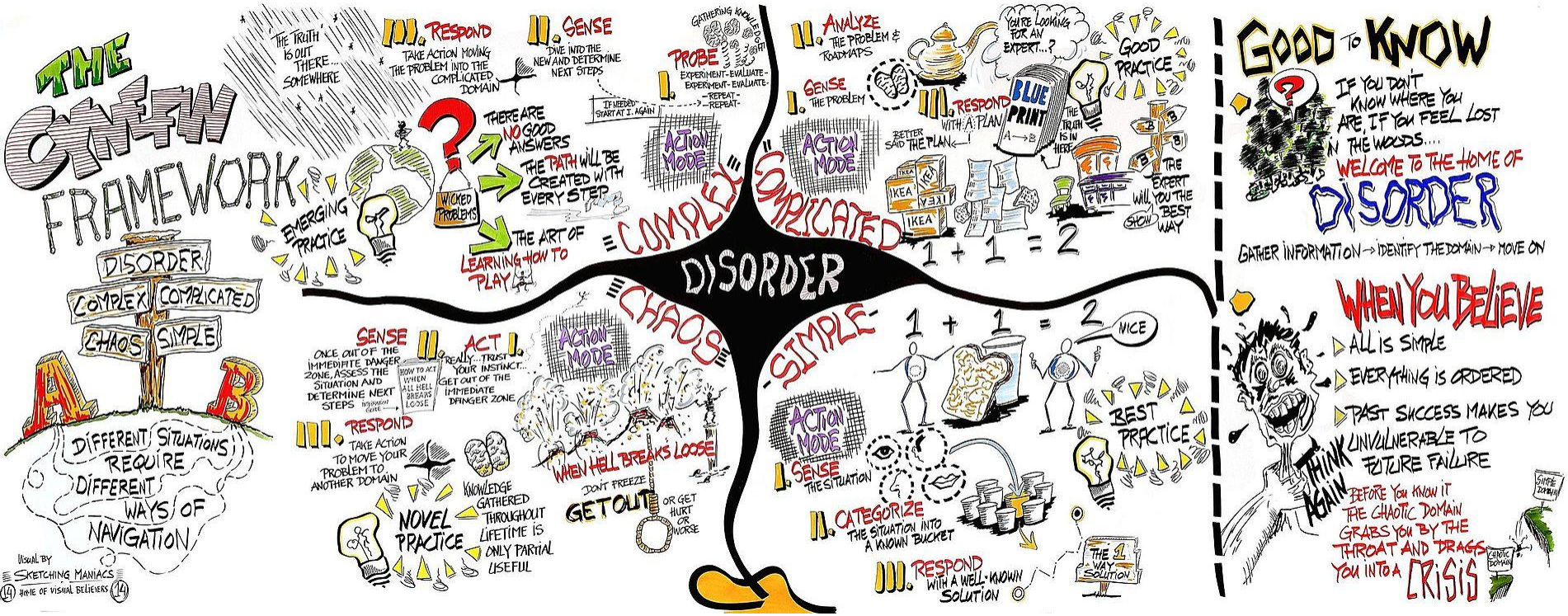
Wicked problems and Integrative research

