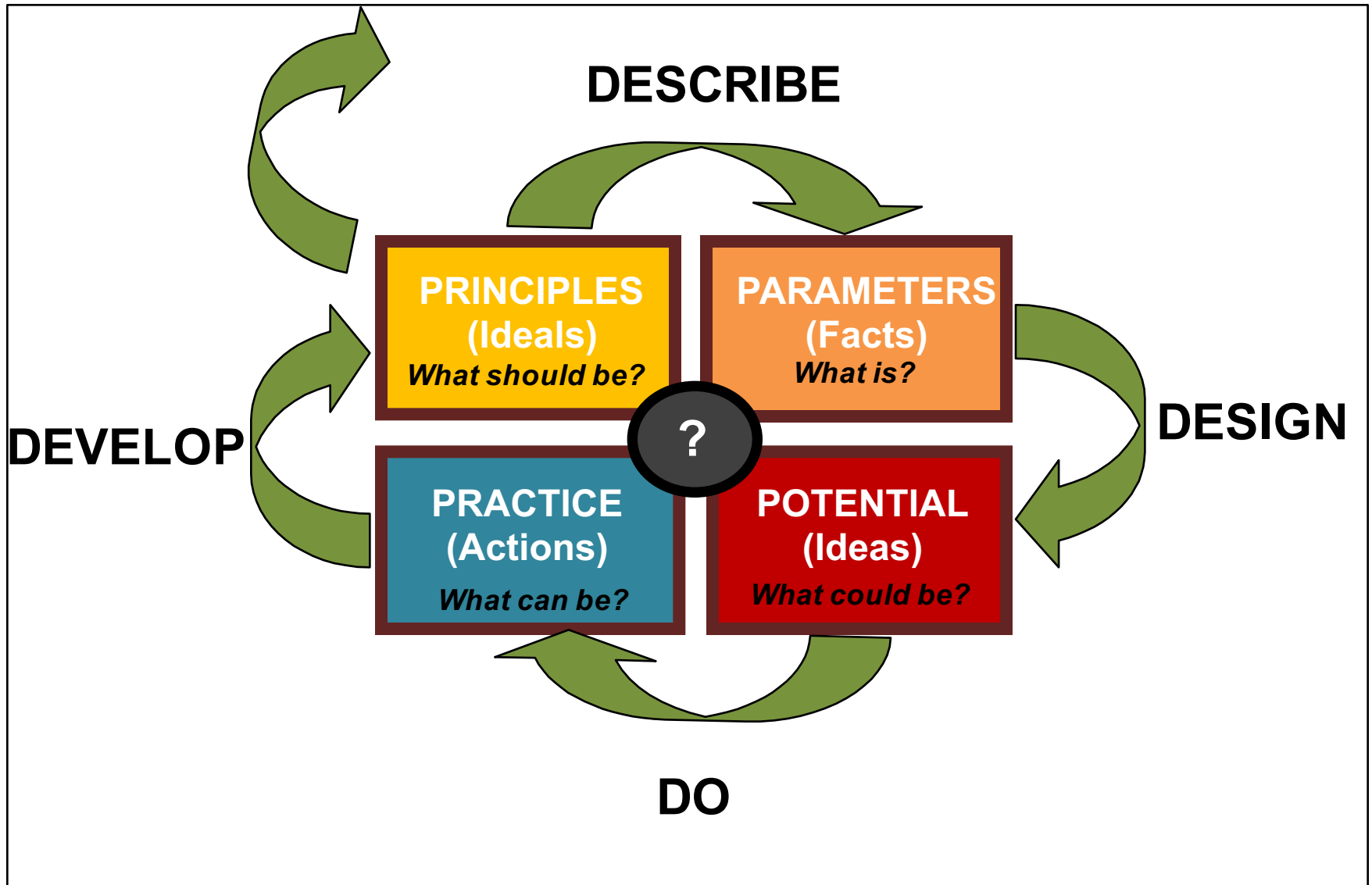




Bringing our “pieces” to the whole

# Collective Learning Spiral



Source: V. Brown (2006) *Leonardo's Vision: A Guide to Collective Thinking and Action*

# The Arc of the Workshop

**TUESDAY**

**WEDNESDAY**

**THURSDAY**

**FRIDAY**

**SATURDAY**

**Session 1**  
Welcome &  
Introductions

# Dreaming the Ideal Outcome

## PURPOSE

- Bring to the fore our different conceptions and assumptions about risk and resilience
- Jointly set goal(s) and collectively vision a successful outcome of this workshop
- Hear everyone into speech

