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Convening Transformation Systems to Achieve System Transformation

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Abstract
Transformation (T-) systems are innovative collections of initiatives and efforts geared to bringing about a flourishing socio-ecological system in a given context.

They comprise of the totality of initiatives, people and organizations who are collectively seeking to transform a particular issue or geography in a common direction, when they attempt to align their efforts for greater effectiveness, as a result of that growing identity and self-awareness. This article explores the concept of transformation (T-) systems, and how they can become impactful organizing frames for change agents. Another innovative type of entity, the Transformation Catalyst (TC), works to connect, cohere, and amplify the work of actors and initiatives, who generally work independently, into coherent T-systems. We use evolving work in the sustainable seafood arena to illustrate these ideas.

Keywords
transformation system; system transformation; transformation catalyst; system change

Introduction: Transformation as a Field of Practice

> A few years ago, a UN staff leader with whom I was meeting closed her office door purposefully behind us. As we sat down, I [Steve Waddell] realized that she wanted to have a difficult conversation. She explained that they were organizing a scenarios process, and some people suggested that one scenario should be the collapse of civilization as we know it. She wanted to know whether I thought that including it was a good idea. I felt all the anxiety she had even asking such a question. The UN, trying to project order and being representative of the world order, was actually considering ultimate failure. I asked her if she thought that was a feasible possibility. If it was, it should be included, I asserted. I did not, however, press her to actually answer my question there and then.

A few years later, such a possibility has only increased. The speed of systems change efforts is being out-paced by galloping environmental degradation and combusting societal fabric. Much better approaches are needed to address the scale and complexity associated with transformation. In effect, we need to transform our approach to transformation.

Today's transformation strategies are paradoxical. On the one hand, they are dominated by the very status quo institutions that have produced the current crises amidst unparalleled manufactured-financial wealth and human-technological capacities. On the other hand, deep transformation efforts depend on under-resourced, fragmented and marginal efforts that generally focus on reducing the bad rather than really moving into evolutionary potential.

An effective transformation in transformation efforts must build on the visionary, while recognizing reality. One reality is that system transformation is incredibly hard. Efforts inherently involve fundamental change in awareness,

mindsets, institutions, power, performance metrics, practices, and goals. Such transformation is difficult to accomplish because it involves shifting foundational aspects of a given system or organization, including how purpose is defined, what the mindset (or paradigm) of actors in a system is (Meadows, 1999), and which performance metrics are used (and how) to assess systemic effectiveness (c.f., Waddock & Waddell, 2021a).

A second reality is that the status quo is enforced by deep systems that are formidable transformation barriers. Deep systems challenges[1] must be addressed in most, if not all, systemic transformations if they are to shift a system towards what we here define as wellbeing-oriented socio-ecological systems and economies in a flourishing natural environment. Although these deep systems can be categorized and named variously, one summary is:

1. **Narrative Development**: Co-emerging shared visions of socio-ecologically flourishing and values of a commonly envisioned future that are jointly articulated and popularized in contrast with today's GDP-focused visions associated with extractive and exploitive actions.
2. **Creating Collaborative Capacity:** Integrating and using key strategies for transformation to work together effectively as a system. Four strategies identified in earlier work involve individuals, groups, and initiatives working for transformation by: (1) doing change entrepreneurially, (2) co-creating change collaboratively, (3) directing change from within existing institutions and systems, and (4) forcing change through pressure tactics (Waddell, 2018). Current processes encourage competition between change efforts.
3. **Holistic Metrics**: Developing holistic national accounts, project, and organizational metrics that assess the performance and effectiveness of the whole system evaluation and moving beyond currently narrowly-focused metrics.
4. **Governance and Organizing:** Evolving new forms of governance and organizing that support the emergence and success of systems transformation. Corporate and government policy change can be helpful for change, but their fundamental power structures need to support transformations rather than the status quo.
5. **Transforming Finance:** Shifting finance and the financial system to be supportive of systemic transformation. Financial power in the current

[1] To determine what these challenges were, the second author conducted interviews with about six dozen transformation agents asking, "What are the impediments to making your transformation efforts even more successful?" In addition, he reviewed reports proposing action with the same question in mind (e.g., International Panel on Climate Change and Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services), then synthesized the results into the six deep system challenges below.

system is central, and its status quo is core to impeding the commonly aspired social equality and flourishing of all life.

6. **Innovation Systems:** Focusing entrepreneurship and other creative endeavors towards life - and flourishing-affirming innovations using a new logic oriented towards socio-ecological flourishing. Current innovation systems reinforce economic inequalities and generate huge environmental problems such as electronic and chemical waste.

Changing these deep systems is clearly beyond the power of any one initiative, and requires a coherent and connected group effort. A third reality is that unparalleled transformation assets exist in the form of many, many change initiatives focusing on issues, geographies, sectors, and/or stakeholder groups. Transformation knowledge, skills and processes continue to blossom with a growing cadre of systems change agents. And a fourth reality is that the support/pressure for transformational change is growing as the familiar unravels at an increasingly alarming pace and status quo people and institutions become increasingly self-critical.

Change efforts increasingly recognize the need to change systems. But they too often do not integrate a systems perspective in their own collective organizing. New approaches to accelerating transformative *systemic* change at scale are needed. To make a contribution to the development of such approaches, we introduce and explore in depth the idea of the transformation (T-) system as an innovation with the potential to enable system participants to act more effectively towards system transformation in this context of complexity and what are known as wicked problems (Rittel & Webber, 1973).

Introducing Transformation (T-) Systems

Achieving transformative depth and dealing effectively with the six deep system challenges requires the intensive collaboration of actors, programs, and initiatives within and across whole systems. Without such integration, efforts will easily undermine each other and be too weak to truly challenge or shift incumbents, which is, after all, the goal of system transformation. Transformation (T-) systems are defined here as the collection of people, programs, projects, and entities (hereafter “initiatives") working towards generally the same transformational aspirations. Forming previously disconnected initiatives into empowering transformation *systems* that work collectively, while maintaining their independence towards similar aspirations, is a high leverage action toward greater coherence and systemic connection.

