

FIDIC Webinar

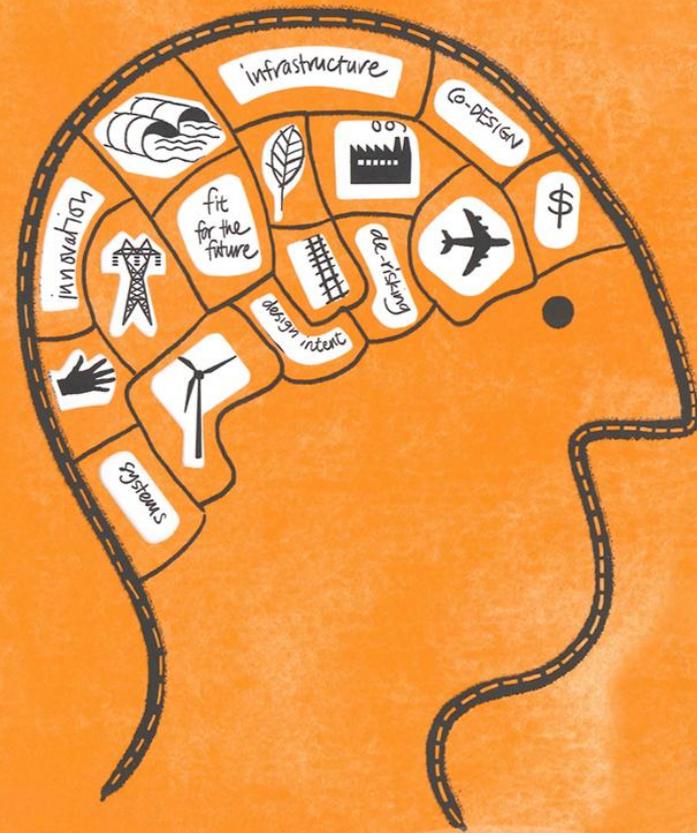
Collaborating
to transform the
infrastructure
that shapes society

with
Nick Fleming
and **John Boyd**

10 September 2014



International Federation of Consulting Engineers



Our core proposition

More sustainable infrastructure can be readily achieved at no net cost
– including savings on capital cost

We'll illustrate this by exploring:

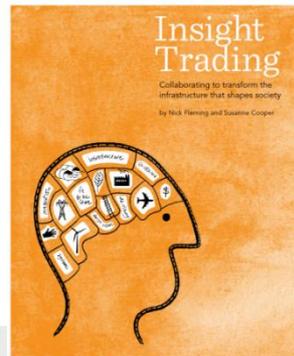
- Underpinning experience and evidence base
- Current reality and impediments to progress
- Case studies providing transferable insights
- Key 'how to' recommendations



Our book and evidence base



Co-author:
Susanne Cooper



Available from:
insighttrading.globalskm.com

Mining port and facilities



Intended design



Habitat encroachment, energy load, water use, dust emissions, noise > regulations