## INSTRUCTIONS

- Equip yourself with 10-15 sticky notes
- Go around the room and finish the 5 sentences by/for yourself (one answer per note; you can add multiple stickies per sheet)
- No platitudes! Be as specific as possible
- More instructions to follow



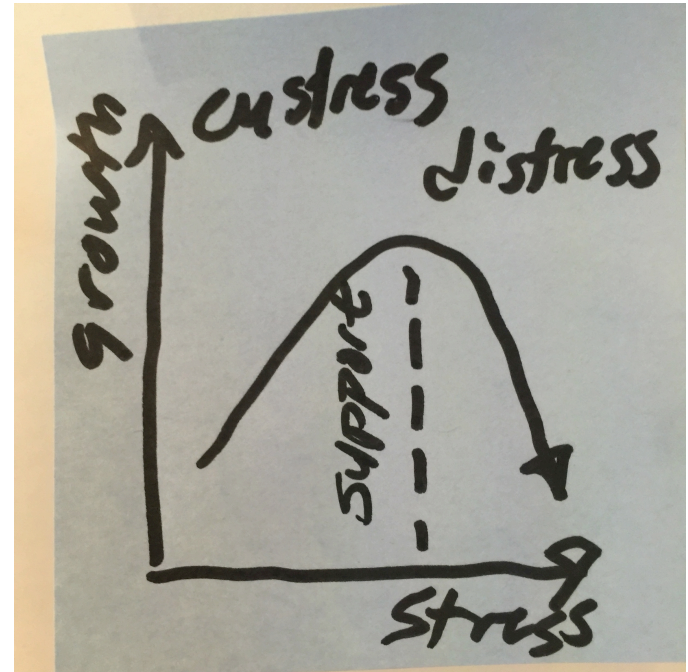


# In the face of climate change and related disruptions, a resilient system/community will...

- Adapt how it adapts; monitor change
- anticipate how change affects its ability to adapt to handle disrupting events
- Push initiative to local level with support from broader units
- Build reciprocity across roles and levels
- Bounce forward to more just and prosperous society
- Use a data driven decision support system
- Adaptable and dynamic to facilitate change
- Determine what systems need to be strengthened, what need to be transformed; how to maintain adaptive capacity
- Have the resources & knowledge to adapt
- Be willing to accept change
- Embrace change as continuous and persistent
- Manage systems on multiple time scales
- Preserve original functionality
- Feel safe enough to become adaptive
- Embrace change and adapt accordingly
- Look for the deepest drivers of vulnerability
- Adapt, develop, innovate i.e. flourish #growthmindset
- Adapt when possible; transform when not
- Be self reflective/aware of itself
- Look for the deepest drivers of vulnerability

# In the face of climate change and related disruptions, a resilient system/community will...

- Address social economic environmental and infrastructure systems with a cohesive and integrated approach
- Integration to reduce suffering
- Be buffered to risks exceeding cumulative thresholds and accommodate the change
- Deeply consider what makes our life support system tick
- Be willing to accept change and loss (of/in existing lifestyles)
- Promote learning among technologists, officials, public institutions
- Feel safe enough to become adaptive
- Proactively identify alternate, desirable states and develop adaptive capacity to enable movement toward those states
- Have anticipated acute shocks



# Because there are **always more stresses than just climate change**, a truly resilient system/community will also...

- Identify desirable futures and shared visions
- Identify and continually reaffirm its values and lifestyle goals
- Think about desired states for themselves and their communities and what are threats to those desires and ways to overcome them
- Simultaneously consider and address stresses while planning for shocks
- Manage its current risks and associated uncertainties
- Manage changing tempos of operation
- Address more rapid and more gradual rates of change
- Understand thresholds of cumulative stress in the community
- Push initiative down and coordinate actions with other roles and levels
- Handle cascades
- Avoid being slow and stale in responding to cascading events
- Apply principled methodology of risk analysis
- Maintain flexibility and be capable of adapting to whatever changes occur in the future
- Prioritize actions to current stressors flexibly and prevent maladaptation to future stressors
- Incorporate uncertainty and ignorance into planning using incomplete uncertain information