T-systems already exist around geographies including political - or bio-regional ones, issues like climate change and racial injustice, particular change strategies like social entrepreneurship and benefit corporations, and/or sectors such as fisheries or health care. Current T-systems, however, are still generally weak and under-organized as most interorganizational relations have been in the past (Brown, 1980).

The fragmentation and separateness of most existing change efforts is the phenomenon that ecologist Paul Hawken called "blessed unrest" (Hawken, 2007). While there are many initiatives—in 2007 Hawken claimed a million to two million—oriented generally towards socio-ecological justice and flourishing, they lack transformative capacity in part because they tend to work independently of other initiatives with related aspirations. Consequently, they not only miss potential synergies, but potentially undermine each other. Such fragmentation and disconnection of actions and actors, exists at multiple scales—globally, of course, but also regionally, locally, and in the context of different sectors, industries, and around political and economic policies. By co-developing transformation systems, initiatives can accelerate transformation, which requires tools, processes and structures for initiatives to shift attention to making their collective transformation system effort more powerful. Such work requires developing shared aspirations (narratives), transformation systems financing, new approaches to innovation, collaborative and other capacities across initiatives, holistic metrics that measure key systemic changes and impacts, and organizing how the system is governed. In other words, using a T-systems approach, initiatives can cope better with the deep challenges that system change efforts face.

Implicit in Hawken's idea of blessed unrest is a set of values associated with what are now being called wellbeing, life-centered, or regenerative economies that inform the desired socio-ecological transformations. Waddock (2020) synthesized six core values from a vast literature associated with what gives life to systems (with others supporting them possible, of course): stewardship of the whole; collective value (Donaldson & Walsh, 2015); cosmopolitan-localist governance (Kossoff, 2019); regenerativity, reciprocity, and circularity; relationality and connectedness; and equitable markets and trade (for more details, see Waddock, 2020). Generally speaking, values supporting flourishing socio-ecologies are at the heart of T-system organizing efforts.

Non-directive yet intentional narratives, e.g., using these values, can cohere support in the direction of wellbeing or flourishing life that enables initiatives to connect more explicitly than would otherwise be the case. These types of ideas can help orient participants toward a collective transformative potential, including developing a vitally important shared narrative or set of aspirations. Overarching narratives help them align efforts so that they can overcome the fragmentation problem that prevents actual systemic change. The process of becoming aware of and aligning with other initiatives doing similar work involves developing "T-system consciousness": thinking together about what actions are needed to enhance the collective transformative potential of otherwise "independent" actors. Recognizing themselves as part of a T-system means that actors can enhance the effectiveness and impact of initiatives and programs transformation work because they can align their work in new ways and with that of others for greater impact towards their shared aspirations. Here we are interested in T-systems that emphasize life-centered/wellbeing economies

fostering flourishing in the context of harmonized relationships between humans and the natural environment.

T-systems are distinguished from other transformation organizing forms by their comprehensive scope. They include and transcend more traditional organizing approaches: initiatives, organizations, partnerships, collaborations, networks, and movements. Actors using strategies of directing change (transforming from the inside), co-creating change (collaboration), forcing change (acting as a warrior on the street), and doing change (collaborating across traditional boundaries) are all part of a T-system (Waddell, 2018). To effectively develop T-systems that can accelerate transformation requires its own development approach. A systems and transformation mindset is needed, including awareness of the whole, stewarding rather than directing, listening deeply for connection, synthesis, appreciation of emergence, comfort with ambiguity-paradox, curiosity, and an experimenter-learner stance.

The Context of Systemic Change: Complexity and Wickedness

As is increasingly recognized, system transformation takes place in a context of appreciating what, for short, we call wicked complexity or complex wickedness—a combination of systemic complexity (Anderson, 1999; Brown & Eisenhardt, 1997; Capra, 2005; Conklin, 2006; Waddock et al., 2015) and wicked problems (Batie, 2008; Churchman, 1967; Jones, 2014; Rittel & Webber, 1973). Industry, geographical, sector, or issues-based social-ecological systems are by definition complex adaptive systems (Capra, 2005; Mason & Mitroff, 2010), with many actors and moving parts with unpredictable dynamics along with complexly wicked issues that they are facing. When transformational change is on the agenda, such systems are also likely to be filled with wicked problems. Wicked problems are dynamically interacting issues and problems with no identifiable beginnings, endings, or ready solutions. The combination of wickedness and complexity brings uncertainty, unpredictability, dynamism, pressures from multiple sources in different directions; it brings differences of opinions about the nature of the system, its issues, and what should be done to achieve transformation (Brown & Eisenhardt, 1997; Loorbach, 2010; Van Tulder & Keen, 2018; Waddock et al., 2015; Westley et al., 2011).

Systems with these characteristics can never be fully understood, predicted, or controlled, which is partly why transformation is so difficult, especially when initiatives are not explicitly aligned with each other. It is also why developing shared narratives—aspirations or collective understandings—is vital because such narratives provide guidance around the collective desires of actors in a system, i.e., purposes (Waddock & Waddell, 2021a), without imposing control. Nonlinear dynamics result in the unpredictability of efforts, yet some degree of coherence can be achieved if actors are brought together in new ways, learn about each other, co-develop shared agendas and aspirations, and establish

holistic metrics that enable them to determine whether they are achieving their aspirations or not. That is exactly the point of developing system awareness of actors participating in a T-system.

