

Peer Review Article

# 4D Mapping:

## An Embodied Awareness-Based Approach to Regenerative Organizational Development

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### Abstract

This paper examines 4D Mapping, a methodology within Social Presencing Theater (SPT), as an awareness-based approach to regenerative organizational development in an era of polycrisis. When working with complex systems change, practitioners face the fundamental challenge of navigating transformation beyond predictability and control, where the intervention is not 'made', but rather emerges from a relational field. While organizational development offers numerous theories and tools for planned change, we propose that transformative practices require integrating systems thinking with systems sensing—an embodied, felt-sense approach that activates both heart and sensory awareness, enabling systems to see and sense themselves.

We develop the '4D Social Field Matrix' as a theoretical framework that shows how 4D Mapping integrates multiple ways of knowing as a social field intervention. Drawing from case examples across Latin America, North America,

and Europe—ranging from water management, forest conservation governance, Indigenous organization, and youth empowerment—we illustrate the theoretical and methodological foundations of 4D Mapping and how it gives voice to more-than-human stakeholders in complex systems challenges. By making these foundations explicit, we aim to deepen practitioner awareness regarding this social field intervention, including the underlying view of the practice, and clarifying its epistemological foundations. Our findings hope to contribute to both theory and practice by articulating how embodied methodologies and Social Arts can support emergent organizational change, tapping into regenerative potential and vitality of systems.

## Keywords

4D Mapping, Social Presencing Theater, systems sensing, social fields, embodied knowing, regenerative organizational development

## Introduction

In an era of polycrisis and systemic disruption, systems change practitioners are increasingly called to engage with complex societal challenges where ecological degradation and social polarization become ever more visible and felt. Our systemic interventions, even on a small scale, must recognize global interconnectedness, fostering shifts from egocentric to ecosystem awareness (Scharmer & Kaufer, 2013) that includes marginalized and more-than-human actors (Abram, 1996).

The transition toward a regenerative paradigm requires what Wahl (2005: 74-75) identifies as multiple epistemologies:

We are in a process of a fundamental shift in society's guiding paradigm, as our motivation for achieving knowledge changes from an aim to increase our ability to predict, control and manipulate natural processes to an aim to increase our ability to make the complex dynamics and relationships in nature more intelligible in order to participate appropriately in the health and wholeness sustaining processes of Nature... The fabric of life is unravelling with humanity as a conscious witness but also a cause of the disintegration. We are desperately in need of what Goethe called “knowledge utterly in tune with the nature of things.”

By recognizing the need to shift our ways of operating beyond “predict and control,” we face what Fazey et al. (2018) describe as the second-order transformation challenge: the need to transform our ways of understanding transformation itself. Current developments in the regenerative paradigm and awareness-based systems change call for new frameworks and intervention practices that access collective intelligence, reveal invisible system dynamics, include more-than-human stakeholders, tap into regenerative potential and design for emergence (Reed, 2007; Wheatley, 2007; Sanford, 2017; Scharmer,

2016), bridge multiple ways of knowing (Flood, 1998; Rajagopalan 2020), decolonize systems thinking, and reconnect with Mother Earth, thus disrupting global patterns of trauma (Goodchild, 2021).

How do we advance systems thinking beyond merely rational analysis (Rajagopalan 2020)? Advanced systems thinking requires not only understanding a system but also sensing it in ways that honor both the visible and invisible dimensions of transformation, including what is emerging and not yet visible (Scharmer & Pomeroy, 2024). Here intervention is not “made” but rather “emerges” and thus can no longer be understood in a Cartesian sense through causal-effectual reasoning and pre-conceived models (Fuchs, 1999). Instead, it emerges from an “intensified field awareness” (Looss, 2003) in-between the actors, emphasizing the intervener's role in intensifying perception of the emerging field. While conventional management approaches often stop here, lacking cartographies for perceiving field effects, Looss directs us towards exploring arts and their reception as disciplines with experience in field effects and collective co-creation.

Following this direction, this paper examines Social Presencing Theater’s 4D Mapping as an example of how social arts practices can serve as a training ground for sharpening practitioners’ sensing capacities for social fields (Hayashi & Dutra, 2020) and as a systems intervention that integrates multiple epistemological dimensions to access what Scharmer and Pomeroy (2024: 23) call “the collective interior” of social fields - thereby addressing the soil dimensions of quality of awareness and relations in systems (Scharmer & Kaufer, 2025).

Our article unfolds in three complementary parts: Part I establishes the foundations and origins of 4D Mapping within the broader context of Social Presencing Theater and Theory U, detailing its methodological principles and three-phase process structure. Part II positions 4D Mapping within the ongoing evolution of Organizational Development, highlighting its alignment with emerging regenerative paradigms and developing the “4D Social Field Matrix” as a theoretical framework for understanding it as a social field intervention. Finally, Part III explores the embodied dimensions of 4D Mapping practice through diverse case examples—examining how it accesses the collective interior through representative perception (Weber, 2000), embodied shape-making (Hayashi 2021), intercorporeality (Merleau-Ponty, 1964), and generative dialogue (Bohm, 1996; Isaacs, 1999; Scharmer, 2016).

We illustrate how 4D Mapping enables transformative shifts in understanding and action by integrating analytical, relational, and intuitive ways of knowing. By making explicit the theoretical foundations and practical applications of this approach, we aim to deepen practitioner awareness regarding what we are doing (systems intervention and methodology), the inner place from which we do it (awareness, attitude, view), our ways of knowing and assumptions (epistemology), and how we understand transformation (theory of change)—all essential dimensions for navigating today’s complex transformation challenges.

## Starting Point of the Inquiry and Case Examples

The collaboration leading to this paper emerged when the COVID-19 pandemic challenged us to translate 4D Mapping—an embodied systems mapping practice—into a reliable online format. This challenge brought together a team at the Presencing Institute in 2021, including Otto Scharmer, with support from SPT practitioners in over 15 virtual facilitation processes.

Our complementary expertise proved essential for the research and development process. I (Sebastian) brought my background in Organizational Development, Social Presencing Theater and systemic constellations; I (Arawana), as SPT founder, contributed my choreography background and bringing dharma art practices into the creation of performance work. Through four years of joint research and development, we clarified 4D Mapping's essential principles and core mechanisms. The result is this paper and the Virtual 4D Space—an online design surface supporting virtual 4D Mapping sessions.<sup>1</sup>

To illustrate our theoretical framework, we draw from personal facilitation experience and action research data summarized below. These diverse cases contribute to understanding the phenomena we describe in this primarily theoretical and methodological paper. Our approach involved comparing emerging interview data and published dialogues with existing session reports and facilitation experiences, allowing for an iterative process that informs our framework.

| Case Example  | Case Date    | Interviewee & Interview Setting  |
|---|--------------|--|
| Beth Mount – u-lab 2x <sup>2</sup> - Disability Services Case, USA          | April 2021   | Beth Mount's In-Dialogue conversation on Virtual 4D Mapping published in this issue.   |
| Ericka Toledo – u-lab 2x - Forest Conservation Case, Mexico                 | March 2023   | Two interviews conducted with the u-lab 2x team—and use of the automated report created by the Virtual 4D Space.                                 |
| Ecosystem Leadership Program, Latin America – Youth Case, Colombia          | March 2023   | One micro-phenomenological interview (Petitmengin et al., 2019) around the perspective of a viewer regarding the Social Field in the 4D Mapping. |
| Joost Van de Crujisen – Regional Waterboard Case, Netherlands               | October 2023 | Joost Van de Crujisen's insights from the In-Dialogue published in this issue and use of the automated report created by the Virtual 4D Space.   |
| Ecosystem Leadership Program, Latin America – Witoto Institute Case, Brasil | March 2024   | Three interviews conducted on 4D Mapping experiences, after the ELP Chile program.   |

*Table 1: Data sources for the article.*

<sup>1</sup> To learn more about 4D Mapping and the 'Virtual 4D Space', visit <https://www.u-school.org/4dmapping>.

<sup>2</sup> u-lab 2x is a 4-month u-school program designed for teams to activate prototypes for systems change, using the tools and methods of awareness-based systems change.

## Part I: The Origins and Purpose of 4D Mapping

Developed by Arawana Hayashi, Social Presencing Theater (SPT) is an interplay of everyday meditation and embodiment activities paired with reflection that supports personal and collective transformation and creativity. Through physical postures and movements, practitioners access insights beyond conceptual limitations, revealing and visualizing embedded systems patterns of both current realities and emerging possibilities (Hayashi, 2021).