Dr Melissa Robson-Williams

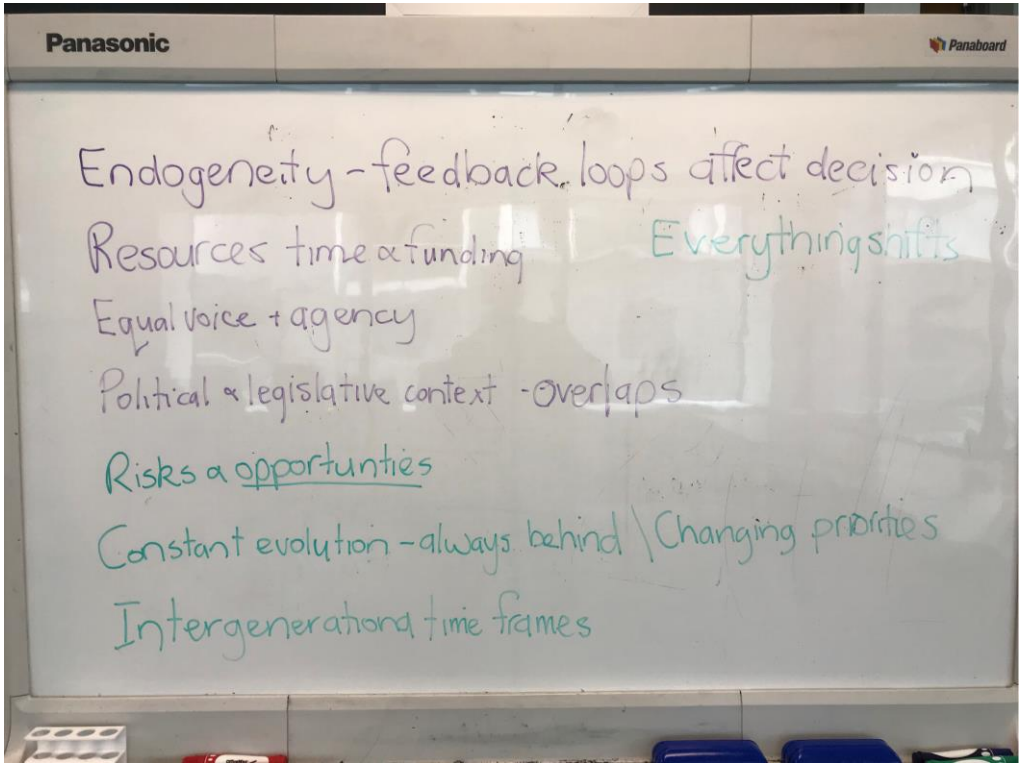

FLYING BY THE SEAT OF MY PANTS.

Cynefin framework



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'