Transformation by its very nature encompasses major shifts in key aspects of a given system, e.g., shaping the paradigms of mindsets of key actors (Meadows, 1999), redefining purposes, including creating ongoing co-created processes toward betterment, and developing new metrics against which performance is measured (Waddock & Waddell, 2021a). The global seafood industry gives us one example of a particularly large, supercomplex system that is attempting to transform. A leading change program in the industry is the *Seafood2030 initiative*, which states its goal as "designing the future of sustainable seafood." A key partner in its work is the Conservation Alliance for Seafood Solutions (the Alliance) and its Global Hub, which are "Leading collaboration in the responsible seafood movement." The Global Hub comprises 101 business, NGO, government, and academic members[2] with an even greater number of initiatives, programs and projects. With a focus on European, North American, and Japanese markets, the scale of the systems transformation is daunting. Not only are there many production system actors, there are many initiatives working to realize a sustainable seafood industry. Over the past couple of decades, a large number of transformation initiatives have evolved and achieved significant success. To fully realize the demands of the seafood system transformation, however, requires a dramatically higher level of coordinated action toward system change than the way transformation is currently being approached. It is not simply doing more of the same transformational actions, but developing the T-system itself so it acts with much greater coherence and produces innovations hub members demand.

Although a transformation system is defined by shared aspirations around an issue, sector, and/or geography, its participants have many ideas about what to do and how to do it. How can such scale, complexity, and wickedness be dealt with in ways that advance systemic change towards the desired outcome? Early stage transformation catalysts (TCs) are evolving with the goal of bringing effective T-systems into being. Discussed in depth elsewhere, TCs take a whole systems approach by paying attention to developing the T-system around their issue and/or geographic focus (Lee & Waddock, 2021; Waddock & Waddell, 2021b). In other words, TCs actively work to connect T-system participants so that *they* can identify and shape their understanding of their collective work, and design it more effectively. The TC does not do the work, but rather creates the enabling or operating environment and infrastructure for T-system participants to powerfully engage with each other and improve their transformative impact as a T-system. Here we explicitly discuss how system participants can greatly enhance the power of their T-systems, recognizing the role of the TC in helping to enable the collective effort to evolve.

[2] As of December, 2021

Defining and Developing Transformation (T-) Systems

In this section we discuss three clusters synthesizing six activities that be used to develop T-systems: connecting, cohering, and amplifying. Developing a T-system means co-developing the awareness and identity of individuals and initiatives as participants in a T-system (connecting), so that they can align their efforts (coherence) and act independently yet with shared aspirations (amplifying) (see Table 1). Connecting involves two activities: seeing and sensemaking. Cohering involves the two activities of action planning and co-creating transformation capacities. Amplifying involves two activities as well: implementation of the action plans as experiments with ongoing evolution and learning, and developing transformation infrastructure to ensure the future of the T-system. We explain each of these activities below. What is key is developing T-system awareness that leads actors to convene in new ways (Wenger-Trayner & Wenger-Trayner, 2020). By developing collaborative guidance and learning-oriented communities of practice around shared issues (Wenger, 1998), actors collectively build T-system potential for co-emerging a flourishing emerging future (Scharmer, 2009).

Connecting

- Seeing: Co-development of partners' understanding of the dynamics, structures, participants, and relationships in their transformation system. This understanding is the basis for powerful collaborative action.
- Sensemaking: Initiatives develop broadly shared understandings, visions, narratives, documents, and images of the (current and changing) transformation system and/or issues that need to be dealt with in that system, as well as shared aspirations and goals.

Cohering

- Developing action agendas: Bringing together transformation system participants to jointly identify actions to strengthen their collective impact and address deep systems challenges that typically impede transformation.
- Co-creating transformation capacities: Support the emergence of needed capabilities to co-create transformative leaders, metrics, communications, change and action strategies, structures, and resourcing.

Amplifying

- Implementation: Co-create processes to aid implementation of action plans.
- Developing transformation infrastructure: Supporting the emergence of transformation systems' infrastructure, including the capacity to connect, cohere, and amplify, and developing as transformation catalysts for their own transformation system.

Table 1: Key Steps in the Formation of Transformation Systems. Source: Adapted from Bounce Beyond.

Domain boundaries for a given transformation system can be geographical (e.g., political, bio-regional), sectoral (e.g., seafood, healthcare), and/or focused on a social-ecological issue (e.g., water access, social protection). Transformation

initiatives in a T-system are constituted of all initiatives with similar agendas. Mostly, they tend to have varying, but generally weak understanding of other system participants, structures, and dynamics. Because T-systems include all initiatives within their boundaries that are pushing in a similar direction, they transcend and include partnerships, networks, and movements associated with a transformation imperative (Geels & Schot, 2007; Selsky & Parker, 2010; Westley et al., 2011).

The core assumption underlying the formulation of the T-system is that creating change agents' awareness of their collective efforts as a system can greatly accelerate transformation (Senge et al., 2004; Torbert, 1996). Developing a T-system's effectiveness is achieved through a series of steps and deliberate efforts. Figure 1 illustrates the general dynamic, moving from State A of disconnected efforts to State B of connected and more coherent efforts, where the arrow represents the shared aspiration inherent to an effective T-system. Coordination of effort occurs with small groupings of a T-system's participants when interests tightly intersect, guided by shared narratives, desired capacity building, and loosely held governance structures.

