



## Transformation Catalysts: Weaving Transformational Change for a Flourishing World for All

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### Abbreviations

CA: Catalytic Alliance

FC: Field Catalyst

GAN: Global Action Network

TC: Transformation Catalyst

SES: Socio-Economic/Ecological Systems

T-system: Transformation system

### Abstract

*This article lays out the emerging roles of new entities here called transformation catalysts (TCs). Transformation catalysts act catalytically by aggregating, cohering and amplifying actions of transformation initiatives and change-makers working towards fundamental socio-ecological systems. As catalysts, TCs connect other actors synergistically together towards system innovation, alignment of efforts, and transformation. TCs make three distinctive contributions to address the purposeful transformation challenges of time span, speed, scale, and complexity. They (1) research and analyze to 'see', map and otherwise understand their transformations systems' participants and dynamics; (2) they connect the transformations systems' actors so they, too, see and identify highly strategic actions from a collective perspective, and (3) support implementation of the actions. Although their development faces significant challenges, the promise of TCs as a new organizational form is the ability to much more rapidly and effectively address socio-ecological crises.*

### 1. Introduction

Numerous reports from scientists and other observers have raised the need for socio-economic-ecological (SES) system transformation. SES transformation involves significant change of many human systems, in light of growing and hugely problematic, often global, problems in the world. These issues include climate change, unsustainability, species extinction, and pandemics, among others (e.g., Lovins, Wijkman, Fullerton, Wallis & Maxton,

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2016; Reyers et al, 2018; Diaz, Settele & Brondizio, 2019; Kanie et al, 2019; Ripple, Wolf, Newsom, Barnard, Moomaw & 11258 others, 2019; Scrutton, 2020, to cite representative studies). Through an SES lens, ecological and social issues are inextricably interconnected, although some issues may be more ecological while others are primarily social.

Unprecedented technological potential, more well-educated people than ever, and unparalleled financial wealth co-exist with these crises. Taken together, the SES challenges and novel assets of our time threaten potential disaster, while also creating enormous potential to improve societies. SESs thus simultaneously pose problems, are fraught with issues, and offer exciting new opportunities. All, however, require significant system transformation if they are to achieve their positive potential and avoid disaster.

Many reports and studies argue that system transformation is vital to creating a thriving future for all. Yet system transformation is difficult because it takes place in SESs that are inherently complex adaptive systems (e.g., Stacey, 1995; Anderson, 1999; Grobman, 2005; Loorbach, 2010; Rotmans & Loorbach, 2009; Jones, 2014; Levin, Levin, Oppenheimer, Ostrom & Saari, 2013). Further, the problems/issues that require transformation are “wicked problems” (Churchman, 1967; Rittel & Webber, 1973; Batie, 2008; Mason & Mitroff, 2010; Weber & Khademian, 2008; Levin, Cashore, Bernstein & Auld, 2012; Waddock, Dentoni, Meszoely & Waddell, 2015). Such problems are what Ackoff (1975) called messes and Trist (1983) labeled meta-problems because they are wickedly complex or complexly wicked.

Because of these inherent system characteristics, *purposeful* system transformation towards generally agreed ends (e.g., the UN’s 17 Sustainable Development Goals or the Paris Climate Accord) may be desirable, yet is far from easy. Numerous actors attempt to make change—and their efforts can be uncoordinated, fragmented, overlapping, or even go in different directions. Indeed, ecologist Paul Hawken noted in his book *Blessed Unrest* (2007) that globally there were somewhere between one million and two million small to large enterprises generally focused on bringing about a more just and sustainable world. The problem, as identified by Hawken, is that these efforts are largely fragmented and unconnected, with few ways of cohering, coordinating, and connecting to amplify their intended positive impacts or truly bringing about the purposeful system change that is desired. Since his writing, we are seeing emergence of TCs to address this organizing challenge. Consider the following two examples.

Out of the ashes of the Kyoto Process, in 2011 the UN spurred development of *Sustainable Energy for All (SEforALL)* as “...an international organization working with leaders in government, the private sector and civil society to drive further, faster action toward achievement of Sustainable Development Goal 7”, affordable and clean energy. The failure of the traditional inter-governmental target planning approach of the Kyoto Process reflected the complexity and wickedness of achieving sustainable energy for all. SEforALL works collaboratively and catalytically across sectors and institutions, including the UN, governmental leaders, businesses, financial institutions, civil society organizations, and philanthropies to “drive faster action” to achieve the UN’s 17 Sustainable Development Goals (SDGs). Under the headline of “going further, faster—together,” SEforALL emphasizes

committing, connecting, and co-creating initiatives that focus on a clean energy transition “that leaves no one behind and brings new opportunities for everyone to fulfil their potential”.

