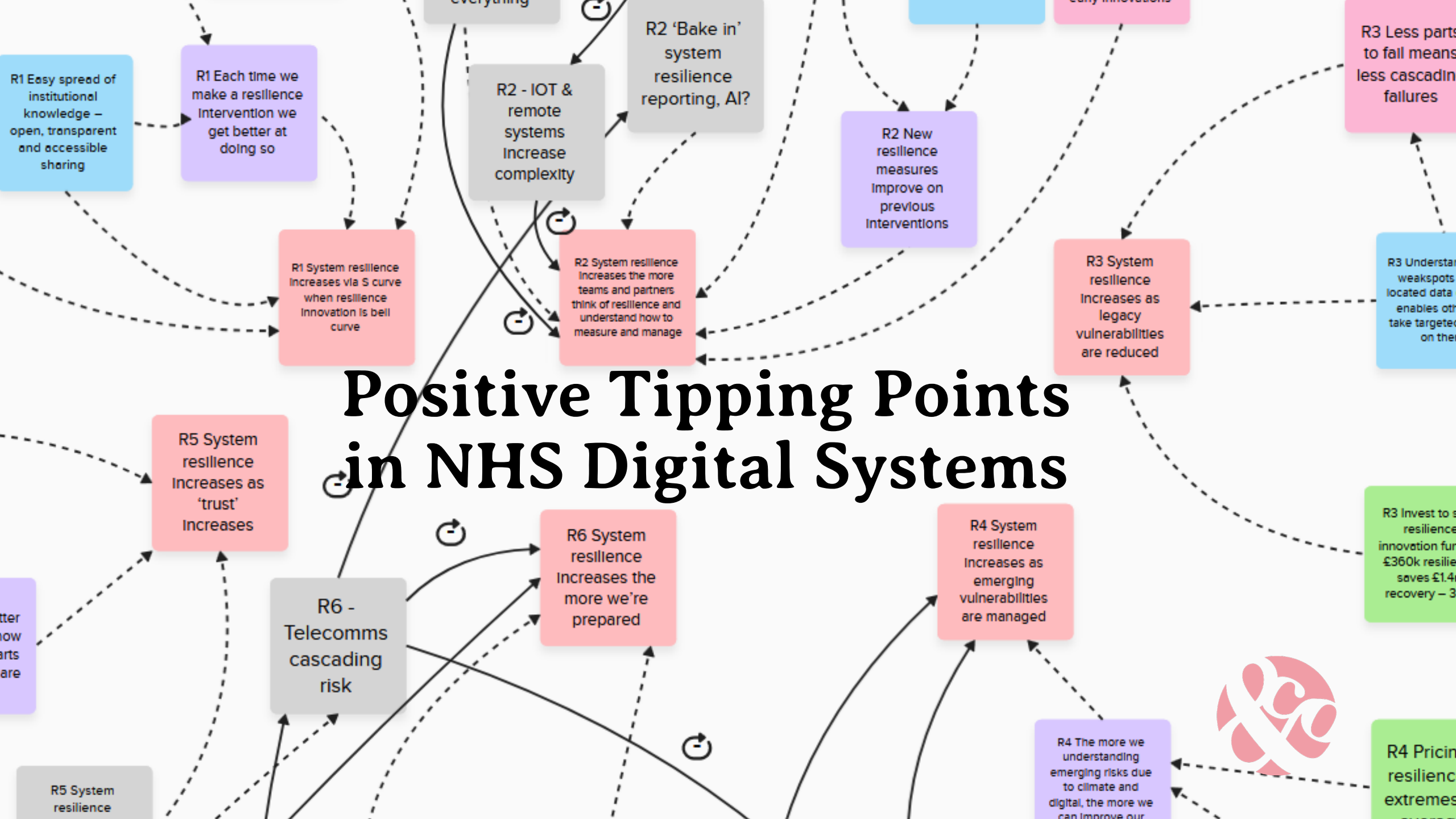


Positive Tipping Points in NHS Digital Systems





A wake up call



The perfect storm

Sub-optimal cooling systems

Ageing technological infrastructure

Overly complex and distributed responsibilities for managing the data centre environment;

Insufficient cooling actions on the day to mitigate extreme ambient temperatures.