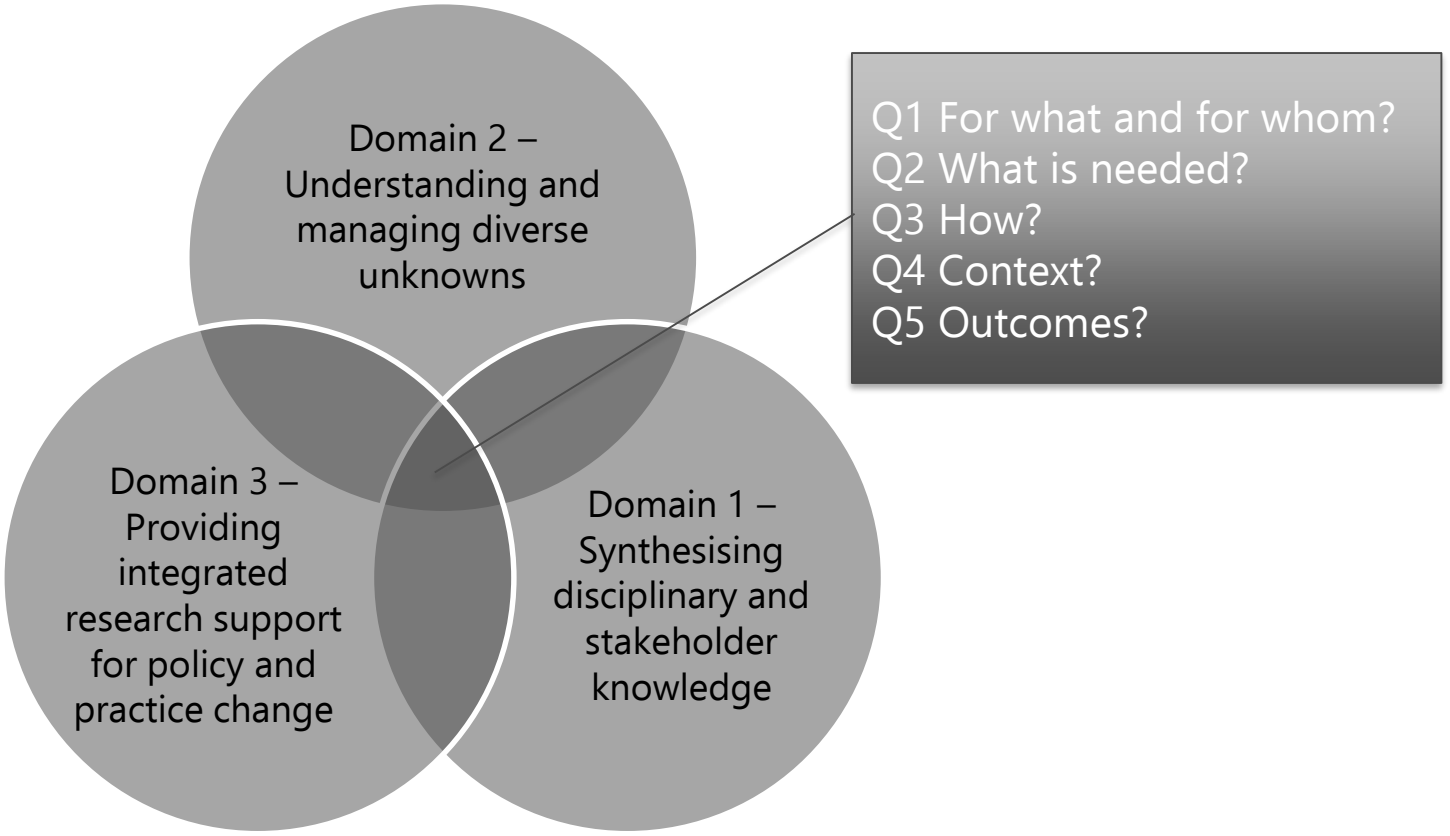


More characteristics added from LINK audience

Cynefin framework and where integrative research fits

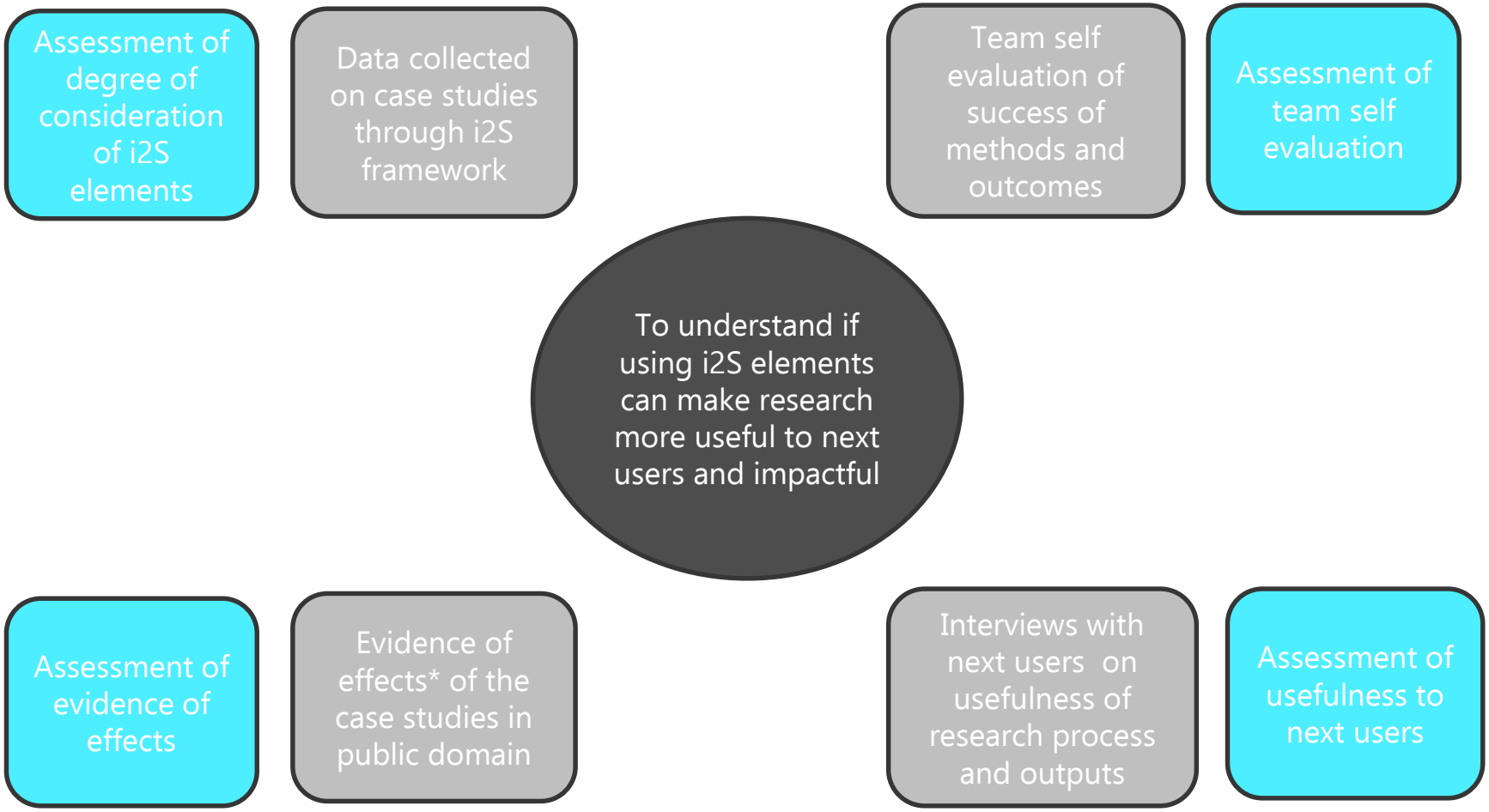
Integrative research: developed to help respond to 'wicked' problems

