CHANGE & COMPLEXITY: VECTOR THEORY OF CHANGE

A THEORY OF CHANGE FOR COMPLEX SYSTEMS

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The Traditional Approaches

A theory of change is the theoretical underpinnings of a social intervention or plan to change something—a collection of approaches broadly aimed at strategic planning, description, monitoring and evaluation (Ringhofer & Kohlweg, 2019). Traditional theories of change typically involve envisioning an end point, then working backwards to identify each step that must be achieved in order to realise the end goal, with rationales and assumptions identified at each step (Taplin & Clark, 2012; Weiss, 1995). This is a useful approach when working within ordered systems where the relationship between cause and effect is clear and predictable (see the Cynefin framework).

However, this approach to change will not be useful when operating within a complex system. Complex environments are dynamic in nature: cause and effect relationships can only be deduced in retrospect, and the environment will (hopefully) change and evolve in response to the interventions and actions taken. Moreover, traditional approaches to change tend to break goals down into isolated problems, where complex systems are defined by the interconnections and entanglements between parts, and cannot be broken down into smaller pieces—any attempt to do so will change the system itself in unpredictable ways.

Vector Theory of Change

The Cynefin Company offers a different approach, developed by Dave Snowden, called vector theory of change. To manage complex environments, the focus needs to shift from lofty long-term goals to a cyclical process with four steps:

STEP 1: START FROM WHERE YOU ARE

The first step of vector theory of change is to map the system's current dispositional state which tells you how the system is currently connecting and how it is likely to shift and change. Focusing on long term visions can blinker you to what's happening in the here and now, and you can miss weak signals of opportunities as well as risks.

Mapping the existing culture and context can be achieved with SenseMaker®, which asks respondents to answer a qualitative question usually asking about a recent life experience. Then follow-up questions about their story provide quantitative data.

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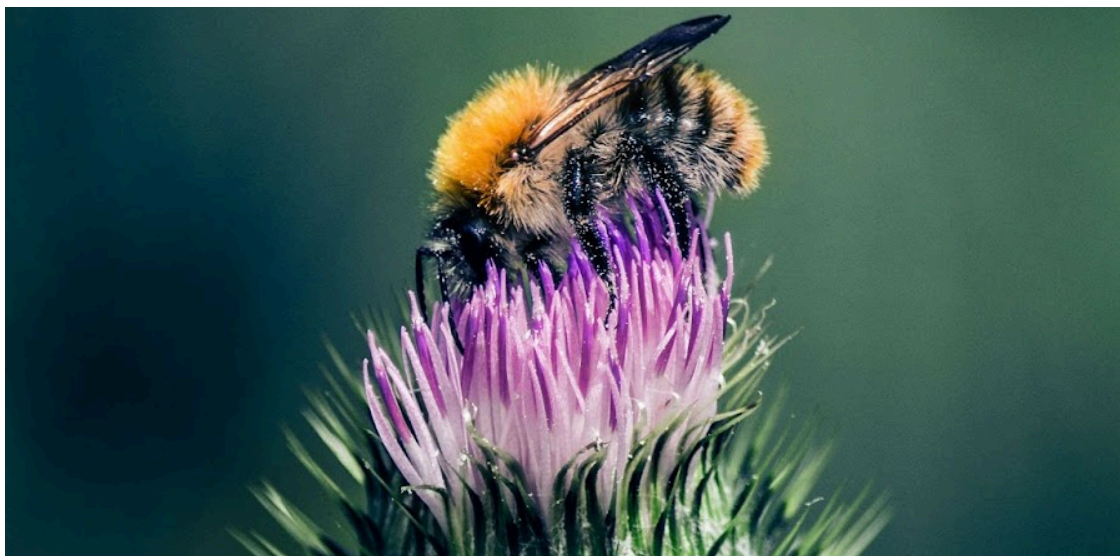
With this approach, participants "self-signify" the meaning of their own stories, so that each data point has a real-life observational description behind it. This approach utilises human sensor networks and is a form of abductive research which involves exploration, observation and drawing the most coherent explanations (see the EU Field Guide on Managing in Complexity (and Chaos) and this video on risk and resilience).

STEP 2: SETTING DIRECTION & FINDING STEPPING STONES

Setting Direction with Vectors

Next, identify a desired direction to move in (in collaboration with community members). The direction is decided by deciding on what you want more of in the dispositional landscape and then amplifying that; this is a vector based target. In contrast, the typical theory of change approaches involve setting explicit goals that are often used as metrics. This means they are open to gaming following Goodhart's law: "When a measure becomes a target, it ceases to be a good measure." (Strathern, 1997).