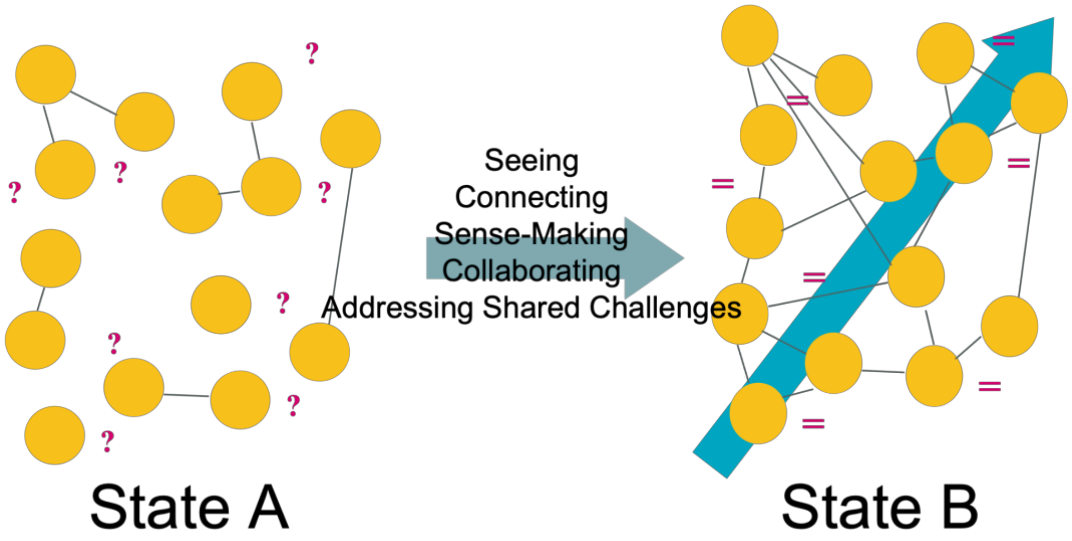

Figure 1: Emerging a Transformation System. Source: Bounce Beyond.

This figure shows in State A the disconnected and highly fragmented state of a generalized system's transformation initiatives prior to efforts to organize them into a transformation (T-) system. State B illustrates a hypothetical emergence of a system in which initiatives have been organized into a T-system, in which they are now connected to others with similar agendas, with the arrow representing the directionality of their shared agenda while still allowing for initiatives' independent action.

Connecting

Connecting involves two sets of activities that enable system participants to understand who is in the system, doing what, where, and why, what the dynamics of the system are, and how actors can (potentially and actively) relate

to each other. One activity is called seeing, and it involves mapping and stakeholder identification processes that develop a shared understanding of the system dynamics, structures, participants, and their relationships for the whole T-system. This type of understanding is a basis for potential shared or independent yet aligned transformative aspirations and actions. Sensemaking involves enabling system participants and initiatives to co-develop broadly shared understandings, aspirations, visions, narratives, documents, and images of the future, and of their T-system and its issues that participants can work on to bring transformation about.

Seeing

A key element of defining a T-system, and often an initial step, is "seeing" or understanding the system, defining its boundaries, and identifying its participants with respect to a particular geography, sector, or issue through system mapping and stakeholder identification. "Seeing" involves learning who is doing what, where, and how (Crane & Ruebottom, 2011; Mitchell et al., 1997). This process of seeing the system is iterative as a T-system develops (Van Tulder & Keen, 2018), because of porous system boundaries, which are likely to change over time with various actors entering or leaving the system, and sometimes even redefining what the system is, because living systems are by definition dynamic. Mapping processes help system actors *see and identify* themselves *as* a T-system and create potential "tie[s] that bind" Ties are important because that identity is needed to mobilize effective action (Crane & Ruebottom, 2011), although T-systems emerge around particular geographies, sectors, and issues rather than as an organization. Stakeholder identification, analysis, and seeing the system can be accomplished through a variety of mapping processes.

Mapping helps system participants understand the whole system, its participants and their connections, dynamics, and a variety of other aspects so that they can begin to identify as a transformation system (Jones & Bowes, 2017). In a sense, maps provide a "Gestalt" or holistic picture that helps patterns emerge, at least when not side-lined by overly rational analysis (McGilchrist, 2019, 2021). In Bounce Beyond, we have identified 17 mapping methods with different purposes to date. For example, Figure 2 is a product of webcrawl mapping for the Seafood T-system, a method that is particularly valuable in the early stages to identify a system's participants and their connections. The map is of websites and their hyperlink connections where one website contains a link to another website. In this seafood map each node (486) represents a website; the size of the node and website name is proportional to the number of links. There are about a dozen key hubs implementing a particular transformation strategy, surrounded by their participants. Such maps reduce what can seem like overwhelming complexity and scale to present a few avenues of approach,

making the intangible concept of a T-system tangible.[3] This map is used to introduce people working for seafood sustainability to orient them to the concept of a T-system. They can literally see their initiative in the system and grasp the rather ethereal concept of their T-system in a much more personal way. It also allows for discussion about relationships and structures of the system and how well it is functioning.

