



WATER NEW ZEALAND MODELLING SYMPOSIUM

Edgewalkers or influencers?
David Ward 16 March 2022



KEY THEMES

Historical context

Provocative conjecture

Benefits of modelling

Competitor to modelling

Future of modelling

HISTORICAL CONTEXT

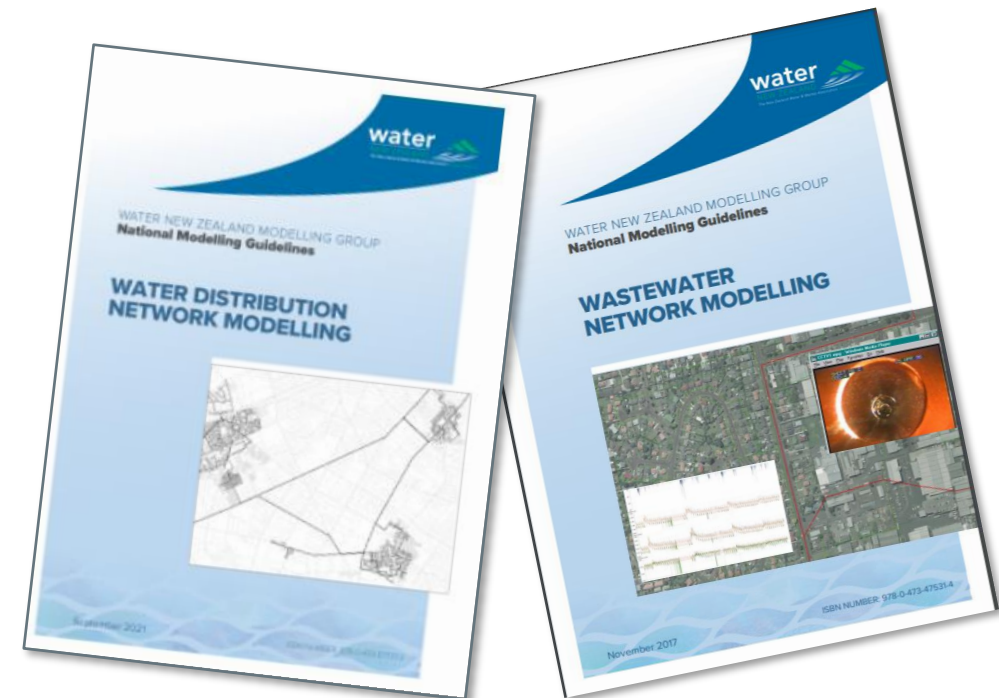
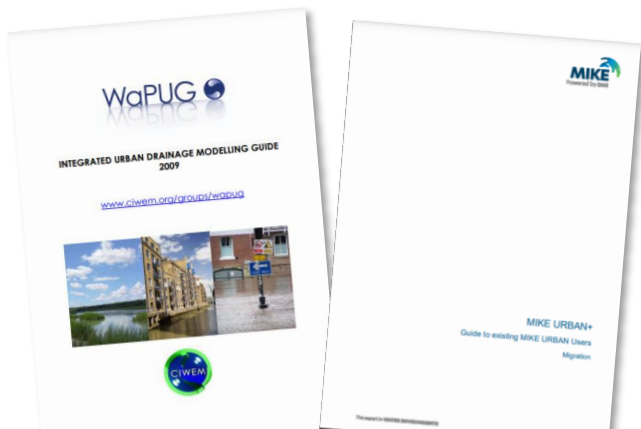
NZWWA

