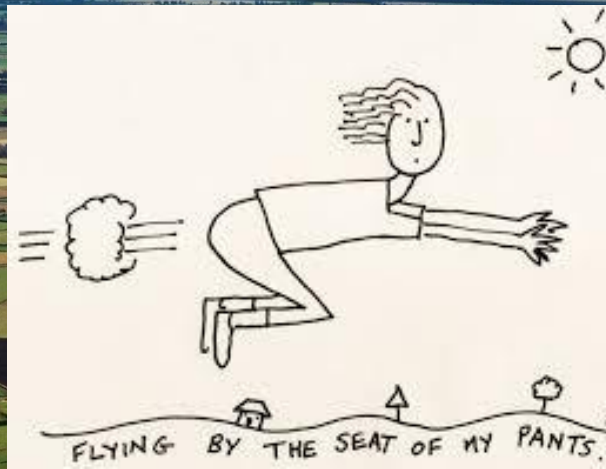
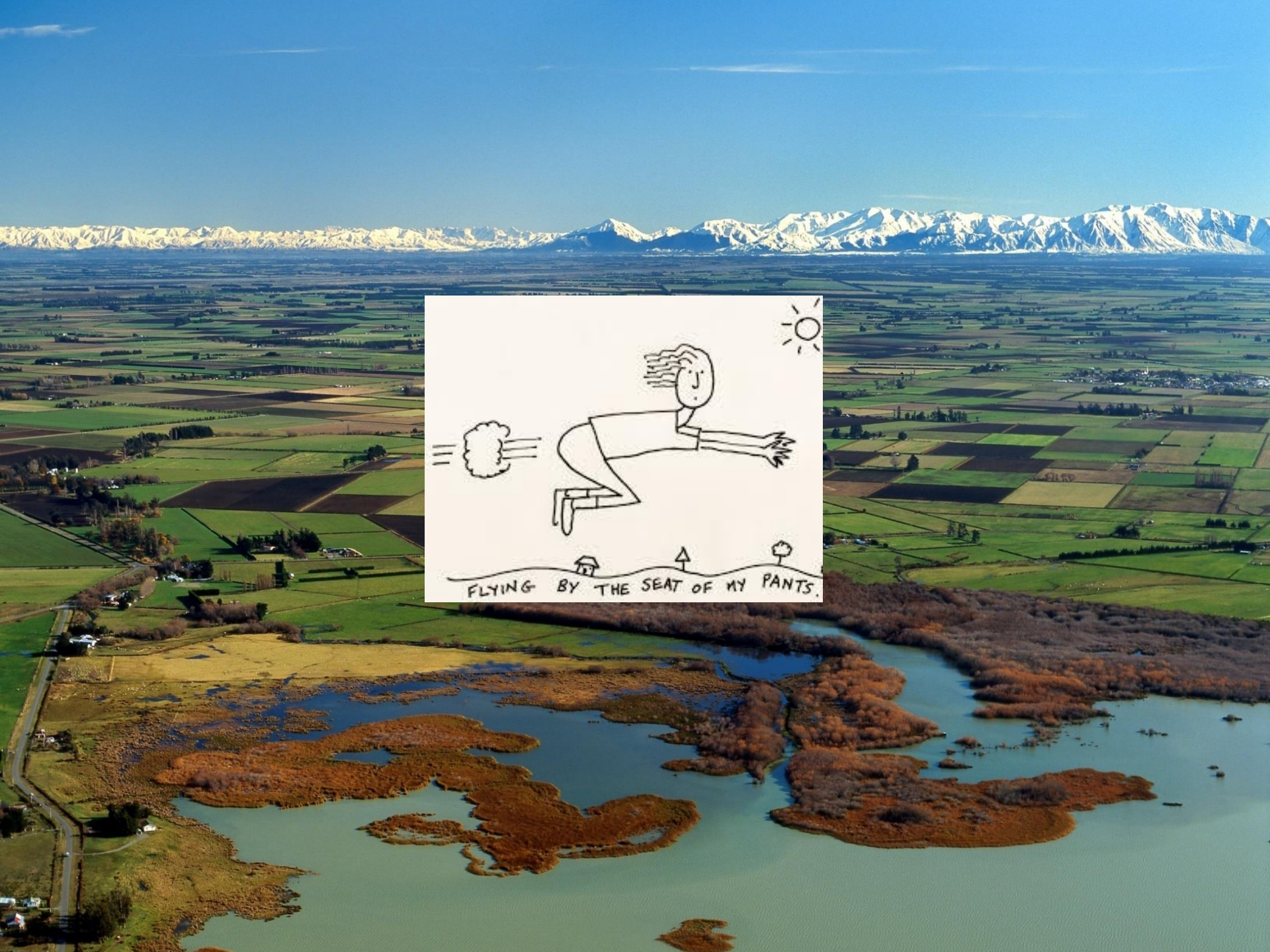