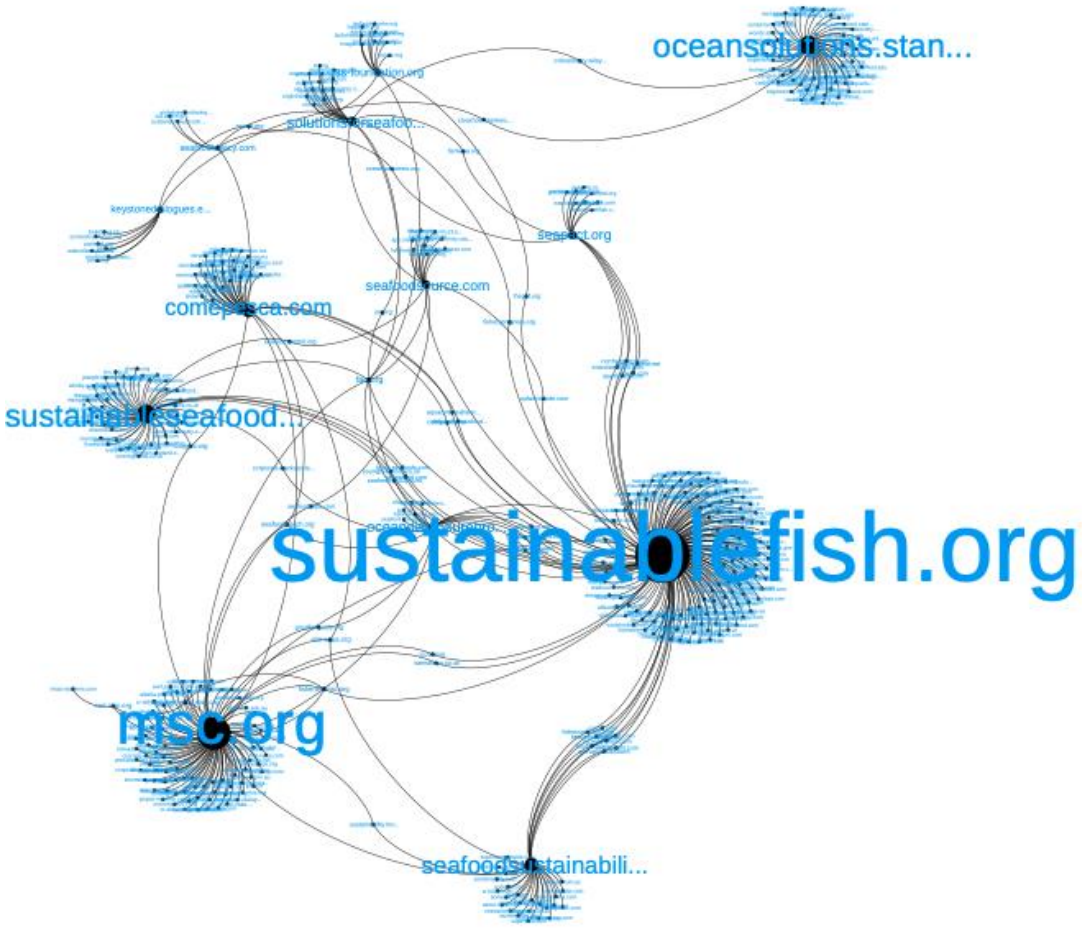

Figure 2: A webcrawl Map of the Seafood Transformation System, April 2019. Source: Seafood Source and Bounce Beyond, 2019.

System maps are not precise instruments, but rather broad brush-strokes with several useful outputs for a strategy to enhance the power of the T-system. They support a system's participants to work together, creating self- and systemic-awareness that (when successful) creates connection and coherence. First, it is useful to recognize that maps are the outcome of a relatively organic process of organizing, rather than a planned one. They show where the change

[3] See also: the Systemic Design Toolkit (https://www.systemicdesigntoolkit.org/) and the Presencing Institute's toolkit (https://www.presencing.org/)

energy is and help participants define the system. The seafood example shows a relatively well-organized system that suggests bringing together those from a dozen or so nodes to advance their T-system's power should be feasible. This map was done before the Alliance developed its Global Hub in 2021, so the structure can be anticipated to be even better organized today.

Such maps are only one output of system mapping methodologies, which can include synthesis maps, causal loop maps, influence maps, and numerous others (Jones & Van Ael, 2022), such as social network analysis about individuals' connections and value network analysis about roles and exchanges in a T-system. Mapping provides, in effect, a system organizing device. People can see their transformation system in a way that supports discussion about how to strengthen it. Such methods provide platforms for system participants to co-create and design more effective ways to intervene in and change the system, when transformation is needed, especially when appropriate principles and methods are used (Jones, 2014).

Sensemaking: Creating Shared Understanding

Sensemaking processes are vital for initiatives to align with each other for effective action (Schildt et al., 2020). Sensemaking, as used here, is a process whereby participants organize and articulate a common understanding of their T-system by elaborating a mental model, a frame of reference. Sensemaking creates a basis for advancing a shared narrative, e.g., about future aspirations, and messaging around shared aspirations and action strategies, and begins to co-emerge aligned actions that help overcome systemic challenges that might otherwise impede progress toward transformation.

Sensemaking is helpful for understanding how mental models are formed in the multiple units of analysis in a complex T-system. For the organizational social system, Weick's (1995b) theory informs the construction of mental models of future effective behavior developed from learning and experience. Klein's model of sensemaking (Klein et al., 2006a, 2006b) illustrates how mental models are framed and re-framed by self-assessment of experiential data. In T-systems development, the mapping and visualization processes can begin to emerge in new—and hopefully agreed—ways. Generating shared understandings can involve interpreting what is happening in the system and creating mental models, paradigms, and shared narratives about their meaning as well as interpreting a system to generate shared understanding (Sandberg & Tsoukas, 2020). Shared narratives help T-system participants begin to shape common, more coherent agendas (Weick, 1995a). Participants can then see where there are issues in their T-system that need to be addressed, for example, gaps, duplications, overlaps, and missing pieces, and can work to resolve any conflicts that have emerged. They can work on reducing differences in perspectives, aspirations, and agendas; where that is not possible, they can attempt to align their efforts while accepting differences, working on the challenges of governing and organizing the whole system.

Numerous visioning and futures processes are available to enhance sensemaking and visioning, including appreciative inquiry (Cooperrider, 2001) and Theory U (Scharmer, 2007; Scharmer & Kaufer, 2013). Such group processes help T-system participants connect their collective aspirations and co-develop strategies and action plans (see Coherence) for moving forward. Such approaches bring together key actors around a given issue, in a given field, or a shared set of problems to share their concerns, insights, and collectively envision a shared future. Senge called this process "getting the whole system into the room" (cf. Senge, 2006; Kahane, 2012), ensuring that all needed voices are present and heard, which depends on good mapping.

For example, Seafood 2030 created a virtual sustainability forum called "Designing the Future of Sustainable Seafood" in 2021 to address how the T-system might collectively work more effectively as a "sustainable seafood system". They were meeting the "blessed unrest" challenge (Hawken, 2007): the fragmentation, relative small size, and therefore limited impact of many socio-ecologically oriented initiatives.

Further, Seafood 2030 used a Three Horizons (3H) process (see Figure 4) (Curry & Hodgson, 2008; Sharpe, 2015; Sharpe et al., 2016) for understanding transitions in the socio-ecological systems, in a context where the future is uncertain and complexity can be overwhelming (Sharpe et al., 2016). Like many similar processes, 3H aims to honor and include all voices, and show their relationships in terms of the current reality (H1), the desired future (H3) and pathways to realizing it (H2). It is a process to graphically describe what Scharmer calls the emerging future, and illustrates which initiatives are working towards that future (and which are not) (Scharmer & Kaufer, 2013).