4D Mapping originated in 2010 during the Occupy Wall Street Moment in Boston, when Otto Scharmer and Arawana Hayashi brought together interdisciplinary practitioners from dance, the Presencing community, and Systemic Constellations. Through experimentation, it evolved into a distinct approach to systems transformation, synthesizing contemplative practices, Theory U processes, systemic constellations and organizational change applications (Hayashi, 2021). The practice takes its name from the four dimensions it engages: three spatial dimensions plus time, allowing participants to track potential evolutions of systems.

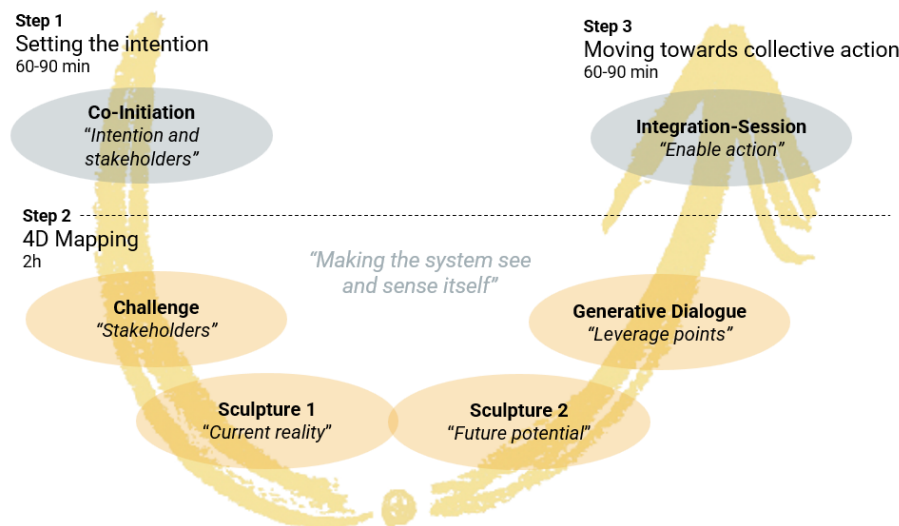
Like all SPT practices, 4D Mapping is a "form" with a specific view, purpose, and process. In the context of SPT, a "form" refers to a structured activity or exercise with clear process instructions, designed to facilitate embodied awareness and social presencing. Its primary purpose is to enable a "system to see and sense itself," facilitating deeper understanding of systemic patterns and force dynamics that maintain current structures in organizations, governmental bodies, or other systems such as healthcare or education, while simultaneously exploring emergent future potentials (Hayashi, 2021). The methodology is particularly valuable for groups, teams, organizations, or in multi-stakeholder settings seeking systemic insights beyond conventional analytical or dialogue formats.

The approach's value lies in three key attributes: efficiency in rapid sensemaking when resources are limited; depth in uncovering both intellectual complexities and emotional dynamics between stakeholders; and establishment of a shared language through which systems develop self-awareness—creating opportunities for field-level transformation and previously unattainable collaborations (Scharmer, 2018).

4D Mapping aims to reveal systemic shifts between Sculpture 1 (current reality) and Sculpture 2 (emerging future). This transformation process (from one Sculpture into another) underlies the view of what Beuys and later Scharmer termed "inversion"—a fundamental shift from ego-centric awareness, where actors operate from their own bubbles, to ecosystem awareness where they open to the well-being of the larger system (Scharmer, 2016). Beuys' concept of "social sculpture," positioning practitioners as active sculptors of social reality, is a key inspiration for 4D Mapping.

## The Three Phases of 4D Mapping

4D Mapping unfolds through three distinct phases that align with the Theory U-Process framework. The co-initiation phase establishes the foundational elements: defining the Case Giver's intention and identifying key stakeholder roles. The sensing phase begins with the creation of Sculpture 1, with Players (participants embodying stakeholder roles) representing current reality, followed by a critical presencing moment where participants let go of preconceptions, allowing the system's emergent future to crystallize in a movement toward Sculpture 2. This crystallization continues through collective sense-making in a generative dialogue focused on identifying leverage points and future potentials. The final co-creation phase involves an integration session with the Case Giver team, supporting their transition from insight to strategic action.



*Figure 1: The three phases of 4D Mapping along the U-Process by the authors.*

## Preparation-Phase: Setting Intention and System Boundaries

The mapping process begins with the Case Givers and Facilitator clarifying their intention for the mapping and defining system boundaries through stakeholder roles. This initial step is already a critical first intervention, often yielding significant insights as the Case Giver must articulate both their deeper intention and guiding question, as well as identify the key stakeholder roles.

Beth Mount emphasizes the value of this phase as a first systems intervention in the *In Dialogue* article in this issue:

As I thought back on it, it was more than just the 4D map itself. The formulation of the question was hugely important. We spent a huge amount of time between us trying to really clarify. What is the question we're bringing to this 4D map? What is the question that we're really living with inside of ourselves? (Pomeroy et al., 2025, p. 192)

4D Mapping situates each system within its global context, addressing the polycrisis by incorporating Scharmer's (2007) interconnected "three divides" as stakeholder roles in each map:

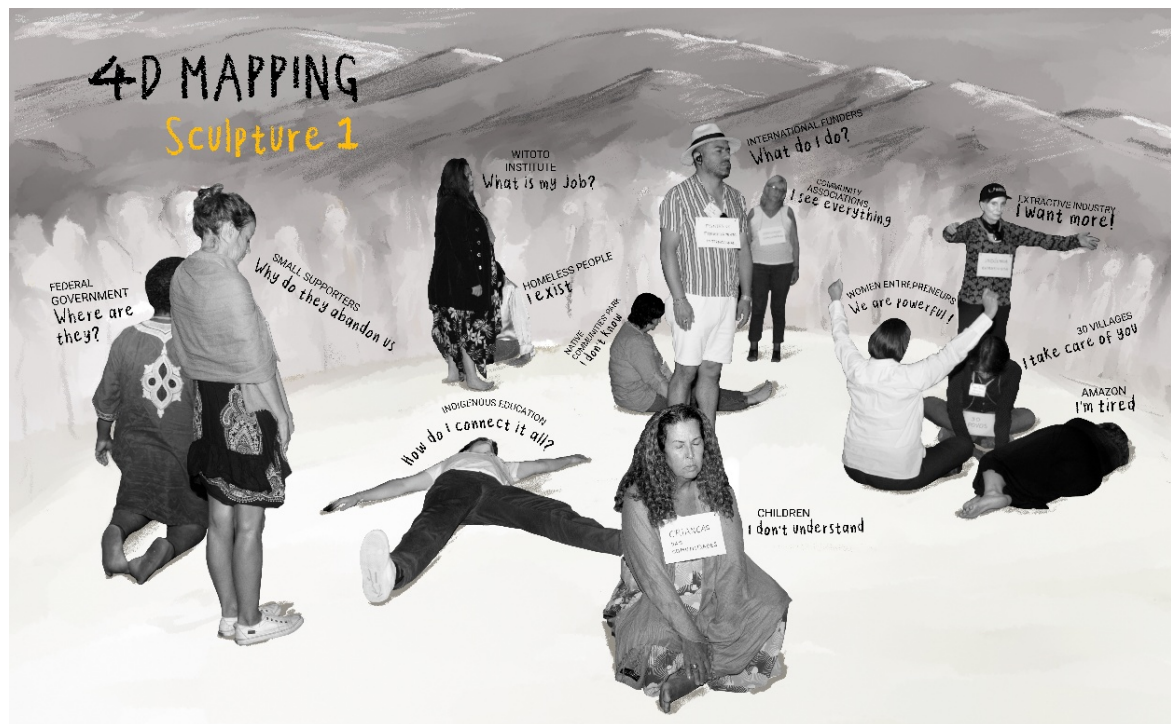
1. *Ecological divide*: Nature disconnection, represented by Earth, a region, or specific place
2. *Social divide*: Inequity and exclusion, represented by marginalized stakeholders
3. *Spiritual divide*: Self-disconnection, represented by "highest future potential"

Inclusion of these divides ensures awareness of global connectivity, fostering shifts from egocentric to ecosystem awareness including marginalized and more-than-human actors. All roles are specific and represent actual stakeholders (people, groups, or more-than-human actors) rather than concepts, values, or ideas. The pre-session concludes by establishing the sequence in which the roles enter the mapping during the process, typically starting with elements holding most power or attention in the system.