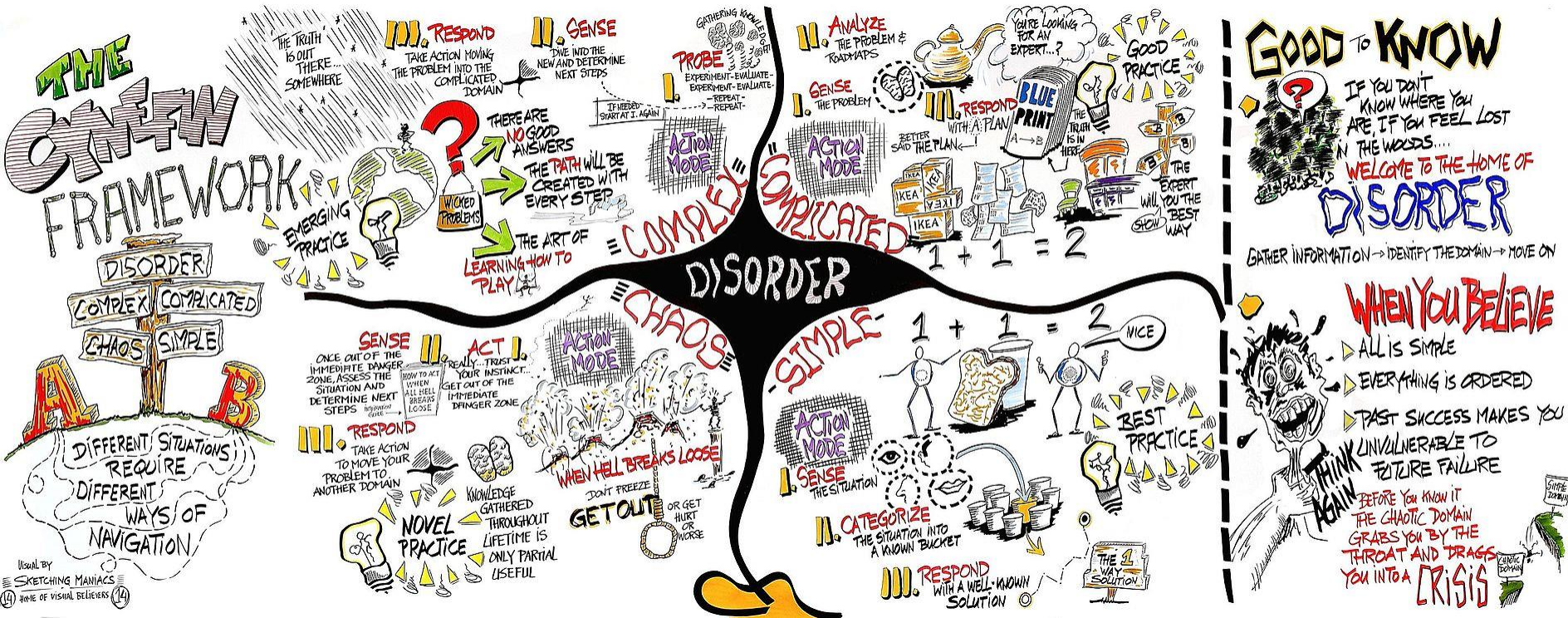
**Wicked problems and
Integrative research**

Dr Melissa Robson-Williams



FLYING BY THE SEAT OF MY PANTS.