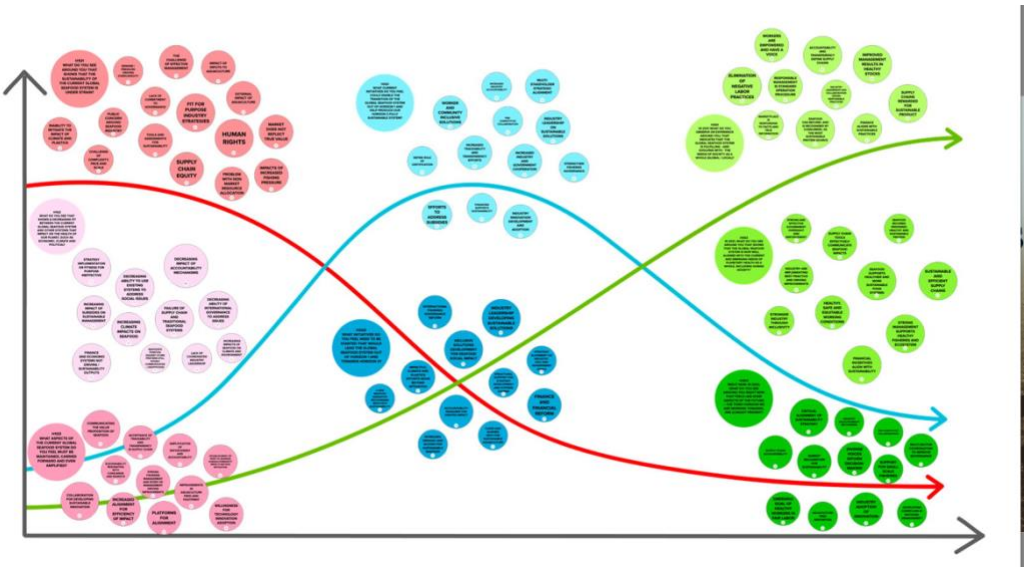

Figure 3. Three Horizons Map for Sustainable Seafood.
Source: Seafood2030 and Bounce Beyond, 2021.

In the Seafood case, about two dozen people from different parts of the T-system responded to a survey and participated in the development of the Three Horizons view of the seafood T-system. Highlights include:

- Horizon 1 (H1) or the current system is characterized as a coordination failure of the global seafood system caused by overwhelming complexity; failure to internalize key social and ecological costs including labor, ecology; lack of tactical accountability within seafood's sphere of influence; and lack of strategic coordination outside its sphere of influence.
- Horizon 3 (H3) or the desired future is characterized as an industry strategy driving an aligned seafood system that respects and evolves with ecological, social, and economic needs; and empowered workers and communities supported by industry.
- Horizon 2 (H2) or current initiatives fostering transformative change, i.e., the T-system, is characterized as industry leadership of the system that supports and drives adoption and development of innovation in the system to run and change the system; and collaboration and alignment on governance, industry and government cooperation, human rights, and communities.

In these highlights, the focus on "industry" is notable. This framing arises because the T-system orients around the seafood industry, which is seen as a major supplier of protein. In the context of the Sustainable Development Goals (SDGs), the intersection is among several SDGs, including 2 (Zero Hunger) and 14 (Life Below Water). Of course, if Seafood's T-system had been framed around just the latter, the Three Horizons process would have produced very different results, so the focal questions are important.

The major surprise for participants in this work was the central definition of the H2 (T-system) task of "innovation in the (seafood) system to run and change the system." This emphasis suggests that despite decades of work to transform the system, efforts are falling significantly short. The industry needs not to simply get better at current efforts like certification, but rather to invent whole new approaches to system organizing, that, of course, raises big issues of governance, power, structures, and collective action, and argues for building an effective T-system.

Once participating initiatives in a given system are known, a key step for T-system development is creating T-system identity and awareness. What is needed is bringing key actors together in new ways so that they can begin to cohere their aspirations, and plan joint and independent actions. Then they can identify actions to strengthen their T-system, thereby enhancing the power of their collective efforts (Waddock & Waddell, 2021b) in the cohering process described below.

This broadening of participation can involve new rounds of a 3H process. The initial round involved only a couple of dozen people, and new rounds broaden ownership and might bring new insights to continually develop and update the 3H outputs.

Cohering

Cohering involves two types of activities: action planning and co-creating transformation capacities. Developing action agendas involves bringing together T-system participants virtually and face-to-face to identify collaborative actions to strengthen the effectiveness and impact of the systemic change efforts. Co-creating transformation capacities means supporting the development of capacities, skills, and capabilities needed to effect system transformation, including developing appropriate leadership skills, metrics, communications, change and action strategies, and how resourcing is accomplished, among other possibilities.

Developing Action Agendas

One of the biggest challenges to T-systems emergence is cohering the relationships among initiatives that strengthen their collective T-system power. Here it is important to emphasize the action in action agendas. Activities of cohering and of amplification, discussed next, are not "once and done," but rather iterative and evolving as experiments start, initiatives get implemented. New understandings and different actions emerge—and things change as needed for effectiveness. Cohering can be thought of as moving along a spectrum from competition to integration. Responding to the goal of developing collective T-system power and identifying actions requires communication, cooperation, coordination, collaboration, and, in some cases, integration. The exact form of interaction depends on the particular context and opportunity for increased T-system power.

Coherence can emerge through shared initiatives focusing on different aspects of transformation when they work in alignment, create shared language, or use resources collaboratively. Co-creating documents, including research, and building internal capacities within and across initiatives can be helpful ways to generate coherence. The need for shared communication and the value of shared data access obviously leads to questions about technology platforms. Leadership in development of such connective infrastructure can be a critical contribution and important capacity development activity. For example, the Alliance provides a digest for all members to share information about their activities. The Seafood 2030 webinars aim at helping system participants better understand the need for transformative change, and how to organize a T-system. Other virtual exchanges provide for development of a three-year set of activities to support coherence.