# Because there are **always more stresses than just climate change**, a truly resilient system/community will also...

- Adapt or transform into alternate desirable states independent of the stressor
- Always be innovative, be willing to improvise within given rules; continual assessment; agility
- Sustain critical functions and recover from unknown stress
- Accept risk but also share risk in a more sustainable and ethical manner (fairness)
- Respond to future stressors (known and unknown)
- Look beyond the present
- Not delude themselves that they must wait to act until knowledge is complete
- Draw on a “culture of resilience” regardless of threat
- Share ?
- Perceive the menaces
- Anticipate-sense-learn!-adapt-anticipate....
- Enhance its agility and capacity to adapt
- Anticipate unforeseen and emerging risks
- Address manmade and natural acute and chronic shocks with consistent methodology to limit impacts to life, capital assets and community activities



# The single biggest advance in the science and practice of risk management will come from...

- collaborative efforts
- working with practitioners
- network of researchers and practitioners and researchers exchanging ideas and experience
- addressing societal teleconnections
- collaboration amongst all stakeholders with true recognition of history and equity
- integrating bottom-up actions with top-down thinking
- development of defensible approaches to address uncertainty
- studying and discussing failures in the science and practice
- integrating policy and practices across management agencies (e.g. coastal permitting)
- making risk and vulnerability a fundamental input into the community development process
- redundancy in all systems as “best practice”
- creating a forum to advance dialogue about risks from multiple perspectives
- proactive reductions in the vulnerability of those most at risk
- a less bureaucratic view of consequences developed through engagement
- developing solutions that are economically feasible, practical from an engineering perspective & politically acceptable...
- Both private & public development experiences being (transversed??) a investment in a better more just and prosperous future—long term ?
- scale with finance and markets
- quantifications of resilience
- identifying best practices for dealing with unanticipated/uncertain risks, maybe by incorporating resilience thinking (e.g. system redundancy, flexibility..)
- the understanding that risk management also involves management of expectations→don't expect what is not achievable

# A critical advance or breakthrough in our understanding of resilience involves...

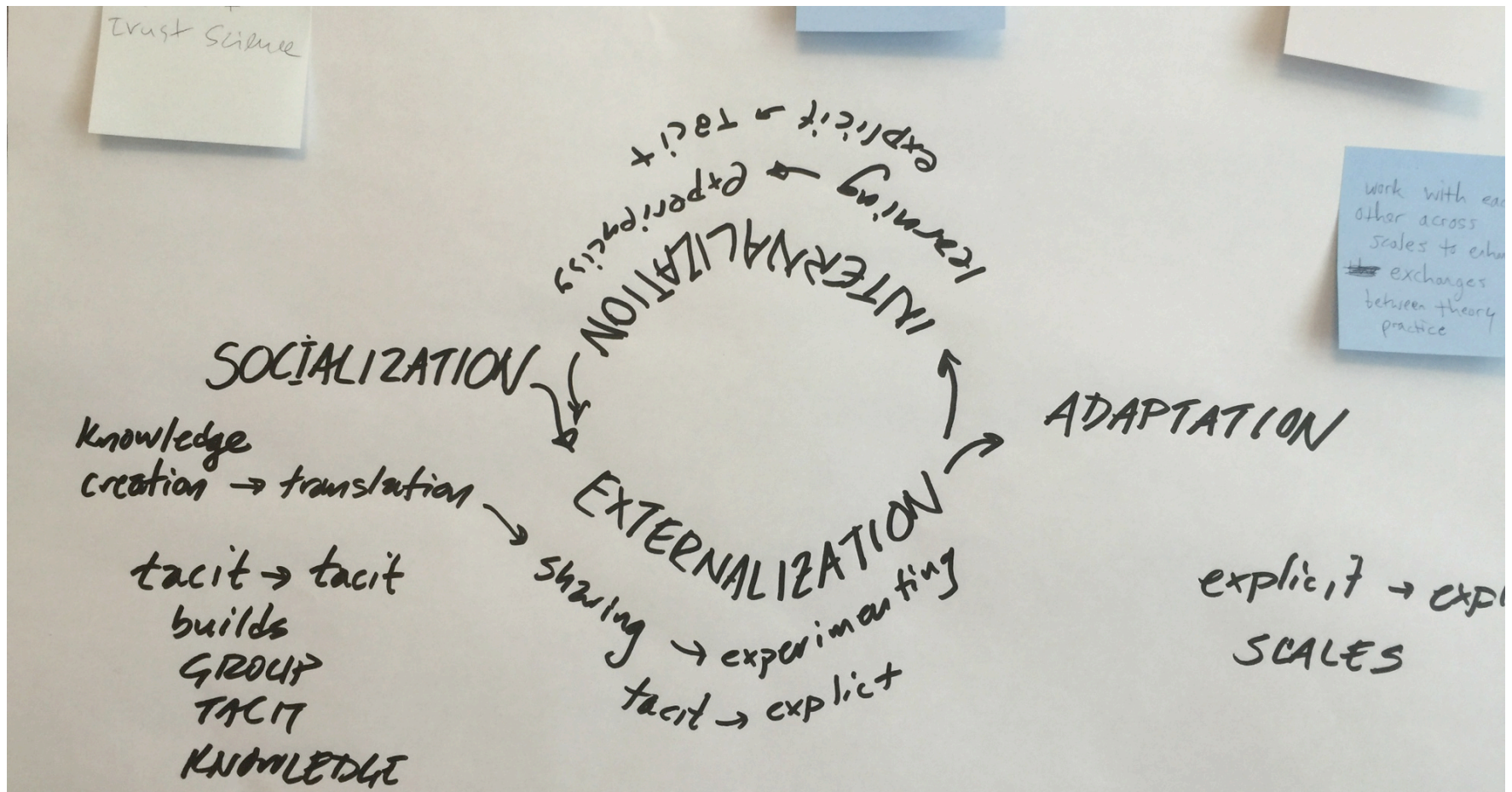
- An acceptable taxonomy;
- imagination;
- analysis methods and reasoned civil discourse to build synergies and address tradeoffs;
- integrating resilience as a core concept in all planning and implementation;
- quantification and objective evidence;
- an understanding of benefits to one group will cost other groups funds – business opportunity cost;
- that risk can be sometimes be reduced, prevented or avoided with conventional risk management methods;
- resilience is a property of systems at risk and it is not always the main strategy to purpose;
- a sense for how different resilience frameworks can enhance human intuition and judgment;
- ways to better manage basic tradeoffs;
- way to measure how changes increase brittleness or move points of brittleness;
- recognition of the threat the lack of resilience may result in;
- assess the risk of basic forms of adaptive breakdowns;
- integrating consideration about resilience with other fields' discussions of innovation, change and development;
- cross disciplinary concept and methodology for enhancing system resilience;
- identifying critical/key feedbacks;
- addressing primary and higher order impacts;