### **The 4D Mapping in Three Steps: Embodiment, Surfacing the Dots, and Generative Dialogue**

The process begins with all participants sitting in a circle as Viewers in 4D Mapping, creating a collective holding space to witness the mapping. After the Case Giver presents key challenges, intentions, and roles, participants volunteer to embody stakeholder roles as Players. With embodied awareness participants step into these stakeholder roles, sensing and discovering their place, level, and direction in the system. Each Player settles into a position and physical embodied shape, expressing him or herself through a word or phrase

Once all Players find their place, the result is Sculpture 1, representing the current reality of the system. Figure 2 shows an example of the Ecosystem Leadership Program 2024, Chile.



*Figure 2: Sculpture 1 of the Witoto Mapping in the ELP Chile (Barbara Lehnebach in Jung & Miranda, 2025).*

Sculpture 1 makes visible both restrictive forces (blind spots, marginalization patterns) and enabling forces, while Sculpture 2 represents the emerging future. Between Sculpture 1 and Sculpture 2, a moment of stillness occurs where Players suspend thoughts and opinions, remaining in their bodies while extending awareness to the whole system as its own being (Hayashi, 2021). The transition process between these sculptures aims to help identify enabling conditions and crucial shifts necessary for system evolution (Scharmer, 2018).

The sensemaking process consists of two steps: “Surfacing the Dots,” by which we mean the surfacing of individual phenomenological lived experiences, and a generative dialogue where the group harvests collective intelligence to identify what keeps the system stuck and what future seeds and leverage points moving forward might become prototypes.

## Post-Integration Phase: Moving Towards Agency

The integration continues beyond the actual 4D Mapping session, allowing systemic insights to mature organically. Through follow-up session(s), typically a few weeks after the mapping and continuing as needed, facilitators help maintain a balance between addressing identified blind spots and nurturing emergent seeds so they can move into prototypes and agency. The timing and frequency of follow-up sessions can vary as 4D Mapping may not be a single intervention, but part of a dialogic process consultation for systems change (Schein, 1999), adapted to the Case Giver’s needs and system complexity.

## Part II: 4D Mapping within the Evolution of Organizational Development

Organizational Development (OD) is inherently eclectic, drawing from diverse disciplines including psychology, phenomenology, cybernetics, group dynamics, neurobiology, Buddhist philosophy, sociology, and ecology. This multidisciplinary foundation gives rise to different types of interventions. Reflective practitioners adopt pragmatic approaches, selecting tools and forms of interventions based on the context and their demonstrated effectiveness, rather than adhering to single theoretical frameworks (Looss, 2003).

Traditional organizational approaches reveal significant limitations in uncertain and complex environments. As Snowden and Boone (2007) argue in their Cynefin framework, complex domains require fundamentally different approaches than complicated ones—exclusive dependence on linear thinking and cognitive reasoning proves insufficient for addressing interconnected challenges.

The field of OD has undergone significant paradigm shifts, or "gestalt switches" in reference to Thomas Kuhn (Varetza-Pekarz, 2025, p. 56), requiring new forms of processes and methods to open up spaces for transformational change. These shifts represent fundamental reorientations in how practitioners conceptualize and engage with organizational change.

### The Emerging Regenerative Paradigm

A first significant shift moved from expert-driven, diagnostic OD approaches that view organizations through the "machine metaphor" (Morgan, 2006) toward dialogic OD approaches positioning practitioners as enabling facilitators rather than controlling experts—emphasizing collective experiential learning and the understanding that social reality is continuously constructed through dialogue (Bushe & Marshak, 2015; Schein, 2015).

Catalyzed by the global climate crisis, a shift beyond sustainability recognizes organizations as embedded within larger social-ecological systems, requiring approaches that foster both organizational vitality and broader systemic health including more-than-human stakeholders (Hutchins & Storm, 2019; Muñoz & Branzei, 2021). In Laloux's (2016) evolutionary perspective, a new metaphor emerges: the organization as a living system. The regenerative paradigm emphasizes three key principles: cultivation of life-affirming conditions, integration of multiple ways of knowing, and activation of collective potential for systemic ecological renewal (Reed, 2007; Sanford, 2017). Contemporary theorists emphasize self-organization and emergence (Wheatley, 2007; Bateson, 2021), and integration of inner and outer transformation (Scharmer, 2007; Wilber, 2000).

These developments call for interventions that bridge multiple ways of knowing, access collective intelligence, reveal invisible system dynamics, include more-than-human stakeholders, and tap into regenerative potential. 4D Mapping

emerges as one possible practice specifically designed to address these needs, bridging systems thinking and sensing through embodied knowing and social arts, offering an aesthetic language to describing social fields (Hayashi & Dutra, 2020).

## Towards a Theoretical Framework for 4D Mapping as a Social Field Intervention

The paradigms through which practitioners approach organizational development determine not just their actions but their very perceptual capabilities. Our epistemological lenses reveal certain aspects of systems while rendering others invisible—a phenomenon that transcends our methodological preference. Without addressing this deeper epistemological challenge, efforts at systems change remain constrained by invisible boundaries.

To address this challenge, we integrate three complementary theoretical frames: Looss's (2003) work on intervention in OD as emerging from "intensified field awareness"; the Social Field approach developed through Theory U (Hayashi & Dutra, 2020; Scharmer & Pomeroy, 2024); and extended epistemological frameworks from Rajagopalan (2020) and Langer (1942) that bridge analytical and intuitive, arts-based approaches to systems knowing.

## Intervention as Emergent Field Awareness

Looss (2003) bridges systemic consulting with Gestalt approaches, emphasizing how intervention aims to build a field, providing the client with new, growth-promoting experiential possibilities. Interventions then no longer arise primarily from the consultant's conceptual knowledge, steps, and solutions, but from perceiving what emerges in the current moment through contact with the client's system. Consulting tools become auxiliary aids that bring consultants and clients closer to unbound perception, enabling them to notice, describe, and forge interventions from current observations.

In this view, intervention is not "made," but emerges from an "intensified field awareness" (Looss 2003, p. 51). Looss emphasizes the intervener's role in intensifying perception of the emerging field, which requires a practice of "continuous self-emptying" instead of imposing predetermined organizational frameworks, a wisdom that can be found across traditions from Zen to Gestalt approaches (Frambach, 1993). At this juncture, Looss points beyond conventional OD to the arts and their reception—practices deeply versed in field phenomena and collective emergence.

## Social Fields: The Collective Interiority of Systems

The social field can be conceptualized as a social system's inner dimension—the interconnected web of relationships and interactions that imparts a distinctive quality to any social space or system. As Scharmer et al. (2021, p. 634) describe, social fields are "the entirety of the social system with an emphasis on the source conditions that give rise to patterns of thinking, conversing, and organizing."

Social fields focus on the interiority of the social system, an aspect of organizational life that has been largely overlooked both theoretically and methodologically (Pomeroy & Herrmann, 2023). The concept of fields has been explored in Western frameworks by various scholars and practitioners (Bohm, 1980; Capra, 1996; Lewin, 1951; Laszlo, 2007; Mindell, 2001; Sheldrake, 2009) and non-Western cosmologies including Buddhism's notion of 'empty field' (Leighton, 2000, p. 23) and the deep relationality in Indigenous knowledge systems (Goodchild, 2021; Kimmerer, 2013). Despite different approaches, these inquiries share a common idea or principle: a deeper layer of "*mindful interconnection*" (Rajagopalan, 2020, p. 81).

Building on Looss's call for turning towards the arts in OD, Social Arts approaches such as SPT enhance practitioners' ability to perceive emerging field patterns. Through extensive research Hayashi and Dutra (2020) developed an "aesthetic language" for describing social field qualities, identifying three interrelated structural dimensions:

1. *Visible structure*: Physical arrangements showing center/periphery positioning and movement patterns
2. *Relational structure*: Social field qualities characterized by relationship qualities like warmth and inclusion
3. *Deep structure*: The awareness dimension associated with direct knowing beyond thinking

These dimensions provide practical perceptual frameworks that enhance practitioners' capacities and introduce fresh visual and somatic vocabulary to describe the shifts from Sculpture 1 to Sculpture 2 in 4D Mapping.

These structural dimensions are powerfully complemented by Scharmer and Pomeroy's (2024) four person-perspectives of knowing:

- *First-person (subjective)*: Individual interior experience
- *Second-person (intersubjective)*: Emerges through dialogue and relationship
- *Third-person (objective)*: Observes external patterns and structures
- *Fourth-person (trans-subjective)*: Accesses the emergent whole through resonance-based sensing

Each way of knowing offers a distinct pathway for accessing corresponding dimensions of the social field: third-person objective knowing naturally aligns

with visible structures through observation of spatial patterns; second-person intersubjective knowing resonates with relational structures through dialogue and connection; while first-person subjective knowing and fourth-person trans-subjective knowing access deep awareness structures through individual experience and collective resonance respectively.