Sometimes good ideas for collaboration arise in convenings, but go nowhere because people return to their own initiatives and become immersed in the

demands of their particular initiative. Creating a function that keeps such ideas on track can be valuable and can include developing communities of practice (Snyder & Wenger, 2010; Wenger, 1998), task forces, and other shared organizing structures. It can also include generating shared financial resources to support work groups to implement their ideas.

In the seafood T-system, actions arose from the need to build identity with the T-system for seafood, because the whole system is simply too large and complex for most participants to relate to in their day-to-day work. Two types of actions emerged from this recognition:

1. Working in sub-systems: Initiatives' work is organized around particular "problems" in the seafood system, including fisheries management, illegal fishing and supply chain transparency, fair labor, and finance.
2. Developing T-system metrics: Currently there are no metrics for the performance of the T-system or the subsystems. Action and assessment are guided by initiatives' goals, company goals, and public goals like the SDGs. Developing metrics for the *collective power of the change efforts* as represented by the T-system means that metrics could include assessment of actions to strengthen the T-system holistically.

Co-Creating Transformation System Capacities

Developing the power of a T-system includes both capacity of the T-system as a whole to function, and the capacity of its participants. Although definition of these capacities requires further work, there is good reason to believe that they are similar to the competencies identified with Global Action Network (GANs) operations (Waddell, 2011). GANs are an organizing innovation that arose with the end of the Cold War and an increase in multi-stakeholder action. They are global, multi-stakeholder change networks including, e.g., Transparency International, the Forest Stewardship Council, the Global Water Partnership, and the Global Reporting Initiative. The eight competencies needed to evolve successful GANs seem relevant for developing transformation systems' competencies and we apply them to T-systems here:

1. Leadership: How to develop collaborative leadership with other initiatives? For example in Seafood, how do initiatives and individuals in them act if they are going to support development of the T-system rather than be in competition with each other, which has been described as a shift "from ego-system to eco-system" leadership (Scharmer & Kaufer, 2013)?
2. Structural Development: How to construct ongoing flows among initiatives in support of transformation and effective T-Systems? To the extent that there are subsystems in Seafood, like fisheries management, illegal fishing and supply chain transparency, fair labor, and finance, how can links be established among actors in their sub-domains? Importantly,

what overarching linkages are needed to connect them all at the T-system level?

3. Measuring impact: How to measure one initiatives' contribution and the collective impact of a T-system? E.g., in Seafood, what are the best holistic metrics to evaluate the overall system, as well as individual and sub-system contributions to the overall? How can national accounts metrics like GNP, project impact metrics, and organization/business success metrics be aligned in support of the transformation goals?
4. Change: How to develop the knowledge, processes, skills, and tools necessary for transformation work? E.g., in Seafood, many participants come from either a natural science or business backgrounds and yet are expected to undertake big systems change initiatives, which is not their skill set, initially at least.
5. Communications: How to create robust interactions and effective communications among initiatives aiming to work in a T-system collaboratively and communicate them externally when necessary? In Seafood, the Alliance has recently introduced a digest for exchanging news among members. At the time of this writing, it is developing a collaboration mapping platform so members can find each other based on needs and offers.
6. Learning Systems: How can initiatives develop their individual learning systems with T-system collaboration in mind? In seafood, there are a growing number of virtual and face-to-face forums associated with major industry conferences. Sophisticated "ecologies of learning" (Snyder & Wenger, 2010), including a variety of exchange mechanisms, are required.
7. Policy and Advocacy: What should be done to support the emergence of initiatives so they can act as powerful T-systems? If, for example, Seafood is to achieve its goals of a sustainable seafood system by adopting industry-wide sustainable practices and products, what policy shifts are needed, and which actors need to get involved in advocating for them? How is strong advocacy for change maintained, in the face of inertia and initiatives tendency to develop a niche that can easily sink into a new status quo?
8. Resource Mobilization: How to shift funders and economic models to accommodate initiatives within a T-system to work more collaboratively to effect transformative impact? How can for e.g., the Seafood T-system and its participants garner sufficient funds and access the skills external to it, at a scale to truly realize the transformational goals?

Amplifying

Amplifying also has two sets of activities: implementing action plans and developing transformation infrastructure. These activities are core aspects of catalyzing significant change, again recognizing the iterative and interactive

nature of implementing action agendas. Implementation is often helpfully framed as "experiments" to emphasize the newness of the type of action and the importance of learning how to work together, as well as the need for ongoing experimentation. Infrastructure development addresses the need to build a T-system's on-going ability to connect, cohere and amplify. Amplification enables participants to address the six deep challenges generic to transformation introduced at the outset. They can then move forcefully when "leverage points" and "tipping points" arise.

Implementation

While keeping in mind the need for continual development, T-system development activities can move into an implementation stage with the question: what actions can strengthen the collective power of the relevant T-system? In Seafood, the connecting and cohering activities revealed the existence of a long-standing T-system with adequate support for moving forward. It also revealed several core challenges: the complexity of the system, collective dynamics of different actors, and insufficient focus. These challenges combined with an orientation towards incremental rather than transformative change, as well as system fragmentation, create significant inertia. Core tasks that (at this writing) system organizers see need to be done over the next three-year period to bring about the desired transformation and T-system include:

1. Developing a narrative that drives a systems approach to seafood transformation.
2. Designing specific processes to bring diverse stakeholders together in new ways.
3. Working subgroups or "arenas" of activity that define strategic pathways forward and enable participants to bring strategic foresight to their own initiatives/sectors.
4. Bring representatives of the subgroups together to form a collective sense of the overall T-system that can be shared in the subgroups later on.
5. Create an action plan for the system that encompasses measurement, evaluation metrics, learning, and research (synthesized with the acronym 'MERL') that can guide actions, support system participants learning from each other, and help improve the functioning of the overall T-system.