Cynefin framework

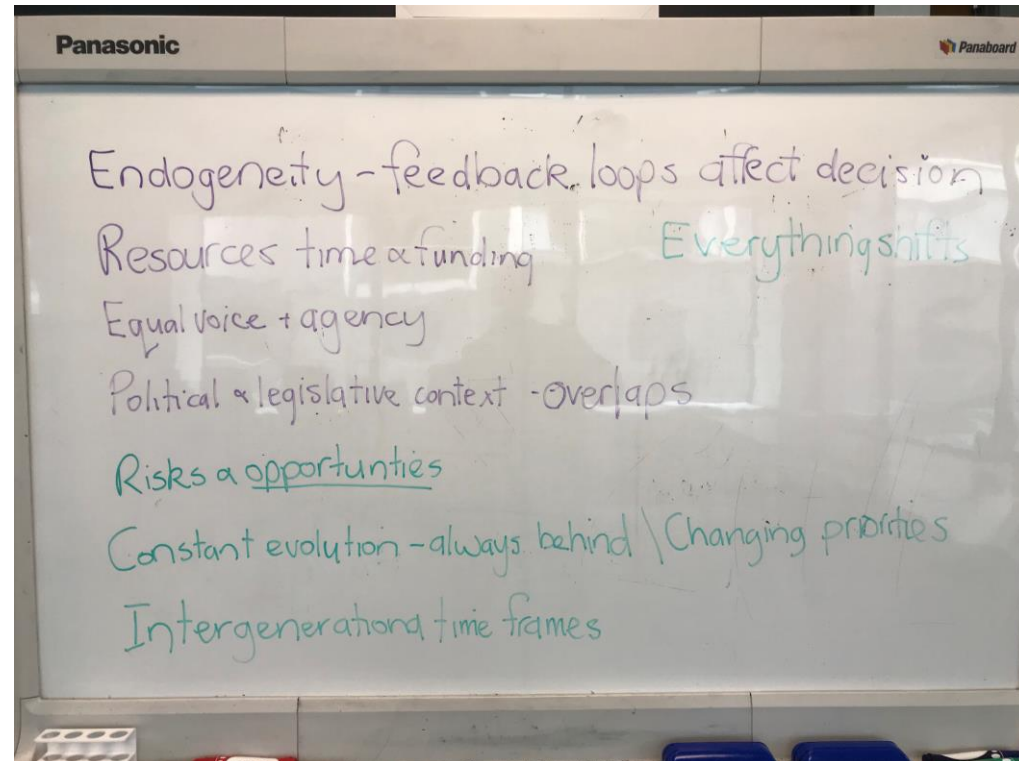


By Edwin Stoop (User:Marillion!!62) - [1], CC BY-SA 4.0, <https://commons.wikimedia.org/w/index.php?curid=53810658>

Common characteristics of complex problems



Scientific uncertainty
Systemic lock-in
Different values, goals and agendas
Winners and losers
Emergence
Intractable nature - can't actually solve
Hard to know what to focus on
Challenges of working with 'other'