SIGs

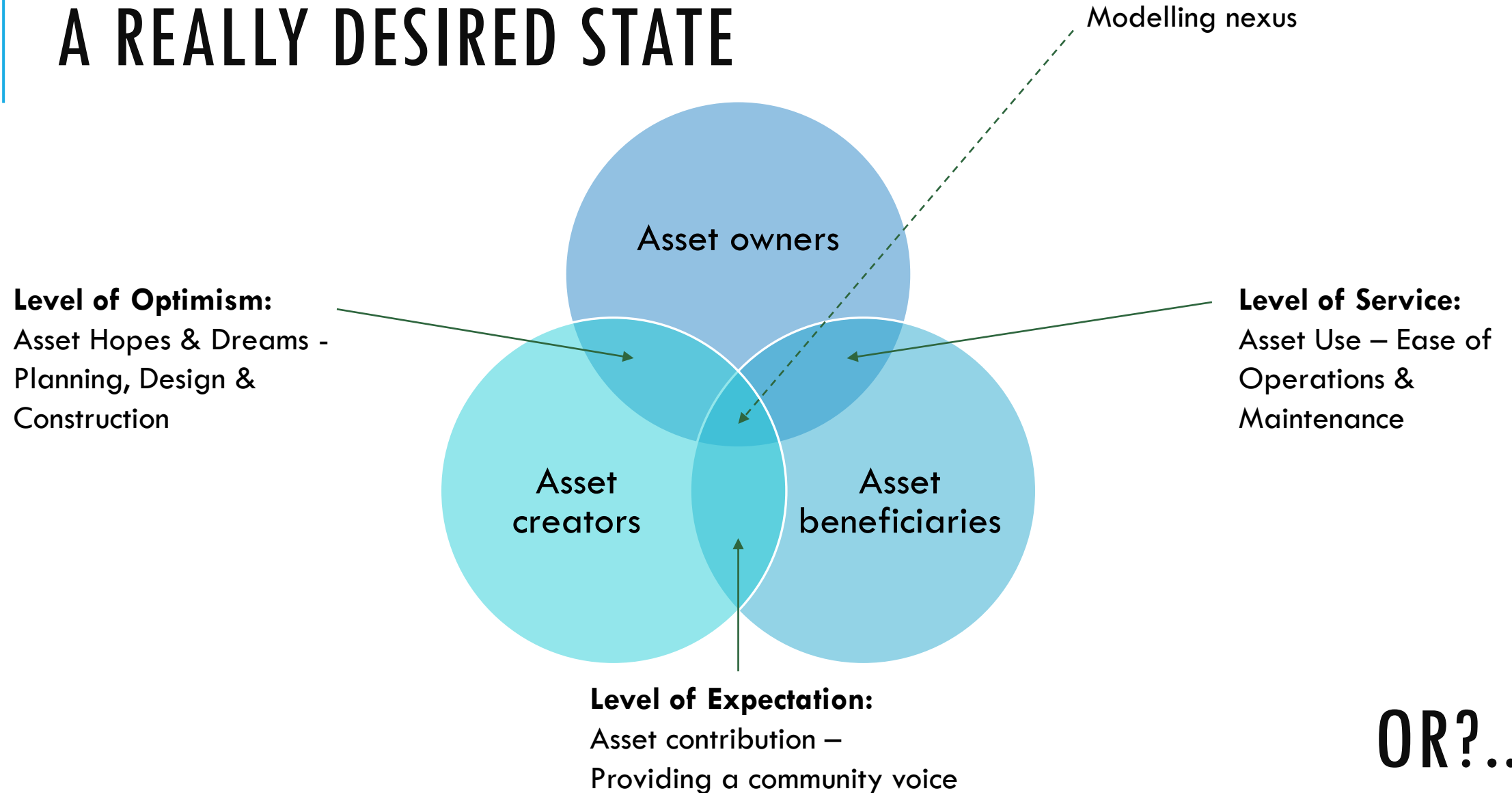
Guidelines

A growing national and international community –

- a voice to be heard,
- a key provider to New Zealand's Infrastructure



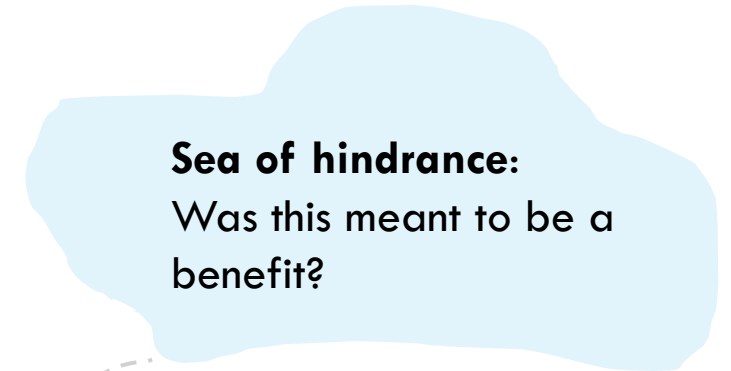