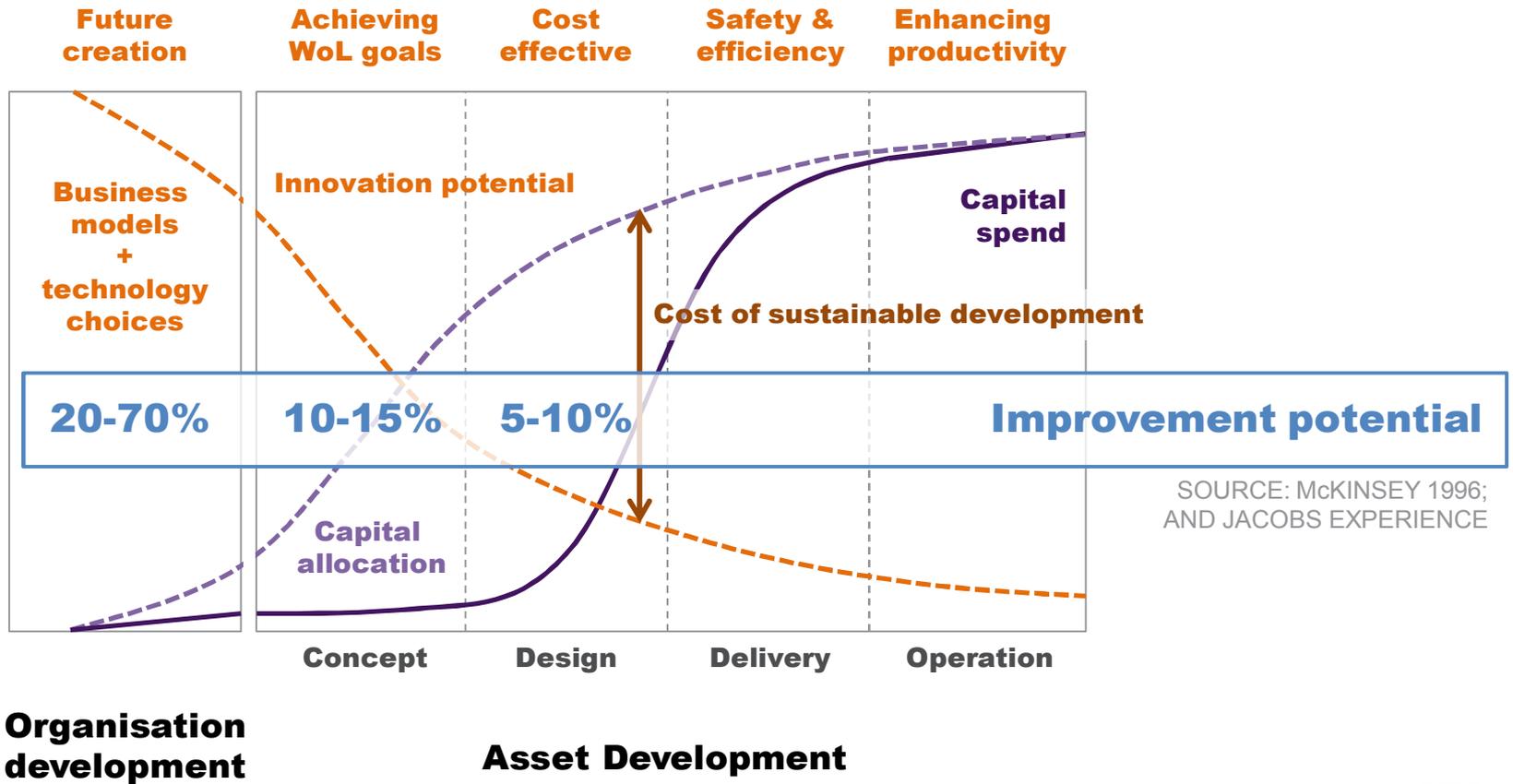
Innovative solution



No habitat impact, energy reduced, ~90% water reduction, noise < regulations, capital and operating cost savings



Value creation potential



SOURCE: McKINSEY 1996;
AND JACOBS EXPERIENCE



How sustainable
are those
investments
likely to be?

Could we
boost the dividend
to society?



Global infrastructure spend should exceed

US\$5 trillion per year

over the next 20 years



... but *how* to do



Schemes suggesting *what* to do

What's the *real* problem to solve?