Climate crisis is a health crisis

Dealing with climate change is no longer about “risk” - it is about survival.

The real killer is the breakdown of our systems. Heat, floods and fires do not just cause illness - they destabilise food supplies and economies.

Taking action on climate change is the biggest health opportunity of our lifetime.

Without action, the hazards are catastrophic. The climate emergency is a health emergency, and we must treat it as one.



Context

"How can we ensure our digital service is less likely to fail, and quicker to recover when climate risks occur?"



Somerset
Council



Building Climate Resilience for Digital Systems in Somerset

Climate change is no longer a distant threat. It is happening now, and Somerset's essential digital systems are at risk. Extreme weather events such as floods and heatwaves can damage critical infrastructure and disrupt digital connectivity and services when they are needed most. As digital systems become more embedded in the functioning of society, ensuring their resilience to climate impacts is an urgent priority.



Transform your tech.

We help organisations unlock the full potential of their people through development, strategic guidance, and lasting cultural change.

About us



NHS digital resilience

Complex - 217 Trusts, c350 systems each – 76,000 permutations! Lack of:

- clarity on responsibility – procurers and providers
- accountability
- Transparency – hidden risks embedded in cloud based services

Cascading – power and web-connectivity critical vulnerabilities, cyber attack overlap

Overstretched – struggled to even find time for staff to engage

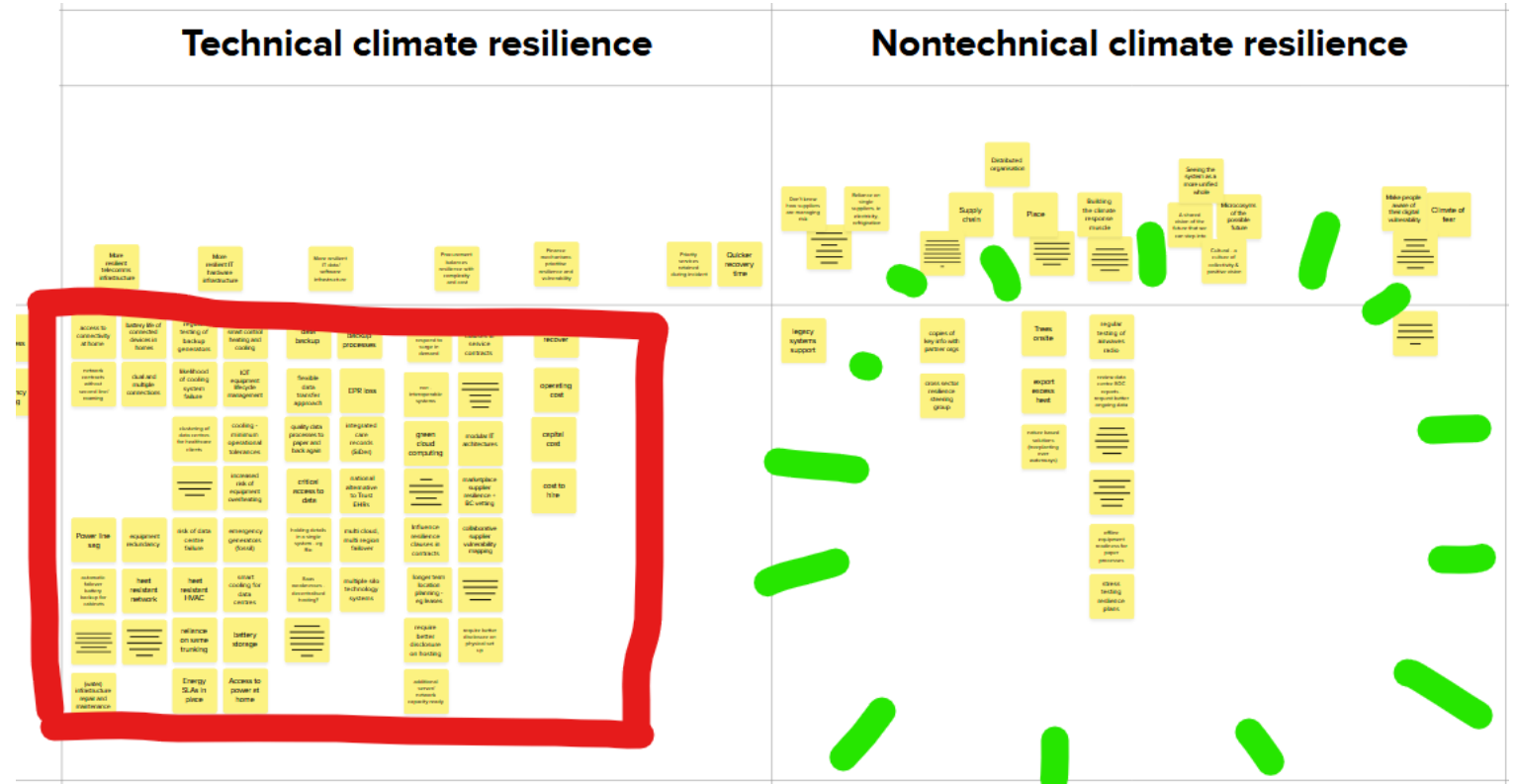
Underdeveloped – resilience seen as inefficient