Integration and Implementation Science framework



Bammer, G. 2013. Disciplining Interdisciplinarity

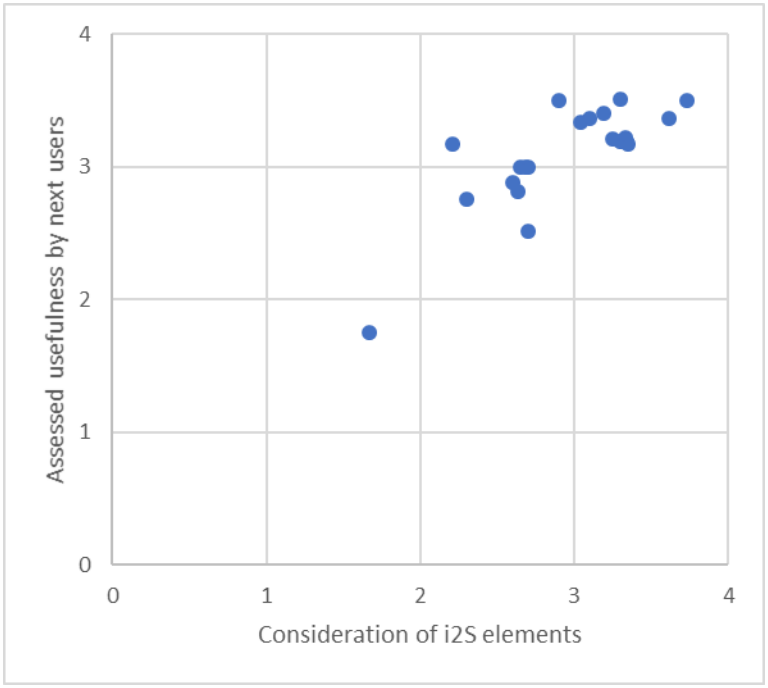
Data collection and analysis



*After Weik et al., 2014

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:

