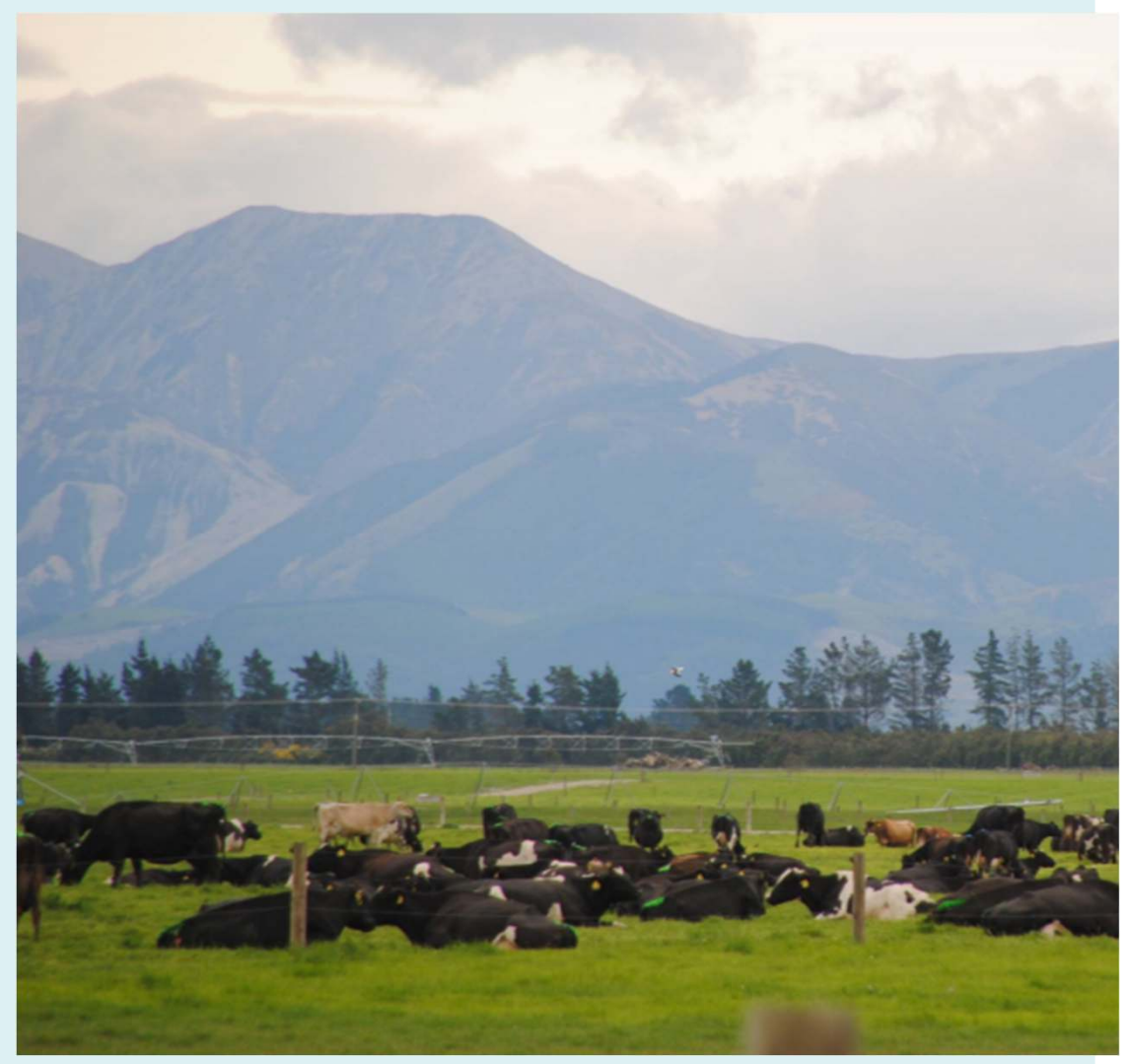



Approach

- "Reflexive Interactive Design (RIO)" framework (Bos et al. 2009) was used to guide our development of partnerships with a number of entities, ranging from small family-owned farms to Māori trusts and large corporates.
- Multi-Criteria Decision-Making workshops were held to identify challenges, values and aspirations (see Dynes et al. 2019, this conference). This provided the information for Phase 1, Stages A-E of the RIO framework.



Case Study

Key Challenges (1A)	<ul style="list-style-type: none"> Large corporate farmer established 800-cow dairy farm on 'leaky' soils in a sensitive catchment ~5 years ago. Recently recognised current estimated nitrogen leaching levels are in excess of ecosystem health standards and inconsistent with company values. Knowledge that farm system optimisation will be inadequate to sufficiently reduce nitrogen leaching. Desire to explore 'new thinking' and appetite for transformational change. Workshop with company staff, agricultural scientists and innovative thinkers to develop 'visions' of possible future land use options. 
Future Vision (1C)	<ul style="list-style-type: none"> Even with a diverse group of people, there was consistency in the visions developed in the workshop. Possible futures were much more complex than current agricultural systems, with multiple interlinked enterprises. 
Generation of Solutions (2H)	<ul style="list-style-type: none"> The outputs from workshops were collated to develop a 'long list' of potential new enterprise elements (2H). Senior management then prioritised the list of options, identifying candidates for further investment (2I) Three projects currently underway: Agroforestry, Aquaculture and People Capability (2J)

Conclusions

Support for farmers making transformational changes is critical to accelerate and de-risk the process.

The RIO framework is a useful tool to guide the process of identifying challenges, values and aspirations as well as in developing and assessing options

Long-term, trusted relationships between farmers and experts from multiple disciplines (3K) will be critical to successful agricultural transformation.

Acknowledgements

We are very grateful for the commitment and thoughtful input of many farmers, agribusiness professionals and scientists from multiple disciplines.