Accomplishing these SES goals, SEforALL recognizes, requires significant transformation of the energy sector. It involves “...a radical rethink of the way we produce, distribute and consume energy (and) ensure no one is left behind”. Engaging stakeholders in processes in which they participate in dialogue, co-develop solutions appropriate to specific contexts, and spur their commitment to action is part of SEforALL’s effort to catalyze energy transformation as well as what the initiative terms results-based financing models. SEforALL describes itself as the “leading enabler of the sustainable energy movement, marshalling evidence, benchmarking progress, connecting partners and amplifying voice”. SEforALL’s multiple initiatives include Cooling for All, Clean Cooking, Energy Efficiency for Sustainable Development, and various efforts to shift energy financing and policy. The idea is to “focus [...] effort by creating a common understanding of impediments and mobilizing collective effort to address them” particularly across Africa.\*

Another TC launched in 2020 is tackling the problem of “integrated landscape management”, *1000 Landscapes for 1 Billion People (1000 Landscapes)* by bringing together numerous, otherwise fragmented, efforts in “radical collaboration”. The idea is to build capacity and unlock investment finance to foster regenerative landscape partnerships, strategies, and associated livelihoods. 1000 Landscapes thereby catalyzes actions that enable quicker, more effective, and scaled impacts around integrated landscape management strategies to meet the SDGs. Recognizing the reality that each landscape is unique and requires individualized approaches, 1000 Landscapes forms holistic collaborations that “integrat[e] action for food, water and health security, sustainable livelihoods, biodiversity conservation, climate action, and the transition to inclusive green economies”. Landscape efforts “form around watersheds, bioregions, jurisdictions or city-regions, to align the actions of all stakeholders who depend upon and impact landscape resources, including farmers, local and indigenous communities, social and environmental NGOs, local governments, and business enterprises”. As with SEforALL, past efforts were highly fragmented and under-resourced, hence the need for the integrative—and catalytic—role played by 1000 Landscapes, so that the “challenge [of] how to unlock the transformative potential of inclusive landscape partnerships and to scale their impact” can be met and all people can live dignified lives. The goal is to ensure that the innovations, tools, resources, and principles that support integrated landscape management can reach the scale, attain the speed, and address the associated complexity.<sup>†,‡</sup>

Both of these examples represent a new and still emerging type of entity—here called a Transformation Catalyst (TC). Such initiatives are specifically designed to catalyze transformative action by connecting, cohering, and amplifying the efforts of existing initiatives in different types of contexts so that transformative impacts can be achieved in target systems. Below we will explain these emerging organizing forms in significantly more

\* Source for quotes in previous two paragraphs: SEforAll website, <https://www.SEforALL.org/>

† Source: <https://ecoagriculture.org/blog/introducing-1000-landscapes-for-1-billion-people/>

‡ Quotes about these two examples throughout are taken directly from their websites.

detail and discuss their potential for bringing systemic transformations about.

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*“By “transform” we do not simply mean reform, but rather deep change in purposes, values, goals, and power structures.”*

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## **2. What is a Transformation Catalyst?**

The collection of initiatives that aim to transform a particular issue or geography in a shared direction can be considered a “transformation system”, (Waddock et. al. 2020) a concept growing out of “societal change systems” (Waddell, 2016). By “transform” we do not simply mean reform, but rather deep change in purposes, values, goals, and power structures. The large number of initiatives around transformations issues like sustainable energy and landscape planning reflect the wide array of sub-issues that must be addressed. One reason that transformation is so difficult is because the transformations systems are “under-organized” (Brown, 1980). The task of rendering a system effective in terms of speed, scale and complexity is beyond traditional organizational forms.

In chemical reactions, *catalysts* (from the Ancient Greek, *katálusis* meaning dissolution) are media that bring about a transformational (or state) change but do not themselves change in the process. In social contexts and as used here, the idea of the catalyst has had a more metaphorical meaning as a person or thing that precipitates, hastens, or stimulates a change or causes something to happen, often unpredictably and nonlinearly.

Transformations catalysts (TCs) are promising organizing innovations specifically designed to address complexly wicked societal problems and opportunities and bring about purposeful system transformation. In this case, we focus upon TCs that are working for an equitable, sustainable world, although other outcomes may be the purpose of a TC. TCs tackle the deep systemic challenges facing humanity today using the types of leverage points that Meadows (1999) outlined in her seminal paper “Leverage Points: Places to Intervene in a System”. Specifically, they connect, cohere, and amplify efforts of other initiatives in an attempt to overcome the fragmentation and lack of impact that Hawken (2007) called “blessed unrest”. They help coalitions of actors emerge shared visions, goals, aspirations, or other narratives that enable them to align their efforts, even while they pursue their individual agendas. Historically, these entities represent innovative organizing forms that have evolved from past efforts to cope with complexity and wickedness. Earlier organizing forms arose on the basis of Ackoff’s (1975) insight that single institutions or organizations cannot effectively contend with what he termed “messes” or meta-problems (Trist, 1983), here labeled complex wickedness or wicked complexity and that multiple collaborative approaches were needed to do so effectively. TCs are the latest and perhaps most promising in a series of such entities.