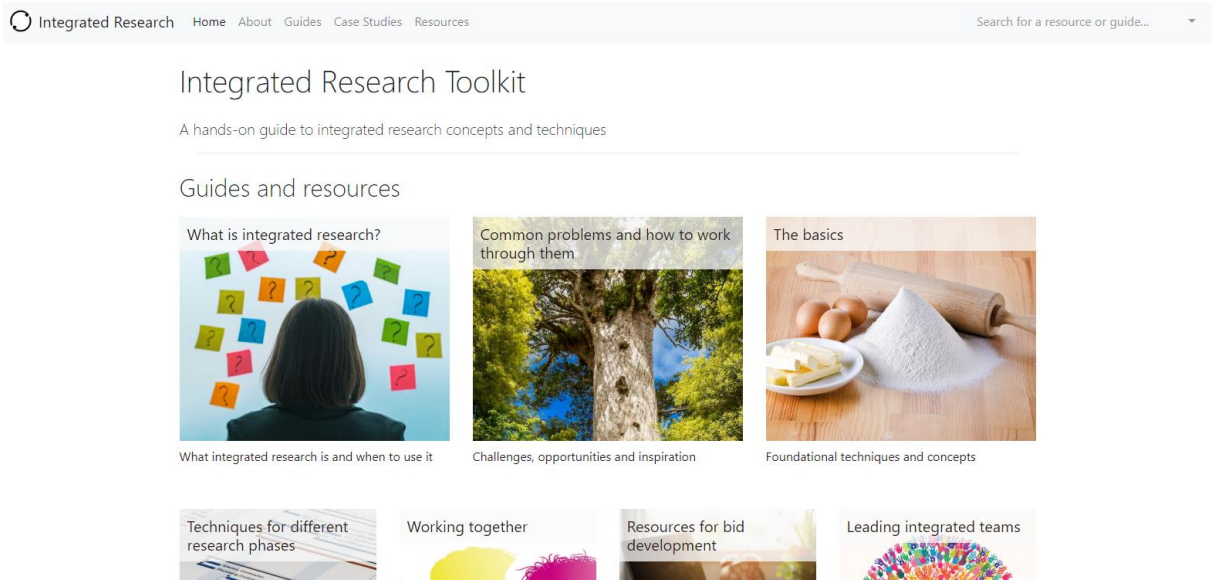
- Increased practical and scientific knowledge
- Increased networks
- Regionally and nationally used products and tools
- New land and water policies developed and implemented
- On farm practice change
- Changed practice in science institutions

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



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

Username: i3

Password: Integrate3!

What we found…in a nutshell

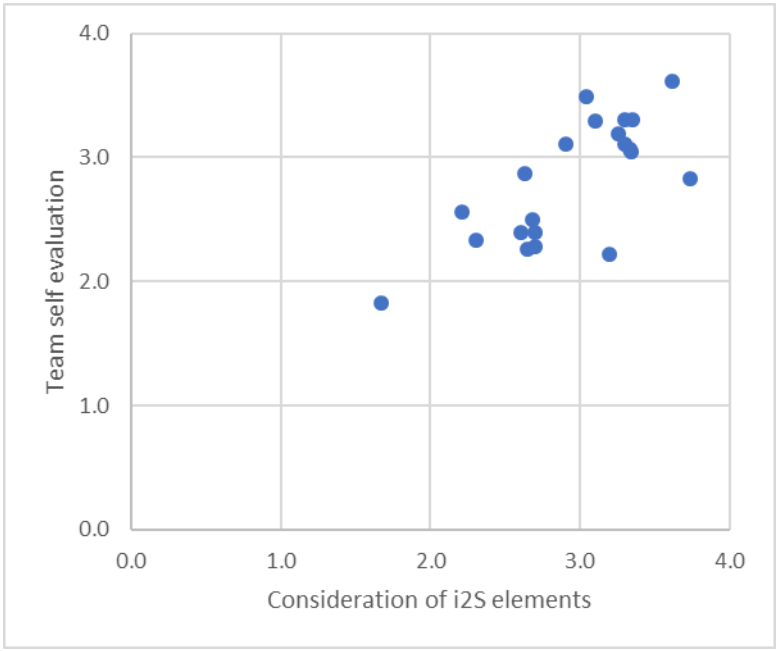
- The way we do integrative research makes a difference to how useful and usable it is.
- The i2S framework is useful for guiding and supporting effective integrative research.
- The integrative research toolkit is a set of curated resources to support those doing integrative projects.