Under-estimated - Models used by governments understate climate risks



Oxymoron of digital resilience

Maslow's Hammer



Cognitive debt

“Cognitive Debt is where you forgo the thinking in order just to get the answers, but have no real idea of why the answers are what they are.”



Feature	Risk/Impacts	Solutions	Risk owner/manager	Interventions
Hospital at Home	No access to patient records. Manual paper based system to be enacted which could impact quality of care and increases risk to vulnerable patients	Lamira and EPOC digital - The epic system connects the patient, actionable test results, the care team, and the therapy they deliver. - Siemens Healthineers USA Remote monitoring system in contract with Doccla. Doccla - Europe's leading virtual care solution Patients have this kit as well as the H@H team.	Somerset Foundation Trust - Digital team and H@H team	Business continuity plans, regularly tested, across suppliers. Battery energy backup for at home equipment. - better triage for patients with most critical needs. Ensuring data not stored in a single system. Ensure staff are trained in and trust digital systems
Patient records on Rio.	If that fails there is no access to patient information.	EPR (electronic patient record) Electronic Health Record is currently being procured.	Trust digital teams. Procurement teams	Business continuity plans, regularly tested. Better triage for patients with most critical needs. Ensuring data not stored in a single system. Ensure staff are trained in and trust digital systems
single system. Ensure staff are trained in and trust digital systems		is to ch s. team	Trust digital teams. Procurement teams. EPRR teams	Business continuity plans, regularly tested, across suppliers. Ensuring resilient procurement and healthcare specific SLAs of network and energy services. Ensure staff are trained in and trust digital systems
	and running on the skeleton crew but the limited bandwidth was a risk and fears that systems would fail if overloaded - this was in a small practice too, so what happens in larger	reprocured but cost is a barrier.	g ICB digital teams	Ensuring resilient procurement and healthcare specific SLAs of network and energy services. Ensure staff are trained in and trust digital systems

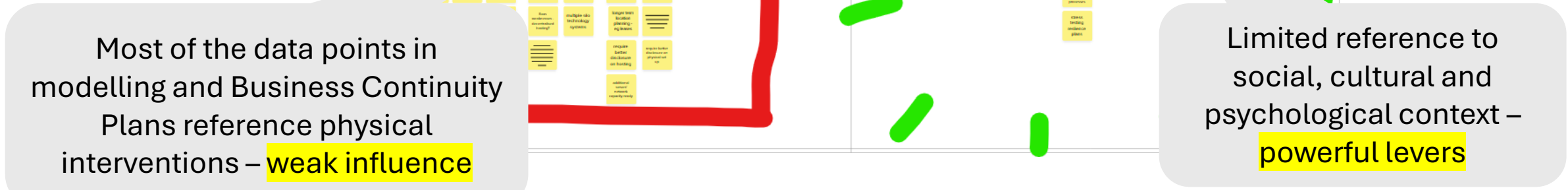
“I’ve had clinicians ask me how they can know a patient’s history without digital records. They seem amazed when I suggest asking the patient or their family/carers” NHS Trust Head of Resilience