Public-private then multi-stakeholder partnerships (MSPs) and cross-sector collaborations began forming in modest ways in the 1970s and '80s (Gray, 1989; Waddell 2005). MSPs led

to the emergence of cross-sector networks, and ultimately what became known as GANs—Global Action Networks (Waddell, 2005; 2011). TCs resemble but go beyond GANs, and in particular take on the catalytic orientation of other types of entities called catalytic alliances (CAs) (Waddock & Post, 1991, 1995) and field catalysts (FCs) (Hussein, Plummer & Breen (2018), but are different in their transformation focus. Further, TCs are different from innovation brokers/intermediaries (Klerkx & Leeuwis, 2009; Klerkx, Aarts & Leeuwis, 2010) because they attempt to gel catalytic action in the context of complex wickedness rather than develop a field per se and thereby serve a catalytic rather than brokering function.

TCs have attributes that set them apart from any of these ways of organizing that make them uniquely suited to the demands of complex wickedness and the need for purposeful transformation. Transformation catalysts create metasystems\* for dealing with meta-problems. They are, that is, TCs' efforts explicitly oriented to weaving together already existing and potentially emerging initiatives. In doing so they create an overarching system of initiatives, each with their own goals, activities, and operations. Collectively, TC actors aim at dealing with sets of meta-problems that exist in a given system by aggregating, connecting, cohering, and amplifying their efforts for greater impact. Focused on systemic transformation of the focal arena, TCs emphasize bringing about radical change in key systems generally in the direction of flourishing for all (using many different labels).

Here is a working definition of the transformation catalyst: Transformation Catalysts work catalytically with actors in a transformation system (T-system) to enhance their collective speed and ability to address the complexity and scale associated with transformation. The T-system is an SES (socio-economic system) that can be geographic, sectoral, or issue-based. For example, 1000 Landscapes is organized around the action framework of integrated landscape management, and SEforAll is around the issue of sustainable energy for all. As catalysts, TCs attempt to bring other actors synergistically together towards greater needed *system* innovation, alignment of efforts, and transformation into powerful transformation (T-) systems. That is, TCs cohere collections of actors oriented toward systemic change in a given arena without necessarily “making” the change themselves.

TCs are self-organized, self-governing systems that are made up of loosely-coupled transformation initiatives and change makers operating to transform places, issues, sectors, industries, and other deep systemic challenges. Employing a theory of change based on understanding complexity and wicked problems theories, TCs work to see and understand their related T-systems, make sense of them and emerge relevant new stories and narratives that support transformation, connect system change actors, and generate radical action and learning to foster transformation. The goal is to induce a state change or “socio-technical tipping point” (Otto et al., 2020) towards purposeful transformation in which all can flourish.

### 3. Core Characteristics of Transformation Catalysts

Below and using the two examples as illustrations, we elaborate the main characteristics or core attributes of TCs as they are emerging today in terms of: 1) purposes (focus), which

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\* Thank you to Ian Kendrick for this term.

emphasize system change and the formation of transformation systems, 2) theory of change, which is based on complexity theory and understanding of wicked problems, 3) organizing structure, which tends to be loosely coupled yet aligned, and 4) catalytic action strategies of seeing, sensemaking, connecting, and radical action and learning that support their strategies (see Table 1). It is important to note that while TCs each have their own specific purposes and agendas, they also share two common purposes: an emphasis on *system(s)* transformation and a focus on the emergence of powerful transformation (T-) systems.

Table 1. Core Characteristics of Transformation Catalysts

Characteristic	Definition
Purpose/Focus	TCs develop powerful transformation systems (T-systems) with diverse transformation initiatives around shared issues, geography, methodology, or strategy to bring about systems change.
Societal Theory of Transformational Change	TCs employ a theory of change based on complexity and wicked problems theory that recognizes the need for catalytic action to address the challenges of time span, scale, complexity and speed. They do this by creating powerful systems of interaction between actors to develop aggregation, coherence and amplification.
Organizing Structure	TCs are self-organizing and self-governing, interconnected, loosely-coupled systems of change makers operating to transform systems of different types, geographies, and issues. They are frequently structured as temporary entities, however, the complexity and wickedness of the systems with which they deal can potentially expand their lifespan.
Catalytic Actions	TCs undertake four main, interrelated activities to generate catalytic impacts: seeing systems, sensemaking, connecting, and radical action and learning.