A REALLY DESIRED STATE



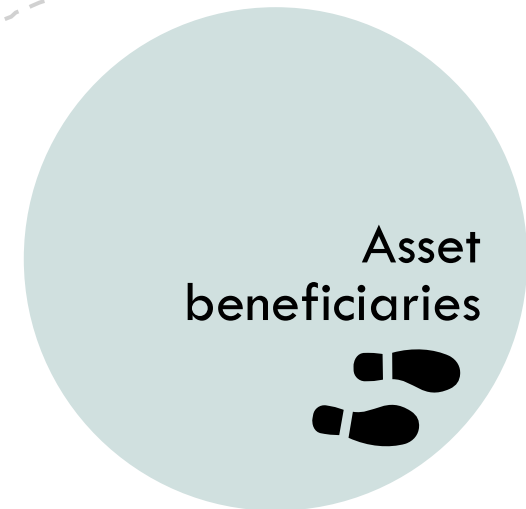
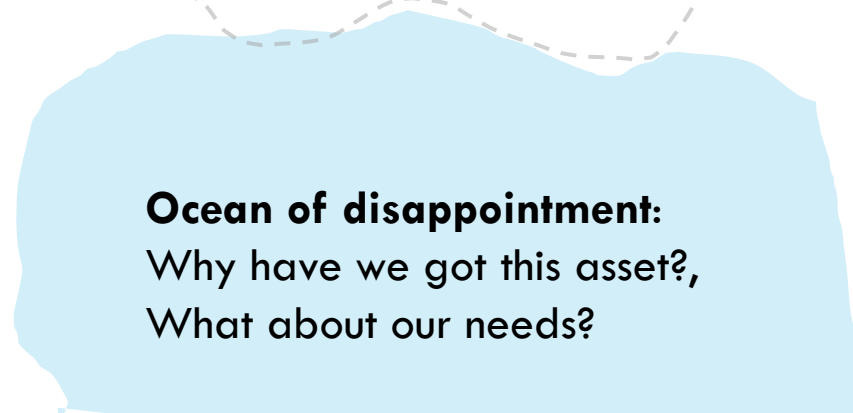
OR?.....

A STATE OF REALITY?

River of confusion:
What, when, how?



Modelling apex???