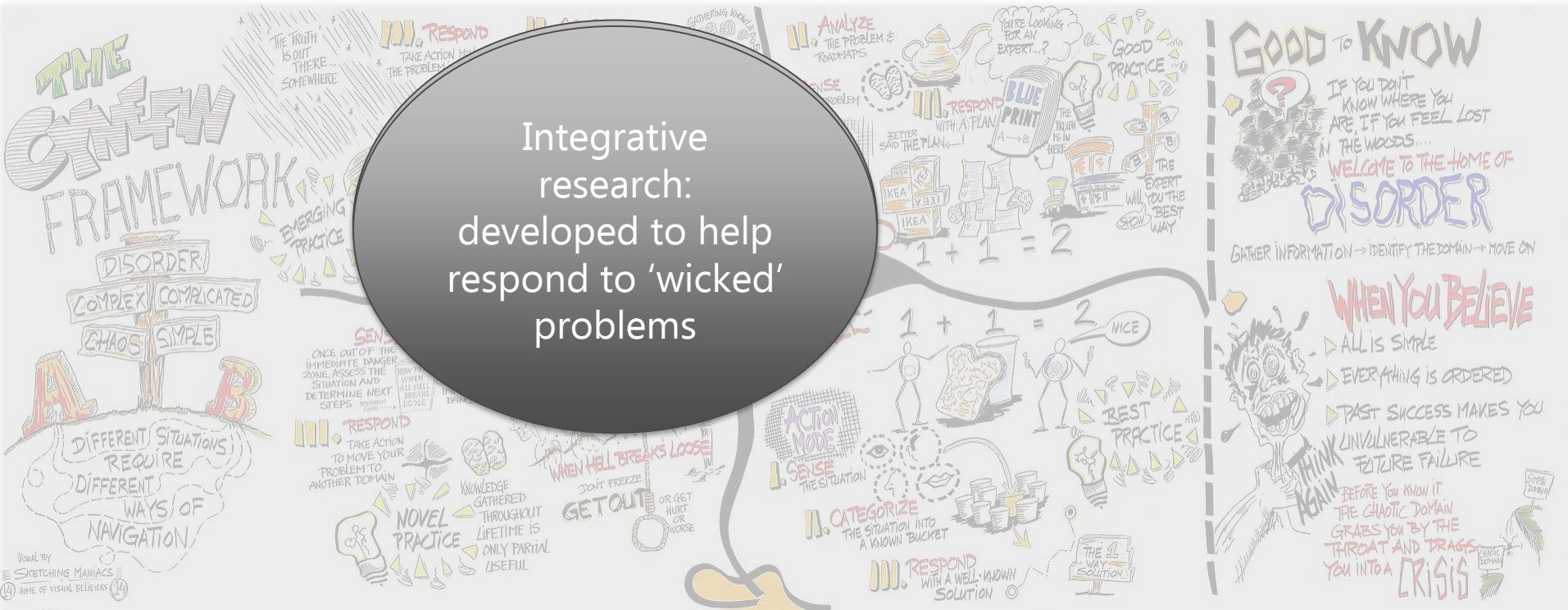


More characteristics added from LINK audience

Cynefin framework and where integrative research fits



Integrative research: developed