# A critical advance or breakthrough in our understanding of resilience involves...

- recognizing where engineering resilience sits in the ecological societal definition and how they interact;
- comparing successes and failure across similar resilience experiments;
- common understanding;
- a more differentiated view of the social that clearly delineates the agency of different people
- the ability to measure it in the past and present;
- robust methods of regime shift detection, particularly for social systems;
- human being considering human reliability and methods to prevent failures;
- it being easily understood by scientists, managers, policy makers and citizens alike
- a definition of word resilience; informing across disciplines;
- quantification and network science;

# To build truly resilient systems/communities scientists and practitioners must ....

- Have a common language/understanding
- Build trust in each other
- Create>> Translate>>Innovate
- Escape from their disciplinary roots to build a new synthesis
- Listen to stakeholders & be aware of socio-cultural
- Consider the multi-generational implications of their decisions as they change ideas
- Talk together much better than of old
- Work on specific problems
- Communicate interactively with a common language
- decision makers prioritizing and investing in solutions where benefits may not be realized in their tenure;
- Share not just data but risks and responsibilities
- Have 2 way conversations where both sides come to the table
- Understand the needs and behaviours of those in the system
- Acknowledge change of mind of stakeholders
- Develop a process for engaging communities visions and considering how these connect across scales of governance
- Communicate interactively with a common language
- Redefine what it means to be an “expert”
- Periodically allow controlled destruction/disintegration to reinvigorate & recreate system component
- clarifying major conceptual tensions;



- Work together to understand each other and co-produce
- Be open to change in the institutions to which they belong
- View each other as experts in their domain
- More freely share ideas about what they don't know and why that matters
- Work on specific problems
- Engage each other to appreciate their norms biases and perspectives



# Debrief/Reflection

- What do you observe?
- What is there? What seems essential to you?
- Do you see any notable gaps or something missing?
- Are there any apparent reinforcements of aspects?
- Any apparent contradictions?
- Do you see any seeming divergences in language or underlying understanding?
- Any surprises?