Application of Positive Tipping Points methodology



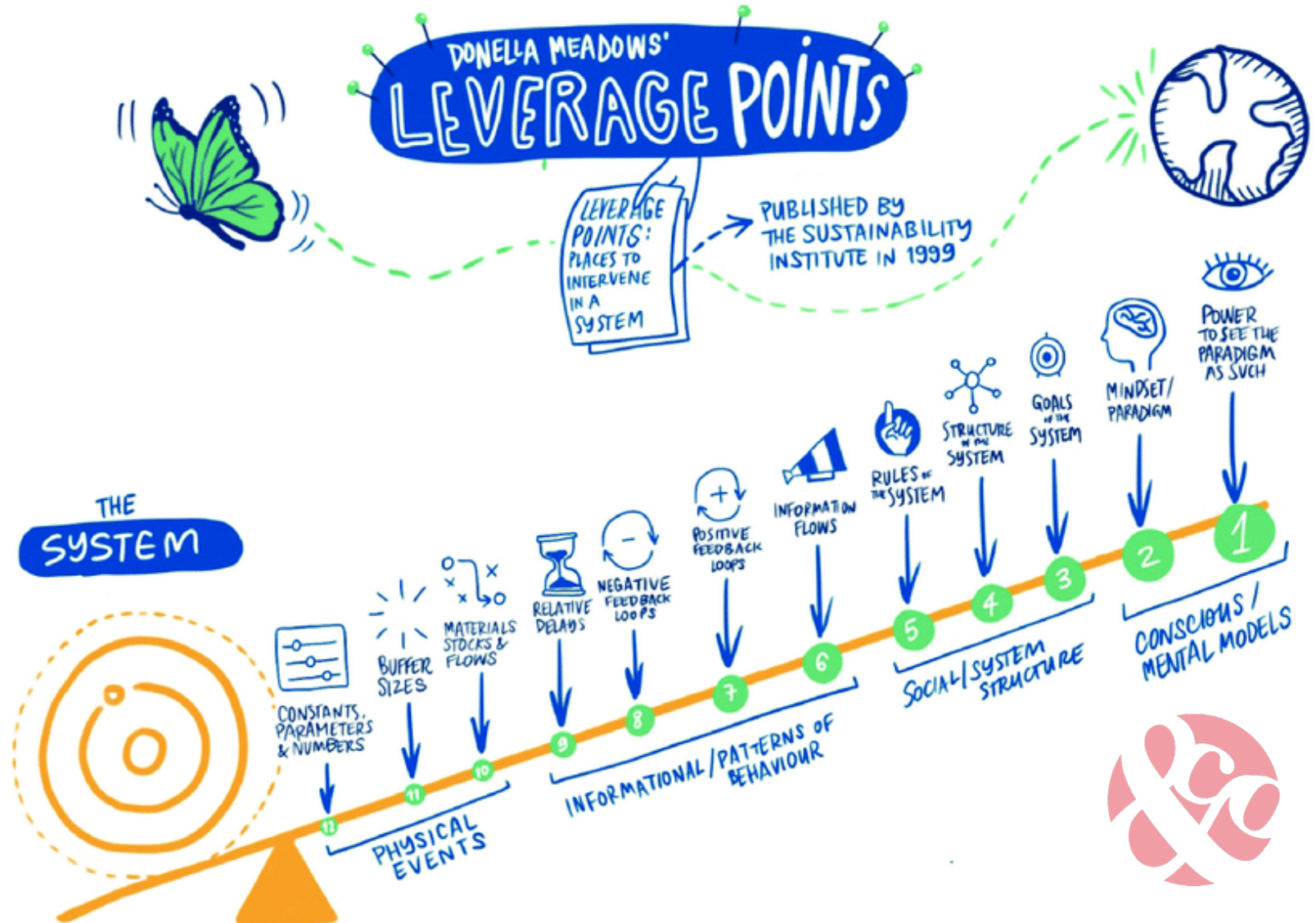




Thinking like a system

If we want to change a system, we need to think like a system.

Positive Tipping Points methodology allows us to consider leverage points with whole system impact, including goals and mindset.