This integration creates a comprehensive social field framework for understanding how 4D Mapping bridges systems thinking with systems sensing by accessing multiple dimensions of the social field.

## Bridging Systems Thinking and Embodied Systems Sensing

We conclude our theoretical framework by distinguishing how 4D Mapping integrates complementary epistemologies through social arts, presence, and sense-making in its intervention.

Rajagopalan (2020) bridges the divisions between sciences, arts, and practice domains, while integrating Western and Eastern epistemological traditions. His framework advocates for evolving beyond mere systems "thinking" toward an integrated embodied systems "being and doing." Heron (1996, p. 92) notes, purely discursive systems "obscure the world of primary meaning" by building elaborate conceptual superstructures while "forgetting and failing to extend its imaginal and empathic foundations."

This parallels Langer's (1942) identification of two fundamentally different representational forms:

- *Discursive/propositional forms*: Represent parts and explicit knowledge through sequential, logical, and analytical processes typical of conventional systems thinking. Discursive forms break down complex wholes into component parts and express them in linear fashion.
- *Presentational/aesthetic forms*: Represent wholes and tacit knowledge through simultaneous, non-linear, and embodied experiences that give us a unique access to the felt sense of things. Examples include visual art, music, ritual, and other non-verbal symbolic forms that communicate meaning through their holistic structure.

4D Mapping bridges systems thinking and embodied systems sensing through these complementary forms. The practice requires what Rajagopalan (2020, p. 141) terms "temporary suspension of the rational approach" to allow other ways of knowing to emerge—creating conditions for "Immersive Systemic Knowing" (Rajagopalan, 2020, p. 195) that transcends purely instrumental intervention-focused approaches. He privileges the term *knowing* over *intervention*, seeking to communicate a generative, rather than an instrumental, orientation that necessarily invokes both forms. This integration enables holistic knowing including both tacit, embodied wisdom and explicit, conceptual understanding.

## Towards an Integrated Theoretical Framework for 4D Mapping: The “4D Social Field Matrix”

The "4D Social Field Matrix" emerges at the intersection of these complementary frameworks. The vertical axis maps how different social field dimensions can be accessed through multiple epistemological perspectives. The horizontal axis explores the relationship between Langer's (1942) "presentational/aesthetic" and "discursive/propositional" forms and Rajagopalan's (2020) “systems being and doing” and “systems thinking.”

It illustrates how the steps in the 4D Mapping process draw from, integrate, and embody these forms of knowing in the different social field dimensions:

1. *Embodiment Process* (Sculpture 1 and 2): Activates presentational forms of knowing, where Players suspend analytical thinking to access the collective interior of the social field through embodied knowing and shape-making (Hayashi, 2021), representative perception (Weber, 2000) and intercorporeality (Merleau-Ponty, 1964)
2. *Surfacing the Dots*: Bridges embodied experience and verbal articulation through phenomenological first-person data
3. *Generative Dialogue*: (Bohm, 1996; Isaacs, 1999; Scharmer, 2016): Engages discursive forms of knowing through collective sensemaking that moves toward actionable insights

This matrix serves as a framework for understanding how diverse epistemological dimensions interact in embodied systems interventions, offering a reflective tool for practitioners and researchers. It represents a step toward methodologies that can work with both visible and invisible dimensions of transformation. While this linear presentation provides orientation through the principles at work, these elements blur and collapse in practice.

| <b>Social Field Dimensions</b><br><i>(Hayashi &amp; Dutra)</i>  | <b>Categories of knowing</b><br><i>(Scharmer &amp; Pomeroy)</i>  | <b>Presentational and Aesthetic Forms of Knowing</b> <i>(Langer)</i><br><br><b>SYSTEMS BEING &amp; DOING</b><br><i>(Rajagopalan)</i>   | <b>Discursive and Propositional Forms of Knowing</b> <i>(Langer)</i><br><br><b>SYSTEMS THINKING</b> <i>(Rajagopalan)</i>                     |  |
|---|--|--|--|--|
|   |  | <b>4D Mapping - Step 1</b><br><i>Embodiment Part</i><br>(Suspending thinking)  | <b>4D Mapping - Step 2</b><br><b>'Surfacing the dots'</b><br>(Surfacing phenomenological 1 <sup>st</sup> person data)                        | <b>4D Mapping - Step 3</b><br><b>Generative Dialogue</b><br>(Collective creativity and sensemaking through generative dialogue)  |
| <b>Visible Structures</b><br><i>Visible physical arrangements</i>   | <b>Third-person</b><br><i>Objective</i><br><i>(A focus on positive, measurable phenomena)</i>  | <ul style="list-style-type: none"> <li><b>Embodied shapes and spatial patterns</b><br/>Observable body-shapes positioned through levels, proximities, and directions revealing systemic relationships that can be documented and analyzed</li> <li><b>Words or phrases</b> from each Player in the Sculptures</li> </ul>   | <b>What did you see?</b> Visible patterns: <i>e.g. open or closed shapes, duets or small groups, lines or circles, etc. within the space</i> | <b>Where do you see visible patterns?</b><br>Keeping the system stuck in its current reality?<br>In the movement from Sculpture 1 to Sculpture 2?                                    |
| <b>Relational Structures</b><br><i>Relational qualities of the Social Field</i>                                   | <b>Second-person</b><br><i>Intersubjective</i><br><i>(Acknowledgment of the social construction of reality)</i>  | <ul style="list-style-type: none"> <li><b>Intercorporeality</b> <i>(Merleau-Ponty)</i> Through inter-bodily resonance Players explore living relationships between systems stakeholder roles (expressed by body-shapes, movements and spatial relationships)</li> </ul>  | <b>What did you feel or sense?</b><br>Relational qualities: <i>e.g. inclusion or exclusion, connection or disconnection</i>                  | <b>Where do you sense relational patterns?</b><br>Keeping the system stuck in its current reality?<br>In the movement from Sculpture 1 to Sculpture 2?                               |
| <b>Deep Structures</b><br><i>Individual awareness – with a potential collapsing of the separated perspectives</i> | <b>First-person</b><br><i>Subjective</i><br><i>(Individual sensemaking)</i><br><b>Fourth-person</b><br><i>Trans-subjective</i><br><i>(Holistic worldview, actions are weighed against wellbeing of all beings)</i> | <ul style="list-style-type: none"> <li><b>Representative Perception</b> <i>(Weber &amp; Hellinger)</i> Accessing systems information through embodiment without prior knowledge of the system</li> <li><b>True move</b> <i>(Hayashi)</i> Gesture of suspending thinking and past knowing, bending the beam of observation back onto the sources of collective emergence of the whole system</li> </ul> | <b>What did you do?</b><br>Inner experiences: <i>e.g. from the Players around perceptions, movement and choice-making</i>                    | <b>Where do you sense future potentials?</b><br>Seeds, leverage points or systems acupuncture points that might enable the system to move /shift towards its higher future potential |

*Table 2: 4D Social Field Matrix by the authors.*

## Part III: 4D Mapping as Embodied Practice

### Systems Sensing: Accessing the Collective Interior of Social Fields

The social field encompasses the collective, internal experience of being a social body (Pomeroy & Herrmann, 2023)—a dimension that Social Presencing Theater (SPT) reveals through embodied presence. As Hayashi and Dutra (2020) note, embodied knowing is core to how we experience the world—beginning with the first-person experience of living in and through our bodies (Varela et al., 1991).

Embodied interventions assume significant systems knowledge is tacitly held within our bodies, accessible through methodologies like Systemic Constellations, Theater of the Oppressed, Psychodrama, and 4D Mapping. These approaches use somatic and inter-somatic experience as primary access points, employing intercorporeal relatedness to surface data existing "beneath the skin" of organizations (Pomeroy & Herrmann, 2023, p. 15).

While maps created through systems thinking reveal structures and relationships, systems sensing methods add the felt dimension—the quality, resonance, and aliveness within and between elements that inform and galvanize the social body (Ritter & Zamierowski, 2021).

We illustrate how 4D Mapping taps into the collective interior through embodied-shape making (Hayashi, 2021), representative perception (Weber, 2000) and intercorporeality (Merleau-Ponty, 1964), using a case from the Ecosystem Leadership Program in Chile 2024 (Jung & Miranda, 2025).