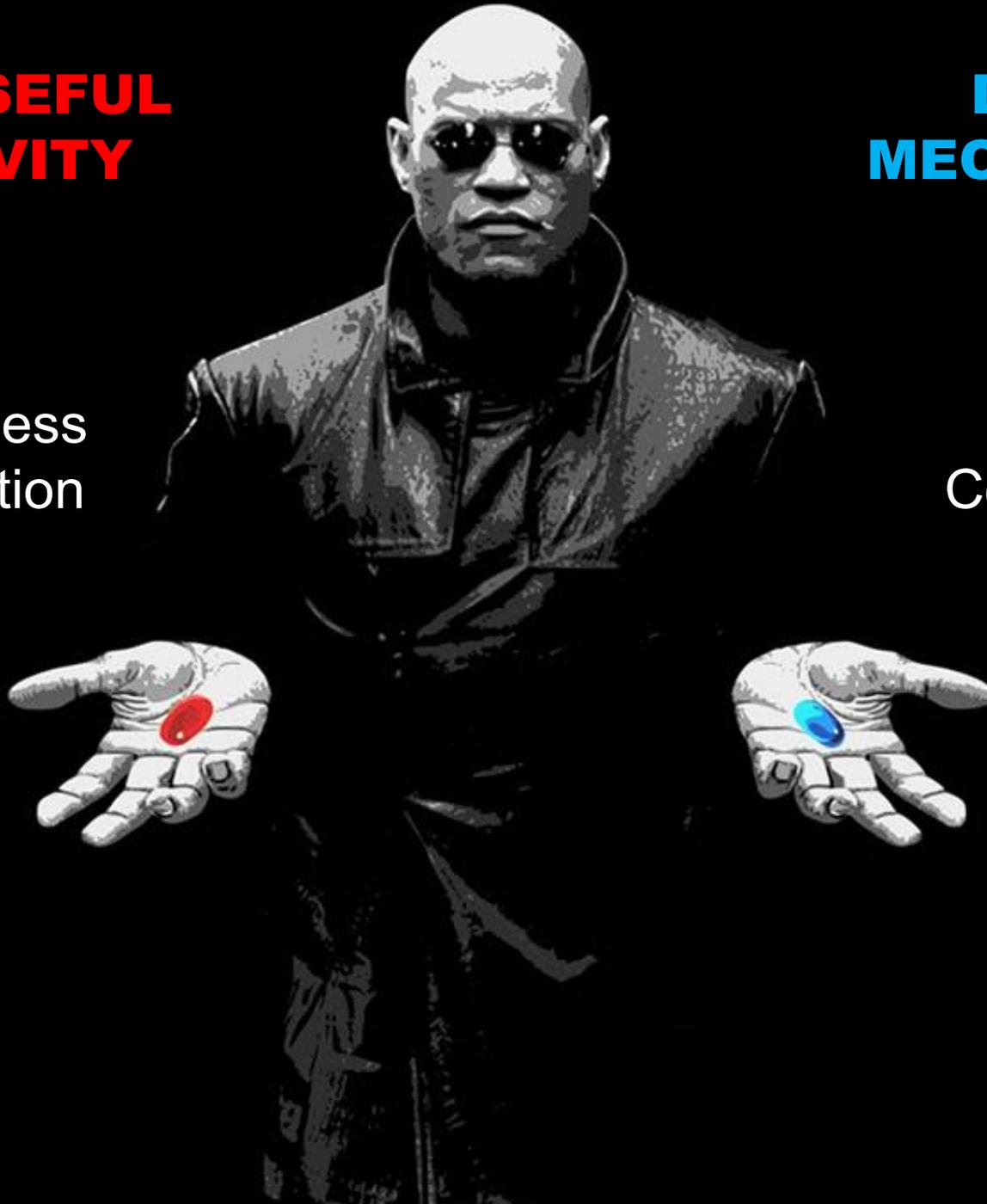


PURPOSEFUL CREATIVITY

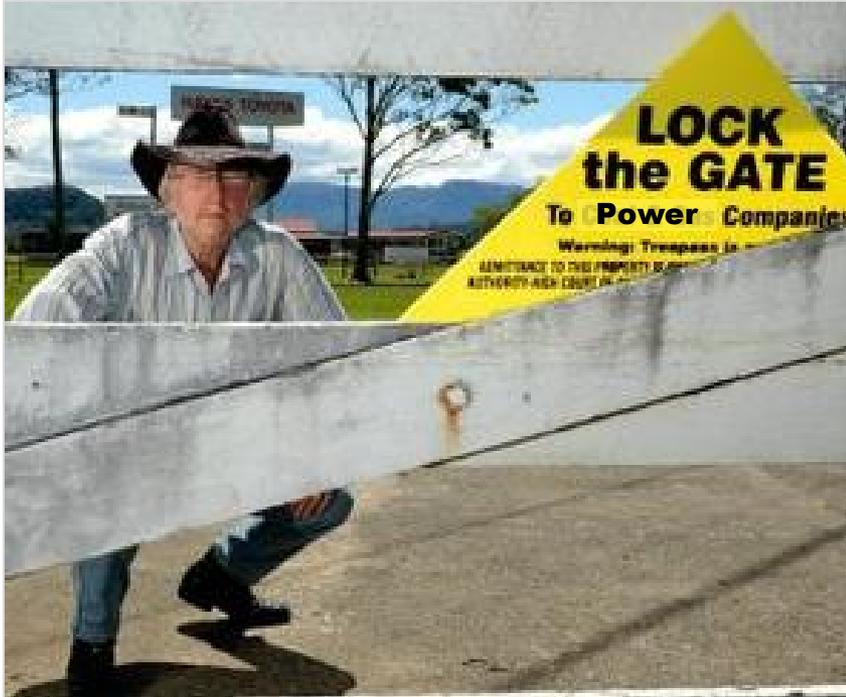
Design
Value
Effectiveness
Collaboration