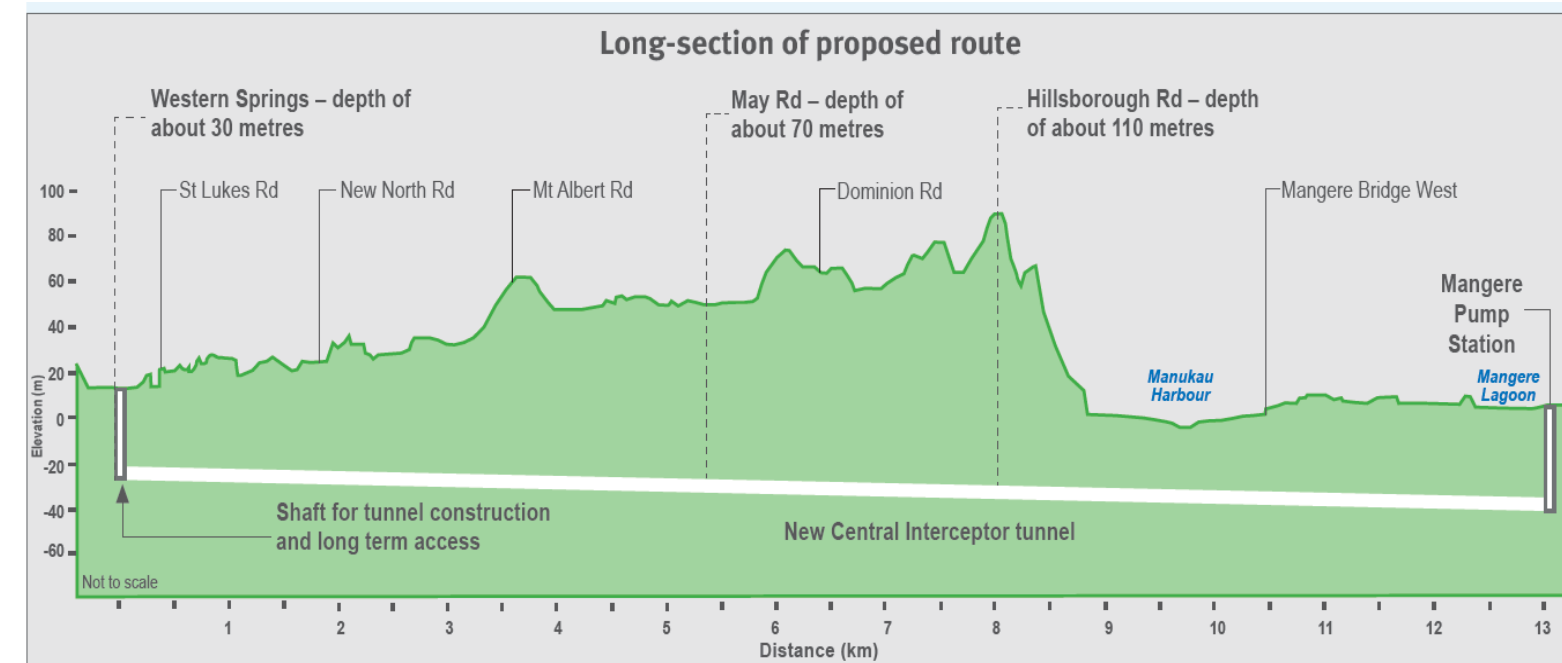
PLAY TO YOUR STRENGTHS

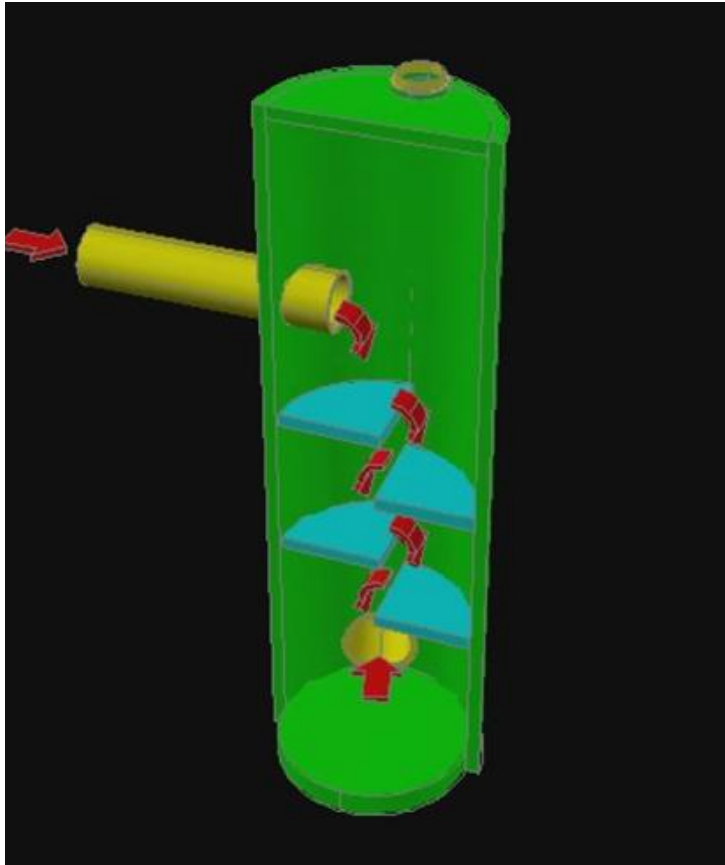
Modelling Activity	Relationship Activity
Gap analysis & Data acquisition	Use established profiling tools
Model Build	Create a trust model based on collaboration
Model Calibration	Output Credibility
Model Use	Accountability
Benefits realisation	Focus on results



MODELLING – CONTRIBUTOR OR CHAMPION?