to help respond to 'wicked' problems

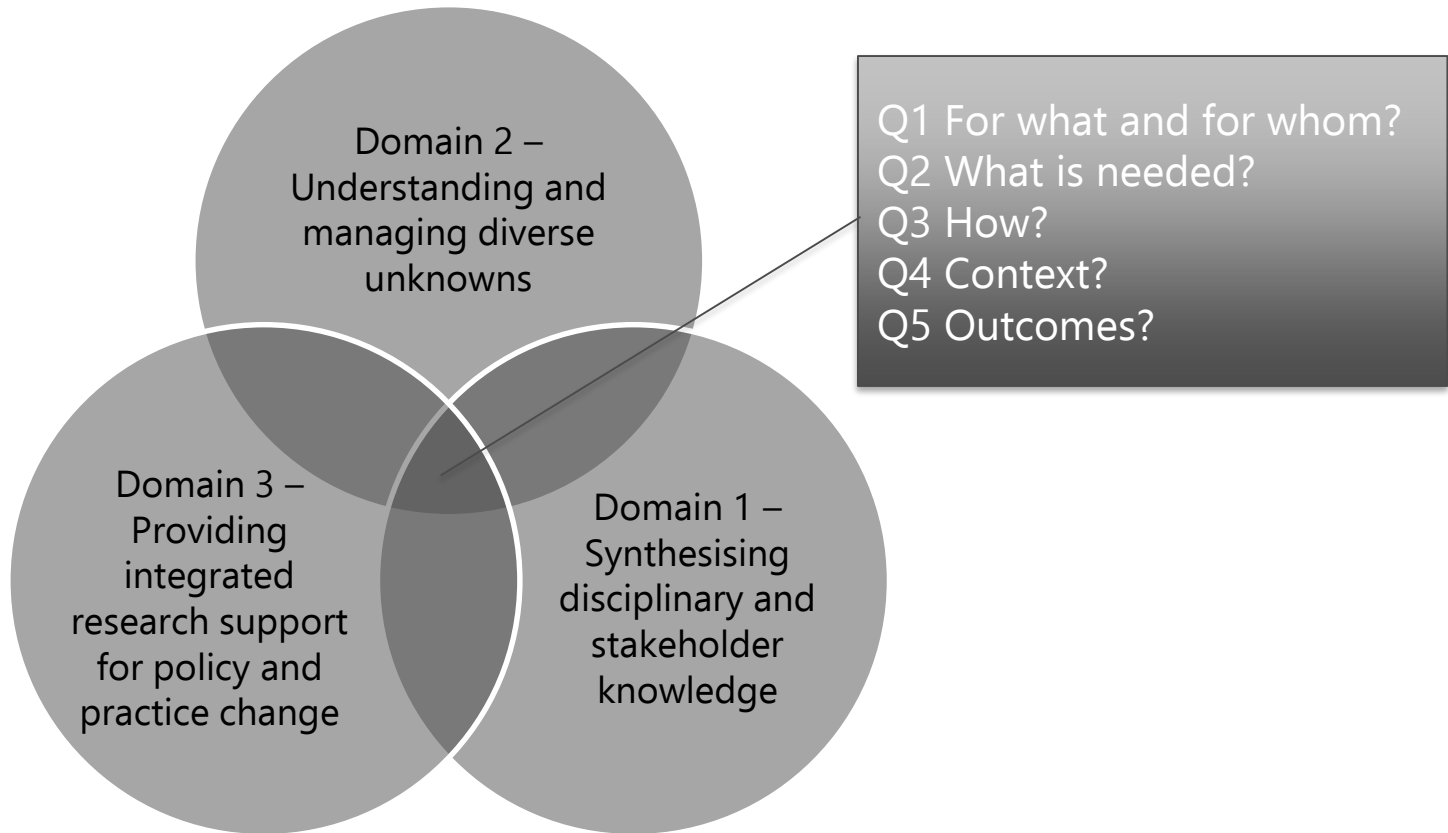


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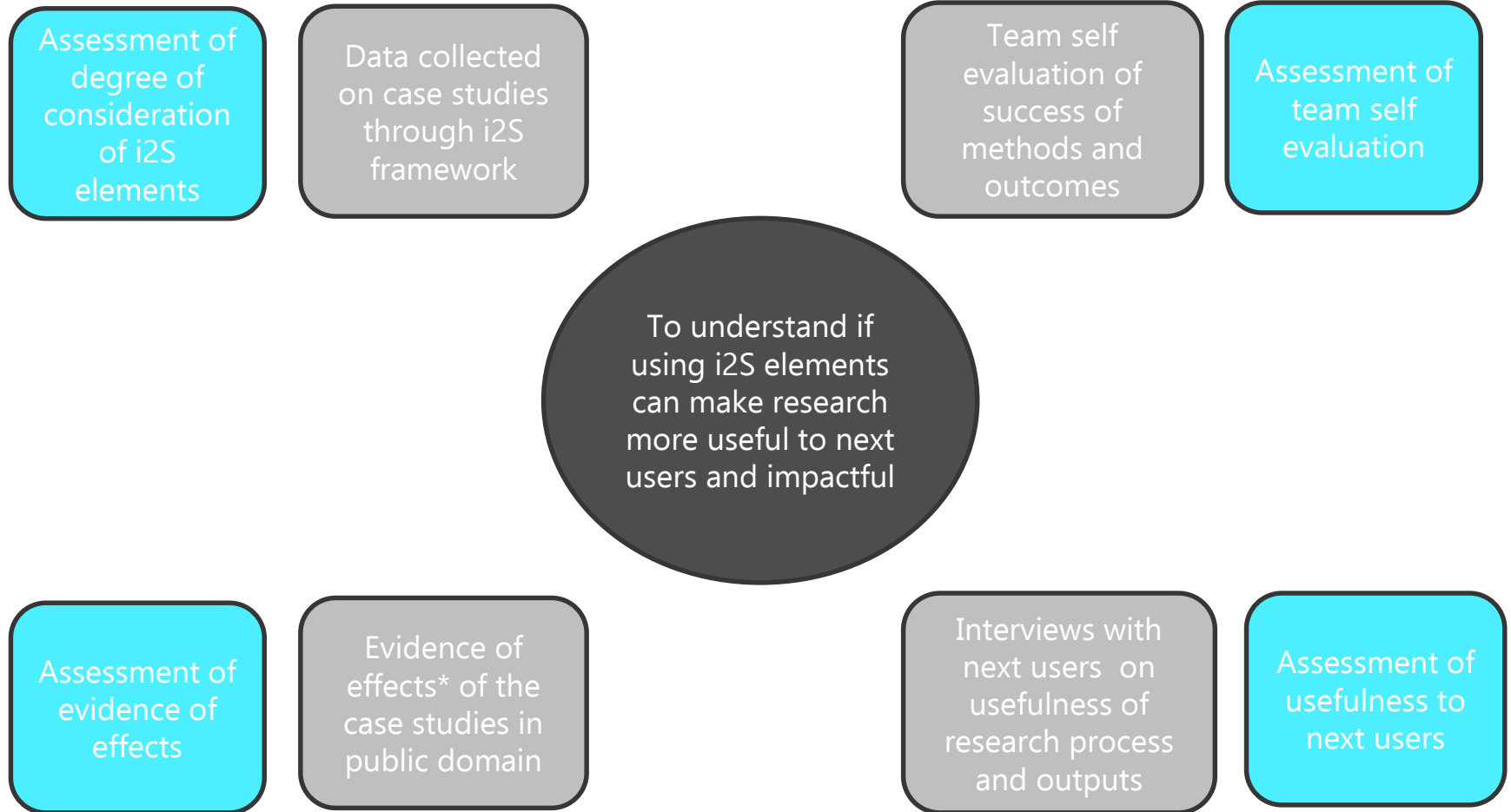