The Case-Giver team comprised Vanda, who was a participant on the Ecosystem Leadership Program, along with two other members from her Indigenous community, near Manus in the Brazilian Amazon. Their case focused on the newly established Witoto Institute—a non-profit empowering Indigenous women and children while preserving their cultural heritage. They faced challenges including lack of governmental support, insufficient funding, and educational barriers for Indigenous children. The intention for the 4D Mapping was to understand the Witoto Institute's ecosystem role and explore strategies for strengthening women entrepreneurs and cultural education for future generations.

#### ***Role Embodiment and Embodied Shapes in 4D Mapping***

After the presentation of the case, stakeholder roles are called and participants volunteer as Players, receiving their stakeholder tag and taking a moment to connect with their assigned role. In this moment the facilitator usually emphasizes setting aside preconceptions and judgments about the stakeholder, encouraging Players to fully embrace embodied sensing and intuitive felt senses. Players intuitively explore their place in the space, considering three dimensions

of choices: level (e.g., lying down, sitting, or standing), proximity to others, and direction they face.

We zoom into the experience of the Amazon Player—a more-than-human stakeholder threatened by extractive industries in the Witoto case—illustrating how 4D Mapping enables embodied systems sensing. Once the participant entered as the Amazon, she immediately felt extreme tiredness and draining vital energy, as she reports:

The first thing I felt when I entered as the Amazon was like the sensation of running out of energy, like dying. It was tremendous, really distressing. And I lay down on the floor because that was all I could do. (Participant, July 2024, ELP Chile Interview)

The embodiment of stakeholder roles enables powerful experiences of stepping into the felt sensation of a stakeholder, through what in systemic constellation is called “representative perception.” Representative perception allows individuals to transcend personal identity and access systemic information beyond analytical methods (Rosselet & Senoner, 2013). Gunthart Weber (2000), who worked closely with Bert Hellinger (Hellinger et al., 1998), emphasizes that this phenomenological foundation enables stakeholder representatives to connect with and express essential qualities of systems without prior knowledge. In 4D Mapping, this serves as the gateway to the collective interior where boundaries between first-, second-, and third-person knowing blur, accessing the “beingness” of stakeholder roles and pointing toward fourth-person, trans-subjective knowing (Scharmer & Kaufer, 2025, p. 80).

A fundamental element of Social Presencing Theater is creating embodied shapes as aesthetic expressions of stakeholders’ felt sense within a system (Hayashi, 2021). Through our bodies, we engage with the felt sense of internal and external forces—similar to Lewin’s (1951) force-field concept. These forces may be consciously perceived or vaguely sensed. For instance, a Player representing a stakeholder in a conflicted position might physically express feeling pushed down, pulled in different directions, held back, or experiencing a draining of energy, as in the Amazon Player example, which felt the need to lie down.

The embodied shape-making process can be described as a field of forces molding the embodied shape—it is an invitation to physicalize aspects of the stakeholder’s situation, whether these involve constricting or enabling forces. The method asks Players to trust that insight will emerge from the body and the social body without prior planning or manipulation. By suspending judgment and embracing curiosity, Players attend fully to where the body naturally wants to move. Hayashi (2021) calls this “the true move”—an invitation to notice and release manipulative tendencies in our perception and movement. Players practice staying with not-knowing while maintaining acute attention to moment-by-moment experience as it unfolds within the social field.

This first-person experience can vary depending on the level of experience and predisposition of each Player. In the case of the Amazon Player, the

interviewee described how the embodied shape-making connected her to an emerging visual image:

When we were invited to make the first shape in Sculpture 1, I wanted to shape my body into a kind of C-shape form. I felt and saw the shape that my body wanted to make. I could see it. I felt like I had river streams in my hands and feet. I visualized in my mind how my hands and feet extended like that. (Participant, July 2024, ELP Chile Interview)

Figure 3 shows the Amazon Player lying down in a C-shape. The stance of Social Presencing Theater is that this shape-making doesn't occur merely through first-person experience but is part of a resonance within the whole system. This represents a kind of self-transcending knowing where the boundary between different forms of knowing blurs - where there is both overlap and differentiation between knower and known. As Scharmer and Pomeroy describe it, this embodied shape-making involves information that "moves through me, on a sensory level, but is not of me" (Scharmer & Pomeroy, 2024, p. 35).

Once shapes are complete, Players say a phrase or a sentence, "as if the shape could speak." In Sculpture 1, the Amazon Player says: "I'm tired," while Extractive Industries with extended arms declare "I want more!" and the 30 Indigenous Communities Player sitting between states: "I take care of you."

These spontaneous, pre-reflected phrases from embodied shapes provide intuitive information, and often express wisdom and direction from beneath consciousness (Hayashi, 2022). When a Case Giver, Players, or Viewers hear these phrases arising from stillness, they often recognize their truth—resonating beyond conventional understanding. An example of this kind of resonance by a Case-Giver can be found in the In Dialogue piece of this Issue, where Joost van de Crujisen reflects on his 4D Mapping experience with a case about a regional waterboard in the Netherlands. He mentions the goosebumps he got hearing the Farmer's words: "I will fight you if you hold my hand " (Pomeroy et al., 2025, p. 197).

## The Relational Dimension of the Social Field in 4D Mapping

The key shift for the Player embodying the Amazon described above occurs in the movement from Sculpture 1 to Sculpture 2, when the Player representing the 30 Indigenous communities sat down beside her:

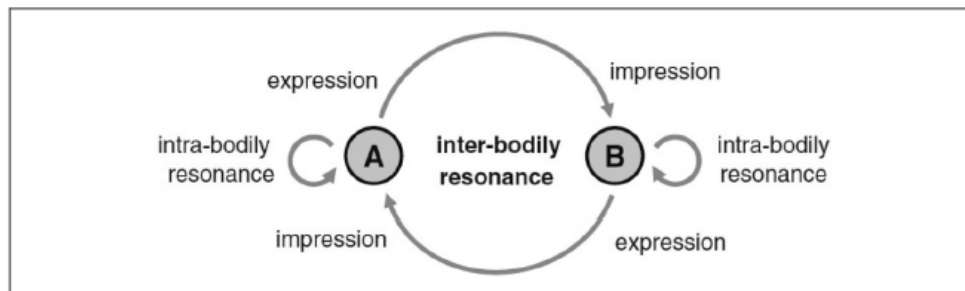


*Figure 3: Zoom-in of Sculpture 1 & 2, ELP Witoto Case  
(Barbara Lehnebach, in Jung & Miranda, 2025).*

I just realize now, that in the first movement, the Indigenous Communities [Player] sat down at the level of my stomach. Let me tell you, the presence of the Indigenous communities helped me survive as Amazon in the mapping. Before that, I had a strong feeling that my energy was draining. It was a relief that I felt my energy starting to return. That was the turning point. There wasn't a physical movement from my end, but internally, there was a complete change of state. (Participant, July 2024, ELP Chile Interview)

Merleau-Ponty (1964) describes this resonance between bodies as intercorporeality, rooted in phenomenology. This embodied experience exemplifies intercorporeality in action—how the physical presence and positioning of the Indigenous communities created an immediate energetic and emotional shift in the Amazon Player, demonstrating the relational field dynamics at work in 4D Mapping.

For Pomeroy and Herrmann (2023), “intercorporeality” provides a key foundation for understanding social fields, and what Hayashi and Dutra (2021) call relational structures, a second-person knowing. Intercorporeality refers to how our bodies unconsciously resonate with each other (Fuchs, 2016). Rather than seeing interactions as separate actions and reactions, intercorporeality recognizes them as continuous, reciprocal connections that emerge between bodies. This shared bodily resonance creates what we experience as the atmosphere or felt sense of a situation. The quality of this atmosphere emerges through the embodied connections between participants in a social field (Pomeroy & Herrmann, 2023).



*Figure 4: An illustration of the extended body (Froese & Fuchs, 2012).*

When making spatial choices in 4D Mapping, Players navigate this dynamic interplay between representative perception, intercorporeality and embodied shape-making as essential aspects of embodied systems sensing.