**System Transformation:** TCs’ work is characterized by a transformational change objective, in contrast to incremental/mitigation or reform/adaptation types of change (Waddell, 2007, 2011; Pelling, 2010; Waddell et al, 2015). TCs do not focus on simply expanding application of something well-known, policy reform, or organizational restructuring. While these activities might be included in what they do, TCs are fundamentally focused on changing the core logic, values, and power structures in relevant systems. Transformation means fundamental change that involves core aspects of a given system—including its purpose(s) and the perspectives or mindsets of key actors who frame and shape the system (Waddock et al., 2020). The performance metrics that are used to guide goal development and assess outcomes are also important because, as accountants like to say, you get what you measure.

Hence, holistic metrics or evaluation approaches like Blue Marble evaluation (Quinn, 2015) may be considered because the whole system needs to be taken into account. The operating practices of systems and power dynamics also can shift in transformational efforts (see Waddock, 2020a).

Thus, TCs orient towards major change in the relevant social-ecological system (SES), not piecemeal, fragmented, or partial efforts. For example, SEforALL states its purpose as working “to ensure a clean energy transition that leaves no one behind and brings new opportunities for everyone to fulfil their potential”, using the words transition and transformation interchangeably. 1000 Landscapes notes that many landscape partnerships are “forging holistic strategies to meet the SDGs—integrating action for food, water and health security, sustainable livelihoods, biodiversity conservation, climate action, and the transition to inclusive green economies” as part of its own transformational agenda. Such a goal builds a holistic perspective into the energy transformation by encompassing the wellbeing of all. Similarly, 1000 Landscapes envisions bringing dozens of organizations globally together. They will be “joining forces to link currently fragmented efforts, build capacities, and unlock investment finance that will enable landscape partnerships everywhere to achieve their regenerative landscape and livelihood ambitions more quickly, effectively and at scale.”

**Transformation (T-) Systems:** In addition to their focus on systemic transformation, TCs also emphasize the development of powerful transformations systems (T-systems). T-systems encompass all of the initiatives, actors, and efforts that are already attempting to move some part of a system in the direction of flourishing for all or sustainability, which is the focus of the TCs of interest (Waddock et al., 2020). Bringing these initiatives into alignment around a common perspective or shared aspirations is a vital catalytic function. It enhances their capacity for real transformative impact, rather than the more piecemeal impacts that many smaller and unaligned initiatives have. The goal is to emerge mindset shifts (Meadows, 1999) that create a degree of coherence in the “blessed unrest” (Hawken, 2007) of having many unaligned initiatives. By being explicit about the emergence of T-systems (whether called by that label or not), TCs recognize the need to identify and cohere efforts in at least a loosely-coupled way (Weick, 1976; Orton & Weick, 1990) to gain transformative impact. The TC, in developing a shared aspiration, vision, set of goals, or other ways of aligning the stories of the various initiatives and mindsets of key actors, implicitly or explicitly recognizes Meadows’ (1999) important insight that mindset change—related to the stories and narratives told—is the most important lever of change. We will say more about this facet of TCs’ work below in discussing the sensemaking activity.

Further, TCs work with an implicit sense of the need to strengthen their T-system in order to accelerate and scale their transformation. They help participants in a particular T-system understand the dynamics of their system as a whole, and their particular role in that context. TCs bring to the fore the need for powerful transformations systems and action priorities, allowing system participants to change or refine their actions in the context of this understanding. To illustrate, SEforALL’s mission is to “...broker partnerships.” 1000 Landscapes explains that it is “...working in radical collaboration with dozens of organizations

to catalyze system change”. Further, 1000 Landscapes seeks to “unlock the transformative potential of inclusive landscape partnerships and to scale their impact”.

### ***3.1. Complexity-Based Theories of Transformational Change***

TCs work for transformational change in SESs using a systemic theory of transformational change integrally based in complexity and wicked problems theories. They realize that the scale and complexity of their work require new ways of interacting and organizing among change initiatives. System transformation is often urgent, and yet it is generally a process that takes place over time, with outcomes that cannot be explicitly projected or predicted because of the nature of complex wickedness. Recognizing this, TCs emphasize alignment, bringing numerous different actors together for impact in processes that are necessarily emergent, dialogic, and inherently unpredictable (c.f., Grobman, 2005; Loorback, 2010; Mason & Mitroff, 2010; Jones, 2014; Waddock et al., 2015; Linner & Wilbeck, 2019). In such a context, each initiative or aligned collaborator can still do its own “thing”, while simultaneously being aware of and working towards the shared aspirations of the T-system in which they are engaged.