Integration and Implementation Science framework





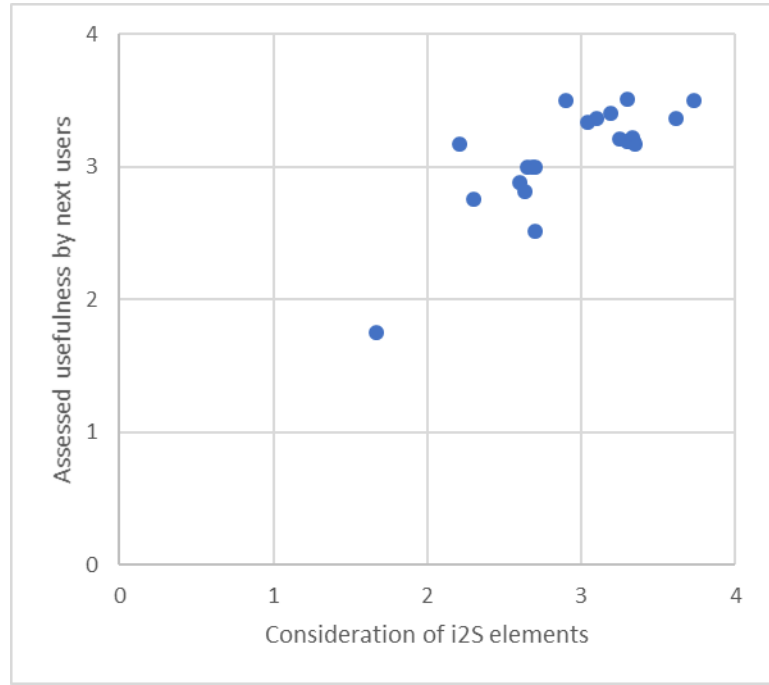
Data collection and analysis





Results

Assessment of degree of consideration of i2S elements



Strong significant positive correlation of 0.79

Assessment of usefulness to next users



Results

For the case studies that considered the elements of the i2S framework to a greater extent, there was evidence of:

- Increased practical and scientific knowledge
- Increased networks
- Regionally and nationally used products and tools
- New land and water policies developed and implemented
- On farm practice change
- Changed practice in science institutions



Results

Characteristics of case studies considered most useful by next users and with greatest effects:

- Clarity of purpose
- Considered impact from the beginning
- Used multiple methods
- Embraced uncertainty
- Were reflexive and adaptable
- Carefully considered target audience needs
- Research teams broader than science
- Attentive to more than just disciplinary skills



Prototype toolkit for integrative research










Integrated Research Home About Guides Case Studies Resources Search for a resource or guide...

Integrated Research Toolkit

A hands-on guide to integrative research concepts and techniques

Guides and resources

- What is integrated research?**

What integrated research is and when to use it
- Common problems and how to work through them.**

Challenges, opportunities and inspiration
- The basics**

Foundational techniques and concepts
- Techniques for different research phases**

- Working together**

- Resources for bid development**

- Leading integrated teams**


Test toolkit: <https://test-integrated.landcareresearch.co.nz/>

Username: i3

Password: Integrate3!



What we found...in a nutshell

- The way we do integrative research makes a difference to how useful and usable it is.
- The i2S framework is useful for guiding and supporting effective integrative research.
- The integrative research toolkit is a set of curated resources to support those doing integrative projects.