DUTIFUL MECHANICS

Fulfilment
Cost
Efficiency
Competition



Initial difficult conditions



Poor brand, no trust, two routes chosen, EIA required, no in-house construction experience

Social licence and support gained



Stakeholder support, no EIA required, no public submissions, saved time and cost (EIA and very likely during construction), rising brand and trust

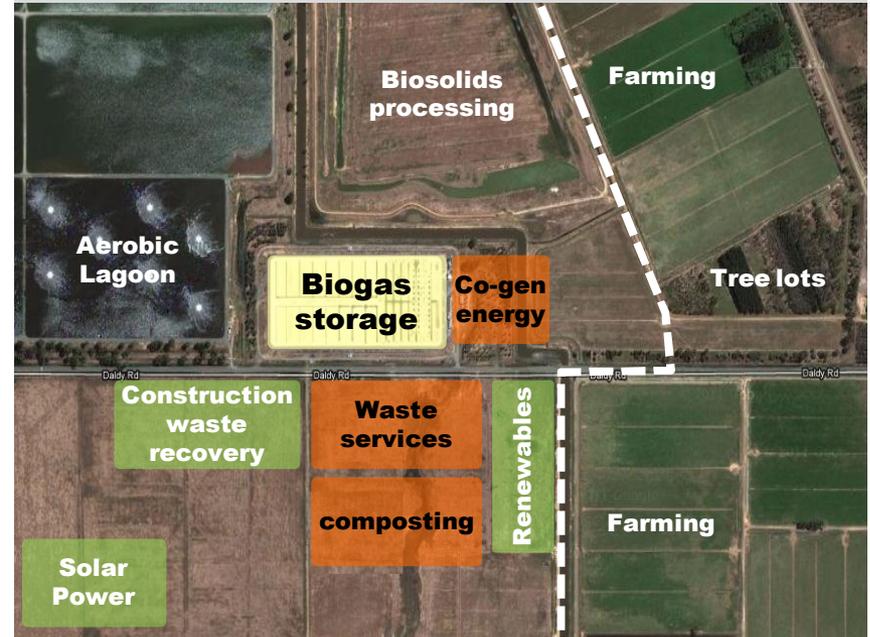


Odour generating liability



Wastewater treatment plant, drain on finances, odour generating community complaints