Thank you!

More results….

Results

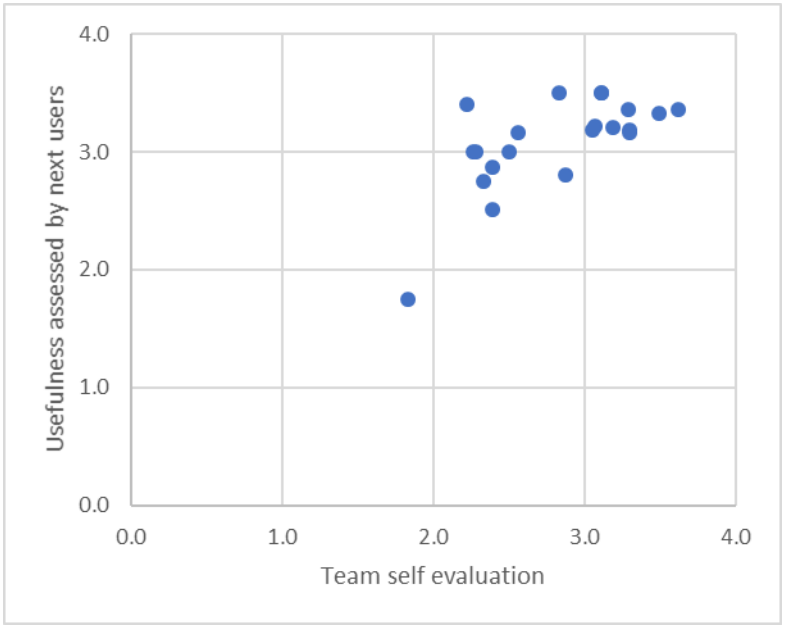
Assessment of degree of consideration of i2S elements



Assessment of team self evaluation

Strong significant positive correlation of 0.74

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-Williams[1], Manaaki Whenua

Recent research[2] 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]

