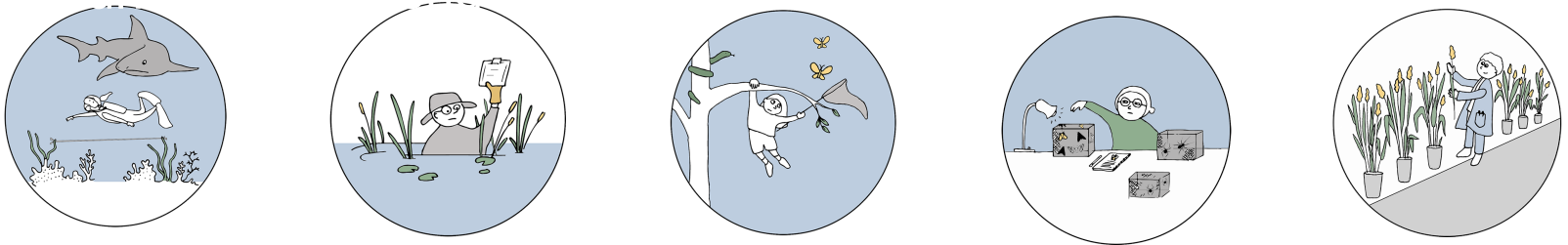
VREs/Virtual Labs/Science Gateways: Visions for addressing barriers, needs and requirements for the next generation of VREs.

Alison Specht, TERN, University of Queensland, PARSEC

A personal vision from an ecosystem scientist, facilitator of inter- and trans-disciplinary research

Ecosystem scientist profile

- interdisciplinary, uses lots of complex and heterogeneous data, e.g. organisms x genomics x manipulated experiments x machine-gathered data (e.g. satellite imagery, lower atmosphere gas exchange, hydrological data) x space x time.



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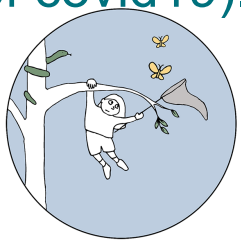
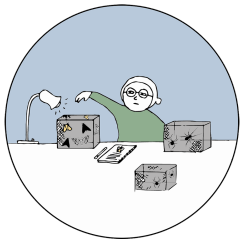
- interdisciplinary, uses lots of complex and heterogeneous data, e.g. organisms x genomics x manipulated experiments x machine-gathered data (e.g. satellite imagery, lower atmosphere gas exchange, hydrological data) x space x time.
- work internationally. Face-to-face opportunities are vastly important, but the challenge is how to work collaboratively between such opportunities (independent of covid19).

Barriers looking for solutions

Findability and accessibility

There are currently very few VRE's and most domain experts are either

- not aware of them (so don't know whether they can help),
- they are too expensive (e.g. AMAZON),
- are limited in geographic accessiblity (e.g. only available for people in one country, for one set of investors), or
- take too much energy to learn how to use.

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Trust

A really big barrier. Sharing data and work in real time when it is not finished threatens ones' status! If you are in the same room, not too bad, but...with fellow professionals is bad enough, but with community/government partners???

Horizon scanning

I suspect there will be some broad domain-specific tailoring for efficiency, but with interdisciplinary work this is always a challenge.

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- attached to
    - a data repository / observatory system, in this way promoting their services and data availability,
    - complimentary to synthesis centres, interdisciplinary facilitation locales, and
    - big research initiatives (can fulfill several roles)

Horizon scanning

- Used as an adjunct to face-to-face meetings.
- open access...open access and open access
- Must be able to operate across country boundaries without impediment

Virtual reality options

- Useful for decision making, scenario testing. Excellent for interface with the community (outside the domain expert group, however interdisciplinary). Long tradition of this in land management circles

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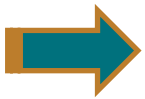

They are not cheap if managed properly, the catch22.

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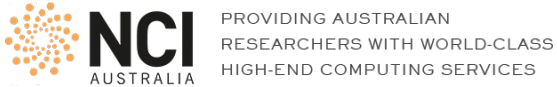
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