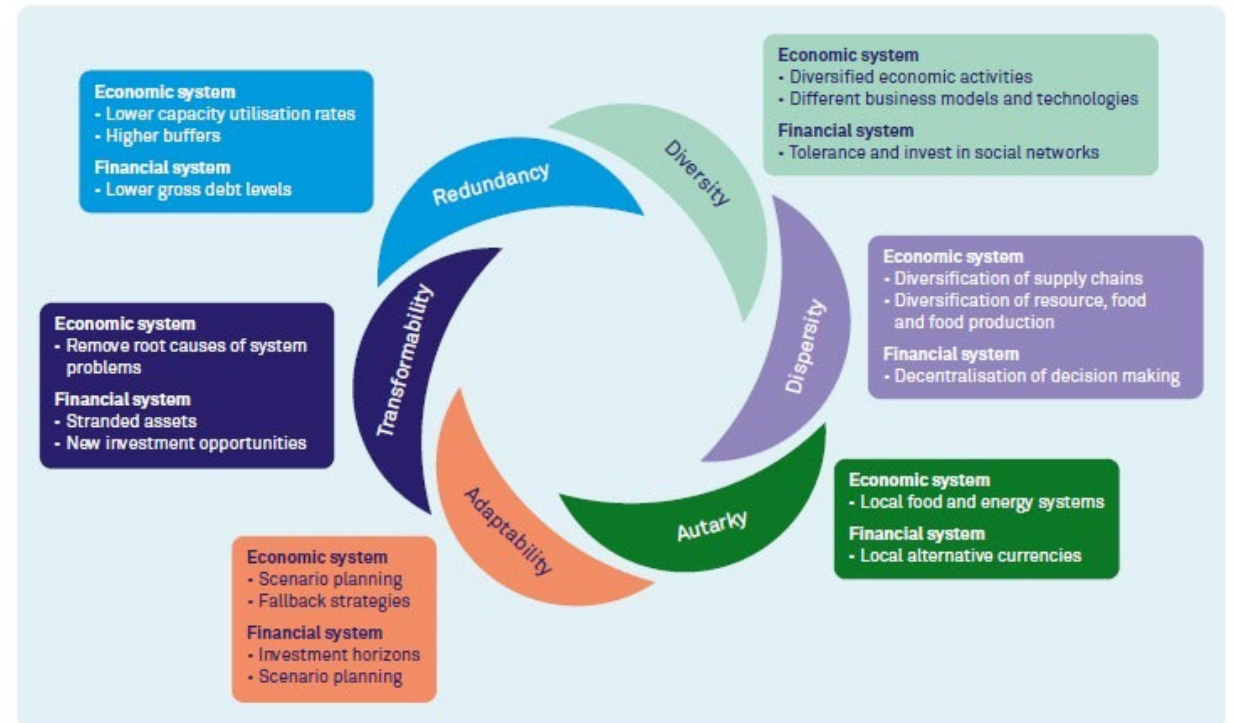
Resilience



The capacity of a system to deal with change and continue to function or recover rapidly.

Six reinforcing principles:

- Redundancy,
- Diversity,
- Dispersity
- Autarky (self sufficiency)
- Adaptability, and
- Transformability



Source: Triodos IM (based on Stanley, 2011)

Understanding & actioning



Complicated system

Not simple, but understandable
A correct answer exists
Predictable
About things
Requires expertise



Complex system

Not fully understandable
No correct answer exists
Only partially predictable
About relationships
Requires perspective