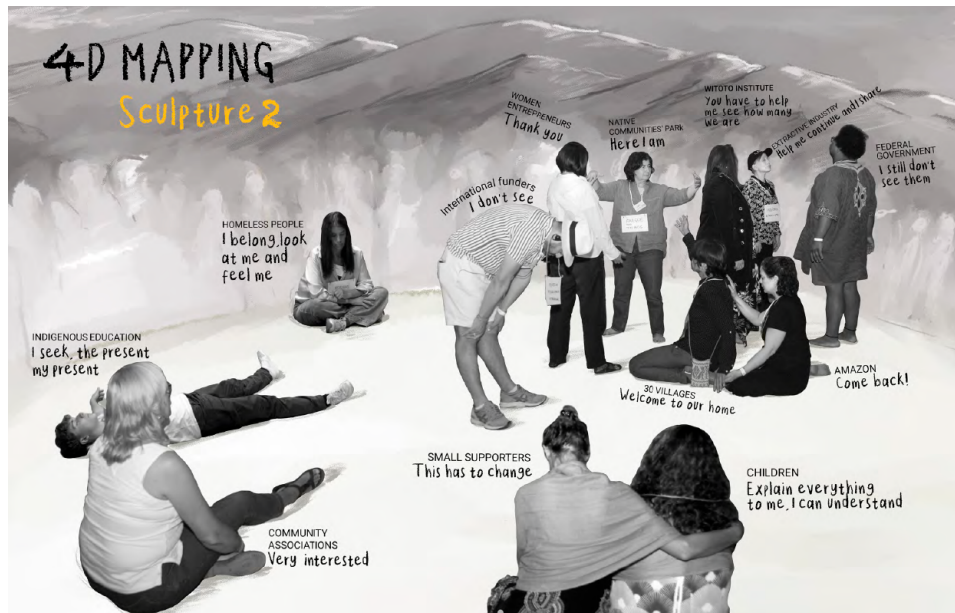
### Enabling the System to See and Sense Itself

The primary purpose of 4D Mapping is to enable a “system to see and sense itself,” facilitating deeper understanding of systemic patterns and force dynamics that maintain current structures, while simultaneously exploring emergent future potentials (Hayashi, 2021). We now want to illustrate how this seeing and sensing of a mapping impacts Case Givers and Viewers.

During Sculpture 1 setup, the Player embodying the Witoto Institute entered the mapping, seemingly unsure of its place. This resonated deeply with Vanda Witoto, part of the Case Giver’s team, whose young organization was trying to understand its institutional role in the wider system:

For me, it was an incredibly profound and complex experience. The 4D Mapping provided a perspective we hadn’t seen before, a perspective we now realize is crucial. We are in the middle of setting up the organization's statutes not knowing where the Witoto Institute is located in this whole system. The ability to build on the insights from the 4D map has helped us understand our performance better and given our institution a clearer understanding of our role as Indigenous women. (Vanda Witoto, April 2024, ELP Chile Interview)

We illuminate the resonance that embodied shapes evoke in observers. These shapes can trigger strong feelings, especially when they point towards dysfunction or blind spots. In Sculpture 2, the emerging future, the International Funders Player remained disconnected, standing in the center, bowing down saying: "I don't see."



*Figure 5: Sculpture 2 of the Witoto Mapping in the ELP Chile (Image by Barbara Lehnebach in Jung & Miranda, 2025).*

When asked about this shape, Vanda expressed discomfort at observing this disconnect, as it reminded her of how small Indigenous communities are often overlooked by big global funding agencies:

Seeing international funders ignoring us, with heads down, gave me a lot of anguish. It made me very uncomfortable because I've seen the work and the importance of our Indigenous struggle. I see these large organizations acting globally but not supporting small, local communities and organizations. (Vanda Witoto, April 2024, ELP Chile Interview)

In the circle of Viewers sat Janaina Jatobá, herself working for an international fund active in Brazil. From her position as Viewer, she found herself looking directly at the back of the international funder in the map:

That image of looking at his back and seeing him looking downwards—he couldn't see the field, couldn't see what was happening there, wouldn't act, couldn't do anything. And this is the actor with the power to make things happen? Yeah, it makes me mad. I have to laugh, but I'm mad because we have the privilege of being in such a place that we can see. It's not hard for us as funders to see and get in touch with what is happening on the ground. (Janaina Jatobá, August 2024, ELP Chile Interview)

This rather distressing experience activated her agency:

I just needed to do something. When we got off the 4D Mapping, I met with Vanda and said, I do have an opportunity. We have an open call for Latin America to recognize organizations led by survivors of oppressed experiences who now lead the change. And I

said can we talk Vanda? (Janaina Jatobá, August 2024, ELP Chile Interview)

Janaina informed Vanda about the grant opportunity, which Vanda successfully pursued. While this synchronicity is unusual, it illustrates 4D Mapping's potential impact when the right system parts are able to see and sense themselves.

As Arawana notes on seeing and sensing the system in a 4D Map: “The map is not a crystal ball. It is not a solution to a problem. It creates an opportunity for reflection and learning. Sensing more deeply into a system can, and frequently does, reveal hidden patterns of thought and relationships that are more conflicted than what appeared on the surface” (Hayashi, 2021, p. 86). We don't necessarily seek a “good” outcome in Sculpture 2, where the Case Giver's challenges are solved. The invitation is to let go of our projections and see and sense our system, through shared wakeful presence, perceiving both its collective blind spots and emerging potentials.

Ericka Toledo was part of the Case Giver's team in the u-lab 2x 4D Mapping session 2023. Her team, comprised of the National Conservation Agency CONANP in Mexico and an environmental NGO, were concerned with supporting governance structures around the Arteaga Forest protection. She describes how embodying the forest and the water in their system revealed a collective heartbrokenness they share as environmentalists:

What we witnessed in the 4D Mapping resonated with the whole group. The scene I have in my mind is the final sculpture—this possibility of the highest future potential, how it lands. There was a lot of pain to be unpacked, a lot of disbelief, almost like lost hope. Seeing people having these feelings made me feel like we really needed to give space to this pain. It was there. No one talked about it. We all felt it, but somehow we just couldn't express it. (Ericka Toledo, April 2024, u-lab 2x 4D Mapping Interview)

She shares how the collective witnessing enabled a powerful shift in the relational depth of the team:

In our regular programs and trainings, we operate with a certain amount of hygiene—you contain yourself, you want to be rational. What I like about the 4D approach is that there's permission to just be present with what is. Those of us in environmental work carry so many hard feelings: rejection, oppression—you just numb yourself. But when you open yourself, giving yourself permission to feel, something shifts. This collective experience gives us permission to be more blunt about things. It becomes clear that it's not only my individual strength—it's collective power. It's about the depth of the relationships. (Ericka Toledo, April 2024, u-lab 2x 4D Mapping Interview)

Staying with the heartbrokenness of a system that might be revealed in a map, can be a way to deeply engage in the larger web of interconnection (Hayashi, 2021). Sadness and grief are directly connected to opening the heart, and once transmuted collectively, can become a fertile ground for soulful change (Weller, 2015). As Robin Wall Kimmerer (2013, p. 359) reminds us, “if grief can be a doorway to love, then let us all weep for the world we are breaking apart so we can love it back to wholeness again.”

## Tapping into the Source Dimension of Systems in 4D Mapping

Having explored how 4D Mapping enables collective seeing and sensing, we turn to fourth-person or trans-subjective knowing. This dimension corresponds to what Hayashi and Dutra (2021) identify as the "deep awareness structure" of social fields. Scharmer and Pomeroy (2024, p. 29) describe this as "bending the beam of observation back onto the sources of collective emergence"—redirecting toward an open awareness of the whole. This shift from ego-centered to ecosystem awareness becomes a leverage point for deep change connected to the well-being of the whole system.

As Arawana explains, "Awareness is a direct knowing, a felt noticing. [...] However, when our mind is occupied with memories, opinions, assumptions, and imaging, open awareness can be obscured" (Hayashi, 2021, p. 11). This obscuring poses a significant challenge in systems work, as conventional analytical approaches often prioritize precisely those conceptual activities that block access to this dimension. This level of knowing extends beyond intellectual comprehension, requiring engagement through felt experience—an embodied understanding that resonates in our bones, hearts, and minds. Through Social Presencing Theater, practitioners cultivate an expansive awareness that extends beyond individual experience to encompass the entire social field.