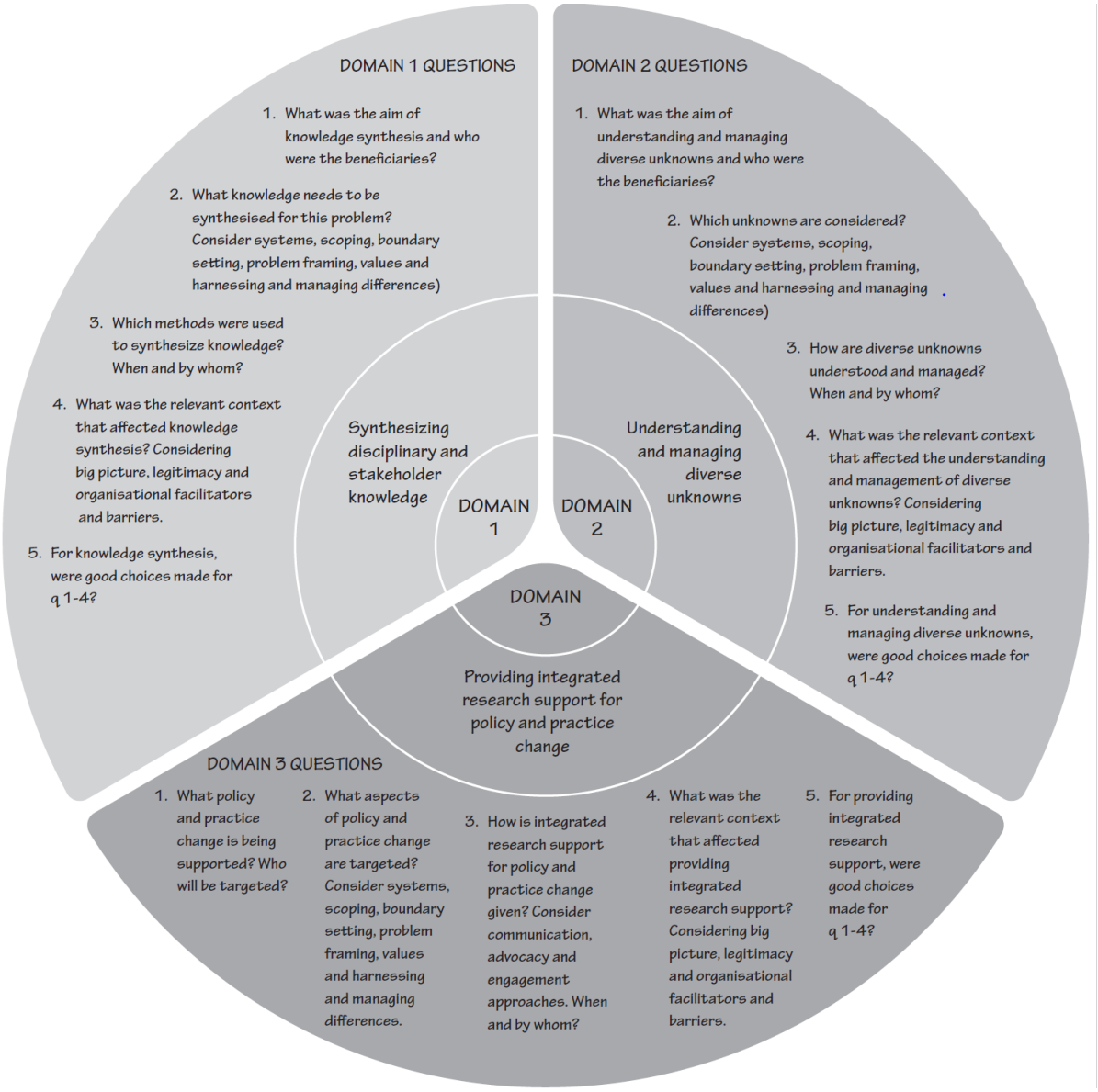


Figure 1. A synthesis of the Integration and Implementation Sciences framework

[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

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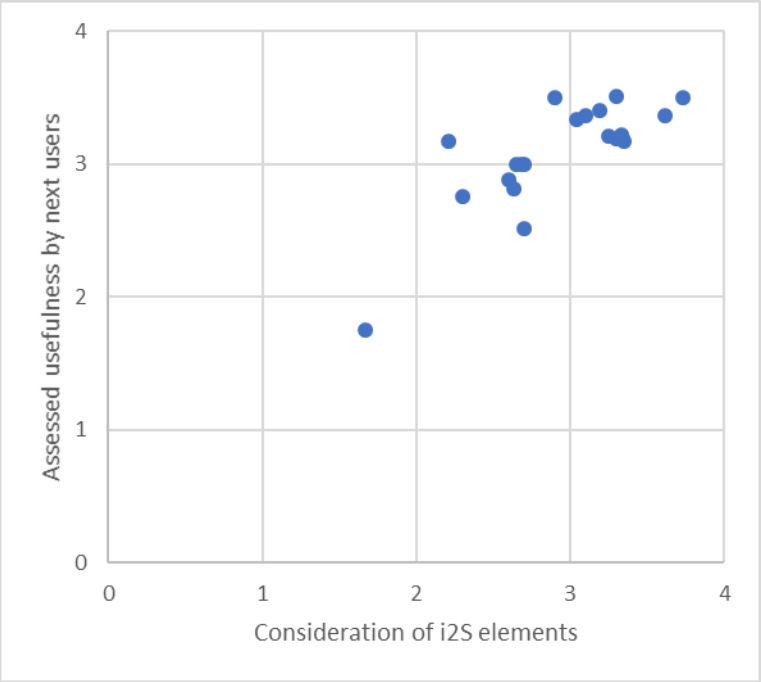

Figure 2. Relationship between using the integration and Implementation Sciences framework and research usefulness.

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!