TCs work with change makers who typically are already (or want to be) working on a specific issue, place, or other type of system. TCs attempt to: 1) see and understand relevant systems and their many stakeholders, 2) make sense of what they have learned for themselves and others, connect key actors to form effective T-systems, and 3) generate radical action and learning so that change makers can be more effective and fill in gaps where necessary. TCs recognize that transformational changes emerge unpredictably—but can potentially be guided by shared aspirations and narratives. We will unpack these attributes and actions in the sections that follow.

Some TCs operate at the “meta” level with TCs operating fractally at a different level or scale. For example, 1000 Landscapes focuses on “landscape partnerships” at the regional level, which are themselves TCs, recognizing that each landscape is unique. As part of their amplification efforts, meta-TCs tend to be comprised of other transformation initiatives and change makers in a loosely-coupled, fractal-like organizing structure. Fractals or self-similar, nested TCs that collectively comprise a bigger TC (c.f., Mandelbrot, 1983; Perey, 2014) that can operate on broad geographical, issues/problem, or deep challenges basis (and perhaps others). This orientation is particularly evident with SEforAll and 1000 Landscapes which work with large numbers of actors and diversity of context that their goals imply. The TCs need to “emerge” with these actors’ ideas and possible pathways forward in real time, while adapting to context and situation. At the same time they must deal with unpredictability and a range of possible outcomes.

### ***3.2. Organizing Structure***

TCs start with the understanding that many valuable transformations initiatives and efforts already exist. The problem is that they lack coherence operating in “blessed unrest”, separate from each other and unaligned despite a shared set of aspirations (e.g., Hawken, 2007). TCs operate in the belief that a “loose coupling” (Weick, 1975; Orton & Weick, 1990) of similar but



previously unaligned efforts is needed to build powerful transformations systems. Consistent with their understanding of complex wickedness, TCs are self-organizing, interconnected, loosely-coupled systems of change makers operating to transform systems of different types, geographies, and issues. Their boundaries are porous and allies and collaborators can be closely or loosely linked and these qualities can vary over time.

TCs can emerge as actors in their field saying “something has to change”, and then organizing to make that change happen by pulling together existing efforts that have not previously been linked to emerge more coherent efforts and actions. For instance, SEforALL emerged after many years of failed interactions around the Kyoto Accord process, bringing into alliance many local/regional actions that produced results. With UN leadership, sustainable energy actors gathered to create SEforALL as a self-organizing and self-governing group. SEforALL could be framed as a network, however that frame obscures the value that SEforALL brings of viewing its participants as interacting systems.

In TCs very little is decided as a whole or centrally, but rather the locus of activity is in collections of actors in particular high-leverage projects who make their own decisions and, in a sense, constitute the TC and its governance structure. Financing, for example, is rarely provided centrally by SEforALL. Its core focus is to influence participants (who may or may not be members of a given TC by building deep awareness of their part in their particular transformation system and to take action based on that understanding. Similarly, 1000 Landscapes recognizes the need to get new tools, approaches, and methods to local landscape leaders “working on the front lines of the climate crisis. It is designing innovations to meet the needs of local partnerships” to accelerate numerous activities by different stakeholders, including national governments, investors, companies, and NGOs.

#### **4. Catalytic Actions**

Catalytic action is at the heart of TCs’ work. Part of catalysis, of course, is the very act of bringing fragmented and individualized actors together into a collective. Shared aspirations, purposes, goals, or visions (however defined) can emerge or be co-created, helping to shape and shift mindsets (Meadows, 1999). Just that act alone can be transformative as those entities begin to see themselves and their activities as part of the larger T-system that they recognize exists. Collectively, they can begin to coordinate their efforts, figuring out where there are overlaps and gaps, and begin to take actions to deal with them. Separately, TCs’ participants could only do what their original orientation geared them towards, but as a collective they can define and take broader actions in a variety of different domains so that more systemic impact begins.

1000 Landscapes, for example, has established four priorities. One was creating “a digital platform for landscape management and integrated tools to help landscape partnership organize, plan, fund, implement and demonstrate the impact of transformative landscape action and investment portfolios. A second priority was emerging financial innovations for landscape management “that facilitate funding...for landscape-regenerating investment portfolios that meet holistic, locally-prioritized landscape goals”. The third was establishing

“an institutional structure that puts locally-led governance in control”. The fourth is to institutionalize capacity-development for landscape partnerships. To generate specific actions and priorities, 1000 Landscapes emphasized in-depth dialogue and consultation with landscape partnerships, developers, financiers, and other stakeholders. SEforAll states that “our work involves engaging stakeholders—business, government, consumers and NGOs—to ensure they are committed to” sustainable energy transition. SEforAll also “empower[s] them with the data and evidence and the partnerships they need to act”.