Since fourth-person knowing is subtle and challenging to articulate, we used micro-phenomenological interviewing with Maximiliano Costa after a 4D Mapping in the ELP Uruguay, 2023 (Jung & Miranda, 2024). Costa was a Viewer of a case involving an organization working with youth in Buenaventura, Colombia—one of the country's most vulnerable areas, marked by high levels of violence, territorial disputes, and ongoing conflict involving armed groups that deeply affect young people's lives. His experience as Viewer reflected a decentering of perception, where the "self 'decenters' from a single point to a 360-degree sphere of awareness" (Scharmer & Kaufer, 2025, p. 81). Asked about the changes he perceived in the group and within himself during the mapping, he responded:

The 4D Mapping has a physical phenomenon and subtle sensation. I could feel the group's heart; it truly embodied the collectives' heart. Many of us were moved by the story of Colombia, but that experience also helped us connect with our own lives. It took us to a personal experience, to a collective-territorial experience of Uruguay or the reality of Argentina. From that perspective, it did

not matter who spoke; it was the perspective of the same heart manifesting in different ways. (Maximiliano Costa, August 2023, ELP Uruguay Interview)

Within the micro-phenomenological evocation, he was asked to describe what he sees in the moment of the 4D Mapping:

I see one of them looking towards the area where I am. I was outside of the conflict or the situation of the field. I am experiencing many emotions of what is happening in the mapping, while it is simultaneously related with my personal history. It is like I am entering and exiting that field while being there. The action is happening outside, but what manifests comes from within me. Sometimes, I focus on one of the participants and their body posture, but that stirs up my thoughts and breathing. Sometimes, I feel physical discomfort, comfort, and intense energy. (Maximiliano Costa, August 2023, ELP Uruguay Interview)

Inquiring deeper into what bodily sensations he is perceiving at that moment, he states:

It is like a channel from the earth, through the trunk to the sky, like an actively functioning stream. When I connect like this, with the whole, with that union, with what is happening inside and outside, it generates well-being, peace, and openness in the chest. (Maximiliano Costa, August 2023, ELP Uruguay Interview)

Maximiliano's experience of feeling “the same heart manifesting in different ways” exemplifies the shift from ego-system to eco-system awareness—no longer perceiving from an individual standpoint but from the field itself—where boundaries between self and system temporarily dissolve, enabling perception of the “deeper source knowing of the field” (Scharmer & Kaufer, 2025, p. 80).

Besides the conflict and presence of armed groups in the Colombian case, his bodily sensation of connecting to the 'whole' generated well-being, peace, and openness in the chest. This account points to a key philosophical foundation in 4D Mapping: the assumption that beneath surface-level conflicts lies an accessible wisdom, which Tibetan meditation master Chögyam Trungpa (1996, p. 14) describes as “basic goodness.” While acknowledging that empirical evidence might suggest otherwise, this view invites practitioners to look beyond fear, aggression, and confusion to contact the unconditional wholeness present in all systems.

## **Sense-Making in Two Stages: “Surfacing the Dots” and Generative Dialogue**

From experiencing embodied Social Art practices, like 4D Mapping, we now move towards the collective reception and sense-making, in service of systems transformation. For Weick (1995), sense-making is not merely interpretation but

an active process where people create the very reality they are trying to understand, retrospectively organizing experiences into plausible patterns that inform future action.

This section explains how the method bridges different forms of knowing—what Langer (1942) terms "presentational/aesthetic" and "discursive/propositional" forms, represented on the horizontal axis of our 4D Social Field Matrix.

This need for bridging is well articulated by Mersch (2001, p. 276), pointing us to an artwork's "bodily presence" that is irreducible to signs. He is emphasizing its phenomenological nature: the artwork does "not speak" but "presents" itself. The connection between aesthetic perception, presence, and corporeality enables what Mersch terms "undivided" attention in artistic reception, operating "before the dissociation into particular sensitivities," generating experiential excess beyond conventional expression.

4D Mapping works with this dynamic tension: participants first engage in pure phenomenological perception, suspending interpretation, with collective meaning-making emerging only later in the generative dialogue. This seeing and sensing of the social sculpture, the embodied piece of Social Art in 4D Mapping, helps us to stand back, get inspired by what wants to emerge, and also contemplate our own role in the system. 4D Mapping methodologically distinguishes between embodied knowing, phenomenological inquiry, and a sense-making around noticing systems patterns, specifically through two steps: "Surfacing the Dots" and "Generative Dialogue."

### ***"Surfacing the Dots": An Inquiry into What We See, Sense, and Do***

"Surfacing the Dots" is an expression relating to the first part of the sensemaking of a 4D Mapping. The expression references Pointillist paintings: in standing very closely to the painting, we might only see different seemingly unrelated colorful dots. But in standing back, an image starts to appear in front of our sight. Another inspiration is Henry Bortoft (2012, p. 15) who reflects on the challenge of how to perceive a whole system (if possible at all). He argues that if "the whole presences within the parts, the only way to encounter the whole is within the parts through which it presences," rather than through a disembodied or detached conceptual "overview" of the system (p. 15). For the process this means: how do we surface a view of the system from within its collective interior.

The process step consists in surfacing of actual phenomenological first-person data about the embodiment experience of Players and Viewers, while avoiding interpretations of what it might have meant or signified. The sharing is guided by three questions: What did you see? What did you feel or sense? What did you do?

While all three questions address first-person knowing, they point to different social field structures and categories of knowing. Examples would be: *Seeing visible patterns* like open or closed shapes, duets or small groups within

the space; *sensing relational patterns* or qualities: e.g. inclusion or exclusion, connection or disconnection or *deep awareness structures* around doing in choice-making of movements.

In practice though, as Arawana notes in her book, these structures are continually interwoven:

What we see, what we sense, and what we do continually interweave and dance with one another. We see, for example, someone walking toward us. Without thinking about it and frequently without even registering in our consciousness, we have a felt sense of what we see, our sensing can motivate an action, such as stepping forward or looking down. And this action in turn creates a feeling in those who see it. Everything we do is communicative, often in ways we are unaware of, and we constantly make meaning from what we experience. (Hayashi, 2021, p. 137)

To illustrate this further, we present examples for statements on the question, “What did I see, What did I sense, and What did I do?” from the Artega forest case, by Ericka Toledo and her u-lab 2x team, which highlight the felt sense and choice-making of the Players in the map:

- Governance System: "I felt tenderness in the system, the quality of wanting to attend to whatever the experience is."
- The Forest users: "When conservation actions moved the hand, I wanted to move mine as well."
- The Forest: "I feel positive intentions from everyone, but I feel distant from everyone."
- The u-lab 2x Team: "I wanted to move when the Forest moved."

(Harvest of ‘Surfacing the Dots’, March 2023)

These statements represent genuine phenomenological descriptions that create a feeling tone of the stakeholders' subjective experience, before being subjected to interpretation.

The investigation of "seeing—sensing—doing" increases our sensitivity to how we engage in our social fields and heightens our awareness of the weaving together of these three non-verbal experiences (Hayashi, 2021). This phenomenological approach to “Surfacing the Dots” creates what Abram (1996) describes as a "return to the sensuous"—a reclamation of embodied knowing that organizational practices often neglect in favor of abstract analysis. By dwelling in what Bortoft (2012) calls an “atmosphere of phenomenological experience” before moving to interpretation, practitioners learn to trust the moments of silence and to acknowledge the world as we know it through our sense perceptions as embodied human beings (Hayashi, 2021). Moving too quickly to interpretation can collapse the richness of embodied experience into premature conceptualization.

The methodological progression from “Surfacing the Dots” to Generative Dialogue represents a carefully designed bridge honoring both presentational and discursive ways of knowing (Langer, 1942), while maintaining an essential connection to the embodied experience.

### ***Generative Dialogue: From Phenomenological Awareness to Collective Meaning-Making***

Within the 4D Social Field Matrix in Table 2, Generative Dialogue occupies the right side, engaging discursive and propositional forms of knowing related to systems thinking. While “Surfacing the Dots” creates a shared phenomenological experience, Generative Dialogue shifts toward collective sense-making (Weick, 1995) and future orientation. The second mode of inquiry in 4D Mapping moves from “what is” to “what could be,” tapping into the generative future potential of systems, a key intention of Theory U processes and practices (Scharmer, 2016).

Dialogue, central to Dialogic OD, creates a “holding space” for diverse perspectives without forcing consensus, drawing on Bohm (1996) and Isaacs (1999). Isaacs emphasizes “suspension” of immediate reactions, allowing deeper listening and collective digestion of ideas. This creates “safe containers” for expressing differences—necessary for adaptive learning (Schein, 2015) and facilitating 4D Mapping’s generative dialogue.

Scharmer (2018) identifies a shift from empathetic listening (open heart) to generative listening (open will) that activates our capacity to connect with a system’s future possibilities. This “presencing the emerging future” is the main purpose of 4D Mapping’s generative dialogue—cultivating the ability to see, sense, and act from an emerging future field.

### ***Two Social Field Inquiries of Generative Dialogue***

Generative Dialogue centers on two fundamental inquiries that engage participants in examining both the forces holding systems in their current reality and those enabling movement toward emerging futures. Following Lewin’s (1947) force field theory, sustainable change occurs when driving forces for transformation outweigh restraining forces maintaining the status quo. Alexander’s pattern language inspires our inquiry, where patterns are seen as “abstract patterns of relationships which resolves a small system of interaction and conflicting forces” (Alexander, 1971, Preface). Identifying these patterns reveals both the limiting forces and the generative potentials within the system.