Example:
Watercare Central Interceptor project





Modelling the
CENTRAL INTERCEPTOR

Modelling activities:

Conveyance & Storage requirements

Inflow management and overflow control – future sewer separation programmes & use of control gates

Surge / pressure waves - Σ (inflows) \gg outflow

Air, odour & H₂S management

Grit / solids management

Impact on Mangere WWTP

Construction cost, staging, capitalisation

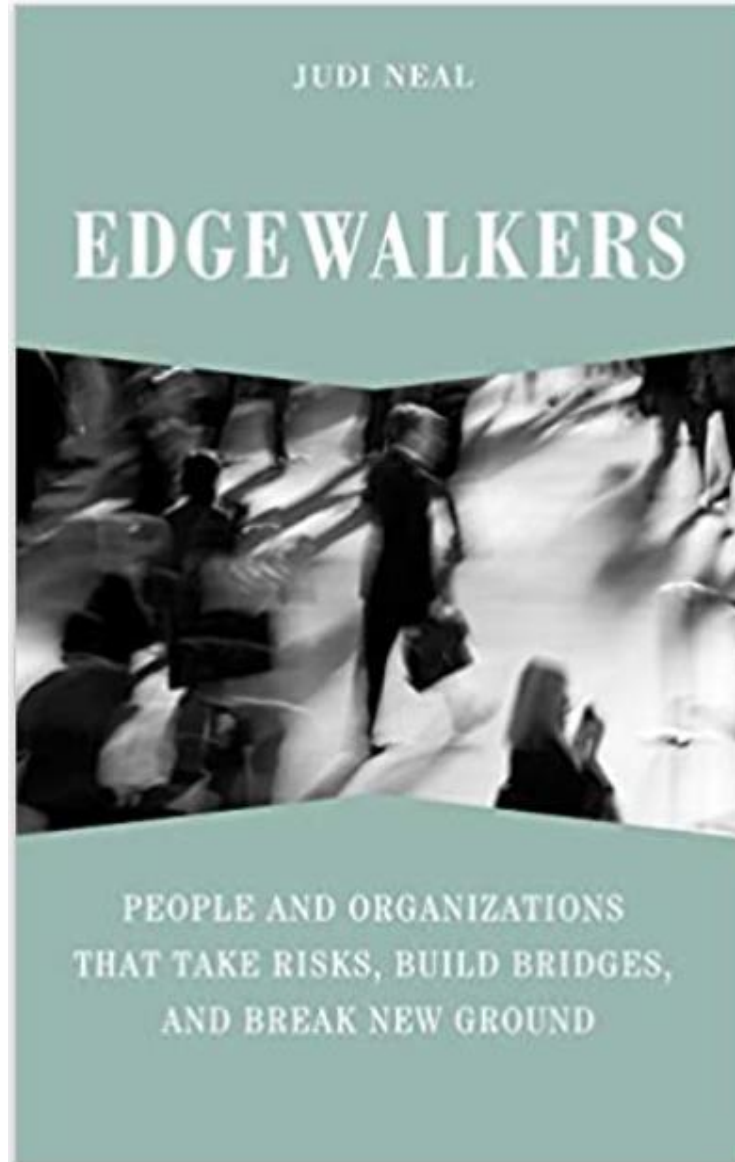
Evacuation management during construction

TBM fire & explosion risk

Which modelling activity dictated tunnel diameter?
(4.5m ID)