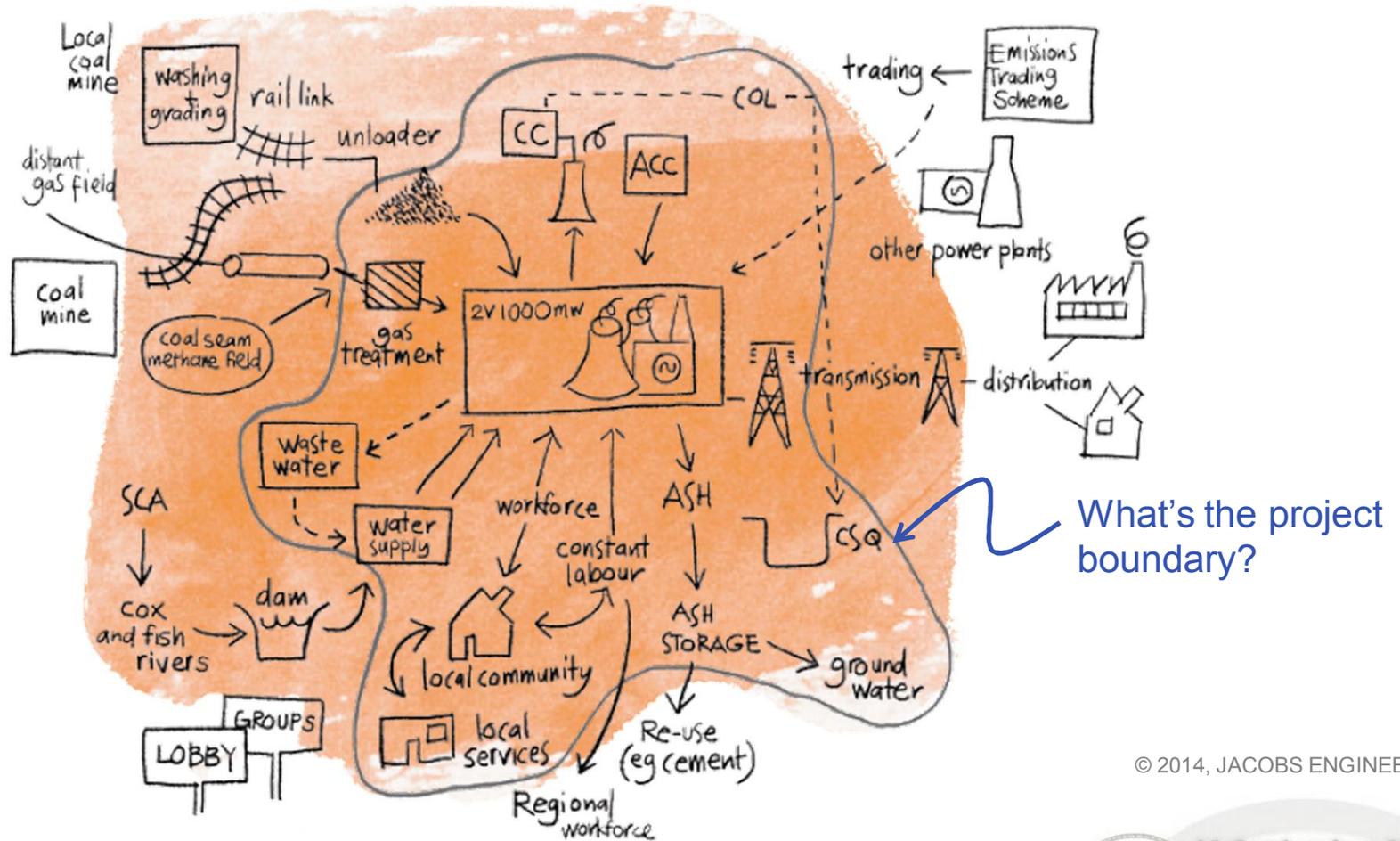
Resource creating asset



Co-generation of energy, odour management, utilisation of buffer zone, revenue generation, local job creation, brand enhancement, award winning ... inspiring similar thinking on other assets