4D Mapping aims to make these often-invisible forces explicit by inviting participants to identify specific patterns, relationships, and dynamics revealed through the mapping.

During this crystallization process, participants collectively explore:

1. "What patterns keep the system stuck?" and "What patterns enable the system to move from Sculpture 1 to Sculpture 2?"

Participants identify movements or moments they noticed that kept Sculpture 1 stuck in the current reality or enabled it to move. Examples of stuckness in a system can include body gestures closing down, sentences in S1 or S2 that point to stuckness, or in the visible structure patterns that indicate who is in the center or periphery, who is included in duos or trios, or excluded at the margins.



*Figure 6: Sculpture 1 & 2 from the Virtual 4D Space report of the Waterboard case, 2023.*

As illustrated in the systems map comparison above from the Netherlands waterboard case, these patterns become visually apparent when comparing Sculpture 1 and 2. This case, facilitated virtually for Joost van de Crujisen and his team, sought to create Waterlabs as deep holding spaces for conflicting stakeholder interests—farmers, water authorities, environmental groups, and citizens—regarding the polluted Zandleij stream. In Sculpture 1 the future potential as Waterlab is sitting at the margins, at the right—outside of the circle—while in Sculpture 2 it crosses the whole space to the upper left, building a relational cluster sitting in front of the farmers (a conflicting party), with the natural area and the nature intelligence of the water standing at each side.

2. Where do we see and sense seeds or leverage points as future potentials in the system?

This inquiry directs attention to emergent possibilities—nascent connections or transformative movements appearing during transition to Sculpture 2. These seeds, often marginal in current systems, hold dormant potential like seeds in soil (Scharmer, 2018). Participants naturally recognize leverage points—places where small interventions might produce significant change (Meadows, 2008), inspiring future agency and prototypes. The 4D Mapping yielded these transformative seeds in the Waterboard case:

- “Moving from a focus on the stream and the metrics it provides, to finding metrics that illuminate the unheard voices of nature.”
- “There is a sort of healing ritual going on between the Farmers, Nature intelligence of the River, the Waterlab 4.0 and the Natural Area.”
- “Bring to the farmers the wisdom of the land (e.g. Indigenous traditions, emerging new ways of agriculture, etc.) to help them be an agent of regeneration of the Land.”
- “The Lab could meet with 1) the citizens, then 2) the next "group" on Sculpture 2 and then Group 3 (at the top)—before getting people all together in one room.”
- “Supporting all the institutions and organizations to feel part of nature as a whole—rather than be focused solely on one aspect of nature, the stream, as this might perpetuate the disconnection.”
- “Something about surrender... letting go and softening into stances of care (rather than fighting or aggression... above all for the NGO's and health organizations).”

(Zoom chat harvest, October 2023)

These “future seeds” illustrate how 4D Mapping simultaneously accesses multiple dimensions of a system—visible structural patterns (center/periphery positioning), relational qualities (healing rituals), and deeper awareness shifts (surrender into care). By giving voice to more-than-human stakeholders (the Zandleij stream, nature intelligence and natural area) this case surfaced the need for Indigenous wisdom on water, alongside technical expertise. The seeds point toward systemic reconnection rather than isolated interventions, revealing leverage points where small shifts in relationship quality might catalyze significant system transformation.

The facilitator and scribe capture the insights surfaced visually, creating what Hayashi (2021) calls "harvest maps" that document the words and phrases of each Sculpture, as well as the insights emerging in the dialogue around limiting patterns and future potentials.

To capture subtle social field dimensions, we sometimes complement 4D Mappings with "generative scribing" (Bird, 2018), which extends traditional graphic recording by focusing on the emerging essence and energy of the map. This practice emphasizes the scribe's quality of presence and attunement to the group's collective energy and deeper intention.



*Figure 7: Generative scribing by Olaf Baldini in the Waterboard case, 2023.*

This Generative Scribing by Olaf Baldini in the waterboard case has become a valuable artifact that Joost and their team sometimes revisit when having ongoing dialogues about their work.

This integration of multiple ways of knowing, from phenomenological awareness to collective meaning-making, enables participants to engage with complex systemic challenges from a place of not-knowing, in ways that honor both the visible and invisible dimensions of transformation. In this way, the 4D Mapping process develops a literacy in embodied language that supports our noticing the connections between the stakeholder roles in the system. We shift from only depending on our conceptual and intellectual learning and interpretation, to knowing in the body and space, and an understanding of how these visible or felt social structures hold meaning, feeling, and creative potential.

## Conclusion: Bridging Systems Thinking and Systems Sensing for Transformation

Through this research, we illustrate how 4D Mapping bridges the often-separated domains of embodied knowing, social arts, and systems transformation—connecting Systems Thinking and Systems Sensing through an expanded epistemological framework. Our inquiry is driven by the need in Organizational Development to navigate increasingly complex societal challenges requiring methodologies that address both visible and invisible dimensions of social transformation. Unlike solution-oriented consulting, 4D Mapping creates space for intensified collective awareness and generative dialogue without attachment to predetermined outcomes. It engages with Scharmer's (2007) deeper transformational levels, accessing collective awareness and system vitality directly through embodied practice.

A key contribution of this paper is the development of the 4D Social Field Matrix as a theoretical framework for understanding social field interventions that integrate multiple ways of knowing. By making explicit both theoretical foundations and practical applications of 4D Mapping, we hope to illustrate how

embodiment practices support transformative change in complex systems. Our aim is to offer an overview to practitioners and action researchers of how 4D Mapping approaches systems intervention, highlighting the inner place from which we engage, our epistemological assumptions, and how we conceptualize change.

We position 4D Mapping within the emerging field of awareness-based systems change and regenerative Organizational Development—that recognizes organizations as embedded within larger social and ecological systems requiring transformation approaches that foster both organizational vitality and broader systemic health.

Three distinctive capabilities establish 4D Mapping as an awareness-based, regenerative systems intervention:

First, it enables a "system to see and sense itself" by creating a container for systems self-observation, creating conditions for emergent, awareness-based change. This makes visible the typically invisible dimensions of social field dynamics.

Second, it integrates multiple ways of knowing—analytical, emotional, and somatic—through social arts practices, allowing interventions to emerge from intensified field awareness, suspending preconceived models of change. Connected to generative dialogue, this creates a methodological bridge between thinking and sensing.

Third, it gives voice to what Abram (1996) calls more-than-human stakeholders in strategy systems questions, strengthening life-affirming transformation by including Earth, rivers, or animals as stakeholder roles in the mapping process.

Through this paper, we invite the reflective practitioner to address the propositional, discursive knowledge bias that Flood (1998) identifies in management and OD, by exploring approaches that honor multiple ways of knowing, bridging the analytical and the intuitive, aesthetic and embodied dimensions of knowing. By offering insights from 4D Mapping as a methodology where different epistemological approaches interplay, we hope to contribute to further reflections, where practitioners and action researchers are seeking to develop practices that embody the very integration they aim to foster in the systems they serve.

In this era of polycrisis, where fragmented responses prove inadequate, we believe we need social practices like 4D Mapping that create collective holding spaces for sensing and sense-making, with the ability to support organizational transformations, as well as the convening of transformation systems (Waddock et al., 2022). For this work cannot be done by one individual or single institution alone but requires collectives to bring forth the transformative potential that lies dormant within our interconnected challenges.

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Peer Review Article

# Nurturing Transformative Capacities:

## An Introduction to the ECOTarot as Method and Practice Supporting Sustainability Transformations

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### Abstract

Climate science points to the need for rapid and substantial social change. Such a fundamental social transformation requires new methods, paradigms and practices that address not only structural, technological, and systems change, but attend to the "inner"/subjective dimensions of transformation. In this paper I develop links between models of change in sustainability transformation literature that include "inner" dimensions of change and Climate Focused Socially Engaged Art, a subset of socially engaged art practice that addresses climate disruption. I then introduce a novel social art practice that attends to these inner dimensions: the ECOTarot. Since 2017, I have performed more than 1500 climate future readings with my ECOTarot deck in public settings throughout the United States and internationally. I found that the structure and form of the ECOTarot method catalyzes an intimate exchange where a new climate future story, connected to the seeker's life, is co-produced. By outlining the methods of the ECOTarot and placing them within inside-out transformation research for sustainability, I add to literature that insists upon "messier"