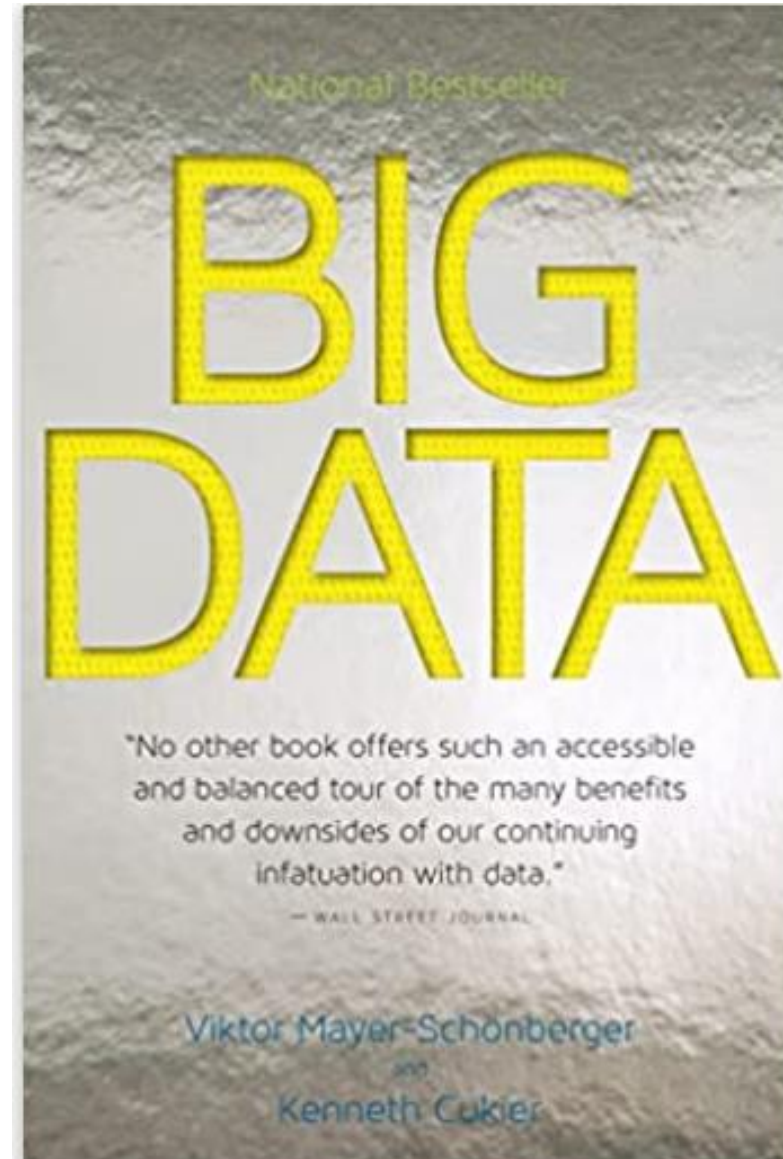
AGENTS OF
CHANGE OR
ABANDONED BY
CHANGE?