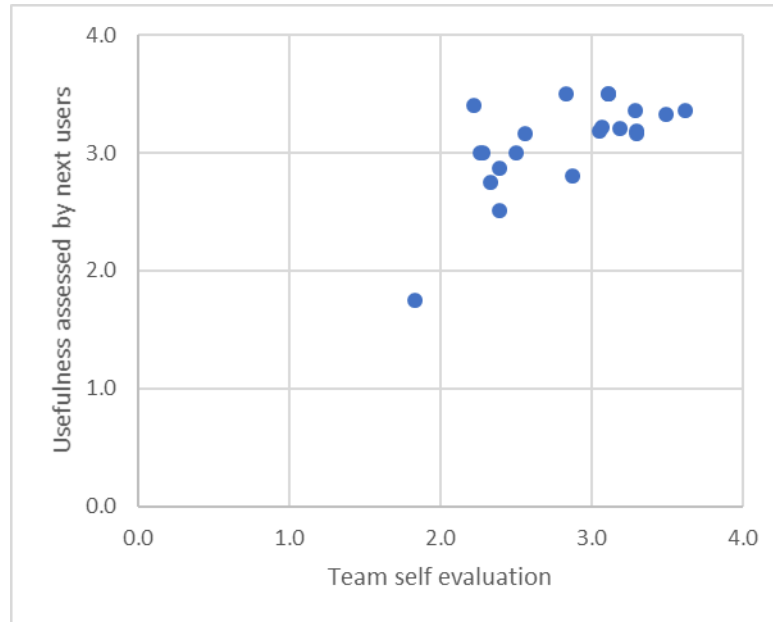


Thank you!

More results....



Results



Assessment of
team self
evaluation

Significant positive correlation of 0.67

Assessment of
usefulness to
next users

Integrative research: Short notes from 5th Nov Link seminar

Dr Melissa Robson-Williams¹, Manaaki Whenua

Recent research² found that projects researching complex problems produced more useful and impactful research where they had considered the elements of the Integration and Implementation sciences framework.³