How #1 – Systems mapping

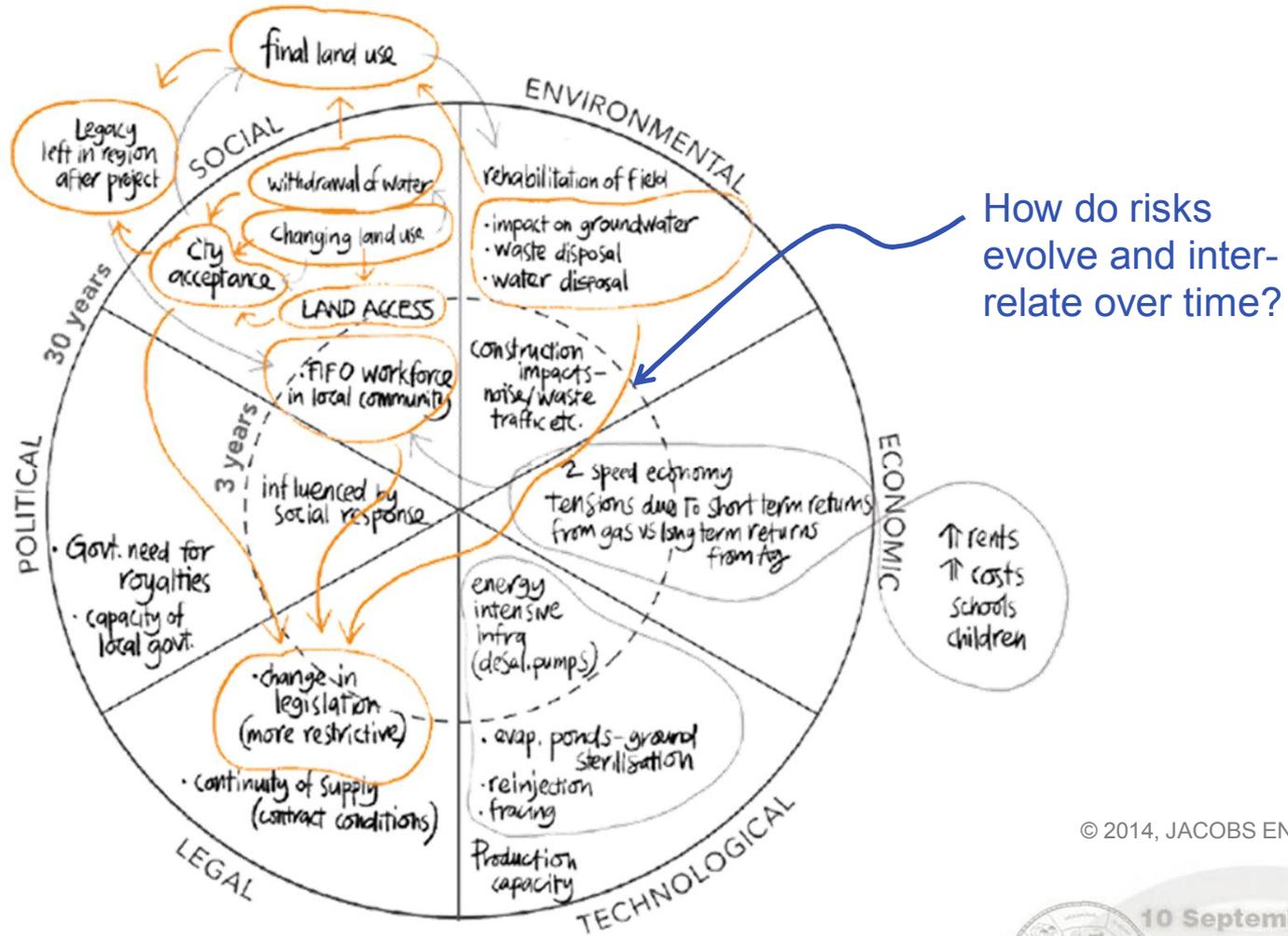


© 2014, JACOBS ENGINEERING

10 September 2014



How #2 – Issues Wheel

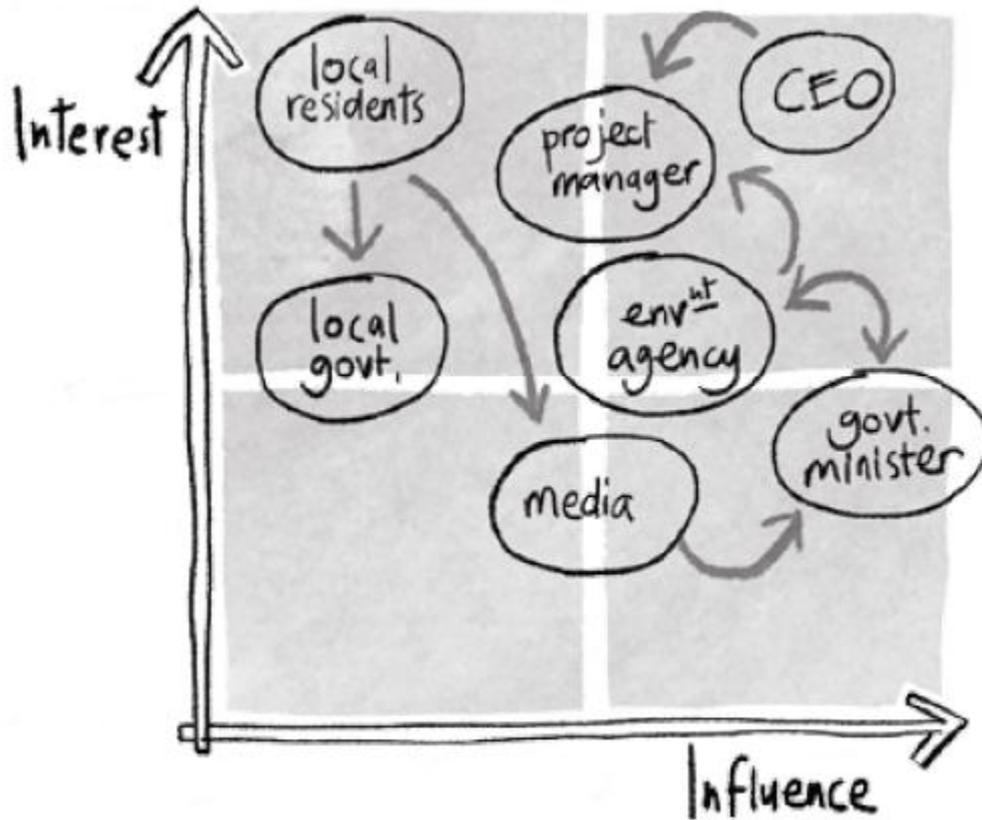


© 2014, JACOBS ENGINEERING

10 September 2014



How #3 – Stakeholder ‘deep dive’



What does success look like for each stakeholder?

How could we deliver on that success by design?



How #4 – Reframe, toward design

- Continually lead with powerful questions
 - e.g. What would success look like for Stakeholder X?
 - e.g. What would this asset's features need to be to ensure it remains highly valuable in 15 years time?
 - e.g. From our project team perspective, what might just be possible and worth striving for?
- Then use questions guiding toward outcome design
 - e.g. How can we eliminate the identified risks *by design*, and even translate them into assets?