1 Co-Initiating

Uncover Common Intent

2 Sensing

Observe
Sense the system from the whole

3 Presencing

Connect to the source of inspiration, motivation and will

4 Co-Creating

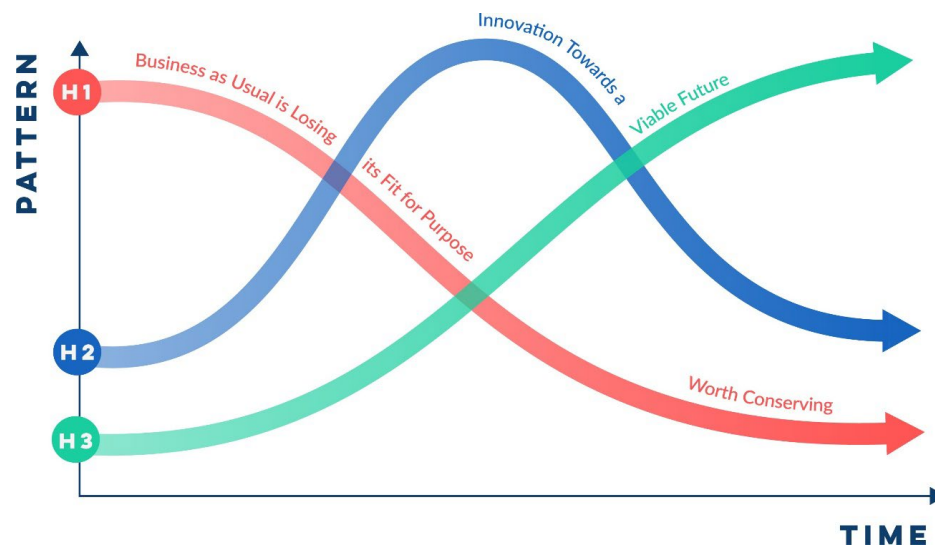
Prototype the new
Explore the future by doing
Iterating and sharing learning

5 Evolving

Institutionalize new practices



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FINANCIAL CAPITAL
Our financial health and efficiency.



HUMAN CAPITAL
Our workforce's capabilities and wellbeing.



MANUFACTURED CAPITAL
Our pipes, treatment works, offices and IT.



NATURAL CAPITAL
The materials and services we rely on from the environment, especially water.



INTELLECTUAL CAPITAL
Our knowledge and processes.



SOCIAL CAPITAL
Our relationships and customers' trust in us.

It's part of our
Blueprint for Yorkshire



Positive Tipping Points identified



Two aspects of Positive Tipping Points identified:

- Enhancing non-technical resilience
- Enhancing technical resilience

PTP – Enhancing non-technical resilience



NT1. If decision makers prioritise resilience and long-term thinking amidst day-to-day working

NT2. If climate resilience was viewed as essential and a shared responsibility by staff and suppliers

NT3. If we had a more effective response to incidents and better learning from them

NT4. If we reduce 'cognitive debt' of outsourcing systems and services

NT5. If we had a reciprocal resilience network with institutional partners

NT6. If we had nature-based resilience networks with local partners

PTP – Enhancing technical resilience



T1. If we understand the risk and resilience of the existing system

T2. If investment and procurement balance resilience with complexity and cost

T3. If we knew the likely impact of climate change (medium/long term) and climate incidents (immediate term)

Enabling Conditions development



Each Enabling Condition is developed by expressing as a positive “If... statement” and examining:

- Cost
- Desirability
- Convenience

Then looking at:

- What conditions are already in place? Can they be strengthened?
- What conditions are not in place? What is your role creating them?
- What indicators can we use?

Enabling Conditions (excerpt)