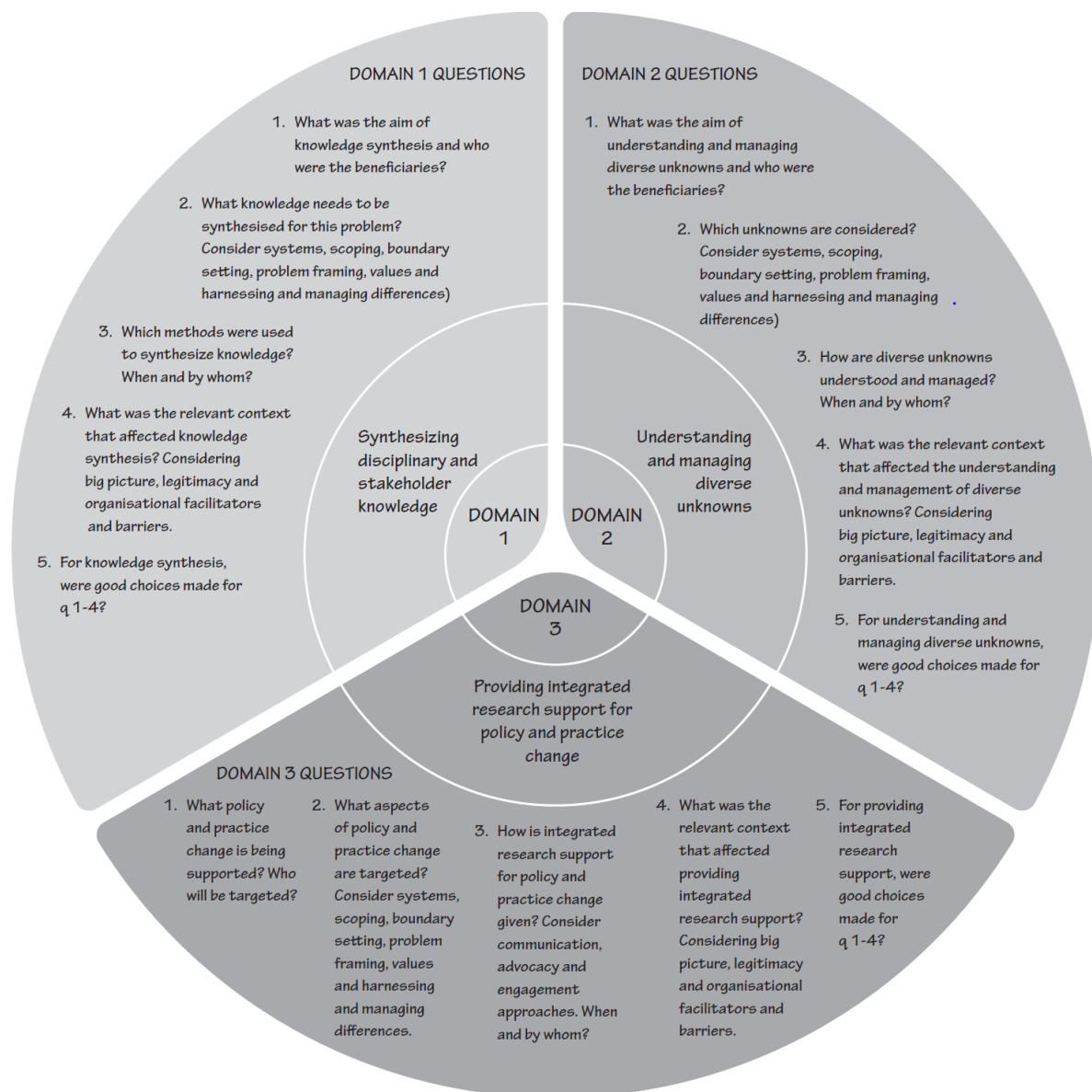


Figure 1. A synthesis of the Integration and Implementation Sciences framework

¹ Robson-williamsm@landcareresearch.co.nz

² Small et al (in review) A. Co-innovation and Integration and Implementation Sciences: Measuring their research impact - an examination of five New Zealand primary sector case studies; Robson-Williams et al (in review) Hand-rails in the swamp: Testing the Integration and Implementation Science framework in complex real-world research.

³ Bammer, G. 2013. Disciplining Interdisciplinarity. ANU Press.

The relationship was quite clear, those projects that paid more attention to the concepts in the Integration and Implementation Sciences framework were considered more useful by next users.

There was also greater evidence of:

- Increased practical and scientific knowledge
- Increased networks
- Regionally and nationally used products and tools
- New land and water policies developed and implemented
- On farm practice change
- Changed practice in science institutions

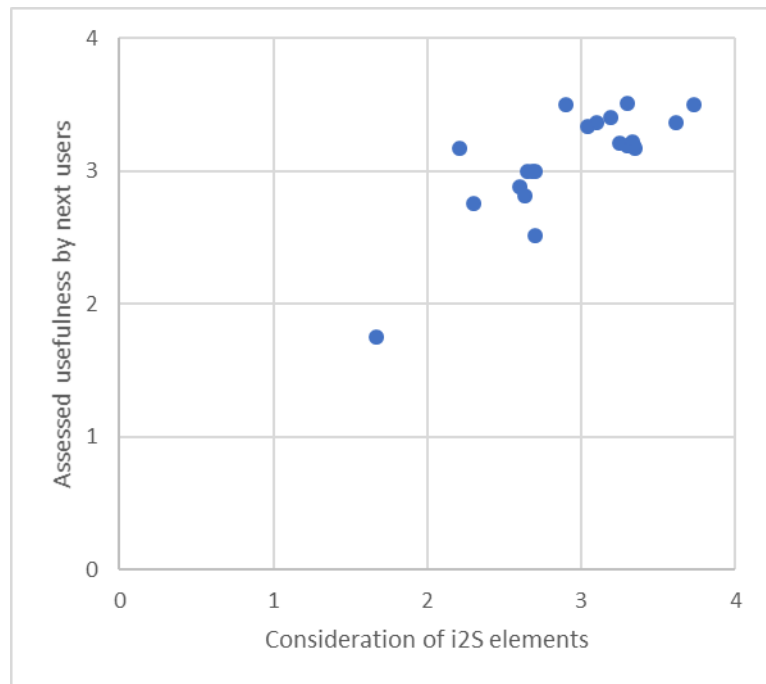


Figure 2. Relationship between using the integration and Implementation Sciences framework and research usefulness.

There were some common characteristics of the projects considered most useful by next users and with greatest effects:

- Clarity of purpose
- Considered impact from the beginning
- Used multiple methods
- Embraced uncertainty
- Were reflexive and adaptable
- Carefully considered target audience needs
- Research teams broader than science
- Attentive to more than just disciplinary skills

In part based on this work, Manaaki Whenua have brought together a set of resources to support those doing integrative projects. The sites isn't public yet, but feel free to have a look at the test site:

Test toolkit: <https://test-integrated.landcareresearch.co.nz/>

Username: i3

Password: Integrate3!