These activities reflect three interrelated and somewhat overlapping activities that TCs undertake to generate catalysis: 1) seeing and sensemaking, 2) connecting, and 3) radical action and learning.

#### **4.1. Seeing and Sensemaking**

TCs act catalytically through both seeing and sensemaking functions. Seeing systems means defining and continually updating the T-system of interest, its key actors and stakeholders, how it is currently structured and operating, and how resources (money, energy, knowledge) flow. Seeing can be done informally through dialogue with key stakeholders or more rigorously through mapping processes that dig deep into getting a handle on who is doing what. For instance, part of 1000 Landscapes seeing was consultation with more than two dozen landscape partnerships, and a dozen landscape partnerships from around the world are now co-designing with them, along with more than 40 financial institutions that have been innovating around landscape finance to map and understand the systemic barriers and opportunities. That dozen landscape partnerships is to be expanded to 50 in the second phase and eventually to the 1000 landscapes over time. Nigel Sizer, Chief Program Officer of the Rainforest Alliances, on the website explains: *“By 2030, we believe that ecosystem regeneration and inclusive economic development can reach at least 1000 landscapes, meeting locally-defined development and environmental goals, with benefits for over one billion people.”*

TCs’ seeing activities sensitize participants to the existence of their particular T-system, as well as enhancing understanding of the system(s) to be transformed. Seeing can include tools like mapping, data analysis, and visualizing, as well as interviewing participants and understanding how different entities in the system connect with each other. Such approaches help T-system participants (and others) understand the larger dynamics of which they are part. They can identify where resources do and do not exist or may need to be deployed in different ways. Then they can create new meanings through the interactions that are generated (see Kampelman, Kaethler & Hill, 2018, for a discussion of curators). Seeing can also involve design activities for bringing initiatives together in what 1000 Landscapes calls “radical collaboration...to catalyze system changes that enable landscape-scale partnerships to much more quickly and effectively achieve their regenerative landscape and livelihood ambitions” (1000 Landscapes, 2019).

Seeing helps TC actors identify the most important gaps between what is needed and what exists, and how to best begin to fill those gaps. It is also associated through the sensemaking

activity with shaping shared aspirations and new narratives or stories that help define the system and its needs. In the context of complex wickedness in socio-ecological systems, no single entity is capable of bringing needed system transformation about. Ackoff (1975) referred to these types of meta-problems embedded in socio-ecological systems as “messes”. Despite that, as 1000 Landscape’s concept note puts it, the “solutions are [can be] in plain sight”, they can remain invisible until they are revealed by mapping and other actions that create explicit consciousness of them. As the concept note further states: “Different land uses [or any other systemic problem a TC might address] are deeply interdependent—ecologically, socially and economically.”

As defined by the term’s originator Weick (1995), sensemaking means giving meaning to experiences (Weick, Sutcliff & Obstfeld, 2005, p. 409). Tackled by TCs, the sensemaking process or intelligence function frequently involves: 1) establishing a coherent and aligned vision or purpose for a T-system, 2) articulating and framing that vision in powerful narratives, stories, images, and other symbols to bring others around those narratives, and 3) developing knowledge dissemination strategies. Sensemaking helps others begin to understand both the T-system and the target system(s) in new ways so they can take more effective action.

Sensemaking frames what needs to be done, how it might or can be done, and by whom. In SEforALL, for example, the impact of the COVID-19 pandemic and the United Nations’ SDG-oriented “decade of action” helped participants refine their work into four thematic areas and twelve associated programs. These programs include energy diplomacy and advocacy, energy access and closing the gap, energy transitions and climate, and interaction with other SDGs (SEforALL, 2020). SEforALL then attempts to “provide insight and analysis and present the information in a way that’s compelling and accessible”, reflecting that important part of the sensemaking activity of TCs.

## **4.2. Connecting**

In many ways the core catalytic activity of TCs is that of connecting. Connecting includes aggregating, cohering, and amplifying the efforts of numerous allied transformation initiatives and change makers to build effective T-systems. Working in the context of wicked complexity, TCs create new connections and synergies among existing actors in order to build a stronger interstitial framework (Furnani, 2004; Villani & Phillips, 2020) that can give rise to more effective systemic outcomes. Like curators (Kampelman, Kaethler & Hill, 2018), TCs “curate” connections, knowledge, and information-sharing between actors so they can amplify their own effectiveness.

TCs organize strategies to connect T-system participants, create shared identity, and make participants aware of their roles as actors in a broader T-system. Through virtual and face-to-face meetings and interactions, TCs create spaces for participants to connect and convene. Connecting can also occur through seeing activities, such as creating reports or maps, which help participants better understand their T-system as a T-system.