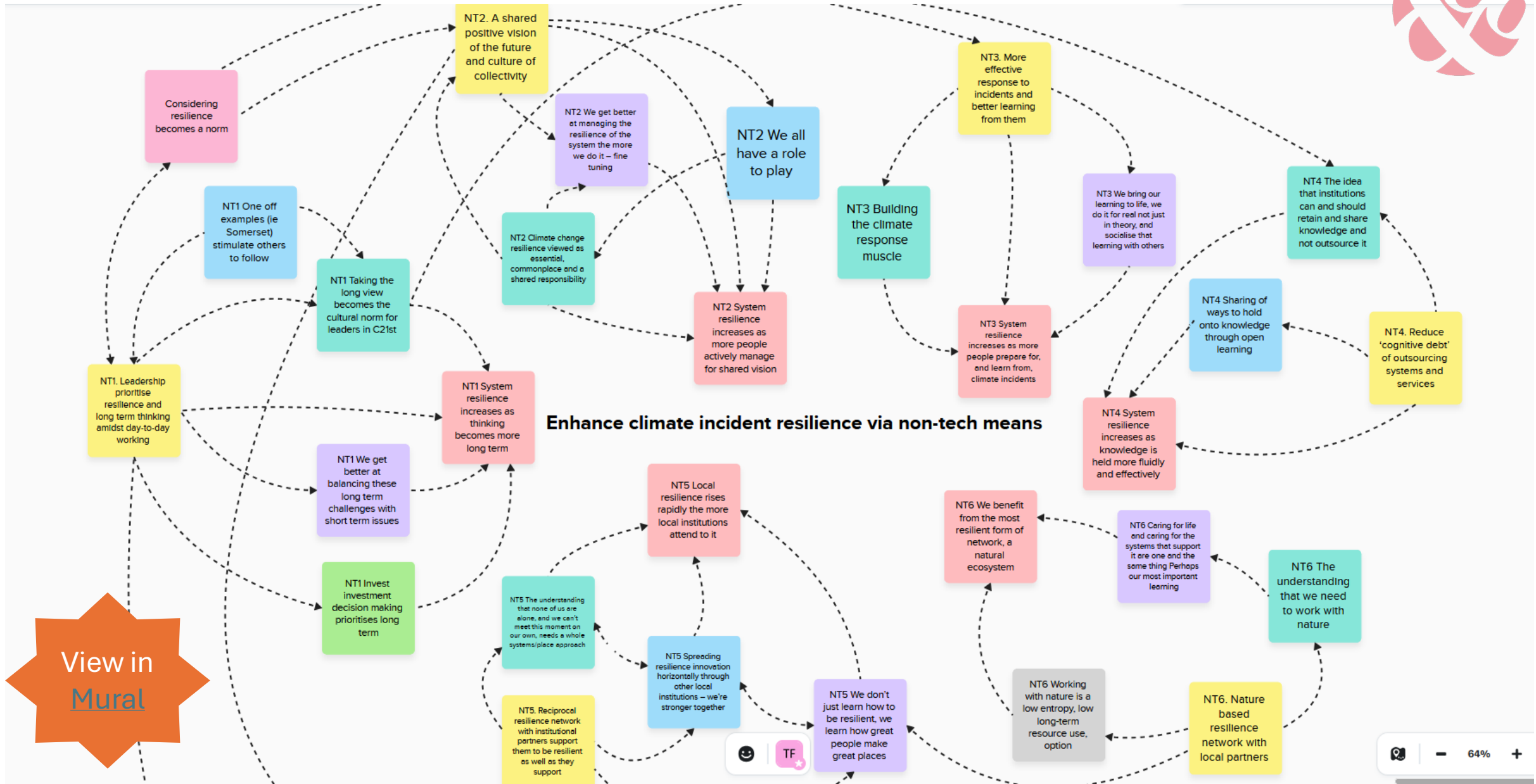
Enhancing climate incident resilience by addressing key technical vulnerabilities							
Theme	Enabling conditions					Indicators	
	What are the conditions required for the systems change you are working towards				Which conditions are already in place? How can they be strengthened ?		Which conditions are not yet in place? What is your role in creating them?
	Positive statement	Cost	Desirability	Convenience			
T1. Procurement balances resilience with complexity and cost	If procurement and delivery through supply chains increased resilience not complexity	If procurement priced in resilience and didn't inadvertently increase complexity due to cost focus	If the supply chain became less work to manage	If it was easier to strike the balance between complexity and resilience	Procurement appraisal process	• Embed climate resilience into procurement • Guidance/manual on trade-offs and <u>win:wins</u> • System/supply chain Firebreaks • Resilience scores for suppliers • Complexity rating for the supply chain	• Climate resilience data provided by suppliers • Low/zero emission services ie <u>Green</u> cloud hosting • Circular materials in supply chain
T2. Finance mechanisms take long term view to invest in resilience	If we weighted investment more towards resilience	If there was an 'invest to save' approach	If a <u>long term</u> view was given weighting in personal objectives	If a <u>dedicated investment</u> vehicle was established	Investment decision making process	• Invest to save resilience vehicle • Long term view in personal objectives	Value of funds invested via 'invest to save'