People

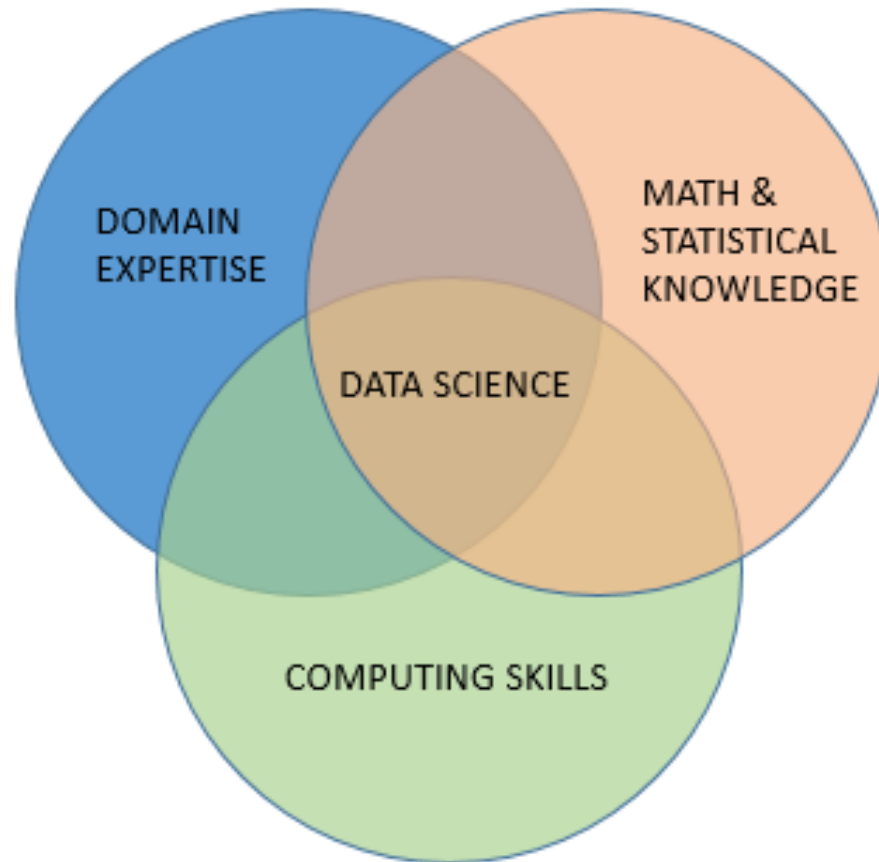


vs

Data



DATA SCIENCE — ‘THE NEW MODELLING’?



PERFORMANCE SCORECARD

Monitors - Physical

Models - Mathematical

Modellers? – Social? Economic? Climate? Cultural? –
Competency & Outcomes??

Machines? – Interconnectedness? Resilience? -
Human wellbeing??

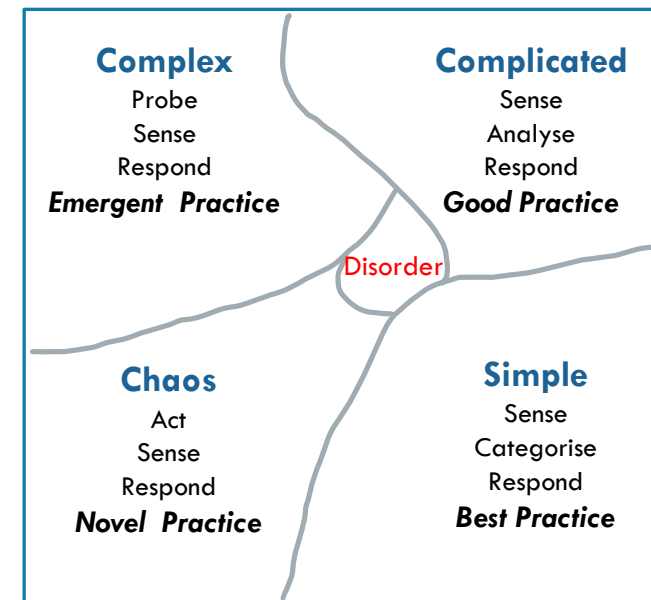
Water New Zealand Competency Framework

Overview

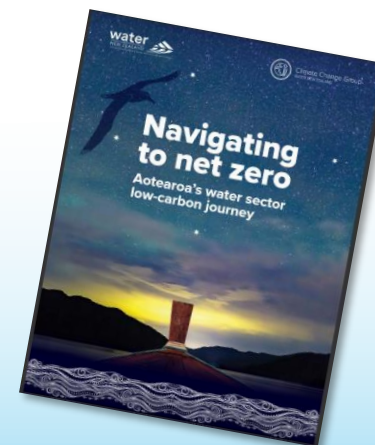


FUTURE OF MODELLING – ‘IS PACKED FULL’

- NZ needs you
- Water reform
- Te Ao Māori
- The mauri of water
- Climate change & carbon
- Next 20 years?
- Move from **Best Practice** to **Emergent Practice**



Cynefin framework



TĒNĀ KOUTOU KATOĀ