Within the T-system perspective and connections that the TC brings, participants focus their attention to identify how to make the T-system more powerful. Connecting thus includes

addressing gaps in effort, increasing effort around highly strategic imperatives, creating synergies between efforts, and reducing unproductive duplications. That explains why 1000 Landscapes focuses so much on establishing partnerships. It is addressing “the complexity of integrated landscape management with practical, adaptable tools, funding mechanisms and partnerships, building on community leadership and embracing collaboration with government, civil society and the private sector” (1000 Landscapes, 2019). None of these actors alone can solve the holistic issue of landscape management as well as the collective. Similarly, SEforALL notes the importance of “government engagement and collaboration with partners to drive progress” (SEforALL, 2020). Connecting helps identify what is needed to accomplish the third set of TC activities: radical action and learning.

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*“The basic challenge is simple inertia: doing things, including addressing change, the way they have always been done.”*

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### **4.3. Radical Action and Learning**

Transformation, by its very nature, requires taking highly innovative and new action, learning from it, and sharing that learning with others. SEforALL’s Business Plan puts it bluntly with respect to sustainable energy and the SDGs: “Simply doing the same projects, in the same way, will not get us where we need to be by 2030” (SEforALL Business Plan, 2020, p. 4). That means that radical action, experimentation, and learning are sometimes required. SEforALL’s business plan (2020, p.4) calls for holistic and catalytic action when it describes “new and enhanced partnerships, leveraging data, raising finance and creating insight to scale in-country interventions, complemented by high-level advocacy and agenda setting”.

Radical action and learning means creating a safe space for questioning, exploring and analyzing assumptions, and experimenting. It also means sharing what has been learned widely, to T-system participants and beyond. New actions and learning require willingness to try something new and see what happens—and then willingness to share what was learned from the experiment. Connecting the action into action-learning cycles for rapid prototyping, following a design-thinking logic (e.g., Liedtka & Ogilvie, 2011), is an illustration of a competency of a powerful T-system facilitated by TCs.

One type of action builds on understanding about the T-system itself, and what it needs to become powerful and effective. Such action might involve an individual initiative or set of initiatives doing more of something, less of something, or something new in response to insights about how it relates to one or a group of other initiatives in the T-system.

Another type of action focuses on strengthening the T-system as a whole by collectively addressing a common inhibiting factor. To address connection problems, 1000 Landscapes is developing a new digital technology platform with integrated tools that will link and accelerate the organizing, planning, funding, implementation, and demonstration efforts of numerous landscape partnerships. Such a platform can have an enormous impact, since not

only does it provide better ways to exchange information, but it also gives rise to developing common language and standards that help the system cohere.

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*“Associated with the need for institutional innovation is the ever-present danger of isomorphism—pressures from traditional organizations, mental models, and aversion to working outside the norm that can easily suppress the innovation imperative.”*

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Very weak financing for transformation is a problem both 1000L and SEforAll are addressing. It is an example of a problem that requires collective effort, given the scale(s) of the challenge to influence the traditional finance system meaningfully. The TCs have a critical role in creating new fields for finance through an array of activities that includes educating financiers, creating new investment pools, grouping investment opportunities for scale, developing new metrics, and establishing new intermediaries. 1000L comments that “work has uncovered means to scale, accelerate, and reduce costs” (1000 Landscapes, 2019, p. 6). By 2019, a previous global partnership convened by EcoAgriculture (Landscapes for People, Food and Nature) had produced 28 studies on what is and is not known about integrated landscape management systems and has been broadly sharing that learning with its partners and stakeholders through a collaborative global review. 1000 Landscapes built on that foundation of knowledge.

## 5. Challenges to TC Development

The need for institutional innovation is apparent from the multiple crises facing civilization globally at the same time and with unprecedented threat to human and environmental well-being. The driver of need for them is obvious, however, they face numerous challenges to their success.

The basic challenge is simple inertia: doing things, including addressing change, the way they have always been approached. Modest adjustments to strategies and reform deny the need for a transformational approach to change itself. On many fronts, institutions, communities and eco-systems are collapsing, making the need for transformation ever more evident.

A clear manifestation of inertia is a common reluctance to provide the needed financial resources for TCs to realize their potential. For example, over its first couple of years after initiation, 1000 Landscapes expended only about a couple of million dollars. 1000 Landscapes estimated that between 2015-2018, EcoAgriculture Partners implemented about \$1.3m (US) in projects that provided intellectual foundations and tools behind the strategy for 1000 Landscapes. These efforts also built on earlier work and other partnerships whose co-finance is not included in that figure. And that money was scraped together in an exhausting manner, dependent on contributions of time from diverse partners. Focused work on developing 1000 Landscapes really began in 2017-18 when EcoAgriculture spent about a quarter of a million

dollars directly on 1000 Landscape design research, and the initiative official began in early 2019. Ultimately, with investments from lead and technical partners, the total invested was about \$2.4 m.