Developing relationships within the T-system means that systemic changes can be catalyzed through the implementation of action agendas, though Seafood has not yet moved to this stage. But consider some of the possibilities here. Synergies can be readily identified among actors implementing different parts of the action agenda, developing their own insights, and sharing them with others. Actions can be co-designed by groups or individual initiative with an understanding of how they affect the overall T-system. Learnings can be more readily shared when the common agenda exists, reducing redundancy and accelerating innovations and experiments that work—while recognizing the

unique contexts of each sub-part of the system. When T-system participants can identify high leverage points and possible tipping points, they can move together (or in subgroups) towards mobilizations to propagate needed change.

Developing Transformation Infrastructure

As T-systems evolve, a demand for supporting infrastructure also grows, to support the continual development and evolution of the system. The five activities previously discussed will be actively engaged in an ongoing way. Since the structure, dynamics and participants in the T-system are always changing, mapping and updates must be done at intervals; moreover, as new participants are engaged in the T-system process, they have roles and views that also must be engaged to create co-ownership and understanding. For example, Seafood work first focused on the T-system in general, and is now focusing on four particular issue complexes (including fisheries management, illegal fishing and supply chain transparency, fair labor, and finance), recognizing that the activities must be repeated within each of these as a subsystem of the whole.

Elsewhere we have written about the emergence of transformation catalysts that can organize such activities in an ongoing way (Waddock & Waddell, 2021b). From what we have witnessed in working with Seafood, it appears that as T-system recognition grows, so does the recognition of the need for developing transformation capacity specific to the given system. Thus, part of the activity associated with emerging T-systems is responding to the drivers for a transformation *catalyst* that can steward the ongoing action geared towards transformation within the system. Central entities, such as Seafood 2030 and The Alliance, become likely candidates to take on this activity—which is a catalyzing rather than a "doing" function. In other words, the transformation catalyst's responsibility is to ensure that the activities of seeing, sensemaking, action planning, co-creating transformation capacities, and implementation are carried out *by system participants*.

Discussion and Limitations

The concept of a Transformation System as discussed above is relatively new, and the framing is still emerging across discourses and uses. Our orientation is very similar to field-building (Hussein et al., 2018), but has a broader engagement challenge and a more specific transformation mission. Approaching transformation through the lens of developing T-systems can greatly enhance the potential for system change outcomes. But there is a catch to note. Creating identity and coherence as a T-system emerges through collaborative work by participants in the system, not by a centralized authority or senior board group. System participants are member leaders in their own specialties as well as in the broader social system context; they are engaged to openly disclose, to become both self and system-aware, to commit to co-create a common aspiration. System leaders are called to framing work, to identify the strengths and opportunities in

their system lie, going through a type of collaborative journeying process similar to the well-known Theory U process (Scharmer, 2009). The T-system is convened with participant-leaders in similar process to the more recent u.lab[4] process. Actors need to be able to shift their own planned activities when observations of the system as it changes increase the transformative power of their T-system as a whole. That requires leaders and participants willing to put aside their competitive side (which is strongly nurtured by the current system) in favor of a deeply collaborative and co-creative approach

These approaches emphasize stewardship of the future rather than immediate success. They also raise the core deep system challenge of creating new collaborative capacity, in particular to forward shared narrative development, the types of metrics needed to evaluate whole systems, and new ways of governing systems that are likely still to emerge. The amplification process requires new linkage among initiatives, ongoing experimentation with action agendas, and a willingness to "live" in uncertainty some of the time. While these challenges represent opportunities for transformative change to happen, they also can provide obstacles to change—and limitations to the potential for transformation.

T-systems provide an opportunity for greater systemic and transformative impact. With T-system awareness, participants shift from a focus on immediate project outcomes to a broader situation awareness that seeks to address the opportunities for connecting and enhancing a more collective, shared T-system to accelerate outcomes collectively desired across participants in the system. In the process, participants can gain insights in how to work collaboratively with others and move into the flow of transforming whole systems, including tackling some of the tough challenges associated with innovation and, particularly, financing transformation. Obstructionist tactics or even simple short-sightedness, inability to envision the system, or conventional competitive mindsets can get in the way of building the shared aspirations and common theories of change that are shared for leading a common agenda for transformative change. Hence these behaviors can be limitations to change—and their prevalence in today's competitive dynamics makes finding participants to act in these new ways difficult. In that context, nurturing whole system awareness and individual capacities to, in a sense, "let go" of control are needed.

Conclusion

We find that transformation systems are prevalent today; whether recognized or not, people working for transformation are system participants in T-systems as

[4] The u.lab program developed by the MIT Presencing Institute convenes a voluntary network for large-scale coordination of multiple systems change initiatives, convened within locally-organized groups using a Theory U design process. The approach is a change management method approach and course, incorporating the theories of presencing and collective impact.

they advocate and organize for system-level change in particular geographies, issues, and sectors. By *recognizing and identifying themselves as part of a broader transformation system,* people can connect, cohere, and amplify their efforts collectively to become more effective in tackling major systemic challenges. Though understanding of T-systems needs further development, we believe that developing T-system power and participation holds promise for accelerating transformation journeys.

Transformation requires significant change at multiple levels, that is, from what are known in the transition literature as niches (small innovative spaces) to regime and landscape (whole system) levels (Geels & Schot, 2007). For sectors like global seafood, the required huge effort can be greatly aided by forming T-systems built on shared aspirations (new narratives and theories of change) that inspire participants. Connecting, cohering, and amplifying T-system initiatives can play a critical role in attaining the scale needed to transform whole systems. Doing so can help identify key leverage points for change that emphasize the value of focusing effort on a particular point in a system to realize a desired change (Meadows, 1999). Effective T-system participants can also better recognize "tipping points" that enhance the timeliness of actions (Gladwell, 2006; Westley et al., 2011) and provide guidance about where to place effort.

T-systems present a vehicle that supports addressing the inherent transformation qualities of scale, complexity and time-horizons. Developing T-systems, however, requires that transformation agents shift their attention from particular efforts within a T-system, to the T-system as a whole. Perhaps the biggest challenge is developing commitment to deep collaboration and systems awareness, and successfully arguing the need for systemic transformation. We are still in the early stages of understanding how to develop T-systems.

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