Vector targets set a direction to move in from the dispositional state which allows you to detect weak signals and outliers. These can be identified by asking a large, diverse network of people what consequences they foresee in trying to shift towards a certain direction (as opposed to an ideal end state). By gathering multiple perspectives, we can draw on the wisdom of those less impacted by inattentional blindness.

Adjacent Possibles

Adjacent possibles are everything that's achievable given the system's current state (Kauffman, 1996). Life didn't jump from a single cell organism to a complex organ such as the human brain, it jumped from a single cell to multicellular organisms. Adjacent possibles are one step away from where you currently are; they are the first stepping stone.

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In the context of vector theory of change, adjacent possibles are data points that are further along in a desired direction than other data points. We want to amplify whatever is happening there by shifting other data points in that direction. Insights from the adjacent possible narrative data can be used to design the interventions. Different data points on the graph will have different adjacent possibles, that is, different interventions to shift clusters in a specific direction. After these interventions, the landscape will look quite different and you can identify new opportunities and risks, along with new adjacent possibles and interventions.
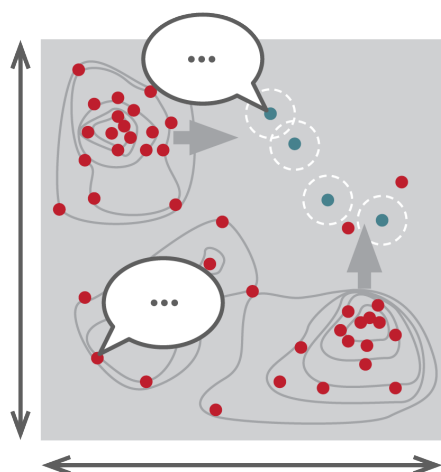

Figure 1. The graph represents the quantitative results of a research project. The red dots represent the SenseMaker signifier data of each respondent, and the speech bubbles represent the narrative data associated with each data point. There are two main clusters; one in the top left and one in the bottom right of the graph. The grey arrows represent the direction in which these respondents should 'shift' in order to move in a desired direction. The data points that lie next to the clusters but are further along in a desired direction are called 'adjacent possibles'.

STEP 3: DESIGNING INTERVENTIONS

Nudges: Start Small, Here and Now

Nudges are small, contextual interventions that change the decision-making context (not incentives) in order to encourage behavioural change (Thaler & Sustain, 2013). Typically nudges are used by decision-makers to achieve their own goals and outcomes. This approach was originally designed to overcome some of the linear thinking and power dynamics behind outcome-based targets, however more recently nudge theory has come under fire for "soft paternalism": people are pulled towards someone else's preference, often with no dialogue or opportunity to voice their preference regarding what the desired outcome is, nor how change is achieved (Sætra, 2019; Jones, Pykett & Whitehead, 2011; Yeung, 2017).

In contrast, The Cynefin Company's approach involves community members (whether they are employees, residents of a neighbourhood, or services users) in co-designing interventions. In workshops, they are invited to explore and make sense of the data and consider "How do we create more stories (or narrative data) like the ones people have identified as positive, and fewer like the ones people felt were negative?" This puts decision-making power in the communities' own hands to articulate and define the direction they want to take and design interventions that move in this direction (whilst being open to there being other possible outcomes). This means interventions are inclusive and true to communities self-identified needs, and can be monitored and adapted accordingly over time in a responsive manner through ongoing narrative collection in real-time context (see human sensor network).

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Safe-to-Fail Probes

Safe-to-fail probes are an exploration of what works in a specific context. This contrasts with fail-safe plans in which the aim is to future-proof before even interacting with the context/ system. Fail-safe plans often lead to expensive failures, because it is assumed that it cannot fail and so a lot of resources are invested in it—think Titanic! Probes need to be able to fail in small, contained and tolerable ways. Small changes minimise unintended consequences, and maximise the ability to deal with those unintended consequences.

Multiple probes should be run in parallel, so that the impact can be compared across interventions, rather than compared with a non-intervention. This avoids the Hawthorne effect (Jones, 1992) in which an intervention might at first appear to produce an effect, but it is merely a reaction to the novelty of an intervention, rather than a result of the intervention itself.

STEP 4: CONTINUOUS FEEDBACK

Weak Signals

Through real-time, continuous observation, we can determine whether there is a shift in the desired direction and monitor how the landscape changes and develops. Importantly, it enables the detection of weak signals—the outliers in the data where opportunities and challenges exist.

The Path of Least Resistance

Continuous monitoring can highlight when and where the system is ready to be nudged. Mapping the current disposition of the network reveals natural points for interventions: when and where there is a propensity to change so that interventions can be timed for when it will be most effective. For example, in climate change, there may be a greater willingness for radical change in certain populations and so it would make sense to target those first.

This is a cyclical process and so this step leads back to step 1.

You can find more detailed information about vector theory of change on The Cynefin Centre's wikipedia or read our paper here

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