Feedback Loops



Feedback loop	Explanation	Example
Social contagion	An idea or behaviour spreading from one person to the next	People being influenced by their friends or neighbours installing solar panels
Learning by doing	The more we do something, the better at it we get	Listening to feedback on a workshop or project and taking action to improve the next one
Percolation	The abrupt change of a network from locally to globally connected, allowing change to spread more widely	The rapid increase of a contagious virus from contained to widespread
Economies of scale	The more we do something the cheaper it becomes (cost, energy etc.)	Bulk-buying ethical products, or renewable energy, making it more attractive to others
Economies of Networks	The value of a product or service increases the more people use it	The more people prepared for disruption, the lower the risk of cascading failures
Tech Reinforcement	As a new technology or behaviour gains momentum, other new developments are created that reinforce it	The creation of apps to reinforce our use of smartphones

Feedback Loops



Triggers



One might expect events such as climate incidents to create opportunities to overcome institutional frictions and create change.

But institutions have **balancing feedbacks that sustain the status quo** (e.g. fragmentation, veto power).

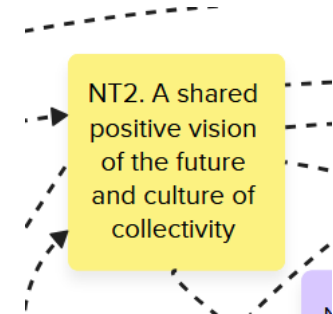
Recent work suggests that **sequencing policies** so that benefits are realised early and often can increase subsequent support for more ambitious climate response

Sequencing Triggers

Working on the system not in the system



The most connected, and **most influential**, nodes in the system relate to mindset, culture and priorities.



These are the proposed start points for sequenced interventions that can create enabling conditions required to trigger Positive Tipping Points





Holdfast .

The Team Resilience Exercise



New narratives, fresh perspectives



Institutional load of outsourcing - cognitive debt

What if we didn't trust digital? – creating manual backups and workarounds when tech fails

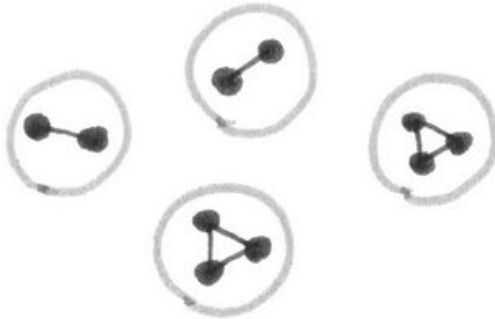
Healthcare staff are last line of defence to climate incidents

Social pathways for change

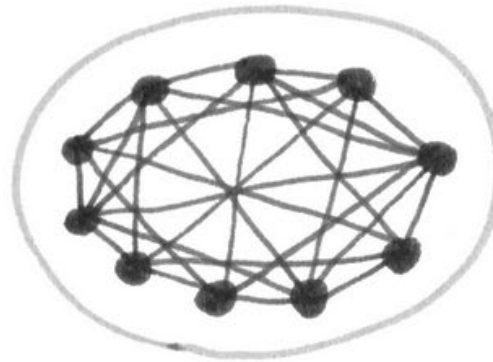
Small world networks



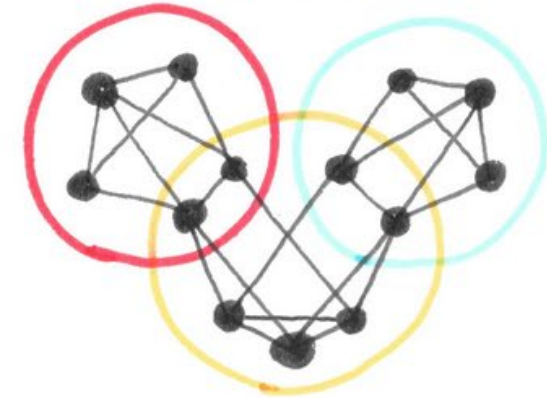
Not this...
(because ideas can't spread)



nor this...
(because you'll get groupthink)



...but *THIS*:



This means interventions aiming for positive feedback through social contagion are best when they **work across institutions, places, professions and roles**

Why the PTP method works in this context

Large connected ecosystem

Strong influence of individual and organisational decisions



Which bits were most useful

Methodology on Notion

Feedback loops & social conditions

Big picture view, extending to story & narrative, small world networks