What emerges again and again?

- Deeper, shared insight
- Joined-up solutions to multiple issues
- Simpler solutions, smaller footprints
- Lower capex, opex, cost of ownership
- Offset collaboration costs
- Socially viable solutions
- Reduced whole-of-life asset risk
- Motivation for future innovation
- Greater teamwork, less rework



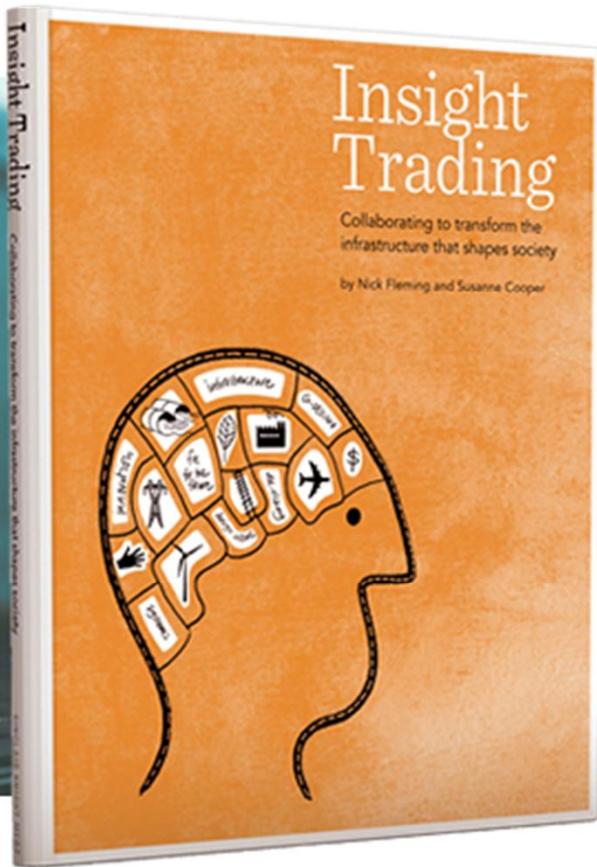
Conclusions

- A bigger, exciting role exists for engineers
- Mindset shift is pivotal to realising the benefits
- Myth that sustainability costs more should be rejected
- Not more effort, just better placed effort
- Impediments are rarely technical – fear and know-how
- Questions are one of the most powerful tools

With these insights, what choice will you make and why?



nicholas.fleming@jacobs.com



Insight Trading

insighttrading.globalskm.com