SEforAll had somewhat more robust access to resources because it was initiated through a traditional government trust fund approach. By the end of its full second year of operation (2013), it had a budget of just under \$5 million that more than doubled by 2019. But this amount is miniscule in light of four decades of clear and dire warnings about impending disaster and a long list of associated failures of traditional inter-governmental processes. In the context of the implications of not undertaking TC-type action and the vast amount of resources spent in other ways, the mind boggles at the system inertia and parsimony with institutional innovation.

Associated with the need for institutional innovation is the ever-present danger of isomorphism—pressures from traditional organizations, mental models, and aversion to working outside the norm that can easily suppress the innovation imperative. Simply put, the ways of measuring success, driven by input-output, short-term, project-based approaches are entirely inappropriate when applied to transformation work, and undermine the potential for TCs' success. Without sufficient effort on their part to understand how financing transformation differs from traditional project-based efforts, financiers look at TCs through old frameworks and lenses that usually tell a story about insufficient focus, fuzziness, and lack of clarity.

In the face of such pressures, TCs must continually assert the importance of on-going *processes* around seeing, connecting, and radical action and learning, as well as technological innovation, not simply traditional outcomes. For example, it took several years for SEforAll to mature its forums and their distinctive roles as spaces to safely share failures, interrogate one another, create charettes to co-design new actions, and get commitments to implement them. 1000 Landscapes is experimenting with bringing together ecosystems of actors to collaboratively develop the many roles, products, and new organizations needed to deliver the scale of money (redirect money) for scaled, transformative action. One of the purposes of the design, testing, and demonstration phase for 1000 Landscapes from 2020-2023 is to generate more robust data from landscape partnership. That, in turn, will permit more rigorous modeling of landscape investments and finance and give confidence to funders (and, of course, that requires resources to implement).

As these examples make clear, understanding and supporting the work of TCs require developing new capacities. TCs need system transformation agents (Moore, 2018) and ecosystem leaders (Scharmer, 2013) who, in a sense, check their egos at the TCs' door. Skills as stewards (Block, 1993), sensemaking, and network weaving are critical. Deep collaboration is required to develop synergies and work together to realize the power of transformations systems. More work to understand how these skills are deployed and develop leading communities of transformations capacities is required, such as the Transformations Mapping and Analysis Working Group\* and the Systems Change Academy.

\* <https://embed.kumu.io/77e83d4e8842b4ec3bbb0d2c62f4a5a6#main>

Perhaps the biggest challenge for TCs is to remain firmly on a transformations pathway, and avoid getting captured by traditional interests. SEforAll was not willing to simply work for environmental goals; it made energy access central to its agenda. This purpose required devising strategies to address the power of traditional energy interests of carbon fuel companies. Core to any transformation work, as may be evident, is transformation of the financing system as well. Funders tend to be fine with technological innovation that can generate outsized financial returns, but are averse to the development of social innovation infrastructure. Moreover, today's funding priorities' natural dynamic is to generate inequity (Picketty, 2020). The world is replete with examples of traditional interests destroying or mitigating innovation, as the finance sector did with micro-enterprise lending (e.g., Wagner, 2012).

## 6. Conclusion

TCs are an institutional innovation arising out of the inadequacy of traditional organizing forms, such as single organizations, collaborations, and even multi-stakeholder networks to bring real system transformation into being. The two examples in this article illustrate how TCs can respond to the unprecedented goal of purposeful transformation globally. TCs also are arising to address more narrowly defined transformation goals around specific geographies, sectors, and issues. This work requires addressing enormous issues of scale, complexity, urgency, and time horizons. In their work to pursue paradigm shifts, TCs are creating coherence, amplification, and aggregation among many initiatives and forming powerful transformations systems that may actually provide the strength and capability for bringing serious change in the direction of flourishing for all about. They are innovating new methods, strategies, and processes to undertake the three key activities of seeing and sense-making, connecting and radical action and learning.

Of course, the perspective we offer here has limitations. The very notions of TCs and T-system are new and there is yet limited experience with them and how they work. Much remains to be learned about them: what types there are, how they operate, and what types of work they undertake. More needs to be understood about how effective TCs actually are in building T-systems, and effecting transformative change, and many similar questions. Clearly, more research needs to be done to better understand these emerging entities, but we hope this analysis provides a useful foundation for that future work.

Although difficult, we believe that building and cohering T-systems is essential if systems with deeply challenging socio-ecological issues are to purposefully transform towards a better world for all. The promise of transformation catalysts, if we can understand them better and amplify their own effectiveness, is that they can enable purposeful, needed socio-ecological system transformations driving many crises, in a direction of flourishing for all.

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